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REPORT

CFA Institute Global Survey on Central Bank Digital Currencies

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This report examines the possible implications for capital markets and investment practitioners if central banks develop and launch digital versions of fiat currencies, by questioning the CFA Institute membership on a global basis. The report is based on a survey that was run from 13 to 27 February 2023.

KEY FINDINGS

- While many of the current studies on central bank digital currencies (CBDCs) focus on the preferences of central banks (the "push"), our survey explores the demand side of this debate (the "pull").
- We found limited understanding of and support for CBDCs. A global plurality of 42% of respondents believe that central banks should launch CBDCs, while 34% disagreed and nearly one in four (24%) expressed no opinion. Only 13% said they had a strong understanding of CBDCs.
- Global averages can obscure significant differences across geographic regions, levels of economic development, and age of respondents. The survey found significantly greater receptivity to CBDCs among younger respondents, those in the Asia-Pacific region, in developing economies, and in China and India. Developing markets placed greater emphasis than those in developed economies on the role of CBDCs in enhancing financial inclusion.
- In all markets, the top reason cited to support launching a CBDC was to accelerate payments and transfers. The chief concerns focused on three issues: cybersecurity and fraud, data privacy, and lack of use cases.
- Globally, a majority believes that CBDCs can coexist with private cryptocurrencies. This points to some dichotomy in results. While a large majority agrees that public trust in fiat money is suffering because of monetary policy, a solid majority also believes that private money will always be inferior to government money.
- Our conclusion explores some of the implications of the survey findings, identifying seven key issues and offering recommendations for central banks.

**CFA Institute**

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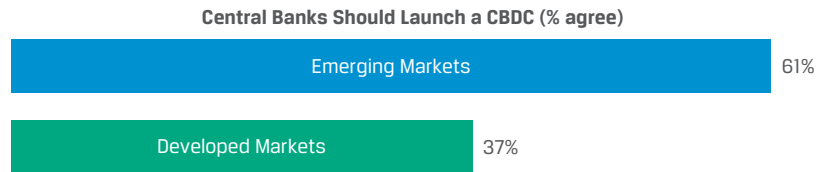
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SURVEY QUESTIONS

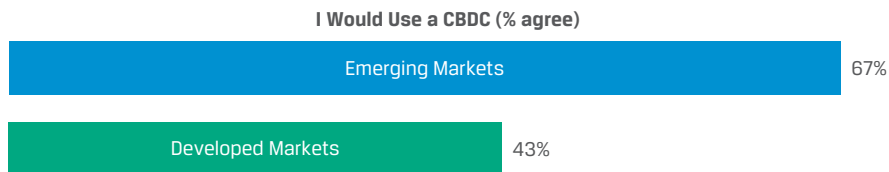
- **Question 1:** Rate your own level of understanding of central bank digital currencies.
- **Question 2:** Do you believe that central banks should or should not launch digital versions of fiat currencies (CBDCs)?
- **Question 3:** We have asked our membership if they agreed or disagreed with a series of statements regarding money and digital finance (on a scale of 1–5, with 1 meaning you strongly disagree and 5 you strongly agree).
- **Question 4:** What do you think about CBDCs and financial inclusion?
- **Question 5:** Tell us your opinion about possible design choices for a CBDC.
- **Question 6:** Would you use a CBDC if offered by a central bank?
- **Question 7:** Some argue that a CBDC would enhance overall financial stability, because investors would diversify their assets by holding some CBDCs in normal times. Others argue that investors would be more likely to sell risky assets and buy CBDCs at the first signs of market stress, and this would exacerbate market instability. What do you believe?
- **Question 8:** What will be the impact of CBDCs on private cryptocurrencies?
- **Question 9:** We asked our membership how concerned they were about several issues related to the possible introduction of CBDCs (on a scale of 1–5, with 1 meaning not concerned at all and 5 very concerned).

SPOTLIGHT 1: A MARKET DEVELOPMENT DIVIDE

Respondents in emerging markets were far more likely than those in developed markets to favor launching a CBDC:

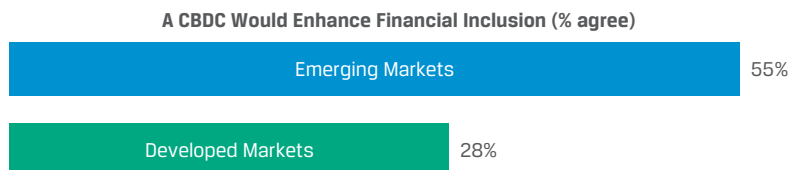


Respondents in emerging markets also were more likely to say they would use a CBDC in some capacity, whether personal or professional:

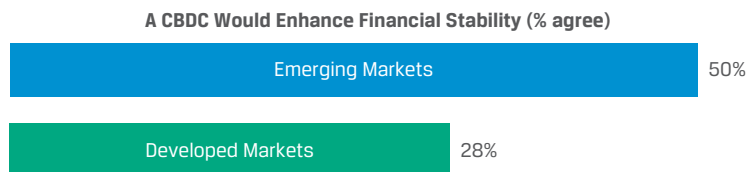


Emerging market respondents also showed greater optimism that a CBDC would enhance the following:

(1) Financial inclusion



(2) Financial stability

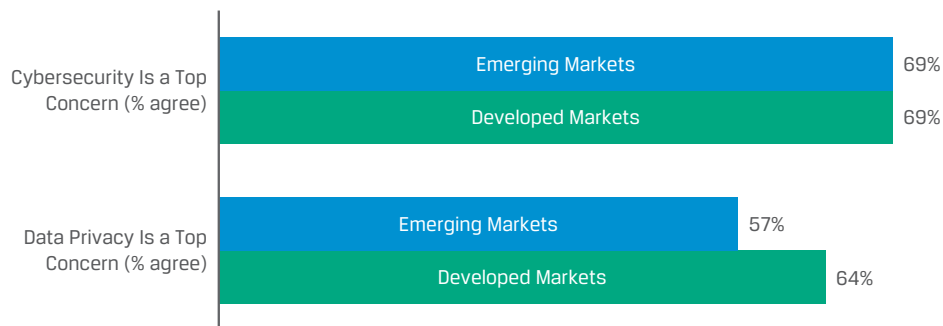


Responses in emerging and developed markets differed on specific design features of a CBDC:



The support for payment of interest is particularly striking because it conflicts with the preferences of many central banks in emerging markets. A 2022 Bank for International Settlements (BIS) survey of central banks in emerging markets found that the "central banks are generally against a CBDC that 'bears interest'" and "do not foresee offering interest on CBDCs."¹ The BIS report noted that a non-interest-bearing CBDC would be consistent with the objectives of providing a cash-like digital means of payment and, moreover, could help keep in check both credit disintermediation and the impact on monetary policy.²

Responses were identical, however, on the top concern about CBDCs (cybersecurity) and close on the second highest concern (privacy).

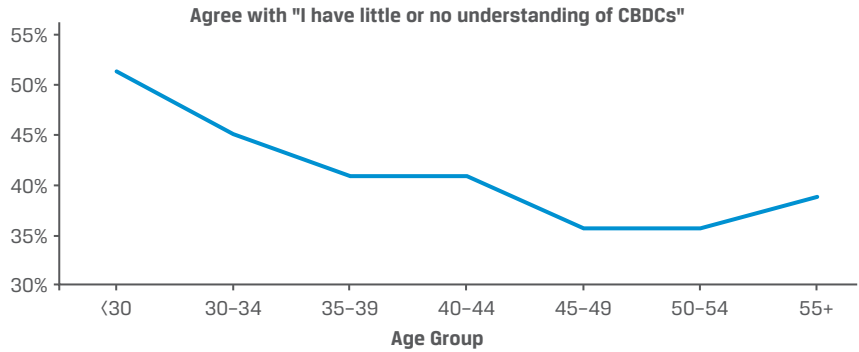


¹Sally Chen, Tirupam Goel, Han Qiu, and Ilhyock Shim, "CBDCs in Emerging Market Economies," BIS Papers No. 123 (April 2022), pp. 10, 11. The BIS survey asked the emerging market central banks to rate their support for an interest-bearing CBDC on a scale of 0 to 1, with 0 meaning that banks were against the design feature and 1 meaning that they supported the feature. The average response to this question was just 0.27.

²Chen et al., "CBDCs in Emerging Market Economies." Similar preferences prevail among central banks in the Asia-Pacific region as a whole. According to the International Monetary Fund (IMF), central banks in that region prefer CBDCs to be non-interest-bearing and also prefer that they place limits on individual holdings, to reduce competition for bank deposits and to prevent bank run risks during times of stress. Also see Sarwat Jahan, Elena Loukoianova, Evan Papageorgiou, Natasha X. Che, Ankita Goel, Mike Li, Umang Rawat, and Yong Sarah Zhou, "Towards Central Bank Digital Currencies in Asia and the Pacific: Results of a Regional Survey," IMF Fintech Notes (28 September 2022), pp. 14, 27. www.elibrary.imf.org/view/journals/063/2022/009/article-A001-en.xml.

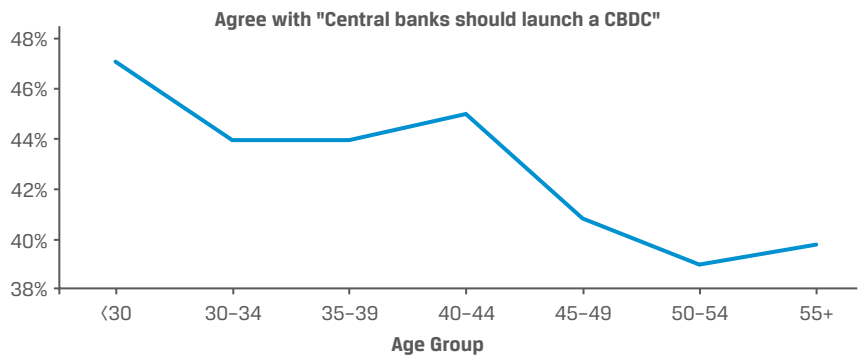
SPOTLIGHT 2: A GENERATIONAL DIVIDE

There is a common perception, buttressed by several industry surveys, that younger people are savvier than older persons about digital assets. Yet in our survey, younger respondents were more likely to self-report little or no understanding of CBDCs.

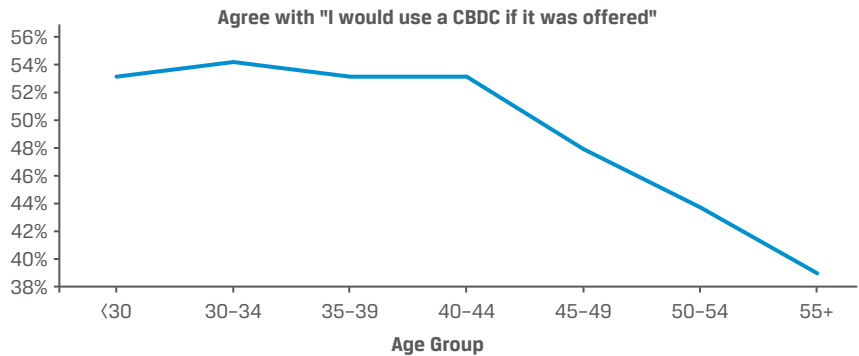


Nonetheless, younger respondents were more receptive to CBDCs on other questions. For instance, younger respondents were more likely to believe the following:

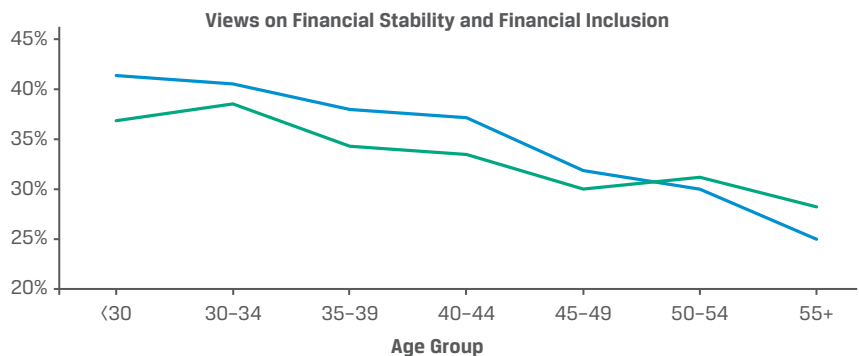
(1) Central banks should launch CBDCs



(2) They would use a CBDC if it were offered

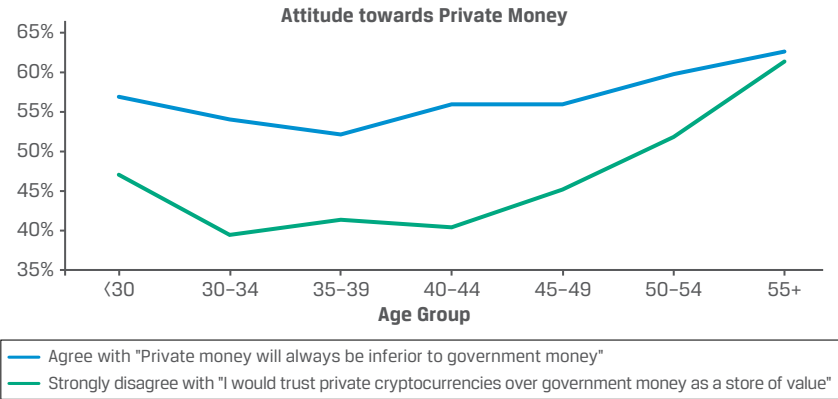


Though only a minority in every age group believed that CBDCs likely would enhance financial inclusion or financial stability, younger respondents were more optimistic on both questions.

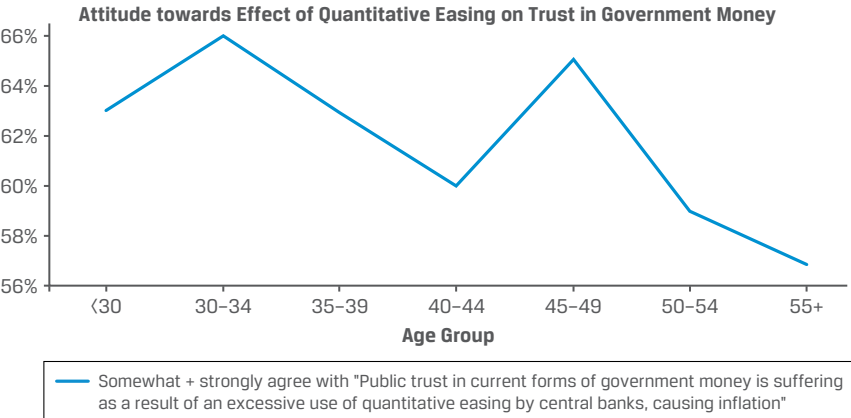


— Agree with "A CBDC would improve financial inclusion"
 — Agree with "A CBDC would enhance financial stability"

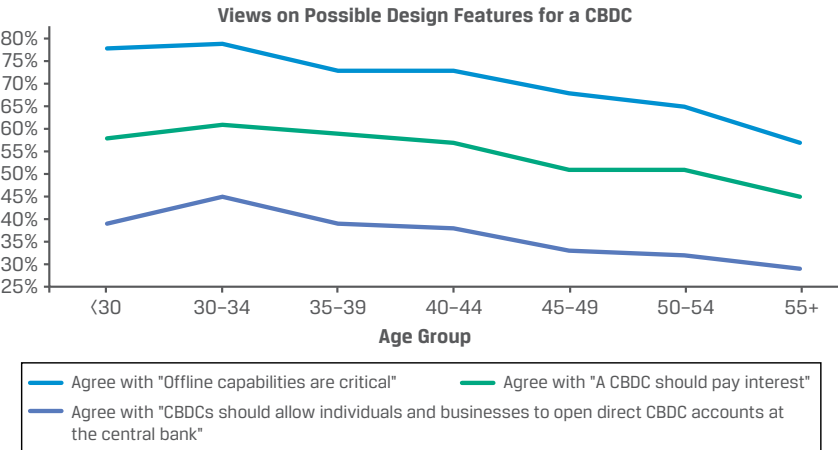
And though a majority of all age groups placed greater trust in government money than private money or cryptocurrencies, skepticism of private money and cryptocurrencies increased with age.



Younger respondents also were more likely to say that quantitative easing and inflation had damaged trust in government money.



Generational divides also emerged on various design options, most notably on the importance of offline access to CBDCs.



1. INTRODUCTION

Should we establish a digital version of fiat currencies to be used as legal tender? This is a question that governments and central banks around the world are debating, in a context of accelerating—and at times messy—development of digital finance.

The Bank for International Settlements (BIS) defines a central bank digital currency (CBDC) as a "central bank-issued digital money denominated in the national unit of account, and it represents a liability of the central bank."³

One can think of a CBDC as a cryptocurrency—but one issued by the central bank itself, which assumes direct liability for the units issued. In practice, creating a CBDC would constitute a fourth type of money, after

- central bank money (physical notes and coins, as well as balances held by commercial banks as reserves at the central bank);
- commercial bank money (bank deposits by individuals and businesses); and
- non-bank money (money markets or balances held at non-bank institutions).

Private cryptocurrencies, such as bitcoin and ether, are digital assets administered on a decentralized network. A CBDC, in contrast, would operate on a centralized ledger controlled by the central bank, acting as the responsible issuing entity. This distinction is important to bear in mind.

In keeping with the current characteristics of fiat money, it is reasonable to assume a CBDC would be exchangeable one to one with the fiat currency and accepted as legal tender in its jurisdiction of reference. It could also make sense to presume that a CBDC would be freely convertible against commercial bank money and cash, although our research concerned assessing the possible variations in design and features, such as whether there should be limits to the amount of CBDC in circulation.

In January 2021, the BIS released the results of a study of 60 central banks around the world. It found that 86% of surveyed institutions were "exploring the benefits and drawbacks of CBDCs."⁴

Fast forward to 2023: The Atlantic Council's Central Bank Digital Currency Tracker reveals that 114 countries, representing over 95% of global GDP, are exploring the launch or the merits of a CBDC for their jurisdiction.⁵ The organization reports that 11 countries have already launched a digital fiat currency.

The central banks are considering a wide range of fundamental questions about the purpose, design, and impact of a CBDC. These questions include the following:

- What is the rationale for issuing a digital version of sovereign money used as legal tender? What market or economic need would a CBDC fill?
- Is there demand for a CBDC at either the wholesale level (among large commercial banks, for instance) or the retail level?
- What problem would a CBDC be an answer to, when compared to existing payment infrastructure, accelerating advances in payment technology, and the availability of private cryptocurrencies in some markets?

³Codruta Boar and Andreas Wehrli, "Ready, Steady, Go?—Results of the Third BIS Survey on Central Bank Digital Currency," BIS Papers No. 114 (January 2021), p. 4. www.bis.org/publ/bppdf/bispap114.pdf.

⁴See Boar and Wehrli, "Ready, Steady, Go?," p. 3.

⁵See www.atlanticcouncil.org/cbdctracker/.

- How would a central bank manage the significant data privacy issues that would arise with a CBDC?
- What are the costs and benefits of various optional design features of a CBDC?
- Would a CBDC change the monetary function of central banks or the intermediating role of commercial banks in accepting deposits and providing loans?
- Would a CBDC enhance financial inclusion by improving access to basic financial services?
- Would a CBDC have an impact on systemic risk in capital markets?

At this stage of CBDC development, these remain open questions that we were interested to explore with this report.

Fintech and the development of digital finance are key topical priorities for CFA Institute. We recently released our first original research on cryptoassets and the challenges they pose to capital markets.⁶

Our intention is to better understand the implications for capital markets and investment practitioners of a central bank digital currency.

With this survey, we have questioned our membership based on the following logic:

1. The level of knowledge about CBDCs of our members
2. Their level of support for issuing a CBDC
3. Design options
4. Demand for CBDCs and use cases
5. Risks that CBDCs could pose for investors and capital markets

This report analyzes the results of the survey.

⁶See Stephen Deane and Olivier Fines, "Cryptoassets: Beyond the Hype," CFA Institute (4 January 2023). www.cfainstitute.org/research/industry-research/cryptoassets-beyond-the-hype. The report focuses on three particular issues important to regulators and investors alike: how to establish the value of cryptoassets and associated ventures, custody and safe-keeping of client assets, and fiduciary duty.

2. SURVEY METHODOLOGY AND DEMOGRAPHICS

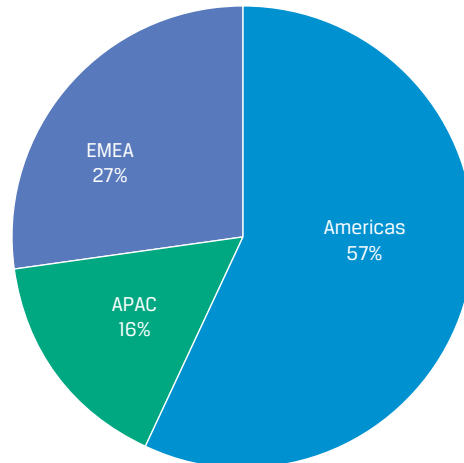
The online survey ran from 13 February to 27 February 2023. It was sent to a random sample of 90,443 CFA Institute members on a global basis. Where applicable, regional limitations to surveying scope are explained in the exhibits throughout this report. We received 4,157 valid responses to the survey, for a 5% response rate and a margin of error of $\pm 1.5\%$, with a 99% confidence interval.

The following charts (**Exhibits 1-5**) present the traditional set of demographic statistics on the population that responded to the survey.

MSCI categorizes markets based on size and liquidity, market access, and, for developed markets only, sustainability of economic development (**Exhibits 3-5**).⁷



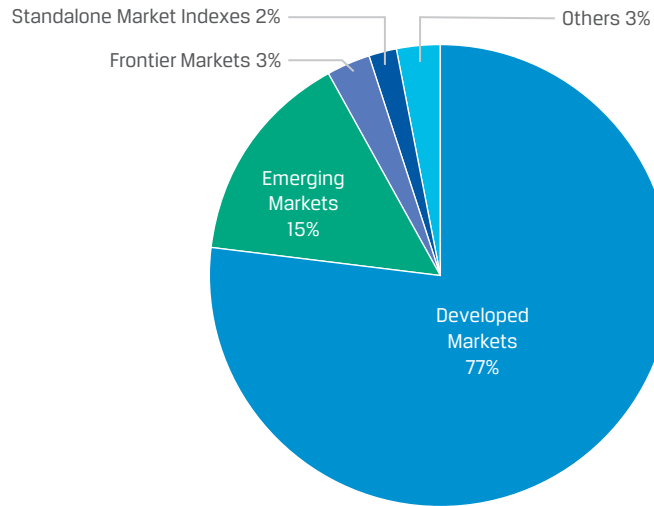
Exhibit 1. Regional Distribution of Respondents



Note: EMEA stands for Europe, the Middle East, and Africa; APAC stands for Asia Pacific; Americas represents North and South America.

⁷See MSCI, "MSCI Market Classification Framework" (June 2022). www.msci.com/documents/1296102/6a6cbb4e-d14d-10a4-0cec-7a23608c0464.

Exhibit 2. Regional Distribution of Respondents According to MSCI Market Classification



Source: Based on data from MSCI (www.msci.com/our-solutions/indexes/market-classification).

Exhibit 3. Distribution of Respondents Broken Down by Largest Individual Markets

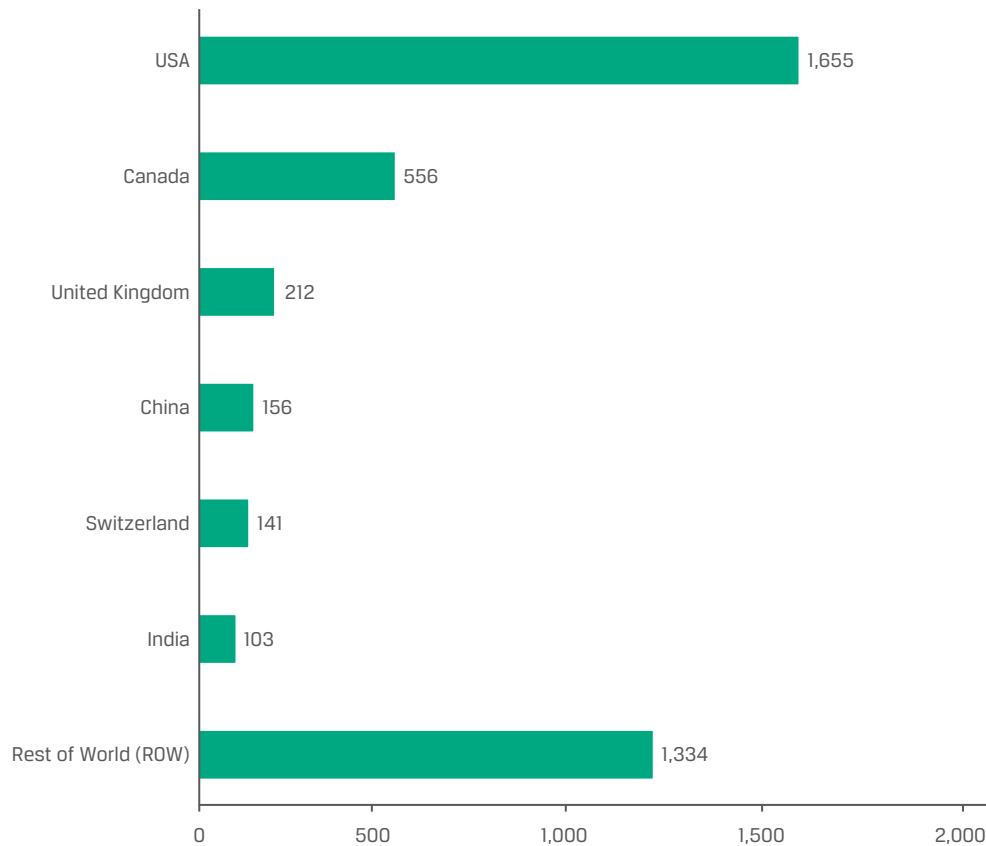




Exhibit 4. Distribution of Respondents According to Employer Type

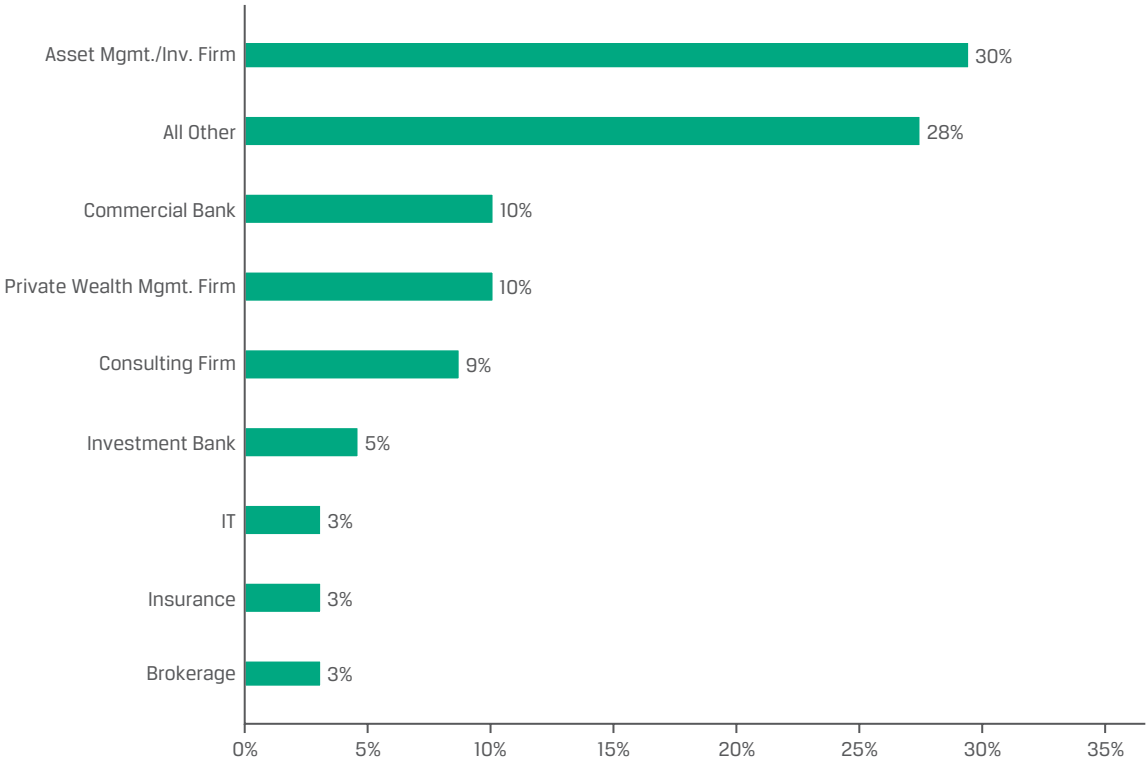
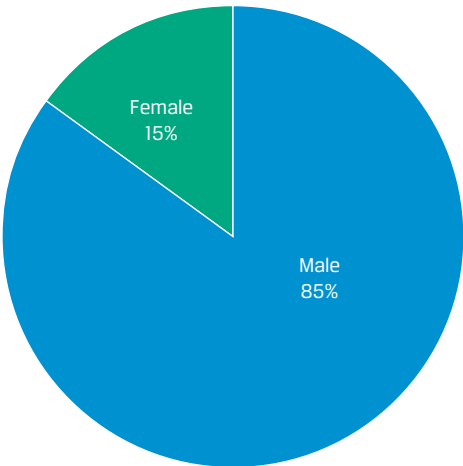


Exhibit 5. Distribution of Respondents According to Gender



3. DETAILED RESULTS AND ANALYSIS

In this section, we discuss and analyze the results of the survey.

Level of Knowledge about CBDCs

Given the advanced financial knowledge of CFA Institute members, we were interested in measuring their self-perception of their understanding of what CBDCs represent and how they could function.

Question 1: Rate your own level of understanding of central bank digital currencies.

The findings (**Exhibit 6**) show that members' self-reported understanding of CBDCs is quite limited.

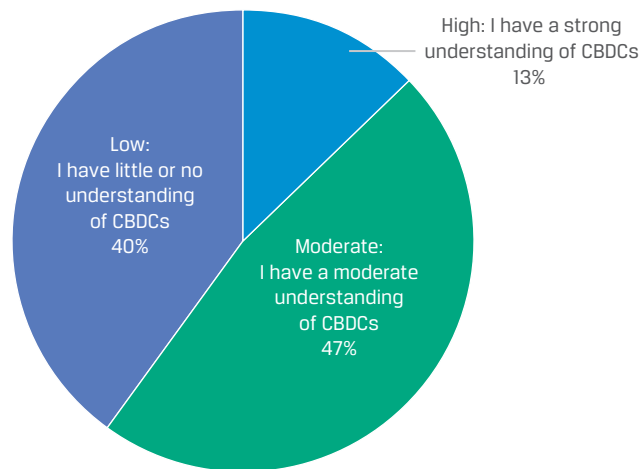
A large majority of respondents (87%) judged themselves as having little or moderate understanding of CBDCs, and the results are fairly consistent across regions.

In general, the younger the respondents were, the more likely they were to report a low level of understanding, with 51% among those under age 30 reporting a low level of understanding, compared to only 39% among those over 55.



Exhibit 6. Level of Understanding of CBDCs (global results)

Rate your own level of understanding of central bank digital currencies (CBDCs): *N* = 4,143



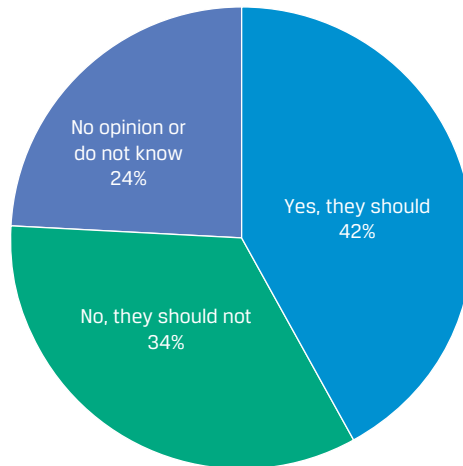
Gauging Support for Launching CBDCs

Question 2: Do you believe that central banks should or should not launch digital versions of fiat currencies (CBDCs)?

At a global level, the question of whether to launch a CBDC fails to gain majority support, with 42% in favor, 34% opposed, and a sizable proportion, 24%, voicing no opinion (**Exhibit 7**), demonstrating again that digital currencies are not yet a mature concept.

Exhibit 7. Level of Support for Launching a CBDC (global results)

Do you believe that central banks should or should not launch digital versions of fiat currencies (CBDCs)? *N* = 4,071



This result, combined with that of the first question, suggests that central banks and governments will need to engage in a significant educational and outreach effort to explain why they would launch such instruments, for what purpose, and under what circumstances.

This global result, however, becomes far more nuanced at the regional level (**Exhibit 8**).

A series of observations can be made from these results:

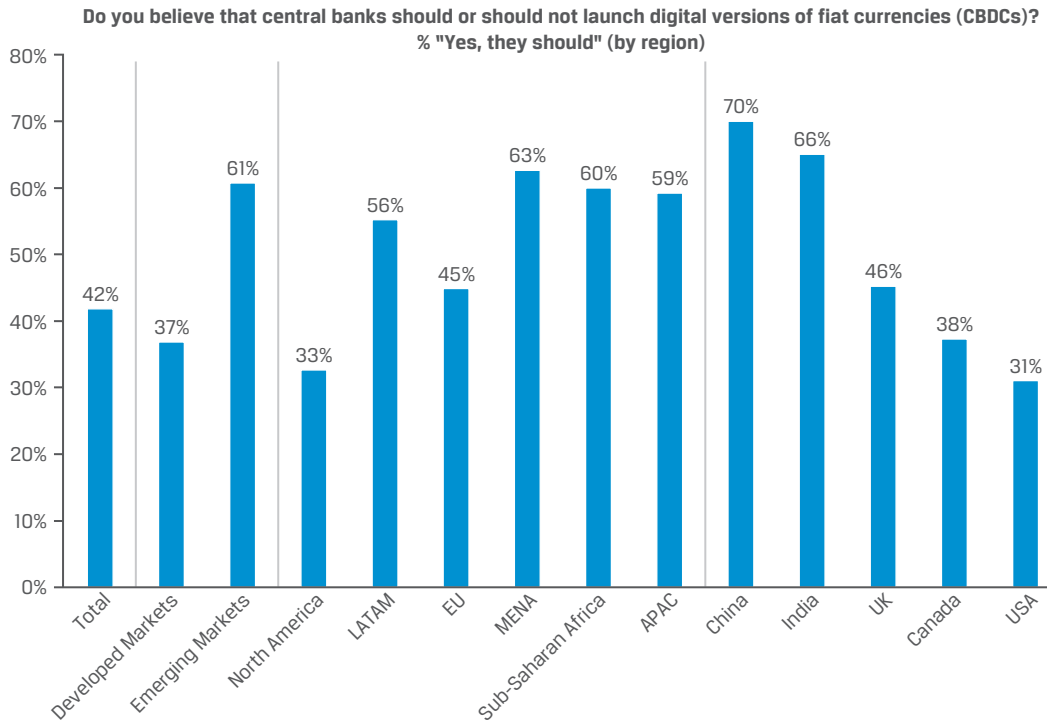
- Those in developed markets in general showed much less enthusiasm for CBDCs (37% of respondents in favor) than did those in emerging markets (61% in favor). This divergence can be understood in terms of the level of economic development and capital market sophistication. Most developed markets already provide a large spectrum of banking and asset choices, which may be lacking in developing markets. Moreover, cryptoassets, in markets where they are available, may already be offering potential users valuable innovation in investment options. As we will show later, the level of trust demonstrated by individuals regarding private money compared to government money in emerging markets should also be considered, as it could explain why these markets are more favorable to digital versions of fiat currencies.
- North America is the region with the least favorable view (33%) of launching CBDCs.
- Asia Pacific is the region with the most favorable view (59%) of launching CBDCs, with notably high levels of support in China (70%) and India (66%). This finding tends to confirm the general level of enthusiasm for digital finance observed in the region.

Age is also correlated with the level of support for or opposition to CBDCs in general. The younger the respondent, the more favorable view, in general. For example, 24% of respondents under 30 opposed CBDCs, compared to 37% among those over 55.

When we categorized responses based on professional activity (**Exhibit 9**), we found the highest levels of support for CBDCs among those working in commercial banks and investment banks. This result may seem surprising given the potential for a CBDC to compete with bank deposits and the risk that CBDCs pose for disintermediation of commercial banks.

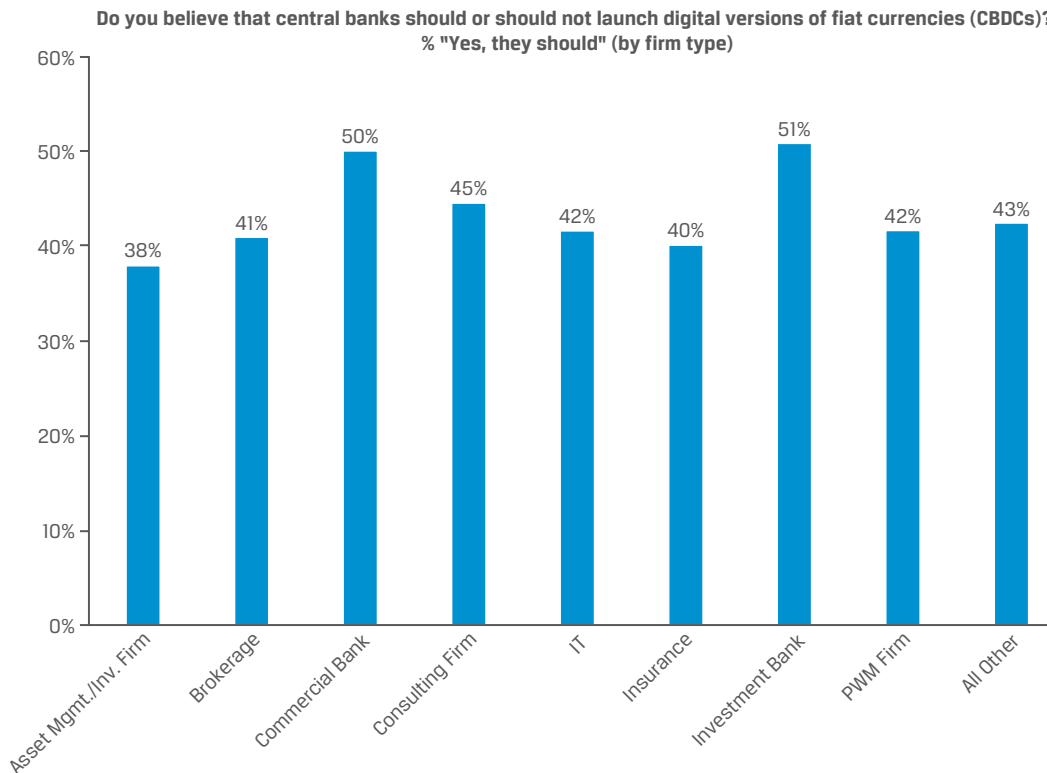
We also asked why members supported or opposed the launch of a CBDC. **Exhibits 10** and **11** provide these results.

Exhibit 8. Level of Support for Launching a CBDC (geographical breakdown)



Note: MENA stands for the Middle East and North Africa. LATAM stands for Latin America.

Exhibit 9. Level of Support for Launching a CBDC (breakdown by employer type)



Note: PWM stands for private wealth management.

Exhibit 10. Reasons for Supporting the Launch of a CBDC (global)

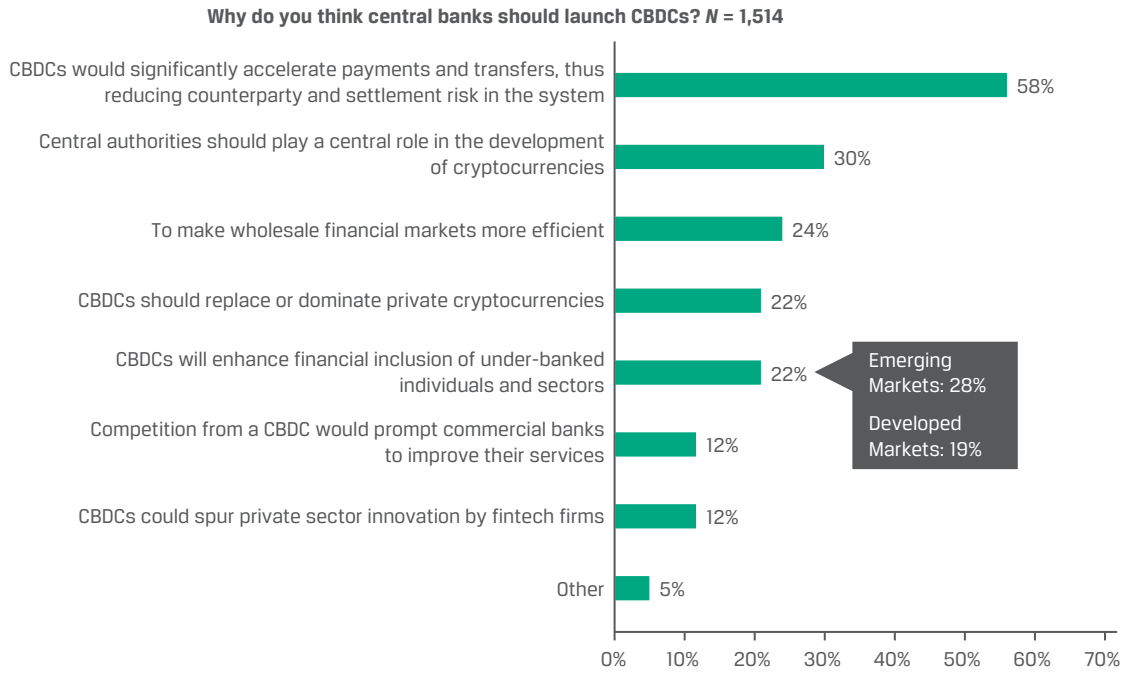
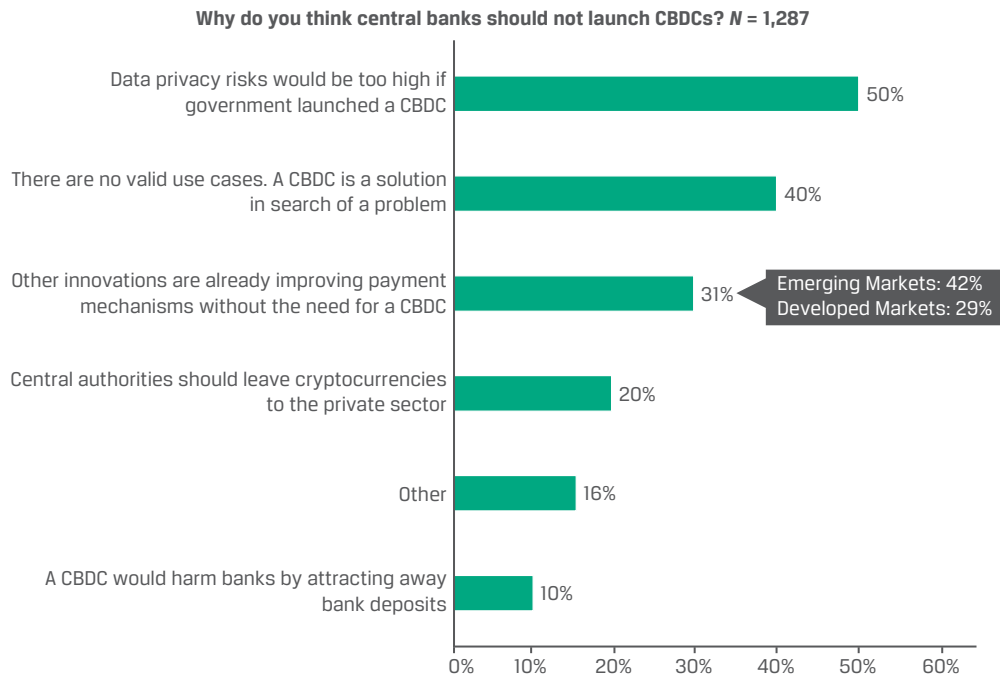


Exhibit 11. Reasons for Opposing the Launch of a CBDC (global)



At this still early juncture of digital finance development, the primary reason for supporting a CBDC is not surprising. Respondents in favor of a CBDC overwhelmingly cited as the top reason the enhancement of the payment and money transfer infrastructure (58% chose this option), an advantage that could reduce counterparty and settlement risk in the system.

A distant second reason cited was the belief that central authorities should play a central role in the development of cryptocurrencies. Notably, this reason elicited a 100% response in China, while scoring 30% globally.

As we will discuss later in this report, the notion that a CBDC could enhance financial inclusion remains open to debate and does not yet convince large segments of the membership. However, there is a regional divide on this question, as respondents in emerging markets seem more enthusiastic than their peers in developed markets. Some comments we received found this observation logical, given the prominence of mobile services development in less advanced economies, which would tend to reduce the degree of inertia in technology adoption.

Top CBDC Motivations in Emerging Markets: Payment Efficiency and Financial Inclusion

Our survey results regarding developing markets also align with surveys and studies conducted by the International Monetary Fund (IMF) and the Bank for International Settlements. In emerging markets, two of the top motivations to explore CBDCs are to provide a cash-like means of payment and to promote financial inclusion.⁸ Among emerging markets in the Asia-Pacific region, the top two motivations are to upgrade payment systems and promote financial inclusion. Additional considerations among Asia-Pacific emerging markets include reducing transaction costs and enabling faster detection of illicit activities.⁹

Increased payment system efficiency serves as a common motivation in advanced and emerging economies alike.¹⁰ If CBDCs have interoperability with other payment systems, they may be able to foster competition and reduced costs of payment transactions and services.¹¹ Promotion of financial inclusion receives greater emphasis in emerging economies than in developed ones.¹² A CBDC may be able to build trust and encourage financial engagement, especially among persons who are reluctant to use private digital payment services.¹³ It must be noted, however, that trust could remain a stumbling block if (1) the unbanked are motivated by distrust of and aversion to banks and (2) these same commercial banks serve as intermediaries for retail CBDCs.¹⁴

Its design will be critical for a CBDC to fulfill the goal of enhanced financial inclusion. For instance, the design should combine offline functionality with compatibility with feature (non-smart) phones.¹⁵ For example, feature phones might be able to access CBDCs through such technologies as near-field-contact (NFC) technology, Bluetooth, or SMS; other design features to enhance financial inclusion

⁸Chen et al., "CBDCs in Emerging Market Economies."

⁹Jahan et al., "Towards Central Bank Digital Currencies in Asia and the Pacific," p. 22.

¹⁰Chen et al., "CBDCs in Emerging Market Economies," p. 15.

¹¹Chen et al., "CBDCs in Emerging Market Economies," pp. 3, 11, 13.

¹²Chen et al., "CBDCs in Emerging Market Economies."

¹³Chen et al., "CBDCs in Emerging Market Economies," p. 3.

¹⁴See Christopher Waller, "CBDC: A Solution in Search of a Problem?," speech given at the American Enterprise Institute (5 August 2021), p. 6. Waller also questioned whether the unbanked would be interested in a Federal Reserve CBDC account.

¹⁵Chen et al., "CBDCs in Emerging Market Economies," p. 13.

include low costs, merchant access, and electronic know-your-customer (KYC) capabilities.¹⁶ Whereas commercial banks may find it too uneconomical to service customers who have low balances or live in rural or otherwise inaccessible regions, a CBDC could afford these marginalized individuals with access to financial services. See the section titled "Design Choices" for more.

The Asia-Pacific Context: Survey Results Match Regional Developments

Heightened interest in CBDCs in the Asia-Pacific region aligns with the pace and extent of digital developments there. The region has been a leader in digital innovation in general and CBDC exploration in particular.¹⁷ China has been at the global forefront of experimenting with CBDCs, with nearly a decade of experience.¹⁸ The People's Bank of China launched a pilot digital currency called e-CNY in 2019 and in 2022 expanded it to cover 23 cities and areas.¹⁹ Take-up of the pilot digital currency appears quite limited, however, compared to extensive transaction volumes on Alipay and Tenpay, the two private-sector platform giants that dominate retail payments.²⁰ India and Thailand also are in advanced stages with their CBDC projects, and India's Ministry of Finance has announced the nation's intention to launch a retail CBDC in fiscal 2023.²¹

Financial inclusion and financial stability constitute two of the key motivations driving interest in CBDCs across the Asia-Pacific region.²² In addition, the rapid rise and sudden fall of private cryptocurrencies have sparked interest in CBDCs. Authorities' concerns over the volatility and potentially destabilizing impact of private cryptocurrencies rose alongside, first, the explosive growth of cryptocurrencies in 2020–2021 and, second, the cryptocurrency crisis that ushered in the "crypto winter" of 2022 (including the demise of Terraform Labs, based in South Korea, and its twin stablecoins TerraUSD and LUNA).²³

Motivated at least in part by such concerns, some countries in the region have moved to curb cryptocurrencies. For example, China and Thailand have banned cryptoassets, and India has introduced a 30% tax on profits from cryptocurrency trading.²⁴ In this context, CBDCs have attracted policymakers looking for a safer alternative or antidote to private cryptocurrencies.

¹⁶Chen et al., "CBDCs in Emerging Market Economies," p. 13.

¹⁷Jahan et al., "Towards Central Bank Digital Currencies in Asia and the Pacific," pp. 5, 9.

¹⁸China began to study CBDCs in 2014. See Jahan et al., "Towards Central Bank Digital Currencies in Asia and the Pacific," p. 9.

¹⁹Jahan et al., "Towards Central Bank Digital Currencies in Asia and the Pacific," p. 13.

²⁰See Jahan et al., "Towards Central Bank Digital Currencies in Asia and the Pacific," p. 25. The *Financial Times*, citing the People's Bank of China, reports that only RMB13.61 billion (USD1.9 billion) of the digital currency was circulating at the end of 2022, amounting to just 0.13% of the currency in circulation. See Martin Arnold and Sam Fleming, "The Digital Euro: A Solution Seeking a Problem?," *Financial Times* (16 May 2023). www.ft.com/content/7c892d3b-c646-4247-9504-5f755e486101.

²¹Jahan et al., "Towards Central Bank Digital Currencies in Asia and the Pacific," p. 9.

²²Jahan et al., "Towards Central Bank Digital Currencies in Asia and the Pacific," p. 5.

²³Jahan et al., "Towards Central Bank Digital Currencies in Asia and the Pacific," p. 4.

²⁴Jahan et al., "Towards Central Bank Digital Currencies in Asia and the Pacific," pp. 23, 27.

Regarding the reasons for opposing the launch of a CBDC, two answers stood out.

A majority of respondents (50%) cited data privacy concerns. At a regional level, such concern was highest in the United States and Switzerland and lowest in India and Latin America. There were some surprises related to economic development, however, with the United Kingdom registering relatively low concern and sub-Saharan Africa relatively high concern.

At 40%, the second highest response concerned the lack of actual use cases for a CBDC, or that "a CBDC is a solution in search of a problem," which is the language used by the UK Parliament House of Lords Economic Affairs Committee in a January 2022 report investigating the proposition to launch a digital pound.²⁵ Again, developed markets are showing a higher level of doubt as to the purposefulness of CBDCs when compared to emerging markets (42% versus 32%).

There was, however, strong regional variation in the views of respondents who mentioned the lack of use cases for opposing the launch of CBDCs, indicating that local economic context and attitude towards digital finance should probably be scrutinized further. Particularly strong responses in this regard came from India (57% cited a lack of use cases for justifying their opposition, making the country an outlier on this point even in the wider emerging markets group) and the EU (47%), while, in contrast, there was a low corresponding proportion (17%) in Japan. (Note that these are the percentages only among those who do not support launching a CBDC.)

Age was also an explanatory factor on the notion of use cases. Generally, the older the respondents, the more likely they were to agree that there are no valid use cases for CBDCs (49% for those over 55); the younger the respondents, the less likely they were to agree (27% for those under 30).

The survey also measured respondents' views on whether "other innovations are already improving payment mechanisms without the need for a CBDC." This option was selected most often in the Middle East (52%) and APAC (49%) and least often in the Americas (27%). Again, answers varied along a continuum based on the level of market development, rising from a low of 29% in developed markets to 42% in emerging markets.

Respondents showed very little concern that "a CBDC would harm banks by attracting away bank deposits." Only 10% of respondents globally selected this option.

Our survey tested the strength of various beliefs that could serve as rationales that might motivate either favorable or unfavorable opinions about CBDCs and cryptoassets.

Question 3: We have asked our membership if they agreed or disagreed with a series of statements regarding money and digital finance (on a scale of 1–5, with 1 meaning you strongly disagree and 5 you strongly agree).

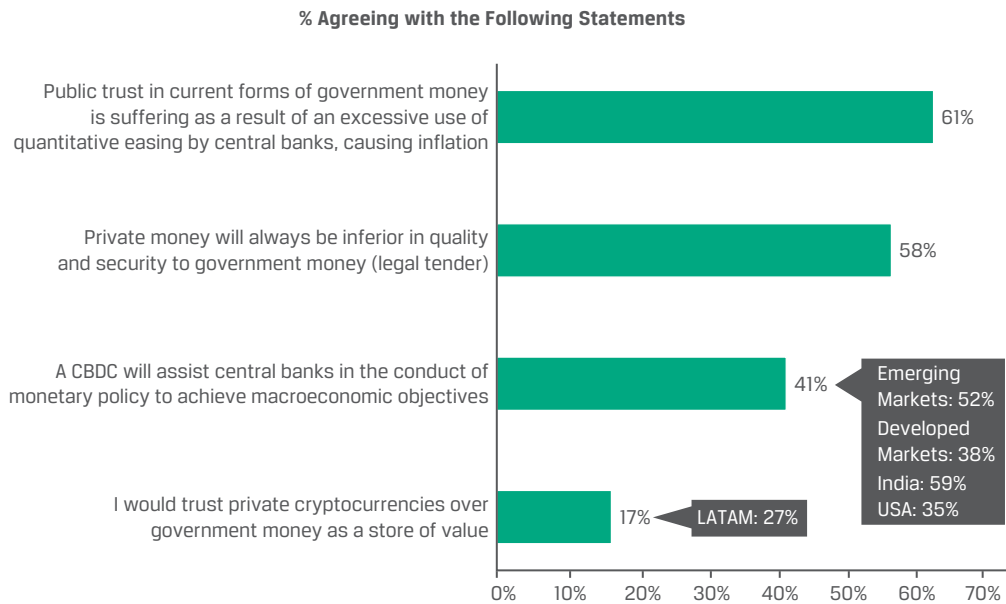
The results (**Exhibit 12**) show a dichotomy when comparing the effects of monetary policy on the level of trust in government money and respondents' feelings towards private money.

- **Public trust in current forms of government money is suffering as a result of an excessive use of quantitative easing by central banks, causing inflation.**

Overall, there was a strong level of agreement (61% somewhat or strongly agree) in all three global regions with the notion that quantitative easing has negatively affected the level of trust in government money. Respondents from Japan (42% in agreement) and India (46%) were notable exceptions. While Japan has arguably had to deal with a prolonged period of

²⁵See UK Parliament, "Central Bank Digital Currencies: A Solution in Search of a Problem?," House of Lords Economic Affairs Committee (13 January 2022). <https://publications.parliament.uk/pa/ld5802/ldselect/ldeconaf/131/131.pdf>.

Exhibit 12. Percentage of Respondents Who Agree with the Following Statements (aggregate of somewhat agree and strongly agree)



secular deflation woes, the case of India is intriguing, as an outlier in emerging markets (58% agreed) on this question. Elsewhere in emerging markets, those in the Middle East (69%) and North Africa (67%) were in even stronger agreement.

- **Private money will always be inferior to government money.**

We have observed a strong level of agreement overall (58% somewhat or strongly agree), fairly consistent across regions and markets, on the notion that private money would continue to be inferior to government money. The strongest levels of response in this regard were found in Japan (74%) and India (69%).

This finding suggests a certain level of dichotomy compared to responses to the previous statement. In other words, monetary policy should be used with care; however, private cryptocurrencies are not perceived to be an obvious solution to the risk of depreciated value (inflation) affecting government money.

Public trust in government would serve as a powerful competitive advantage of a CBDC vis-à-vis any nongovernmental payment methods and currencies, including private cryptocurrencies if they are offered.

This very strength, however, could become a weakness if CBDCs proved too disruptive to commercial banks and financial stability. In quiet times, individuals and businesses may prefer the safety of CBDCs to banking deposits that exceed deposit insurance limits. In times of market distress, the safe haven of a CBDC could prompt runs from private money, whether that of commercial bank accounts or private cryptocurrencies. The recent demise of Silicon Valley Bank and First Republic Bank—which suffered massive deposit withdrawals at unprecedented speed, accelerated by both the ease of smartphone withdrawals and the spur of social media—illustrates how a run on a commercial bank could potentially affect financial stability. A notable research paper recently produced by the European Parliament Committee on Economic and Monetary Affairs (ECON) concurs with this view and concludes that "central banks should want CBDCs to be successful, but not too successful."²⁶

²⁶See I. Angeloni, "Digital Euro: When in Doubt, Abstain (but Be Prepared)," ECON (April 2023), p. 12. [www.europarl.europa.eu/RegData/etudes/IDAN/2023/741507/IPOL_IDA\(2023\)741507_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/IDAN/2023/741507/IPOL_IDA(2023)741507_EN.pdf).

- ***A CBDC will assist central banks in the conduct of monetary policy to achieve macroeconomic objectives.***

We found significant regional variation in the responses to this statement, with only APAC showing a slight majority of responses in agreement (51% somewhat or strongly agree). The level of agreement in India was high (59%), in line with emerging markets views overall (52%). North Africa showed stronger agreement than the rest of the group, with 67% in agreement there. Respondents in Japan and North America—two of the most developed markets—were particularly skeptical, with 32% in Japan and 36% in North America somewhat or strongly agreeing.

- ***I would trust private cryptocurrencies over government money as a store of value.***

This statement had very low levels of support globally and in all regions or markets. Levels of agreement were particularly low in India and Japan (5% in each country). Interestingly, a notable generational divide appeared on this question: 18% of those under 30 agreed, compared to only 9% of those over 55.

Question 4: What do you think about CBDCs and financial inclusion?

So far, the responses we have obtained to this question fairly align with comments we have received through various ad hoc discussions with industry practitioners. The case for CBDCs to improve financial inclusion is not straightforward, and there is significant regional variation. Indeed, the level of economic and capital market development seems to be related to prospects in this regard.

Some commentators we spoke with suggested that a CBDC could reduce common barriers to financial inclusion and lower transaction costs, which could be particularly helpful for lower-income households. Examples of financial inclusion include

- private-sector electronic transaction accounts that facilitate access to digital payments,
- rapid and cost-effective payment of taxes,
- rapid and cost-effective delivery of wages, tax refunds, and other government payments,
- a secure way for people to save, and
- access to credit.

Globally, a plurality (46%) said that a CBDC would have no or negligible impact on financial inclusion, while only 34% said that a CBDC likely would improve financial inclusion (**Exhibit 13**).

The global average, however, masked wide regional variation in responses (**Exhibit 14**). A majority (54%) in APAC said that a CBDC likely will improve financial inclusion, while only a minority expressed that view in the EU (33%) and North America (25%).

The differences gain sharper focus when viewed through the lens of economic development. A majority of respondents in emerging markets (55%) held the view that a CBDC will improve financial inclusion—with even stronger majorities in China (66%) and India (64%). In contrast, only 28% of respondents in developed markets shared this view, with a low of 24% in the United States.

A clear division based on age also emerged: The younger, the more positive (42% of those under 30 agreed that CBDCs will likely improve financial inclusion), and the older, the less so (only 25% of those over 55 agreed).

Exhibit 13. The Perceived Impact of CBDCs on Financial Inclusion (global)

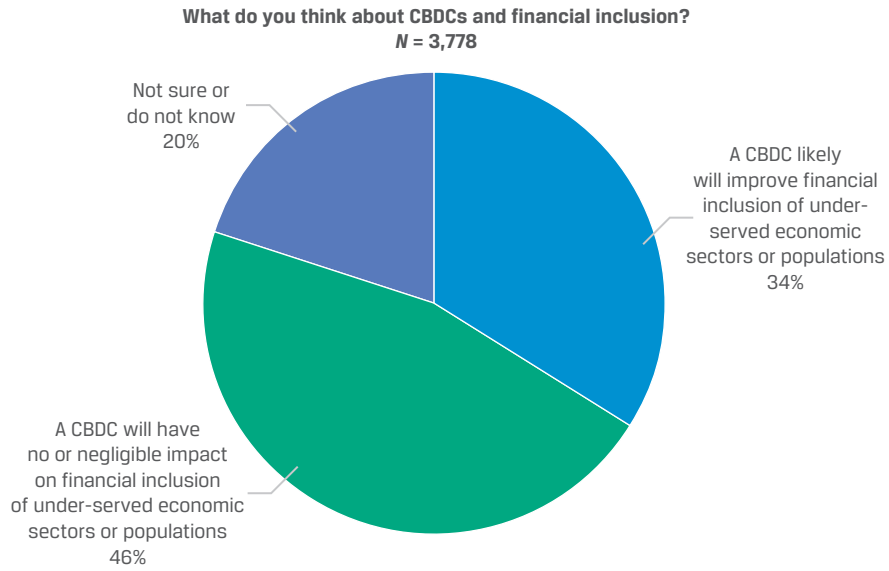
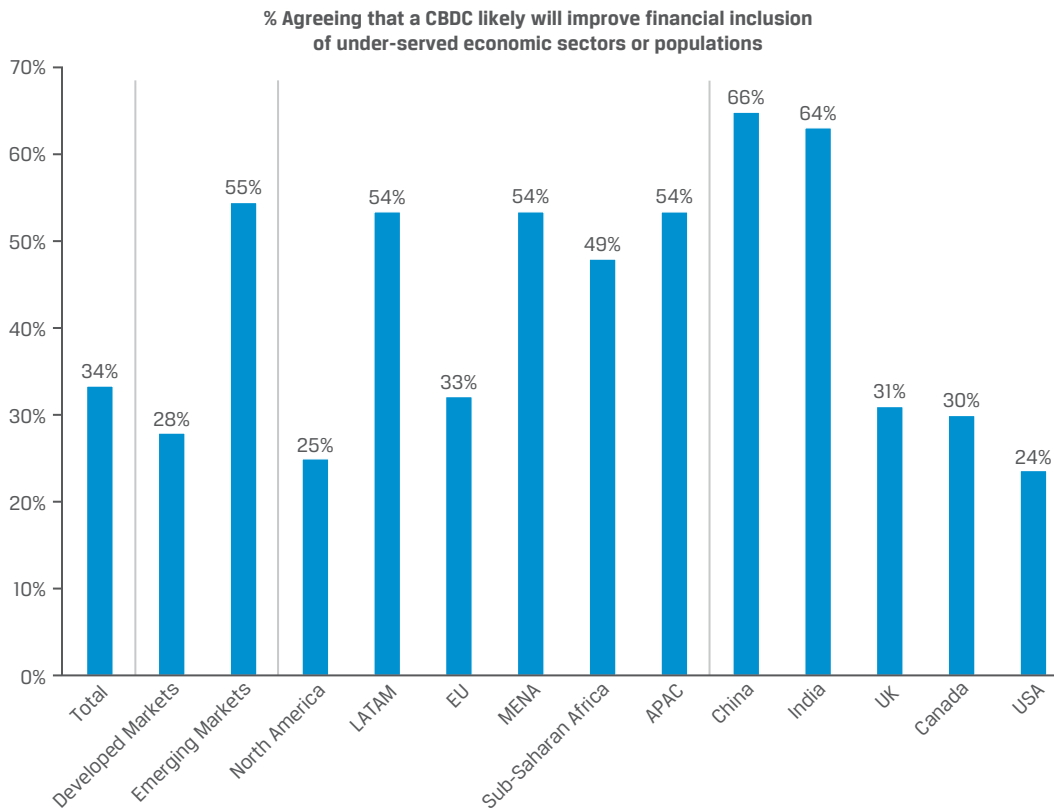


Exhibit 14. The Perceived Impact of CBDCs on Financial Inclusion (regional breakdown)



Design Choices

The issue of how a CBDC should or would be designed continues to create a number of quandaries for central banks involved in evaluating the merits of various features for a digital version of their fiat sovereign currency. It is also important to note that there are various interpretations of how a CBDC would operate, especially how it would be administered or the respective roles of the central banking authority in relation to that of commercial banks involved in the process.

As discussed with an interesting degree of straightforwardness in the aforementioned ECON paper relating to the work done in the EU on a possible digital euro, the European Central Bank "has decided that all front-end functions of a [digital euro] would be outsourced to private institutions. . . . Only these intermediaries would have direct contact with the individual account holders."²⁷ In other words, the central banks would issue the digital tokens, which would then be custodied by commercial banks on behalf of these new CBDC account holders, with all related services, including security checks (KYC/anti-money laundering/counter-terrorism financing). As the paper subsequently explains, this arrangement would nonetheless create a situation of commercial conflict of interest for chartered banks, since they would have to deal with a new form of competition for deposit funds—that is, CBDC accounts on one side against regular bank deposits on the other. Depending on the remuneration afforded to these commercial banks for their administration or the interest paid eventually on CBDC holdings, this means that a digital euro "would change the relationship between the central bank and commercial banks."²⁸

In the United States, the Federal Reserve speaks of "an intermediated model [under which] the private sector would offer accounts or digital wallets to facilitate the management of CBDC holdings and payments."²⁹

Another workstream that will be worth monitoring on the development of CBDCs is that of the IMF's upcoming handbook on the subject.³⁰ The piece will focus on capacity development for countries interested in researching and potentially launching a digital version of their sovereign currency. An entire group of questions will pertain to possible design features, where most of the points we address in our paper will be analyzed in detail.

Question 5: Tell us your opinion about possible design choices for a CBDC.

For our work, we asked the membership about their thoughts on the following dimensions regarding possible design features for a CBDC:

- Offline capabilities
- Interoperability
- Payment of interest
- Intermediation by commercial banks and the role of the central bank
- Programmability
- Limitations

The results are shown in **Exhibit 15**.

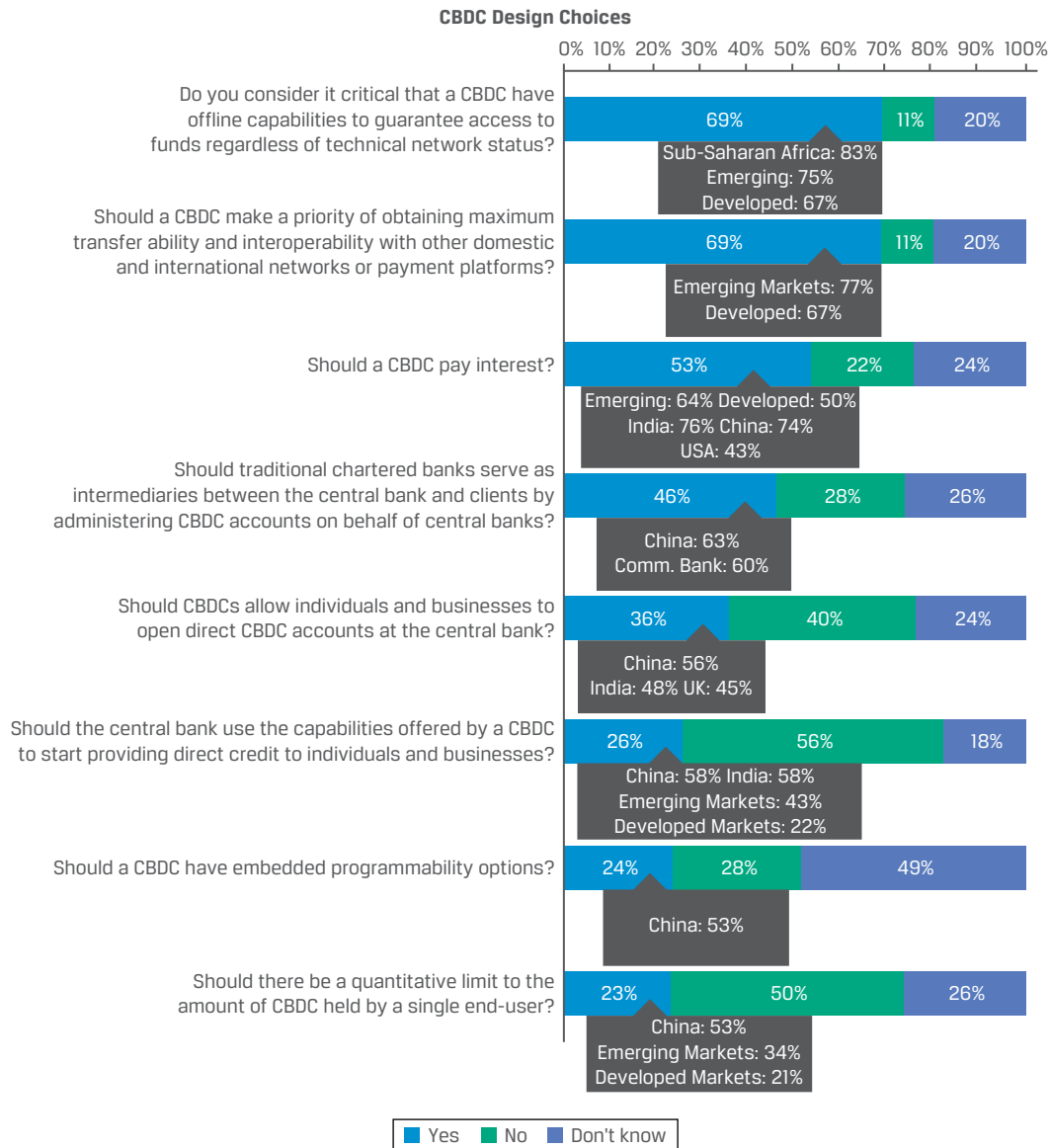
²⁷Angeloni, "Digital Euro," p. 10.

²⁸Angeloni, "Digital Euro," p. 11.

²⁹Federal Reserve, "Money and Payments: The U.S. Dollar in the Age of Digital Transformation" (January 2022), p. 13. www.federalreserve.gov/publications/files/money-and-payments-20220120.pdf.

³⁰See IMF, "IMF Approach to Central Bank Digital Currency Capacity Development" (11 April 2023). www.imf.org/en/Publications/Policy-Papers/Issues/2023/04/12/IMF-Approach-to-Central-Bank-Digital-Currency-Capacity-Development-532177.

Exhibit 15. Views of Respondents on Possible Design Choices for a CBDC (global)



Note: Totals may not sum to 100% because of rounding.

Our main observations about these results are as follows:

- A majority of respondents believe a CBDC should pay interest. The level of agreement is correlated with the level of economic development, with respondents in emerging markets showing a higher level of preference for this choice than those in developed economies.
- There is low global support for programmability. Only a minority in every region agrees that a CBDC should have embedded programmability options, with the exception of China (53%). It is possible to establish a link between this lackluster support for programmability and the general fears related to data privacy, which we will discuss later. Also worth mentioning is the high level of respondents who have no opinion on this question (49% globally), indicating a lack of understanding of what programmability could mean in terms of applicability for smart contracts, simultaneous or instant payments, and implications for reducing counterparty risk. There were relatively higher levels of agreement in emerging markets (38%) compared to developed markets (20%) and the United States (17%). Support for programmability

peaks in the 30–34 age group (33%) and declines beginning in middle age, starting with the 40–44 age group (25%) and continuing to the 55+ age group (14%).

- A majority of respondents do not believe there should be a quantitative limit to the amount of CBDC people are allowed to own. Several emerging market economies have shown a contrarian view on this question, with respondents in China, North Africa, and India all showing higher levels of support for a quantitative limit—53%, 44%, and 38%, respectively.
- On the question of whether central banks should allow direct CBDC accounts with individuals, the picture is not clear. A plurality of 40% disagrees on a global basis, while 36% would allow this capability. A few exceptions are noteworthy; respondents in the following countries showed a markedly higher level of agreement with allowing direct CBDC accounts with the central bank: China (56%), India (48%), and the United Kingdom (45%). Support for direct accounts generally declines with age, from a high of 45% in the 30–34 age group to a low of 29% among those 55+. Grouping respondents according to the types of firms in which they work, 53% of those working at commercial banks said they opposed this possibility. This finding is understandable, because they probably perceive direct CBDC accounts as a threat to the operations of commercial banks.
- In relation to the previous point, to a large extent, respondents employed at commercial banks believe banks should serve as intermediaries by administering CBDC accounts on behalf of central banks (60% in favor versus 20% against). Regionally, respondents most favorable to bank intermediation were in APAC (57% favorable), China (63% favorable), and sub-Saharan Africa (61% favorable). Respondents in emerging markets in general were more of this view (56%) than those in developed markets (43%).
- Globally, respondents are largely opposed to central banks providing direct credit to individuals and businesses through CBDCs. A majority of respondents, 56%, are opposed, more than double the 26% in favor. On this point, there are major geographical distinctions to note; the level of support seems to rise in emerging markets (43%) when compared to developed economies (only 22% support). Those in China and India (58% each), along with APAC in general (45%), are largely in favor of this proposition, while those in the Americas and EMEA oppose it (59% in each region were in opposition). Favorable views in China and India may reflect more positive feelings overall for government's role in the economy. The question of trust in commercial banks should be analyzed further in relation to this question. Age also appears to be a factor, as younger respondents were more likely to agree with this proposition; support was highest among those under 30 (34%) and fell steadily to 16% favorable among those over 55.
- We observed strong support across the board for offline and interoperability capabilities, showing that respondents in general are concerned with retaining access under any technical conditions and not being constrained by services choices.

Use Cases

The question of whether the launch of a CBDC responds to an actual need expressed by markets, users, or businesses is a key one in this debate.

In this context, it is interesting to note that existing endeavors by countries that have already launched a CBDC or trials have not yet vindicated the proposition that CBDCs are an actual response to a real problem or need. Examples include China, Brazil, Sweden, India, and Nigeria. In the case of Sweden, the Riksbank's pilot program on an e-krona³¹ has drawn criticism, including from the financial services authority, which argued that the central bank should review the consequences of the real marginalization process of cash as a broader issue, rather than simply push a digital krona as a solution. The example of the eNaira in Nigeria has so far shown that

³¹See Sveriges Riksbank's e-krona webpage: www.riksbank.se/en-gb/payments--cash/e-krona/.

launching a CBDC without the required underlying infrastructure to support its adoption may hamper its chances of success or create risk to financial stability, as the IMF noted at the Milken Institute's Global Conference in May 2023.³²

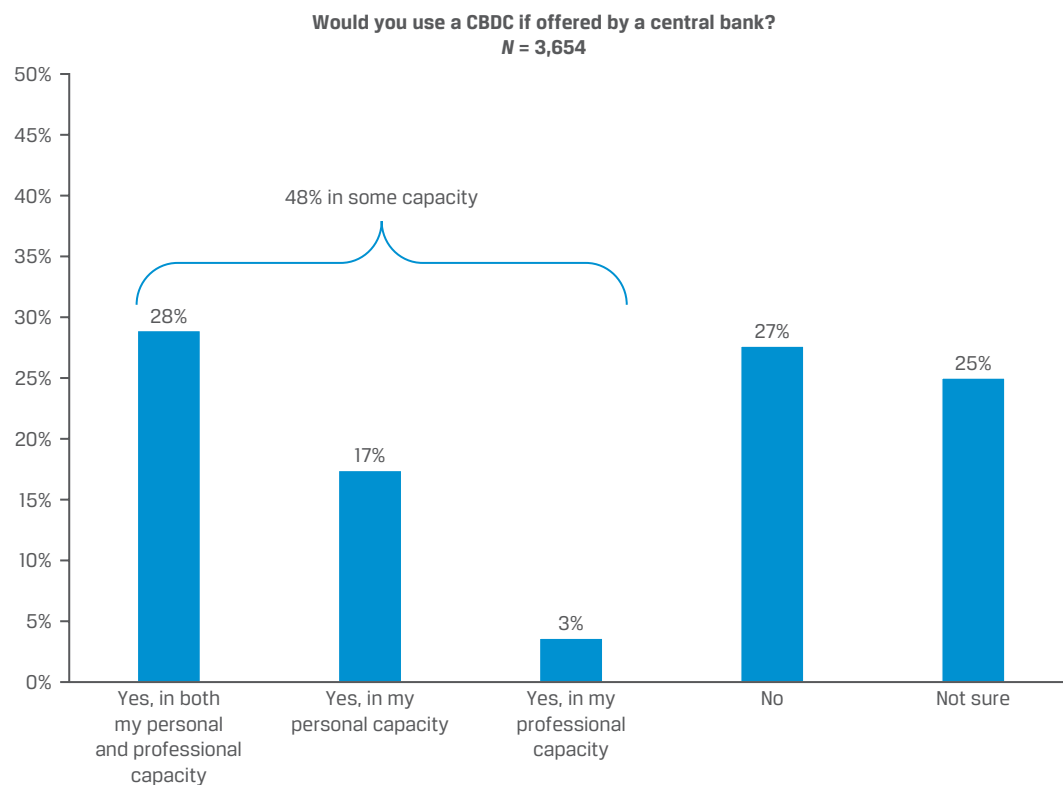
We have therefore asked our membership whether they would use a CBDC and how they would use it, in either a professional or personal capacity.

Question 6: Would you use a CBDC if offered by a central bank?

Our observations are as follows:

- Nearly half of respondents globally (48%) would use a CBDC in some capacity (**Exhibit 16**), with strong regional variations (**Exhibit 17**): Respondents in China (80% in agreement) and India (70%) showed the highest level of agreement, while those in the United States (34%) showed the lowest. In general, emerging markets (67%) are much more in favor than developed economies (43%). Among subregions, high percentages were observed in Latin America and the Middle East (73%). These findings may suggest respondents in developed markets are generally satisfied with current money and payment systems, including existing developments, while those in emerging markets may see CBDCs as a chance to leapfrog those developments, perhaps through mobile access.

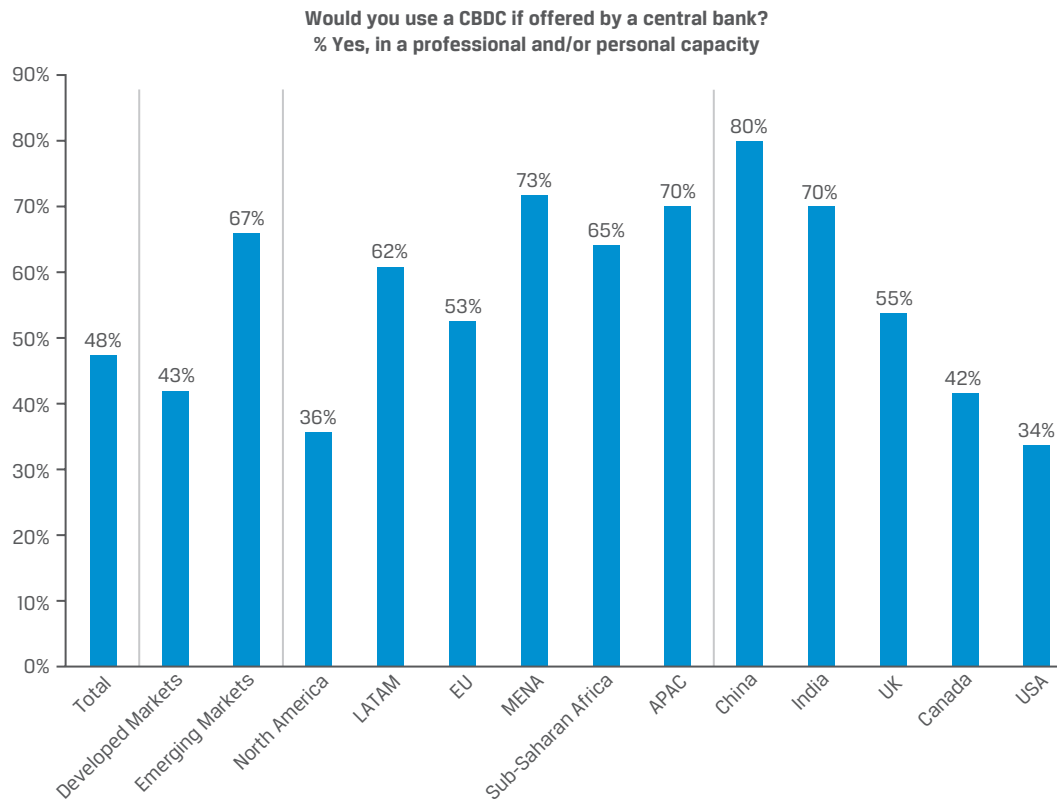
Exhibit 16. Personal or Professional Use for a CBDC (global)



³²See Jookyung Ree, "Nigeria's eNaira, One Year After," IMF Working Paper No. 2023/104 (May 2023). www.imf.org/en/Publications/WP/Issues/2023/05/16/Nigerias-eNaira-One-Year-After-533487.

See also Sami Tunji, "IMF Cautions as eNaira Transactions Hit N1.4m," *Business Insider Africa* (4 May 2023). <https://punchng.com/imf-cautions-as-enaira-transactions-hit-n1-4m/>.

Exhibit 17. Usability of a CBDC (regional breakdown)



- Age shows a clear pattern (**Exhibit 18**). The younger the respondent, the higher the propensity to agree to use a CBDC. The older the respondent, the lower the likelihood.
- Of note, a fairly low proportion of respondents (3%) agreed they would use a CBDC only in a professional capacity. It could be interesting to measure whether such a response changes in the future in light of the recent banking liquidity crisis, which emerged in March 2023, one month after our survey.

Among those who would use a CBDC in a personal capacity, **Exhibit 19** shows the most common uses chosen.

Our observations from these results regarding use cases for a CBDC in a personal capacity are as follows:

- Perhaps unsurprisingly, given the still-burgeoning digital finance industry, the first two widely cited use cases involve existing electronic banking developments—that is, money transfers and payments for goods and services.
- Interestingly, a majority in every region would choose to transfer parts of their existing bank account deposits to a CBDC account. This would align with the risks of competing interests mentioned earlier and demonstrate the threat to depositary banking institutions' business model that a CBDC could represent.

Among those who would use a CBDC in a professional capacity, **Exhibit 20** shows the most common uses chosen.

Exhibit 18. Usability of a CBDC (breakdown by age and firm type)

Would you use a CBDC if offered by a central bank?
% Yes, in a professional and/or personal capacity

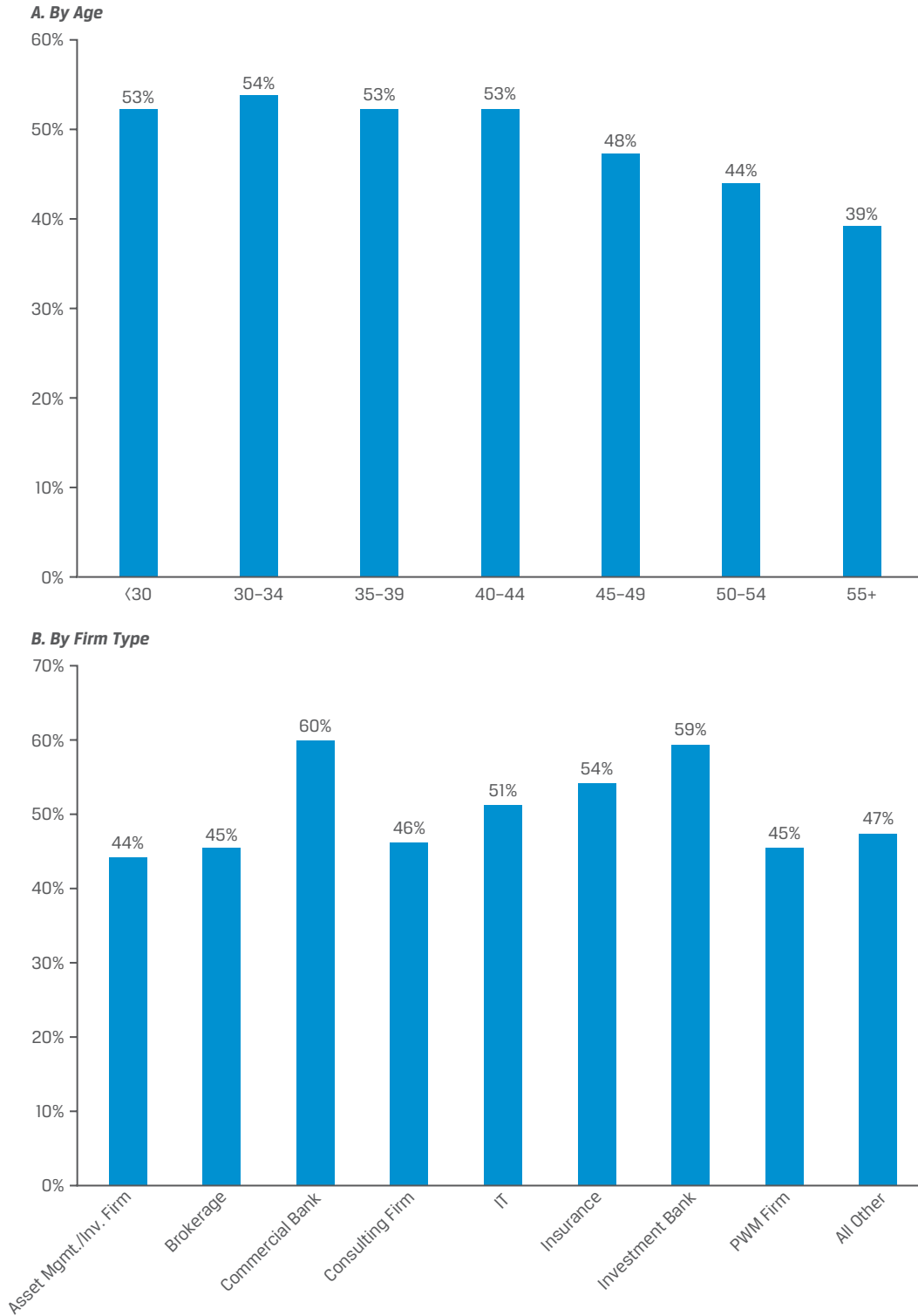


Exhibit 19. Use Cases for a CBDC in a Personal Capacity
(global; multiple responses permitted)

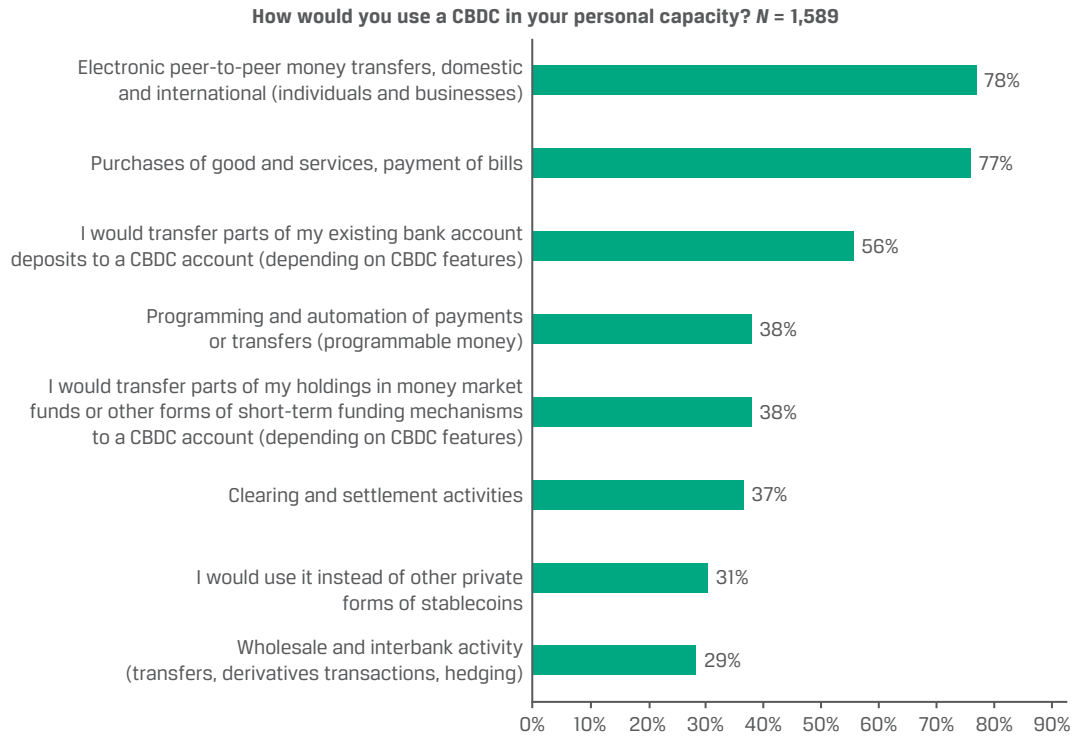
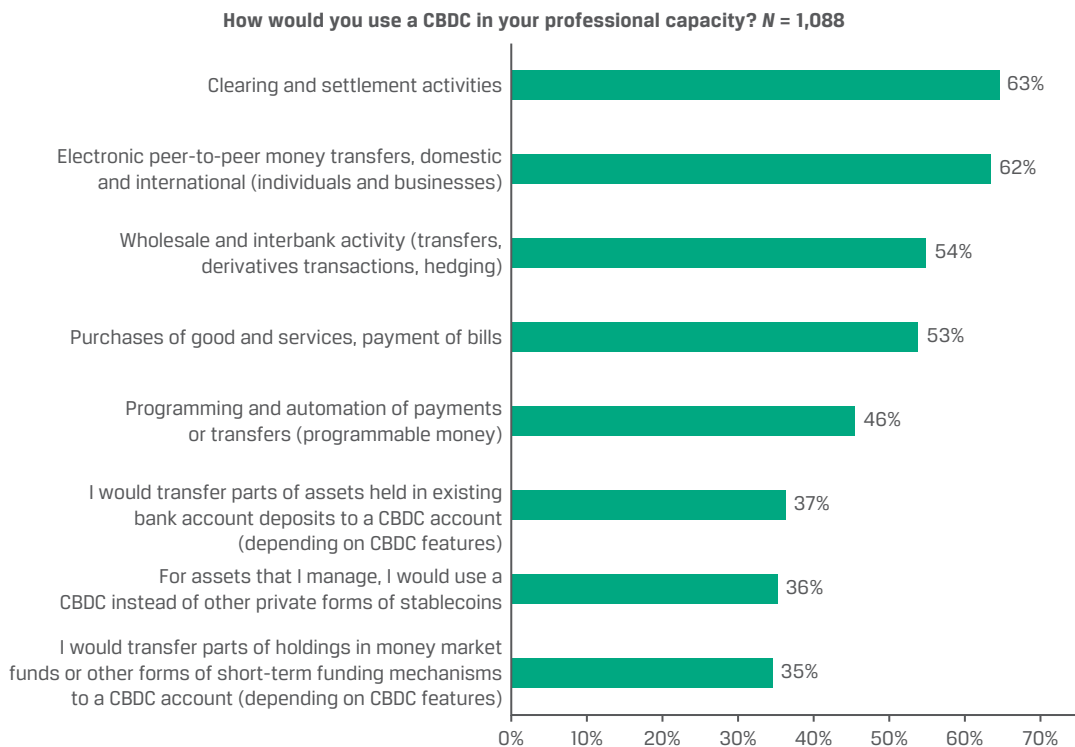


Exhibit 20. Use Cases for a CBDC in a Professional Capacity
(global; multiple responses permitted)



Our observations from these results regarding use cases for a CBDC in a professional capacity are as follows:

- On one hand, a wider variety of use cases were cited by respondents, compared to choices in a personal capacity.
- This finding matches other commentaries we have received regarding the higher and clearer potential of CBDCs in wholesale trading activity, settlement, and clearing operations, which were the options chosen most often by respondents. This will obviously depend on the design choices we discussed previously.
- On the other hand, this result seems at odds with the earlier finding that only 3% of respondents would use a CBDC solely in their professional capacity.
- Furthermore, there is the lower level of responses in favor of transferring bank deposits or money market holdings to a CBDC account in a professional capacity. This finding should be investigated further as central banks evaluate the risks or benefits of launching a CBDC to financial stability, as we will discuss later.

Risks for Investors and Capital Markets

A paramount consideration for central bankers considering whether to launch a CBDC is the risk of unintended consequences for the integrity and stability of capital markets. We asked our membership what they believe are the main risks, both for financial stability and from the perspective of individual investors.

Question 7: Some argue that a CBDC would enhance overall financial stability, because investors would diversify their assets by holding some CBDCs in normal times. Others argue that investors would be more likely to sell risky assets and buy CBDCs at the first signs of market stress, and this would exacerbate market instability. What do you believe?

There is no clear consensus yet on the potential impact of a CBDC on financial stability (**Exhibits 21** and **22**).



Exhibit 21. CBDCs and Financial Stability (global)

What do you believe about CBDCs and financial stability?
N = 3,476

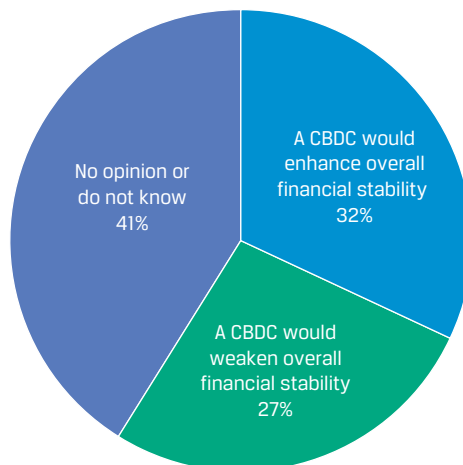
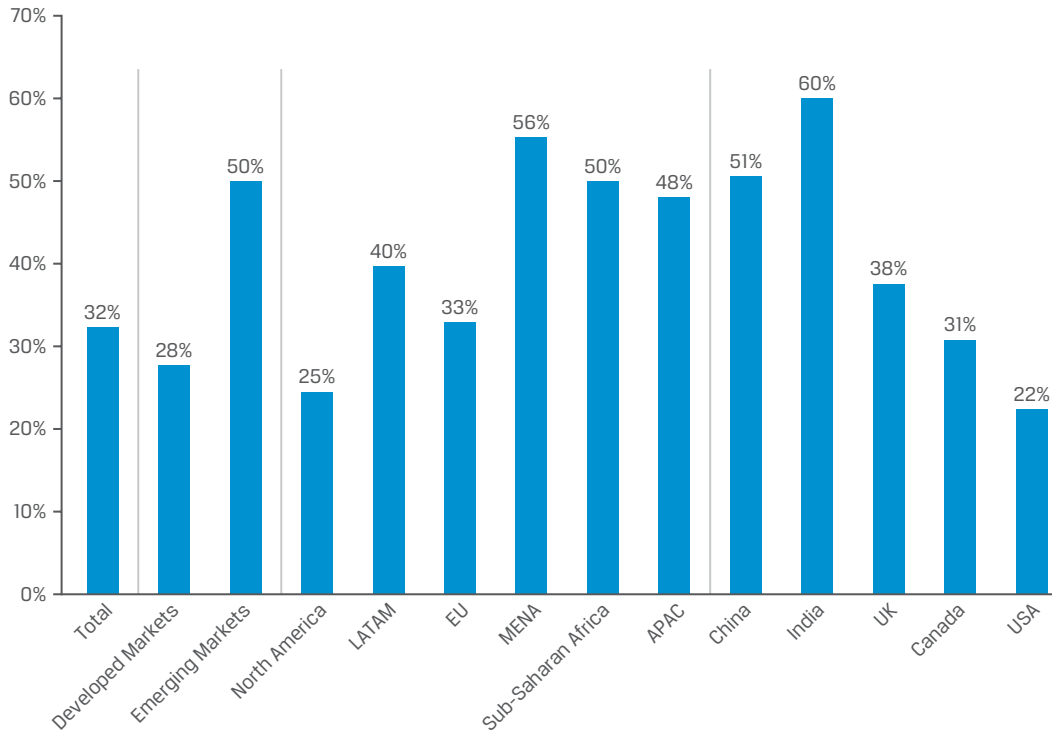


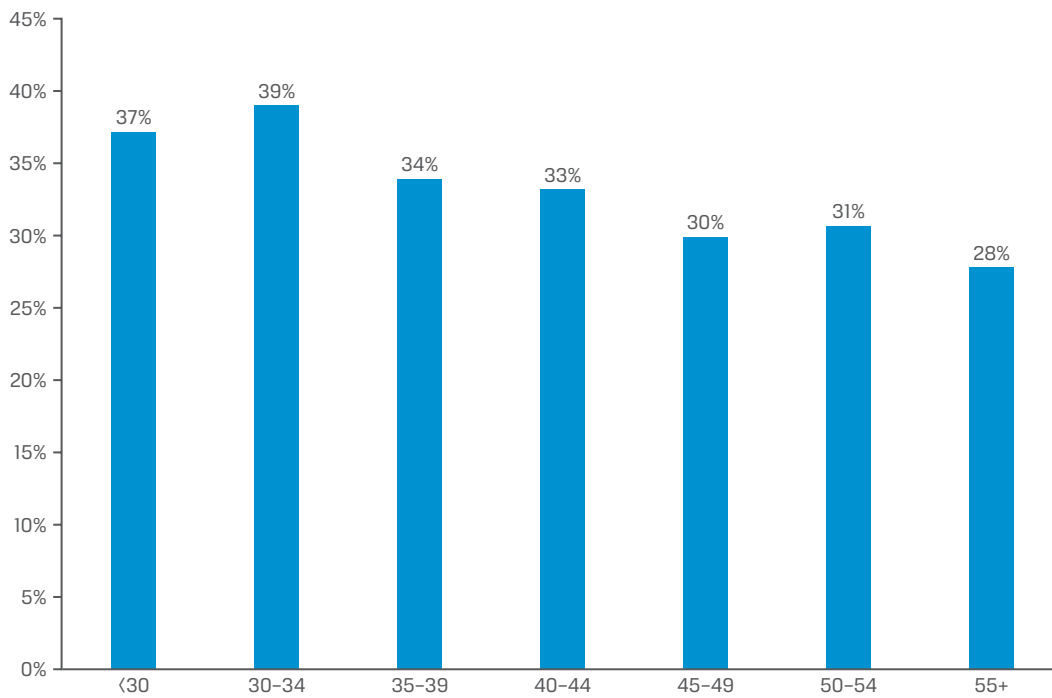
Exhibit 22. CBDCs and Financial Stability (breakdown by region and age)

What do you believe about CBDCs and financial stability?
 % Responding that a CBDC would *enhance* overall financial stability

A. By Region



B. By Age



A plurality of respondents (41%) have no opinion. In contrast, a majority of respondents in China and India, which have in general shown the most enthusiasm for CBDCs, are of the view that these new instruments would enhance financial stability (51% and 60%, respectively). The Middle East and North Africa is another region with a high level of support (56%) for CBDCs from a financial stability perspective.

As noted previously, there could be a relationship between the development stage of capital markets and support for CBDCs. Emerging market respondents' stronger belief in the financial stability benefits of CBDCs than those in developed economies (50% versus 28%, respectively) may be the result of lower levels of market and monetary stability in emerging markets.

We found the lowest level of support for CBDCs in relation to their financial stability benefits in the United States; 34% of US respondents believed these instruments would in fact weaken financial stability, versus only 22% who believed they would enhance it.

Finally, age again seems to play a role in respondents' attitude towards the launch of CBDCs. Whereas 37% of respondents under 30 agreed on the benefits to financial stability, only 28% of those over 55 did.

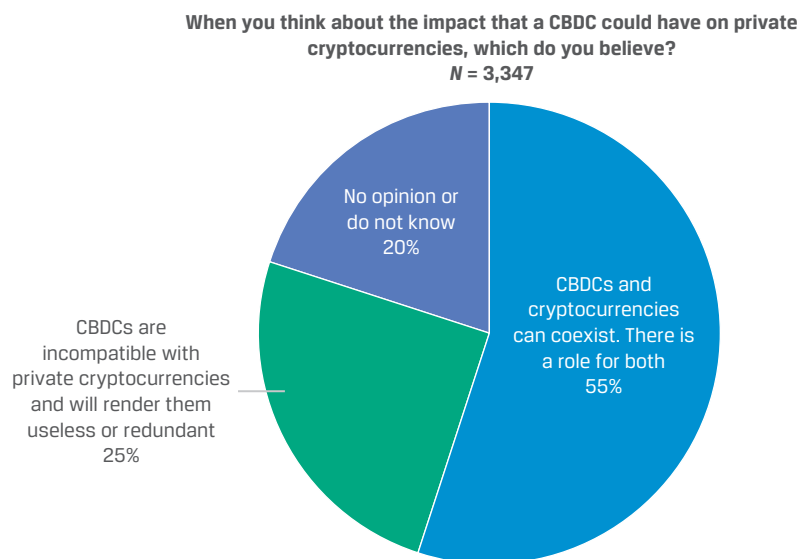
Question 8: What will be the impact of CBDCs on private cryptocurrencies?

As mentioned throughout this report, there will be obvious competition and market impact issues to consider as part of the eventual launch of CBDCs. We have discussed at length how digital forms of sovereign currency may compete with existing commercial bank deposits or money market instruments, depending on design choices. Another form of competition will take shape with the world of private cryptocurrencies, whether backed (stablecoins) or unbacked (fully decentralized free-floating cryptocurrencies).

We asked the membership whether they thought CBDCs and cryptocurrencies can coexist (results are shown in **Exhibit 23**).



Exhibit 23. Can CBDCs and Private Cryptocurrencies Coexist? (global)



Perhaps surprisingly given prior results, 55% of respondents overall believe private cryptocurrencies and CBDCs can coexist, while 25% believe they are inherently incompatible. This result may also be analyzed in the historical context of competition over money. Financial literature and economists have discussed how previous attempts by private currencies to compete with government money, which enjoys legal tender status, have failed—including in the United Kingdom and United States.³³ It will be interesting to monitor developments in this regard.

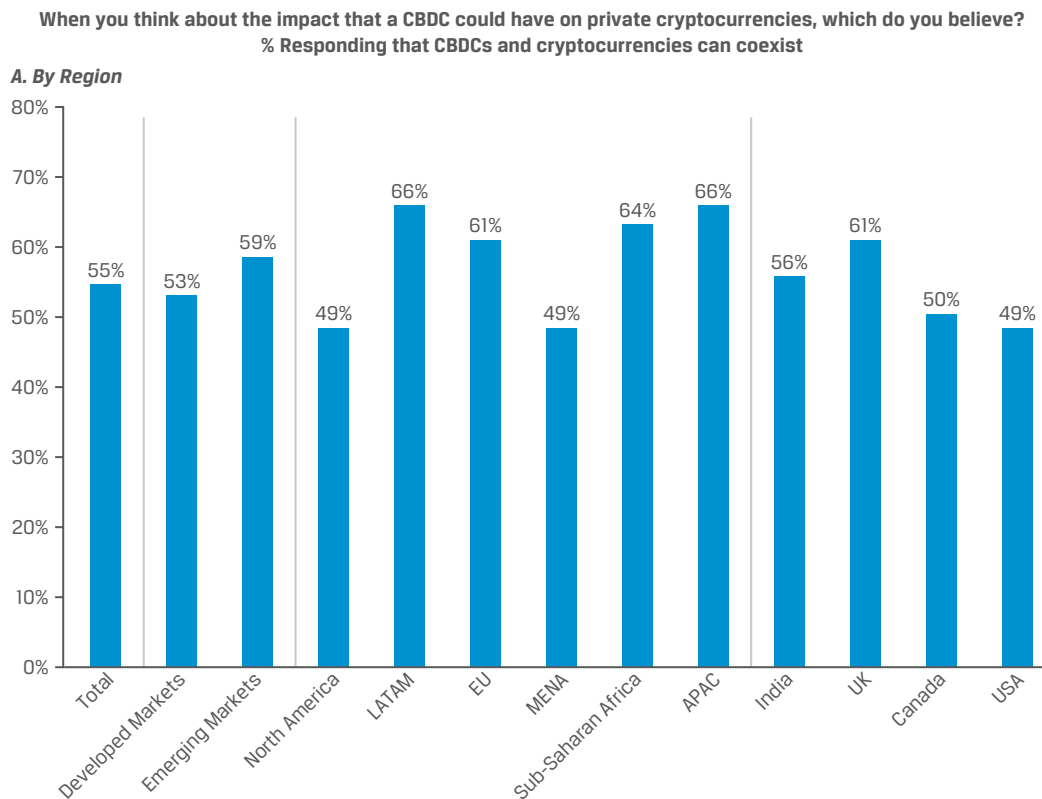
In our previous work on cryptoassets mentioned earlier,³⁴ we found that several market practitioners were of the view that private cryptocurrencies could actually benefit from the launch of CBDCs, as these could lend credence and legitimacy to the wider digital finance sector. They believed that CBDCs could enhance the wholesale layer of cryptocurrency transactions and therefore act as a general stabilizer (**Exhibit 24**).

At a regional level, respondents in Asia Pacific and Latin America were more optimistic about CBDCs and cryptocurrencies coexisting (66%), while respondents in North America were more skeptical (50%).

Age appears to be a clear differentiating factor on this question as well, as older respondents are markedly more skeptical than younger ones on the compatibility of CBDCs and private cryptocurrencies.



Exhibit 24. Can CBDCs and Private Cryptocurrencies Coexist? (breakdown by region and age group)

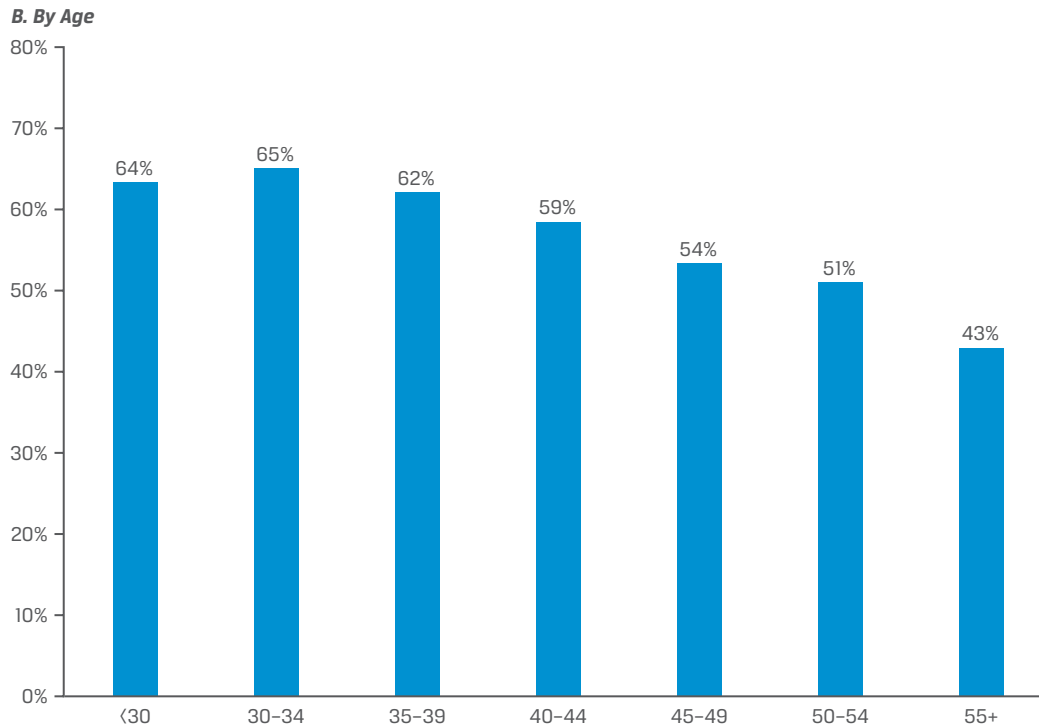


(continued)

³³See, for example, G. B. Gorton and J. Zhang, "Protecting the Sovereign's Money Monopoly," Working paper (14 July 2022); G. B. Gorton and J. Zhang, "Taming Wildcat Stablecoins," Working paper (30 September 2021); B. Eichengreen, "From Commodity to Fiat and Now to Crypto: What Does History Tell Us?," NBER Working Paper 25426 (January 2019).

³⁴See Deane and Fines, "Cryptoassets."

Exhibit 24. Can CBDCs and Private Cryptocurrencies Coexist?
(breakdown by region and age group) (*continued*)



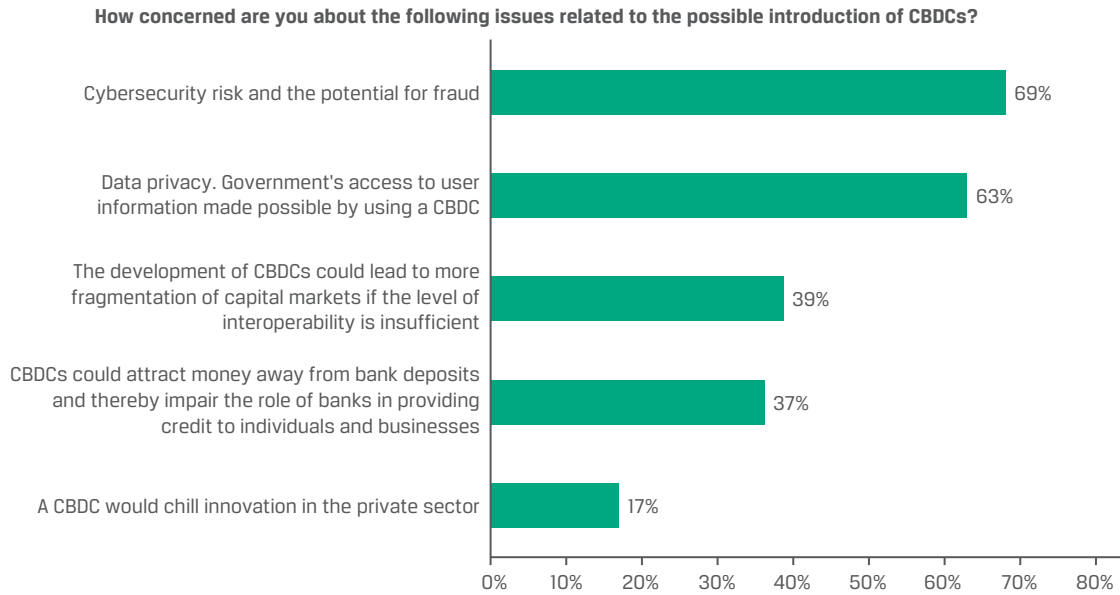
Question 9: We asked our membership how concerned they were about several issues related to the possible introduction of CBDCs (on a scale of 1–5, with 1 meaning not concerned at all and 5 very concerned).

Unsurprisingly given ongoing conversations about the subject, the two most serious risks reported by respondents are cybersecurity and data privacy, shared by large majorities each ranking these either 4 or 5 in importance on the scale (**Exhibit 25**).

Age and geography were not as differentiating with this question as they were with previous questions; these results were reasonably consistent across the board.

In line with the previous question, it is, however, interesting to note that CBDCs are not largely perceived as a potential threat to innovation in the private sector. This finding is aligned with the previous notion that the membership expressed regarding the compatibility of CBDCs and private cryptocurrencies.

Exhibit 25. Main Risks Related to the Possible Introduction of CBDCs
(chart shows Levels 4 and 5 aggregated; global)



4. CONCLUSION AND PERSPECTIVES

Much of the research on CBDCs has focused on the perspective of the central banks that are exploring whether to issue them.³⁵ Our research instead looks at the demand side of the equation, seeking to gauge the attitudes of a significant segment of potential CBDC end-users. Specifically, we surveyed the global membership of CFA Institute, who collectively form a significant part of the professional investment community.

Acceptance by end-users will be critical for any CBDC that is issued. And although central banks have solicited public comment on various consultation documents,³⁶ much remains unknown about the public's understanding of, interest in, and demand for CBDCs. To what extent does the public understand what CBDCs are or support central bank issuance of CBDCs? If CBDCs are issued, to what extent would the public use them and how would they use them? What design features do end-users find most attractive or important? As a paper by US Federal Reserve staff observed in late 2022, "Key questions remain on how the public would accept a CBDC, how implementation and adoption might work, how a CBDC might be used relative to other payment instruments, and how market structure and financial stability might be impacted."³⁷

We begin to provide answers by conveying the views of the professional investment community. The following findings summarize what we learned.

1. Developing markets, the Asia-Pacific region, and individual countries such as India and China presented a distinctive pattern of responses and more favorable views of CBDCs.

While our survey found a few universal themes, arguably the larger story is the contrast in attitudes based on age, geographic region, country, and level of economic development. A cluster of regions and markets—developing markets, the Asia-Pacific region, and individual countries such as India and China—presented a distinctive pattern of survey responses. Respondents in these areas generally were more receptive to CBDCs, expressing greater support for the issuance of CBDCs and willingness to use them if issued. Respondents in developed markets, such as the United States and the EU, in contrast, were notably cooler toward CBDCs. To take one telling example, respondents in China and India were more than twice as likely as those in the United States to say that central banks should issue CBDCs.

The high level of interest in CBDCs in the Asia-Pacific region reflects the pace of digital innovation there. China and India have been at the global forefront of experimenting with CBDCs, and both nations are expected to launch retail CBDCs in the near term. In addition, state concern over the rapid ascent and more recent failures of certain private cryptocurrencies has sparked interest in CBDCs as a safer digital alternative.³⁸ In remote areas, such as Pacific Island jurisdictions, authorities view CBDCs as a chance to break out of their financial isolation.³⁹

³⁵The BIS, for instance, has published several surveys of central banks. See, e.g., Anneke Kosse and Ilaria Mattei, "Gaining Momentum—Results of the 2021 BIS Survey on Central Bank Digital Currencies," BIS Papers No. 125 (6 May 2022). www.bis.org/publ/bppdf/bispap125.htm.

³⁶For a table summarizing end-user consultations and research conducted by central banks, see BIS, "Central Bank Digital Currencies: User Needs and Adoption," Report No. 3 (September 2021), p. 6. www.bis.org/publ/othp42_user_needs.pdf.

³⁷Ken Isaacson, Jesse Leigh Maniff, and Paul Wong, "An Examination of First-Mover Advantage for a CBDC," FEDS Notes (25 November 2022). www.federalreserve.gov/econres/notes/feds-notes/an-examination-of-first-mover-advantage-for-a-cbdc-20221125.html.

³⁸Jahan et al., "Towards Central Bank Digital Currencies in Asia and the Pacific," p. 4.

³⁹Jahan et al., "Towards Central Bank Digital Currencies in Asia and the Pacific," p. 19. ("As some of the world's most remote and geographically disperse countries, financial inclusion remains a major challenge, with many [Pacific Island jurisdictions] in the region still lacking access to financial services.")

2. Respondents in developing markets placed greater emphasis on financial inclusion.

Developing economies place greater importance than do developed economies on the perceived ability of CBDCs to enhance financial inclusion. Developing economies may view CBDCs as a way to leapfrog ahead in their financial development by modernizing payment infrastructures and enhancing financial inclusion. Certain design elements in particular could facilitate financial inclusion. For example, a CBDC that can operate offline and work with feature (non-smart) phones could increase financial engagement among populations that have limited access to banking infrastructure. Respondents in developed markets, in contrast, appear to be more satisfied with their current banking infrastructures, especially in combination with new advances in payment technologies and fast payment systems.⁴⁰

Our survey findings reflected these differences in outlook. For example, a majority of respondents in emerging markets (55%) said that CBDCs would enhance financial inclusion, as did even stronger majorities in China (66%) and India (64%). In contrast, only a minority of respondents in developed markets (28%) and the United States (24%) reported similar views.

3. Public acceptance of a CBDC is not assured.

Public acceptance of a CBDC, if issued, cannot be taken as a given in either developing or developed markets. The public may end up preferring other alternatives, if offered, ranging from traditional credit and debit cards to innovative electronic payment methods and private cryptocurrencies. The question of CBDC take-up is most evident in those markets showing limited interest in CBDCs to start with. But even in developing markets and regions that today show higher levels of receptivity to the digital money, a CBDC nonetheless could fail to gain public acceptance if the reality fails to live up to the aspirations for financial inclusion and other perceived benefits. Design features—such as interoperability with existing payment systems, the ability to function offline, and payment of interest—could make the difference between public acceptance and rejection.

4. To a large degree, public opinion remains an empty slate, presenting opportunity for central banks to build public support for CBDCs.

Even in markets showing the least receptivity to CBDCs, however, the survey revealed opportunities for central banks and other government authorities, should they choose, to raise awareness and build support. To a striking degree, public opinion remains an empty slate, with sizable numbers of respondents reporting a lack of understanding of CBDCs or undecided views about them. Consider the following examples:

- More than one in five said they do not know whether central banks should launch CBDCs.
- One in four said they were not sure whether they would use a CBDC.
- A majority of respondents said they have either a low (40%) or moderate (47%) understanding of CBDCs, with only 13% reporting a strong understanding.

These findings suggest an opportunity for central banks, should they choose, to engage in public outreach and education to build public interest in and demand for CBDCs.

⁴⁰See, e.g., UK Parliament, "Central Bank Digital Currencies," p. 13. ("Most witnesses were sceptical that a UK CBDC payments system would provide significant advantages to consumers over the existing payments system. Patrick Honohan, a former Governor of the Bank of Ireland, said that the benefit of a CBDC to UK consumers, 'at present [would be] absolutely nothing.' Because the UK already has a 'reasonably efficient payment system, . . . just having a CBDC does not give you an advantage.'")

5. A majority believes that CBDCs can coexist with private cryptocurrencies—but also that private money will always be inferior.

Globally, respondents were twice as likely to say that CBDCs can coexist with private cryptocurrencies than to say the two are incompatible (55% versus 25%, with 20% saying they had no opinion or were undecided).

Yet 58% of respondents globally also believed that private money will always be inferior in quality and security to government money. Only 17% said they would trust private cryptocurrencies over government money as a store of value.⁴¹

Any public outreach to build demand for CBDCs should play to this inherent strength of government money. It could become a critical advantage distinguishing CBDCs from any competing payment methods and currencies, including private cryptocurrencies if they are offered.

That very strength, however, could prove to be a weakness if it exacerbated bank disintermediation and financial instability. For example, the attraction of a CBDC as a safe haven could siphon off commercial bank deposits in tranquil times and encourage bank runs in times of stress. Central banks will need to take this risk into account in the design of CBDCs. Policy options include limiting the size of CBDC public accounts or the number of transactions or using a graduated scale to levy fees on larger CBDC transactions.

6. Central banks need to address three top public concerns: cybersecurity, privacy, and the search for actual use cases.

If a central bank engages in outreach and education initiatives, it should address the specific concerns of the public about CBDCs. Our survey revealed three top concerns:

- Cybersecurity and the potential for fraud
- Privacy and government's access to user information made possible by using a CBDC
- The absence of valid use cases and the perception that a CBDC is a solution in search of a problem

The question of use cases is an existential concern, and it found expression in our survey. Among respondents who said that central banks should not launch a CBDC, we asked why they believed that. A global average of 40% cited as a reason, "There are no valid use cases. A CBDC is a solution in search of a problem."

This response echoes doubts about CBDCs raised on both sides of the Atlantic by central bank officials, experts, and various parliamentary bodies. In the United Kingdom, for example, the House of Lords Economic Affairs Committee of the UK Parliament published a report titled "Central Bank Digital Currencies: A Solution in Search of a Problem?" In the United States, a Federal Reserve governor, Christopher Waller, gave a speech in 2021 bearing the title "CBDC: A Solution in Search of a Problem?" And in Europe, a paper for the European Parliament Committee on Economic and Monetary Affairs appeared under the title "Digital Euro: When in Doubt, Abstain (but Be Prepared)." The paper stated, "The concluding judgment is broadly positive on the preparatory work but doubtful on the wisdom of eventually launching a digital euro."⁴² In May 2023, the *Financial Times* published a Big Read article under the headline "The Digital Euro: A Solution Seeking a Problem?"⁴³

⁴¹This finding is true despite misgivings about the role of central banks and QE2 (Quantitative Easing 2) to stoke inflation. A global majority (61%) agreed with the statement, "Trust in current forms of government money is suffering as a result of an excessive use of quantitative easing by central banks, causing inflation."

⁴²Angeloni, "Digital Euro," p. 21.

⁴³"The Digital Euro: A Solution Seeking a Problem?," *Financial Times* (16 May 2023). www.ft.com/content/7c892d3b-c646-4247-9504-5f755e486101.

If a central bank decides to launch a CBDC, it should address this concern directly by identifying tangible benefits of a CBDC that address the specific needs of that particular market.

Cybersecurity represents another existential concern. As a UK Parliament House of Lords Economic Affairs Committee report observed, "CBDCs could represent a vulnerable single point of failure in the payments system, serving as a target for cyber-attacks from criminals and hostile nation-state actors."⁴⁴ The design of a CBDC—along with assiduous communications to reassure the public—will be essential to address this potentially fatal risk.

Design and public communications also will be critical in addressing the third concern, regarding privacy. A variety of design features attempt to address privacy concerns. A tiered approach, for example, would allow central banks to gain visibility into underlying retail transactions only under strictly limited conditions, such as when transactions exceed a large amount, or when needed to investigate what may be illegal transactions. Central banks could rely on commercial banks or other third parties to administer the digital currency to the public.

In their public communications, authorities should emphasize the need to strike a balance between respect for the privacy of financial data, on the one hand, and the need to combat crime and terrorism, on the other. Such an approach likely will meet with public understanding and agreement in a number of jurisdictions. For instance, a survey in Europe found support for norms in which the public typically enjoys privacy in payment data but nonetheless allows authorities to access the data to combat such crimes as money laundering, terrorism, and drug dealing.⁴⁵ Similarly, US law generally protects the privacy of banking data but still requires banks to report suspicious activity.

7. Central banks should partner with the private sector to understand the demand side.

As central banks, legislative bodies, and other government authorities weigh the pros and cons of launching a CBDC, they are confronting a wide array of issues: technical needs and design options, the efficiency of payment systems, the risks of disintermediation and disruption of credit creation, and the implications for monetary policy and financial stability. But central banks and other authorities should not limit themselves to these considerations. They should also examine the demand side of the equation. In addition to public consultations that central banks conduct, they should explore the demand side in partnership with the private sector and non-governmental organizations. Private partners can offer different perspectives that will fill in gaps and enrich the overall understanding of the needs, views, and preferences of end-users.

⁴⁴UK Parliament, "Central Bank Digital Currencies," p. 11.

⁴⁵See Angeloni, "Digital Euro," p. 18.

5. GLOSSARY

Central Bank Digital Currency (CBDC)

"CBDC is central bank-issued digital money denominated in the national unit of account, and it represents a liability of the central bank. If the CBDC is intended to be a digital equivalent of cash for use by end users (households and businesses), it is referred to as a 'general purpose' or 'retail' CBDC. As such, it offers a new option to the general public for holding money. CBDC is different from cash, as it comes in a digital form unlike physical coins and banknotes. CBDC is also different from existing forms of cashless payment instruments for consumers such as credit transfers, direct debits, card payments and e-money, as it represents a direct claim on a central bank, rather than a liability of a private financial institution."⁴⁶

Programmability of Money

"In simple terms, programmable money is digital money that can be programmed to act in a certain way based on predetermined criteria." Programmable money uses smart contracts as a basis to enact specific actions. "The first known programmable money was bitcoin, which emerged in 2009. Today, there are thousands of cryptocurrencies that can be programmed to execute transactions using smart contract technology. . . . They make cryptocurrency programmable."⁴⁷

Financial Inclusion

"Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs—transactions, payments, savings, credit and insurance—delivered in a responsible and sustainable way. . . . Being able to have access to a transaction account is a first step toward broader financial inclusion since a transaction account allows people to store money, and send and receive payments. A transaction account serves as a gateway to other financial services, which is why ensuring that people worldwide can have access to a transaction account continues to be an area of focus for the World Bank Group."⁴⁸

⁴⁶Boar and Wehrli, "Ready, Steady, Go?," p. 4.

⁴⁷Algorand, "Programmable Money: How Smart Contracts Make Money Better" (26 August 2021). <https://algorand.com/resources/blog/programmable-money-smart-contracts-make-money-better>.

⁴⁸World Bank, "Financial Inclusion" (29 March 2022). www.worldbank.org/en/topic/financialinclusion/overview.

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