INNOVATION AND EVOLUTION IN PAYMENTS AND THE ROLE OF CENTRAL BANKS

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Participants at roundtable

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CENTRAL BANKS NEED TO BALANCE DUAL ROLE

THE PAYMENTS LANDSCAPE is changing rapidly, driven by new and evolving technology, non-traditional players and new payment instruments entering the market. At the same time, central banks' core objectives and functions – financial stability, monetary policy, banking supervision and access to financial services – haven't changed. Against this backdrop, central banks are evaluating and/or deploying new digital settlement solutions, including faster payments systems and central bank digital currencies. In a recent OMFIF Digital Monetary Institute roundtable, participants explored these key questions around the respective role of central banks and the private sector in the innovation and evolution of payments.

The resilience, inventiveness and adaptability of digital payments have been some of the very few positive features to have emerged from the global health crisis. 'Digital payments have done some amazing things over the last year', said Charlotte Hogg, chief executive officer of Visa Europe.

As she pointed out, had the world been presented with a crisis of similar magnitude 10 years ago, the outcome would have been very different for households unable to access or pay for the items they needed to survive a series of lockdowns. The fact that so many consumers were able to take the provision of these basic services for granted speaks volumes for how far digital payments have come over the last decade.

But digital payments were having a conspicuous positive impact on society even earlier than this, said Judith Obholzer, managing executive of public policy and regulatory affairs at Vodacom Group, based in Johannesburg. She described how M-Pesa, which is Africa's most successful mobile money service and largest regional fintech player, has been transforming the continent's payments landscape since 2007, bringing basic financial services to millions of previously unbanked consumers.

More recently, financial inclusion has been one of the chief drivers of probably the most significant staging post in the global payments industry, which is the development of central bank digital currencies. Oded Salomy, director of payments systems and settlement at the Bank of Israel, provided the OMFIF roundtable with an update on the progress being made towards the launch of a digital shekel.

As Salomy remarked, virtually every central bank on the planet is now assessing the potential benefits and drawbacks of introducing a CBDC. He added that even those that choose not to go down the digital route are eager to gain a fuller understanding of its impact on everything from monetary policy to financial inclusion.

A notable complication arising from the advent of CBDCs will be the potential conflicts it engenders between central banks' dual role as market participants and supervisors. Peter Conti-Brown, assistant professor at the Wharton School, University of Pennsylvania, put these conflicts into context. He said that while central banks have generally managed these challenges well over the last century, he expects to see further 'skirmishes' as new technologies are introduced to address familiar problems.

All panellists agreed that in managing the introduction of CBDCs and in addressing challenges arising from issues such as interoperability, cybersecurity and cross-border payments, central banks will need to work hand-in-glove with the private sector to maximise efficiencies and minimise risks. Thomas Lammer, deputy head of secretariat at the Committee on Payments and Market Infrastructures, said that he recognised the importance of the role the private sector will play in safeguarding the efficiency of payment systems, adding that the views expressed on the panel are his and not necessarily those of the Bank for International Settlements or of the CPMI. He began the OMFIF roundtable by emphasising that as catalyst, overseer and operator of these systems, the central bank's role today is as important as it has ever been.

Bhavin Patel, OMFIF: Thomas, what do to see as the main roles played by central banks in the payment system in this digital age?

Thomas Lammer, CPMI: New payment methods and innovations bring new challenges. But the core role of central banks in payment systems has remained broadly unchanged even in the digital age.

Central banks have a variety of roles and, of course, they have an interest in fostering the safety and efficiency of the national payment systems, including in retail payments, services and payment instruments.

To fulfil these goals, central banks typically play three roles.

Let me start with their role as an operator. In an operational role, many central banks typically provide wholesale payment systems to settle fund transfers between financial institutions in central bank money on a real time gross settlement basis. Over the last three decades there has been a notable increase in the number of these RTGS systems. In 1990, there were only 10 RTGS systems globally. At the last count there were approximately 180 deployed on a global level. Most are operated by central banks, although there are some in the private sector.

In some countries, central banks play a more direct operational role in retail payment systems and increasingly also in fast and instant payment systems, which have had a similar trajectory to RTGS systems. Since 2001, when the first fast payment system was launched in Korea, we have seen more than 60 of these systems go into operation.

The second role of central banks is as a catalyst or facilitator. In this role they maintain a close dialogue with the private sector and stakeholders from both the supply and demand side aimed at improving national payment systems. These include commercial banks and non-bank payment service providers. When I refer to national payment systems in this context these are not single systems but the entire ecosystems including wholesale and retail payment systems, the schemes supporting them and the institutions providing them.

One instrument frequently used by central banks in this context is the so-called payments council or payments board, representing both the supply and demand side. About half of the central banks which responded to the recent World Bank global payment systems survey stated that they have a national payments council or payments board.

An increasingly important feature of a central bank's catalyst function is to ensure interoperability and foster competition, sometimes on a regional as well as a national level. We have seen examples of this in Europe, Asia and Africa.

Last but not least, central banks play an important role as an overseer and sometimes even a regulator. Overseeing is a central bank function whereby the objectives of safety and efficiency are promoted by monitoring existing and planned systems, assessing them against standards that are in place and, if necessary, recommending changes. Since the early 2000s, the oversight function within central banks has become more formal and systematic, and nowadays it is well established. 91% of respondents to the World Bank survey indicated that they have an oversight function in place and perform oversight on a regular and ongoing basis.

Not all central banks have explicit powers to oversee retail payment systems. But many without these powers still monitor developments in this area through dialogue with market participants and research.

BP: Charlotte, as a former central banker now in the private sector, when it comes to payments, what does the private sector do well and where does it need support and guidance from central banks?

Charlotte Hogg, Visa Europe: Over the last year we've seen human tragedy, but in our space, we've also seen an extraordinary amount of change. We have developed a level of confidence in the digital world, that we now take for granted, that we can buy all the things we need. If we had been hit by a crisis of this magnitude 10 years ago, it would have been very different.

The innovation and inclusion that have been generated by digital payments have been positive. Be it in the new ways to create virtual foodbanks that we've seen in some countries or in enabling people to shop while shielding, the innovation has been extraordinary and merits more attention. As a result, the economy has been more resilient, with any negative impact on spending during successive lockdowns progressively reduced over time.

'Virtually every central bank on the planet is now assessing the potential benefits and drawbacks of introducing a CDBC.'

Now that we're living in an irreversibly more digital world, what does that mean for payments and what does it mean for the role played by the private sector and central banks? And what does it mean for the retail payments space where central banks have traditionally operated in a cash world?

I think it's helpful to answer this by thinking about Maslow's hierarchy. At the bottom of the pyramid, which is the space where central banks need to be particularly engaged, is water, air, shelter and security. For payments, it is security and resilience. It is everything that pertains to financial stability.

Transparency and clarity of standards in that space will be vital for the private sector leaning in with the best technology, and with global data to protect citizens from fraud and address cybersecurity issues. Clear standards from the public sector will help the private sector do everything it can to deliver best practice from around the world.

As you move up the pyramid, the degree to which the private sector leans in and the public sector leans out begins to diminish. The middle area in Maslow's hierarchy is love and belonging. Translated into payments terms, this is the openness and access we will need if we are to benefit from the innovation and competition that has emerged through this digital period. Central banks leaning in to set standards on governance, openness and competition will create the clarity needed for many different payment forms to emerge.

The top of the Maslow hierarchy is self-esteem and self-actualisation. In payments this is probably represented by the different use cases we have seen and used ourselves. This is where the private sector is of primary importance, because this is how we lean into the future and ensure we don't get locked into the past.

I think this hierarchy helps you to think about where the public sector engages most powerfully, and where the private sector should be allowed to operate on strong foundations of openness and expectations of resilience.

BP: At what point do central banks need to step in and support or even operate the system?

Oded Salomy, Bank of Israel: Over the last couple of years, central banks have needed to become more attentive to market developments. We can't always stick exactly to traditional approaches to regulation.

Charlotte mentioned equal and open access, which I think is key. In this context, it is important to think about the structure of a payment system, be it RTGS, an automated clearing house, a cheque clearing house, a national or international switch for payment cards or a faster payments switch. All of those will involve the operator of the payment system as well as the participants, which could be banks, or non-bank payment system providers.

We need to give as equal access as possible to PSPs, be they banks or non-banks, because it is the competition among those PSPs which breeds innovation and digitalisation. This supports the development of mobile apps that provide new value-added offerings to consumers and small businesses.

While as regulators we have traditionally looked at the stability and efficiency of each of the payment systems I mentioned, we should also think about the different payment systems as potential competitors to each other. That might mean different payment methods competing with each other, depending on the use case.

For example, it may be appropriate to provide the ease and convenience of payment cards as well as everything that comes with them, such as charge-back protection, payment guarantees and so on. But in some cases, it may make sense to focus more on account-to-account, be it faster payments or ACH. Why? Because in some countries the cards market may not be as developed or there may be pockets of the economy that have not been penetrated by one type of payment method or another.

Having moved from the private to the public sector, I'd say it's quite different to what I had expected in the sense that the payment system regulator at times needs to act as an advocate for the payments stakeholders when facing other regulators. There may be different regulators inside or outside the central bank overseeing banks or other PSPs, or other parts of the ecosystem. Their knowledge or understanding of standards or business methods in the payment industry may sometimes not be as deep and sophisticated as those of us managing payment systems. As a result, they may lack the professional knowledge that could inform better decision-making, which would provide more equal access to all participants in the payment systems, fostering innovation and digitalisation.

So, at times we find ourselves educating our colleagues - who are also regulators - about what our systems need to look like.

Another point about our role as a catalyst, which is becoming increasingly important, is that we work closely with the largest merchant in the country, which is the government.

The government is a regulator. But it also operates its own payment acceptance because it collects taxes, which may range from parking fees to tolls and payment for subsidised children's activities. The broad range of channels through which government funding reaches consumers and businesses means that it has a significant potential impact on the entire ecosystem. By working closely with the government, we could potentially increase penetration of digital payments, be they through payment cards, faster payments, ACH or any of the other payment systems relevant to a particular market.

BP: Peter, what do you make of the conflicts that may arise when central banks participate both as supervisors of payments and as operators of these rails?

Peter Conti-Brown, Wharton School, University of Pennsylvania: In the nineteenth century, before the model of a technocratic, independent central banking institution was firmly entrenched throughout the world, there were genuine tensions between public and private sector in this area. We often think of the nineteenth century in laissez faire terms, with the needs of trade and finance addressed without much intervention. That's something of a myth because the political pressures to expand payment participation were extraordinary, especially in the US and western Europe.

At the same time, opportunities for profitability and innovation in payments, and recognition that this brought new risks, introduced new kinds of private sector regulatory structures, most notably the clearing house. This created a fundamental tension between the desire of the private sector, to expand payments participation and increase profitability, and the public sector perception that the risks created as a result would spill over to the public.

In the US, this led to a series of crises in the gilded age preceding the creation of the Federal Reserve system.

When the Fed was created in 1913, it provided an answer to this payments problem. Our traditional thinking about central banks today, as managing inflation and price stability through interventions in short-term debt markets, was not the model of central banking in 1913. It was much more of a payments architecture, because the Federal Reserve banks were chartered as quasi-private institutions that participated in the payment system for reasons of profitability.

These conflicts aren't new. But in 2021 the question remains as to how an institution can participate in the provision of services in retail and wholesale markets while also overseeing its competitors?

There are genuine risks on the horizon as we launch fast payments with CBDCs where there is both central bank participation and oversight. In the long run, the potential conflicts arising from this have been managed well, but there are things that could go awry. The most obvious of these would be the temptation for central banks to subsidise and prioritise their own products and services at the expense of others that might be able to provide those services better. So, we can expect real skirmishes over the short and medium term as we introduce new rails and new technologies to solve some of these old problems.

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BP: Thomas, from your perspective, can a central bank provide the core standards and benchmarks to regulate payments operators without having to operate the entire payments infrastructure itself?

TL: Digital payments are built on a two-tier structure, with payment systems and associated arrangements at the back end, while the front end is provided by commercial banks, but where we are also increasingly seeing non-bank PSPs. At the back end, the central bank typically supplies a safe medium to settle both wholesale and retail payments, while commercial banks and other PSPs supply the retail payments instruments to the customer. So, there is a clear separation in the focus of the respective institutions.

The private sector itself can provide the creativity and innovation to serve the customer. But, as history illustrates, the private sector needs a solid central bank as a foundation on which to thrive. So, whether in promoting interoperability, setting standards or in some cases levelling the competitive playing field, there is a strong argument for the public sector to play a role in payments. I would argue that the central bank's role today is as important as ever, if not more so.

Of course, it's important that central banks apply the same standards to their own financial market infrastructures, including payment systems they operate, as to those that are operated by the private sector. For example, our standards, the principles for financial market infrastructures, are applied to financial market infrastructures whether they are operated by central banks or by the private sector. There are only very few exceptions when it comes to monetary or liquidity policies where you might have differences.

BP: Judith, the payments gap and the need for financial inclusion remain evident in many parts of Africa. Does the private sector's infrastructure, reachability and access to a large customer base mean that in some cases it is better positioned to provide a core payments solution?

Judith Obholzer, Vodacom: Mobile money supported by extensive mobile reach has been a platform for economic opportunity. In sub-Saharan Africa, it has transformed the financial services landscape and has been a game-changer for financial inclusion.

The first mobile money service in the region was established in 2007 in Kenya by Vodacom's subsidiary, Safaricom. Today, there are over 300m active mobile money accounts globally, 50% of which are in sub-Saharan Africa. Growth has been accelerating quickly. In the past five years, the industry has on average added 40m customers annually. Over the same period, according to global Findex data, the share of adults with an account at a traditional financial institution has remained flat.

So, it is evident that mobile money services provided by communications companies have had and are having a profound impact and are well-placed to provide financial services to all. M-Pesa, which is the largest fintech platform in sub-Saharan Africa for both the banked and the unbanked, now has nearly 50m customers. Its affordability, safety and unmatched convenience have made M-Pesa the preferred mechanism for sending and receiving money, topping up air time, making bill payments, receiving salaries, saving and accessing short term loans.

In the early days, mobile money required a leap of faith and significant investments. Simply being a mobile carrier with a telecoms customer base is not enough. In particular, building agent networks and platform capabilities have been absolutely critical for the delivery of mobile financial services.

Secondly, providing unstructured supplementary service data, which is the predominant way to access mobile financial services on the continent, or an app on your phone is not enough. In other words, while the availability of and access to mobile infrastructure remain key, investments in innovation and new infrastructure alongside flexible, regulatory sandbox approaches paved the way for the growth we've seen.

BP: What else can central banks do to help mobile money provision?

JO: In order to support digital financial services, central banks should be looking at three things.

The first of these is creating an enabling regime for the scale needed to drive down costs. Specifically for cloud infrastructures and cross-border data transfer, this would allow for more agile and cost-effective ways to provide services. Africa's fragmented and restrictive regulations are burdening the sector. They force not just new and emerging players but also banks to use legacy systems and uncompetitive cost structures that prevent the low cost provision of financial services.

Central banks today could play their part by accepting and encouraging the use of new digital technologies such as cloud computing, paving the way for models such as software as a service, infrastructure as a service and platform as a service.

Second, to support speed and innovation, central banks should continue with the established sandbox or test-and-learn approach. This means creating an environment where, instead of building hurdles, regulations serve as tools to facilitate the operations of the digital ecosystem. This also means paving the way for products such as insurance, microloans and tailored savings products where significant gaps persist today.

'As history illustrates, the private sector needs a solid central bank as a foundation on which to thrive.'

Third, to drive financial inclusion, simplified and risk-based know-your-customer approaches remain key. Initiatives such as waivers on bank to e-wallet and e-wallet to bank transaction fees would further stimulate the move to a digital ecosystem.

Finally, to ensure the resilience, which is critical to the functioning of central banks, we need to come together to devise effective tools combating cybercrime. This requires close collaboration through established public working groups to build a more resilient and future-proof digital financial system.

BP: Peter, payments are sometimes referred to as a 'double infrastructure', or an infrastructure built on an existing infrastructure, such as banking in the US, telephony in Africa and commerce in China. Should this be a concern for international standard setters?

PC-B: It's a reality that needs to be confronted pretty aggressively. When we think about the evolution of payments innovation, regulation and supervision, we often refer to interoperability.

This means ensuring that different kinds of rails that have evolved in different settings can talk to each other. It's a worthy goal. But it's a complex goal because we need to recognise that this double infrastructure aspect of payments arises from problems that different economies and societies are trying to solve which can't just be migrated from one economy to another. This is why decades of work to build a more robust banking system in sub-Saharan Africa, for example, did not succeed. In the 2000s mobile payments in Africa started exploding and surpassing facilities elsewhere in the world. Why? Because telephone infrastructure took off much more quickly than banking infrastructure – in part because building traditional infrastructure, like the construction of roads and bridges, was much more difficult to accomplish.

This will be a consideration as we think about the different kinds of regulatory climates for each market. In the US, as you say, payments infrastructure is largely built on top of a banking infrastructure, which is why various corporations have either been spun off from consortia of banks, like Visa, or remain under bank control, such as The Clearing House and Zelle. This will look different to the Chinese model, where a robust digital payment system has evolved out of a commercial context.

Part of this process of standardisation across disparate communities involves interoperability, which will be independent of the local ecosystem. But a big part of it is related to risk and contagion, and what happens when one ecosystem with its fundamentally different environment breaks down because of weaknesses peculiar to that environment. What happens when that contagion starts to spread? That will become extremely relevant when we start thinking about digital currencies developed by the People's Bank of China, the Bank of Kenya or the Federal Reserve. All are functioning in different environments shaped by history, society, culture and even economics.

BP: On the subject of central bank digital currencies, how is the Bank of Israel thinking about involving the private sector in its two-tier digital shekel project?

OS: The question of whether or not to launch a digital currency has become fundamental to many of the discussions inside central banks worldwide. One central bank even said recently that introducing a digital currency is potentially the most significant thing it will do this century.

Some of us are working on this publicly; others are not. At the Bank of Israel, we have now published a paper in English and Hebrew which everybody is welcome to download. This provides background information on our motives as well as requests for information if there are other things we need take into account.

The questions around a digital currency are significant. How could it impact monetary policy? What kind of technology should we use? Is blockchain or any type of distributed ledger the only answer? What would the regulatory framework be? And what should the correct architecture be?

When we think about the retail environment there are two ways to approach it. You mentioned we are thinking about a two-tier approach, but let's understand what this means. A one-tier approach would mean that individuals would use digital shekels by engaging with the central bank directly. That would essentially mean that they would each manage an account with the central bank.

But central banks do not have experience dealing directly with the public. With cash and other forms of payment, we work through a two-tier model where commercial banks distribute cash to the public and there is a whole ecosystem around that.

We think this is the right model for us. We wouldn't necessarily issue a digital shekel directly to consumers.

We would make it available through third parties, be they banks - or the new concept of narrow banks - or third-party payment providers, or a combination.

There are many questions that arise that aren't applicable when you're talking about cash. For example, how do you protect privacy? Do you need to protect privacy? I heard of one country that has launched a pilot which is having trouble persuading people to use its digital currency because they are concerned about being tracked. Is that for reasons related to the shadow economy or because they have something to hide? Or is it just because they want to protect their privacy? It's probably a combination.

As regulators we need to think about how far we need to go to give comfort to citizens that their privacy is being protected. Perhaps we only need to protect privacy at certain transaction levels. It may be that people won't care if we know they bought a cup of coffee for a few shekels, but will worry more about larger purchases.

Another interesting question is, what happens if the systems are down? What happens if it's smart phone-driven and my battery runs out? If the server is down, can I make offline transactions? Visa and MasterCard have great solutions for that. So do we need to look at how they work and learn from them?

On your question of how we would engage the private sector, I think central banks are good at establishing policy and rules that ensure financial stability. They're not as good at engaging the public directly, so we would need to work through the private sector. But we also think that we need to work with the private sector to gain a better understanding of the technological implications. It's a new space and you could talk to 100 companies that claim to know a thing or two about it. Most of them don't, because this is something that hasn't been done before. We're all working it out as we go and every market has its own needs.

Every market needs to ask itself, as we are asking ourselves, why they need this. For example, some governments wanted to provide financial support for individuals and businesses during the pandemic but had difficulty distributing funds because they have significant unbanked populations. That would be a good reason for setting up a CBDC. But that reason is less relevant in Israel.

Another question is whether a CBDC is a possible way to reduce the time and cost of a cross-border payment? Potentially. But how would it work? Would it mean that we would need to co-operate with other central banks to make sure our CBDC system or other types of systems integrate better? In all these areas we need to rely on the knowledge and expertise of the private sector, because there is a limit to what an internal technology team can do at any single institution.

Coming back to something Judith said earlier about the need for financial resilience, I think this lies at the heart of the success of any payment method, be it mobile payments with M-Pesa in Africa, cards or immediate payments. Everyone in the ecosystem needs to trust the payment method as well as the stakeholders and participants in the payment system.

We need to ensure that the entity which is supposed to transfer funds actually has those funds and that they are able to move them across the payment system. This is an issue when a particular PSP, be it a bank or a non-bank, has committed to a business customer, or to people, to move money from one account to another and that money hasn't moved yet. If that movement can only happen through a settlement window once a day, what happens during the other 23 hours when the money isn't moving? If during this time that financial institution or payment provider becomes insolvent, it can create a serious problem in the system. This is because other PSPs which are owed money won't have access to the funds they need to transfer to their customers.

We need to create a settlement guarantee system through a loss-sharing arrangement, supported by all participants in the payment system. As regulators we need to be aware of the need for this type of arrangement. But we also need to ensure that the participants in the system think about creative set-ups that make it possible for small players to participate as well as big players, which would otherwise enjoy an advantage.

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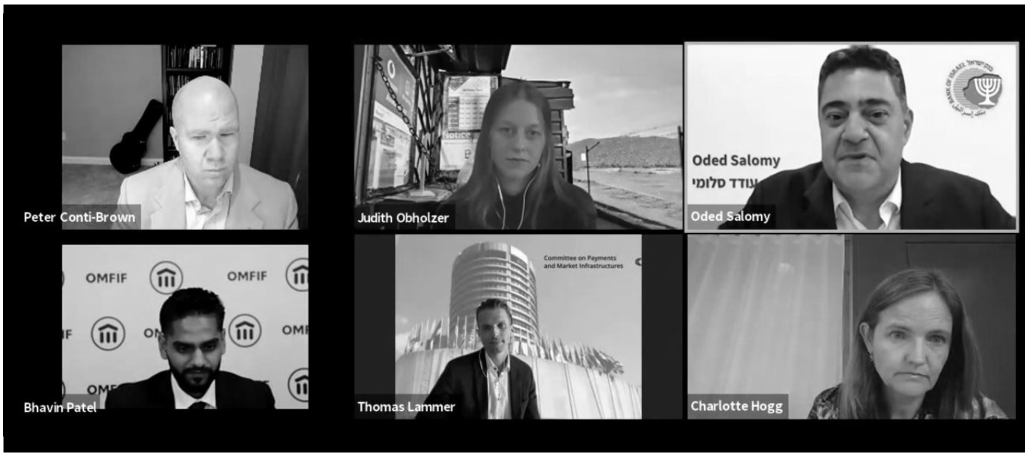
We're also an operator of payment systems. Most RTGS systems still work in settlement windows, but there is talk about extending these windows beyond once or twice a day. If the windows were open all day the credit risk exposure would be reduced. As the operator of the system, you should make it possible for smaller players to participate without creating an unmanageable burden in the loss-sharing arrangement.

BP: Charlotte, I want to bring up the risk around lack of interoperability and maybe concentration risk. Some markets may be prone to 'tipping', where a single firm reaches a critical mass of users in its network, which has happened in some countries. Is this where we might want to see central banks and regulators intervene to reintroduce some competition?

CH: The best thing about the digital world we're now living in is that there is much more competition in payments than ever. Consumers can now choose what they want from a payment in a way they never could before. Which payment rails they use is no longer determined on the basis of where they are physically. For example, when I'm buying a holiday, I might want to use a card scheme because I know I'll get my money back if something goes wrong, whereas if I'm buying a cup of coffee, I may do something different.

If central banks are to intervene in retail payments beyond the level of setting standards particularly around resilience, then I think a number of things have to be



'We need to rely on the knowledge and expertise of the private sector, because there is a limit to what an internal technology team can do at any single institution.'

true. The first is that you have to believe that it is truly a requirement for both financial and monetary stability.

Second, you have to believe there is no other way of doing it and that you can't create a competitive environment without it. You have to believe that you can achieve the level of resilience that the private sector could when appropriately regulated and monitored. In a digital world that is hard to achieve, because you need global data to protect against fraud and you need a global capacity to ensure cybersecurity.

If you decide to intervene and not to go down the route of standards and transparency, which I'm a real believer in, then you have to operate only at the bottom of Maslow's hierarchy. At the other levels, you have to create openness to engender competition.

I think you need to look at interoperability from the consumer's point of view. Consumers require a choice of different places to go to deliver on a transaction. A single common standard or common network is not the best way to achieve it in a world where technology is so advanced.

To give you an example, last year Visa Direct, which can push payments into cardholders' accounts as well as cards, completed 3.5bn transactions using 16 card networks, 65 ACH networks, five faster payments networks and five payment gateways. And that's in a world where we don't sometimes have the interoperability people want.

BP: When looking at cross-border payments and the global infrastructure that underpins payments and settlements, there is an additional complexity in standard setting both on a technical and regularity level. Thomas, could you elaborate on the work you are doing at the BIS here and what more needs to be done?

TL: Many of the developments we've been discussing on increased user experience and digital innovation have happened at a domestic level. At a cross-border level, payments are relatively slow and expensive. They are probably more difficult to access and very often they are less transparent. Enhancing cross-border payments has become a central theme for the G20, the CPMI, the BIS and many other standard setting bodies and international organisations.

At the end of 2020, the G20 adopted a roadmap to enhance cross-border payments. This is an overall objective which we are now trying to implement in the context of a comprehensive programme on cross-border payments. Here the aim is to make these faster, cheaper, more transparent and more accessible, while maintaining safety and security across both wholesale and retail payments.

The roadmap itself establishes a comprehensive plan of action in a broad range of areas and sets out 19 building blocks across five focus areas, and we at the CPMI are co-leading more than half of these. We're cognizant of the fact that technological changes alone will not deliver the scale of improvements we need on cross-border payments. We recognise that gaps in regulation, supervision, legislation and oversight frameworks across different jurisdictions can reduce the benefits that might be derived from technological innovation.

Judith referred to data protection, cloud services and that there are issues when it comes to different data sharing and protection frameworks. This aspect, among others, is tackled within these 19 building blocks. It's important to advance consistent and relevant international rules and standards. But enhancing cross-border payments is not something that either the public sector or international standard setting bodies can do on their own, so it's something we have to do in co-operation with the private sector. Several of the panellists on this session are contributing to this work.

To close the gap between cross-border and domestic payments, we are looking at improving existing payment infrastructures and access to payment systems, by aligning operating hours across payment systems in different jurisdictions, for example, and increasing usage of payment-versus-payment mechanisms for foreign exchange transactions. We're also looking at the oversight and regulatory frameworks and aim to develop common targets supported both by the public and private sectors. Data messaging standards are further key issues, because so much can be lost in translation when it comes to cross-border payments.

We are also looking into some of the more forwardlooking topics like central bank digital currencies or global stablecoin arrangements. We recognise that these are exploratory discussions, a lot of which rely on improvements in the existing legal and regulatory frameworks.

BP: Judith, are there are there any practical examples you can share with regard to how mobile money can help achieve the Sustainable Development Goals? And are there some frictions and pain points that may need to be overcome in cross-border payment, especially with mobile money?

JO: Remittances are key contributors to the UN's 2030 sustainable agenda. Specifically, Sustainable Development Goal 10c aims for a reduction in remittance prices to 3% of the sent amount by 2030. Today, the average cost of sending remittances is about 7%. But in the sub-Saharan Africa and South African corridor it is currently about 14%, which is a long way from the SDG target.

However, we have shown that if we control both the send and receive side as is the case in the Tanzania-Kenya corridor we can reduce costs to below 3% of the sent amount.

What is holding us back at the moment are slow licencing processes where an international money transfer or cross-border licence is required and longwinded approval processes: there are examples where the waiting time for a simple single corridor approval has been up to a year.

The good news is that we will be able to meet the SDG target well before 2030. However – and this is appealing to central bankers and policy-makers – this depends on urgent action to allow fast-tracked and streamlined approvals, and specifically to allow mobile money providers to utilise hub-led models that drive efficiency and reduced time to market.

BP: Probably the most frequently submitted question from our audience this afternoon has asked whether panellists can imagine CBDCs taking off. Will the public ever grasp the concept of public versus private money?

CH: Citizens in many countries are able to adopt a range of different payment forms. Our job is to create a payment system so that all forms of fiat currencies, digital or otherwise, can be used in a ubiquitous way to generate commerce both within and across borders.

OS: There are some markets where for one reason or another there is a very low penetration of digital payments. In those markets there is probably a higher likelihood that the public will adopt a new form of digital money. A lot of money usage is digital anyway – be it on cards or some other way. There are certainly markets and specific use cases in parts of the economy where the public will adopt it.

This also relates to the topic of interoperability that we discussed earlier. We talk about interoperability among the same payment methods, but do we need to think about interoperability between different payment methods? Should I be able to use ACH to pay into someone's credit card? It's a question we never ask but it's one worth raising, especially when we're thinking about a new potential form of payment globally, which is a digital currency issued by the central bank.

BP: A final question for all the panellists: When a central bank decides to operate in a retail payments setting, it would understandably become invested in that new payment rail's success, at least from a reputational standpoint. With the arrival of CBDCs and real-time payment systems, how do these central banks maintain a competitive landscape and avoid picking themselves as winners? Are there any best practices we can learn from?

CH: My advice would be, set standards for yourself that you would set for others around resilience. Take the best in terms of data, infrastructure and cybersecurity from around the world, and recognise that the digital world is global rather than national. Neither fraudsters nor cyberattackers are stopped by national frontiers. So be open. Do everything you can to allow others to participate and provide other types of services on top of your own rails, enabling a simple money movement from A to B to be turned into a payment that really adds value for consumers and businesses.

TL: It very much depends on the institutional, legal and economic factors in the different jurisdictions. But one additional element is that interoperability can be horizontal or vertical across systems, which is an interesting consideration to look at from a public sector perspective.

JO: A couple of additional thoughts: ensuring openness as well as transparency is key. And on the resilience side it is essential to avoid creating a single point of failure by encouraging competition and using public-private partnerships to set up these new systems and environments.

PC-B: In 1980, the US Congress passed a law that specifically forbade the Federal Reserve banks from favouring their own competitive services over alternatives by obliging them to have a profitability or at least a cost recovery standard. This is easy to manipulate because the language is vague, but it's a good general standard. It's not that governments should be barred from subsidising certain kinds of services for certain kinds of participants in financial services. But when they do, they should do so transparently and acknowledge the subsidies they are giving to certain people for certain services and certain purposes. If they don't, it will be truly lamentable, because it will crowd out the kinds of services and subsidies we'd want to see for the parts of the population that genuinely need them.

OS: I think this goes back to our discussion about one-tier versus two-tier systems. If, as a central bank, we issue a currency through third parties, be they banks, narrow banks or PSPs, then we are immediately creating an ecosystem where competition exists among participants. That will be the source of the innovation and specific use cases that drive volume. I see that as an opportunity rather than a threat, both for existing payment systems and participants, as well as for new market entrants.

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