MIDDLE EAST COUNCIL
ON GLOBAL AFFAIRS

ISSUE BRIEF
FEBRUARY 2024

CBDC Global Pioneers: A Roadmap for Gulf Countries

June Park

KEY TAKEAWAYS

Central Bank Digital Currencies (CBDCs) Rising

Central banks are developing digital currencies as a result of cryptocurrency market volatility and the rise of the digital yuan (e-CNY). They are treading carefully to develop their own prototypes to guard central bank independence and are cognizant that introduction of CBDCs may alter the financial markets in their jurisdictions. There is also a geopolitical component to CBDCs as they pertain to financial sovereignty.

US-China Divide on CBDCs

The U.S. Federal Reserve (Fed) Board still debates digital dollar, while the Fed Banks of New York and Boston have developed CBDC prototypes. The White House is pursuing CBDC development. Meanwhile, China has launched e-CNY pilots in 26 cities, has partnered and competed with the Society for Worldwide Interbank Financial Telecommunication (SWIFT), and has joined the Bank for International Settlements (BIS) Innovation Hub-led CBDC interoperability tests.

Gulf States Vary in CBDC Development Stages

The Saudi Central Bank and the Central Bank of the United Arab Emirates (UAE) have conducted Project Aber, while Bahrain is in CBDC development stage. CBUAE has also participated in Project mBridge, in which interoperability was successfully tested with the central banks of China, Hong Kong, and Thailand. Meanwhile, Qatar and Oman are still in the research stage.

South Korea and Singapore as Gulf CBDC Partners

The Bank of Korea (BOK) has piloted domestic tests with blockchain partners, while Samsung Electronics is developing the offline transaction CBDC prototypes. South Korea will be developing tokenized assets and wholesale CBDCs. The Monetary Authority of Singapore (MAS) has run interoperability tests with global partners for retail CBDCs. BOK and MAS will conduct Project Mandala at BIS, serving as potential partners for Gulf states in CBDC development and tests.

KEYWORDS

Central Bank Digital Currencies (CBDCs)

Gulf States

Financial Markets

Blockchain Technology

Geopolitical Dynamics

The Middle East Council on Global Affairs (ME Council) is an independent, non-profit policy research institution based in Doha, Qatar. The ME Council gratefully acknowledges the financial support of its donors, who value the independence of its scholarship. The analysis and policy recommendations presented in this and other Council publications are those of the author(s) and do not necessarily reflect the views and opinions of the organization, its management, its donors, or its other scholars and affiliates.

COVER IMAGE: GUANGZHOU, CHINA – APRIL 25: In this photo illustration Digital RMB is displayed on the mobile phone in Guangzhou, Guangdong province of China on April 25, 2022. Digital RMB, is a central bank digital currency issued by China's central bank, the People's Bank of China. Stringer / Anadolu Agency (Photo by STRINGER / ANADOLU AGENCY / Anadolu Agency via AFP)

INTRODUCTION: CENTRAL BANK DIGITAL CURRENCIES (CBDCS) ON THE RISE

CBDCs are digital currencies issued by the central banks for which they are legally liable. CBDCs can be categorized into retail CBDCs for everyday transactions by individuals and businesses, and wholesale CBDCs for low-frequency, large-sum, or cross-border transactions by financial institutions. Currently, over 100 countries are advancing in CBDC development, whether in the research (46), or development (33), or pilot (21) phases. In addition, some jurisdictions (11) have already launched their CBDCs.[1]

> In the Gulf, the Saudi Central Bank, previously known as the Saudi Arabian Monetary Authority (SAMA), and the Central Bank of the UAE (CBUAE) have conducted a CBDC interoperability test in 2019 under Project Aber.

Since the People's Bank of China (PBOC), China's central bank, began the development of the digital yuan (e-CNY) (which is not based on blockchain[i] according to the PBOC) and showcased it during the 2022 Beijing Winter Olympics, concerns about surveillance and data privacy have been raised globally.[2] These concerns persist, but opinions have shifted over time, especially with the Bank for International Settlements (BIS) releasing reports on CBDCs[3] and launching Innovation Hubs around the world. The BIS has conducted interoperability tests through multiple CBDC projects with several like-minded central banks that are BIS members.

In the Gulf, the Saudi Central Bank, previously known as the Saudi Arabian Monetary Authority (SAMA), and the Central Bank of the UAE (CBUAE) have conducted a CBDC interoperability test in 2019 under Project Aber (meaning 'crossing borders' in Arabic).[4] In addition, the CBUAE participated in the interoperability test through Project mBridge at the BIS with the PBOC, Hong Kong Monetary Authority (HKMA), and the Bank of Thailand (BOT) in 2022.[5] Bahrain is currently developing its CBDC prototype.[6] In the broader Middle East and North Africa (MENA) region, the Bank of Israel completed two BIS-led interoperability tests: Project Icebreaker with the central banks of Sweden and Norway (which are outside the Eurozone) and Project Sela with HKMA, both completed in 2023.[7]

Among other Gulf Cooperation Council (GCC) states, Kuwait is progressing slowly, while Qatar and Oman have not advanced beyond the research stage.[8] Why do disparities persist among Gulf states in CBDC development? Is the gap a result of varying levels of interest in CBDC development influenced by geopolitics, or does it stem from differing levels of technological capacity? If the gap is linked to technological capacity, could collaboration with technologically advanced countries from outside the region pave the way for CBDC blockchain development and interoperability tests? This issue brief investigates CBDC developments in the Gulf region as societies go cashless and other competing digital currencies (stablecoins and cryptocurrencies) expand their presence in the global financial market.

Given the different approaches by the United States (U.S.) and China on CBDCs, and the ongoing geopolitical tensions between them, Gulf countries are proceeding cautiously in the realm of CBDCs. This issue brief elucidates the contrasting positions on CBDCs in the U.S. and China, along with providing insights from South Korea and Singapore on their pilots and interoperability tests. Subsequently, the brief outlines CBDC development cases in the Gulf and Israel. It concludes with recommendations for Gulf states still in the research phase for CBDCs, proposing South Korea as a potential adviser and provider for CBDC blockchains based on its three previous pilot tests. Additionally, Singapore can be a partner for interoperability tests, given its involvement in multiple BIS projects.

i. A blockchain is a decentralized ledger for collecting and storing information about all cryptocurrency trade transactions across a peer-to-peer network.

CBDCS AMID THE US-CHINA DIVIDE AND OTHER PILOTS BY SOUTH KOREA AND SINGAPORE

In the U.S., conflicting interests and opinions regarding the launch of a digital dollar persist. The Fed's Board of Governors itself has not arrived at a decision regarding CBDCs,[9] and while the White House supports them,[10] obtaining congressional approval and consensus can prove challenging due to diverse interests in the sophisticated U.S. financial market.

> Digital currencies, including cryptocurrencies and stablecoins, which are often pegged to the dollar or other assets, coexist and compete. Yet, regulating these digital currencies presents challenges, as there is no specific set of laws governing cryptocurrency.

Meanwhile, there is a widespread perception in the United States that the U.S. dollar is firmly established as the global reserve currency, and although the digital yuan may pose a partial threat in the digital domain, it is not viewed as a significant challenge. Digital currencies, including cryptocurrencies and stablecoins, which are often pegged to the dollar or other assets, coexist and compete. Yet, regulating these digital currencies presents challenges, as there is no specific set of laws governing cryptocurrency. Consequently, the U.S. Securities and Exchange Commission (SEC) regulates the crypto industry on a case-by-case basis for violations of pertinent legislation, including the Securities Act of 1933 and the Securities Exchange Act of 1934.[11]

While China expands digital yuan pilots within its jurisdiction under the PBOC, the United States is closely monitoring digital yuan interoperability tests via the BIS (with the HKMA involved as the connecting node), in particular Project mBridge.[12] This project, which includes the Bank of Thailand and the CBUAE, is gaining traction. In 2019, The Boston Fed discreetly conducted a pilot study for CBDCs under Project Hamilton in collaboration with the MIT Digital Currency Initiative.[13] The New York Fed has been conducting a pilot for wholesale CBDCs under the inaugural Project Cedar with the installation of a BIS Innovation Hub (New York Innovation Center). The New York Fed has also collaborated with the Monetary Authority of Singapore (MAS) on connecting Project Cedar with Project Ubin.[14]

China is a front runner in CBDC development and has been expanding the digital yuan pilots across 26 cities[15] in 17 provinces and the four municipalities of Beijing, Shanghai, Tianjin, and Chongqing.[16] The cities that have been designated as pilot cities are southeast of the Hu Huanyong line.[ii] The partners for the PBOC's digital yuan pilots include the seven major state-owned banks and other domestic commercial banks.[iii] The China branches of foreign banks also announced their joining of the pilot.[17] Most recently, China has announced a QR code launch for digital yuan pilots in September 2023.[18] China's digital yuan transactions reached 1.8 trillion yuan (approximately $250 billion) by the end of June 2023,[iv] after hitting the 100 billion mark in August 2022.[19] The PBOC also attempted its initial cross-border in digital yuan at the end of 2023.[20] To use the digital yuan, consumers must download the digital RMB app[21] and must consent to the usage of the digital wallet inside the app. Despite financial market participants' and experts'

ii. The pilot tests for the digital yuan began first with the four major municipalities then provinces with more than three cities (Hainan and Zhejiang provinces), then provinces with more than two cities (Shenzhen, Guangzhou, Xiongan district, and Zhangjiakou, as well as Fujian Province). Several other cities including Chengdu, Suzhou, and Qingdao followed. More than 94% of the Chinese population live in these areas, which are east of the Heihe-Tengchong line, or Hu Line.

iii. The seven state-owned banks are the Industrial and Commercial Bank of China, China Construction Bank, Bank of China, Agricultural Bank of China, Bank of Communications, Guangxi Rural Credit Union, and Postal Savings Bank of China. The other commercial banks that are participating include China Merchants Bank, Industrial Bank of China, Weizhong Bank (WeBank), and Wangshang Bank (MayBank).

iv. Comparatively, the U.S. dollar transactions are at $6.6 trillion in foreign exchange transactions daily, and $32 trillion in global trade involves dollars.

speculations that the use of the digital yuan aims to outplay WeChat pay and Alipay, the pilot tests co-exist with these digital payment apps.

Mu Changchun, the director of the Digital Currency Research Institute (DCRI) at the PBOC, emphasizes financial inclusion as a major goal of launching the digital yuan. This goal aligns with improving the efficiency of the central bank's payment system and providing a backup for retail payment systems. However, speculations persist regarding China's geopolitical motives for de-dollarization by offering an alternative transaction method to the dollar. To expand the digital yuan globally, the DCRI became part of a joint venture with the Society for Worldwide Interbank Financial Telecommunication (SWIFT), called Finance Gateway Information Services Co., partnering with China's Cross-border Interbank Payment System (CIPS) and the Payment & Clearing Association of China—both supervised by the PBOC.[22] This collaboration involves China partnering with SWIFT via CIPS while competing with the Belgium-based SWIFT—the foundation for U.S. financial sanctions. To evade U.S. sanctions, the transactions in CIPS must be in renminbi by CIPS members.[23]

> While the BOK has committed to CBDC development through pilot tests, it underlines through publications that there is no official intent to issue the digital South Korean won (KRW).

In South Korea, the Bank of Korea (BOK) conducted three stages of CBDC pilot tests focusing on domestic pilots rather than interoperability tests with other jurisdictions. During the previous administration under Former President Moon Jae-in, heavy crypto trading prompted the South Korean government to regulate the crypto market by mandating all crypto exchanges to forego anonymity in individual wallets. Decentralized finance (DeFi) in this regard became difficult.[24] The BOK conducted research for CBDCs from legal and technical perspectives, including two-stage mock pilot tests (August 2021 to October 2022)[v] and two additional pilots within the BOK with stakeholders of financial institutions since December 2022. For the third stage, Samsung Electronics collaborated with BOK on offline CBDC technology using eSE (embedded Secure Element) chipsets through a memorandum of understanding (MOU).[25]

Issues pertaining to South Korea's CBDC development and pilots included legal concerns[vi] about the BOK becoming the sole issuer of CBDCs,[26] considerations for market volatility and competition, and technical difficulties regarding the transaction time when the CBDC prototype is built upon a blockchain. While the BOK has committed to CBDC development through pilot tests, it underlines through publications that there is no official intent to issue the digital South Korean won (KRW).

The BOK's CBDC pilot evolved from six nodes (BOK and five virtual participant banks) based on a single cloud service to a connected pilot encompassing 12 Information technology (IT) centers with 18 nodes.[vii] The test revealed that the CBDC mock system in expanded form is functional.[27] For improved operability of the expanded CBDC system, investigation into the transaction queue size and block construction would be required for continuous large-sum transactions to resolve the time lag in response

v. In the first stage, GroundX of Kakao provided the blockchain for the CBDC prototype.

vi. For the BOK to be the sole legal issuer of the South Korean won, the National Assembly of Korea need to revise and pass the Bank of Korea Act would. The Act is central to upholding central bank independence of the Bank of Korea.

vii. 12 IT centers included three cloud service providers and nine financial institutions. The 18 nodes involved BOK, two virtual banks, and 15 other financial institutions, among which fourteen participating banks voluntarily joined the test by providing their IT systems and workforce. These were Kookmin Bank, Shinhan Bank, Woori Bank, KEB Hana Bank, Nonghyup (NH) Bank, Busan Bank, Daegu Bank, Kyongnam Bank, Gwangju Bank, Chungbuk Bank, Suhyup Bank, Industrial Bank of Korea (IBK), KakaoBank, and K Bank. Korea Financial Telecommunications and Clearings Institute was the 15th participant.

wait times.[28] Given that the South Korean fintech spectrum already provides numerous options for real-time transactions, the BOK sees limited benefit for retail CBDCs in South Korea, and is poised to construct an infrastructure for CBDC interoperability with BIS for large-sum transactions focusing on tokenized assets and wholesale CBDCs.[29] The BOK will be participating in Project mBridge for interoperability tests and[30] will be conducting wholesale CBDC interoperability tests for Project Mandala alongside the MAS, the Central Bank of Malaysia, and the Reserve Bank of Australia, as announced on October 4, 2023.[31]

> The MAS has been instrumental in bringing central banks together with different stakeholders in the financial and tech industries, ranging from the Bank of Korea, the Bank of Italy, the Development Bank of Singapore (DBS), the International Monetary Fund (IMF), Amazon, and J.P. Morgan.

On the other hand, Singapore has taken a comprehensive approach to CBDCs, conducting interoperability tests and engaging various stakeholders, including central banks and fintech companies. The MAS launched a BIS Innovation Hub in its jurisdiction, addressing the legal landscape for a digital Singaporean dollar (SGD). It has also conducted several interoperability projects with international financial institutions and various central banks via the BIS. Starting with domestic standalone Project Orchid for Singapore, which explored various designs for the digital Singapore dollar,[32] the MAS has conducted Project Ubin and collaborated on Project Cedar Phase II with the New York Fed to test whether blockchains could enhance cross-border multi-currency transactions using wholesale CBDCs.[33] Its Project Dunbar with the Reserve Bank of Australia, the Central Bank of Malaysia, and the South African Reserve Bank yielded results on enabling cheaper, faster, and safer cross-border payments.[34] The MAS has also collaborated with the Swiss National Bank and the Bank of France on Project Mariana through the BIS, to test the cross-border trading and settlement using wholesale CBDCs.[35] The MAS has been instrumental in bringing central banks together with different stakeholders in the financial and tech industries, ranging from the Bank of Korea, the Bank of Italy, the Development Bank of Singapore (DBS), the International Monetary Fund (IMF), Amazon, and J.P. Morgan, and proposing a "purpose-bound" CBDC, focused on issuing digital currencies without relying on a designated mediator.[36] Overall, Singapore's CBDC policy is geared towards flexibility, encompassing both wholesale and retail versions, blockchains, and various options including tokenized assets and stablecoins issued by the private sector.

CBDC DEVELOPMENT AND INTEROPERABILITY IN THE GULF

In the Gulf region, SAMA and the CBUAE conducted their interoperability test through Project Aber in 2019. Project Aber, presumed to bring Gulf stakeholders to test multiple currency interoperability with the digital yuan, was not conducted in conjunction with BIS. Yet, Project Aber tested wholesale CBDC interoperability between Saudi and Emirati central banks, with three major retail commercial banks participating on each side. The Qatar Central Bank (QCB) remains in research mode,[37] while exploring the potential blockchain technology for Qatar's CBDCs. It is estimated that QCB's timeline to develop CBDC blockchains stretches to 2027.[38]

By comparison, the Bank of Israel has had two successful projects through the BIS for interoperability; most recently Project Sela with the HKMA[39] and Project Icebreaker with Norges Bank (the central bank of Norway) and Sveriges Riksbank (the central bank of Sweden), in a partnership with the BIS Innovation Hub Nordic Centre.[40] Given that HKMA is a participant in Project mBridge that connects with PBOC and that Norway and Sweden are outside the Eurozone but part of the European Economic Area, Israel's role appears to be connecting the European region with the Asian region in terms of CBDC interoperability tests through the BIS.

Geopolitical and technological dimensions can explain the gaps between states in the region regarding their CBDC development. In the Gulf region, economic ties with China have become indispensable, but given the U.S.-China divide, countries are weary of the geopolitical climate regarding the issuance of CBDCs. Most Gulf states have their currencies pegged to the U.S. dollar, although they are exploring alternative settlement options in Chinese yuan via the Shanghai Petroleum and Natural Gas Exchange.[41] One significant factor that has delayed CBDC development is the lack of technical expertise on digital blockchain technology or its application to a CBDC prototype, as well as uncertainty regarding how to select a trustworthy partner for collaboration. Given that blockchains are pursued for CBDC operability and interoperability tests are needed for cross-border transactions, identifying the right central banks and blockchain developers to work with on CBDCs will be an immediate task for Gulf states that are slow in CBDC development.

> The key qualities for fintech cooperation on CBDCs for central banks are not only like-mindedness, but also matching the goals of CBDC development with trust and technological rigor to achieve interoperability.

POLICY RECOMMENDATIONS

The surge of digital currencies, including cryptocurrencies and stablecoins, coupled with their volatility on the global financial market and China's development of e-CNY, have prompted central banks worldwide to explore and develop their own CBDCs.

While various pilots, such as Project mBridge at the BIS and those in similar countries by central banks such as the MAS, along with standalone pilot tests by the BOK, indicate considerable interest in CBDCs, countries are approaching CBDC adoption cautiously. The key qualities for fintech cooperation on CBDCs for central banks are not only like-mindedness, but also matching the goals of CBDC development with trust and technological rigor to achieve interoperability. In this context, two Asian economies may be potential partners for Gulf states:

- First, South Korea's experiences in domestic pilot tests involving secure blockchains and continuous development to enhance blockchain technology in offline settings demonstrate trustworthiness and technological capacity. The country's sophistication in research and development for blockchains further strengthens its potential as a partner.

- Second, Singapore, with its multi-currency interoperability tests and the Singapore BIS Innovation Hub, could serve as a platform for Gulf states to explore networks and potential partners for CBDC interoperability tests.

Seeking expertise from South Korea on blockchains and partnering with Singapore on CBDC interoperability tests via the BIS could prove beneficial for countries in the Gulf region.

ENDNOTES

1. "Central Bank Digital Currency Tracker, Geoeconomics Center," Atlantic Council, accessed September 26, 2023, https://www.atlanticcouncil.org/cbdctracker/.

2. Mike Orcutt, "What's next for China's digital currency?," MIT Technology Review, August 3, 2023, https://www.technologyreview.com/2023/08/03/1077181/whats-next-for-chinas-digital-currency/#:~:text=China%20appears%20to%20be%20charging,up%20the%20global%20geopolitical%20order.

3. These reports include: Bank for International Settlements' (BIS) Markets Committee, *Central Bank Digital Currencies*, Markets Committee Paper 174, (Basel, Switzerland: Bank for International Settlements, March 2018), https://www.bis.org/cpmi/publ/d174.htm.

4. Saudi Central Bank and the Central Bank of the U.A.E., *Project Aber: Saudi Central Bank and Central Bank of the U.A.E. Joint Digital Currency and Distributed Ledger Project*, (Saudi Central Bank and the Central Bank of the U.A.E., 2020), https://www.sama.gov.sa/en-US/News/Documents/Project_Aber_report-EN.pdf.

5. "Project mBridge: experimenting with a multi-CBDC platform for cross-border payments," BIS, October 31, 2023, https://www.bis.org/about/bisih/topics/cbdc/mcbdc_bridge.htm.

6. "Central Bank of Bahrain, Bank ABC and J.P. Morgan announce Digital Currency Settlement Collaboration," Central Bank of Bahrain, May 11, 2021, https://www.cbb.gov.bh/media-center/central-bank-of-bahrain-bank-abc-and-j-p-morgan-announce-digital-currency-settlement-collaboration/.

7. "Central Bank Digital Currency Tracker, Geoeconomics Center," Atlantic Council.

8. "Central Bank Digital Currency Tracker, Geoeconomics Center," Atlantic Council. Madhav Suresh, "How are Central banks in GCC responding to Digital Currencies?," Marmore MENA Intelligence, May 2, 2023, https://www.marmoremena.com/en/insights/how-are-central-banks-in-gcc-responding-to-digital-currencies/.

9. "Central Bank Digital Currency (CBDC)," The Federal Reserve Board, January 20, 2022, https://www.federalreserve.gov/central-bank-digital-currency.htm.

10. Alondra Nelson, Alexander Macgillivray, and Nik Marda, "Technical Possibilities for a U.S. Central Bank Digital Currency," The White House, Office of Science and Technology Policy Blog, September 16, 2022, https://www.whitehouse.gov/ostp/news-updates/2022/09/16/technical-possibilities-for-a-u-s-central-bank-digital-currency/.

11. "The Laws That Govern the Securities Industry," U.S. Securities and Exchange Commission, accessed September 26, 2023, https://www.sec.gov/about/about-securities-laws.

12. BIS Innovation Hub, Hong Kong Monetary Authority, Bank of Thailand, Digital Currency Institute at the People's Bank of China, Central Bank of the U.A.E, *Project mBridge: Connecting economies through* CBDC, (Switzerland: Bank for International Settlements (BIS), October 2022), 9, https://www.bis.org/about/bisih/topics/cbdc/mcbdc_bridge.htm.

13. "Project Hamilton – building a hypothetical central bank digital currency," MIT Digital Currency Initiative (DCI), accessed September 26, 2023, https://dci.mit.edu/project-hamilton-building-a-hypothetical-cbdc.

14. The Federal Reserve Bank of New York and the Monetary Authority of Singapore, *Project Cedar Phase II x Ubin+: Improving wholesale cross-border multi-currency payments and settlements*, (New York: The Federal Reserve Bank of New York and the Monetary Authority of Singapore, May 18, 2023), https://www.newyorkfed.org/medialibrary/media/nyic/project-cedar-phase-two-ubin-report.pdf.

15. Amitoj Singh, "China Includes Digital Yuan in Cash Circulation Data for First Time," *CoinDesk*, January 11, 2023, https://www.coindesk.com/policy/2023/01/11/china-includes-digital-yuan-in-cash-circulation-data-for-first-time/.

16. Changchun Mu, "Theories and Practice of exploring China's e-CNY," in *Data, Digitalization, Decentralized Finance and Central Bank Digital Currencies*, Andreas Dombret and Patrick S. Kenadjian eds. (Berlin, Germany: De Gruyter, 2023), http://www.pbc.gov.cn/en/3935690/3935759/4749192/2022122913350138868.pdf; Thai-Binh Elston, "China is Doubling Down on its Digital Currency," Analysis, Foreign Policy Research Institute, June 2, 2023, https://www.fpri.org/article/2023/06/china-is-doubling-down-on-its-digital-currency/.

17. "Four foreign banks tap into digital yuan market," Central Banking, December 1, 2023, https://www.centralbanking.com/central-banks/currency/digital-currencies/7960367/four-foreign-banks-tap-into-digital-yuan-market.

18. "PBoC developing interoperable QR codes for digital yuan," Central Banking Newsdesk, September 5, 2023, https://www.centralbanking.com/fintech/cbdc/7959640/pboc-developing-interoperable-qr-codes-for-cbdc.

19. "Digital yuan transactions growing rapidly, PBoC says," Central Banking, July 25, 2023, https://www.centralbanking.com/central-banks/payments/7959347/digital-yuan-transactions-growing-rapidly-pboc-governor-says; "China Sprints Ahead in Race to Modernize Global Money Flows," Bloomberg, August 9, 2023, https://www.bloomberg.com/news/articles/2023-08-09/china-s-digital-yuan-mbridge-plan-challenges-7-trillion-dollar-dominance.

20. "China Initiated First Cross-Border Digital Yuan Transaction," CoinGape, December 21, 2023, https://coingape.com/china-initiated-first-cross-border-digital-yuan-transaction/.

21. Arendse Huld, "China Launches Digital Yuan App – All You Need to Know," *The China Briefing*, September 22, 2022, https://www.china-briefing.com/news/china-launches-digital-yuan-app-what-you-need-to-know/.

22. Alice Shen, "PBoC subsidiary sets up joint venture with Swift," Central Banking News, February 5, 2021, https://www.centralbanking.com/central-banks/financial-market-infrastructure/7743096/pboc-subsidiary-sets-up-joint-venture-with-swift.

23. "Why China's Payment System Can't Easily Save Russian Banks Cut Off from Swift," *Bloomberg*, March 15, 2022, https://www.bloomberg.com/news/articles/2022-03-14/why-china-s-payment-system-can-t-easily-save-russia-quicktake.

24. June Park, *South Korea's Critical Moment in Digital Currency Policymaking: Between Regulating Cryptocurrencies and Launching a Central Bank Digital Currency (CBDC)*, KEI Academic Paper Series, (Washington, DC: Korea Economic Institute of America (KEI), March 2022), https://keia.org/publication/south-koreas-critical-moment-in-digital-currency-policymaking-between-regulating-cryptocurrencies-and-launching-a-central-bank-digital-currency-cbdc/.

25. "삼성전자 X 한국은행, '오프라인 중앙은행디지털화폐 기술연구 협력MOU체결 [Samsung Electronics, Bank of Korea, 'offline central bank digital currency technology research cooperation agreement']," Samsung Newsroom, May 15, 2023, https://news.samsung.com/kr/삼성전자-x-한국은행-오프라인-중앙은행디지털화폐.

26. "Bank of Korea Act," Korea Legislation Research Institute, accessed September 26, 2023, https://elaw.klri.re.kr/eng_service/lawView.do?hseq=4101&lang=ENG.

27. Lee Min-hyung, "Klaytn seeks to become versatile, sustainable blockchain," *The Korea Times*, April 8, 2023, https://www.koreatimes.co.kr/www/nation/2023/10/602_347957.html.

28. Digital Currency Technology Team 1, "CBDC 모의시스템 금융기관 연계 실험 결과 [CBDC simulation system financial institution linkage experiment results]," The Bank of Korea, May 8, 2023, https:s//www.bok.or.kr/portal/bbs/P0000559/view.do?nttId=10077218&menuNo=200690&pageIndex=1.

29. BIS, "CBDCs: Keeping momentum in uncertain times," YouTube, April 3, 2023, https://www.youtube.com/watch?v=ClkaQY8UXe8&t=2s&ab_channel=BankforInternationalSettlements.

30. Bank for International Settlements, "CBDCs: Keeping momentum in uncertain times," YouTube, April 3, 2023, https://youtu.be/ClkaQY8UXe8?si=LuFLQQq-gEmx048U.

31. "Project Mandala: shaping the future of cross-border payments compliance," Bank for International Settlements, October 4, 2023, https://www.bis.org/about/bisih/topics/cbdc/mandala.htm; "BOK, FSC, and FSS, in cooperation with the BIS, have launched a project to explore a future monetary system for Korea," Bank of Korea, November 15, 2023, https://www.bok.or.kr/eng/bbs/E0000634/view.do?nttId=10079839&menuNo=400069&pageIndex=1.

32. "Project Orchid," The Monetary Authority of Singapore, October 31, 2022, https://www.mas.gov.sg/schemes-and-initiatives/project-orchid.

33. "Project Cedar: Improving Cross-Border Payments with Distributed Ledger Technology," The New York Federal Reserve Board, May 18, 2023, https://www.newyorkfed.org/aboutthefed/nyic/project-cedar.

34. "Project Dunbar: international settlements using multi-CBDCs," Bank for International Settlements, March 22, 2022, https://www.bis.org/publ/othp47.htm.

35. "Project Mariana: Cross-border exchange of wholesale CBDCs using automated market-makers," Bank for International Settlements, September 28, 2023, https://www.bis.org/publ/othp75.htm.

36. The Monetary Authority of Singapore, *Purpose Bound Money (PBM) Technical Whitepaper*, (Singapore: The Monetary Authority of Singapore, June 21, 2023), https://www.mas.gov.sg/publications/monographs-or-information-paper/2023/purpose-bound-money-whitepaper.

37. Jack Schickler, "Qatar at 'Foundation Stage' of CBDC Exploration, Central Bank Governor Says," CoinDesk, June 22, 2022, https://www.coindesk.com/policy/2022/06/22/qatar-at-foundation-stage-of-cbdc-exploration-governor-says/; Wahid Pessarlay, "Qatar Central Bank governor: Qatar is in 'foundation stage' of CBDC exploration," CoinGeek, June 28, 2022, https://coingeek.com/qatar-central-bank-governor-qatar-is-in-foundation-stage-of-cbdc-exploration/.

38. Selva Ozelli, "Qatar's National Solarized Fintech Strategy Amid COVID-19 Pandemic," CoinTelegraph, August 30, 2020, https://cointelegraph.com/news/qatars-national-solarized-fintech-strategy-amid-covid-19-pandemic.

39. "Project Sela: an accessible and secure retail CBDC ecosystem," Bank for International Settlements, September 12, 2023, https://www.bis.org/publ/othp74.htm.

40. "Project Icebreaker concludes experiment for a new architecture for cross-border retail CBDCs," Bank for International Settlements, March 6, 2023, https://www.bis.org/about/bisih/topics/cbdc/icebreaker.htm.

41. Andrew Hayley, "China completes first yuan-settled LNG trade," Nasdaq, March 28, 2023, https://www.nasdaq.com/articles/china-completes-first-yuan-settled-lng-trade.

ABOUT THE AUTHOR

June Park is a visiting fellow at the Middle East Council on Global Affairs (ME Council). She is a political economist working on the geoeconomics of conflict in the digital economy, observing East Asia, the U.S., Europe, and the Gulf. She focuses on trade, energy, and tech conflicts among nation states as they navigate their distinctive paths into the digital future. Her current work pertains to geoeconomic conflicts in emerging technologies.

The author wishes to thank Ahmet Faruk Aysan for his valuable comments and Haiqa Fatima for her research assistance.

ABOUT THE MIDDLE EAST COUNCIL ON GLOBAL AFFAIRS

The Middle East Council on Global Affairs (ME Council) is an independent, non-profit policy research institution based in Doha, Qatar. The ME Council produces policy-relevant research, convenes meetings and dialogues, and engages policy actors on geopolitical and socioeconomic issues facing the Middle East and North Africa (MENA) region. The ME Council serves as a bridge between the MENA region and the rest of the world, providing a regional perspective on global policy issues and establishing partnerships with other leading research centers and development organizations across the MENA region and the world.

MIDDLE EAST COUNCIL ON GLOBAL AFFAIRS
Burj Al Mana 3rd floor, Street 850, Zone 60, Doha, Qatar
www.mecouncil.org