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Payment and Settlement Systems Department  
Bank of Japan

FIN/SUM 2024: "Future of Wholesale Payments"

- Session 2: "Wholesale Payments: Challenges of the Current Practice" Key Discussions -

1. Session information

(Date and Time) Wednesday, March 6, 2024, from 1:50 p.m. to 2:40 p.m.

(Moderator) Shuji Kobayakawa, Professor, School of Political Science and Economics,  
Meiji University

(Panelists) Satoru Someya, Executive Officer and COO and CMO and Head of Marketing  
and Sales Dept., TradeWaltz Inc.

Masayuki Tagai, Managing Director, Industry Issues, Payments, JPMorgan  
Chase Bank, N.A., Tokyo Branch

Fernando Vazquez, CEO, SBI Digital Asset Holdings

Masashi Watanabe, Managing Director, Corporate Planning Division,  
Business Development Office, Mitsubishi UFJ Financial Group, Inc.

## 2. Executive summary

In Session 2 ("Wholesale payments: challenges of the current practice"), panelists with practical experiences discussed issues in the current practices of wholesale payments, efforts for improvement, and challenges that remain in proceeding with such efforts. In particular, they exchanged opinions on solutions with the use of new technologies such as distributed ledger technology (DLT), the potential of new payment methods and platforms, and the importance of resolving issues in the surrounding areas of payments, which include commercial flow coupled with payments.

Some of the views expressed during the discussion are as follows.

### [Trade payments]

- Challenges remain in the area of trade payments due to paper-based practices, and potential means of resolving these include utilizing DLT-based trade platforms that enable information sharing and realizing DVP with cash legs.
- There is a need for a digital currency with the credibility of central banks and private banks.

### [Cross-border payments]

- With regard to cross-border payments, the current practice using correspondent banks imposes a heavy practical burden on the surrounding areas of fund transfers, such as Know Your Customer (KYC) and regulatory compliance, leading to slow and costly payments.
- As a possible response to this, it is essential to improve existing practices and build new practices in the industry as a whole. This includes the potential streamlining of verification work in the surrounding areas of payments and the standardization of messages (transition to ISO 20022).

### [Standpoint of banks]

- From the standpoint of banks, while rational practices have been formed within the framework of existing practices in current wholesale payments, various issues exist nonetheless.

- If new technologies are utilized to alter the flow of data processing associated with transactions, the ways transactions and settlements are carried out could undergo a fundamental change.

[Unified ledger (BIS)]

- The importance of the idea of placing wholesale CBDC and tokenized deposits on a new platform, using DLT in a way that leverages the existing regulatory framework and two-tiered structure of the monetary system -- as in the unified ledger proposed by the Bank for International Settlements (BIS) -- should be noted. It also implies the opportunities of various instant payments and programmability.

[Standpoint of technical experts]

- From the standpoint of technical experts, DLT is very promising for use in the settlement area, not limited to the ledger itself, such as potentially improving the transparency of cross-border payments and resolving the asymmetry of information.
- At the same time, this is not as simple as solving practical issues solely by utilizing DLT. Rather, it is important for technical experts and the business side to cooperate and utilize the technology in a way that is compatible with the practices and customs of financial institutions.
- The importance of governance and the need for trust anchors in utilizing public blockchains are worth noting.

### 3. Discussions

#### (1) Introduction

(Kobayakawa) For this session, let us have a three-round discussion on current issues in wholesale payments. We will begin by grasping the current situation, followed by a discussion on the initiatives taken at each firm represented here in light of the existing issues. Then, we will proceed to a discussion on the limitations of efforts to date and identify challenges for the future.

#### (2) Grasping the current situation

(Kobayakawa) To kick off this discussion, of the current issues in the area of wholesale payments, I would like to ask Mr. Tagai to briefly walk us through issues regarding cross-border payments, such as interbank settlement with customer remittances and business-to-business transfers.

(Tagai) Currently, I am engaged in so-called industry issues such as global institutional transformation and application of global standards. Major topics in this regard include standardization and structuring of data, namely ISO 20022, improvement of cross-border payments, and transition strategies for the digitalization of existing banking operations.

Looking at cross-border interbank payments, as has been pointed out at meetings of the G20, the Financial Stability Board (FSB), the Bank for International Settlements' (BIS) Committee on Payments and Market Infrastructures (CPMI), and other international bodies, the challenges are often explained as low speed, high costs, limited access, and insufficient transparency. However, underlying these challenges is the asymmetry of information; in other words, cross-border payments are made based on contractual relationships between banks operating in different countries, adhering to regulations unique to each country, resulting in inconsistencies in information required by each bank to carry out the payment process. To give a practical example, in Japan, Article 17 of the Foreign Exchange and Foreign Trade Act imposes on financial institutions the obligation to confirm the existence of any violation of regulations. While this may sound like a simple task, in practice it is extremely challenging to confirm whether there is any violation; at times this requires calling up the customer and inquiring if we could go through with the payment or receipt of money. This procedure applies to not only banks but also funds transfer

service providers. As a result, it takes more time and effort to make payments from overseas to Japan than from Japan to overseas. In addition, data provided by SWIFT shows that remittances sent between Europe and the United States take somewhere between a few minutes and a few hours while those that take place within Asia require half a day or longer.

In other words, each country has its own framework and cross-border payments cannot be made or received unless all of the accompanying information, such as the customer's name, postal address, and bank account number, is verified.

Shifting to the positive aspects of interbank transfers, banks are able to operate based on mutual trust in terms of Know Your Customer (KYC) capabilities, sanctions checks, and due diligence. Therefore, unlike handing over cash to a stranger, the practical aspects of interbank transfers are gradually improving based on such mutual trust coupled with recent developments in new technologies. This is a glimpse into what I would like to share with you today.

(Kobayakawa) Thank you, Mr. Tagai. Moving on to Mr. Someya, could you give us an overview of existing issues in trade payments and fund settlements?

(Someya) Our company aims to digitize all paper-based trade documents and promote trade payments across industries and borders using a blockchain-based platform.

One of our focal points is that the majority of procedures for trade payments are still paper based. In other words, when goods are transported to a partner country in trade, only after all the relevant documents arrive can the goods be received and trade payments be carried out. What should be noted here is that these documents are in paper form. Imagine some kind of food product being exported from Japan to Vietnam. The documents required for receiving the food products shipped from the Port of Yokohama, known as a bill of lading (B/L), will be issued in Yokohama and sent to Vietnam via air mail. The Vietnamese importer must then hand over the B/L to the shipping company to finally receive the food products. If the document were to be misplaced or unreceived, the importer would not be allowed to receive the food product, leaving it to perish. This is actually witnessed in real life. It is important to convert paper-based documents into digital format and exchange them on the platform, eliminating the time lag caused by the delayed delivery of paper-based documents.

(Kobayakawa) Thank you, Mr. Someya. I find various domestic and international arrangements in wholesale payments, such as domestic arrangements through the Zengin System, cross-border payments centered on correspondent banks, and market practices for securities settlements. In light of how these payment and settlement arrangements have been formed, what kind of challenges do we face, and what are your thoughts, Mr. Watanabe, on how to tackle them, from the standpoint of banks that provide settlement services to corporate clients?

(Watanabe) Looking at current wholesale payments from the standpoint of a bank, the existing arrangements are highly logical and work well given the practices developed so far. The key point here is that trading practices have become the norm based on information processing or data preparation in each industry. For example, the practice of T+2 settlement of FX and securities is based on the fact that the bookkeeping of transactions and that of settlements are conducted separately, in other words, transaction information and settlement information are fragmented.

When we settle transactions that involve the transfer of assets and money, settlement of money shall be conditioned on the completion of necessary steps for the ownership transfer of assets. The ideal mechanism here would be a simultaneous settlement of assets and money, in other words, DVP. If this can be realized for a variety of assets, current practices will change dramatically. Specifically, with the use of blockchains and distributed ledger technology (DLT), atomic settlement of tokenized data, in which ownership transfer as well as fund settlement are conducted at the same time, will change the current practice, settlement, and transaction methods. Furthermore, cross-industrial blockchain platforms are discussed in various scenes these days. In this context, if order information, such as EDI systems, and tokenized bank deposits are processed and settled at the same time, this could generate a change in the current flow of data processing, which is the premise of the current practice.

(Kobayakawa) Last but not least, I would like to ask Mr. Vazquez about potential opportunities that DLT will bring, based on the discussions on the challenges in wholesale payments so far.

(Vazquez) I have a technology background and currently lead the SBI Group's digital asset initiatives. DLT and blockchains are very promising technologies that can be used to enhance transparency in cross-border payments and to take drastic measures

to address the problem of asymmetry of information.

However, solving practical issues by utilizing DLT and blockchains is easier said than done. For example, depending on the transaction, some information cannot be shared or requires anonymity. In such cases, how to improve operational efficiency while disclosing minimal information becomes the key issue for discussion. Taking the usage of DLT as a given creates the risk of friction to grow between the technical side and the operational side giving birth to something that no one asked for. For instance, while securities could be tokenized to improve the efficiency of the capital market business, there is the fundamental question of whether the various elements of securities and settlement operations need to be placed on the same ledger. In other words, in large financial institutions, where staff members in charge of settlements are separate from those in charge of securities, it would be extremely costly to review such operations across the financial group.

In summary, while blockchains have the potential to solve some of the problems that have been discussed, such efforts will only prove meaningful when the technical side and the operational side cooperate on optimizing and streamlining operations.

### (3) Progress in initiatives taken at each company

(Kobayakawa) We have gained valuable insights on the current issues in wholesale payments from the viewpoints of practitioners in various positions. With a slight shift in topics, I would now like to ask each of the panelists to speak about their companies' efforts in relation to the issues raised so far.

First, I will hand it over to Mr. Someya, who will provide an overview of efforts being made at TradeWaltz to address the challenges in trade payments and share insights gained through them.

(Someya) Integration of trade information and settlement information has been our long-standing goal. We have made gradual progress over the past four years toward digitizing and consolidating trade information through the use of trade platforms. In this context, in 2021, we worked jointly with STANDAGE, a startup, to experiment with passing trade information on a blockchain onto another blockchain that handles payments. Specifically, we set a precedent of cross-chain settlement, in which payment is made in digital currencies the moment a tokenized bill of lading is passed on to the other party. It is technically challenging to cross two blockchains and enable

the exchange of information between the sales channel and the payment channel, settling the payment on a DLT-based platform without any time lag. Achieving this should pave the way for overwhelmingly more efficient trade payments and cross-border payments in the future.

At the same time, challenges remain. Trade practitioners emphasize the importance of leveraging the trust in banks to conduct transactions. Therefore, the challenge lies in the fact that the platform will not be widely adopted unless settlement in digital currencies supported by trust is realized. For this reason, we are hopeful that central banks and private banks will work together to make headway in exploring payment made by digital currencies.

(Kobayakawa) My next question is for Mr. Tagai. From the standpoint of an expert who is engaged in the formulation of ISO 20022 and who has the big picture of cross-border payments, could you share with us the kind of efforts being made to improve related issues as well as the opportunities and challenges of new technologies that could lead to improvements in this regard?

(Tagai) Over the past 40 plus years, cross-border payments have utilized a framework of correspondent banking, in which information is passed on to the counterparty bank for processing. Under this framework, it is not possible for a bank to solve all issues by itself. For example, when a bank serves as an intermediary bank, also along the payment chain are a sending bank and a receiving bank. The original payer and the payee remain unknown. Under these circumstances, in order to properly comply with such regulations as AML/CFT and to execute large volumes of payment on a daily basis, the industry as a whole, rather than individual companies, needs to address the existing issues. This calls for coordination among markets and among industries.

When we ask various banks about the kind of transactions that are time consuming, the most common responses point to nonexistent bank accounts or incorrect account numbers. Meanwhile, a global analysis of the most common unusual transactions raises nonexistent accounts and refunds of transactions. In order to standardize such unusual transactions, it is not sufficient to simply provide the counterparty bank with a set of information and request that the necessary procedure be carried out, as has been the case under the conventional framework. A more detailed exchange of messages that can be processed mechanically by the counterparty becomes necessary. This is exactly what paved the way for the introduction of the ISO 20022 messages.



For example, at present all relevant information is filled in a single address field, whereas in the new format, it can be broken down into 18 or 20 categories, allowing the address of the sanctioned person to be automatically identified. To comply with recent sanctions and AML/CFT regulations, there is a need to introduce new machine-processable messages that would facilitate automation. A major project is underway among banks around the globe to migrate at least payment messages to ISO 20022 by 2025.

Another major initiative is the SWIFT GPI. Just like a courier tracking number, by entering a unique reference number in the GPI Tracker, you can identify where in the payment chain your remittance is at a halt. This initiative began about 10 years ago, and has contributed to greater transparency in payment operations. The next step is to standardize and level out regulations in each country, so that it becomes easier to distinguish between countries' regulations and the extent to which they differ. Over time, this will help the existing asymmetry of information to dissipate. Ultimately, various types of data -- ranging from data that should be exchanged together with remittance information to data for settlement that must be processed at the same time as final settlement -- will be increasingly differentiated.

If I may add, foreign remittances and domestic remittances also differ in terms of confirmation of the counterparty's account. For domestic remittances in Japan, the name of the account holder can be confirmed by entering the counterparty's account number when sending money from an ATM. Generally speaking, this service is not yet available for international remittances. If the practice of confirming in advance the counterparty's account and whether it is subject to any sanctions, this would assure that the remittance will not come to a halt on the counterparty's side. Furthermore, if we take a look at the services we provide for other banks, we are working on an initiative for client financial institutions in Asia. Under this initiative, prior confirmation of the counterparty account is exchanged on the blockchain, completing the otherwise complex exchange in an instant. As long as the prior confirmation is completed, money will be received immediately once payment instructions are sent. Not only are we promoting such improvements to existing practices as firm-wide efforts, but we also wish to introduce these as a new market practice and a new way of conducting business operations.

(Kobayakawa) Next, I would like to turn to Mr. Vazquez. SBI Digital Asset Holdings is actively participating in various projects, such as Project Guardian led by the

Monetary Authority of Singapore (MAS), to utilize DLT in the area of wholesale payments. Could you provide an overview of these projects and share with us any findings?

(Vasquez) As part of Project Guardian, we collaborated with UBS to place corporate bonds issued by UBS in Switzerland on the DLT platform. In selecting the ledger, we chose a public blockchain for its convenience, rather than a permissioned blockchain. Our aim was to leverage such high level of convenience, while ensuring the confidentiality and KYC process that financial institutions require. In addition, since it is difficult to realize DVP but for executing securities and fund settlement on the same DLT platform, such functions were also placed on the public blockchain. The currency used for settlement was not Swiss francs, but Japanese yen, and Shinsei Trust & Banking, a member of the SBI Shinsei Bank Group, issued stablecoins.

The process involves placing corporate bonds issued by UBS on the blockchain, then purchasing the bonds on the Japanese side, and finally conducting transactions of the bonds in exchange for stablecoins issued by Shinsei Trust & Banking. It is worth noting that all of the settlements were performed on the blockchain, and basically all operations were executed with a single smart contract. What is more, the platform was able to achieve a level of security comparable to that of a permissioned blockchain, and in a manner that satisfied confidentiality, KYC, and AML compliance. We believe that we were able to demonstrate that a similar approach could be applied in Japan to improve operational efficiency in the future.

The remaining issue is the establishment of a legal framework for the transfer of ownership of digital assets. We hope to work out these points with the involvement of relevant authorities.

(Kobayakawa) Last but not least, I would like to ask Mr. Watanabe, from the perspective of a bank that plays a key role in financial intermediation, about the pros and cons of stablecoins, tokenized deposits, and wholesale CBDC.

(Watanabe) Let me first emphasize that tokenization indeed carries potential in a variety of businesses. For example, it can replace various elements of diversified investment, trade finance, cash pooling, as well as domestic recurring payments and direct debits, which are good examples of programmable payments. Furthermore, it may enable so-called purpose-bound money, or cash with limited use. There is a range of

opportunities, ranging from those in which traditional practices can be replaced to those in which new value can be created.

The question is who will provide these services and how. In other words, a trust anchor is needed. In this regard, I believe that banks must continue to play a role in ensuring that customers can make payments with confidence.

With this in mind, crypto assets and stablecoins can be raised as examples of blockchain and DLT-based payment instruments. In this regard, stablecoins may be considered a safe asset as long as there is no deviation from the fundamental value of underlying assets. From the issuer's point of view, however, the underlying assets required to issue stablecoins may result in their consumption. In addition, it may be difficult to supply stablecoins as flexibly as traditional money because of the works needed to fix (peg) underlying assets at the time of issuance. Meanwhile, crypto assets may have their own advantages as well; nonetheless, it is difficult for banks to provide crypto assets given the current regulatory framework or the global trend.

In this context, the global trend has been changing since around last spring. In June 2023, the BIS published a paper on the concept of a unified ledger. The idea behind this concept is not to adapt regulations to technology, but to utilize technology in accordance with the current regulatory framework and existing banking industry structure.

Specifically, the idea is to transfer the current two-tiered structure of the monetary system, consisting of central bank deposits and private bank deposits, directly to the blockchain. Wholesale CBDC and tokenized deposits would be placed on the blockchain but would be no different from existing central bank deposits and private bank deposits in a legal sense, requiring no need for a change in the regulatory framework. This could be taken further to cover other industries where tokenization is progressing, such as securities and real estate investment, or trade finance, to create a cross-industrial blockchain ledger that can process transaction information and settle all in one place.

We are also currently considering participating in a project called GL1, or Global Layer One, which would implement the unified ledger model proposed by the BIS. In collaboration with European and U.S. financial institutions, we will examine how to implement tokenized deposits, how they will be settled with central bank deposits, and how the settlement mechanism will be implemented across different banks. If this model is realized, having DVP, PVP, real-time gross settlement (RTGS) and other

mechanisms in place for all assets will almost be within our grasp.

On the other hand, a common argument against such an approach is that immediate settlement of funds following transactions could increase some risks that are not likely to materialize under the current practice of funding two business days in advance. However, since blockchains are programmable, it is possible to adjust the timing of settlement to the current market practice (i.e., settlement after two business days from the transaction), depending on the contract. Personally speaking, defaults of unsettled transactions occurred after the burst of the bubble economy and during the global financial crisis. I believe that prompt settlement following the execution of a contract is the way settlement ought to be, and the credit creation of banks should be executed immediately as well.

While many possibilities can be envisaged, what is important is the two-tiered structure of the monetary system, in other words, the functioning of central bank money and private-sector money. More specifically, if the interest rate environment is going to change, the role of central bank deposits and private bank deposits as a means of monetary policy will grow increasingly important. Based on these expectations for central bank deposits and private bank deposits, the transition to blockchains will enable new forms of settlement that take advantage of various types of instant payment, programmability, and composability. We as banks hope to meet these expectations by introducing technologies within the current regulatory and industrial structure, while maintaining the role that deposits play.

#### (4) Limitations of current efforts and challenges for the future

(Kobayakawa) Our final topic for this session is the limitations of current efforts and challenges for the future. I will begin by asking Mr. Tagai, from the standpoint of banks, about the kind of roles that the various new means of funds settlement would play.

(Tagai) In contrast to various new means of funds settlement, such as stablecoins, bank deposits have many strengths, including the safety and mutual trust that banks have built with one another, their practical ability to deal with sanctions, and their standardized KYC processes. The reality, however, is that banks themselves have not been the best promoters of these strengths.

On the other hand, fund transfers involve more than simply moving money; a

variety of associated information must be passed and received. No financial institution wants their services to be abused for transferring criminal money. In addition, the FATF is currently in the midst of a public consultation to revise the FATF Recommendation 16, which is a recommendation on improving payment transparency. In this recommendation, it is stated that not only banks but also any service provider that provides services involving the transfer of value must make certain investments for improving transparency. Rather than merely discussing the transfer of money, as has been the case thus far, there is a need for a place where those involved including authorities can sit around the same table, regardless of type of business, to align their terminology, for example, and create new regulations and sanction screening operations as well as new international practices in line with the new era of standardization. I would say this is the greatest challenge we face.

(Kobayakawa) Moving on, I would like to ask Mr. Someya about the issues that need to be addressed in order to successfully implement a platform that integrates the processing of fund settlement and sales information in trade transactions.

(Someya) First, in order to ensure the reliability of information in the pre-settlement phase and the appropriateness of the settlement itself, the platform must manage all transaction information on the blockchain and properly transmit it. This is one of the issues to be addressed.

Conversely, with regard to payments, I think there is a challenge that digital currency will not be used easily unless the trust in banks would be placed on it. In this regard, if a common infrastructure such as the unified ledger were to be created, we would like to make good use of it because of its high compatibility with the trade industry. Ideally, we want a payment method that is programmable, has trust in a bank, complies with KYC regulations, and even receives the benefits of existing banking services, for example, offering interest on deposits. When the advantages of the traditional banking system and those of digital currency using blockchain are combined to create a new approach to finance, I feel that this would pave the way for a solution to the current issues.

(Kobayakawa) Next, handing it over to Mr. Watanabe, what are the challenges of new technologies and platforms and what is needed to solve them?

(Watanabe) As long as new initiatives such as the unified ledger are pursued within the

existing structure of the banking industry or within the existing regulatory framework, all of these requirements must be met. Moreover, what is extremely tricky about the unified ledger is that unless utilized in a unified manner, it risks ending up as a mere business consortium. To avoid this, it is important that authorities, central banks, private banks, and the industry create standards and move forward step by step. That is our foremost challenge, and I think our first step toward overcoming it involves creating standards for wholesale CBDC and tokenized deposits.

(Kobayakawa) Finally, I would like to ask Mr. Vazquez about the governance challenges in utilizing a public blockchain, solutions to those challenges, and how new technologies should be utilized in distinct ways to improve wholesale payments.

(Vazquez) Let me begin by emphasizing that the term "permissionless (public)" can be misleading. Permissionless (public) applies only at the protocol level, and Project Guardian has proven that permissionless blockchains meet the various compliance requirements as required by financial institutions.

However, as a prerequisite, it is crucial that the governance of the distributed ledgers used is solid. Existing public blockchains are not necessarily well governed, and for this reason, the financial industry has seen cases where a consortium uses a permissioned blockchain. This is because the governing body is clear and unambiguous. Put differently, many of the current public blockchains are operated by an unspecified number of unidentified entities. Even if security were technically ensured, issues remain in terms of governance. A so-called trust anchor is needed, and banks are capable of playing this role given their valuable asset of trust. Nevertheless, in my view the financial industry is currently not ready to play the role of a trust anchor in a public blockchain.

In addition to this, platforms such as the unified ledger may be built on permissioned blockchain, but even if this is successful, before long a public blockchain will inevitably be required due to their convenience. Various services including financial services may be placed on top of such a platform. Financial institutions may somehow come to participate in the operation of existing public blockchains, and before we know it there may be a DLT that everyone utilizes, just as the financial industry and my children use the same Internet.

(Kobayakawa) Today, our panelists have shared many thought provoking ideas and

comments on a wide array of issues. We were able to deepen our understanding of the role that new payment methods could play in the process of further improving the efficiency of wholesale payments through the use of new technologies, and of the challenges that wholesale payments are facing today as well as what the future holds. Personally, I believe that practical perspectives have not been utilized in discussions on wholesale payments to date. In a similar vein, when talking about enhancing payments, we tend to focus solely on challenges related to the flow of funds and what needs to be done to overcome them. Our discussion today seemed to reinforce the notion that we cannot enhance payments in a true sense unless we solve the problems facing the flow of goods and services, which underlie the flow of funds.

As we bring this session to a close, let us revisit some of the points that have been raised today. Looking at individual issues, in the area of trade payments, there remain various challenges stemming from paper-based practices. In order to solve these by utilizing DLT, the feasibility of simultaneous settlement between a trade blockchain platform and a settlement blockchain platform was discussed. As a contrasting perspective, we heard that we could expect to see the emergence of a platform that merges trust in banks and DLT to overcome the challenges regarding wholesale payments. In a nutshell, I believe this implies successfully putting the trust in banks on the distributed ledger.

In connection to this, views were shared on the possibility of putting tokenized deposits on a common platform in the form of a unified ledger. My understanding is that on the blockchain, rather than building trust from scratch, a realistic approach would be to maximize the use of existing trust in banks.

It was then pointed out that this new technology can be used in regulatory compliance at conventional banks. With regard to cross-border payments, it is important to utilize the new technology to accelerate the processing of supporting operations such as KYC and AML prior to a payment execution, in order to gear up the payments business. The significance of standardization work was also raised.

Finally, governance issues in blockchains were raised. While various limitations of blockchains have been pointed out, it can be said that efforts to overcome these are underway. I find the views expressed throughout this session to provide highly useful input as we take this discussion forward to the next session.