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FUTURE OF PAYMENTS 2024

MANY PATHS, ONE GOAL

Shaping a new generation of payments

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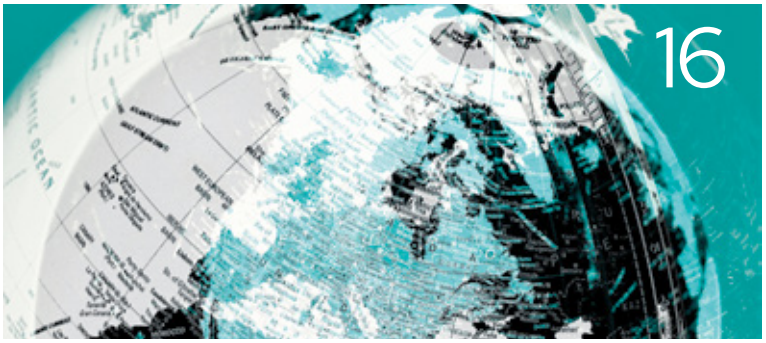
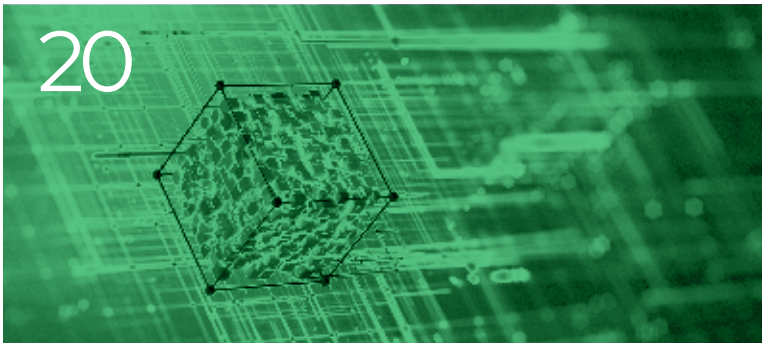
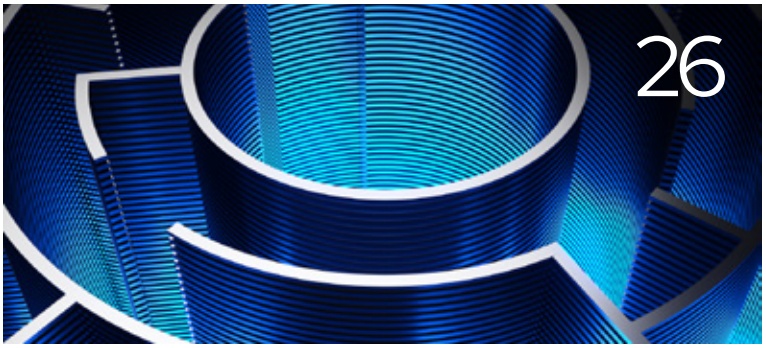
CONTENTS







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ABOUT OMFIF

With a presence in London, Washington and New York, OMFIF is an independent forum for central banking, economic policy and public investment – a neutral platform for best practice in worldwide public-private sector exchanges.

Where the public and private sectors meet to shape the digital future of finance

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MORE PLAYERS, MORE VALUE

We may no longer be facing the challenges of cross-border payments as a united world. By Lewis McLellan, editor, Digital Monetary Institute at OMFIF.

AT the end of October, the Bank for International Settlements ended its participation in Project mBridge – the most advanced multi-currency central bank digital currency project. In the BIS's absence, the central banks of China, Hong Kong, Thailand, the United Arab Emirates and Saudi Arabia will spearhead the project.

With mBridge dominated by China and its neighbours and trading partners, the BIS's latest project exploring wholesale CBDC and cross-border payments Agorá is regarded by many as a western response. While BIS Governor Agustín Carstens stressed that the BIS's departure from mBridge was not politically motivated, it is hard not to see this as another step away from a seamless global payments network.

The G20's Committee on Payments and Market Infrastructures has set out a clear mission: improving the speed, cost, transparency and accessibility of cross-border payments. It is employing a myriad of strategies to do so. In time, some may prove redundant. If underlying rails are overhauled entirely, will incremental improvements to the status quo be regarded as worthwhile? Perhaps not, but then, such insights will only be understood in retrospect.

At this stage, it remains difficult to assess which of the many strategies being pursued by both the public and private sectors will win out. The CPMI's approach, akin to 'letting a hundred flowers blossom', gives the payments industry the chance to test different hypotheses. This should provide a fertile, meritocratic foundation for progress in payments.

But cross-border payments systems are most beneficial when they have a critical mass of participants. Swift's long-established position at the heart of cross-border payments is testament to the fact that, the more players are involved, the more valuable a system is.

Letting a hundred flowers blossom is an understandable and important approach, but increased involvement can naturally lead to fragmentation. States that invest heavily in one technology may not find it expedient to switch to another if it becomes more popular.

This technical fragmentation exacerbates a reality that we are being forced to confront: geopolitical fragmentation. We may no longer be facing the challenges of cross-border payments as a united world.

The incumbent generation of cross-border payments has been built on infrastructure owned and controlled by western countries and businesses. The dollar is utterly central, forming one half of 90% of cross-border transactions. This status quo preserves the West's dominance and it is no surprise to see alternatives arising, particularly in the Brics community, that seek to bypass the dollar or other components of the status quo.

Although key institutions like the Bank for International Settlements are still promoting a globally harmonised approach, there are political and economic forces pushing towards fragmentation.

Improving cross-border payments is, above all, about removing barriers. It is possible that progress with payments technology will promote the cross-border exchange of commerce, value and ideas. If so, then perhaps some of the forces behind fragmentation may lose their momentum.

This will not happen by accident. Following the easiest path will mean creating islands of seamless exchange between neighbours and key trading partners – polarising the world and entrenching established relationships, rather than building new ones. It is only through the diligent pursuit of truly worldwide initiatives that we can progress towards a global payments network, rather than a series of loosely interconnected payment islands. ■

This technical fragmentation exacerbates a reality that we are being forced to confront: geopolitical fragmentation. We may no longer be facing the challenges of cross-border payments as a united world.

MANY PATHS, ONE GOAL

Shaping a new generation of payments.

Once regarded as a niche offshoot of the cryptoasset market, tokenisation has taken root in the official sector's vision of the future of payments.

THE commitment to improving cross-border payments is stronger than ever in the official sector. High costs are the primary challenge that central banks want to overcome, but there is a remarkable diversity of views when it comes to selecting the best method for doing so. This report examines four of these methods and how different parties are exploring them.

The first method is multi-currency central bank digital currency platforms and this forms the basis of Chapter 1. Although this year's Future of payments survey of central banks indicates these platforms have lost popularity since 2023, they have the potential to radically overhaul our geopolitical landscape. The Bank for International Settlements' departure from Project mBridge creates the opportunity for a bipolar race for global payments innovation.

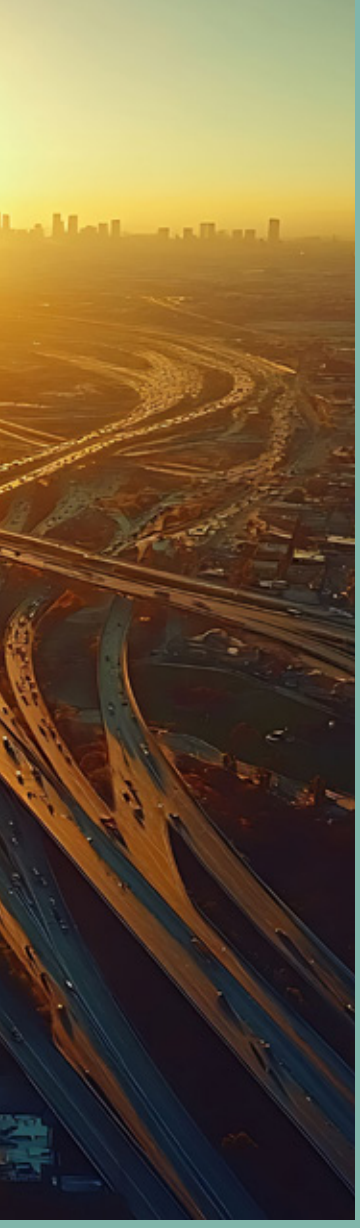
Chapter 2 examines strategies to streamline compliance checks in cross-border payments. The growing complexity of know-your-customer checks required to prevent fraud and financial crime has become a serious issue for correspondent banking. Harmonising the data standards used in different jurisdictions is key to addressing this, and the drive to adopt the ISO 20022 messaging standard is a major component of that. However, our survey indicates that a third of central banks believe a significant proportion of the institutions they supervise will not have adopted the ISO 20022 standard by the November 2025 deadline.

Chapter 3 explores what may be the hottest trend in payments markets: tokenisation. Once regarded as a niche offshoot of the cryptoasset market, tokenisation has taken root in the official sector's vision of the future of payments.

Although the private sector led the way with stablecoins, the BIS is keen to see the architecture of two tiers of money – central bank money and commercial bank money – replicated in a token-based environment. The BIS envisions that, when connected internationally, this system should form the backbone of the next generation of cross-border payments infrastructure. But while this model is gaining in favour, it relies on the interconnections of wholesale CBDCs – a concept that our survey suggests central banks may be souring on.

Governance challenges will also affect the theme of Chapter 4: the interconnection of instant payments systems. According to our survey, central banks see this avenue as the most promising for the improvement of cross-border payments. The BIS's Project Nexus offers a hub-and-spoke model for the scalable linkage of retail IPS. These systems are rapidly growing in importance in domestic payments, drawing a share of payments that is growing year on year in the 70-plus countries in which these systems are in operation.

Despite some immensely encouraging progress in Southeast Asia, where five countries' IPS have been joined together in a trial of the Nexus model, our survey respondents still believe that governance and developing a regulatory framework will prove the biggest obstacle to Nexus' continued development. This chapter also includes insights from the BIS's Maha El Dimachki and Bank of Thailand's Wijitleka Marome on their experience with Project Nexus. ■



Key numbers

68%
of central banks say transaction costs are a challenge for cross-border payments.

33%
of central banks say that more than 10% of the institutions they supervise will miss the ISO 20022 deadline.

13%
say connecting CBDCs is best for improving cross-border payments, down from 31% in 2023.

47%
say interlinking IPS is the best way to improve cross-border payments.

44%
say harmonising legal and regulatory frameworks is the biggest barrier to interlinking IPS.

85%
of central banks give or plan to give non-bank payment services providers access to real-time gross settlement systems.

76%
of central banks see wholesale CBDC and tokenised deposits operating in a tokenised ecosystem.

15%
of central banks are working on tokenising cash, but 33% say they expect to be within three to five years.

Key quotes

'Project mBridge remains the most advanced multi-currency CBDC platform, but liquidity issues and governance concerns still pose limitations for widespread adoption.'

'The interoperability models of CBDC design will be a key consideration for global payments going forward.'

'Policy-makers want to bring down the costs of cross-border payments, but the complexity involved in compliance is eroding profit margins in correspondent banking.'

'New technical solutions like application programming interfaces and artificial intelligence may offer new methods for bringing down costs and revitalising correspondent banking.'

'The official sector remains sceptical of ceding control of tokenised cash to the private sector.'

'Challenges remain around ensuring there is a fair governance model as well as the facilitation of payments making use of bridge currencies.'

'Central banks are working hard to develop a means of tokenising cross-border payments, with hopes that it will streamline compliance checks, improve settlement efficiency and unlock new functionality.'

'While the benefits offered by tokenisation are tempting prospects, achieving a cross-border tokenised network will require a great deal of work to agree a governance framework.'

Linking IPS beats connecting CBDCs as top choice for cross-border payments

This year's survey demonstrates strong interest in interlinking instant payments systems to improve cross-border payments, but appetite for tokenisation is set to grow.

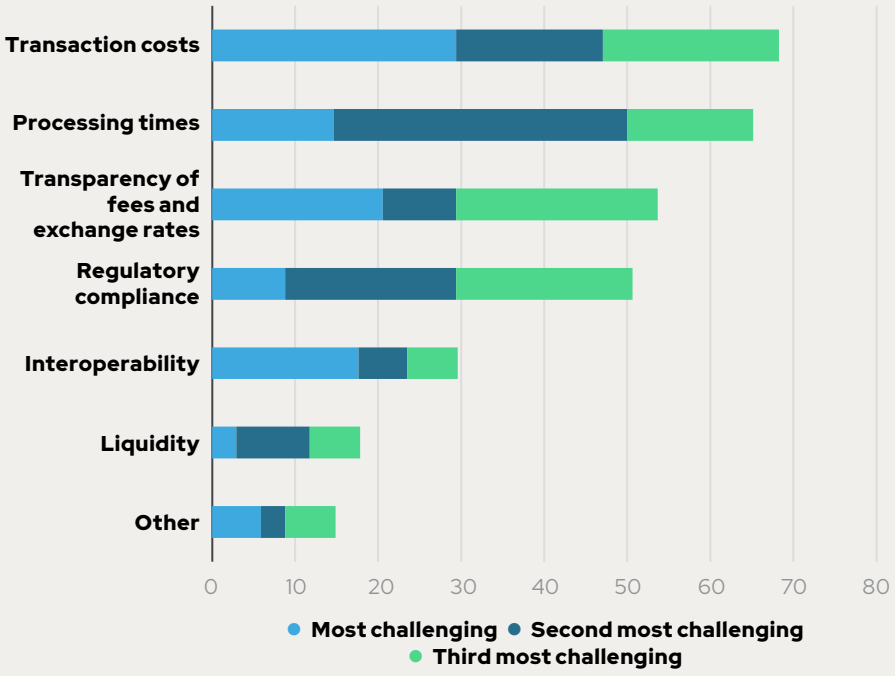
Central banks targeting high transaction costs

MORE than two-thirds (68%) of survey respondents identified high transaction costs as a challenge for cross-border payments, with 29% selecting it as the biggest challenge overall. In a separate question, 30% of respondents said this was the area they were most focused on improving.

Central banks are examining a range of innovations to overhaul cross-border payments and this result indicates that their main priority will be bringing down costs.

Transaction costs are the number one challenge

What are the three biggest challenges affecting cross-border payments in your jurisdiction? Share of respondents, %



Source: OMFIF Future of payments survey 2024

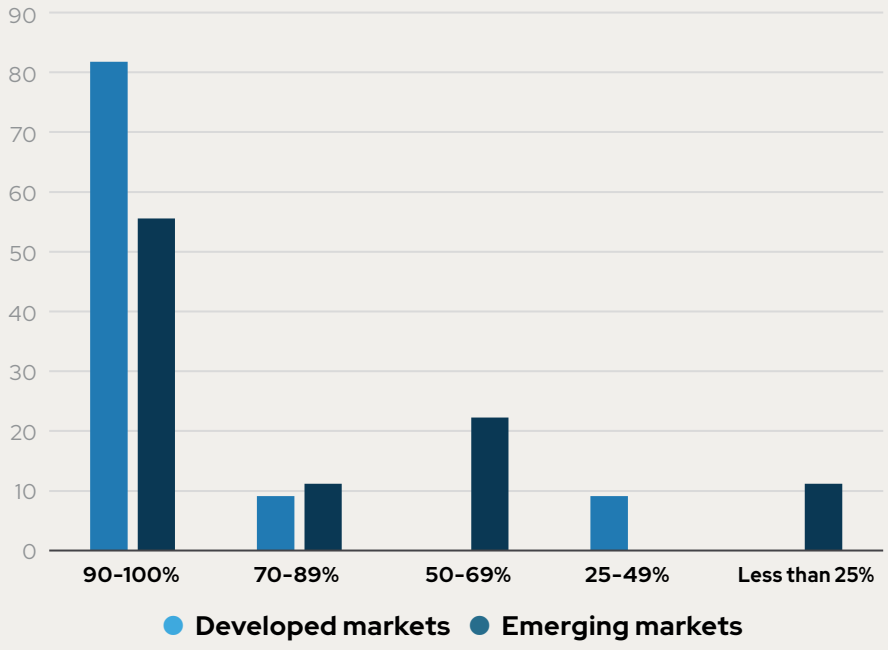
Many stand to miss ISO 20022 deadline

MIGRATING to ISO 20022 standards can help streamline cross-border payments and reduce transaction costs. The deadline for institutions to fully transition to this format is November 2025, but only 66% of survey participants say that the institutions they supervise are likely to meet it. Primarily from emerging markets, 24% of respondents will only have 69% or less of their payment services providers using ISO 20022 standards.

All respondents to this question believed that using technology to automate compliance is a promising area for development. However, respondents were split on who would lead the effort and on the level of private sector involvement. Among emerging market participants, 55% said that they would either work on automating compliance themselves or collaborate with the private sector, while 60% of developed market participants prefer the private sector to lead the way.

Emerging markets lag developed economies on ISO 20022 implementation

What proportion of payment services providers in your jurisdiction are using ISO 20022, or expect to be by the implementation deadline? Share of respondents, %



Source: OMFIF FoP survey 2024

Faith in connecting CBDCs drops sharply

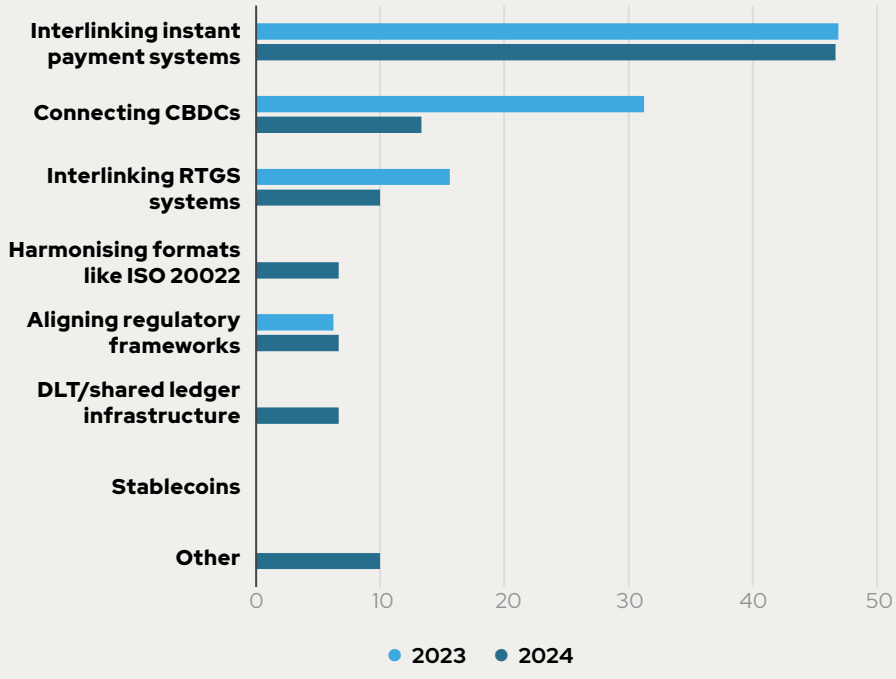
ONLY 13% of survey respondents chose connecting CBDCs as the most promising avenue for improving cross-border payments, down from 31% last year. This drop comes in spite of the announcement of the Bank for International Settlements' Project Agorá, which relies on the interconnection of wholesale CBDCs, and of progress in Project mBridge, spearheaded by the People's Bank of China. The decline could reflect a growing awareness of the challenges involved in delivering the concept, particularly around governance.

Only 10% of respondents are working on the concept, compared to 21% last year. However, a further 26% say they intend to start work.

Survey participants see interlinking instant payments systems as the most promising avenue for improving cross-border payments (47%), roughly the same share of respondents in the 2023 survey. However, 44% of survey respondents highlighted the difficulty of harmonising legal and regulatory frameworks between all the participants, while 31% said they had concerns about technical infrastructure alignment.

Interlinking IPS most promising avenue for improvement

What do you think is the most promising avenue to improve cross-border payments? Share of respondents, %



Source: OMFIF FoP survey 2023-24

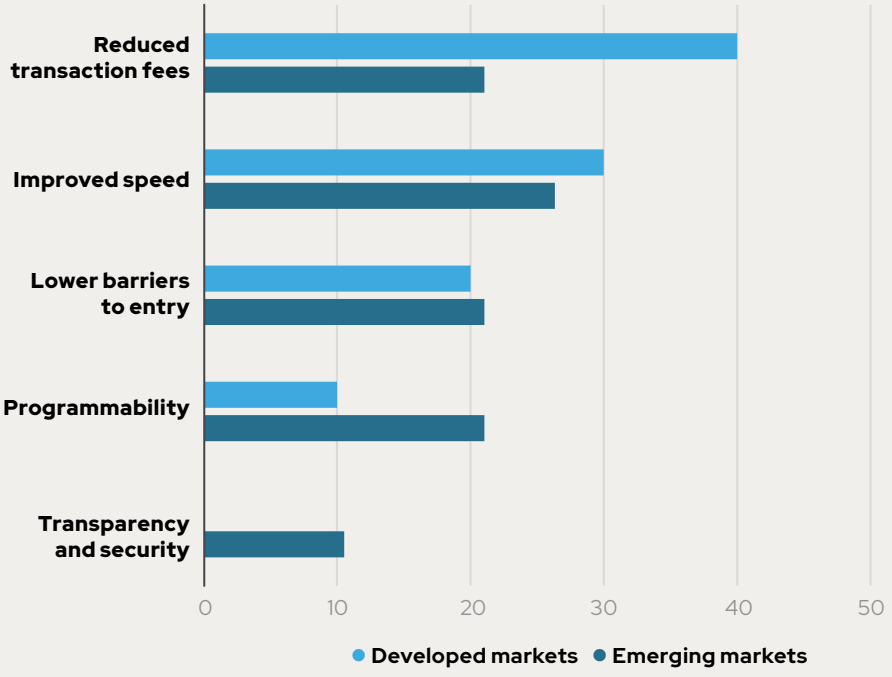
Central banks unconvinced by stablecoins

MUCH like last year's survey results, no respondents chose stablecoins as the most promising avenue for improving cross-border payments. However, central banks acknowledge that stablecoins might still offer a means of improving cross-border payments.

Reducing transaction fees and improving processing times were the two areas where participants thought stablecoins could make the biggest difference. Developed market respondents (40%) find reduced transactions fees far more appealing than emerging markets (21%).

Reduced transaction fees appeal to developed markets

Which features of using stablecoins are most appealing to improve cross-border payments? Share of respondents, %



Source: OMFIF FoP survey 2024

But central banks are opening up to non-bank access

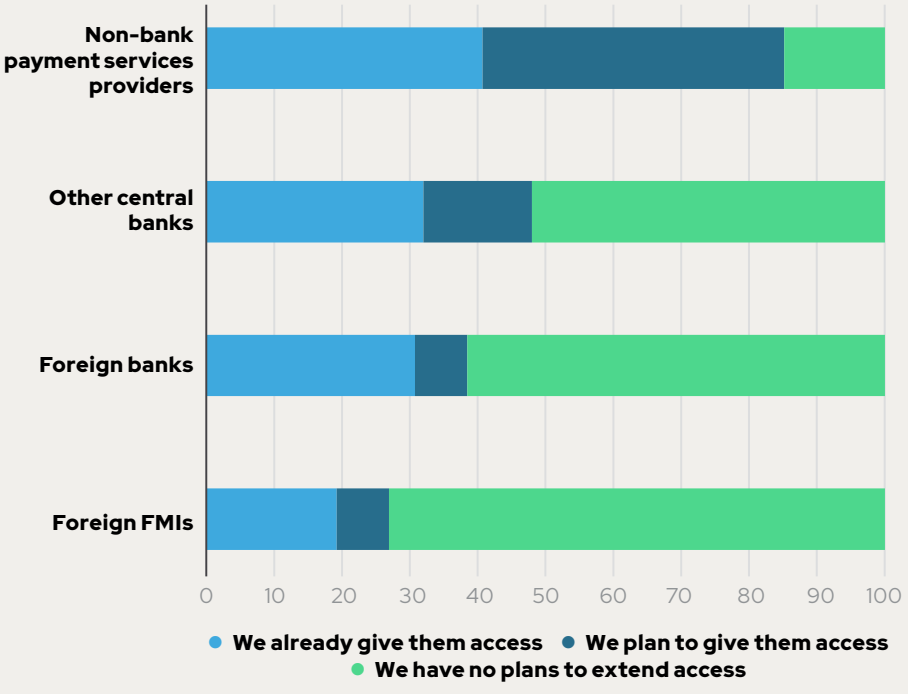
DESPITE hesitance on stablecoins, 30% of respondents said they intend to make their real-time gross settlement systems compatible with distributed ledger technology infrastructure. While this is not an endorsement of stablecoins, it does suggest that central banks are open to the possibility of tokenised cash, provided by private institutions.

There is also strong support for broadening access to RTGS systems beyond commercial banks: 41% of respondents said that they already give access to non-bank PSPs, with 44% saying that they plan to do so soon. Only 15% of central banks do not plan to do so.

Openness for international participation is much lower, with 62% of central banks saying they have no plans to give foreign banks access to RTGS systems, and 73% saying no access for foreign financial market infrastructure providers.

Central banks willing to work with private institutions

Do you intend to give the following entities access to your RTGS system? Share of respondents, %



Source: OMFIF FoP survey 2024

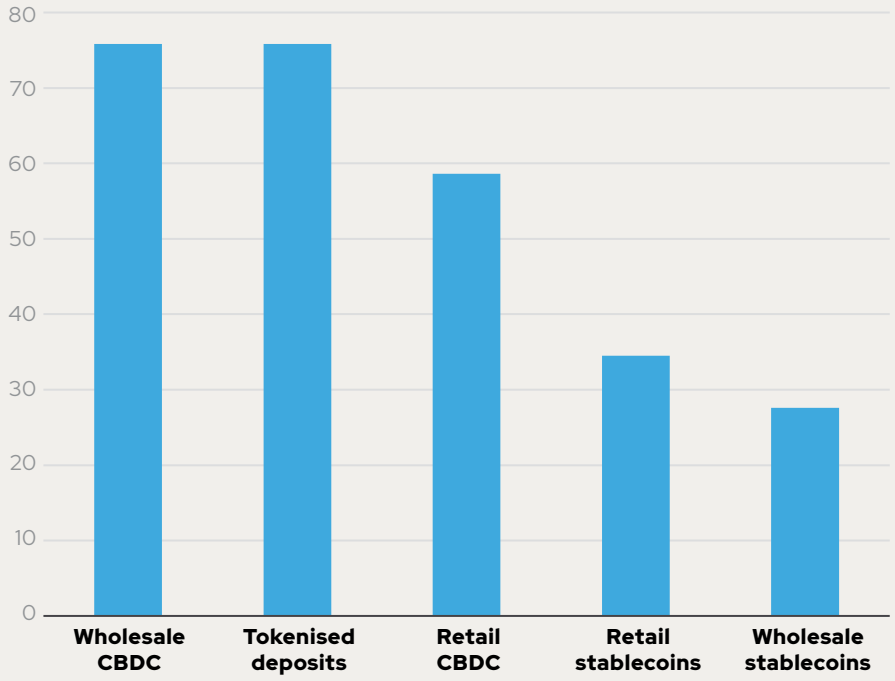
Tokenisation captures central banks' imaginations

TOKENISING cash is perhaps the hottest theme for the official sector this year. It was chosen by 76% of respondents as the joint most-popular instrument in a tokenised ecosystem alongside wholesale CBDCs. Project Agorá seeks to create a platform for cross-border payments that will include tokenised wholesale CBDC and tokenised commercial bank deposits. Its launch in 2024 signalled a new phase in central bank exploration of payments technology.

Our survey findings suggest that 76% of central bank respondents are keen to see the two-tier model of money provision – central bank money and commercial bank money – continue to operate, at least domestically, within a tokenised ecosystem. While this is an endorsement of the preconditions for the Agorá model, making it work across borders is much more complex.

Central banks open to exploring technological solutions

Which instruments do you envisage operating in a tokenised ecosystem? Share of respondents, %



Source: OMFIF FoP survey 2024

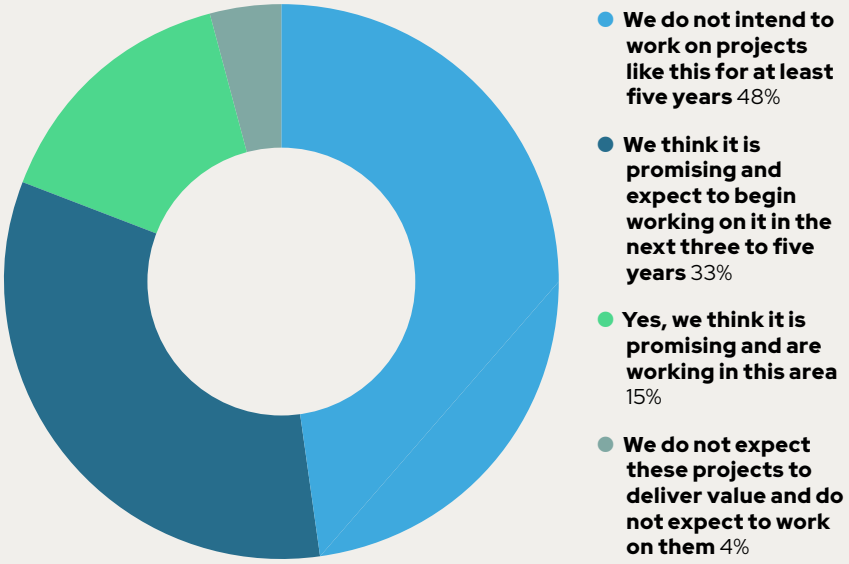
Despite slow uptake, tokenisation momentum could build

WHILE 96% of central bank survey respondents see the potential in tokenisation for improving cross-border payments, embarking on the project itself is daunting. As yet, only 15% of survey respondents have begun working on projects in this area. However, momentum could build rapidly, with another 33% expecting to begin work in the next three to five years.

This hesitation is largely due to the challenges of establishing international consensus on the governance standards required for countries to share a common infrastructure.

Widespread tokenisation still 3-5 years away

Do you anticipate that combining tokenised bank money and tokenised central bank money on a programmable platform will improve cross-border payments?



Source: OMFIF FoP survey 2024

1/ Macroenvironment

Cross-border payments: a new geopolitical battleground

Multi-currency CBDC platforms could alter the landscape of international finance with far-reaching implications for how currencies are exchanged, transactions are processed and global financial systems are structured.

Key findings

1. Multi-currency central bank digital currencies are emerging as alternatives to existing cross-border payments systems. These platforms aim to improve efficiency, reduce costs and challenge incumbent infrastructure by enabling transactions in local currencies.

2. Project mBridge remains the most advanced multi-currency CBDC platform, but liquidity issues and governance concerns still pose limitations for widespread adoption.

3. The interoperability models of CBDC design will be a key consideration for global payments going forward, with a hub-and-spoke model being favoured by survey respondents.

THE dollar and its associated western-owned infrastructure form the foundation of the global financial system. Existing systems are slow and expensive, relying on correspondent banks in various jurisdictions to process transactions across borders. As technology advances, progress towards a unified global payments network has been progressing incrementally but is still centred on incumbent infrastructure.

At the same time, challenging US geoeconomic dominance and reducing reliance on the western financial system has become a strategic aim for many countries, particularly in emerging markets. Many countries are working on payments systems to improve efficiency, reduce costs and ensure they have sovereignty and autonomy over their financing.

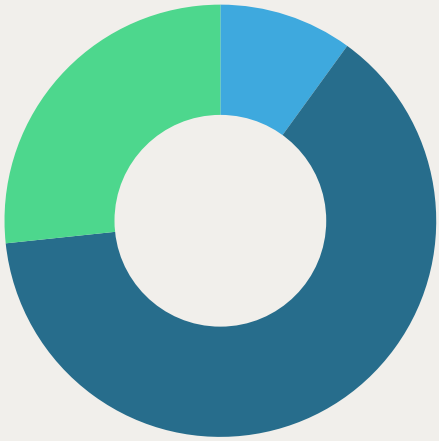
Progress on multi-currency CBDC projects

Multi-currency CBDC platforms are an important subset of alternative payments infrastructure. A growing share of central banks around the world are looking to connect their wholesale CBDCs – or the settlement of interbank transfers and related wholesale transactions in central bank reserves – through multi-currency CBDC platforms.

Though their global adoption is still in its infancy, multi-currency CBDC

1.1. Many considering multi-currency CBDC platforms

Are you working on a multi-currency CBDC platform? Share of respondents, %



● **Yes** 10% ● **No** 64%
● **No, but we intend to** 26%

Source: OMFIF FoP survey 2024

platforms represent an evolving alternative to incumbent cross-border payments systems, with the potential to bring down costs and improve the speed of payments globally. This year's Future of payments survey indicates that 10% of respondents are actively working on a multi-currency CBDC platform, while 26% stated that they are not currently doing so but intend to in the future (Figure 1.1).

Among the various multi-currency CBDC initiatives, Project mBridge – the most developed project using CBDCs for cross-border payments – reached minimum viable product stage in June 2024. Originally developed through collaboration between the Bank for International Settlements (which left the project in November 2024) and the central banks of China, Hong Kong, Thailand and the United Arab Emirates, mBridge aims to improve efficiency, speed and transparency in cross-border payments. Saudi Arabia joined the project in June 2024 and, as of August, there are 32 observing members of the project, including 28 central banks and four multilateral financial institutions.

By using distributed ledger technology and wholesale CBDCs, mBridge aims to enable direct cross-border payments without correspondent banks acting as intermediaries. Crucially, mBridge allows participants to settle cross-border transactions in their local currencies, facilitating transactions between currency pairs with liquid trading. As stated by one interviewee from the asset management industry, 'mBridge offers a completely new architecture on how to transmit across borders, one that is faster and cheaper'. If mBridge is successfully implemented, they continued, 'I see little reason why the correspondent banking system will remain dominant.'

Disrupting global payments

The significance of mBridge lies not only in its technological innovation and increased efficiency but also in its potential to disrupt established payments systems. The platform's strategic goal is to promote using local currencies for global payments. For participating countries, mBridge provides a platform to bypass existing financial infrastructure such as the Swift network and

1.2. Saudi Arabia joins Project mBridge

Participating countries in mBridge

Source: Bank for International Settlements

dollar-dominated correspondent banking systems – enabling participants to circumvent western sanctions.

OMFIF's 2024 FoP survey confirmed that some central banks are actively trying to reduce the share of cross-border trade settled in dollars, with 11% of respondents stating that they are looking to do so. This aim was also highlighted at the Brics summit in Kazan this year, where a commitment to local currency settlement was affirmed in the declaration. However, opinions of Brics members on the value of moving away from the dollar is not uniform.

Insofar as it is a strategic aim, the shift away from the dollar could be accelerated by the development and adoption of CBDCs.

Saudi Arabia's participation in the platform has prompted speculation that it may signal a broader shift in oil markets, global trade and payments. The potential 'petroyuan' is unlikely to usurp the dollar in the immediate future. But the Kingdom's participation in mBridge signifies an important step in the adoption of distributed ledger technology for cross-border settlement as an alternative to the existing system.

Project mBridge is just one of the platforms with the potential to effect shifts in global payments. Another development worth following is the plan to develop payment infrastructure among the Brics bloc, which has recently expanded to include Egypt, Ethiopia, Iran and the UAE. According to some observers, the bloc is considering the creation of a common unit of account, with 40% of the value of pegged to gold and 60% to a basket of national currencies.

'mBridge offers a completely new architecture on how to transmit across borders... I see little reason why the correspondent banking system will remain dominant.'

Interviewee from the asset management industry

Other projects under consideration at the Brics 2024 summit in Kazan include Brics Bridge, a platform for international settlements in Brics+ digital currencies, as well as Brics Pay, a cross-border digital payments system. The Kazan declaration also highlights the intention to develop Brics Clear Depository, a messaging service to replace Swift. Though the timing remains unclear, one global payments expert in an interview with OMFIF noted that 'a payments system, whether blockchain or real-time gross settlement will happen between the Brics. It's a top item on the agenda'.

As yet though, support within the Brics community appears mixed, with Russia and China keen to find alternatives, while other members show less enthusiasm.

Limitations to alternative payments infrastructure

On platform governance, questions remain regarding how to share roles and responsibilities, who has ultimate oversight of the platform and how to resolve disputes. 'The risk would be that the Chinese dominate the standard-setting in international payments and also on the CBDC side,' noted an interviewee from the payments industry. If critical aspects of the technology are developed in China, as is the case with mBridge's consensus mechanism, this could raise questions around whether the platform is truly decentralised or tilted in favour of Chinese oversight and influence. In this case, mBridge would simply swap dependency on one global economic superpower for dependency on another.

Liquidity is the 'second elephant in the room', the interviewee noted, adding that illiquid currencies can't be internationalised overnight. Liquidity provision within mBridge depends on participating central banks and currencies. As another interviewee reflected, 'The problem is that the yuan is still not a fully convertible currency in terms of value issues and using it more widely and in terms of pricing oil... The Chinese wanted to make this contract more attractive, so they had to sweeten it by adding gold back.' It is these concerns around the liquidity of currencies other than the dollar that lead to hesitation in the Brics community about moving away from dollar-based infrastructure.

Where commercial banks previously relied on correspondent banks to secure the liquidity to execute payments on a net basis, banks will have to fund mBridge payments in advance. Transacting in both fiat currency and CBDCs would complicate liquidity management.

In November 2024, the BIS has announced an end to its participation in mBridge. Governor Agustín Carstens noted that this was not because the project was a failure but because it was sufficiently mature to continue without the BIS's supervision.

With the removal of western institutions and potential US influence from mBridge, the project may become more attractive to emerging markets. One interviewee from the payments industry, speaking before the announcement of the BIS's departure said: 'mBridge will have a slow uptake while the BIS is involved, but at some point, the BIS is going to be kicked off'.

The interviewee speculated that the next countries to join will be Association of Southeast Asian Nations economies due to their high trade volumes with China, Egypt and South Africa as they look to move away from the dollar, and central Asian economies like Kazakhstan.

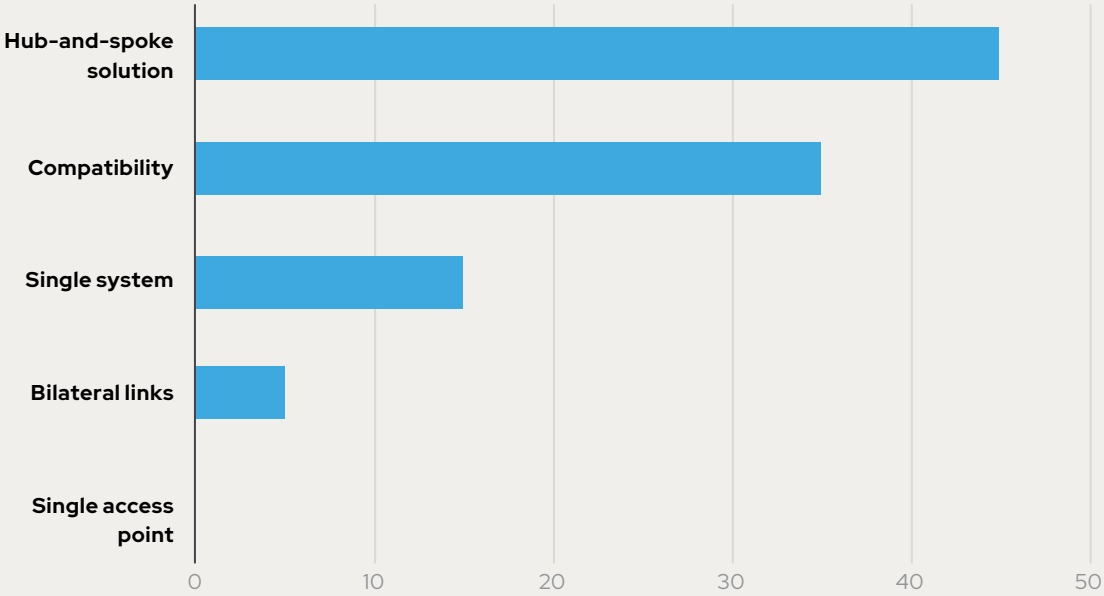
Interoperability shaping the future of payments

The development of multi-currency CBDC initiatives is not limited to emerging markets and geopolitical opponents of the West. Earlier this year, the BIS launched Project Agorá using a unified ledger concept to explore how commercial bank deposits can be integrated with wholesale CBDCs using tokenisation. Agorá aims to overcome structural inefficiencies in cross-border payments by reducing the need for multiple anti-money laundering and counterterrorism checks at various points along the transaction chain. There are currently seven central banks involved with the BIS in its pilot phase.

Some have noted that Agorá may be the western response to mBridge. But if Agorá's goal is to become the primary global CBDC-based payments platform, it may be falling short. 'If you check the

1.3. Central banks yet to reach consensus on CBDC interoperability

Which interoperability model for connecting CBDCs do you support? Share of respondents, %



Source: OMFIF FoP survey 2024

'Interoperability of CBDC platforms is one of the key aspects to be explored in our domestic wholesale CBDC exploration.'

Survey respondent from an Asia Pacific central bank

participating countries in Agorá, nearly all countries are from the global North. Only Mexico is from an emerging market,' noted a global payments expert. This composition could make the project less attractive to emerging economies looking for greater financial and economic autonomy.

Do these platforms have the capacity to become a singular global payments system? It seems unlikely, given that only 15% of central banks favoured the idea in OMFIF's 2024 FoP survey (Figure 1.3). The coexistence of multiple multi-currency CBDC platforms alongside incumbent systems is much more likely. Instead, interoperability is a key development to follow going forward. As noted by one survey respondent from Asia Pacific, 'Interoperability of CBDC platforms is one of the key aspects to be explored in our domestic wholesale CBDC exploration.'

Several models for interoperability are currently under consideration. Among survey respondents, a hub-and-spoke solution emerged as the most popular option, with 45% in support. This would entail a common hub connecting CBDC systems from participating jurisdictions and could offer a model for the global connectivity of more deeply integrated regional systems.

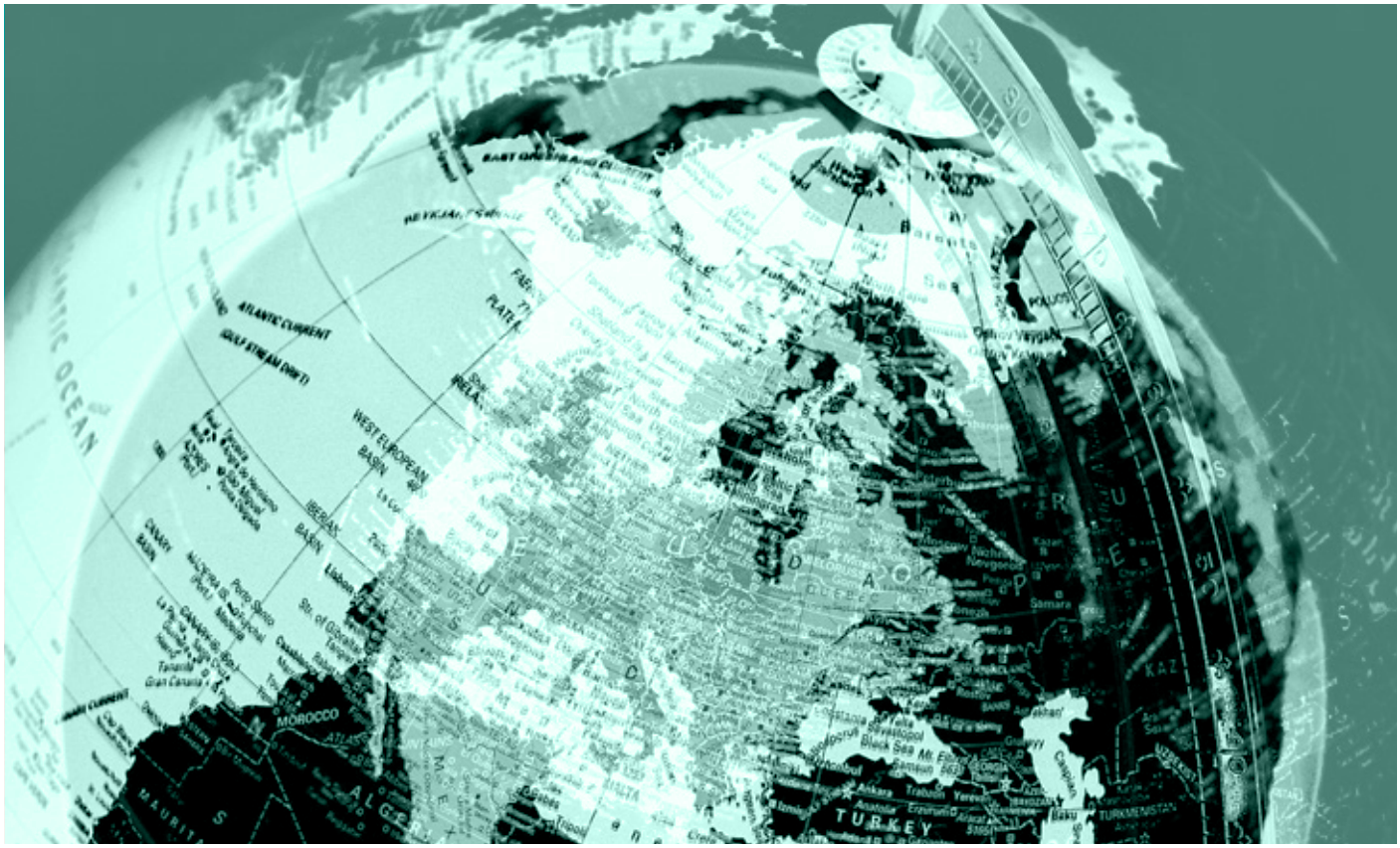
The second most popular option for CBDC connection is compatibility. Selected by 35% of respondents, compatibility is the use of common standards of messaging formats, cryptographic techniques and data requirements. This could prove to be the most straightforward option, with one central bank seeking a compatibility model of interoperability, noting that, 'any other models have higher hurdles to clear, and so for now, we opt for what is most feasible'. Survey results indicate that more ambitious solutions – including a single access point and bilateral linkage between two individual CBDC systems – are less popular.

For now, it seems too early to tell which model of interoperability will be most widely adopted. Several survey respondents noted that design aspects are still pending and, in many cases, various models are being explored simultaneously. 'We are in a research stage and have not defined an interoperability model for connecting CBDCs,' noted one respondent from a Latin American central bank. Another respondent stated that they are still unsure, and that 'potentially one or more models outlined above' could be included in their CBDC design.

Toward a de-dollarised world?

In the meantime, the dollar remains the favoured currency despite increased competition. For now, many players searching for a safe haven in the face of geopolitical tensions will increase holdings of the dollar, reinforcing the dominance of incumbent payments systems. 'The prevalence of the US dollar in global trade, investment and financial activities is a structural feature of the global economy primarily due to its standing as a global settlement currency,' noted one Asia Pacific survey respondent.

But there are downside risks to the existing system that could precipitate change. The unilateral weaponisation of the dollar and its corresponding payments infrastructure like Swift would encourage other countries to search for alternative payments to the dollar and the dollar-based system. Though this is still likely to be years away from materialising, the innovation of financial technology and geopolitical fragmentation – especially if coinciding with poor US geoeconomic decision-making – could be the perfect storm for the development of a multipolar global payments system. ■



2/ **Correspondent banking**

Reviving correspondent banking with innovation

Mounting costs and competition are driving banks out of correspondent banking, potentially worsening consumer outcomes. Innovation is needed to ensure the model can remain the backbone of cross-border payments.

Key findings

1. Policy-makers want to bring down the costs of cross-border payments, but the complexity involved in compliance is eroding profit margins in correspondent banking.

2. Standardisation is helping to reduce these costs, but implementation so far appears patchy.

3. New technical solutions like application programming interfaces and artificial intelligence may offer new methods for bringing down costs and revitalising correspondent banking.

POLICY-MAKERS have clearly expressed their view that cross-border payments are too expensive and are pushing the private sector to bring down costs. This aim is certainly commendable as bringing down the cost of sending money overseas can make a huge difference, especially to the economies of small, lower-income countries that generally face the highest costs and for which remittances often comprise a significant portion of gross domestic product.

In our survey, 30% of respondents said that reducing transaction costs is the issue in cross-border payments that they are most focused on improving, outstripping processing times and interoperability (Figure 2.1).

The business of cross-border payments generates some $200bn of revenue annually – a figure that is steadily growing thanks to the ever-increasing volume of cross-border payments. But despite the enormous and increasing revenue available, the number of correspondent banking relationships has been in a steady decline for over a decade.

While it has historically been a high-margin business, these margins are under pressure from new sources of competition and a cost base being driven up by the increasing complexity of the business.

Much of this complexity and its

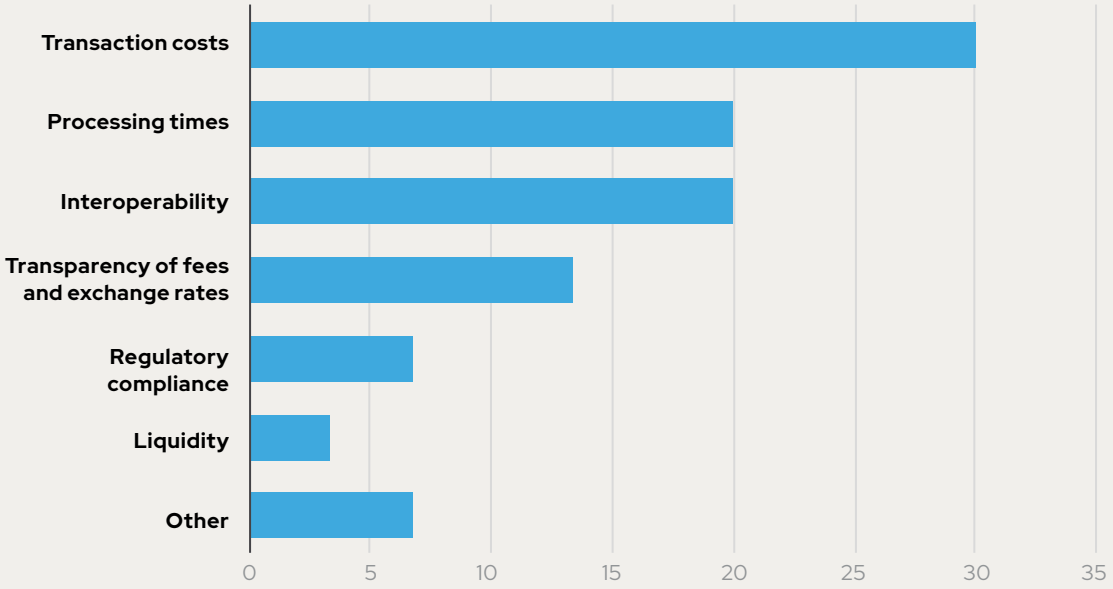
associated costs come from performing compliance checks: anti-money laundering and combatting the financing of terrorism. These checks are necessary for our protection and to maintain trust in our financial system. However, the growing intricacy of our increasingly digitalised economy has led to more opportunities for fraud and financial crime and raised the level of technical expertise required to detect and prevent them.

Our survey indicates a strong belief that technology can make this process more efficient. Respondents were equally split on whether or not they are working on it directly or allowing the private sector to lead. However, 100% of respondents believe that technology can help to automate the process and produce efficiency savings.

The growing cost base and the regulatory risks that correspondent banks run in providing this service is a leading cause of the drop-off in participation (Figure 2.2.). However, banks are not the only ones providing cross-border payment services. With lower cost models than banks, fintechs are starting to encroach on correspondent banking business by rapidly adapting to new technology,

2.1. Transaction costs represent main hurdle

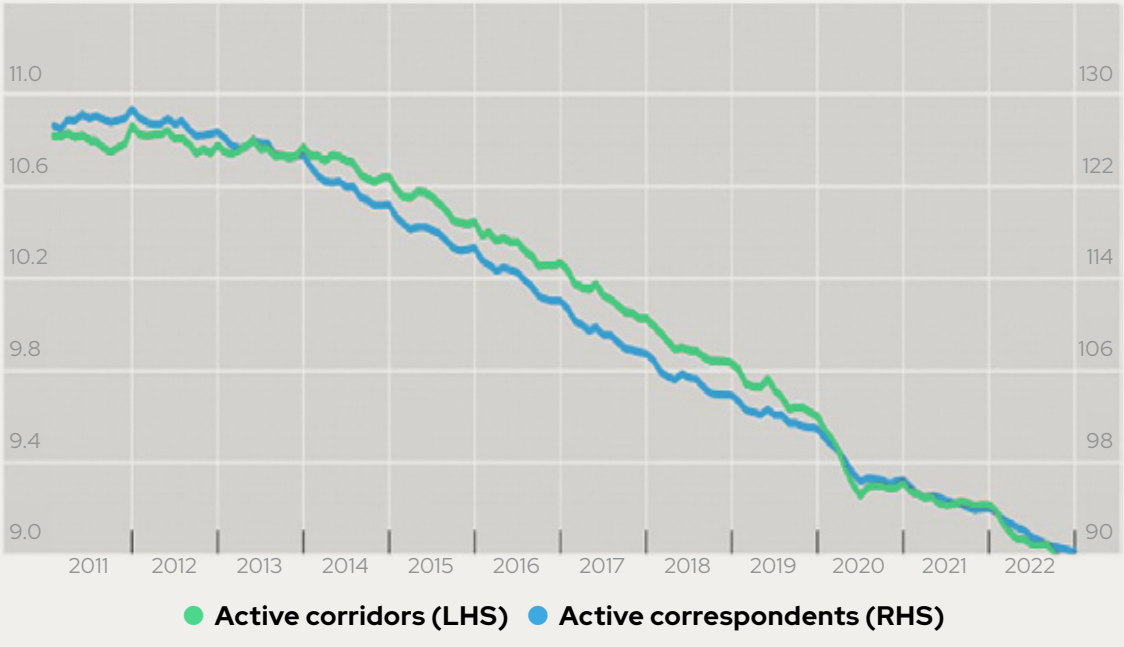
What are the biggest challenges affecting cross-border payments in your jurisdiction? Share of respondents, %



Source: OMFIF FoP survey 2024

2.2. Number of active corridors per month and number of active correspondents

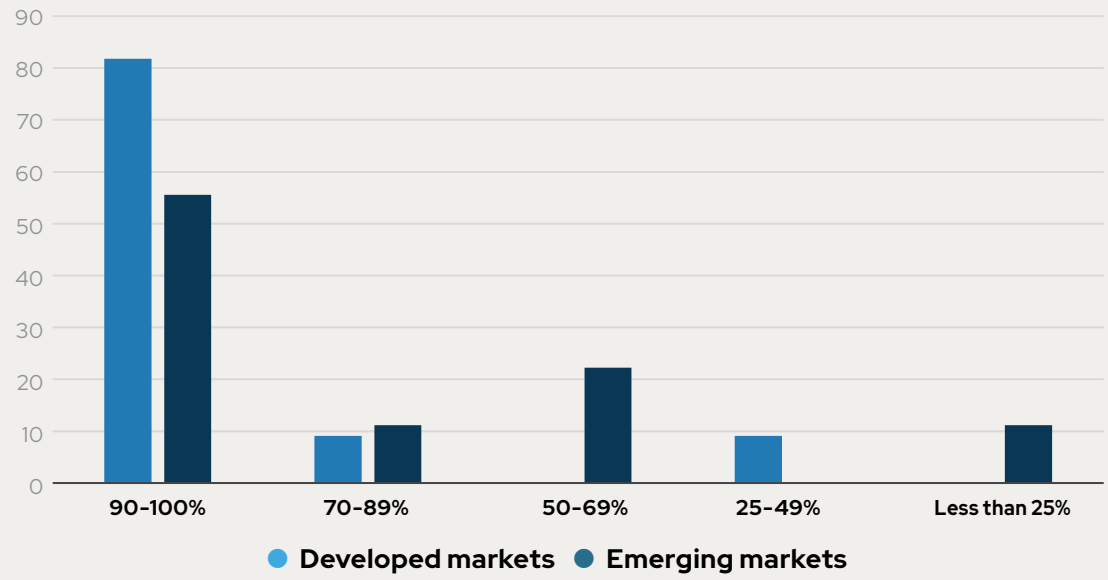
Three-month moving averages, in thousands



Sources: Swift Business Intelligence Watch, National Bank of Belgium and BIS

2.3. Scattered implementation of ISO 20022 among emerging markets

What proportion of payment services providers in your jurisdiction are using ISO 20022 or expect to be by the implementation deadline? Share of respondents, %



Source: OMFIF FoP survey 2024

30%

of respondents said that reducing transaction costs is the issue in cross-border payments that they are most focused on improving.

bringing in competition with newer business models and putting pressure on what has historically been a high-margin business.

Although the drop-off in correspondent banking is taking place in all regions globally, some regions are better connected than others. Providing correspondent banking services in lower-income countries is often perceived to entail higher risks than for wealthier countries because of less well-established domestic checking procedures. Smaller countries also tend to generate lower payment volumes, which may make it harder to justify compliance costs.

The result is that smaller LICs are served by fewer correspondent banks, enabling fewer corridors. This means that their cross-border payments markets are less competitive and benefit from less liquidity provision.

Unless we want to see this decline continue, potentially worsening the competition in cross-border payments and therefore the service that users receive, we must find a means of bringing down the costs entailed in the industry.

Standardisation of messaging standards

One source of the high costs in providing compliance checks for cross-border payments is the diversity of both the type and the format of the information collected in know-your-customer checks in order to adhere to AML/CTF standards. Many jurisdictions collect different information and encode it according to their own standards. Bridging the gaps between these different formats is a challenging and costly enterprise.

The adoption of the ISO 20022 messaging standard is intended to help with this challenge. The banking industry has set a deadline to switch to this standard by November 2025. After a one-year grace period, Swift may begin to withdraw support for older message types. However, according to our survey of central banks, not every participant is on schedule to complete the migration by that point. Figure 2.3 shows that implementation is set to remain patchy, particularly in emerging markets.

AI offers new opportunities

Artificial intelligence has seized the zeitgeist in technology communities. Announcements of AI experiments typically command impressive moves in stock prices.

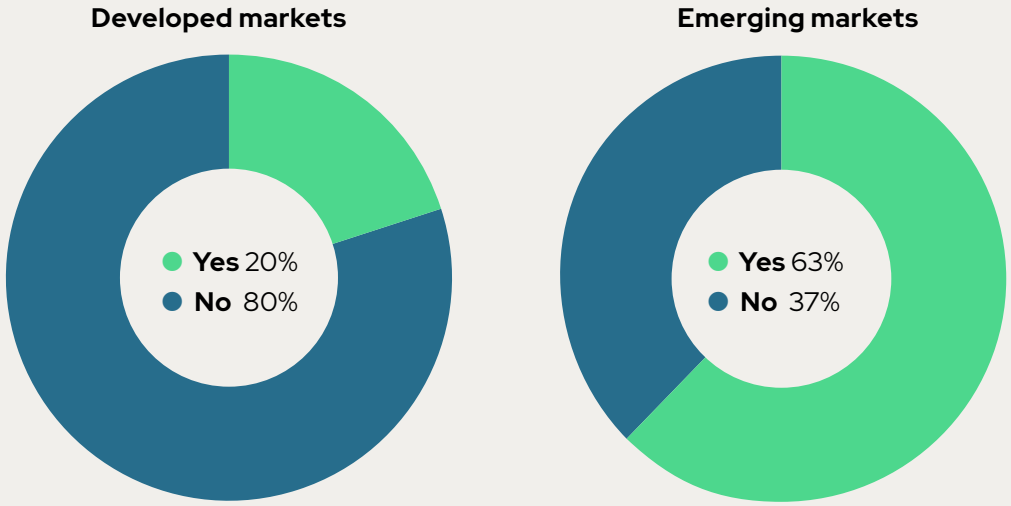
Our survey indicates that central banks are split on its role in the future of digital currency with 48% of respondents saying that they envision a future for AI alongside digital currency. Looking on a more granular basis, Figure 2.4 shows that emerging markets have more faith in the possibility of AI offering improvements than developed markets. Several respondents commented that AI could help with AML/KYC and fraud prevention, with one calling it 'inevitable'.

Unlike in many areas, AI already has a proven track record of providing efficiency savings and improvements to capacity in the payments world. Automated transaction monitoring has been an AI function for many years. This type of pattern-recognition-based machine learning is different from the large language models like OpenAI's ChatGPT and Anthropic's Claude that have attracted so much attention this year.

However, the latest generations of AI have broader capacities and can help in new ways. The ISO 20022 format is still not universal and it may not become so. Names, entity identifiers, dates and addresses may be formatted differently depending on jurisdiction and manually reconciling these changes is often difficult and time-consuming work.

2.4. Emerging markets more hopeful about AI

Do you envision any direct link between digital currency use cases and AI? Share of respondents, %



Source: OMFIF FoP survey 2024

$200bn

The business of cross-border payments generates some $200bn of revenue annually.

AI can offer a variety of potential solutions to these challenges. For instance, neural networks can help to map the fields used in these checks and help both structured and semi-structured data to flow smoothly. Sequence-to-sequence models can be used to help convert between different messaging standards. These tools are also typically able to handle new format variations, so adding new currencies with their own formats should not require additional investment once the model is in place. Such tools can often enhance data as well as detect and fix common errors that would otherwise require manual attention.

'This is a particular area of focus for us,' said a representative from a payments technology company. 'We believe there is enormous potential for AI to streamline the compliance checks required for cross-border payments. Many of the challenges stem from incompatible data formats. AI is good at interpreting those and amending them to a new format.'

Often the output of these tools is data that are stored in a more structured and searchable form, which can enhance the utility of pattern-recognition tools used to detect anomalous patterns indicative of financial crime. This can enable service providers to scan against sanctions list in real time.

Though useful, implementing AI solutions is not necessarily quick or easy. It may require substantial initial investment to stand up and will certainly require extensive data to ensure it is properly trained. Because of the changing landscape of multiple jurisdictions' regulatory frameworks and sanctions lists, this training cannot be static but must be frequently repeated to ensure the AI is working from current information.

Financial institutions use a variety of legacy systems that rely on older messaging standards like Swift's message types. Implementing AI to convert between standards requires these systems to be integrated, which can be complex and expensive. This might involve upgrading infrastructure, migrating databases and ensuring that AI tools do not disrupt existing workflows. Additionally, any integration must minimise downtime, as even brief interruptions in cross-border payments systems can lead to significant financial losses.

API integration

Application programming interfaces are a modern way of sharing data between institutions. In payments, they can provide a secure framework for the exchange of sender and receiver information across borders. A common example would be an API for checking whether a payer or payee is on a sanctions list.

APIs can prove immensely useful because they allow systems with different underlying technology, including distributed ledger technology-based systems, to interact with centralised ones. However, the potential utility of APIs is hampered by their lack of uniformity. Many institutions design their own proprietary API standards to meet the needs of their jurisdiction or the legacy systems that will be using the API. As technology evolves, new designs for APIs emerge, resulting in a diverse and varied landscape of API standards.

The G20's Committee on Payments and Market Infrastructures has published a set of 10 recommendations for the global harmonisation of API standards. The aim is to improve efficiency and transparency. Harmonising API standards should reduce the amount of manual intervention required to initiate payments and allow functionality like pre-validation, reducing the number of mistaken payments. ■

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The power of unified payment solutions

A system that can streamline interbank transactions, will reduce costs and simplify global settlements, writes Richard Tang, general manager of iASPEC Technologies.

'As global finance becomes increasingly interconnected, unified payment solutions like GPP represent a pivotal opportunity to redefine how cross-border transactions are conducted.'

The demand for efficient and secure cross-border payments systems has never been greater. In today's interconnected global economy, businesses, financial institutions and consumers increasingly seek faster, cost-effective and transparent methods to transfer funds internationally.

In response, regional blocs and global stakeholders are working to modernise payment infrastructures, aiming to address high transaction costs, lengthy processing times, migration to ISO 20022 and limited financial sovereignty. The Global Payment Platform offers a transformative solution, streamlining interbank transactions and cross-border settlements into one unified system.

According to the World Bank, the scale of global remittances highlights an urgent need for innovative payments systems. In 2023, global remittance flows reached a staggering $830bn, with $656bn directed toward low- and middle-income countries. Despite this volume, transaction costs remain high, averaging 6.3% globally. These excessive costs are driven by the reliance on complex networks of correspondent banks that facilitate cross-border payments, with traditional systems burdened by operational inefficiencies.

Current mechanisms depend on a network of intermediary banks, each with its own protocols, regulations and operational hours. Such a fragmented setup not only delays transactions but also introduces uncertainties, given dominant currencies and varying regional regulations. As a result, businesses and individuals alike face opaque fee structures, limited transparency and frequent delays when transferring money internationally.

The promise of unified payment solutions

A unified payment solution like GPP, however, can revolutionise cross-border payments by integrating multiple channels and currencies into a single platform. It addresses inefficiencies inherent in traditional systems with features such as straight-through processing – where transactions are processed instantly – as well as improved transparency and multi-currency and multi-channel support. GPP can handle diverse currencies and payment channels, enhancing its global applicability. GPP also provides comprehensive Remittance Message Convertor to support legacy systems transitioning from MT to MX message types.

The integration of advanced technologies, such as blockchain, further strengthens GPP's capabilities by enabling real-time settlements and reducing reliance on intermediaries. This transformation builds trust among users and positions GPP as a cornerstone of modern payment infrastructures.

While GPP offers great promise, its implementation is not without challenges. Political risks, such as geopolitical instability, can slow adoption in certain regions. Additionally, disparities in national regulatory environments and the technical complexities of integrating legacy systems into a unified framework present significant hurdles. However, these challenges create opportunities for innovation and the development of tailored solutions for diverse economic contexts.

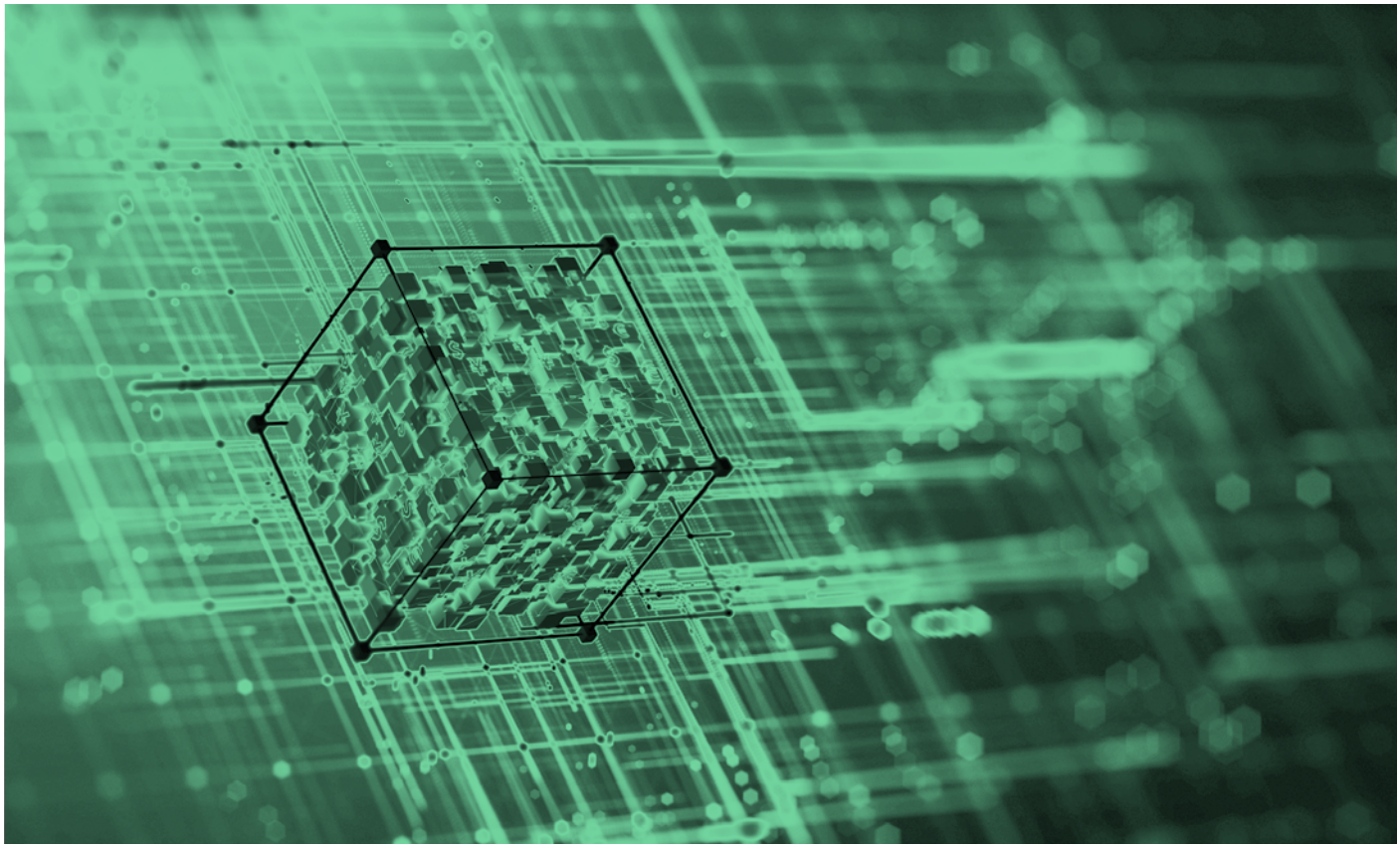
A vision for the future

The journey towards a unified global payments system requires visionary leadership and a proactive approach to overcoming challenges. Stakeholders must ensure that the platform meets diverse user needs while adhering to stringent security standards and international compliance requirements. Robust security measures will be critical to building confidence in GPP's reliability and resilience.

As global finance becomes increasingly interconnected, unified payment solutions like GPP represent a pivotal opportunity to redefine how cross-border transactions are conducted. By addressing inefficiencies in existing systems, GPP paves the way for a more inclusive and efficient global payments landscape.

The time to act is now. By fostering collaboration among central banks, financial institutions and technology innovators, stakeholders can unlock GPP's transformative potential, creating a seamless, secure and future-ready ecosystem for global payments.

'The journey towards a unified global payments system requires visionary leadership and a proactive approach to overcoming challenges.'



3/ **Tokenising cash**

Why the BIS is backing tokenisation

Several models are in consideration to make cross-border payments widespread and efficient. However, of these approaches, tokenisation of commercial bank money and central bank money has captured the official sector's attention.

Key findings

1. Central banks are working hard to develop a means of tokenising cross-border payments, with hopes that it will streamline compliance checks, improve settlement efficiency and unlock new functionality.

2. Despite the growing popularity and importance of stablecoins, the official sector remains sceptical of ceding control of tokenised cash to the private sector.

3. While the benefits offered by tokenisation are tempting prospects, achieving a cross-border tokenised network will require a great deal of work to agree a governance framework.

THE G20's Committee on Payments and Market Infrastructures has made a firm commitment to improving the speed, accessibility, transparency and cost of cross-border payments. There are a number of different approaches to achieving this and many institutions, both public and private, are working on several plans in parallel – some of which may be superseded or rendered irrelevant by progress in other directions.

Perhaps the most radical direction being explored is the tokenisation of money. Tokenisation refers to the representation of the ownership of money or other assets through tokens typically recorded on a distributed ledger. This is in line with the vision of the Finternet laid out by Agustín Carstens, governor of the Bank for International Settlements, in a 2024 paper that spelled out an ambitious view of the future of the global financial systems based on unified ledgers. According to the BIS, which popularised the term, 'unified ledger' describes a platform where different forms of tokenised value – central bank money, commercial bank money and assets – are brought together on one platform to enable seamless exchange.

The BIS's main channel for exploring tokenisation for cross-border payments is Project Agorá, in which the Banque de France, Bank of Japan, Bank of Korea, Bank of Mexico, Swiss National Bank, Bank of England and Federal Reserve Bank of New York are participating, alongside some 40 private sector participants.

Project Agorá aims to create a platform for wholesale cross-border payments including both tokenised wholesale central bank digital currency

and tokenised commercial bank deposits. This concept preserves the two-tier model of money. Central banks provide final settlement in central bank money, while commercial banks interact with individual and business users giving them a payment instrument to exchange.

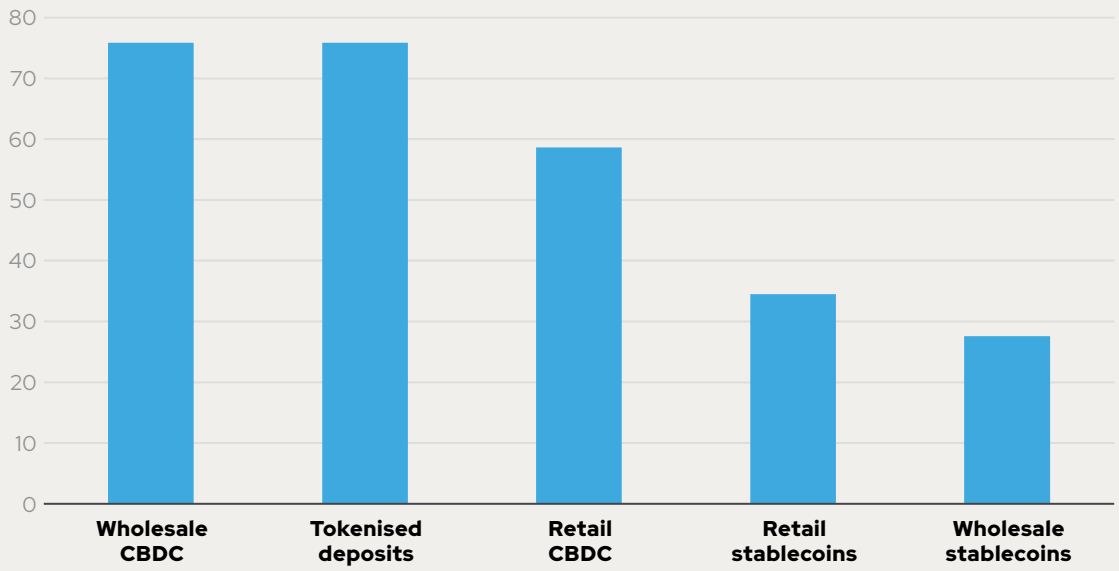
This year's Future of payments survey found a strong endorsement of the concept of preserving the two-tier model of money provision even while moving to a token-based architecture (Figure 3.1). Both wholesale CBDCs and tokenised deposits were envisaged operating in a tokenised system by 76% of survey respondents. This may prove simpler to implement as a domestic model than for cross-border payments, where other challenges may get in the way.

Our survey results indicate that, although they see the promise, most central banks are more hesitant about embarking on experiments with tokenisation for cross-border payments. Only 13% of survey respondents selected connecting CBDCs as the most promising solution for cross-border payments, down from 31% in 2023.

While many respondents see value in this framework as a means of improving cross-border payments, few have begun concrete exploration (Figure 3.2), with developed markets generally expecting to do so before emerging markets.

3.1. Strong support for preserve two-tier model of money

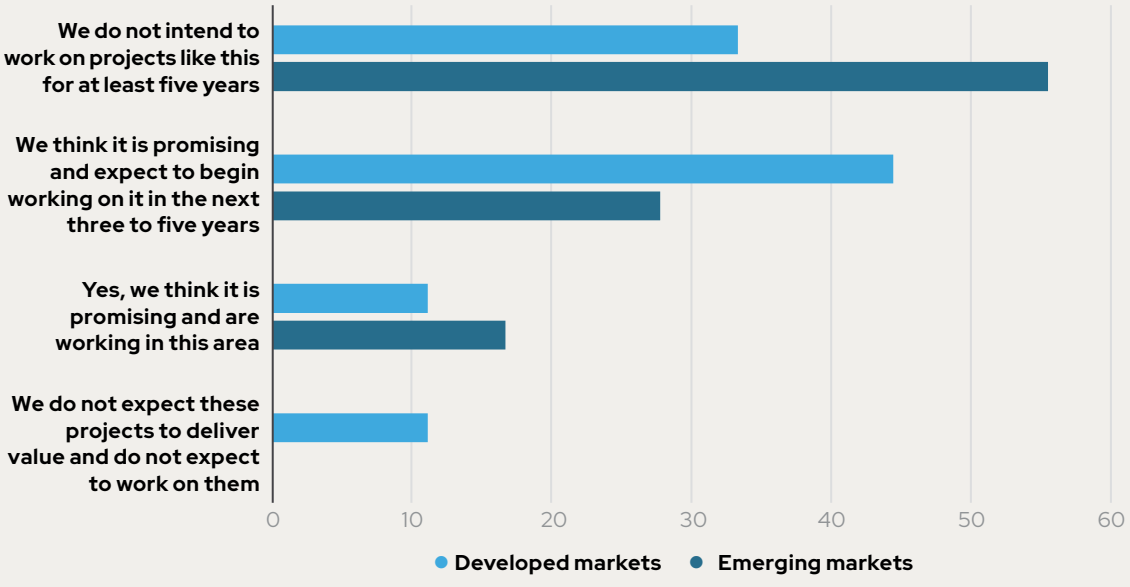
What instruments do you envisage operating in a tokenised ecosystem? Share of respondents, %



Source: OMFIF FoP survey 2024

3.2. Few central banks have begun experimenting with tokenisation

Do you anticipate that combining tokenised bank money and tokenised central bank money on a programmable platform will improve cross-border payments? Share of respondents, %



Source: OMFIF FoP survey 2024

0%

of central banks selected stablecoins as the most promising avenue to improve cross-border payments.

Multiple parties pursuing tokenisation

The BIS is far from the only organisation seeking to use tokenisation to transform cross-border payments. There are several consortia, both public and private, pursuing similar goals.

These include Partior – a joint venture including DBS, JP Morgan, Standard Chartered and Temasek. Partior establishes a unified ledger allowing for atomic settlement between participating institutions. However, it does not include central bank money. For some, particularly in the official sector, this limits its scope. For many central banks, final settlement in central bank money is what anchors trust in the payments process.By addressing only the tokenisation of commercial bank money, Partior is not aiming to improve the efficiency and successful integration of final settlement.

The Regulated Liability Network is a concept under exploration by 11 banks and technology vendors in the UK. A related project, the Regulated Settlement Network, is being explored in the US. In both cases, central bank money and commercial bank money are tokenised and move within the same network. As yet, the UK-based RLN experimentation has been domestically based. However, the long-term vision for the project is to provide a global network for the seamless exchange of money and assets.

With the RLN, payments between individuals at participating banks will be facilitated by the minting and destruction of commercial bank tokens. Final inter-bank settlement would take place in tokenised wholesale CBDC at a novel financial market infrastructure under the central bank's control – this has been a major influence on the conceptual design of Project Agorá.

Global Layer One is another initiative that involves BNY, JP Morgan, DBS and MUFG as well as the Monetary Authority of Singapore. It envisions an asset-agnostic infrastructure, supporting both tokenised assets and tokenised versions of money issued by regulated financial institutions. Participants envision a shared, public-permissioned ledger as a foundational settlement layer between participating institutions across multiple jurisdictions.

In addition, the International Monetary Fund's XC (cross-border payment and contracting) programme is a notional framework for a cross-border payments platform composed of three layers: a settlement layer, a programming layer and an information management layer.

The IMF proposes creating tokenised versions of participating central bank's reserves, making them freely exchangeable on the platform, which would be controlled by a single operator. The programming layer would allow payments to be delayed or synchronised, as well as automating contracts. Finally, the information management layer allows the exchange of non-transaction information like compliance checks, to occur outside of the platform – protecting privacy and improving efficiency.

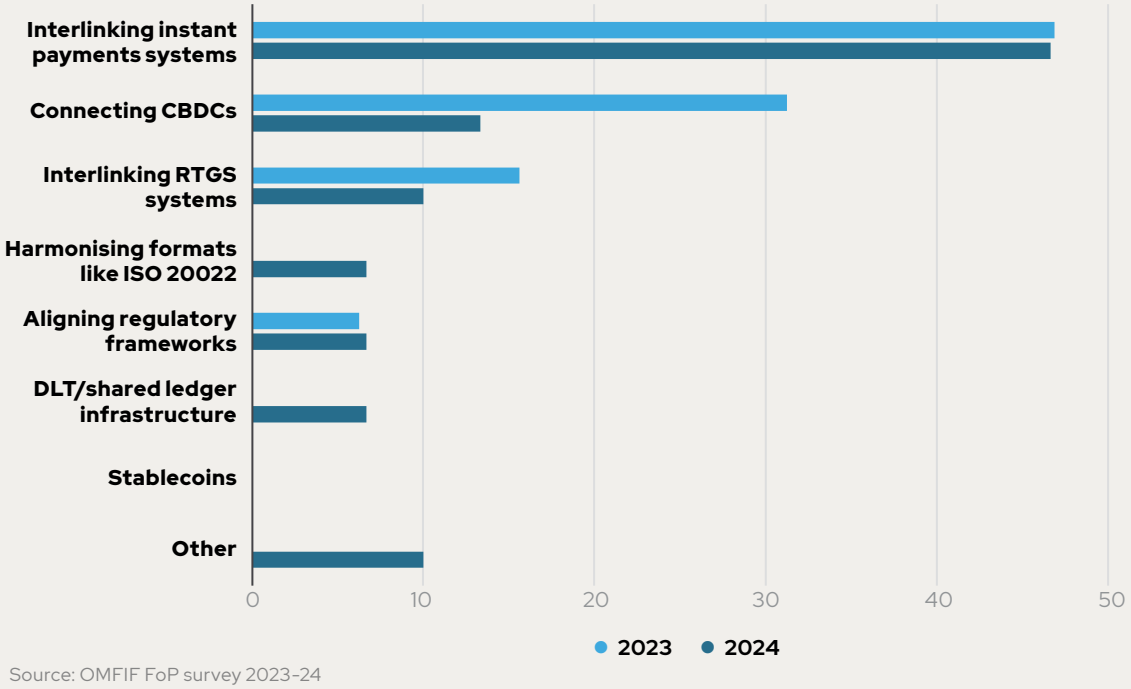
As yet, the IMF XC project is little more than an idea, but the IMF's status might allow it to attract participation from its members.

Tokenisation outside of the traditional world

Stablecoins are, in a sense, the original cash tokenisation project. These instruments are carving out a niche for themselves in cross-border payments, particularly as a means of accessing hard currency like the dollar from outside of the US, providing a shelter from inflation and access to a bridge currency.

3.3. Stablecoins listed least popular among central banks

What do you think is the most promising avenue to improve cross-border payments? Share of respondents, %



Source: OMFIF FoP survey 2023-24

Although they see the promise, most central banks are more hesitant about embarking on experiments with tokenisation for cross-border payments.

Sending the stablecoins across borders is typically a quick, easy process with low fees. Initial concerns around stablecoins as a means of circumventing anti-money laundering/know-your-customer checks are receding since many users access them through hosted wallets, where standard checks have been conducted.

However, for many day-to-day users, they will need to on-ramp and off-ramp into and out of the stablecoin since they are often difficult to spend with regular merchants. This means that users will still have to rely on local liquidity providers, with the attendant challenges of foreign exchange risk and operating hours.

It is also important to note that, while many jurisdictions are publishing legislation to ensure stablecoins adhere to appropriate standards of fraud prevention and reserve management, our survey indicates that central banks remain hesitant about their role in cross-border payments. Figure 3.3 shows that 0% of central banks selected stablecoins as the most promising avenue to improve cross-border payments.

Examining tokenisation benefits

One of the advantages of tokenised transactions is the process of atomic settlement, which describes payments where it is impossible for one leg of a payment to be initiated without the other leg also being initiated. All parts of the transaction must succeed together or fail together. This eliminates settlement risk (known as Herstatt risk for cross-border payments). Eliminating settlement risk is an immensely valuable innovation, since the possibility of failed trades requires market infrastructures to hold liquidity against this possibility.

Atomic settlement is often conflated with instant settlement. However, instant settlement is not necessarily atomic. Perhaps more importantly, atomic settlement is not necessarily instant. The programmable elements of tokenised infrastructure allow for the use of hashed time-locked contracts, which means that settlement can take place on demand but without settlement risk.

Instant settlement is unlikely to be a desirable outcome for cross-border payments because it requires that both sides of the transaction are 100% pre-funded – an immensely inefficient process from a liquidity perspective. Transactions that make use of the Continuous Linked Settlement network, which supports 18 currencies, are settled on a payment-versus-payment basis, which is also atomic and not subject to settlement risk.

Proponents of CLS argue that instant settlement is a niche market for wholesale FX because it often involves the transfer of very large amounts so liquidity optimisation is extremely important. CLS members still need to post liquidity to cover their net outgoings, but transactions are not 100% pre-funded. CLS calculates by enabling multilateral netting between multiple currencies – its members are able to make liquidity savings of approximately 96% versus pre-funding.

On the level of an individual or small business, tokenisation might provide more valuable innovations. If pre-funding is not prohibitively expensive for a given use case, then instant settlement across borders might well be desirable.

CLS is achieving its PvP multilateral netting-based payments without use of tokenisation. However, CLS covers only 18 currencies and is not available for every use case. If tokenisation can broaden access to cross-border payments without settlement risk, then it is worth pursuing, but it remains to be seen if Agorá and tokenisation projects can effectively lower the barrier to entry for participation.

Streamlining compliance checks

A unified ledger platform, bringing together tokenised private money and CBDCs, maintains the economic distinction between the forms of money, but collapses the technical distinction between payments systems.

At present, many of the frictions in cross-border payments stem from the need for messages to travel between incompatible databases. Uniting these would, at a stroke, ensure that everyone is using the same messaging standards and formats.

While this is clearly of immense value, for multiple stakeholders to coalesce around the appropriate standards is not easy and efforts are already being made to achieve this independent of tokenisation.

Settlement versus tokenised assets

As digital assets slowly gain in prominence and popularity, the need for a means of on-chain settlement becomes clearer. Delivery-versus-payment – exchanging an asset and a means of payment without settlement risk – is a clear part of the value proposition of tokenisation. Bringing both assets and means of payment onto the same platform makes achieving this much easier.

It is not wholly simple, however. With multiple ledger protocols likely to be in use, ensuring seamless interoperability between them is a technical challenge. While solutions, application programming interface-based or otherwise, exist for this, the challenge of ensuring DvP across multiple protocols is not trivial.

It is also important to acknowledge that central banks are experimenting with trigger solutions, enabling synchronisation between non-tokenised central bank settlement systems and the settlement of tokenised securities transactions.

Benefits of programmability

Creating tokens to represent money unlocks programmability as a vector of new functionality. This is a functionality that could not be delivered through other means of interlinking existing systems but is specifically delivered by tokenisation.

In the past, some envisioned that this would take place at the level of the token itself – embedding smart contracts into tokens to ensure that they can only be held by individuals that had been cleared by KYC processes, for example. However, embedding

Central bankers say they foresee major challenges in coming to a consensus on matters of governance.

programmability in tokens can risk compromising the fungibility of money. As a result, many now focus on delivering programmability at the platform level.

Fundamentally, programmability enables payments or other actions to be performed automatically in certain cases. This provides 'composability', bundling transactions, allowing multiple consecutive transactions to take place automatically without the need for manual interventions.

Programmability might also allow jurisdictions to implement their own specific policy measures, like capital controls.

Challenges of making money global

The architectural implications of implementing such a system envisioned for Project Agorá could be significant, depending on the model pursued. The first model – mutual compatibility of multi-CBDC systems – is relatively simple to implement from a technical perspective. Each participating country creates its own CBDC system and transfers between them are handled by private correspondent banking and clearing services. This would replicate much of the existing system in a tokenised format and would not be especially transformative.

The second model – interlinking CBDC systems – is more challenging since it requires a common technical interface and shared infrastructure for clearing. Central banks would instead set their own rulebooks, without harmonising on governance.

However, the third model, which Agorá seems likely to pursue, is the most challenging of all. The BIS believes that unlocking the full benefits of tokenisation requires a single venue for payments in private money and final settlement in central bank money: a common platform containing multiple CBDCs and commercial banks, with a single rulebook, a single set of participation requirements and shared technical infrastructure. This would certainly provide the most dramatic improvements versus the status quo.

Central bankers say they foresee major challenges in coming to a consensus on matters of governance. Agreeing what responsibilities should be the purview of the central bank versus the private sector will be challenging. What should the central bank supervise? Financial market infrastructure – payments systems and repurchase agreement systems – are operated in some countries by third parties. In other countries, the central bank handles all of this internally. It will prove difficult for such institutions to share common infrastructure due to differing levels of expected oversight and control.

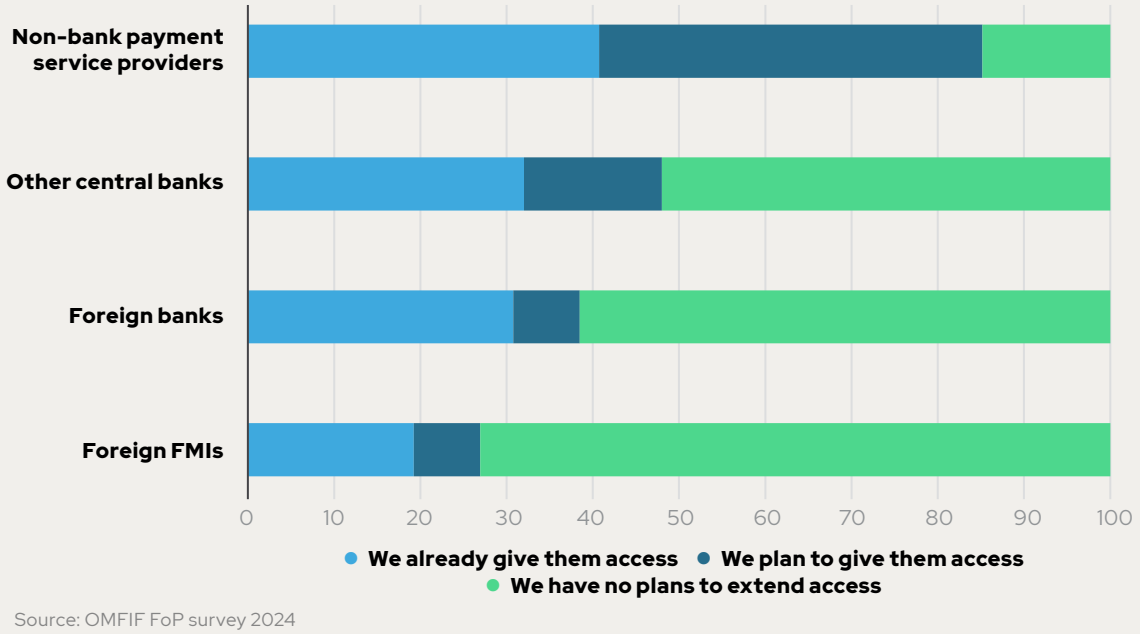
It is possible that some conceptions of Agorá would require central banks to give foreign commercial banks access to their balance sheet. For some central banks, in Switzerland for example, they have long given non-domestic banks access to their central bank balance sheet because of the benefits of liquidity provision. For other central banks, this would mean a significant change.

The majority of central bank respondents does not intend to allow non-domestic banks to access their balance sheets (Figure 3.4). This highlights a possible challenge to the viability of the single platform model.

Given these challenges, we may end up with a hybrid of the second and third approaches: combining the interlinking of CBDC systems with a model of tokenisation. This combined approach would allow central banks to share some components of infrastructure but preserve control in others. ■

3.4. Central banks unlikely to open balance sheet access to non-domestic banks

Do you intend to give the following entities access to your real-time gross settlements system? Share of respondents, %



Source: OMFIF FoP survey 2024

Tokenisation, transparency and programmability

The ability to tokenise, track and programme payments represents a leap forward and blockchain is paving the way, writes Glendy Kam, chief product officer of Tassat.

IN a world where speed, transparency and efficiency in payments are vital, the tokenisation of money promises to revolutionise payments – by making them programmable. This innovation points us towards a future where cross-border and cross-currency transactions are as seamless as domestic payments. To get there, many forward-thinking central banks like the Hong Kong Monetary Authority and major commercial banks like JP Morgan, Citi and HSBC, are already experimenting with blockchain solutions to enhance payments.

Accelerated payments systems

Over the last decade, payments systems have focused on increasing transaction speed. At present, around 80 faster payments systems are operational globally, from emerging fintechs to global giants such as Stripe and PayPal. From real-time gross settlement systems to instant payment networks, processing times have decreased from days to seconds.

Financial institutions are adapting their new operating models to match the expectation of instantaneous transacting. Blockchain technology addresses this shift by providing immediate, secure settlement while removing redundancies that traditionally plague processing by multiple intermediaries. This allows counterparties to transfer value efficiently.

Enhanced payment tracking for greater transparency

Lack of transparency in cross-border payments has been a challenge for both businesses and consumers. However, initiatives like Swift's Global Payments Innovation enhance payment traceability by providing real-time payments tracking and disclosure of processing fees.

By ensuring authorised parties have visibility of their transactions on an immutable ledger, blockchain technology reduces the risk of error or fraud by enabling transactions to be tracked with precision.

Standardisation with ISO 20022

The standardisation of messaging through ISO 20022 is also transforming the payments ecosystem. By moving all payments onto a global standard, financial institutions can leverage the well-structured data to reduce errors, enhance compliance and improve data-sharing among parties, all through automation and straight-through processing.

The ISO 20022 migration sets the stage for blockchain to complement an interoperable payments network, enabling more complex payments solutions. With the integration of smart contract capabilities, this approach can offer a richer, data-driven experience.

> Financial institutions are adapting their new operating models to match the expectation of instantaneous transacting.

The global push for cross-border payments efficiency

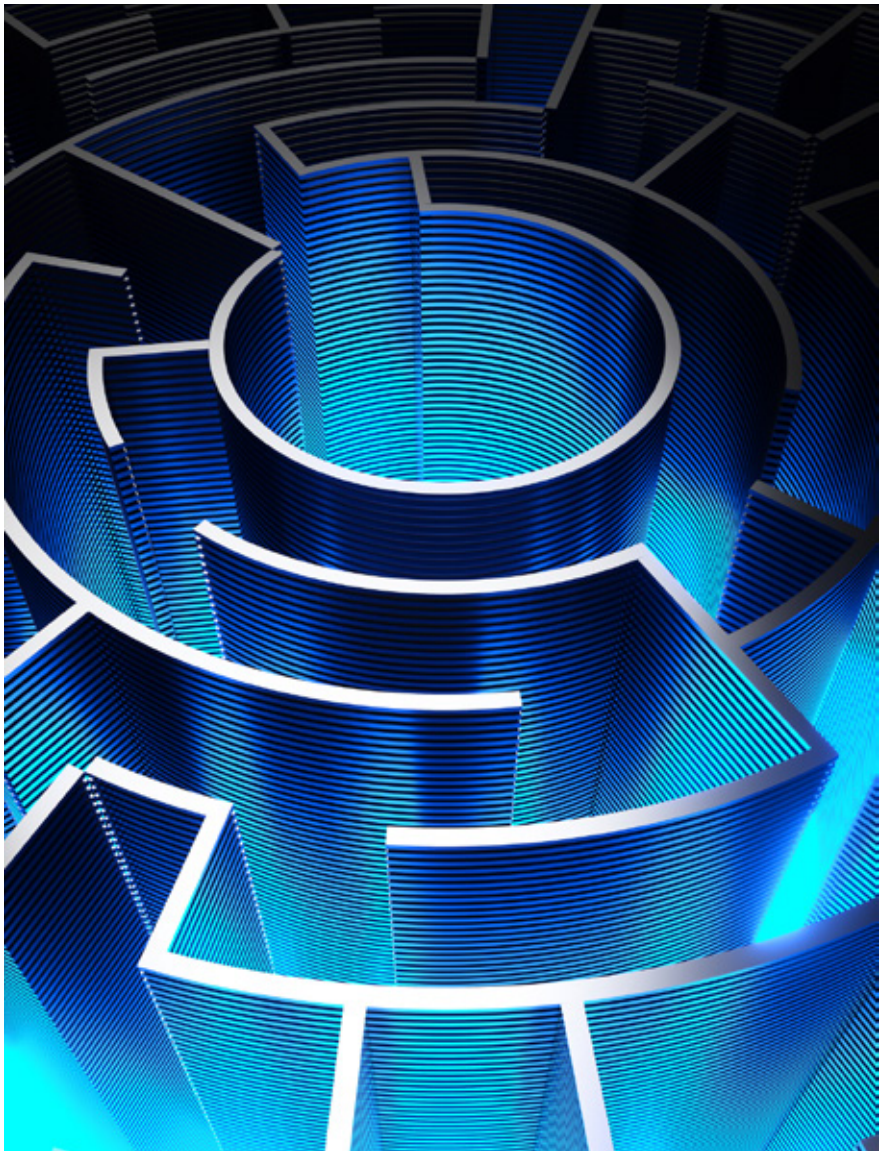
Most domestic payments have become highly efficient, while cross-border payments still require multiple intermediaries, banks and days to complete a transaction. Global efforts like Project mBridge and Bank for International Settlements' Project Nexus are increasing, which strive to provide a more harmonious cross-border payment network. Streamlining the settlement and reducing inefficiencies caused by layers of intermediaries can bring the world closer to a unified payments operating model.

On the tailwinds of these forces, blockchain technology has the potential to transform how organisations transact. As money becomes increasingly programmable, it unlocks new possibilities, where payable and receivable services can be set up and managed by the payer and payee without intermediaries.

This has the power to fundamentally shift global supply chains. With blockchain, funds can be automatically routed based on external events that trigger payments to suppliers. Such programmable functions could significantly enhance payment processing in supply chain management and e-commerce, where automatic payments based on external events or real-time data could bolster transaction efficiency.

This need is particularly evident in the US, where over 4,500 Federal Deposit Insurance Corporation-insured banks and 5,000 credit unions cater to a diverse customer base, posing a challenge to domestic payments interoperability. However, both US and global financial institutions are adapting to meet these challenges. FedNow, the Federal Reserve's instant payments system, now has over 900 participating financial institutions. The Real-Time Payments network from the Clearing House processed 87m transactions in Q3 of 2024. Tassat has also experienced this appetite firsthand, having processed more than $2tn in private-permissioned blockchain-based instantaneous transactions since its inception.

The payments landscape continues to scale into a new era, where technological advancements, changing consumer behaviours and evolving regulatory environments will continue to shape the future of payments. The ability to tokenise, track and programme payments represents a leap forward. As the world implements this technology, payments have the potential to become instant, automated, borderless and transparent.



4/ Instant payments systems

Nexus: The most promising avenue?

Progress with Project Nexus on interconnecting instant payments systems has central banks tipping this as the top solution to cross-border payments challenges.

Key findings

1. Instant payments systems are rapidly growing in importance, with 47% of survey respondents selecting it as the most promising avenue for improving cross-border payments.

2. Experiments for their interlinking are showing early promise, with the Nexus hub-and-spoke model providing a viable path to scalability.

3. Challenges remain around ensuring there is a fair governance model as well as the facilitation of payments making use of bridge currencies.

INSTANT payments systems – defined as retail payments systems in which the delivery of the payment message and the availability of funds to the payee occur near instantly and are available on a 24/7 basis – are now in use in around 80 countries worldwide. They range from the UK's Faster Payment System launched in 2008 to the US' FedNow Service, which was introduced in 2023. These systems allow the sending of money between bank accounts near instantly. They are growing in importance and in the value of payments that they carry.

This growth is occurring all over the world. In February 2024, the European Council adopted a regulation that will make instant payments in euro fully available to consumers and businesses across the European Union and European economic area. In 2023, McKinsey estimated that this regulation could result in instant payments accounting for 45% of the 23bn annual transactions in the single euro payments area – up from 12% in 2023.

Cash transactions falling

In jurisdictions where cash use is still prevalent, the arrival of new real-time payments systems is urging a move towards digital payments. India's Unified Payments Interface is an example of a remarkably successful implementation of IPS.

While cash remains dominant in India, its importance is falling steadily. In 2018, around 78% of transactions at point-of-sale used cash. In 2024's second quarter, that figure had fallen to 63%. Much of that fall is thanks to the rapidly increasing use of the UPI network, which accounts for more than three-quarters of digital payments in India and grew some 80% year on year between 2022 and 2023.

A similar story has unfolded in Brazil, where the central bank's retail payments platform Pix – launched in 2019 – has already become the dominant method of digital payments. The share of cash transactions fell to 48% in the second quarter of 2024, from 79% in 2018, according to Statista.

The development finance community is keen to see IPS spread through low- and middle-income countries partly because of the reduced reliance on cash that they result in. The World Bank's project FASTT (frictionless, affordable, safe, timely transactions) is dedicated to the promotion of IPS and

has assisted over 120 countries in modernising their payments systems. The use and implementation of IPS is likely to continue to spread and they may become the dominant payment rails in a majority of currencies before long.

Connecting across borders

Since they deliver near-immediate availability of funds to the receiver on a 24/7 basis, modern IPS are held by many to be the gold standard for domestic retail payments. Accordingly, many central banks hope to interlink their IPS with others around the world and create a network of cross-border payments enabled by IPS.

This is no easy task. Because IPS are primarily for domestic use, they are designed to ensure connectivity with domestic banks and payment services providers. Payment messages are formatted and encoded according to local standards, which may be specific to a country's banks or PSPs. Some international consensus is developing – the ISO 20022 standard is in the process of being more widely adopted, and new IPS are likely to make use of it, but many of the existing systems use older or proprietary standards.

Around the world, there are a plethora of different ways to identify accounts, many of which have different lengths. Proxies like mobile numbers are increasingly popular but, as yet, little in the way of standardisation has emerged. With effort and collaboration, these differences can be overcome to create a bilateral linkage, and a handful of these have emerged, mostly in Southeast Asia.

In April 2021, Singapore linked its PayNow service to Thailand's PromptPay, proving the concept's viability and allowing individuals in Singapore and Thailand to send money to each other using the recipient's mobile phone number.

There are also systems for person-to-merchant payments for Malaysia and Thailand, Thailand and Indonesia, and Malaysia and Indonesia, and for person-to-person linkages between Singapore and India, and Singapore and Malaysia.

Outside of Southeast Asia, the European Central Bank is collaborating with Sveriges Riksbank and Danmarks Nationalbank to bring payments between the euro, Swedish krona and Danish krone onto the TARGET Instant Payment Settlement platform.

While these approaches can deliver near-instant cross-border payments for a given corridor, the efficacy of this kind of project is limited due to the difficulty in scaling them.

With more than 70 potential IPS counterparties already – and that number is expected to rise as more countries migrate to IPS – the cost and complexity of interlinking IPS bilaterally rapidly becomes prohibitive. The Bank for International Settlements illustrated the challenge of scaling systems based on bilateral connections (Figure 4.1). Connecting 70 IPS bilaterally requires 2,415 integration initiatives. Overcoming the differences between two IPS to create a bilateral linkage does not provide much advantage or imply efficiency savings when looking to create another linkage.

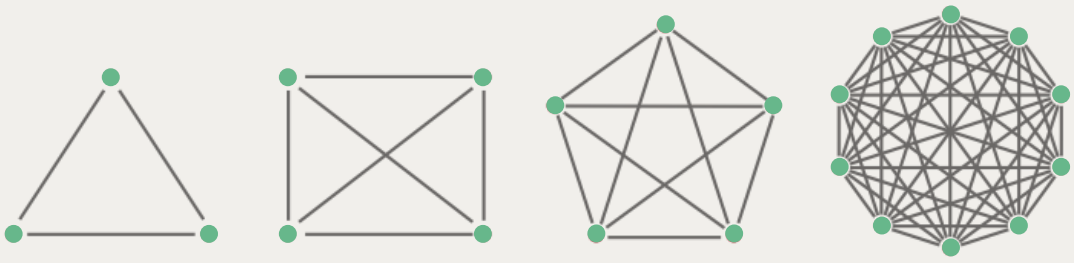
The Nexus model

Rather than scaling via bilateral connections, the BIS's Project Nexus proposes a central hub, standardising the connections IPS make. Rather than the 2,415 bilateral connections, 70 IPS would simply connect once to Nexus, then, with application programming interfaces and ISO 20022 messages, exchange payment messages with any other IPS operator.

The success of early experiments has led to a remarkable degree of confidence in the interlinking

4.1. Number of bilateral links grows faster than number of countries

Illustration of scaling systems via bilateral connections

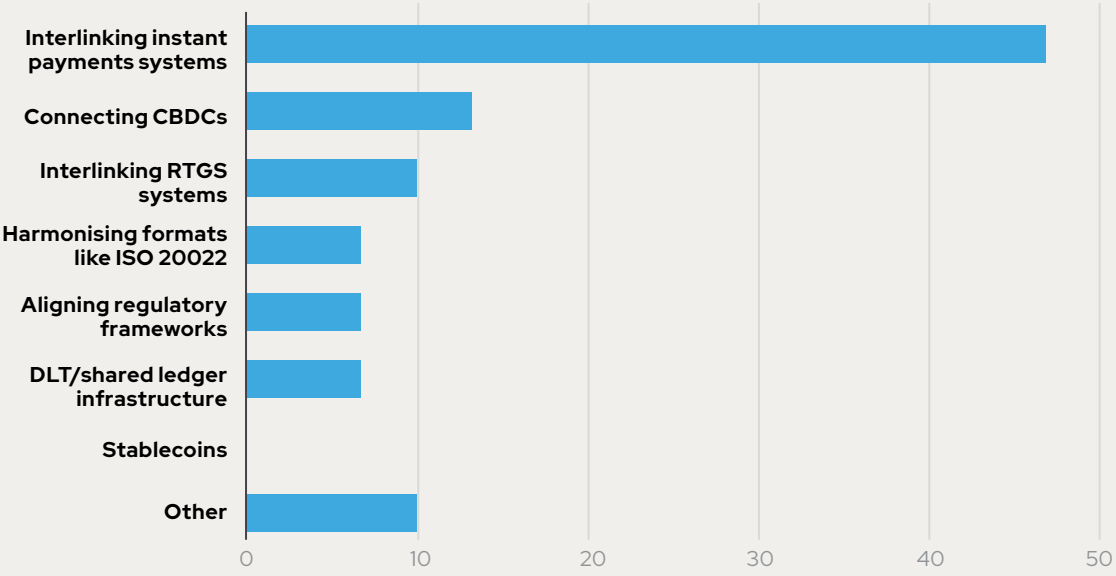


Connecting 70 instant payments systems bilaterally requires 2,415 integration initiatives.

Source: BIS

4.2. Interlinking IPS is popular route for cross-border payments advancement

What is the most promising avenue to improve cross-border payments? Share of respondents, %



Source: OMFIF FoP survey 2024

Modern IPS are held by many to be the gold standard for domestic retail payments.

of IPS as a solution to the challenges of cross-border payments. Figure 4.2 indicates that some 47% of central banks surveyed favour interlinking IPS as the most promising avenue to improve cross-border payments.

Once again, Southeast Asia is leading the way. The BIS Nexus team assisted the central banks of Indonesia, Malaysia, the Philippines, Singapore and Thailand to interlink their five IPS using the Nexus model. This requires the creation of a standardised connection model and rulebook.

Each IPS operator that wishes to connect will still have to invest in ensuring their system is compatible with the Nexus platform, similarly to how they would invest in standing up a bilateral connection. Connecting to Nexus will ensure that they are connected to every other IPS on the Nexus network, meaning that scaling happens with negligible costs.

The G20 Committee on Payments and Market Infrastructures aims to improve speed, cost, access and transparency in cross-border payments. Project Nexus should certainly improve speed. As the name implies, IPS process domestic payments on a near-instant basis. The BIS allows 30 seconds for each IPS, suggesting that Nexus payments should be completed within a minute.

On cost, Nexus aims to deliver payments at a cost of less than 3% of the payment's value. IPS are typically a cheap vector for payments, but going across borders necessarily adds costs from sanctions screening and anti-money laundering checks.

Nexus is unlikely to make a material impact on access, since only PSPs with access to domestic IPS will be able to offer Nexus payments, and only customers with access to those PSPs will be able to make use of them.

On transparency, however, the Nexus rulebook will mandate that participating PSPs show senders exactly how much recipients will receive and what exchange rate is being applied.

Remaining challenges to the commercial model

Even though it provides savings versus a bilateral linkage model, substantial investment will be required to operate and connect these payments systems. In addition to the costs of running a domestic IPS – development, maintenance, customer management – connecting to Project Nexus will add substantial costs.

The BIS envisions that the Nexus platform will be owned and governed by a Nexus Scheme Organisation, which will necessarily incur costs. The operations of the Nexus Scheme Organisation will be funded by transaction fees charged to the sending IPS (hopefully allowing them to recoup the initial investment required for set-up).

This fee will be passed on from IPS operator to the relevant PSP and ultimately to the customer. It will be important that transparency standards are maintained and that this fee is clearly identified, rather than disguised as a padded exchange rate.

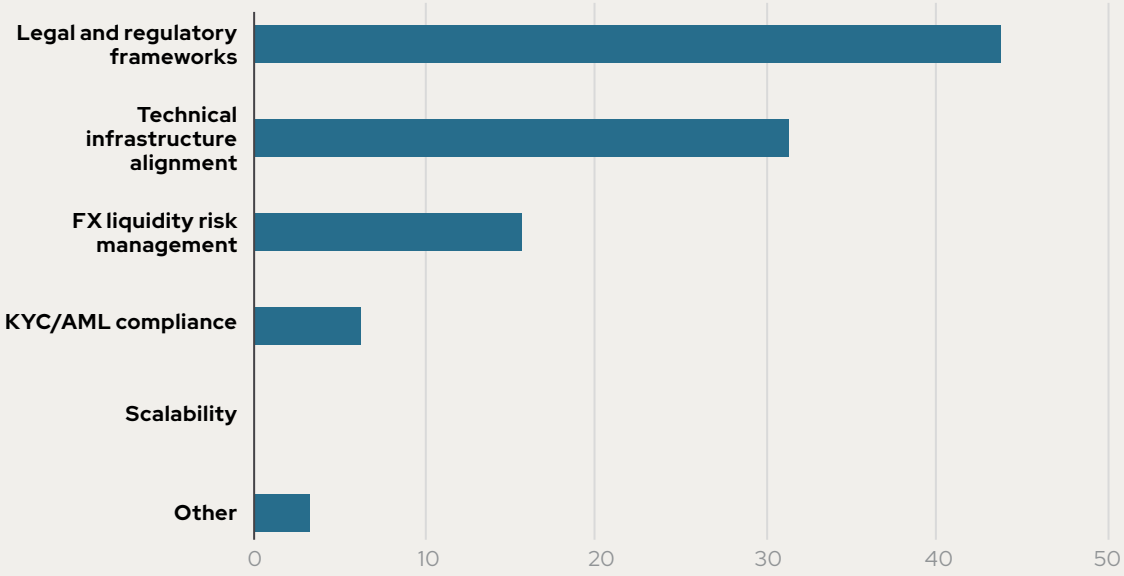
Governance and dispute resolution

Interlinking IPS creates a novel challenge: governance. In the event of failed payments or other problems arising in domestic IPS, the dispute resolution process is governed by the IPS provider's rules and the prevailing legal system.

Legal and regulatory frameworks are the most

4.3. Legal and regulatory frameworks remain central banks' top concern

What is the biggest potential barrier in interlinking instant payments systems? Share of respondents, %



Source: OMFIF FoP survey 2024

significant concern among 44% of central banks when interlinking FPS (Figure 4.3).

With cross-border payments, uncertainty is greater due to potential conflicts between the laws of the sending and receiving jurisdictions. Nexus will need to provide a robust governance solution to address potential discrepancies on topics such as payment finality, treatment of fraudulent transactions and rectification of errors, doing so against a backdrop of diverse data protection rules.

These complexities exist for any form of cross-border payments, but for payments that are intended to settle near instantly, the margin for error is particularly low.

Negotiating dispute resolution frameworks may prove simpler on a bilateral basis than creating a governance framework suitable for every potential participant.

The BIS envisions that Nexus will be overseen by the Nexus Scheme Organisation – a non-profit entity owned by participating countries that aims to ensure Nexus is inclusive, agile, financially sustainable, scalable and neutral.

While a body like this ensures that every participant will have a voice in the setting of rules, the diversity of potential participants means that some will inevitably be required to compromise or adapt to the group's standards, and it is likely that early participants will have more influence over the formation of the rulebook than later joiners.

Some conflict and compromise is inevitable. Though challenging, this should not necessarily be regarded as a bad thing. Nexus can help to promote high standards among domestic PSPs, since participants will be required to adopt modern standards like multi-factor authentication and real-time fraud checks.

47% of central banks surveyed favour interlinking IPS as the most promising avenue to improve cross-border payments.

Bridge currency support

At present, the Nexus architecture does not enable bridge currencies. Cross-border payments would only be enabled between payers using currencies that can be directly connected by a single foreign exchange provider. Many bilateral FX pairings between countries with IPS rely on bridge currencies, particularly the dollar, since they do not share any banks or PSPs.

Nexus' latest report in July 2024 indicates that the project intends to add support for intermediary currencies as it scales. However, it is worth considering that this is a key part of the value proposition for many countries. If the value of the Nexus network is limited only to corridors where a single FX provider can support both currencies, then the number of potential pairings enabled is much smaller than the 2,415 bilateral pairings of 70 IPS.

For some small countries with less liquid currencies, there might only be a few potential linkage partners with direct currency exchange, which they might be able to service via bilateral connections. For Nexus to fully deliver on its potential, facilitating bridge currencies and onboarding key intermediaries like euros and dollars will be crucial. ■

Bridging borders in payments

OMFIF spoke to Maha El Dimachki, head of the Bank for International Settlements' Innovation Hub in Singapore, about the development, progress and future of the instant cross-border payments project.

OMFIF: Can you explain some of the initial interlinking activity taking place in Southeast Asia?
ME: Southeast Asian countries have been pioneers in linking their instant payments systems, starting with the link between Singapore's PayNow and Thailand's PromptPay in April 2021. It allows people to make instant payments using just the recipient's phone number. These initiatives have inspired many other countries to look at linking their own IPS. However, linking country-to-country is complex since every country has slightly different processes, regulatory requirements, data and messaging standards.

It's also easy to underestimate how much work is required for every bilateral link. Nexus aims to standardise the way that IPS connect, allowing IPS operators to integrate just once to reach multiple countries. We're currently working with the central banks and payments systems operators in India, Malaysia, the Philippines, Singapore and Thailand, but there is broad interest in this more scalable approach of IPS multilateral interlinking from countries around the world. For example, the European Central Bank has announced a project to explore the feasibility of connecting the TARGET Instant Payment Settlement service to Nexus.

OMFIF: One of the challenges around implementing Nexus will be developing a governance framework with which all participants are happy. Can you describe your approach?
ME: Nexus would be managed by the Nexus Scheme Organisation, a not-for-profit entity jointly owned by the central banks and/or IPS operators of member countries. The BIS Innovation Hub will continue to support the five central banks and their payments system operators during the initial phases of Nexus and then assist as a technical adviser, once the NSO is operational.

The NSO will produce and manage the Nexus Scheme Rulebook, which defines participants' eligibility requirements, rights and obligations in the scheme as well as the processes, rules and technical standards that govern how payments are made through Nexus. The Rulebook complements domestic scheme rulebooks (which typically do not address cross-border payments).

Overall, the governance model is designed around six principles: alignment with public policy goals (particularly the G20 targets for improving the speed, cost, transparency and access to cross-border payments), inclusivity, agility, neutrality, scalability and financial sustainability.

Managing different regulatory requirements across multiple countries will be a challenge. Project Nexus is designed to comply with domestic regulatory requirements and to respect each country's domestic monetary and financial stability policies. The NSO and its participants must comply with the applicable laws in the participating countries including anti-money laundering/countering the finance of terrorism measures, sanctions screening rules, FX and capital flow management measures, and regulatory reporting.

The technical solution provides banks and payment services providers with information about the requirements in each country, so that they are able to prepare payment instructions that meet those requirements.

OMFIF: Many cross-border payments rely on bridge currencies because PSPs might not maintain a presence in both the sending and receiving currency. Delivering the full potential of Nexus will presumably necessitate the inclusion of bridge currency facilities. When and how do you see that happening?
ME: At the moment, FX providers in Nexus directly connect the two IPS in the countries of the sender and the recipient. They hold the sender's currency in the IPS in the sender's country, and the recipient's currency in the IPS in the recipient's country.

Of course, if more countries join the network, the number of possible currency pairs and corridors increases rapidly. That will be a matter for the partners going forward if the network grows.

OMFIF: Can you describe how the project partners foresee the FX component within Nexus?
ME: The project addressed this within the design so that FX providers could provide rates to Nexus. These rates are issued to PSPs at the point they wish to send a payment. The FX provider must set a rate that covers all their costs of providing the FX conversion, including the cost of acquiring the currency, any allowances for risk and any costs they need to pay to get access to the IPS. The model allows them to service a significant flow of payments, with a lot of automation, and without having to individually quote on lots of small- or medium-sized payments. (FX providers must comply with any FX-related regulations in the countries to which they're providing FX.)

OMFIF: What are the greatest remaining challenges for Nexus?
ME: This will be a matter for the partners to assess in the future, as the BIS will act as technical adviser at this stage. Features could be added – for example, using existing ISO 20022 messages to automate many common exceptions in cross-border payments – but it would be a challenge for banks and PSPs to support them all from day one. The core functionality that is needed on day one is now ready, and it is up to the project partners to put some other features on the roadmap to be rolled out at a later date.

Perfecting the platform

OMFIF spoke to Wijitleka Marome, director of the Bank of Thailand, about the benefits of interlinking systems, the challenges of governance and the key objective of growing global participation with Nexus.

There was no transparency about the transaction fee or the foreign exchange rate. Interlinking fixed that.

OMFIF: Thailand has been at the forefront of interconnecting real-time payments systems. Can you describe the economic benefits and the rationale for pursuing this avenue?
Wijitleka Marome: We're fortunate enough to have a modern payments infrastructure in place already. We launched PromptPay in 2016 and added payment via standardised QR code in 2018. That innovation has really improved the inclusivity and efficiency of our domestic payments. We were able to improve access for vulnerable groups and bring down costs.

Having this system, we are able to participate in the interlinking exercises and it represents an opportunity to replicate that domestic success for cross-border payments, where there are a lot of pain points. Before we connected our instant payments system with Singapore's PayNow, the cost of a transaction was in the double digits and settlement was T+2. There was no transparency about the transaction fee or the foreign exchange rate. Interlinking fixed that. Now the fees are down to less than 2% and the transparency is much better.

It also opened up a new section of consumers because people were using informal channels due to the high fees.

OMFIF: In your experience with the interconnection of PromptPay to other real-time payments systems, how has this affected the business models of payment services providers and FX providers?
WM: In Thailand, banks tend to be both payments providers and FX providers. They certainly did have some concern about being cannibalised, but it has really improved the situation for consumers.

This happened domestically when we introduced PromptPay. Before that, the interbank transfer fees were so high that people would withdraw cash and then take it to another bank and deposit it to avoid the fee. Now, people can do that digitally. Banks don't get the fee but they get much richer data on more customers and can offer them additional services. We see the same thing happening with cross-border payments.

OMFIF: Has governance been a major challenge? How do you approach dispute resolution across borders? Is this approach scalable?
WM: Yes, it's a challenge. But doing this bilaterally would also be challenging. The key when scaling that up for a large group is to ensure that it is fair for participating countries. No matter how small or big the economy, the vote should be the same.

Early joiners have a bit more opportunity to shape policy because we're starting from scratch but everyone joining will have to conform to the same standards. It's extremely helpful to have a coordinating body like the Bank for International Settlements to facilitate this.

Nexus is also helping to ensure that every participant is upholding high standards. The payments system operator in Thailand provides a portal for internal dispute resolution. Participants will need to have a similar set-up ahead of joining.

OMFIF: What are the biggest challenges that still remain?
WM: We'll need to incorporate functionality for a bridge currency at some point to ensure we can deliver the most efficient result. That decision is complex because we can't compromise on the fairness and neutrality of the platform.

We also need to onboard banks to ensure they're able to provide liquidity and that the market is functional.

Finally, risk management: fraud monitoring and fraud detection needs to be designed into the system from the start.

OMFIF: What's the next step for Nexus?
WM: We want to see more countries participate. We expect India's inclusion to open a lot of doors. Currently, it's quite concentrated in the Asean region but Nexus should be global so we want to engage with counterparts around the world to promote that.

We want to see more countries participate. We expect India's inclusion to open a lot of doors.

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