

**INFORMAL
SESSION TO
BRIEF**

FO/DIS/20/187
Correction 1

October 8, 2020

To: Members of the Executive Board

From: The Secretary

Subject: **Digital Money Across Borders Macro-Financial Implications**

Board Action: The attached corrections to FO/DIS/20/187 (9/22/20) have been provided by the staff:

Evident Ambiguity **Pages 2, 8, 33**

**Factual Errors Not
Affecting the
Presentation of Staff's
Analysis or Views** **Pages 11 and 31**

Typographical Errors **Pages 20 and 26**

Questions: Mr. He, MCM (ext. 39570)

funds across borders could be just as easy as sending an email. This could reduce transaction costs to the benefit of end users, especially for small transactions. 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 due to the adoption of CBDCs and GSCs could lead to improved risk-sharing in the longer term.

Digital money adoption across borders also entails risks and policy challenges. Foreign CBDCs and GSCs could raise pressures for currency substitution and worsen vulnerabilities from currency mismatches. They could reduce the ability of local authorities to run monetary policy. Without appropriate safeguards, they could facilitate illicit flows and make it harder for regulatory authorities to enforce exchange restrictions and capital flow management measures. In the case of GSCs, there are additional challenges relating to their governance.

In addition to domestic advantages, cross-border use of CBDCs could help firms and households in issuing countries better manage risks (e.g., by issuing debt denominated in their own currency). But to the extent that it meaningfully increases financial integration without a commensurate development of financial markets and institutions, the issuing countries could have increased exposures to global shocks.

Overall, the paper finds that CBDCs do not qualitatively change the economic forces that lead to the international use of currencies but quantitatively could reinforce the incentives behind currency substitution and currency internationalization. GSCs that do not represent independent units of account are similar to CBDCs in terms of monetary effects but could affect financial stability as they may suffer from bouts of confidence crisis. GSCs that represent new and independent units of account could similarly offer improved financial services but have a potentially more fundamental impact on global monetary and financial stability.

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 implications of these developments in both bilateral and multilateral surveillance, and capacity development.

6. Policy makers will face challenges in responding to digital money use across borders.

As a strategic response to CBDCs and GSCs issued by foreign central banks and Big Techs, central banks could issue their own CBDCs, but that would not necessarily help counter currency substitution if the local monetary policy framework lacks credibility. They might have to adapt the use of fiscal and macroprudential policies to better respond to shocks when monetary policy effectiveness is impaired. For central banks that decide to issue CBDCs, doing so might in some cases help their currencies to internationalize or achieve reserve currency status, but could complicate the conduct of their own monetary policy as foreign use of their CBDCs could increase capital flow volatility. As new forms of digital money gather steam, there will likely be calls for policy makers to harmonize legal and regulatory frameworks governing data use and sharing, competition policy, consumer protection, digital identity, and other important policy issues relating to the digital economy.

7. This paper explores stylized scenarios of cross-border use of CBDCs and GSCs in order to illustrate and explore their possible implications. This is not an effort to forecast specific outcomes or judge their desirability. The hypothetical scenarios range from niche use for small cross-border payments, to pervasive adoption in a subset of countries, to global adoption of a single GSC, or a multipolar world featuring intense competition between a few major CBDCs and GSCs. Using these scenarios as expository 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 across borders? What are the mechanisms through which adoption of CBDCs and GSCs across borders may affect monetary policy transmission, financial stability, capital flows, and the demand for and supply of international reserves? What are the potential policy responses country authorities could consider balancing efficiency gains against risks? And, in a situation where monetary policy effectiveness is impaired, how will other policies need to adapt to allow countries to deal with shocks?

8. The paper provides an informal briefing to the Board about the relevance of digital money across borders to international monetary and financial stability. It is an initial attempt to address the complex interactions between incentives to adopt and use CBDCs and GSCs across borders and their macro-financial effects. While the paper presents an initial analysis of the policy implications of such macro-financial effects, it refrains from making policy recommendations. Normative policy discussions would require further welfare analysis and broader public debate. Overall, the paper finds that CBDCs do not qualitatively change the economic forces that lead to the international use of currencies, as they are only digital forms of existing fiat currencies but quantitatively, they could reinforce the incentives behind currency substitution and currency internationalization. GSCs that do not represent independent units of account are similar to CBDCs in terms of monetary effects but could affect financial stability as they may suffer from bouts of confidence crisis. GSCs that represent new and independent units of account could similarly offer

distribution in remote parts of the country, as well as the fact that the silver in coins was often worth more than the stated value of the coins, lead to a significant reliance on private money for small denomination payments. In 1862, the US Congress forbade issuance of dollar denominated private money, after which many issuers began denominating their currencies in services (e.g., miles of railroad service).

cross-border, payments. The potential global adoption of stablecoins issued by Big Techs could also be contributing to the interest in CBDC. Finally, in the wake of COVID-19, CBDC is being contemplated as a means to enable the swift disbursement of government support to households and firms, and as a means of payment more hygienic than cash and consistent with the need for social distancing (Auer, Cornelli, and Frost, 2020).

Box 1. Money and Currency: Legal Definitions

While this paper 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 CBDC and GSCs be categorized under those legal concepts?

CBDC: As it will be expressed in the existing official monetary unit of the issuing country, CBDC would be a new means of payment, but not a new monetary unit. The legal categorization might also depend on the design. CBDC could be deposit- or token-based, the former involving the transfer of a claim on a deposit account and the latter of a digital token between wallets (G30, 2020). Deposit-based CBDC would be book money, and not currency in most jurisdictions. In contrast, the legal status of token-based CBDC is yet unclear:

- Under public law, while jurisdictions could in principle grant it “currency” status, it would be difficult to grant it all attributes of currency, including legal tender status.
- From a private law perspective, token-based CBDC raises a lot of questions, given that digital tokens do not fit well into the legal categories that have been developed in legal systems. Legal concepts and theories will need to be developed or adapted to allow for weaving digital tokens in private law. Key questions to be addressed will include: what is the legal nature of a digital token (e.g., movable intangible or sui generis category), how are digital tokens transferred and pledged (by the bilateral act between transferor and transferee or by booking in a DLT registry); to what degree are good faith acquirers of digital tokens ~~protected (e.g., the~~ *nemo dat* rule); and what are the relevant private international law rules applicable to digital tokens (*lex rei sitae* or law of the DLT registry).

31. 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 ~~synchronizations~~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 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 (Brunnermeier and others, 2019b).

32. 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.¹⁷ However, in order to attract more countries into their respective blocs and gain seigniorage, CBDC issuers might offer ample swap lines or a monetary policy that internalizes some of its externalities on the using countries.¹⁸ 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. Nevertheless, 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.¹⁹

33. 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.²⁰ The domestic monetary implications of substitution into multiple currencies resemble those of substitution into a single currency, with two exceptions. First, multiplicity could entail diversification benefits. Second, 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

¹⁷ 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.

¹⁸ E.g., when the issuer experiences a local recession or overheating, its rate cuts or hikes could be less steep.

¹⁹ Another possible effect of bloc multipolarity is that, due to reduced payment frictions within the bloc, trade creation and diversion could come about, as found for currency unions (Rose and Van Wincoop, 2001). A related question is whether currency unions are likely to lead to increased integration and similarity of business cycles or instead specialization, and hence business cycle divergence, within the bloc (Frankel and Rose, 1997; Krugman, 1993).

²⁰ An implicit assumption behind this scenario is that the decline in switching costs and the fact that a GSC may offer the bundling of financial and non-financial services can be enough to outweigh the strong network effects associated with the CBDC issued by a reserve currency.

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 CBDCs and 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”,²⁷ complicating the conduct of monetary policy and the management of exchange rates.

46. 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.

47. 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.²⁸

48. A scenario of global adoption with multipolarity (Scenario 4) could create more opportunities for international risk-sharing. This would be the case if these CBDCs and GSCs are not correlated, either because the issuing countries have ~~unsynchronized~~^{asynchronized} business cycles, or because the units of account of the GSCs are different from 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. Nevertheless, the emergence of multiple CBDCs and GSCs, while lowering various frictions, could also increase complexity. This could lead to fragmentation in established market and official mechanisms to provide liquidity backstops, hindering the ability to deal with runs and thereby amplifying volatility.

D. International Reserves

²⁷ 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.

²⁸ For example, Hong and others (2004) and Kaustia and Knüpfer (2012) show that social interactions alter the stock market participation of individual investors. Heimer (2016) presents evidence that social interaction increases behavioral biases such as the disposition effect, which refers to investors' reluctance to sell assets that have lost value and greater likelihood of selling assets that have made gains.

convertible currencies.³¹ In addition, the appropriateness of restrictive measures on access to CBDC for capital transactions under the Institutional View on the Liberalization and Management of Capital Flows (IMF, 2012) would depend on country-specific conditions. Additional implications may arise under other international, regional and bilateral agreements (e.g., OECD Codes of Liberalization of Capital Movements, WTO agreements or investment and free trade agreements).

C. Legal Frameworks

65. Various scenarios of adoption and use of CBDCs and 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, statistics 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 foreign CBDCs and GSCs. It is a matter of policy to decide how accommodative the legal framework will be to foreign CBDCs and 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.

66. 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.³² 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 may call for stronger measures.

67. Care needs to be taken with the design of CBDC to ensure the sound and effective functioning of the AML/CFT framework. In the case of a retail CBDC, AML/CFT measures will be implemented by the participating commercial banks and other service providers, with little changes to the traditional implementation of the AML/CFT framework. In the case of a deposit-based CBDC directly operated by the central bank, however, the central bank itself may need to implement AML/CFT measures, including adequate customer due diligence measures. This may require

³¹ In a scenario where a CBDC becomes a globally dominant currency for cross-border payments, a ban on its use can de facto make it impossible or significantly more burdensome to make payments in fiat currencies, in which case the ban might result in an exchange restriction.

³² The term 'virtual asset' as defined by FATF refers to a digital representation of value that can be digitally traded, or transferred and can used for payment or investment purposes. The definition of virtual assets does not include the digital representation of fiat currencies, securities and other financial assets that are already covered by the FATF standards. Activities in CBDCs are nevertheless subject to AML/CFT regulation – just like fiat in traditional form, under the FATF standard, with some minor exceptions.

digital instruments, particularly cross-border). Cases where GSCs include bank deposits as reference assets would also intensify interconnectedness with the financial system.

73. The Financial Stability Board (FSB) has developed a set of high-level principles for the regulation of GSCs. The FSB recommends that relevant authorities should apply comprehensive regulatory requirements and relevant international standards to GSC arrangements. Authorities should cooperate and coordinate with each other, both domestically and internationally, to foster efficient and effective communication and consultation in order to support each other in fulfilling their respective mandates. In addition, authorities should ensure that GSC arrangements meet all applicable regulatory requirements of a particular jurisdiction before commencing any operations in that jurisdiction, including affirmative approval in jurisdictions that have such a mechanism.

74. The question remains to what extent the high-level recommendations are sufficient. 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.

75. 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.

76. 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 authorities are focusing on the potential applicability and extension of securities regulation to GSCs, while others are working~~ 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.

E. Structural Polices