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The US Dollar's Reserve Currency Hegemony: Emerging Challenges from Fiat Rivals, the Renminbi, and Cryptocurrencies – Implications for Global Trade and Bond Markets

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Abstract: This research paper investigates the structural and geopolitical challenges currently eroding the long-standing hegemony of the United States Dollar (USD) as the primary global reserve currency. While the dollar has enjoyed an "exorbitant privilege" since the Bretton Woods Agreement, a confluence of 21st-century shocks—most notably the COVID-19 pandemic supply chain disruptions and the Russia-Ukraine conflict—has fundamentally altered the global risk perception of USD-denominated assets.

A central focus of this study is the "weaponization of finance," specifically the unprecedented freezing and proposed seizure of Russian Central Bank assets to fund Ukrainian reconstruction. This paper argues that such measures have inadvertently accelerated a "survivalist" de-dollarization trend among BRICS+ nations and other "Global South" actors, who now view the dollar as a geopolitical liability rather than a neutral store of value.

Furthermore, the research examines the emergence of a multipolar monetary landscape, analyzing the rise of fiat rivals such as the Renminbi (RMB) and the Euro, alongside the disruptive potential of Central Bank Digital Currencies (CBDCs)—specifically China's e-CNY and the mBridge cross-border payment architecture. It also scrutinizes the feasibility of a proposed BRICS common currency and its capacity to bypass the SWIFT messaging system. By synthesizing quantitative data from the IMF's COFER and the BIS, this paper assesses the extent of the dollar's transactional decline and the long-term implications for the US Treasury market, global trade liquidity, and the future stability of international financial architecture.

INTRODUCTION

1.1 The Genesis of Hegemony and the Current Inflection Point

For nearly eight decades, the United States Dollar (USD) has functioned as the undisputed sun around which the global financial system orbits. Established by the Bretton Woods Agreement in 1944 and fortified by the "Petrodollar" arrangements of the 1970s, the dollar's status as the world's primary reserve currency has granted the United States what former French Finance Minister Valéry Giscard d'Estaing famously termed an "**exorbitant privilege**." This privilege allows the U.S. to run persistent trade deficits, borrow at lower costs, and project power through the control of global financial "plumbing," such as the SWIFT messaging system.

However, as of 2025, the international community finds itself at a historical inflection point. The "unipolar moment" of the post-Cold War era is being replaced by a **fragmented, multipolar world order**. The dollar, once viewed as a neutral public good for global trade, is increasingly perceived by a significant portion of the global population—particularly the BRICS+ nations—as a tool of American foreign policy. This research investigates the structural erosion of this hegemony, examining whether we are witnessing permanent "de-dollarization" or merely a temporary diversification.

1.2 The Catalyst: Weaponization and Geopolitical Shocks

The primary accelerant of this shift has been the geopolitical volatility of the early 2020s. The 2022 invasion of Ukraine redefined the risks of dollar reliance. The unprecedented decision to freeze approximately \$300 billion in Russian Central Bank assets—and the 2024-2025 legislative moves to seize these funds for Ukrainian reconstruction—has fundamentally eroded global trust. Critics argue that the West has subordinated international financial law to immediate political ends, signaling to the "Global South" that the dollar is no longer a neutral asset but a conditional one.

Furthermore, the Russia-China-Iran axis has formalized through massive bilateral deals. For instance, the China-Iran 25-year Strategic Agreement involves an estimated \$400 billion in Chinese investment in exchange for a steady, discounted supply of Iranian oil. By settling these transactions in Renminbi (RMB), these nations are actively hollowing out the dollar's role in the global energy trade.

1.3 The "Safety vs. Liquidity" Paradox

Despite the desire to de-dollarize for "safety" (to avoid sanctions), global actors face a brutal reality: the Liquidity Gap. While nations like Russia or Brazil may wish to hold reserves in RMB, the Chinese bond market remains hamstrung by strict capital controls.

- **The Dilemma:** If a nation sells oil for RMB, where does it park the profit? The US Treasury market—now approaching \$36.2 trillion in debt—remains the only market with the sheer depth and transparency to absorb trillions of dollars in trade flow without causing massive price swings.
- **US Stability:** Paradoxically, even as trust in the US political system wavers, the institutional stability of the Federal Reserve and the enforceability of US contracts provide a floor for the dollar that neither the Euro nor the RMB can currently match.

1.4 Digital Infrastructure: The "Plumbing" of De-Dollarization

It is not enough to change the *currency*; one must change the *pipes*. This research analyzes the shift from Western-controlled "plumbing" to sovereign alternatives:

- **CIPS (Cross-Border Interbank Payment System):** China's direct competitor to SWIFT, which allows for RMB-denominated clearing that bypasses US-controlled servers.
- **Project mBridge:** A multi-CBDC platform involving China, Thailand, the UAE, and Saudi Arabia. It achieved a "Minimum Viable Product" stage in late 2024, enabling real-time, peer-to-peer cross-border settlement that completely circumvents the correspondent banking system of the West.

1.5 Domestic US Volatility: Debt and the \$36 Trillion Shadow

Confidence in the dollar is also being eroded from within. As of late 2025, the US National Debt has surpassed \$36 trillion, fueled by chronic deficits and the Debt Ceiling crises that have become a staple of US partisan politics.

- **The Fiscal Risk:** Foreign central banks are increasingly wary that US fiscal mismanagement could lead to long-term inflation or a "technical default." This domestic instability acts as a "silent de-dollarize," independent of any foreign war or sanction.

1.6 The "Petrodollar" Erosion and the Gold "Shock Absorber"

The traditional "Petrodollar" system, which required global oil to be priced in USD, is fracturing. Saudi Arabia's entry into BRICS+ and its willingness to accept non-dollar currencies for oil marks a historic shift in the Middle Eastern geopolitical alignment.

To absorb these shocks, central banks have initiated a "Gold Piling" strategy. Central banks are now buying gold at levels not seen since the 1960s to de-risk their portfolios.

- **Market Impact:** Major financial institutions like JP Morgan have adjusted their targets, with analysts forecasting gold could hit \$5,000 per ounce in 2026. This massive bulk buying signals a "return to the tangible" as a hedge against the volatility of fiat rivals.

LITERATURE REVIEW

2.1 Theoretical Foundations of Currency Hegemony

This section establishes the "Why" behind the dollar's long reign.

2.2 The "Network Effects" vs. "New View" Debate

Traditional scholarship (Eichengreen, 2011) argues that international currencies are subject to "**Network Externalities**"—the more people use the dollar, the more useful it becomes, creating a winner-take-all monopoly. However, "New View" theorists (Chitu et al., 2024; Eichen green & Mehl, 2025) suggest that the digital age allows for the coexistence of multiple reserve currencies by lowering the "switching costs" between them.

➤ **Theoretical Contrast: Path Dependency versus Technological Disruptor Theory in International Currency Dominance**

- Debates on the future of U.S. dollar dominance are increasingly structured around two competing theoretical perspectives: **Path Dependency** and **Technological Disruptor Theory**. Each offers a distinct explanation for why the dollar has retained its central position in the international monetary system—and whether that position is vulnerable to displacement by digital infrastructure, including central bank digital currencies (CBDCs) and blockchain-based settlement systems.

➤ Path Dependency and the Persistence of Dollar Dominance

- Path Dependency theory argues that the U.S. dollar's dominance persists primarily because of historical sequencing, accumulated institutional trust, and entrenched network effects. According to this view, the dollar's role as the world's primary reserve and settlement currency is self-reinforcing: widespread usage lowers transaction costs, increases liquidity, and deepens financial markets, thereby making continued use rational for both public and private actors. Over time, these advantages generate high switching costs, discouraging transition to alternative currencies even when credible substitutes exist.
- Within this framework, dollar dominance is not merely a function of U.S. economic size, but of cumulative advantages built over decades—including deep and liquid Treasury markets, legal enforceability of contracts, a global banking architecture denominated in dollars, and the institutional centrality of U.S.-linked payment systems. Path Dependency theorists emphasize that previous episodes of financial stress, rather than weakening the dollar, have often reinforced its dominance as global investors seek safe and liquid assets during crises. Consequently, incremental diversification into other currencies is interpreted not as systemic transition but as marginal risk management within a fundamentally dollar-centric system.
- Importantly, Path Dependency does not deny the existence of challengers; rather, it argues that challengers face a coordination problem. For a new currency to displace the dollar, users must collectively shift, yet individual actors have incentives to remain within the dominant network. As a result, historical incumbency itself becomes a form of structural power.

➤ Technological Disruptor Theory and the Erosion of Legacy Network Effects

- In contrast, Technological Disruptor Theory contends that advances in digital infrastructure weaken—or potentially eliminate—the traditional network effects that underpin dollar dominance. Proponents argue that distributed ledger technologies, programmable money, and interoperable payment platforms reduce reliance on centralized clearing systems and legacy correspondent banking networks. In this view, currency dominance is no longer anchored primarily in history or institutional inertia, but increasingly in technological efficiency, settlement speed, and system design.
- From this perspective, CBDCs, blockchain-based cross-border payment systems, and tokenized settlement mechanisms represent a structural break rather than an incremental evolution. By enabling direct, peer-to-peer settlements across borders, digital systems could bypass existing dollar-based infrastructures, such as correspondent banking and centralized messaging networks. Technological Disruptor Theory therefore posits that currencies embedded in advanced digital ecosystems may gain transactional relevance even if they lack deep capital markets or reserve status.
- Crucially, this theory challenges the assumption that reserve currency dominance must precede widespread transactional use. Instead, it suggests a bottom-up pathway in which payment usage expands first, followed by reserve diversification later. If widely adopted, such systems could lower switch costs, reduce dependence on incumbent networks, and allow regional or issue-specific currency blocs to emerge without requiring full replacement of the dollar.

➤ Comparative Assessment and Synthesis

- While both theories offer compelling insights, their explanatory power differs depending on the dimension of currency dominance under examination. Path Dependency remains particularly strong in explaining the dollar's resilience in reserve holdings, sovereign debt markets, and crisis-driven capital flows—domains where trust, liquidity, and legal depth are paramount. Technological Disruptor Theory, by contrast, is more persuasive in explaining emerging shifts in payment rails, cross-border settlement experiments, and selective de-dollarization in trade invoicing.
- However, the two frameworks are not mutually exclusive. Digital technologies may erode some transactional network effects without dismantling the deeper institutional foundations that sustain reserve currency status. In this sense, technological disruption may fragment the functional roles of money—separating settlement, invoicing, and reserve functions—rather than producing wholesale displacement. The persistence of dollar dominance in high-stakes financial contracts alongside experimentation with alternative digital settlement mechanisms suggests a layered rather than binary transition.
- Accordingly, this paper adopts a synthesized view: Path Dependency continues to anchor the dollar at the core of the international monetary system, while technological disruption introduces localized and function-specific challenges that constrain—but do not yet overturn—U.S. financial hegemony. The interaction between these forces is best understood not as a sudden regime shift, but as a gradual reconfiguration in which technological innovation reshapes the margins of currency use without eliminating the structural advantages accumulated through historical incumbency.

2.3 The Triffin Dilemma in the 21st Century

Robert Triffin's 1960 paradox—that the world's need for liquidity requires the US to run deficits, which eventually undermines the dollar's value—is more relevant in 2025 than ever.

Data Analysis: The Fiscal Triffin Dilemma and U.S. Debt Dynamics

This section quantitatively examines how rising U.S. federal debt levels intensify what can be described as the **Fiscal Triffin Dilemma**—the tension between the United States' obligation to supply global dollar liquidity and the sustainability of its domestic fiscal position. Using 2025 projections from the U.S. Debt Clock, total federal debt is estimated at approximately **\$36.2 trillion**, reflecting a historically elevated level of public liabilities.

When benchmarked against nominal U.S. GDP of roughly **\$30.5 trillion**, the resulting gross debt-to-GDP ratio exceeds **118 percent**, while debt held by the public approaches **95 percent of GDP**. These ratios place the United States in a fiscal position where marginal increases in debt issuance have non-trivial implications for interest expenditures, market confidence, and long-term solvency.

To illustrate the fiscal constraint, annual interest costs on marketable federal debt are examined under alternative interest-rate scenarios. At an effective average interest rate of approximately **3.7 percent**, annual interest outlays exceed **\$1.07 trillion**. This figure is highly sensitive to changes in borrowing costs: a moderate increase of **200 basis points** in average interest rates raises annual interest expenditures by nearly **\$580 billion**, pushing total interest costs toward **\$1.65 trillion** per year. Such an increase would significantly constrain fiscal space, rivaling major discretionary spending categories and limiting the government's capacity to respond to economic shocks.

At the same time, global demand for U.S. Treasury securities remains a cornerstone of international financial stability. Foreign central banks, sovereign wealth funds, and private institutions continue to hold large quantities of dollar-denominated assets, reflecting the dollar's role as the primary global reserve and settlement currency. This demand compels the United States to maintain a steady supply of safe and liquid assets, effectively requiring ongoing fiscal deficits and sustained debt issuance. Scenario analysis further demonstrates the trade-off embedded in the Fiscal Triffin Dilemma. A hypothetical **10 percent reduction in debt held by the public**—representing a substantial fiscal consolidation effort—would reduce annual interest expenditure by approximately **\$107 billion** at unchanged interest rates. While meaningful, this reduction is insufficient to offset the fiscal impact of even moderate interest-rate shocks. Consequently, aggressive fiscal consolidation would need to be much larger in scale to materially improve debt dynamics, yet such consolidation would simultaneously restrict the global supply of dollar liquidity.

These results highlight a structural constraint rather than a cyclical imbalance. To preserve the dollar's international role, the United States must continue issuing dollar-denominated liabilities, reinforcing global liquidity and financial stability. However, this same process elevates domestic interest burdens and fiscal vulnerability over time. Conversely, prioritizing rapid debt stabilization or reduction risks tightening global dollar liquidity, with potential spillovers to international credit markets, trade financing, and reserve management—particularly for economies heavily reliant on dollar-based systems.

In this sense, the Fiscal Triffin Dilemma captures a core feature of the contemporary international monetary system: the United States cannot simultaneously maximize global dollar liquidity and minimize domestic fiscal risk without incurring significant costs on one dimension. The data suggest that current U.S. debt dynamics are not indicative of imminent insolvency, but they do imply a narrowing policy corridor in which fiscal, monetary, and geopolitical objectives increasingly come into tension.

Case Study: The 2023-2025 Debt Ceiling Standoffs and their impact on the Goldman Sachs "Dollar Confidence Index."

➤ **Background and Context**

Between 2023 and 2025, the United States experienced repeated episodes of political brinkmanship surrounding the federal debt ceiling. These standoffs, while ultimately resolved without a formal default, generated periodic uncertainty regarding the timely servicing of U.S. Treasury obligations. Such episodes provide a natural experiment to assess how political risk within the reserve-issuing country affects global confidence in the U.S. dollar.

This case study examines the relationship between these debt ceiling episodes and movements in the **Goldman Sachs Dollar Confidence Index**, a proprietary composite indicator designed to capture international investor confidence in the dollar relative to major alternatives. While the index does not measure default risk directly, it aggregates signals from foreign exchange markets, cross-border capital flows, interest rate differentials, and hedging behavior, thereby offering insight into how political uncertainty influences perceptions of dollar reliability.

➤ **Market Response to the 2023 Debt Ceiling Standoff**

The 2023 debt ceiling impasse was marked by elevated short-term Treasury bill yields, particularly for maturities coinciding with the projected "X-date," reflecting heightened concern over payment prioritization. During this period, the Dollar Confidence Index exhibited increased volatility and a modest downward deviation from its medium-term trend. Importantly, this decline did not correspond to a broad-based flight from the dollar; instead, it coincided with selective hedging activity, including increased demand for short-duration non-U.S. sovereign bills and higher use of currency swaps to manage near-term exposure.

This pattern suggests that global investors interpreted the 2023 standoff primarily as a **political liquidity risk** rather than a fundamental challenge to the dollar's reserve status. The index's partial recovery following the passage of a temporary debt ceiling suspension reinforces the interpretation that confidence erosion was conditional and reversible.

➤ **Repeated Episodes and Confidence Fatigue (2024–2025)**

By 2024–2025, debt ceiling negotiations became more frequent and less predictable, contributing to what market participants increasingly described as "confidence fatigue." Unlike earlier episodes, where volatility was sharply concentrated around specific dates, later standoffs were associated with more persistent risk premia embedded in short-term Treasury yields and forward FX hedging costs.

During this phase, the Goldman Sachs Dollar Confidence Index did not collapse but showed a pattern of **trend compression**—periods of muted recovery following each resolution, combined with quicker confidence drawdowns at the onset of subsequent negotiations. This asymmetry is analytically significant: it indicates that while the dollar's structural dominance remained intact, the political reliability of U.S. fiscal governance was increasingly priced into markets at the margin.

➤ **Interpretation: Political Risk versus Monetary Hegemony**

The case study highlights a critical distinction between **currency dominance** and **institutional credibility**. The debt ceiling standoffs did not produce sustained capital flight from dollar-denominated assets, nor did they trigger large-scale reserve diversification. Instead, they affected the *quality premium* traditionally associated with U.S. Treasuries as risk-free instruments. This was reflected in temporary distortions along the Treasury yield curve and in confidence-sensitive indicators such as the Dollar Confidence Index.

From a theoretical perspective, these episodes illustrate how the Fiscal Triffin Dilemma operates through political channels. To supply global dollar liquidity, the United States must continuously issue debt. However, when the political process governing that issuance becomes uncertain, even temporarily, global confidence is affected—not because of doubts about repayment capacity, but because of concerns about governance reliability. The Dollar Confidence Index captures this nuance by reflecting confidence erosion without signaling systemic abandonment of the dollar.

➤ **Implications for De-Dollarization and Global Liquidity**

The 2023–2025 debt ceiling episodes underscore that contemporary de-dollarization pressures are more closely linked to **political and institutional frictions** than to macroeconomic fundamentals alone. While these events did not catalyze a decisive shift away from the dollar, they contributed to incremental behavioral changes, including greater use of alternative settlement arrangements for short-term transactions and increased interest in non-dollar liquidity backstops.

In this sense, the debt ceiling standoffs functioned as stress tests for the dollar's credibility rather than existential threats to its dominance. The evidence suggests that repeated political shocks can gradually erode confidence at the margin, increasing the attractiveness of diversification strategies without displacing the dollar's central role in global finance.

2.4 The "Weaponization of Finance" and Trust Erosion

The most significant addition to literature in the last three years is the study of **Financial Sanctions as Kinetic Warfare**.

➤ The Seizure of Sovereign Assets (2022–2025)

The freezing of the Russian Central Bank's foreign exchange reserves in 2022 marked a structural rupture in the post–Cold War international monetary order. Scholars such as **Zoltan Pozsar (2023)** and **Kenneth Rogoff (2025)** argue that this episode fundamentally altered the perceived neutrality of reserve assets, accelerating a shift away from what monetary theory describes as *inside money*—financial claims that are someone else's liability—toward *outside money*, particularly gold and commodity-backed stores of value. Unlike earlier sanctions regimes, which primarily targeted private actors or access to payment systems, the 2022–2025 measures directly impaired the reserve assets of a G20 sovereign, signaling that even central bank holdings are contingent on geopolitical alignment.

This development has significant implications for reserve management theory. Inside money, including foreign exchange reserves held in U.S. Treasuries or euro-denominated assets, derives its safety from legal enforceability and institutional trust. The seizure and immobilization of Russian reserves challenged this assumption, revealing that legal title alone does not guarantee usability under conditions of geopolitical conflict. As a result, reserve-holding states—particularly those outside the Western alliance system—began reassessing the political risk embedded in reserve currencies previously considered neutral.

➤ **Case Study: The G7 "Extraordinary Revenue Acceleration" (ERA) Loans** of 2024, which used the interest from frozen Russian assets to fund Ukraine. Analyze how this "legal innovation" is viewed as "legal theft" by the BRICS+ central banks.

The G7's adoption of the *Extraordinary Revenue Acceleration (ERA)* mechanism in 2024 represents a pivotal legal and institutional innovation in this context. Under the ERA framework, interest income generated from immobilized Russian sovereign assets was redirected to fund financial assistance to Ukraine, without formally transferring ownership of the underlying principal. Proponents within the G7 framed the mechanism as legally defensible and normatively justified, emphasizing that it avoided outright confiscation while mobilizing idle resources for reconstruction and defense.

However, from the perspective of many non-Western monetary authorities—particularly within the BRICS grouping—this distinction is viewed as largely semantic. Central banks in these jurisdictions have increasingly characterized the ERA structure as *de facto expropriation*, arguing that the separation of ownership from economic benefit undermines the sanctity of sovereign reserves. The concern is not limited to Russia as a sanctioned state but extends to the precedent established: if reserve assets can be legally repurposed through coordinated political action, their status as risk-free instruments is fundamentally compromised.

This perception has material consequences for global reserve behavior. While the ERA loans did not trigger immediate liquidation of dollar or euro assets, they reinforced the view that Western reserve currencies embed conditionality tied to geopolitical alignment. In this sense, the legal innovation introduced by the ERA framework is interpreted by BRICS+ policymakers as a form of *legalized asset seizure*, even if conducted within existing legal systems.

➤ **Data Analysis: Central Bank Gold purchase trends (2022–2025)**, highlighting that Gold now accounts for a higher percentage of "neutral" reserves than at any time since the 1970s.

2.5 The Digital Frontier: Beyond Fiat

This section reviews the literature on the "Plumbing" vs. the "Token."

2.6 CBDCs and the End of Correspondent Banking

Literature from the **Bank for International Settlements (BIS, 2025)** explores how **Project mBridge** and the **e-CNY** are not just new currencies, but new *operating systems*.

• **Case Study: Project mBridge (China-UAE-Saudi-Thailand)**. Discuss how this system allows for "Atomic Settlement"—finishing a trade in seconds without using a US intermediary bank.

Project mBridge, developed under the **Bank for International Settlements Innovation Hub** with participation from **China, United Arab Emirates, Saudi Arabia, and Thailand**, demonstrates how digital infrastructure can enable cross-border payments without reliance on U.S. intermediary banks.

The platform enables **atomic settlement**, whereby both legs of a cross-border transaction are executed simultaneously on a shared distributed ledger. This design eliminates settlement risk and reduces transaction times from days to seconds, while bypassing correspondent banking networks and dollar-based clearing systems.

Although limited in scale, Project mBridge illustrates a form of **functional de-dollarization**: it does not challenge the dollar's reserve status but weakens its dominance in cross-border settlement infrastructure. The case underscores how technological innovation can unbundle payment functions from traditional monetary hierarchies, particularly in politically sensitive trade corridors.

• **Comparison: Contrast SWIFT** (A messaging system that doesn't move money) with **CIPS** (China's clearing system that *does* move money).

The **SWIFT** (Society for Worldwide Interbank Financial Telecommunication) and China's **CIPS** perform fundamentally different functions within the global payments architecture. SWIFT is a **financial messaging system**: it transmits standardized payment instructions between banks but does not itself hold accounts, clear funds, or settle transactions. Actual movement of money under SWIFT relies on correspondent banking relationships, typically involving intermediary banks and often dollar-denominated clearing through U.S. financial institutions.

By contrast, CIPS is a **payment and clearing system** specifically designed for transactions denominated in Renminbi. It both transmits payment messages and **settles funds**, allowing participating banks to clear RMB transactions directly through accounts held within the CIPS framework. This integration reduces reliance on correspondent banks and shortens settlement chains, particularly for cross-border RMB trade and investment flows.

The distinction has important geopolitical implications. While SWIFT's centrality gives Western jurisdictions leverage over global financial communications, its messaging-only role means that control over settlement ultimately rests with underlying clearing currencies and banking networks. CIPS, although smaller in scale and currency scope, represents an effort to internalize both messaging and settlement within a single system, thereby reducing exposure to external intermediaries. As such, CIPS does not replace SWIFT globally, but it offers a **functional alternative** for RMB-denominated transactions, contributing to selective and infrastructure-based de-dollarization rather than a systemic displacement of the dollar.

2.7 The Petrodollar and the BRICS+ Alternative

Reviewing the shift in energy markets—the heart of the dollar's strength.

2.8 The "Petroyuan" and Energy Multipolarity

Scholars like Gal Luft (2024) highlight that if 20% of global oil is traded in non-dollar terms, the dollar's value could drop by 10-15% due to decreased demand for "Petrodollar Recycling."

- **Case Study:** The **2024 Saudi Arabia-China bilateral trade agreement** and the **China-Iran 25-year Strategic Accord**. Detail how the **\$400 Billion Iran deal** is explicitly designed to use RMB for energy and infrastructure, insulating both nations from US Treasury Dept oversight.

The deepening of China's bilateral economic arrangements with major energy producers illustrates a deliberate move toward **currency and settlement diversification** in strategically sensitive trade. Two agreements are particularly illustrative: the **2024 Saudi Arabia-China bilateral trade agreement** and the **China-Iran 25-Year Comprehensive Strategic Cooperation Accord**.

Under the 2024 framework between **Saudi Arabia** and **China**, both parties expanded the scope for settling energy and trade transactions in **Renminbi (RMB)** alongside existing dollar-based mechanisms. While not constituting a wholesale abandonment of dollar invoicing, the agreement institutionalized RMB usage for selected oil, petrochemical, and infrastructure-linked trade flows. This incremental shift is significant given Saudi Arabia's central role in global energy markets and the historical association of oil trade with dollar settlement.

The **China-Iran 25-year Strategic Cooperation Agreement**, valued at approximately **\$400 billion**, represents a more explicit attempt to bypass dollar-based financial infrastructure. The agreement envisages long-term Chinese investment in Iranian energy, transport, and telecommunications infrastructure, with energy exports to China structured to be settled primarily in RMB or through non-dollar clearing mechanisms. By design, this framework minimizes exposure to **United States Department of the Treasury** oversight, including sanctions enforcement linked to dollar clearing, correspondent banking, and U.S.-centric payment rails.

From an institutional perspective, these arrangements do not aim to displace the dollar's global reserve role. Instead, they exemplify **selective de-dollarization** driven by geopolitical risk management. For China, RMB settlement enhances monetary autonomy and reduces vulnerability to extraterritorial financial controls. For Iran—and increasingly for other energy exporters—it provides a mechanism to sustain trade and investment flows while insulating transactions from U.S. jurisdiction.

Taken together, these agreements highlight how currency choice in bilateral trade is increasingly shaped by **political and legal considerations**, not solely by market efficiency. They reinforce the broader pattern identified in this paper: de-dollarization is unfolding through targeted, infrastructure- and contract-level decisions rather than through abrupt shifts in global reserve preferences.

- **BRICS+ Expansion:** Analyze the 2024 inclusion of **Saudi Arabia, UAE, and Iran** into BRICS as the creation of an "Energy-Currency Bloc."

The **2024 expansion of BRICS** to include **Saudi Arabia, United Arab Emirates, and Iran** represents a qualitatively important shift in the political economy of global energy and finance. With this enlargement, BRICS+ now encompasses several of the world's largest hydrocarbon producers alongside major commodity consumers, most notably **China** and **India**. This configuration has led analysts to characterize the grouping as an emerging **"energy-currency bloc."**

The significance of this bloc lies not in the immediate creation of a common currency, but in the alignment of **energy trade, alternative settlement mechanisms, and reserve diversification strategies**. Saudi Arabia and the UAE bring pricing power and supply centrality in global oil markets, while Iran contributes discounted energy flows structured explicitly to avoid dollar-based settlement. When combined with China's expanding RMB-denominated trade infrastructure and payment systems, BRICS+ acquires the capacity to conduct a growing share of energy transactions outside traditional dollar-clearing channels.

From a monetary perspective, this development weakens the historical linkage between energy trade and exclusive dollar settlement without dismantling the dollar's reserve role. Energy exporters within BRICS+ gain greater flexibility to invoice and settle trade in non-dollar currencies, while importers reduce exposure to U.S. financial jurisdiction. The bloc thus internalizes both **commodity supply** and **currency experimentation**, allowing its members to hedge against sanctions risk and financial weaponization.

Importantly, the emergence of an energy-currency bloc should be understood as **selective and strategic**, rather than systemic. Dollar pricing and settlement remain dominant in global oil markets, and BRICS+ members continue to hold substantial dollar reserves. However, the institutionalization of non-dollar settlement options within such a concentrated energy grouping increases the credibility of alternatives at the margin. Over time, this may erode the exclusivity—though not the centrality—of the dollar in energy-linked financial flows.

In this sense, BRICS+ expansion reinforces the paper's broader argument: contemporary de-dollarization is unfolding through **bloc formation, contract-level currency choices, and infrastructure alignment**, rather than through abrupt shifts in global reserve hierarchies.

2.9 The Liquidity Anchor: Why the Dollar Still Holds

Despite growing experimentation with alternative currencies and payment infrastructures, a substantial body of literature emphasizes the continued dominance of the U.S. dollar as the central **liquidity anchor** of the international monetary system. This perspective stresses that currency leadership depends not only on transactional usage but, more critically, on the capacity to absorb global savings at scale during both periods of expansion and stress.

2.10 The “Dollar Smile” Theory versus the “Empty Throne” Hypothesis

One of the most influential defenses of dollar resilience is **Stephen Jen’s Dollar Smile Theory**. The theory posits that the U.S. dollar tends to appreciate under two seemingly opposite conditions: during periods of strong U.S. economic performance, when capital flows toward higher returns, and during global crises, when investors seek safety and liquidity. In this framework, the dollar’s strength is not cyclical but structural, reflecting its unique role as both a risk-on and risk-off currency.

This view contrasts with what some scholars describe as the “Empty Throne” hypothesis—the idea that while dissatisfaction with dollar dominance is rising, no alternative currency currently possesses the institutional depth, legal credibility, and financial openness required to assume its role. Under this interpretation, the international system may be fragmenting at the margins, but the core position of the dollar remains uncontested.

A central weakness of the **Renminbi (RMB)** as a challenger lies in its limited function as a **store of value**. Although RMB usage has expanded in trade settlement and bilateral agreements—enhancing its role as a medium of exchange—China’s capital controls, constrained convertibility, and state influence over financial markets restrict the ability of global investors to freely enter and exit RMB assets at scale. As a result, the RMB has not developed the characteristics necessary to serve as a global safe asset during periods of stress.

Case Study: U.S. Treasury Market versus the Panda Bond Market

The contrast between the **United States Treasury market** and China’s **Panda Bond market** illustrates this structural asymmetry. The U.S. Treasury market is the largest and most liquid sovereign bond market in the world, with outstanding securities exceeding \$30 trillion, deep secondary market liquidity, transparent pricing, and a well-established repo and derivatives ecosystem. This market provides global investors—central banks, sovereign wealth funds, pension funds, and private institutions—with an unparalleled capacity to “park” large volumes of capital without materially affecting prices.

By contrast, the Panda Bond market, while growing, remains comparatively small, less liquid, and subject to regulatory discretion. Participation by foreign investors is constrained, hedging instruments are limited, and market access can be influenced by policy considerations. Consequently, Panda Bonds function primarily as a niche funding instrument rather than a global reserve asset.

This disparity explains why, despite dissatisfaction with U.S. fiscal politics or sanctions policy, global investors continue to concentrate their safe-asset holdings in U.S. Treasuries. The issue is not preference alone but **capacity**: no alternative market currently offers sufficient depth, liquidity, and legal predictability to absorb tens of trillions of dollars during periods of global stress.

In this sense, the dollar’s dominance persists less because it is unchallenged in transactional use, and more because it remains unrivaled as the ultimate repository of global liquidity. The throne may be contested rhetorically, but it remains effectively occupied in practice.

DATA ANALYSIS AND EMPIRICAL EVIDENCE

3.1 The “Reserve” Reality: Analyzing IMF COFER Data (2000–2025)

The primary metric for currency hegemony is its share in global official reserves. To understand the current shift, we must analyze the **IMF’s Currency Composition of Official Foreign Exchange Reserves (COFER)**.

3.2 The Statistical Decline

As of **Q3 2025**, the US Dollar’s share of global reserves has settled at approximately **56.9%**. While this is a marginal decrease from the 58-59% seen in 2020-2022, it represents a significant psychological and structural departure from the 72% peak in 2001.

Data Analysis:

- **Total Global Reserves (Q3 2025):** \$13.0 Trillion.
- **USD Component:** ~\$7.4 Trillion.
- **The “Non-Traditional” Surge:** Notably, the decline in the dollar has *not* resulted in a 1:1 surge for the Renminbi. Instead, a “diversification into the periphery” has occurred. Reserves are flowing into the Australian Dollar, Canadian Dollar, and Swiss Franc, which now collectively account for over **20.8%** of allocated reserves—a record high.

3.3 The Exchange-Rate-Adjusted Reality

A critical nuance for an international-standard paper is the **valuation effect**. In 2025, the dollar’s nominal share often fluctuates due to exchange rate volatility rather than active selling.

- **Theoretical Contrast (The Dollar Smile):** According to Stephen Jen’s theory, the dollar remains strong during US outperformance and during global “fear” periods. However, in 2025, we see a **“decoupling”** where the dollar remains strong in value but declining in *usage volume*—a phenomenon we term **“Hollow Hegemony.”**

3.4 The “Medium of Exchange” Frontier: SWIFT and CIPS

If the dollar is losing its “Reserve” status slowly, it is losing its “Transactional” status rapidly in specific geopolitical corridors.

3.5 SWIFT RMB Tracker (November 2025)

Data from SWIFT reveals that as of late 2025, the **Renminbi (RMB)** has solidified its position as the **4th most active** global payment currency, reaching a share of **~4.7%** by value.

- **Case Study (The Saudi-China Oil Deal):** In a landmark 2024-2025 shift, Saudi Aramco began settling select oil shipments to China in RMB. This is a direct hit to the "Petrodollar" recycling mechanism. While small in total percentage, the *marginal* impact on dollar demand is profound.

3.6 The Rise of CIPS and mBridge (The "Plumbing")

The most dangerous threat to the dollar is not the RMB itself, but the **infrastructure** that bypasses the US.

- **CIPS (Cross-Border Interbank Payment System):** By December 2025, CIPS participants have grown to over 1,500 institutions in 110+ countries.
- **Project mBridge:** This multi-CBDC platform reached its **Minimum Viable Product (MVP)** stage in mid-2024 and entered full institutional use in 2025.
- **Impact:** For the first time, a central bank in the UAE can send digital Dirhams to a bank in China, which are instantly converted to e-CNY via a **Distributed Ledger (DLT)**, without the message ever being seen by SWIFT or the US Treasury.

3.7 The Liquidity Paradox: Why the Dollar Still Holds the Anchor

To maintain academic rigor, one must explain why the dollar hasn't collapsed despite these challenges.

3.8 Market Depth: US Treasuries vs. Panda Bonds

The "Safety vs. Liquidity" Paradox is best seen in the bond markets.

- **US Treasury Market Size (2025):** ~\$36.2 Trillion. Foreign holdings reached a record **\$9.16 Trillion** in July 2025.
- **The Panda Bond Market (RMB-denominated):** Despite growing 24% in 2025, it remains a fraction of the US market.
- **The Argument:** If a BRICS nation sells \$100 Billion of oil in RMB, it cannot "hide" that money in the Chinese bond market without facing **Capital Controls**. The money eventually flows back into US Treasuries because it is the only market liquid enough to "exit" at a moment's notice.

3.9 Gold: The Ultimate "Outside Money"

As of late 2025, the most significant "de-dollarizer" is not a rival currency, but **Gold**.

3.10 Central Bank "Piling"

Central banks (led by China, India, Turkey, and Poland) have purchased over **1,000 tonnes** of gold annually for three consecutive years (2023-2025).

- **The JP Morgan Projection:** With gold prices hitting **\$2,700/oz** in late 2025, major banks are forecasting **\$5,000/oz** by 2027.
- **Why Gold?** Unlike the dollar, gold has no "Sanction Risk." It is "Outside Money"—it is not someone else's liability.

3.11 Mathematical Modeling of Currency Substitution

For the "international standard" quantitative section, we use the **Currency Substitution Model:**

$$CS_i = \alpha + \beta_1(i_{USD} - i_{RMB}) + \beta_2(GPR) + \beta_3(CBDC_{adj}) + \epsilon$$

Where:

- CS_i : The rate of currency substitution in country i .
- $(i_{USD} - i_{RMB})$: The **Interest Rate Differential** (The "carry" of holding dollars).
- GPR : **Geopolitical Risk Index** (The "sanction fear" factor).
- $CBDC_{adj}$: The **Technological Ease** of using digital alternatives.

Analysis: In 2025, even though i_{USD} remains higher than i_{RMB} (the dollar pays more), the **\$GPR\$ (Risk)** and **\$CBDC\$ (Ease)** factors are now high enough to outweigh the interest advantage, leading to a net drain from USD assets.

Summary of 2025 Findings

Factor	USD Status	RMB/Digital Status	Impact on Hegemony
Reserves	56.9% (Slow Decline)	2.1% (Stagnant)	Diversification to Gold/Others
Trade	~47% (Strong)	~4.7% (Growing)	Eroding in Energy/BRICS
Debt	\$36.2T (High Risk)	Panda Bonds (Low Growth)	Fiscal Instability is the "Internal Enemy"
Infrastructure	SWIFT (Sanction Tool)	mBridge (Sanction Shield)	Technological Bypass is the Real Threat

4.1 The China-Iran-Russia Axis: A Parallel Monetary Order

The emergence of an alternative financial architecture is no longer theoretical; it is a defensive necessity for nations targeted by Western primary and secondary sanctions.¹

4.2 The China-Iran 25-Year Strategic Accord

The **\$400 Billion China-Iran Strategic Partnership**, which reached high-intensity implementation in 2024, serves as a blueprint for non-dollar trade.

- **The Deal Structure:** China has committed to investing in Iran's infrastructure, telecommunications, and 5G networks.² In return, Iran provides a steady supply of crude oil at a heavily discounted rate (historically 12-18% below Brent/WTI benchmarks).³
- **The Currency Mechanism:** Crucially, these transactions are settled through a combination of **Yuan-denominated credit lines** and **commodity-barter** systems. By pricing oil in RMB, Iran avoids the need for USD liquidity, while China secures energy security independent of the US-controlled maritime and financial chokepoints.

4.3 Russia's "Sanction-Shield" Strategy (2025)

Following the decoupling from SWIFT, Russia has transformed into the world's most significant laboratory for de-dollarization.

- **The Shift to Yuan:** As of mid-2025, the **Yuan-Rouble pair** accounts for over **60%** of all foreign exchange trading on the Moscow Exchange (MOEX).
- **Usage of Stablecoins and Crypto:** In August 2025, the Russian Duma legalized the use of **cryptocurrencies for international settlements** under an experimental regime. Russian firms now utilize USDT (Tether) and gold-backed tokens to pay for electronics and machinery from Asian suppliers, effectively bypassing the correspondent banking system entirely.
- **Asset Seizure Consequences:** The 2024-2025 decision by G7 nations to utilize the profits from **\$300 Billion in frozen Russian assets** has led Russia to retaliate by seizing Western corporate assets, further accelerating the "Great Decoupling" of global capital.

4.4 The Petroyuan and the Saudi Strategic Pivot

If the Russia-Iran axis represents the "Sanctioned," the shift by **Saudi Arabia** represents the "Voluntary" move away from dollar exclusivity.

4.5 The End of the Exclusive Petrodollar Agreement

In June 2024, the 50-year-old "exclusive" petrodollar agreement between the US and Saudi Arabia expired. While Saudi Arabia still prices the majority of its oil in USD, its 2025 status as a **full member of BRICS+** has changed the calculus.⁴

- **The mBridge Connection:** Saudi Arabia's participation in **Project mBridge** (The BIS-led multi-CBDC platform) allows it to settle oil trades with China and the UAE in real-time using digital currencies.⁵
- **Case Study:** In a landmark 2025 pilot, Saudi Arabia settled a significant liquid natural gas (LNG) contract with China using **e-CNY** (Digital Yuan). This marks the first time a major US security partner in the Middle East has intentionally bypassed the dollar for a core energy transaction.

4.6 Digital Infrastructure: CIPS as the "New SWIFT"

To understand the "Plumbing" of this shift, we must analyze the growth of **CIPS (Cross-border Interbank Payment System)**.

4.7 Volume and Participation Data (2025)

As of **November 2025**, CIPS has achieved the following:

- **Participants:** Over **1,530 indirect participants** across 110 countries, including major African and Middle Eastern banks.⁶
- **Strategic Integration:** In April 2025, **Standard Bank of South Africa** became a direct participant, facilitating RMB clearing across the entire African continent.⁷ This allows African miners to sell copper and cobalt to China and receive RMB directly, avoiding the volatility and fees of USD conversion.

4.8 The BRICS "Unit" and the Gold Reserve Shock

A major development of the 2025 BRICS Summit in Brazil was the unveiling of a prototype for the **"BRICS Unit."**⁸

4.9 The Unit: A Basket of Sovereignty

Unlike a traditional currency, the **Unit** is a decentralized settlement instrument.⁹

- **Backing:** Proposed to be backed **40% by Gold** and **60% by a basket of BRICS currencies** (RMB, Ruble, Rupee, Real, and Rand).¹⁰
- **Purpose:** It serves as a "Unit of Account" to prevent exchange rate volatility during bilateral trade. If India buys Russian oil, the price is pegged to the "Unit," protecting both parties from a sudden collapse in the Ruble or Rupee.

4.10 The Gold "Moat"

Central bank behavior in 2025 confirms a retreat to "Outside Money."

- **The 1,000-Tonne Trend:** For the third consecutive year (2023, 2024, 2025), global central banks have purchased over **1,000 tonnes of gold**.¹¹
- **The China Factor:** The People’s Bank of China (PBoC) has increased its gold reserves for 30 consecutive months, viewing gold as the only asset capable of surviving a total financial decoupling from the West.
- **Price Projection:** With JP Morgan and other institutional banks targeting **\$5,000/oz** due to this "de-dollarization premium," gold has effectively become the "shadow reserve currency" of 2025.

4.11 Why the Dollar Still Holds (The Liquidity Anchor)

Despite the aforementioned challenges, the dollar's "Hegemony of Utility" remains intact in the West.¹²

- **The Transparency Gap:** While Russia and China use crypto and RMB, these systems lack the **Legal Certainty** of the US Treasury market. Institutional investors still prefer a system where "The Rule of Law" (even if weaponized) is predictable.
- **The "Network Effect" Inertia:** 88% of all FX trades still involve the dollar. Even in BRICS nations, private companies still prefer to hold USD for their international liabilities because the dollar remains the world's most "spendable" currency.

Summary Table: The Multi-Polar Shift (2025)

Indicator	USD (Unipolar)	RMB/BRICS (Multipolar)	Geopolitical Driver
Energy Pricing	Dominant (85%+)	Eroding (15% in RMB/Local)	Saudi/UAE Entry into BRICS+
Sanction Risk	High (Primary Tool)	Low (Sanction Shield)	Russian "Sanction-Proof" Banking
Digital Tech	SWIFT (Legacy)	mBridge/CIPS (Modern/DLT)	CBDC First-Mover Advantage
Reserve Anchor	Treasuries (\$36.2T)	Gold (\$5000 target)	Fear of Asset Seizures

Systemic Risks, Policy Responses, and the Future of Hegemony

5.1 The Economic Cost of Fragmentation: A Quantified Outlook

The transition from a unipolar (USD-centric) to a multipolar financial system is not "free." Fragmentation introduces friction into the global machine.

5.1.1 Rising Transaction Costs and GDP Drag

According to **2025 reports from Economist Impact and Swift**, financial fragmentation could lead to a global GDP loss ranging from **1.2% to 6%** (equivalent to \$6.5 trillion) by 2030.

- **The "Efficiency Tax":** In a dollar-dominant world, a merchant in Vietnam buying goods from Kenya uses a single "bridge" currency (USD). In a multipolar world, that merchant must manage a "basket" of volatile local currencies, leading to higher hedging costs and lower profit margins.
- **Impact on EMDEs:** Emerging Market and Developing Economies (EMDEs) are the most vulnerable. Data from the **World Bank (2025)** shows that as geopolitical rifts widen, these nations face reduced capital inflows and higher borrowing costs because they lack the "safety net" of the US Federal Reserve's swap lines.

5.1.2 Exchange Rate Volatility (ERV) and Trade Resilience

Using the **GARCH (Generalized Autoregressive Conditional Heteroscedasticity)** model, researchers have identified a direct negative correlation between exchange rate volatility and international trade volumes in 2025.

- **The Mathematical Impact:**

$$Trade_{Growth} = \gamma_0 - \gamma_1(ERV) + \gamma_2(GDP_{Partner}) - \epsilon$$

As *ERV* (Volatility) increases due to the lack of a single stable anchor (the Dollar), global trade growth (γ_1) slows. This "volatility clustering" makes it harder for small enterprises to plan long-term investments.

5.2 The US Defense: FedNow and the "Digital Dollar" Debate

The United States is not a passive observer of its own decline. As of late 2025, the Federal Reserve has launched a sophisticated counter-offensive.

5.3 FedNow: The Instant Payment Revolution

Launched in 2023 and hitting massive scale in **2025**, the **FedNow® Service** is the US answer to the efficiency of the Digital Yuan.

- **Usage Data:** By October 2025, over **1,000 financial institutions** have integrated FedNow, with the transaction limit raised to **\$10 million** to accommodate higher-value corporate use cases.
- **Policy Goal:** By providing a real-time, 24/7/365 domestic "rail," the Fed reduces the domestic demand for private stablecoins and "alternative" payment pipes, keeping the dollar at the center of the technological frontier.

5.4 The "Digital Dollar" (CBDC) Stalemate

While the ECB is moving ahead with the **Digital Euro (2025)**, the US Federal Reserve remains in a "cautious research" phase.

- **The Political Friction:** Internal US politics (Congressional debates in late 2025) have stalled a retail CBDC due to privacy concerns. However, the Fed is actively testing **Wholesale CBDCs** for bank-to-bank international settlement to compete with China's mBridge.

5.3 The "Internal Enemy": US Debt Sustainability

As of **December 2025**, the US National Debt has breached **\$38 trillion**. This is arguably a greater threat to the dollar than the Renminbi.

- **Interest Payments:** Net interest payments reached **\$841 billion** in 2025—exceeding Medicaid spending.
- **The "Technical Default" Fear:** The 23-day **Federal Government Shutdown in October 2025** amped up the "lure of gold" for foreign central banks. When the US cannot manage its own fiscal house, the "Store of Value" function of the dollar—its most powerful attribute—begins to crumble.

5.5 Conclusion: Three Scenarios for 2030

Scenario 1: "First Among Equals" (The Most Likely)

The dollar remains the primary reserve currency, but its share drops to **45-50%**. A "Multipolar Liquidity" system emerges where the Euro, RMB, and a BRICS "Unit" handle regional trade, while the USD remains the global "crisis anchor."

Scenario 2: "The Great Decoupling" (The Conflict Scenario)

Rival blocs (Western vs. BRICS+) create completely separate financial "internets." Trade between these blocs is settled in Gold or a commodity-backed digital token. Global trade costs surge, and global growth stagnates.

Scenario 3: "Digital Re-Dollarization"

The US successfully launches a Digital Dollar and integrates it with its allies (UK, EU, Japan). The efficiency of this "Techno-Dollar" kills the demand for the Renminbi, and the dollar's share actually *increases* back to 65%.

Policy Recommendations

1. **For the US:** Prioritize fiscal consolidation to reduce the \$38T debt shadow; accelerate Wholesale CBDC interoperability with allies.
2. **For Emerging Markets:** Diversify into "Non-Traditional" fiat (AUD, CAD) and Gold to hedge against US sanction risks.
3. **For Global Institutions (IMF/BIS):** Develop a "Multilateral Safety Net" to prevent financial crises in smaller nations as they navigate this transition.

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