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The Dollar Credit Crisis under Triple Shocks

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Abstract

This paper employs the money market and goods market model (IS-LM) and the aggregate demand-aggregate supply model (AD-AS model) to analyze the impact of the Federal Reserve's four rounds of dollar quantitative easing (QE) on inflation from the perspective of monetary credit. From the aggregate supply and dollar settlement system angle, the decline in the share of the dollar and the SWIFT settlement system is examined for its effects on inflation. Additionally, it explores the profound implications of the 2025 tariff war on U.S. sovereign bonds within the U.S. sovereign bond recycling system. Consequently, the three major pillars of dollar credit are under severe strain, and the dollar capital market faces collapse.

Keywords

IS-LM Model; AD-AS Model; Inflation; Dollar Credit.

1. Introduction

The global supply chain has been operating for years. With the pandemic in 2020, the Russia-Ukraine conflict in 2022, and the tariff war in 2025, the originally secure and open supply chain channels have been deeply affected and will soon face a collapse of trust. The three major credit pillars of the U.S. dollar are on the verge of collapse and could lead to a decline in fair value at any moment.

The three pillars of the dollar's credit foundation: From the perspective of dollar monetary credit: The dollar serves as a global currency credit, with the Federal Reserve's quantitative easing monetary policy being well-founded. Excessive money printing would damage the dollar's creditworthiness and lead to severe inflation. From the perspective of the dollar's SWIFT settlement system: As central banks worldwide introduce sovereign digital currencies and the settlement shares of systems like China's CIPS and Russia's SPFS rise, the dollar's SWIFT settlement system will decline year by year [1], impacting the credibility of the dollar payment system. From the perspective of the U.S. sovereign bond circulation system: By 2025, during the tariff war, cheap Chinese-made goods will continue to flood into the U.S., maintaining low inflation. After achieving trade surpluses, the dollars earned will be used to purchase U.S. sovereign bonds. However, the ongoing tariff war has consistently raised concerns about "decoupling," severely undermining the creditworthiness of U.S. sovereign bonds. As the global collateral anchor and cornerstone of the monetary circulation supply chain, U.S. Treasuries now stand on shaky ground.

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2. Analysis from the Perspective of Monetary Credit based on the IS-LM Model

The Federal Reserve's quantitative easing is well-founded, leading to inflation and a decline in the gold content of the dollar.

2.1. IS-LM Model

Macroeconomic general equilibrium can be decomposed into two market equilibria, namely the goods and services market equilibrium (IS) and the money market equilibrium (LM).

The IS relationship (goods and services demand) = Y (supply) = Consumption C (Y-T) + Investment I (r+Y) + Government Investment G + Net Exports (X-M)

LM relationship (money supply) = MS/P = L(Y, i)

This equilibrium equation establishes the relationship between Y and i under the equilibrium of liquidity demand and money supply. L represents the real money supply (in the U.S.), M denotes the nominal money supply (in the U.S.), and P is the price level.

2.2. During the First Three Rounds of Quantitative Easing by the Federal Reserve, the Gold Content of the Dollar Declined, Yet it Did Not Lead to Harmful Inflation

The reason is that a significant portion of the dollars from QE were dispersed and circulated globally, including into China and other countries, through trade payments via the SWIFT system. Simultaneously, as countries like China maintained trade surpluses, they did not reciprocate by purchasing U.S. goods. Instead, they bought U.S. Treasury bonds while offsetting domestic money supply (M2) through foreign exchange reserves, effectively absorbing part of the QE. From the IS-LM model perspective, the first three rounds of Fed QE successfully drove interest rates down to near zero (0.25%), without triggering harmful inflation in the U.S. [2].

(1) Inflation is always preceded by a rapid increase in money supply. The underlying cause is that when the amount of money circulating in the market rises, purchasing power increases, leading to higher prices and resulting in inflation, which in turn causes the gold content of the dollar to decline.

From the perspective of the LM relationship, the equation MV=PT can be used to explain it. Here, M represents the money supply, V represents the velocity of money, P represents the price level (inflation), and T represents the volume of social transactions[3].

(2) Several Quantitative Easing Measures by the Federal Reserve. The details of the Federal Reserve's quantitative easing measures are presented in Table 2.

Table 1. The Federal Reserve's Four Quantitative Easing Programs

Quantitative easing	Date	Scale(Trillion dollars)
QE1	2009.3– 2010 .3	1.725
QE2	2010 .11– 2011.6	6000
QE3	2012 .9– 2014 .10	1.61
QE4	2020 .3– 2022 .3	4.65

Data source: Oriental Wealth \ Data Center.

(3) The first three QE (money supply M increase) by the Federal Reserve did not result in adverse inflation. The reason is that most of QE's dollars, in the form of trade payments, do not remain within the United States, but are dispersed and circulated into other countries around the world such as China.

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Due to the decrease in the velocity of currency circulation V; Most of the funds M did not stay within the United States, but were dispersed and circulated into other countries around the world such as China; China's M2 has grown from $47 trillion in 2008 to $122 trillion.

Table 2. US QE inflows into China, M2 data for China from 2007 to 2024

Date	M2 data (RMB 100 million)	Growth rate
2008	475166.6	17.82%
2009	610224.52	27.68%
2010	725851.79	19.7%
2011	851590.9	13.6%
2012	974148.8	13.8%
2013	1106524.98	13.6%
2014	1228374.81	12.2%

Data source: Oriental Wealth \ Data Center

Part of the funds M did not enter the real economy, but instead pushed up the financial attribute P price (S&P index, US real estate), which means that the commodity attribute P (real economy) is relatively stable. So, the first three QE measures by the Federal Reserve did not generate adverse inflation, while lowering interest rates to 0.25%.

From the IS-LM model, it can be seen that as the Federal Reserve prints money and the money supply increases (from M1 to M2 '), the money supply line decreases from LM1 to LM2. The Federal Reserve's interest rate decreases (from R1 to R2) and is consistently suppressed near 0 interest rates (0.25%).

2.3. The Federal Reserve's Fourth QE, with a US Fiscal Relief of 4.65 Trillion Yuan from the Pandemic, Has Caused Inflation

The main reason is that China and other countries have trade surpluses, gradually reducing their purchases of US bonds, and a large amount of trade surpluses have been invested in the the Belt and Road. Most of the funds are outside the Chinese system, and the domestic printing M2 has decreased in sync with China's foreign exchange holdings. And the purchasing power of the US dollar outside the Chinese system has pushed up inflation in the United States.

2.3.1. The Federal Reserve's Fourth QE

Table 3. Federal Reserve's asset liability scale and M2 data for the United States from October 2017 to October 2022

Date	The Federal Reserve's Asset liability scale (in billions of US dollars)	The United States' M2 data (in billions of US dollars)
2017	44437	138548
2018	40756	143739
2019	41736	153258
2020	73348	191295
2021	87657	215949
2022	88261	217114

Note: M2 in the United States is smaller than M2 in China, so the data is smaller.

Data source: Federal Reserve official website.

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In March 23, 2020, the Federal Reserve announced "unlimited QE" to purchase US dollar treasury bond bonds and US dollar mortgage-backed securities every day as necessary. In December 2019, the asset liability scale was 417.36 billion US dollars. In August 2022, the asset liability scale was 8826.1 billion US dollars. During the two-year pandemic, the Federal Reserve expanded its balance sheet and printed 4.65 trillion US dollars, which is 1.168 times the total amount of the first three QEs (393.51 million US dollars). This is equivalent to the Federal Reserve printing Japan, the world's third-largest economy, in two years.

2.3.2. Faced with the Federal Reserve's Fourth QE, China Began to Reject the Fed's Excessive Issuance of Currency.

The fourth quantitative easing of 4.65 trillion US dollars has undergone subtle changes. Taking China as an example, its foreign exchange reserves were $3115.497 billion in January 2020 and $3028.955 billion in September 2022, with little change. China began to refuse the Federal Reserve to issue excessive currency, stopped expanding its foreign exchange reserves, and invested in the the Belt and Road with its annual trade surplus. Let the excess trade dollars be outside the Chinese system, let the Federal Reserve expand its balance sheet by $4.6 trillion, and there will be no currency reservoir left.

Table 4. China's Foreign Exchange Reserves from 2008 to 2022

Date	China's foreign exchange reserves (in billions of US dollars)	Date	China's foreign exchange reserves (in billions of US dollars)
2008.1	15898.1	2016.1	32308.93
2009.1	19134.56	2017.1	29982.04
2010.1	24152.21	2018.1	31614.57
2011.1	29316.74	2019.1	30879.24
2012.1	32536.31	2020.1	31154.97
2013.1	34100.61	2021.1	32106.71
2014.1	38666.41	2022.1	32216.32
2015.1	38134.14	2022.1	30289.55

Data source: Oriental Wealth Network.

2.3.3. From the Perspective of IS Relational Expression

The IS relationship (demand for goods and services)=consumption C (Y-T)+investment I (r+Y)+government investment G+net exports.

The US money printing policy (increase in money supply) and the US fiscal G policy have led to an increase in IS. That is to say, after the fourth QE, the US government started with Y2, and during the pandemic, relief funds exceeded $4.6 trillion, surpassing the US Internal Revenue Service's revenue of $3 trillion (with $4.1 trillion in taxes and $1.1 trillion in tax refunds in 2021).

Because China no longer invests most of its trade surplus in US bonds, but invests in the the Belt and Road, leaving surplus trade dollars outside the Chinese system and the Federal Reserve expanding its balance sheet by $4.6 trillion, there is no monetary reservoir. Resulting in a significant rightward shift of the IS equilibrium relationship (demand for goods and services), which in turn undermines the equilibrium relationship between the two markets, namely the intersection of the money market equilibrium LM2 and the goods and services market equilibrium IS2 at point E2. The real interest rate has been pushed up to R3, which far exceeds the pre pandemic Federal Reserve R1 rate.

Therefore, the Federal Reserve was forced to change its interest rate policy, remedy interest rate hikes, suppress the velocity of money circulation, and rescue the excess money from the fourth QE.

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3. Using AD/AS Model: Analysis from the Perspectives of Total Supply, Total Demand, and US Dollar Settlement

3.1. In Addition to the SWIFT System in the United States, There are China's CIPS System and Sovereign Digital Currencies of Various Countries, Which Has Led to a Decline in the Share of the US Dollar and SWIFT System

3.1.1. Local Currency Clearing System

According to the 2024 report of the SWIFT system in the United States, the global proportion of various currencies is 48.5% for the US dollar; Euro 23.5%; GBP 7.3%; JPY 3.8%; RMB: 2.9%; The remaining 14%. Outside of the SWIFT system, in 2024, China's CIPS processed 8.22 million cross-border RMB transactions with a total amount of 175 trillion RMB. CIPS has connected 1737 participants and covered over 1700 financial institutions worldwide. In the Russia-Ukraine conflict in 2022, Russia was eliminated from the SWIFT financial settlement system, and Russian oil, natural gas, agricultural products, etc. were transferred to the Russian SPFS system (connected to 52 countries in 2023) and China's CIPS system.

3.1.2. Direct Point-to-Point Sovereign Digital Currencies of Various Countries: Weakening the Intermediary Role of the US Dollar

Technically, by establishing a "central bank direct connection" sovereign digital currency model, the message transmission link of SWIFT can be bypassed. The "Multilateral Central Bank Digital Currency Bridge" project of China's e-CNY supports direct peer-to-peer transactions.

Efficiency wise: Digital currencies use blockchain technology to achieve real-time peer-to-peer transactions, reducing intermediate links and improving payment efficiency by 3-5 times. They have also achieved real-time cross-border clearing in seconds. However, traditional SWIFT systems rely on centralized processing and require transfer through multiple banking systems, resulting in delays and risks..

In terms of transaction costs, digital currency reduces transaction fees and exchange costs through digitization, and enterprises can save about 30% -50% of cross-border settlement costs by using digital RMB for cross-border payments. In contrast, the SWIFT system involves multiple levels of banks and international clearing institutions, resulting in higher transaction fees and conversion costs. In terms of foreign exchange reserve structure: reduce dependence on US dollar assets and diversify foreign exchange reserves, establish non US dollar reserve pools, such as the reserve currency pool plan jointly promoted by BRICS countries, and reduce dependence on US dollar liquidity.

3.2. Using the AD/AS Model, Analyze the Consequences of the Declining Market Share of the US Dollar and SWIFT System Year by Year

3.2.1. After the Fourth QE in the United States, a Large Surplus of Trade Dollars Has been Deposited Outside of China's Foreign Exchange Reserves

Previously, most of this fund was used for clearing in the International Funds Settlement System (SWIFT). As the share of the US dollar and SWIFT system decreases year by year. SWIFT clearing of 30 trillion yuan of global commodity trade and 2000 trillion yuan of foreign exchange and financial derivatives trading volume annually. Even though the market share of the US dollar and SWIFT system has been declining year by year, it is still a huge amount of overseas US dollars flowing back to the United States, forming a vicious cycle of "a part of the Fed's QE has not been digested by the US dollar, forced to return to the US → excess liquidity in the capital market" in the short term.

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3.2.2. Analysis Using AD/AS Model

AS-AD is the relationship between price level P and GDP real output in the case of a balance between total supply and total demand. It consists of two curves: the aggregate demand curve (AD) and the aggregate supply curve (AS), both of which reflect the relationship between the economic price level P and actual output Y.

Total demand AD=Total income Y=Consumption C+Investment I+Government purchases G+Net exports (X-M)

The aggregate demand curve AD reflects a complex and circuitous transmission mechanism in which price levels affect real money supply, real money supply affects interest rate levels and consumption C, interest rate levels affect investment levels (G+I), and investment levels affect output (output=income Y).

The aggregate supply curve AS represents the curve of the quantity of goods and services that a company chooses to produce and sell at each price level.

Impact on Total Demand (AD):

Short term impact: Part of the fourth QE by the Federal Reserve was not digested and the US dollar was forced to return to the US, resulting in excess liquidity in the capital market. Investment (I) led to active US capital markets, and total demand (AD) shifted to the right. To prevent inflation caused by excessive flow of the US dollar, the US dollar will raise interest rates in the short term.

Long term impact: The decline in the share of the US dollar in the SWIFT system means that the scope of its use in international payments has narrowed. The Federal Reserve's policy of printing money and purchasing foreign assets through QE is becoming increasingly unacceptable to foreigners. The decline in the status of the US dollar will lead to a decrease in international investors' confidence in US dollar assets, and a large amount of funds may flow out of the US financial market, accelerating the decline in SWIFT system share. As a result, investment (I) decreases, total demand decreases, and the AD curve shifts to the left.

Impact on Total Supply (AS):

Short term impact: Due to the decline in the share of the US dollar in the SWIFT system, a portion of the fourth QE by the Federal Reserve was not digested and the US dollar was forced to return to the US, leading to inflation expectations. Workers may demand higher wages to cope with the expectation of rising prices. These factors will lead to an increase in production costs for enterprises, a shift in the AS curve to the upper left, a decrease in output, and an increase in price levels.

Long term impact: If the decline in the share of the US dollar in the SWIFT system is a sustained trend and the US dollar exchange rate depreciates, the US economy may adjust, and the cost of globalization for US multinational corporations may be higher. The economy will return to the level of natural output, and the AS curve will shift to the lower right according to long-term adjustments.

4. From the Perspective of US Sovereign Bonds: The Tariff War Seriously Affects the Credit of US Sovereign Bonds

In the tariff war of 2025, China has always considered the risk of "decoupling", and using trade surplus to purchase US bonds is a last resort. As the proportion of bilateral trade decreases, purchasing US bonds becomes less important. On the contrary, reducing holdings of US Treasury bonds is an important part of decoupling.

By 2025, the US debt of 36 trillion yuan has become a barrier lake, relying on US fiscal revenue to meet interest expenses. The Federal Reserve can only cut interest rates and ultimately QE bond purchases again. Due to the decoupling of the US China tariff war and the lack of Chinese

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commodity endorsement in QE printed US dollars, inflation and US dollar depreciation have once again occurred. US bonds, the ballast stone of global collateral and the cornerstone of the global currency supply chain, have also become precarious.

4.1. Structure of US Fiscal Expenditure

Interest expenses - interest income=net interest expenses ($0.88 trillion), surpassing the US defense related self generated expenses of $0.85 trillion. Net interest expenses have become the second largest expenditure item of the US government. This means that the US Treasury Department needs to pay net interest to creditors every month, exceeding $73.3 billion.

Table 5. Structure of US Fiscal Expenditure in 2024

Expenditure structure	Amount(Trillion dollars)	Proportion
Mandatory expenditures: social security, healthcare, income security, military retirement pension, public service retirement pension, others	4.06	60%
(Interest expense - Interest income) Net interest expense	0.88	13%
Defense related autonomous expenditures	0.85	13%
Non defense autonomous expenditures	0.96	14%
total	6.75	100%

Data source: Wind, YY rating.

4.2. Structure of US Fiscal Revenue

In 2024, the US tariff revenue will be 0.07 trillion yuan. Solving the fiscal deficit (6.75 trillion US dollars -4.93 trillion US dollars=1.82 trillion US dollars) through the 2025 tariff war will be a difficult process. At the same time, tariff collection is also a slow process.

Table 6. Structure of US Fiscal Revenue in 2024

Income Structure	Amount(Trillion dollars)	Proportion
individual income tax	2.43	49%
corporate income tax	0.53	11%
Social insurance tax	1.71	35%
consumption tax	0.1	2%
Inheritance and Gift Tax	0.03	1%
tariff	0.07	1%
Miscellaneous income	0.04	1%
total	4.93	100%

Data source: Wind, YY rating.

4.3. In the Future, the Federal Reserve Can Only Cut Interest Rates and Ultimately Purchase US Bonds through the fifth QE

The increase in fiscal deficit. The solution to the deficit can be achieved through both economic growth and cross period fiscal tightening, as well as debt financing. Using these two methods as a dividing line, the process of changes in the size of the US federal government debt can be divided into the fiscal balance stage (1997-2008) and the debt expansion stage (2009 present)

Due to the current US fiscal revenue, the progress of tariff collection is slow. The income direction is highly dependent on direct taxes, which makes the federal government's revenue more pro cyclical and less resilient to economic shocks. The imposition of personal income tax and corporate tax will cause dissatisfaction among the middle and high-income groups, thereby bringing greater resistance. The US government efficiency department, which is implementing

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"cost cutting" measures, is currently making slow progress and unable to fulfill its initial commitments. Musk left the department in June.

In the end, the Federal Reserve could only cut interest rates. Short term interest rate cuts solved the problem of bond issuance. In the middle and later stages, interest rate cuts caused a decrease in the value of the US dollar, a depreciation of the dollar, capital flight, and a decline in the fair value of US capital. US bond issuance once again encountered problems. The Federal Reserve was forced to purchase newly issued US bonds for the fifth time by QE to pay the interest on old treasury bond and part of the fiscal expenditure with the new bonds.

5. Conclusion

In the increasingly globalized economy, the global supply chain system is facing a collapse of trust. The three pillars of the US dollar are facing collapse. 1) In terms of the SWIFT settlement system for US dollars: With the launch of sovereign digital currencies by central banks of various countries, peer-to-peer trade transactions in US dollars without intermediaries can be achieved. With the increasing share of settlement in China's CIPS system and Russia's SPFS system, the US dollar SWIFT settlement system will decline year by year. 2) In terms of US dollar currency credit: During the pandemic, the Federal Reserve's excessive issuance of currency caused inflation in aggregate demand. In order to control inflation, rapid interest rate hikes increased risk-free returns, and global US dollar funds returned to the United States, resulting in a tidal harvest of capital from multiple countries around the world. 3) US treasury bond, the tariff war in 2025, considering the risk of "decoupling", China and other trade surplus countries gradually lose their trust in US treasury bond and gradually reduce their holdings of US debt. With the three major credit pillars of the US dollar on the brink of collapse, the global financial crisis is getting closer and closer.

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