Monetary Effects of Global Stablecoins

Dong He

The globalized economy now moves at the speed of electrons—and the future of money is inexorably going digital, too. New forms of digital money, such as central bank digital currencies (CBDCs) and so-called global stablecoins, are shaping the future of money and payments. CBDCs are a digital form of fiat currency issued by a central bank. Some central banks started exploring CBDCs a few years ago, and those explorations have gathered momentum since Facebook and its partners announced their intention to launch the Libra stablecoin in June 2019. Because the stablecoins issued by large technological companies or platforms (Big Techs) have the potential to be adopted by businesses and households everywhere, they are called "global stablecoins," or GSCs, in shorthand.[1]

These new forms of digital money embody recent breakthroughs in digital technology such as cloud computing; the proliferation of mobile devices; and "distributed ledger technology," which facilitates

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Dong He is Deputy Director of the Monetary and Capital Markets Department at the International Monetary Fund. The views expressed in this article are those of the author and are not necessarily those of the IMF. This article is based on joint work with Itai Agur, Giovanni Dell'Ariccia, Vikram Haksar, Yan Liu, Tommaso Mancini-Griffoli, Soledad Martinez Peria, and the staff team that produced the IMF report (2020).

[1] For the sake of convenience, stablecoins are referred to as a new form of digital money, but that does not mean that IMF staff formally considers them to be "currency" or "money." See more discussions in IMF (2020).

peer-to-peer payments without relying on bilateral banking relationships. As compared to first-generation cryptoassets, such as bitcoin, stablecoins seek to minimize price fluctuations by pegging their valuation to nations' official fiat currencies or other existing assets. They do so by backing stablecoins' issuance with assets (including assets denominated in widely used official currencies, either individually or as a "basket" of currencies), or by managing their outstanding supply using algorithms.[2]

This article explores stylized scenarios of GSC adoption in order to demonstrate their possible monetary effects. This is not an effort to forecast specific outcomes or to judge their desirability. Using several scenarios as way to envision future possibilities, the analysis aims to shed light on the following questions: What is special about GSCs that could lead to scenarios where they are used extensively? What are the consequences for monetary policy transmission and financial stability? What are the potential policy responses that country authorities could consider, aiming to balance efficiency gains against the potential risks of adopting GSCs?

Adoption and Use Scenarios

The cross-border use of currencies falls into two categories: the use of a currency for international transactions, and the domestic use of a currency issued by a foreign entity. In the first category, international currencies serve as a medium of exchange, as a store of value, and as a unit of account, and they are used for international trade, international finance, and foreign exchange reserves. In the second category, a foreign currency displaces a domestic currency for domestic transactions, a situation commonly referred to as "currency substitution."

Traditionally, the economic weight of a currency's issuing country—along with its trade links, financial connections, and geopolitical stature, as well as the currency's perceived safety and liquidity—explain why some currencies are used disproportionately in cross-border transactions (Eichengreen, Meld, and Chitu 2018). In addition, strong network effects and synergies

[2] Stablecoins may differ from traditional e-money schemes because they do not necessarily guarantee redemption at a pre-established face value denominated in the unit of account. See discussion in Adrian and Mancini-Griffoli (2019).

across the three functions of money (as a unit of account, a means of payment, and a store of value) act as self-reinforcing mechanisms: once a currency is dominant, it has tended to stay dominant (He and Yu 2016; Gopinath and Stein 2018).

Certain intrinsic attributes of GSCs could also drive their adoption and use in ways that are distinct from the existing dynamics of currency adoption, including the following:

- Lower transaction costs: GSCs have the potential to reduce the costs of cross-border payments by bypassing correspondent banking relationships and potentially simplifying compliance procedures. The programmability of GSCs, including through the use of smart contracts, could help reduce switching costs in foreign exchange markets and reduce transaction costs in securities issuance and trading through the tokenization of assets more broadly.
- Ease of access: Access to a foreign currency can be challenging to establish, especially in rural areas in developing countries. GSCs can broaden access to financial services and promote financial inclusion through mobile devices among those who do not have access to bank accounts. Moreover, particularly if the issuer is a private company, there can be an upfront investment with the specific aim of reaching a broader set of users.
- Access to complementary services or "bundling": Stablecoins specifically can be more than a new form of money: they can provide entry into a wider platform of services. Big Techs, such as Facebook, could follow a pattern similar to those taken by Alipay and WeChat Pay in China by bundling their existing social media and e-commerce services, respectively, with payment and other financial services through the issuance of a stablecoin.

Legal provisions will heavily influence GSCs' use. Importantly, recipient countries may determine the degree to which the denomination and settlement of contracts in a GSC will be legally authorized. Legal certainty would be necessary for GSCs to operate as a means of payment in cross-border transactions: That would require a degree of uniformity in the legal characterization of GSCs as instruments consistent with a payment function.

Regulatory frameworks also play a crucial role in shaping the scale and scope of GSC use. In countries with exchange restrictions,

households and firms could choose to use GSCs because they can help circumvent some of those limits. At the same time, there is significant regulatory uncertainty about the treatment of GSCs, and there are concerns regarding the ability to effectively oversee and supervise the complete ecosystem involved in a cross-border GSC. As a result, there may be significant pushback by regulators against allowing GSCs to operate in their jurisdictions.

As an example of such adoption dynamics, imagine two scenarios of the global adoption of GSCs. These scenarios are not chosen because they are likely or desirable; they are instead designed as stylized examples to help analyze the macrofinancial effects of different degrees of GSC adoption.

In the first scenario, a single GSC becomes commonly adopted in many countries, and it replaces the local currency as store of value, a means of payment, and a unit of account; it is also widely used for international transactions. This scenario might arise if a Big Tech platform of global scale decides to launch a GSC to a large customer base that spans across the globe.

Such a GSC could initially be issued against assets denominated in an existing reserve currency. Given the vast scale of the customer base of the Big Tech platform, the GSC could be adopted globally at a rapid pace. The launch of a payment instrument that is catered specifically to its customer network would help strengthen its business model. As the GSC gains popularity, network effects would take over: firms and households would start invoicing contracts in the GSC, and financial intermediaries would start collecting deposits and would lend through GSC-denominated contracts.

At some stage, once the GSC's adoption reaches critical mass, the peg to existing reserve currencies may no longer be needed to generate trust in the GSC's value. Its value could be preserved by the issuer committing to a credible set of rules or principles, such as the amount and pace of issuance, the level of interest to be paid, or the amount of fees to be charged—much like central banks conduct monetary policy (albeit without necessarily the same instruments or objectives). For example, it may target a "price stabilization rule" relative to a basket of products sold on the Big Tech's platform.

In the second scenario, consider the possibility of "multipolarity," characterized by competition among a few major fiat currencies and GSCs that represent independent units of account. Instead of one

single GSC dominantly used for international transactions and payments and for domestic use worldwide, a few GSCs would be used internationally for both domestic and international transactions.

There might be "digital currency areas," in which the use of a stablecoin is determined not by geographical borders but by the boundaries of the e-commerce and/or social platforms that use it. Such a digital currency area could be defined as a network where payments and transactions are made digitally by using a currency that is specific to this network. In other words, either the network would operate a payment instrument that can only be used inside that area, between its participants; and/or the network would use its own unit of account, distinct from existing official currencies (Brunnermeier, James, and Landau 2019).

This scenario could be the result of strategic responses by central banks and Big Techs in a digital-era game of currency competition. Anticipating the issuance of CBDC by the central bank that controls the dominant reserve currency, or the issuance of a GSC by a globally dominant Big Tech, other central banks and Big Techs could also launch their own CBDCs and/or GSCs. This scenario of multipolarity could be facilitated by the interoperability of different networks. With interoperability, users of a particular technology or system can interact easily with those using other technologies or systems, with substantially reduced interchange costs. The first-mover advantage, and the persistence of the established, dominant standard, might no longer be so strong.

Monetary Consequences

GSCs can affect the *transmission of monetary policy* by increasing currency substitution and by reshaping patterns of business-cycle synchronization. Currency substitution reduces the monetary authorities' control over domestic liquidity by limiting the component over which the authorities have direct influence and by reducing the stability of money demand (El-Erian 1988). Substitution into the GSC is no different from substitution into existing fiat currencies. However, the GSC could intensify currency substitution due to easier accessibility. In addition, it could facilitate economic activities and trade links organized around Big Techs, and it could help reshape patterns of business-cycle synchronization, which might reduce the ability of monetary policy to respond to shocks.

The global adoption of a GSC with an independent unit of account could subject countries to the monetary stance of a private firm. Although privately issued money has circulated in various forms in the past (Champ 2007; King 1983; White 1995), the reach of a globally adopted GSC would be unprecedented. Therefore, the impact of any potential misuse of the payment system and monetary stance for private ends could exceed that of any private money previously seen.

The issuer could adjust the volume of issuances or the level of interest rates or fees in order to maximize its own profit, instead of aiming for price and output stabilization in countries that use the GSC. The potential for conflicts of interest would be especially large if that company is also a major provider of credit, the demand for which could come to depend upon its own monetary stance.

If the GSC were to have a price-stabilization rule relative to a basket of goods sold on the Big Tech's platform, it could challenge notions of optimal currency areas based on the synchronization of national business cycles. Platform-based economic activities and other parts of an economy could experience different trends. The sectors closely associated with the platforms could become a source of shocks to other parts of the economy. Moreover, if the GSC pays an adjustable rate of return, changes to that rate of return may not be aligned with what is required to stabilize other parts of the economy.

The monetary policy implications of multipolarity depend on whether the multipolarity is characterized by country currency blocs or by currency competition within each country. If multipolarity is delineated by blocs of countries, with each country adopting one CBDC or GSC, then the monetary policy implications for countries that use it would mirror those of single-currency adoption. Each GSC currency bloc would become more similar to a currency union than to a "dollarized" economy. Nevertheless, as in a currency union, monetary policy could only be tailored to the bloc as a whole; it might not be of much help to countries whose business cycles diverge from the average bloc member.

Multipolarity could imply that each country witnesses the domestic use of multiple currencies, perhaps because the functions of money are unbundled, with different currencies preferred for different functions. The domestic monetary implications of substitution into multiple currencies resemble those of substitution into a single currency, but effective competition among GSC issuers could help alleviate to some extent the conflict of interest problems noted above

and could enhance monetary stability in the longer term (Hayek 1976).

Nevertheless, multiple currencies could complicate exchange rate anchoring, if the domestic currency is still in use. Many countries that have experienced currency substitution into a single foreign currency have geared their monetary policy toward limiting bilateral exchange rate movements to stabilize domestic balance sheets exposed to the foreign currency. But with multiple currencies, exchange rate fluctuations between the foreign currencies would complicate such stabilization efforts.

GSCs can reduce the ability of central banks to control domestic *financial conditions* and to provide emergency liquidity assistance during stressful times. Financial conditions measure the cost of funding and reflect the underlying price of risk in the economy. Changes in financial conditions could alter incentives for risk taking and could lead to vulnerabilities in the financial system, affecting both business activity and financial stability over time.

As the global financial system becomes more integrated, domestic financial conditions of individual countries have been increasingly driven by so-called global financial cycles (Miranda-Agrippino and Rey 2020). The widespread adoption of a GSC could reinforce this trend. Global financial cycles could be associated with perceived changes in the safety and soundness of the ecosystem of the GSC arrangement. They could also be driven by interest-rate changes initiated by the GSC issuer. As a result, local central banks may find it more difficult to constrain boom-and-bust dynamics.

The GSC could worsen vulnerabilities from currency mismatches among banks and retail borrowers, again due to easier accessibility. Without appropriate safeguards, GSCs could facilitate illicit flows and could make it harder for regulatory authorities to enforce exchange restrictions and capital flow management (CFM) measures. GSCs could also affect financial stability if the credibility of their peg to fiat currencies becomes doubtful.

Greater currency substitution induced by GSC adoption could also make it harder for central banks to manage "run risks" in stressful times. For many emerging markets and developing countries, a run on the banking system is often associated with a run on the currency or the country (Laeven and Valencia 2018). In such cases, depositors would be incentivized to move their wealth into foreign assets.

The degree of accessibility of foreign assets is an important factor that depositors consider when choosing whether to launch a run on the bank. Another important factor is the availability of "lender-of-last-resort" assistance from the central bank that issues the currency. If opening and transferring to a digital wallet is faster and more accessible than opening and transferring to an account in a bank abroad—and considering that emergency liquidity assistance from the GSC issuing platform may not be easily available—incentives for depositors to launch a run could increase.

Global adoption of the GSC can give rise to systemic risks due to interconnectedness. Pressures on any component of the GSC ecosystem could quickly be transmitted across borders. The failure of a service provider (e.g., resellers, wallet providers, managers, or custodian/trustees of reserve assets) in one jurisdiction may lead users in another jurisdiction to question the safety and reliability of the GSC. Ultimately, weaknesses in one jurisdiction could raise risks for the entire ecosystem. This could lead to a potential breakdown of the global payment system—a situation in which payments worldwide could be interrupted.

In the scenario of multipolarity, currency competition within a jurisdiction could make local financial conditions more volatile. Low switching costs between CBDCs and GSCs could make the participation in a currency bloc or digital currency area unstable. Although competition could foster discipline in risk management in order to maintain the attractiveness of privately issued money in the longer term (Hayek 1976), currency competition might deliver stability only under certain restrictive conditions (Fernández-Villaverde and Sanches 2019). Indeed, there is no consensus among economists as to whether historical episodes of currency competition are associated with an improvement or deterioration in financial stability (e.g., White 1995).

In addition, competition could create incentives for GSC service providers to take on higher risks to gain market share in the short term. For example, GSC service providers might seek to gain a dominant market position by providing services at a loss in the short run with a view to recouping such losses through higher margins in the long run (capturing monopoly rents), or gaining from a possible subsequent too-big-to-fail subsidy. Thus, aggressive business models could be a driver of additional risks to the ecosystem.

On the positive side, the multipolarity scenario could create more opportunities for international risk sharing (Farhi and Maggiori 2017). This would be the case if the CBDCs and GSCs are not correlated, either because the issuing countries have asynchronized business cycles, or because the units of account of the GSCs are different from the fiat currencies.

GSC adoption could also help reduce transaction costs and frictions in international capital markets. From a lender's or an investor's perspective, GSCs, if bundled with big data derived from the e-commerce and social networking platforms, might offer improved cross-border credit analytics and help lower information asymmetries. From a borrower's perspective, a reduction in search and transaction costs could help improve access to foreign capital markets and lead to higher financial inclusion of less developed countries or of small firms across the world.

Furthermore, new classes of safe assets with superior features, such as triple-A-rated bonds denominated in the GSC units of account but embedded with smart contracts that offer attractive risk hedging properties, might emerge. They could offer the opportunity of portfolio diversification and the construction of better hedges against idiosyncratic external risk that countries might confront. For example, households and small firms in commodity exporting countries could have easier access to financial instruments that might help them hedge against volatilities in the prices of the commodity they produce and export.

Policy Implications

The potential for widespread adoption of GSCs raises important questions about the welfare implications of privately issued money at a global scale.[3] In both scenarios, recipient countries could find themselves effectively exposed to the monetary stance adopted by private companies. It is unclear whether the profit maximization objective of the GSC-issuing firms will be consistent with stabilizing prices in the areas that use the GSCs. Also, the GSC issuers might not have enough incentives to practice robust governance and risk

[3]This section focuses on implications for macroeconomic and structural policies. For a discussion of implications for regulatory policies, see FSB (2020).

management, doubts about which could lead to financial instability and volatile capital flows worldwide. These potential problems could become acute when the GSC issuers enjoy a monopolistic position globally.

For the countries that might adopt GSCs, the main challenge would be how to preserve macroeconomic and financial stability without forgoing the benefits of more efficient cross-border payments and better access to international capital markets. The balance may differ from country to country, depending on the patterns of business-cycle synchronization. In addition, fiscal policy space and the availability of other tools for stabilization will be important.

In countries whose economic activities are tightly integrated with those of the issuing country of the currency to which the GSC is pegged, macroeconomic stabilization does not necessarily require an independent monetary policy. If they have sufficient fiscal space and capital and liquidity buffers in their financial systems, fiscal policy and macroprudential policies could play a larger role in mitigating shocks, tilting the balance of benefits away from monetary independence toward those from financial integration.

Some authorities could choose to restrict the use of GSCs in their countries. Those countries that have not liberalized their financial accounts to cross-border capital flows may have no choice but to restrict the use of GSCs if they are not ready for the level of capital-flow liberalization that the unrestricted use of GFCs would imply. Even for countries with a largely open financial account, under certain circumstances—for example, during capital-inflow surges or large capital flight in near-crisis situations—capital flow management measures might still need to be considered as a tool to help deal with shocks.

If country authorities wish to restrict the use of GSCs, they would need to assess to what extent the restrictive measures can be effectively enforced. Restrictive measures on domestic transactions could encompass GSC-related services by resident entities. They could range from tight licensing rules to a total ban. Restrictive measures could be implemented on cross-border payments as well, to mirror existing restrictions on current payments or capital transactions, or to ensure that export revenues are collected in foreign fiat currency. However, circumvention outside the regulated financial sector could undermine the effectiveness of such measures. For example, services

can be provided directly by nonresident service providers to a country's resident through the internet.

The effective implementation of restrictive measures on both domestic and cross-border use of GSCs would require adequate technological support. The design of the GSC should provide for the verification of the payor, of the recipient, and of the purpose of the payment. The authorities would need to be in a position to stop the payment if the design did not comply with the restrictive measures. GSCs could, in principle, be designed to facilitate compliance, where restrictive measures are built into the design or are programmed through smart contracts. For example, the transfer of value could be rejected if the balance were insufficient or if the metadata for the transaction to succeed did not meet certain requirements.

Policies to promote contestability among Big Techs' platforms could help mitigate the risks posed by the lack of competition and the uncertain governance of potential GSC issuers. Two key options include data policy frameworks mandating the portability of user data and interoperability requirements on payments systems.

Without regulation, the GSC issuer has sole control over users' data, which makes it harder for other potential entrants to compete in the provision of data-driven financial services (Carrière-Swallow and Haksar 2019). Requiring incumbents to share customer data with new entrants could be considered. This is similar to the logic behind open-banking initiatives and would reduce the barriers to entry arising from the harvesting of customer-sourced data and the related cross-selling of financial services.

There is also the scope to consider approaches that facilitate the interoperability of payments networks. In principle, this would help counter network effects as a barrier to entry, as competitors would be able to offer tokens, including GSCs, on the Big Tech platforms without needing to build their own separate networks. This is an area that will require further consideration on implementation—and further thought about how to balance the private interests of companies that have invested in building large networks against the public interest in greater competition and stability. An important question is whether these types of requirements are enforceable on cross-border networks, and whether international cooperation would be needed.

Conclusion

As the pace of digitalization accelerates, the landscape of international finance will probably be in a state of flux. Payments and financial-services provision will probably become increasingly integrated with the digital economy organized through e-commerce and social-networking platforms. The rise of GSCs could hark back to an era when the private sector played an important role in the monetary sphere, with Big Techs not only supplying goods and services, but also payment instruments that could influence monetary policy in many countries.

Country authorities will surely face important challenges in balancing opportunities and risks associated with GSCs. Some authorities may choose to prohibit the use of GSCs in their countries. However, it may be challenging to ensure the effective enforcement of restrictive measures. This will depend, in part, on countries' level of technological capacity.

Countries that choose to allow GSCs to be adopted will have a strong interest in ensuring that the GSC arrangements have robust governance and risk management. They will need to develop mechanisms to ensure that the GSC issuers' profit-maximization objectives do not jeopardize monetary and financial stability. Policies that promote competition among Big Tech platforms and interoperability among different types of GSCs could help mitigate some of these concerns, but they would require further work.

Central banks also need to move with the times and stay in the game of the digital economy (He 2018). They will need to maintain the attractiveness of their own liabilities as the ultimate settlement assets in the digital age, including giving careful consideration to the pros and cons of issuing CBDCs.

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