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GROUP OF TWENTY

G-20 NOTE ON MACRO-FINANCIAL IMPLICATIONS OF GLOBAL STABLECOINS

G-20 Finance Ministers and Central Bank Governors' Meetings
October 14, 2020
Virtual Meeting



Prepared by Staff of the
INTERNATIONAL MONETARY FUND*

*Does not necessarily reflect the views of the IMF Executive Board

EXECUTIVE SUMMARY

The G20 Finance Ministers and Central Bank Governors, under the Japanese Presidency, requested in their Press Release on Global Stablecoins of October 2019 “the IMF to examine, building on its ongoing work, the macroeconomic implications including monetary sovereignty issues in its member countries, taking into account country characteristics.”

Drawing on a new IMF staff paper entitled “Digital Money Across Borders: Macro-Financial Implications”, this note explores stylized adoption scenarios of global stablecoins (GSCs) and discusses their potential implications for international monetary and financial stability.

Traditionally, the use of currencies internationally reflects the economic weight of issuing countries and broader geopolitical factors. Because of strong network effects and synergies across the three functions of money (unit of account, means of payment, and store of value), once a currency gets established as a leading currency, it tends to be in a self-justifying dominance. In addition, the use of foreign currencies for domestic transactions (“currency substitution”) depends on the degree of monetary stability and other country circumstances, including legal frameworks and regulation.

However, new forms of digital money could have adoption dynamics that are different from those observed in the past for fiat currencies. GSCs potentially lower transaction costs by reducing reliance on banks, widen access to services and promote financial inclusion through mobile devices, and open the possibility of complementary services offered on social networking and e-commerce platforms of global scale.

Macro-financial implications depend critically on the degree of GSC adoption. But as adoption is difficult to predict, this note considers different stylized scenarios. These consist of: (i) niche use for small cross-border payments, (ii) pervasive adoption in a subset of countries, (iii) global adoption of a single GSC denominated in its own unit of account, and (iv) a multipolar world featuring competition among different GSCs and fiat currencies. These scenarios do not represent forecasts or judgements.

The benefits of using new forms of digital money such as GSCs for cross-country transactions are conceptually clear, although difficult to quantify at this stage. Making a payment or transferring funds across borders could be just as easy as sending an email. This could reduce transaction costs for the benefit of households and small and medium enterprises especially.

Perhaps more importantly, it affords the prospect of access to a wide range of other cross-border financial services leveraging the big data generated from individual transactions. At the global level, currency competition induced by adopting new forms of digital money could lead to improved risk-sharing in the longer term.

However, GSCs could affect the transmission of monetary policy by increasing currency substitution. Substitution into GSCs is no different from substitution into existing fiat currencies, but could go

faster and further due to easier accessibility and other benefits. In addition, GSCs could facilitate economic activities and trade links organized around Big Techs and help reshape patterns of business cycle synchronization, which may reduce the ability of monetary policy to respond to shocks.

The global adoption of a GSC with an independent unit of account could also subject countries to the monetary stance of a private firm. Although privately issued money has circulated in various forms in the past, the reach of a GSC would be unprecedented. Therefore, the impact could exceed that of any private money previously seen.

Moreover, GSCs 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 make it harder for regulatory authorities to enforce exchange restrictions and capital flow management measures. GSCs may also affect financial stability if the credibility of their peg to fiat currencies becomes doubtful.

For the countries that adopt and use GSCs, the main challenge is how to preserve monetary and financial stability without forgoing the benefits of more efficient cross-border payments and better access to international capital markets. 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. In countries with larger 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 to those from financial integration.

Countries that adopt GSCs will also have a strong interest in ensuring that the GSC arrangement has robust governance and risk management. They will need to develop mechanisms to ensure that the GSC issuer's profit maximization objectives do not jeopardize monetary and financial stability. Policies that promote competition among Big Tech platforms and interoperability between different types of GSCs could help mitigate some of these concerns but require further work.

Some authorities may choose to restrict the use of GSCs in their countries. This may happen preemptively as the authorities try to minimize risks of currency substitution. Countries that have not liberalized their financial accounts to cross-border capital flows may have to restrict the use of GSCs, lest it undermines the effectiveness of existing capital flow management measures. However, it may be challenging to ensure the effective enforcement of restrictive measures. This will depend in part on countries' level of technological capacity.

Some central banks are considering issuing their own CBDCs, as a strategic response to the potential rise of GSCs, and to reap additional benefits coming with a more modern payment system. In addition to domestic advantages, CBDCs could help facilitate the international use of the currency by improving accessibility, but swings in the external demand for the CBDC could drive capital flows potentially generating spillover and spillback effects. For central banks worrying about currency

substitution by a GSC, issuing CBDC alone is unlikely to change pressures on currency substitution if the local currency suffers from high inflation and volatile exchange rates. More broadly, the case for CBDC issuance is likely to depend on country circumstances. Any decision will require careful ex-ante cost and benefit analysis and critical design choices.

Meeting the challenges arising from new forms of digital money will require close cooperation by country authorities and a strong and persistent commitment by the international policy community, including the G20. With its universal membership and mandate for safeguarding international monetary and financial stability, the IMF is uniquely positioned to consider the macro-financial effects and policy tradeoffs arising from new forms of digital money. The IMF is playing an active role in the global effort to enhance cross-border payments and promote the safety and cross-border interoperability of CBDCs and GSCs. In addition, the IMF can act as a bridge between this high-level policy development process and implementation within countries by providing customized assistance to member countries through policy advice and capacity development.

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INTRODUCTION

1. New forms of digital money, such as the so-called global stablecoins (GSCs), are increasingly capturing policymakers' attention. GSCs are stablecoins, a type of private digital money, issued by large technological companies ("Big Techs") with the potential for widespread adoption. Among Big Techs, Facebook and its partners have already announced their intention to launch Libra, a blockchain-based digital money backed by assets denominated in reserve currencies. Other Big Techs could follow suit. 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 peer-to-peer payments without relying on correspondent banking relationships.¹ At the same time, central banks have also started exploring these technologies with a view to issuing central bank digital currencies (CBDCs), as part of their effort to modernize the payment systems and also partly in response to the potential rise of GSCs.²

2. GSCs have the potential to be adopted rapidly and widely due to their close association with large e-commerce or social networking platforms of global scale. Individuals and firms increasingly rely on platforms offered by Big Techs to connect with one another and to exchange goods and services. Stablecoins issued by these companies could benefit from network effects as result of their large number of users and their ability to bundle different products. As compared to first generation cryptoassets such as the bitcoin, stablecoins seek to minimize price fluctuations by pegging their valuation to fiat currencies or other existing assets, backing their issuance with assets (including assets denominated in globally used official currencies individually or as a basket), or by managing their outstanding supply using algorithms.³ While for expositional purposes they are referred to as a new form of digital money, it does not mean that IMF staff formally consider them to be "currency" or "money". The legally appropriate definitions of currency and money are discussed in Box 1.

3. Country authorities will likely face important challenges in balancing opportunities and risks associated with GSCs. To help illustrate these challenges, this note explores stylized scenarios of GSC adoption in order to demonstrate their possible macro-financial consequences and analyze policy implications when country authorities conduct cost-benefit analysis. This is not an effort to forecast specific outcomes or judge their desirability. Using these scenarios as expositional devices, the analysis aims to shed light on the following questions: What is special about these new forms of digital money that could lead to scenarios where they are used extensively? What are the macro-financial consequences of different scenarios of adoption? What are the potential policy responses country authorities could consider to balance efficiency gains against risks of adopting

¹ See Annex for an explanation of the technical terms used in this paper.

² This note focuses on GSCs. See IMF Policy Paper "Digital Money Across Borders: Macro-Financial Implications" for a more in-depth analysis of possible interactions between CBDCs and GSCs.

³ Stablecoins may differ from traditional e-money schemes as they do not necessarily guarantee redemption at a pre-established face value denominated in the unit of account.

GSCs? And, in a situation where monetary policy effectiveness is impaired, how will other policies need to adapt to allow countries to deal with shocks? While the note presents an initial analysis of the policy implications, it refrains from making specific policy recommendations. Normative policy discussions would require further welfare analysis and broader public debate.

Box 1. Money and Currency: Legal Definitions

While this report focuses on the economic aspects of digital money and payments, it is important to note that currency and money are also legal concepts and that laws play a crucial role in determining which assets can and will be used as means of payments. The law uses several related but distinct legal categories in providing a legal foundation to the monetary system.

All countries establish by monetary law the legal concept of **currency**, which denotes the official means of payment of a country (or monetary union), denominated in its official monetary unit. Today, currency status is provided in all countries to banknotes and coins issued by a central authority (typically, the central bank) that has the exclusive right to do so. “Legal tender” status is a key attribute of currency: it entitles a debtor to discharge monetary obligations by tendering currency to the creditor.

While there is no universally accepted legal definition of money, it is widely accepted that the legal concept of **money** is broader: in addition to currency (banknotes, coins), in many (but not all) jurisdictions it also includes certain types of assets or instruments that are readily convertible or redeemable into currency, such as commercial bank “book money” (credit balances on accounts). There is similarly no uniform legal treatment of *electronic money* in many jurisdictions, but it could be classified as a version of money. Some assets (e.g., bitcoins) may be considered as money under one body of law (e.g., VAT law), but not under another (e.g., financial law).

From a legal perspective, **payment instruments** (e.g., cheques, bills of exchange, promissory notes) are neither currency nor money, but are legally used to effect payments that are ultimately settled in currency or money.

How can GSCs be categorized under those legal concepts?

The monetary and private law status of GSC is unclear and will depend on the GSC’s design features and the governing law. At any rate, GSCs would not be currency (nor a payment instrument), unless the law otherwise so determines. In many instances, the legal qualification of the GSC will likely be *sui generis*. For each GSC, careful analysis will be needed to determine its precise legal status, which in theory could range from money, electronic money, a commodity, a security, to a combination of those. This has important legal and practical ramifications. For instance, if a GSC is not expressed in an official monetary unit but becomes a *de facto* unit of account in the economic sense, it will still not be an official monetary unit in the legal sense. Hence contracts expressed in a GSC might not give rise to monetary obligations, which would have important legal consequences (e.g., with respect to force majeure). It may, however, still be the case that for other legal purposes—e.g., for determining tax liabilities—dealings in GSC could be equated to money or currency and taxed accordingly.

The legal classification of GSCs—consistent between jurisdictions involved in their use— will have a direct impact on their capability of being widely used (e.g., classification of GSCs as securities would imply the application of securities laws and regulations, raising significant obstacles for the use of these GSCs as a cross-border means of payment).

ADOPTION AND USE SCENARIOS

A. Factors Affecting GSC Adoption⁴

4. Cross-border use of currencies falls into two categories: use of currency for international transactions, and domestic use of currency issued by a foreign entity. In the first category, international currencies serve as a medium of exchange, store of value and unit account and 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 use of currencies internationally reflects the economic weight of issuing countries and broader geopolitical factors. In addition, strong network effects and synergies across the three functions of money (unit of account, means of payment, and store of value) act as self-reinforcing mechanisms: Once a currency is dominant, it has tended to stay dominant.

5. Certain intrinsic attributes of GSCs could also drive their adoption and use in ways that are distinct from existing dynamics of currency adoption:

- **Lower transaction costs.** GSCs carry the potential to reduce the costs of cross-border payments by cutting out intermediaries and potentially simplifying compliance procedures. They could help lower transaction costs in securities issuance and trading through tokenization of assets more broadly.⁵
- **Ease of access.** Access to foreign currency can be challenging to establish, especially in rural areas in developing countries. Whether in the form of physical exchanges or access through bank accounts, foreign currency access comes with prerequisites in terms of brick and mortar infrastructure. GSCs have the potential to overcome some of these impediments. 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. The evolution of China's payments system illustrates how e-money providers have bundled services to promote adoption, something that could happen with stablecoins issued by Big Techs. WeChat Pay integrates the transfer of electronic money with its ubiquitous social media services, while Alipay links its e-money to China's largest online retail site. Moreover, both major e-money issuers offer their customers access to credit services. Going forward, Big Techs such as Facebook could

⁴ For purpose of this paper, the terms "adoption" and "use" are used interchangeably to refer to the cases where GSCs are legally permitted to perform the functions of medium of exchange, store of value and unit of account.

⁵ Tokenization of securities, or the conversion of financial assets into digital tokens could transform the clearing and settlement of securities trades. A key motivation is to lower the large costs of trade processing. Tokenization could also transform how the underlying risks are managed.

follow a similar pattern bundling their existing social media and e-commerce services, respectively, with payment services through the issuance of a stablecoin.

6. Legal provisions will heavily influence GSC use. While countries should not stifle innovation, they could set boundaries for the role of GSCs through changes in their legal frameworks. Importantly, recipient countries may determine the degree to which denomination and settlement of contracts in a foreign currency or a GSC will be legally authorized. Legal certainty would be necessary for GSCs to operate as a means of payment in cross-border transactions: this would require a degree of uniformity in the legal characterization of GSCs as instruments consistent with a payment function. Beyond characterization of the GSC, the rights of coin holders and the status of the issuer and intermediaries would need to be clearly defined, and a close examination of private law issues that may affect the proper functioning of GSCs is warranted (see Box 1). GSCs that offer greater clarity and protect the rights of coin holders are likely to see greater adoption, all else equal. The tax treatment of transactions involving GSCs needs to be substantially similar to equivalent transactions involving fiat currencies, including where they take place across borders.

7. Regulatory frameworks also have a crucial role in shaping the scale and scope of GSC use. The regulatory environment in which new forms of digital money operate is fragmented at present. This leaves open the possibility that in countries with exchange restrictions, households and firms could choose to use GSCs because these can help circumvent some of those restrictions. At the same time, given regulatory uncertainty about the treatment of GSCs, and concerns regarding the ability to effectively oversee and supervise the complete ecosystem involved in a cross-border GSC, there may be significant pushback from regulators to allow these to operate in their jurisdiction unless there is clarity on their financial stability impact and the regulatory framework that would be applicable.

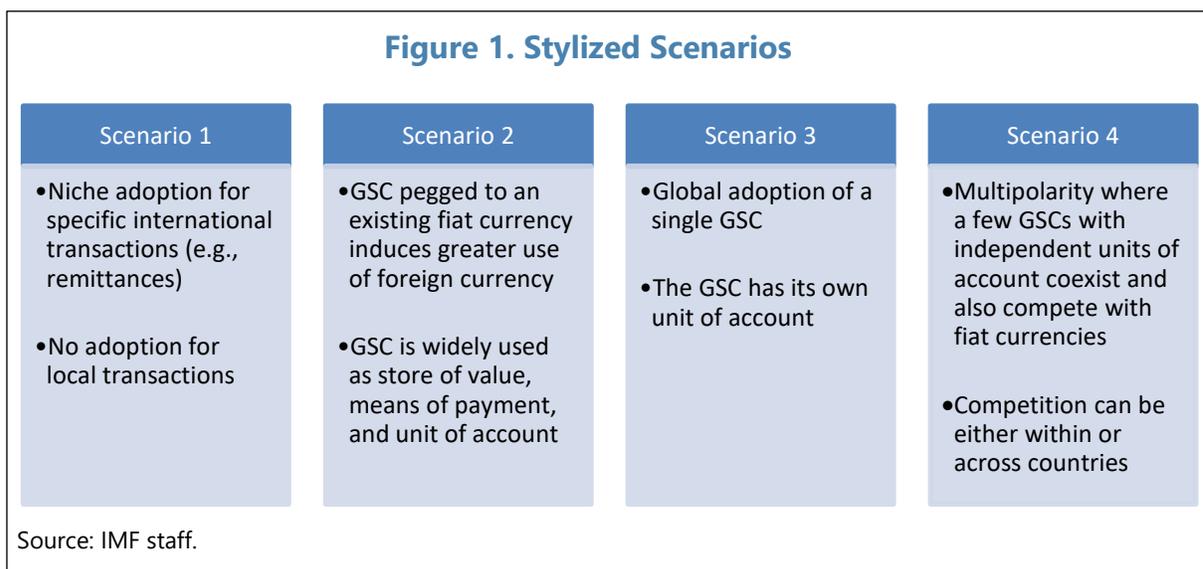
B. Hypothetical Scenarios

8. Hypothetical scenarios for GSC adoption are used (Figure 1) to help illustrate its potential macro-financial implications. These scenarios are not chosen because they are likely or desirable; rather they are designed as stylized examples to help analyze the macro-financial effects of different degrees of GSC adoption.

9. Scenario 1: Niche use for cross-border payments. A GSC is used as the preferred means for small value transactions, such as remittances across borders, due to its low cost and efficiency or due to legal and regulatory limits that are placed on the purpose and amounts that can be transferred internationally. The GSC would not be held for very long—in most cases for the duration of the transaction, and in some cases as a store of value. The GSC would be exchanged for local currency to make purchases domestically, and it would not supplant the local unit of account.

- **The convenience and easy accessibility of GSCs make them attractive as vehicle currencies.** For example, instead of opening a bank account holding balances of foreign currencies, GSCs allow residents of foreign countries to have exposures to them without a bank account, something which in many countries is very difficult to obtain due to compliance requirements or

other costs. Because they can be transferred over a peer-to-peer system operating around the clock, their use flattens the multi-layered correspondent banking structure, shortens the payment chains, reduces transaction time, and facilitates increased competition among service providers. As a result, cross-border payments could then become cheaper and more inclusive, benefiting in particular small value remittance.



10. Scenario 2: Greater currency substitution in some countries. A GSC pegged to an existing fiat currency induces greater use of foreign currency in countries with high and volatile inflation and unstable exchange rates. In those countries, use of the GSC is intensive and replaces the domestic currency significantly: as a store of value (in and of itself, or to access assets in that currency), as a means of payment for many but not all transactions (including some regional cross-border trade), and as a common (though not necessarily ubiquitous) unit of account. In addition, even in countries with credible policy frameworks, the adoption of GSCs could be significant as they could facilitate transactions associated with certain e-commerce or social networking platforms. The platforms might not require the use of GSCs but could encourage it through incentives (e.g., lower prices paid for goods and services in the platform if the GSC is used). Also, countries with less developed payment systems could see higher adoption of GSCs as a way to leapfrog to better payment and settlement services, even for local transactions.

11. Scenario 3: Global adoption. A single GSC becomes commonly adopted in many countries and replaces the local currency as store of value, means of payment, and unit of account; and is also widely used for international transactions. The GSC is an independent unit of account and is used as a means of payment on e-commerce and/or social platforms that span multiple countries. 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 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.

- **This scenario may arise if a Big Tech platform of global scale decides to launch a GSC to its large customer base which spans across the globe.** In this case adoption will be driven by the network externalities associated with the existing large customer base as well as the synergies between the coin and other goods and services that the platform offers. Such a GSC could initially be issued against assets denominated in 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. And 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: agents would start invoicing contracts in the GSC and financial intermediaries would start collecting deposits and lend through GSC-denominated contracts. At some stage, once adoption reaches some critical mass, the peg to existing reserve currencies may no longer be needed to generate trust in the value of the GSC, and the GSC could become a fiat currency.⁶

12. Scenario 4: Global adoption with multipolarity. This is a scenario of competition between 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 (as described in Scenario 3), a few GSCs are used internationally for both domestic and international transactions. There may be “digital currency areas”, whereby the use of a stablecoin is determined not by geographical borders but instead by the boundaries of the e-commerce and/or social platforms which use it. Such a digital currency area can 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 operates a payment instrument that can only be used inside, between its participants; and/or the network uses its own unit of account, distinct from existing official currencies.⁷ There may also be currency competition between a few major CBDCs and GSCs.

- **This scenario could be the result of strategic responses by central banks and Big Techs in a game of currency competition in the digital age.** Anticipating the issuance of CBDC by the dominant reserve currency central bank or 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 can be facilitated by 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. First-mover advantage and the persistence of the established, dominant standard may no longer be so strong.

⁶ This situation could resemble the ascent of the dollar where it was first pegged to gold but maintained its status as a dominant currency even after the US abandoned the peg in 1971.

⁷ See Markus Brunnermeier, Harold James, and Jean-Pierre Landau (2019), “Digital Currency Areas”, VOXEU.org <https://voxeu.org/article/digital-currency-areas>.

MACRO-FINANCIAL CONSEQUENCES

A. Monetary Policy Transmission

13. Depending on the adoption scenario, GSCs could 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.⁸ As a result, the transmission of monetary policy – the extent to which policy-induced changes in monetary instruments (e.g., the nominal money stock or the short-term nominal interest rate) can affect macroeconomic variables could be weakened. Substitution into GSCs is no different from substitution into existing fiat currencies. However, these new forms of digital money could intensify currency substitution due to easier accessibility. In addition, they could facilitate economic activities and trade links organized around Big Techs and help reshape patterns of business cycle synchronization, which may reduce the ability of monetary policy to respond to shocks.

14. Niche adoption of GSC for remittances (Scenario 1) would probably not have a significant impact on monetary policy effectiveness unless it fosters currency substitution. To the extent that they facilitate the growth of remittances by reducing transactions costs or regulatory barriers, they could impact monetary policy effectiveness in recipient countries. This is because there is a close link between the domestic availability of a foreign currency and substitution into that currency. For instance, during Cambodia's transition to democracy, US dollar usage rose rapidly in the course of only a few years, as large foreign aid flows provided ample dollar liquidity. Initially, dollar use centered on the payment system, but it subsequently migrated to a store of value, as consumers began to save the dollars.⁹

15. If countries use extensively a GSC that is pegged to a fiat currency (Scenario 2), their ability to weather shocks will depend on whether their business cycles are in sync with those of the currency issuer. When currency substitution occurs monetary policy effectiveness in the user country weakens; but monetary policy in the currency issuer could partially serve the needs of the country using the foreign currency, if the business cycles of the user and the issuer coincide. This could be the case if they face similar shocks or are economically integrated as in a currency union. However, currency substitution has often occurred in countries that are geographically and

⁸ Currency substitution also entails a loss of seigniorage revenues and reduced the ability of the central bank to act as lender of last resort.

⁹ A similar widening of the role of the foreign currency has been observed in cases where personal remittances underpinned foreign currency availability, such as El Salvador and Tajikistan.

economically remote from the issuing country. In these cases, currency substitution results in a reduced ability of the country to use monetary policy to absorb shocks.¹⁰

16. Swings in the external demand for the GSCs could drive large movements in capital flows for the countries issuing the underlying currency. Whether capital flows associated with the use of GSC present challenges to the central bank issuing the underlying currency depends on the size and depth of the country's financial markets. Market liquidity could move significantly in response to global capital flows in some reserve currency issuers. This could occur if the issuer's financial markets are shallow relative to the size of its economy or because its economy is fairly small compared to the global economy. Should sterilization fail to stop large swings in flows, the issuer of the underlying currency could experience fluctuations in market liquidity and asset prices that mirror the global demand for its currency.

17. In addition to the challenges associated with the conduct of monetary policy in a currency union, the global adoption of a GSC (Scenario 3) will subject countries to the monetary stance of a private firm. The fact that a uniform monetary policy for a large set of countries might not adequately align with the business cycles of each one is a well-known challenge associated with conducting monetary policy in currency areas. What would be different in this scenario is that countries that have adopted a GSC as their fiat currency would find themselves exposed to the monetary stance of a private company, which could raise fundamental issues about entrusting the care of a centerpiece of countries' macroeconomic policy to a profit-oriented company.

18. Although privately issued money has circulated in various forms in the past, 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. If the platform issuer makes a profit from other coin-related activities, it could cross-subsidize the coin and offer an interest rate. Conversely, if the access to additional services enabled by the coin places it in high demand, the issuer may be able to charge a fee for its use. The issuer could adjust 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.¹¹ The potential for conflicts of interests 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.¹²

19. If the GSC has a price stabilization rule relative to a basket of goods sold on the Big Tech's platform, notions of optimal currency areas based on the synchronicity of national business cycles could be challenged. Platform-based economic activities and other parts of an economy could experience different trends. The sectors closely associated with the platforms could

¹⁰ Against this cost stands the lower inflation that currency substitution can entail, as the country partly imports the inflation rate of the foreign currency, which is often considerably lower than the prevailing domestic inflation.

¹¹ In addition, there could be risks from a private entity having the ability to control (and potentially, limit) citizens' access to engaging in economic transactions using a GSC.

¹² Provision of credit could also increase the riskiness of the stablecoin issuer, endangering the value of the coin.

become a source of shocks to other parts of the economy. Moreover, if the GSC pays an adjustable rate of return, changes to this rate of return may not be aligned with what is required to stabilize other parts of the economy. Nevertheless, adoption of a platform-linked GSC could also offer some benefits that transcend considerations of ease of payment and business cycles, because they take advantage of the mutually complementary activities and data linkages that arise in a digital network's ecosystem, such as tailored offerings of products and services or credit provision based on payment data.

20. The monetary policy implications of global adoption with multipolarity (Scenario 4) depend on whether the multipolarity is characterized by country currency blocs or 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 using countries mirror those of single-currency adoption.¹³ If GSCs have an adjustable rate of return, competitive forces could drive them to similarly take account of business cycle conditions in the countries using their coins. Competition could therefore make each GSC currency bloc more similar to a currency union than to a “dollarized” economy. As in a currency union, monetary policy could only be tailored to the bloc as a whole and might not be of much help to countries whose business cycles diverge from the average bloc member.

21. 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 towards 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.¹⁴

B. Financial Intermediation and Stability

22. GSCs could create additional incentives for risk taking and raise vulnerabilities, as easier access to foreign currency lowers transactions cost for taking speculative positions. Increased convenience and ease to hold and transact in these new forms of digital money could add additional pressures to the traditional financial stability risks associated with currency substitution, such as funding risks and solvency risks arising from currency mismatch. Their use could pose disintermediation risks in normal times and elevate run risks in stressful times. In addition, confidence crises could arise from cyberattacks, the failure of assets custodians or wallet service providers (e.g., crypto exchanges and/or authorized resellers), or liquidity risk of GSC market makers. Countries that host GSC arrangements will need to consider whether there are significant liquidity

¹³ To some extent we already have a situation of multipolarity today: e.g., the dollar is used extensively in Latin America whereas the euro is used extensively in Eastern Europe.

¹⁴ For example, in Lao PDR, the Lao kip, Thai baht and US dollar are in wide use simultaneously. Movements in the exchange rate between baht to dollar would be a challenge. A further complication of a multiple currency environment is that private sector agents need to monitor several exchange rates and frequently adjust price quotations.

risks, market risks, and operational risks of the GSC arrangement itself, their interlinkages with the local financial systems and spillover effects.

23. A scenario of niche adoption of GSC for cross-border payments (Scenario 1) will likely imply small effects on vulnerabilities of the balance sheets of financial institutions. In this scenario, users will likely hold balances of the GSC only for transactional purposes. In some cases, individuals could temporarily hold limited balances of the GSC as store of value, substituting for banks' deposits. The associated modest decline in banks' deposits could lead to a moderate increase in funding risk, as banks compensate the loss of deposit funding with other, more volatile, sources. In addition, banks that rely significantly on fees from cross border payments could experience a reduction in this source of revenue.

24. Greater currency substitution (Scenario 2) could add additional pressures on funding and solvency risks relative to those typically observed in partially "dollarized" economies. The GSC could increase the degree of currency substitution in countries that already use a foreign currency, as frictions in access and transacting in this currency are likely to decrease. For instance, foreign banknotes might not be freely available, and cost of shipment from the issuing country can be high, limiting its use as means of payments. With a GSC, absent regulatory barriers, availability is limited only by technology. Due to complementarities in the functions of money, higher use as means of payments will likely also lead to higher use as store of value. As individuals substitute domestic bank deposits for the GSC as store of value and means of payments, banks would face higher funding and currency risks. Banks may also face increased credit risks if they denominate loans in the GSC. This is particularly relevant for loans to borrowers with main source of income in the local currency, or whose collateral is denominated in the local currency.

25. 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. 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 run on the bank. Another important factor is the availability of lender of last support 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 run could increase.

26. The GSC ecosystem can also be an important source of risks. All types of conventional risks, including liquidity, market, credit, operational, and cyber, as well risks associated with of GSC wallet service providers, exchanges and other related market infrastructures, can affect the value of the GSC. Realization of these risks could lead to runs away from the GSC into other safer currencies and assets, potentially leading to the break of the peg between the GSC and its currency of denomination. Such runs could cause potential losses for its holders, raising the volatility of cross-border capital flows, and leading to wider financial stability repercussions.

27. In a scenario of global adoption of a single GSC (Scenario 3), the GSC could affect bank funding but the overall impact on credit intermediation is less clear cut. The choice between bank deposits and GSCs as stores of value would depend on the risk-return profile and on other services that may be linked to the GSC. Matching the denominations of their assets with that of their liabilities, in the GSC, allows local banks to hedge currency risks, but may transform it into credit risk if local borrowers lack revenue denominated in the foreign currency. Internationally, their impact largely depends on whether credit intermediation would be able to create “inside money”¹⁵ denominated in the GSC’s unit of account. Indeed, Big Techs could be competitive in extending credit, as they are in a good position to take advantage of the personal data of potential borrowers generated on their platforms.

28. In the global adoption of a single GSC scenario, domestic financial conditions would become more influenced by global factors. As the global financial system becomes more integrated, domestic financial conditions of individual countries have been increasingly driven by so-called global financial cycles. Widespread adoption of a single 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 regulatory authorities may find it more difficult to constrain boom and bust dynamics. The experience of the euro area, for example, showed that some countries (e.g., Spain) faced important challenges in using regulatory and supervisory tools to contain upward pressures on real estate prices and credit growth, induced by loose financial conditions in the wider euro area.

29. The global adoption of a GSC can give rise to systemic risks due to interconnectedness. Pressures on any component of the GSC ecosystem could quickly be transmitted across borders. This applies not only to “direct” channels pertinent to the cross-border provision of services itself (such as questions on the availability and conditions of services and access to backing funds and reserves), but also “indirect” channels, such as through reputational risk. 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 where payments worldwide are interrupted.

30. In a scenario of global adoption with multipolarity (Scenario 4), 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. Nevertheless, competition could foster discipline in risk management in order to maintain the attractiveness of privately issued money in the longer term.¹⁶ Indeed, there is little consensus

¹⁵ Inside money is backed by private credit and thus in zero net supply within the private sector, as opposed to outside money created by the central bank.

¹⁶ See discussions in Friedrich Hayek (1976), *The Denationalisation of Money*, London: The Institute of Economic Affairs.

among economists as to whether historical episodes of currency competition are associated with an improvement or deterioration in financial stability.

31. Currency competition could create incentives for GSC service providers to take on higher risks to gain market share in the short term. As GSCs benefit from strong network effects, the issuers and service providers would be under significant pressure to compete to capture market share. Therefore, aggressive business models could be a driver of additional risks to the ecosystem. For example, GSC service providers may 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), taking excessive risks, and/or gaining from a possible subsequent too-big-to-fail subsidy. The emergence of new systemically important institutions and potential anti-competition effects could thus be a source of systemic risk.

C. Capital Flows

32. GSC adoption and use could affect gross cross-border capital flows by reducing transaction costs and frictions in international capital markets.¹⁷ International capital markets are not frictionless: there are significant transaction costs and markets are segmented by informational asymmetries or familiarity effects. From an investor's perspective, "plumbing" of market infrastructure may become more efficient because of digitalization of money and payments and the associated asset tokenization. As a result, transaction costs are lower and foreign financial markets could become more accessible. GSCs, if bundled with big data derived from the e-commerce and social networking platforms, could also 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 cross-border offerings by banks or reduce the reliance on banks, improve access to international capital markets, and lead to higher financial inclusion of less developed countries or of SMEs across the world.

33. A scenario of niche use of GSC (Scenario 1) would likely not affect capital flows significantly, but a scenario of greater currency substitution (Scenario 2) could affect capital flow volatility. These new forms of digital money can be supplied directly by non-resident service providers to a country's residents through the internet. As such, they can be used to effectively conduct a cross-border transfer while bypassing traditional payment systems, through which exchange restrictions and CFMs are typically enforced. The relative ease of acquiring GSCs on the internet make them particularly attractive in regimes where the costs and national regulatory burden associated with traditional payment systems are high. To the extent that their adoption facilitates capital flows or increases capital flow volatility, it may sharpen the "policy trilemma",¹⁸ complicating the conduct of monetary policy and the management of exchange rates.

¹⁷ The purpose of this section is not to predict the impact on net capital flows, which would result from differences in savings and investment, but rather to focus on the drivers of international transactions in financial assets.

¹⁸ The "policy trilemma" states that it is not possible to have all three of the following at the same time: a fixed foreign exchange rate, free capital movement and an independent monetary policy.

34. A scenario of global adoption of a GSC (Scenario 3) could lead to more integrated international capital markets. Adoption of a common GSC would largely remove exchange risks and re-denomination risks. Use of the GSC, if bundled with sophisticated financial instruments, may give households and small businesses easier access to real time hedging services and improved risk management. However, the experiences of the banking and capital markets union of the euro area indicate that full integration of financial systems and markets require much more than a single currency.

35. Global adoption of a single GSC could lead to more volatile financial conditions in the short term. For a GSC bundled with social media platforms, there could be higher incidence of herding behavior, panics and noise-trading of financial assets. This could reflect two factors. First, information disseminated on social media or other platforms is noisier. Second, the class of investors operating in such environments is arguably more prone to such behavior (small, more noise-traders, etc.). Indeed, the literature on social media/social trading platforms and capital markets find that social media interaction reinforces various psychological biases on trading behavior.

36. A scenario of global adoption with multipolarity (Scenario 4) could create more opportunities for international risk-sharing. This would be the case if the GSCs are not correlated with each other or with the fiat currencies. Furthermore, new classes of safe assets with superior features, such as triple-A rated bonds denominated in the GSC units of account but imbedded with smart contracts that offer attractive risk hedging properties, may emerge. They could offer the opportunity of portfolio diversification and the construction of better hedges against idiosyncratic external risk facing countries. For example, households and small firms in commodity exporting countries could have easier access to financial instruments that help them hedge against volatilities in the prices of the commodity they produce and export.

POLICY IMPLICATIONS

A. Macroeconomic Policies

37. Policy makers in countries where incentives to adopt and use GSCs are strong need to decide whether to accept greater currency substitution, or to resist it, either by strengthening monetary policy credibility and/or by restricting their use. Maintaining a sound fiscal position and safeguarding the independence of central banks, supported by effective legal and regulatory measures to disincentivize foreign currency use, offer the best hope to reduce or counter the pressure of currency substitution. When monetary policy is encumbered or ineffective, various combinations of other policy instruments need to be considered under an integrated policy framework (IPF) that encompasses fiscal, macroprudential policies, foreign exchange interventions and CFMs in order to mitigate the impact of shocks.

38. When their business cycles are not synchronized with those of the issuer of the currency to which the GSC is pegged, the need for fiscal policy to mitigate shocks will be

stronger. In the scenario of global adoption of a GSC, it is also unclear if the monetary stance of GSC issuer (i.e., the quantity of issuance, or the level of interests or charges) will be compatible with the need to stabilize business cycles of the local economy. As a result, local authorities will need to secure enough fiscal policy space so that revenue and expenditures policies can be adjusted in response to business cycle conditions while maintaining the long-term fiscal sustainability of the country. In fact, GSCs could also make it more difficult to ensure fiscal sustainability as they could make it easier for citizens to evade financial repression, a tool that governments may increasingly find attractive in a world of high debt. Other policies, including macroprudential policies, foreign exchange intervention and CFMs have specific objectives but could also be used to some extent to help countries deal with macroeconomic shocks in the event they do not have fiscal space.

39. To maintain financial stability, authorities in recipient countries will need to build up capital and liquidity buffers in their financial systems, and secure sources of emergency liquidity assistance. Macroprudential policy should aim at limiting systemic risks stemming from a cyclical build-up of vulnerabilities. If sufficient capital and liquidity buffers have been built up, they could be released to help cushion the economies against large shocks, such as the COVID-19 pandemic crisis. For emergency liquidity support, reserves will need to be kept or contingent liquidity arrangements be set up with the GSC issuer.

40. Some central banks are considering issuing their own CBDC as a strategic response to the possibility of currency substitution by a GSC. In addition to domestic advantages such as preserving the attractiveness of fiat currencies in the digital age, CBDCs could help facilitate the international use of the currency by improving accessibility, but swings in the external demand for the CBDC could drive capital flows potentially generating spillover and spillback effects. However, for central banks worrying about currency substitution by a GSC, issuing CBDC alone is unlikely to change that if the local currency suffers from instability and provides a poor unit of account. More broadly, the case for CBDC issuance is likely to depend on country circumstances. Any decision will require careful ex-ante cost and benefit analysis and critical design choices.

B. Exchange Restrictions and CFMs

41. Some authorities may choose to restrict the use of GSCs in their countries. This may happen pre-emptively in Scenario 1, as the authorities try to seek to minimize risks of currency substitution; or as an important component of the “de-dollarization” strategy in Scenario 2. For countries that have not liberalized their financial accounts to cross-border capital flows, they 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, CFMs might still need to be considered as a tool to help deal with shocks.

42. If country authorities wish to restrict the use of GSCs, they will need to assess to what extent the restrictive measures can be effectively enforced. Restrictive measures on domestic

transactions could encompass digital money-related services by resident entities. They could range from tight licensing rules to a total ban. Restrictive measures can be implemented on cross-border payments as well, to mirror existing restrictions on current payments or capital transactions (i.e., CFMs), 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 non-resident service providers to a country's resident through the internet.

43. The effective implementation of restrictive measures on both domestic and cross-border use of GSCs would require adequate technological support. The design of digital money should provide for verification of the payor, the recipient and the purpose of the payment. The authorities will need to be in a position to stop the payment if the design does not comply with the restrictive measures. While a deposit-based digital money could in principle address these requirements, there is some uncertainty whether a token-based digital money could be coded in a manner that would allow for such high degree of constraints without leakage. On the positive side, GSCs could in principle be designed to facilitate compliance, where restrictive measures are built into the design or programmed through smart contracts. For example, the transfer of value gets rejected if insufficient balance or the metadata for the transaction to succeed do not meet certain requirements.

C. Legal Frameworks and Regulatory Policies

44. Various scenarios of adoption and use of GSCs require a careful review of existing legal frameworks. The issuance and wide circulation of these new forms of digital money will likely require amendments to the monetary, central bank, financial, contract, property, insolvency, and tax laws. It is crucial that those changes are analyzed and planned well in advance of their introduction and widespread use. For recipient countries, the legal framework will need to be reviewed to ascertain how it will deal with GSCs. It is a matter of policy to decide how accommodative the legal framework will be to GSCs; if the choice is made to be highly accommodative, legal changes are likely to be in order. Naturally, such changes will need to be coherent with the broader exchange control legal framework of the country.

45. Effective implementation of a robust Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT) framework is needed in all scenarios to mitigate the risk of digital money becoming a tool for criminal activities. Effective implementation of The Financial Action Task Force (FATF) standards on AML/CFT, including its new standards for virtual assets, is key. It notably includes the establishment of a framework for the licensing or registration of professionals dealing with virtual assets and for risk-based monitoring. Also, it includes measures to ensure that the traditional criminal law framework applies in the context of virtual assets. While some AML/CFT measures, such as transaction monitoring, may be easier to implement in a DLT context, others, such as verification of the identity of the end users, may be challenging. The AML/CFT obligations on countries are broadly the same, regardless of whether a specific asset is used in a cross-border context or not, but the intensity of AML/CFT measures and monitoring varies according to risk, and

a cross-border use, mass-market adoption and/or greater offerings for greater person-to-person transfers may each call for stronger measures.

46. Changes to the AML/CFT framework are likely to be necessary and international cooperation will be critical. Whether countries wish to bring activities in virtual assets into the AML/CFT regulatory fold or ban them altogether, amendments to the existing legal and institutional framework may be necessary (e.g., to designate the authority in charge of AML/CFT supervision and/or of sanctioning unauthorized activities). In a cross-border context, dialogue amongst the competent authorities – and in particular AML/CFT supervisors – will be key to ensure that there are no regulatory loopholes and to combat misuse in an effective way.

47. The different scenarios of GSC adoption do not change the underlying principles for regulation, including that of technology neutrality, but will affect the intensity of the supervisory approach. In all scenarios, regulations will need to be established to preserve financial stability and to ensure sound governance, safety and integrity of payment infrastructure, operational resilience, and consumer protection. Regulation will also need to take into account the actual use and risk of misuse of financial instruments with a view to maintaining financial and market integrity. More broadly, the application of digital technology in regulation and supervision (“RegTech” and “SupTech”) may empower financial institutions and authorities in improving their risk analysis and enforcing compliance, although their effectiveness remains a work in progress.

48. Authorities may need to tailor measures in line with different risk profiles that could arise with GSC adoption and use. Since Scenario 1 has relatively little impact on financial vulnerability, no major changes in regulation and supervision are required under this scenario. In Scenario 2 and Scenario 4, borrowers and financial intermediaries could experience greater currency mismatches and increased exposure to foreign exchange market risk; deposits in a GSC could have a different liquidity profile than traditional foreign exchange deposits. In Scenario 3, the main risk is maturity mismatch instead of currency mismatch, as financial institutions may fund their longer-dated GSC-denominated assets with short-term liabilities. Authorities may need to increase capital charges of the GSC-denominated loans, enhance their underwriting standards or impose additional liquidity risk management standards given risks from GSC-denominated funding.

49. The scope of regulation and intensity of the supervisory approach will need to consider how existing financial intermediaries could be affected by GSCs. This is of particular importance where financial intermediaries will be allowed to have GSC exposures on their balance sheet, or even would be allowed to intermediate entrusted GSC client funds (e.g., depending on the existing regulatory framework banks and insurance companies may not be allowed to invest in digital instruments, particularly cross-border). Cases where GSCs include bank deposits as reference assets would also intensify interconnectedness with the financial system.

50. The Financial Stability Board (FSB) has developed a set of high-level principles for the regulation of GSCs, but the question remains to what extent the high-level recommendations

are sufficient.¹⁹ While FSB high-level recommendations have been developed to promote coordinated and effective regulation and supervision of GSC arrangements, they are crafted to accommodate divergent regulatory approaches among members and facilitate their efforts to adjust their existing regulatory frameworks. For example, the existing coordination mechanisms among regulators are currently sector-based. Expanding such coordination mechanisms to be cross-sectoral would require further efforts by the different standard-setting bodies (SSBs) and their members. To address these issues, an overarching multi-sector effort to develop more detailed international principles or international standards would be an important next step, to strengthen international consistency and thus contain arbitrage risks.

51. The potential absence of a traditional “home” supervisor for the GSC ecosystem makes it difficult to achieve effective cross-border coordination. The GSC ecosystem may be comprised by loosely connected potentially specialist entities (such as issuers, custodians, authorized resellers, validators and wallet service providers) and, depending on the design, may not have a single governing body that exercises control over the elements of the ecosystem. In principle, the supervisor of the governance body (or arrangement) would be the “home” supervisor, but this may be more difficult to determine when the governance arrangement only covers some elements and when the ecosystem is very open. The rights and responsibilities of any such ‘home’ supervisor may also be hard to determine. It may be necessary to identify home/host supervisors on each sub-entity level (such as an exchange or wallet provider), and to spell out clearly the associated co-ordination arrangements.

52. There remain significant challenges to achieving a global consensus on how to regulate the GSC ecosystem. One example is the current distinction in the regulatory treatment of issuers: some jurisdictions (for example, the US) would prefer to extend securities regulation to GSCs, while others (such as Switzerland and Singapore) have worked to adjust existing payment providers regulation and capture GSC as a type of e-money. Sometimes small adjustments could close differences between diverse regulatory approaches, but it is likely that material gaps, inconsistencies and the potential for regulatory arbitrages could remain unless more detailed international standards or guidance are agreed upon. The emergence of globally consistent regulations to cover other services providers (such as authorized resellers, exchanges and wallet service providers) will be equally challenging.

D. Structural Policies

53. Policies to promote contestability among Big Techs platforms could help mitigate the risks posed by lack of competition and uncertain governance of potential GSC issuers. Effective competition among money issuers, including GSCs, could help alleviate the conflict of interest problems noted above and enhance monetary stability in the longer term. Two key options include data policy frameworks mandating 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.

¹⁹ See the FSB (2020) “Regulation, Supervision and Oversight of ‘Global Stablecoin’ Arrangements”, October.

This logic, of control of data as a barrier to entry, is what has motivated open banking initiatives around the world requiring financial market incumbents to share customer data with entrants. A similar approach could be considered in the case of payments services provision by Big Techs, whether domestically or across borders. This would reduce the barriers to entry arising from harvesting of customer sourced data and related cross-selling of financial services.

54. 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 having the need to build their own separate networks. This is an area that will require further consideration on implementation and how to balance the private interests of companies that have invested in building large networks, with public interest of 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.

55. Consumer protection is an important component in promoting competition among new payment service providers. A wide range of unsophisticated consumers will likely be using these new payments instruments, particularly for social media linked GSCs. Any significant use will require consideration of issues such as adequacy of disclosure, anti-fraud protections, suitability requirements, etc.

CONCLUSIONS

56. As the pace of digitalization accelerates, the international financial system could become more efficient and more integrated. Payments and financial services provision will likely become increasingly integrated with the digital economy organized through the internet and mobile phones. The rise of new forms of digital money could make cross-border payments cheaper, faster, more transparent, and more widely available, thereby lowering costs of doing business, and promoting financial inclusion. When combined with big data derived from the e-commerce and social networking platforms, GSCs could offer improved cross-border credit analytics and help lower information asymmetries. As a result, transaction costs could be lower and foreign financial markets could become more accessible.

57. At the same time, adoption of new forms of digital money such as GSCs could pose risks and make it harder for country authorities to run independent monetary policies and control domestic financial conditions. This note finds that the macro-financial consequences and policy implications of GSC adoption and use are scenario specific. The analysis shows that GSCs pegged to existing units of account do not qualitatively change the economic forces that lead to the international use of currencies but could reinforce the incentives. GSCs that represent new and independent units of account could have more fundamental impact on global monetary and financial stability. In this latter case, countries that have adopted GSCs could find themselves effectively exposed to the monetary stance of private companies. Also, GSC issuers may not have enough incentives to practice robust governance and risk management, doubts about which could

lead to financial instability and volatile capital flows across the globe. These potential problems could become acute when the GSC issuers enjoy a monopolistic position globally.

58. Country authorities could consider various policy tools when balancing the efficiency gains against risks, including the issuance of their own CBDCs. When monetary policy is encumbered or ineffective, various combinations of other policy instruments need to be considered under an integrated policy framework (IPF) that encompasses fiscal, macroprudential policies, foreign exchange interventions and CFMs in order to mitigate the impact of shocks. This also includes a robust legal framework, which plays a critical role in allowing instruments to acquire official status as a legally accepted means of payment and has a major impact on their use. Effective implementation of an adequate AML/CFT regime and international cooperation will be critical. Authorities may choose to restrict the use of GSCs in their jurisdictions, although they need to carefully assess the technical enforceability of such restrictions. Issuing CBDCs could help maintain the attractiveness of fiat currencies, but the decision also requires careful consideration of country circumstances and various design choices.

59. Meeting the challenges arising from new forms of digital money will require close cooperation by country authorities and a strong and persistent commitment by the international policy community, including the G20. With its universal membership and mandate for safeguarding international monetary and financial stability, the IMF is uniquely positioned to consider the macro-financial effects and policy tradeoffs arising from new forms of digital money. The IMF is playing an active role in the global effort to enhance cross-border payments and promote the safety and cross-border interoperability of CBDCs and GSCs. In addition, the IMF can act as a bridge between this high-level policy development process and implementation within countries by providing customized assistance to member countries through policy advice and capacity development.

Annex I. Glossary of Technical Terms¹

Asset tokenization: a process through which a real tradable asset is represented in a digital form, for example on a blockchain, where it acquires new properties, such as the ability to trade a fraction of the asset or implement other programmable actions.

Blockchain: a growing list of records, grouped in a chain of blocks, that are linked using cryptography. It is a type of distributed ledger technology that uses a specific consensus mechanism to update the records of financial and other types of transactions.

Cloud computing: the on-demand availability of computer system resources, especially data storage and computing power through the internet, typically made available by third-party service providers.

Coins: digital tokens used for payments.

Cryptoassets: digital representations of value, made possible by advances in cryptography and distributed ledger technology.

Distributed Ledger Technology: a database that is stored, shared and synchronized on a computer network. Data is updated by following rules of achieving consensus among the network participants. While blockchain is a type of distributed ledger technology, the latter does not necessarily maintain its record using the same chain of blocks architecture.

RegTech: the use of technology to manage regulatory processes within the financial industry through technology. The main functions include regulatory monitoring, reporting, and compliance.

Smart contract: a computer program or a transaction protocol which is intended to automatically execute, control or document events and actions according to the terms of a contract or an agreement. Smart contracts are often associated with distributed ledger technology.

SupTech: the use of innovative technology by supervisory agencies to support supervision. In other words, it's the technologies for the regulators and supervisors themselves.

Tokens: digital representation of a claim, either on a specific issuer or on underlying assets or funds, or some other right or interest, that can be transferred over a peer-to-peer system without necessarily going through a central party to effect settlement.

¹ This glossary does not represent official definitions of the terms by the IMF. It serves as an informal guide to the technical terms used in this paper.