＜論 説＞

Cashless Payments, Digitalisation of Banking and the Introduction of CBDC in Japan

Jun Shirota

Table of Contents

1 Introduction

Cashless payments are increasing in the EU or Eurozone, as are contactless payments. The number of banks, branches and ATMs tends to decrease as cashless payments increase, with the introduction of cash payment caps in the EU and the regulation of interchange fee rates for card payments being noted as factors that have encouraged cashless payments.

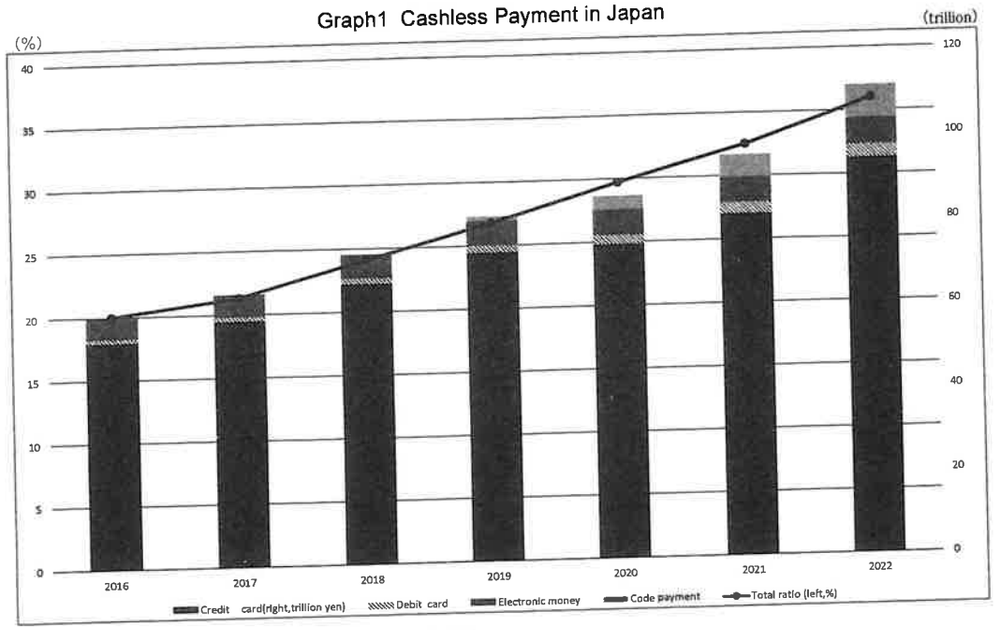
In Japan, there is no caps on cash payments and credit card interchange fee rate are high. As a result, cashless transactions have been slow to take off in Japan. However, the number of banks in Japan is declining and banks are becoming increasingly digitalised. Specialised internet banks are growing and smartphone banks are also attracting attention. Smartphone banks and smartphone securities are expanding as a group.

The cashless transition has forced national central banks to provide an alternative means of payment to cash, with central bank digital currencies attracting attention. In Japan, it is expected to take longer.

2 Cashless payment in Japan

In Eurozone, the cash payment ratio was 78.8%(the number base), 53.8%(the value base) in 2016. The ratio decreased to 73%(the number base), 48%(the value base). 1)Thus, the cash payment ratio fell by about 5%, both in value and

Graph1 Cashless Payment in Japan



(source) Ministry of Economy, Trade and Industry (2022)

in number. Cashless payment statistics in Europe includes credit transfer and cheque. Card payment in Eurozone is the main form of cashless payment. Cashless transaction will lead to the rise of U.S.-based company(Google, Amazon and others) and threaten the monetary sovereignty.

In Japan, as Graph 1 shows, the cashless payment ratio rose from 20% in 2016 to 36%(value base) in 2022.2) The main form of cashless payment in Japan is also credit card payment. The value paid by credit card increased from 53.9 trillion in 2016 to 93.8 trillion in 2022, and the ratio paid by credit card increased from 18% to 30.4% in the same order. The second largest cashless payment in Japan is code payment. The value paid by code payment rapidly increased from 0.2 trillion in 2016 to 7.9 trillion in 2022. The ratio paid by code payment increased from 0.1% in 2018 to 2.6% in 2022. The third largest cashless payment is electronic money(e-money). The value paid by e-money increased from 5.1 trillion in 2016 to 6.1 trillion in 2022.

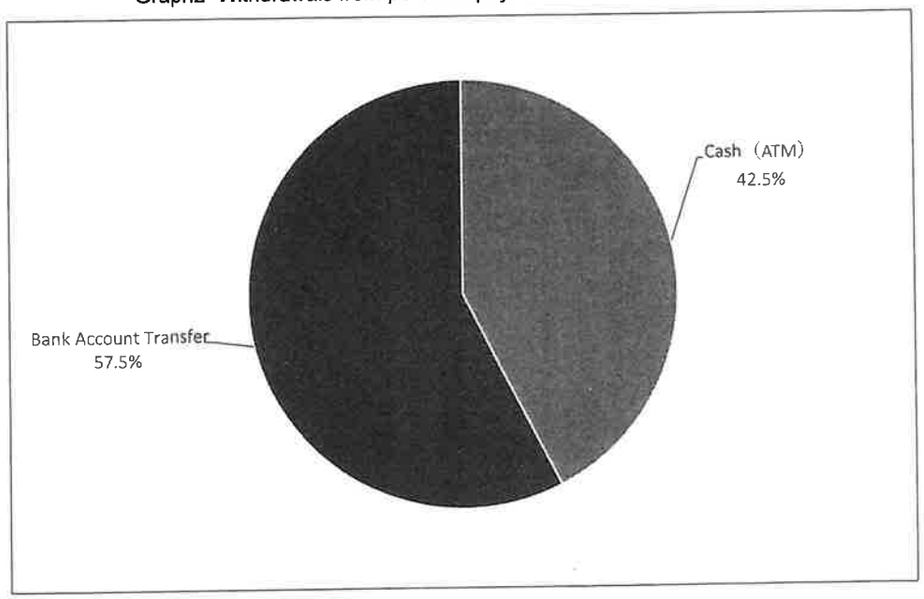
The ratio paid by e-money increased from 1.7% in 2016 to 2.1% in 2022, and decreased to 2.0% in 2022. The forth largest cashless payment in Japan is debit card. The value paid by debit card increased from 0.9 trillion in 2016 to 2.7 trillion in 2022, and the ratio paid by debit card increased from 0.3% in 2016 to 1% in 2022. However, these statistics excludes the credit transfer and cheque.

In Japan, the cheque is not popular in retail area. In order to use cheques, it is necessary to open a current account with a bank, as banks were not allowed to open current accounts for individuals. For this reason, excluding cheques in cashless payment statistics is practically unproblematic. However, bank transfers and bank direct debits are widely practised, and excluding them is problematic.

The Graph 2 shows the withdrawals from personal payroll accounts in Japan. 3)The total value was 115 trillion yen. That was a huge amount of money. The cash withdrawals from ATM was 42.5%,and the bank account transfer(includes debit) was 57.5%. The ratio of bank account transfer was high. Therefore, excluding the bank account transfer from cashless payment statistics is problematic.

Why Japanese cashless statistics exclude credit

Graph2 Withdrawals from personal payroll accounts 115 trillion yen



(source) Japanese Bankers Association (2022)

transfer? According to the Cashless Promotion Office of the Ministry of Economy, Trade and Industry, the explanation is as follows. From the perspective of obtain the regular and homogeneous data, the sum of 'E-Money Payment Transactions' and 'Card Payments (except e-money)' from the annual report 'Statistics on payment, clearing and settlement systems in the CPMI countries6' published by the Bank for International Settlements (BIS) is used. The following sections examine each of the main forms of cashless payment in Japan.

(1) Credit Card

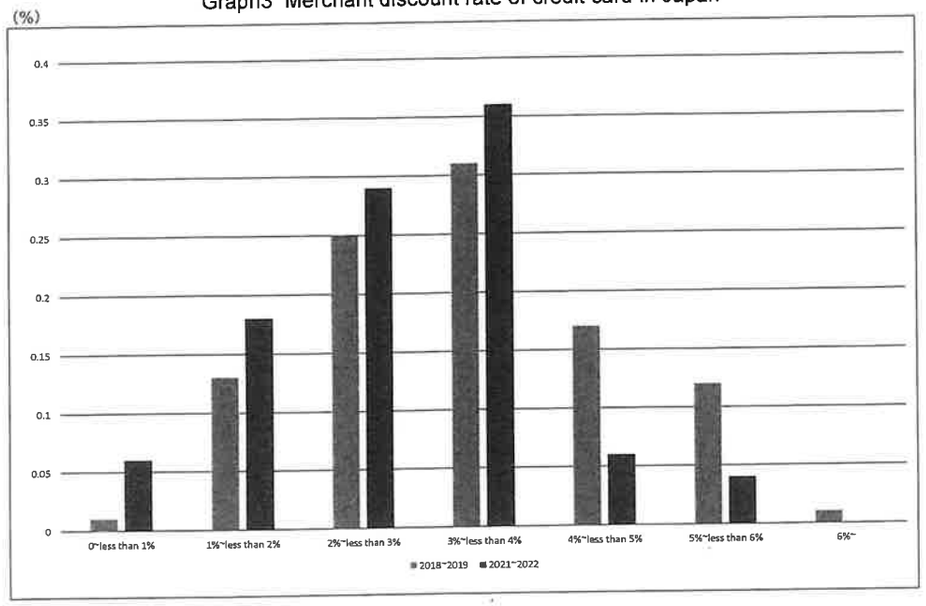
The basis of cashless payments and fintech is card payments. For this reason, the current situation and problems with credit cards in Japan are first examined.

With EU integration, bank transfer and debit cards were largely harmonized across countries. For card payments, differences still remained in 2010. One of the remaining variances related to interchange fees for card payments. Interchange fees are fees incurred when the receiving (shop) and paying (consumer) card companies are different (called off-ass transactions) when paying by credit or debit card.

In 2010, Poland, Cyprus, Portugal were the countries with the highest interchange fee rates. In Poland, interchange fees for MasterCard were 1.6% for debit cards and 1.45% for credit cards. In Cyprus, the fee was 1.75% for both debit and credit cards. In contrast, in Finland and Latvia, interchange fee rates were low. In Finland, interchange fees for debit cards ranged from 0.31% and 0.9% for credit cards.

In the EU, fees have been regulated since 2015. 4)Credit card interchange fee rates are regulated at no more than 0.3% and debit card payment fees rates at no more than 0.2% in the EU now. However, in Japan, the merchant discount fee rates, which includes interchange fee rates, are very high until now. The merchant discount fees are paid by the merchant(shop) to the acquirer(credit card company), and the fees are subtracted from purchase prices. The merchant discount rates of credit card are mainly in the 3% range. 5)

Graph3 Merchant discount rate of credit card in Japan



(source) Fair Trade Commission (2019)

The merchant discount rate for PayPay(QR code payments) via smartphones is 1.6% and is rapidly gaining popularity in Japan.

Graph3 shows the merchant discount rates: in 2018-2019, 31% of merchants were between 3% and less than 4% ,and 25% were between 2% and less than 3%. In 2021-2022, 36% of merchants had between 3% and 4%. Another 29% of merchants had between 2% and 3%.

Thus, many Japanese merchants offer a 3% discount rate for credit card payments. This is a higher level than in the EU circa 2010. Currently, there is a disparity in interchange fees between Japan and the EU of around 10 times.

Credit cards in Japan are a complex business. First, approximately 90% of credit card payments are made on a non-installment (lump-sum) basis, which means that interest income cannot be expected. With the installment payment method, the card company earns more money by paying in instalments and generating interest income. In Europe and the US, card companies are often profitable due to the high level of card use on the installment method and the interest income generated. In Europe and the US, the banks themselves operate credit card operations directly, leading to higher profitability (ROA, ROE, etc.) for the banks. This is because interest rates in the retail (to consumers) sector, such as credit cards, are usually higher than those in the wholesale (to businesses and large customers) sector. However, in Japan, most credit card payments are made on a non-installment basis and interest income is not expected, so card companies seek other fees.6) Regulations under the Banking Law in Japan did not allow credit cards to be issued by the banks themselves, nor instalment (installment) payments before the 1980s. These historical regulations still have an impact today.

Fees associated with credit cards include an annual membership fee paid by the consumer (cardholder) and a settlement fee paid by the retailer. However, the former is often around ¥1,000 per year and is difficult to raise because card companies are competing for cardholders . Credit cards are often used to track purchase histories

(big data), particularly by distribution companies, which requires them to increase the number of members. In addition, increasing the number of members can also improve profitability through 'economies of scale'. These circumstances make it difficult to increase annual membership fees.Against this background, Japan has relied on payment fees paid by retailers for credit cards. Overall, the fees are extremely high compared with those in other countries. From the retailer's point of view, the high fees mean that credit card payments are not accepted and only cash is accepted.

The first difference between Japan and other countries is that in Europe and the US, the card is often issued by a bank, and the card company and the bank are one and the same. In Japan, however, card companies are often distribution companies such as department stores and supermarkets, or consumer credit companies (Orient Corporation, JACCS, etc.), and are often separate from banks. This means that money transfers between card companies are routed through the bank, which incurs additional transfer fees.

The second difference is that a network system called CAFIS is used in Japan for credit card enquiries (e.g. payment history), but CAFIS is operated by NTT Data, giving it a near-monopoly. In Europe and the US, VISA and Master make enquiries directly, but in Japan this is done via CAFIS, which means that in addition to fees to international brands such as VISA and Master, there are also fees to CAFIS. A portion of the fees earned by the card companies is paid to CAFIS.

In credit cards, when the card company on the shop side and the card company on the consumer side are the same, the transaction is called an on-ass transaction and when they are different, it is called an off-ass transaction. In an off-ass transaction, card company on the consumer side(A) advances the payment to card company on the shop side(B). In doing so, card company B pays card company A an average interchange fee of around 2.3%. Of the overall 3% fee, 2.3% is an interchange fee.

The origin of these interchange fees is said to be the banking system in the USA, the birthplace of credit cards. The US banks have long been regulated in their interstate operations. For this reason, even after the launch of credit cards in the 1960s, banks could only operate their card business in the states. In order to develop card operations throughout the US, a system for settling card payments between banks was necessary, and the system that made this possible was the interchange system. The card companies on the consumer side (banks in the US) deducted interchange fees and remitted the proceeds to VISA or Master, where they were settled nationwide.

The credit card system was introduced to Japan from the US, which also introduced interchange fees. The final problem is that a total fee of about 3% is charged to the shop. In the EU, interchange fees are capped at 0.3%, and in the US they are said to be in the 1% range.

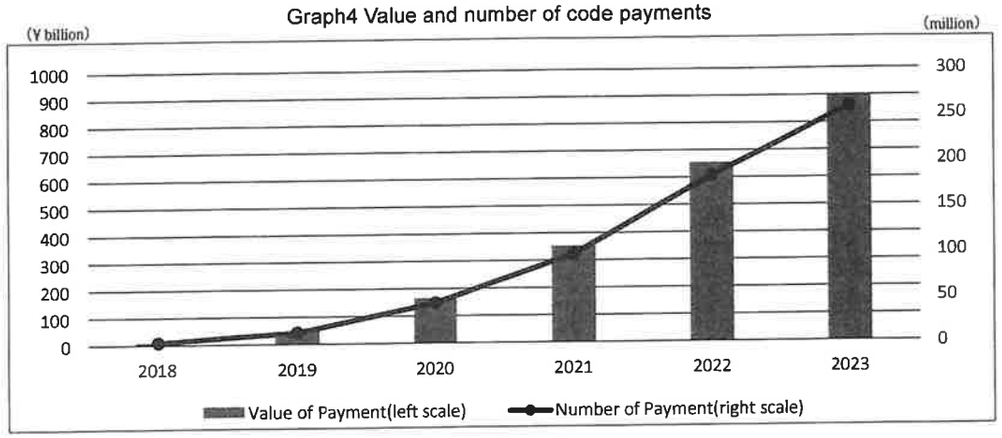
The lack of debit card penetration in Japan is partly due to the former restrictions of the Banking Law and partly due to low demand in the first place. Japanese credit cards are in effect similar to debit cards and play the role of debit cards. Japanese credit cards are debited to bank accounts about a month after use and are monthly cleared. This is a category known overseas as Delayed Debit Cards.

(2) Code Payments

Code payments are considered next. Graph4 shows the value and number of code payments in Japan. Code payments in Japan are mainly QR code payments, where payment is made by means of a QR code displayed on the screen of a smartphone. The value of code payments increased from 8,325 million in 2018 to 898,108 million in 2023(in 2023, the January-March period was quadrupled). The number of payments increased from 2,573 thousands in 2018 to 258,232 thousands in 2023.7)

Code payments, in which payments are made by

Graph4 Value and number of code payments



(source) Cashless Payment Promotion Council(2023)

scanning a QR code or barcode using a payment app on a smartphone, are rapidly gaining popularity. In addition to banks, non-bank fund transfer operators (e.g. PayPay , Rakuten Pay, etc., hereafter code payment operators) are participating in code payments.

According to Fair Trade Commission survey, the number of users of code payments provided by banks is up to several hundred thousand, while the number of users of code payments provided by non-banks is up to tens of millions.8) At the moment, non-banks have a dominant share of the market. According to the consumer survey in the same study, PayPay, Rakuten Pay, d-pay, LINE Pay, au Pay, Melpay and Origami Pay are the main non-bank code payment providers with shares of 54.8%, 16.1%, 10.6%, 9.3%, 4.1%, 3.7% and 1% respectively. These are considered to be the main non-bank code settlement operators.

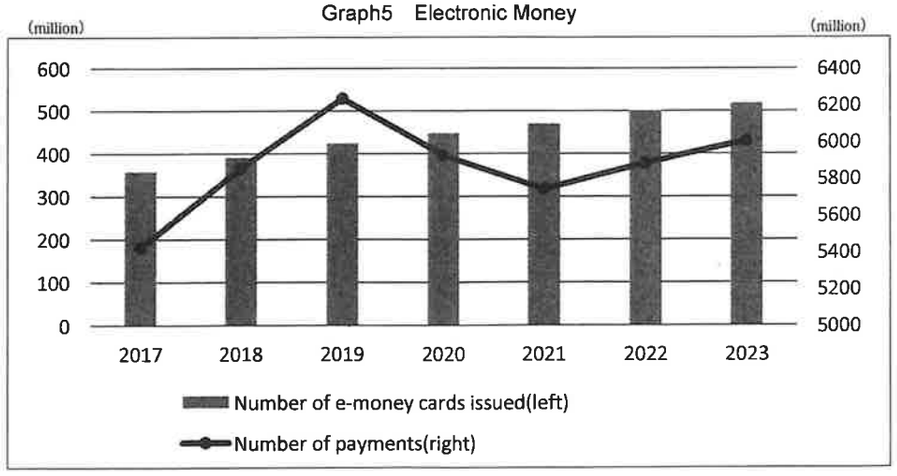
Although non-banks have a larger share of the code payment market than banks, the relationship between non-banks and banks has two aspects: competition and cooperation. Non-banks and banks compete with each other for payment services. However, banks are also willing to co-operate to a certain extent, as the availability of non-bank code payments to bank depositors improves the convenience of deposits.

Non-bank code payments require a charge, which can be in three ways: bank deposit account, credit card or cash. Charging from a bank deposit account incurs a fee. As explained below, charging from a bank deposit account is complex and is a point of rivalry between banks and non-bank systems.

Next, non-bank code payment providers transfer the sales proceeds to the merchant(shop), which also incurs bank transfer fees. Shops want their sales proceeds to be deposited as quickly as possible and as often as possible (daily instead of once a week). However, the more frequent the transfers, the higher the bank transfer fees charged by non-bank payment providers, which increases the burden on them. Here, too, non-bank payment providers and banks are competing with each other.

Let us explain the charging in non-bank code payment providers. First, in the case of credit cards, there are no initial costs for the code settlement operator, but there is a metered fee (cost per charge) in the order of approximately 1% (paid by the operator to the card company). However, for in-house cards, the fee is less than 1%. Secondly, cash recharges at ATMs are said to cost about ¥10 million as an initial cost. The payment is made by the code settlement operator to the convenience store company. In addition, there is a metered cost of less than 1% of the fee rate plus a dozen or so yen.

Graph5 Electronic Money



(source) Bank of Japan(2023)

Third, there are two main types of bank account: via a network known as a retail payment infrastructure, and through an API connection, which is a connection method for securely using other systems and data. The term API refers to the ability to refer to information such as bank account balances and make transfers from the account of a code payment operator.9)

As of 2020, most transfers (charges) from bank accounts to code payment providers are made via retail payment infrastructures, with API connections only having a 1% share. Even via the retail payment infrastructure, code payment providers pay banks an initial fee of several million yen (regional banks) to several tens of millions of yen (major banks). In addition, code payment providers pay an initial fee of around ¥1 million to the retail payment infrastructure,fees and other costs are also paid by banks to retail payment infrastructures, although API connections are rarely realised, possibly due to the large difference between banks and non-bank payment providers over connection fees.

When non-bank payment providers transfer sales proceeds to a shop, the proceeds are transferred from the code payment provider's bank account to the merchant's bank account. In many cases, it is said that the code settlement operator's account is with a megabank, while the merchant's bank account is with a regional bank or credit union, which tends to incur higher fees to other banks.

(3) E-money and Debit card

E-money in Japan is mainly plastic cards and, as Graph 5 shows, the number of cards issued has increased from 359 million in 2017 to 521 million by the end of July 2023. Japan's population is approximately 120 million, which means that each citizen has about five cards, which is quite a widespread number. As indicated in Graph 1, as of 2016 it was the second largest cashless payment after credit cards. However, there is also E-money embedded in smartphones, but at 62.16 million cards (end-July 2023), this represents only 12% of all E-money. Most plastic card E-money is pre-paid and is charged in cash at ticket vending machines at train stations. E-money in Japan was mostly introduced by railway companies, such as JR East's Suica and the private railway company Pasmo. Other E-money products with a high market share include NANACO by Seven-Eleven convenience stores and Waon by Aeon, a distribution company. In the case of NANACO, the charge is made at Seven Bank ATMs in convenience stores.

The number of payments made with E-money

fell from 6.234 billion in 2019 to 5.740 billion in 2021; by 2023, the number of payments is expected to have recovered, but growth is expected to be somewhat sluggish. This is likely to be due to a shift in the primary means of cashless payments to code payments via smartphones. Whereas in the past, purchases made at convenience stores were paid for with E-money, today they are likely to be paid for with QR codes using smartphones. In the future, the focus of E-money is likely to shift to types embedded in smartphones.

As also shown in Graph 1, the debit card payment ratio in Japan is 1% (in 2022), the smallest of the four cashless payment options. In other words, debit cards have hardly ever been widely used in Japan. This is due to multiple factors. Firstly, there is little demand for debit cards in Japan because of the short settlement periods with credit cards, which are practically similar to debit cards. In Japan, final settlement is made by debit from the bank account approximately one month after a credit card purchase. This short period is known as monthly clearing. In other words, Japanese credit cards themselves fulfil the debit card function. Secondly, debit cards require the bank's system to be running 24 hours a day, as the debit is an immediate withdrawal from the deposit account. This increases the bank's system costs and the bank avoids increasing costs. Whereas credit cards have a credit function, debit cards do not. For this reason, debit cards are widely used in Europe and the US, and debit cards have grown more recently. However, in Japan, for the above reasons, their diffusion has been slow.

(4) Digitalisation and ATMs, passbooks and cash cards

When considering the systemisation and digitalisation of the banking industry, the ATM (Automated Teller Machine) is significant in the area of individuals, as its predecessor, the CD (Cash Dispenser), only had a withdrawal function and was introduced offline (without connection to the banking system) in 1969. ATMs increased rapidly in the 1970s as companies switched to bank transfers for salary payments (before that, cash was paid by hand). Although CDs and ATMs were originally introduced to reduce staffing and move online, the significance of ATMs is now being questioned in the context of digitalisation.

Today's ATMs can make deposits, withdrawals, credit transfers,debit transfers and balance enquiries. However, there are two types of ATMs: full-specification ATMs installed by banks and convenience store ATMs. Full-specification ATMs accept banknotes, coins, paper-passbooks and cash cards, while convenience store ATMs do not accept passbooks and coins. Some ATMs of the full-specification type also do not support the carry-over of passbooks, card loans, time deposits, etc., as these are their own functions.

The passbook functionality of full-specification ATMs is currently an important issue for banks to consider. First, this is because convenience store ATMs, where passbooks are not available, are less expensive. Many banks are reducing the number of directly operated ATMs and converting to convenience store ATMs, and as a result, the elimination or restriction of passbooks is being considered. Secondly, paper passbooks are subject to stamp duty and the production and management of the passbook itself incurs costs. For this reason, many banks have stopped issuing new passbooks and are promoting the switch to web-based passbooks. However, there is a strong preference for paper passbooks, particularly among the elderly, and this cannot be promoted rapidly.

On the other hand, at Seven Bank and other banks, it is possible to open a deposit account by downloading a smartphone app, and there are no paper passbooks, and transaction histories can be downloaded in PDF format via online banking (direct banking services). Many banks have followed suit, eliminating paper passbooks wherever possible and

encouraging a move to web passbooks. There is a charge for new paper passbooks.

ATMs are also available overseas, but the difference between Japan and overseas is that they do not support passbooks. In the first place, many overseas banks do not have passbooks themselves. For this reason, ATMs do not support passbooks and often do not support coins. Furthermore, Japanese ATMs have a function to identify the authenticity of coins and banknotes, whereas foreign ATMs usually do not.

Passbooks cannot be used with Japanese ATMs from different banks. Passbooks have magnetic data and bar codes for ATMs to read. When you open the passbook, you will see a barcode, but the appearance of the barcode also differs from bank to bank. The bar codes and magnetic data in passbooks have been created independently by each bank, and compatibility was never intended from the outset. This means that ATMs and passbooks are a major problem when banks merge. Mergers require 'one-sidedness' to one of the banks' ATMs and passbooks, which also incurs costs. This is seen as a hidden factor in the lack of progress in mergers at regional and other banks.

The price per ATM (initial cost) was said to be approximately 100 million yen in the 1990s, and although it has fallen since then, it is still said to be several 10 million yen. In addition, other costs (running costs such as security) are also estimated at several 10 million yen per year. Therefore, the cost of installing one ATM is approximately 100 million yen for the first year. Some estimates put the running cost of ATMs in Japan as a whole at around 2 trillion yen, which can be attributed to the fact that Japan has always been a cash society. Although cash holding costs are generally considered to be zero, in reality costs are incurred, increasing the burden on banks and users.

Unlike passbooks, cash cards can be used at different bank ATMs. This is because cash card specifications are defined in JIS (Japanese Industrial Standards) and are standardised across banks. However, unlike overseas specifications, domestic cash cards cannot normally be used abroad. Conversely, foreign cards also often cannot be used in domestic ATMs, which led to many complaints from overseas spectators during the Olympic Games (2020). This is because the magnetic stripe reads differently on overseas cards and Japanese cards.

Credit cards have an expiry date and are regularly renewed and new cards issued. However, credit cards are at least subject to an annual fee, with the user bearing the cost. Cash cards, however, do not expire and are not renewed. If a cash card has a weakened magnetic stripe reading, it is often renewed at the user's expense.

Having looked at ATMs, passbooks, cash cards and fees, it is likely that as banks become more digital, ATMs will be reduced and passbooks will be abolished or charged for. However, as the number of bank-operated ATMs declines, convenience store ATMs are likely to replace them for the foreseeable future. As a result, significant reductions in convenience store ATMs are unlikely in the near term.

3 Digitalisation of banking in Japan

(1) Decrease in number of banks

In Europe, particularly in the Nordic countries, the number of banks is declining. In Finland, the number of banks fell from 338 in 2010 to 198 in 2022, a decline of almost two-thirds. In the Netherlands, the number has also decreased from 290 to 84, a decline of almost a third. Both countries are cashless, with the proportion of cash payments in retail areas such as P2P being less than 30% in Finland and around 20% in the Netherlands (both in value terms).10) It can be inferred that the number of banks tends to decrease as the cashless economy progresses.

Chart 1 The Number of Bank and credit institution in Japan

	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
City Bank	13	13	13	15	13	13	13	12	11	9	6	6	5	5
Regional Bank	65	64	63	63	63	63	64	64	64	64	64	63	64	62
Trust Bank	6	7	7	7	7	7	7	7	—	8	7	6	4	4
Long-Term Credit Bank	2	3	3	3	3	3	3	3	3	1	0	0	0	0
Mutual Bank(Regional Bank Ⅱ)	71	72	72	72	72	71	69	68	65	54	47	42	41	38
Bank Total	157	159	158	160	158	157	156	154	143	136	124	117	114	109
Shinkin Bank	553	538	526	502	471	461	456	451	418	371	292	271	265	254
Credit Union	357	461	529	532	489	476	448	407	370	—	172	158	153	145
Credit Institution Total	1,067	1,158	1,213	1,194	1,118	1,094	1,060	1,012	931	507	588	546	532	508

(source) Bank of Japan, etc.

Chart1 shows the changes in the number of banks in Japan: looking at the number of banks over time, starting in 1955, the number has fallen from 157 to 109 by 2020, a decline of about two-third. The number of financial institutions, including those that are not legally banks, such as Shinkin Bank and Credit Unioin , has fallen from 1,067 to 508, almost half. However, as in the Nordic countries, a comparison from 2010 to 2020 shows that the number of banks has not necessarily decreased: in 2010, there were 117 banks, but in 2020 there were 109, a decrease of eight banks. By type of business, the decrease from 42 to 38 banks in the regional banks Ⅱ is significant. However, the number of city banks, the largest national banks, only decreased from six to five. The number of regional banks remained virtually unchanged, falling only from 63 to 62. In the case of regional banks, mergers are known as umbrella mergers, where two banks hang together under a bank holding company. In this case, the number of banks remains unchanged. Therefore, in the case of Japan, cashless transactions is slowly progressing, the number of banks are slowly declining, and the number of banks is relatively unchanged.

In Japan, banks are considered joint-stock companies under the Banking Law. In addition, according to a Cabinet Order, they are required to have a capital of at least ¥ 2 billion. Against this background, many banks are listed. On the other hand, shinkin banks and credit unions are functionally almost identical to banks, but are not joint stock companies and are not legally banks. They are co-operative financial institutions. Shinkin banks also have reserve deposit accounts with the Bank of Japan and are functionally similar to banks, but their corporate lending is limited to lending to small and medium-sized enterprises.

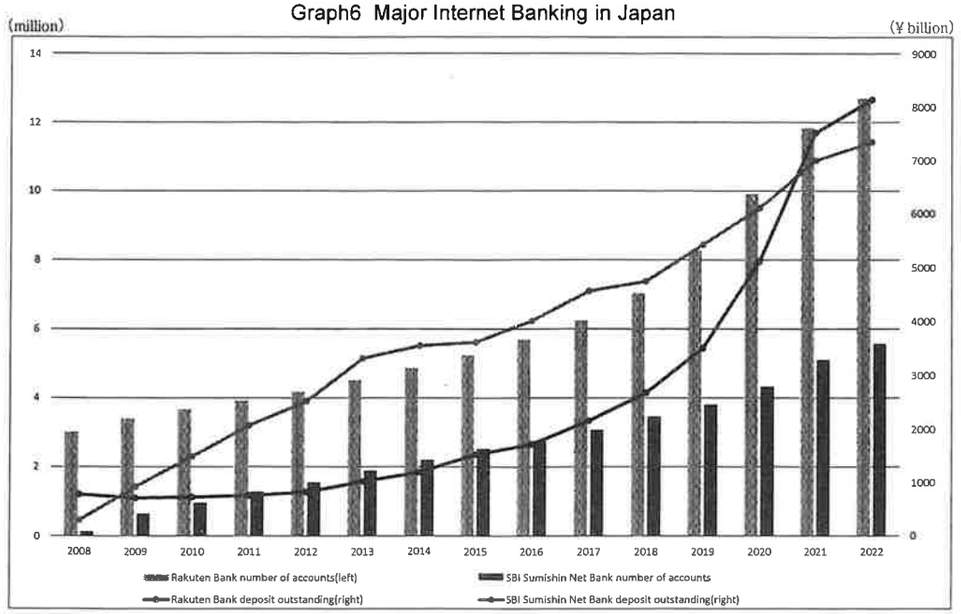
(2)Internet banking

Internet banking refers to accessing a bank's system via the internet to transfer funds such as account balance enquiries and transfers, etc. When internet banking first started in the early 2000s, it was mainly for personal computers, but has now expanded to smartphones and other mobile devices. Functions in internet banking have expanded to include the purchase of mutual funds and foreign currency deposit transactions. On the other hand, financial crimes related to internet banking are increasing in some aspects and security measures are needed.

When banks operate internet banking, there is a difference between banks setting up their own servers (large host computers) and using shared centres. In the former case, the initial investment and costs are higher, but it is easier to offer a unique menu of services. In the latter case, the initial costs are lower, but it is more difficult to offer a unique menu of services.

Traditionally, internet banking has mainly been for individuals, but recently there has been an increase in the number of companies and businesses. Payroll

Graph6 Major Internet Banking in Japan



(source) Annual Report

transfers to employees and linkages with accounting software are being developed, and the very operations of companies are changing, becoming digital transformation (DX). In addition, banks are also setting up specialised internet branches that do not offer face-to-face transactions.

Along with internet banking in existing banks, internet-specialised banks are attracting attention. Internet-specialised banks are basically banks that provide banking services over the internet, without any branches, etc. Internet-specialised banks started in October 2000. The first characteristic of internet banks is that they are often used for online purchases (e.g. Rakuten) and other online fund settlements. Second, because they have no branches and limited operations, their costs are controlled, allowing them to offer higher deposit rates and lower mortgage rates. Third, cash settlements are exceptional, and when cash settlements are required, they often use the ATMs of other banks with which they are affiliated.

Graph6 shows the number of accounts and deposits at Rakuten Bank and SBI Sumishin Net Bank as major internet banks. Rakuten Bank is wholly-owned by Rakuten Card and has grown through the Rakuten Group's e-commerce (e-commerce) channel, growing from 3.025 million accounts in 2008 to 12.682 million accounts in 2022. The balance of deposits also increased from ¥772.6 billion to ¥8134.7 billion. SBI Sumishin Net Bank is jointly owned by Sumitomo Mitsui Trust Bank and SBI Holdings. The number of accounts has grown rapidly from 124,000 in 2008 to 5,562,000 in 2022. In the same period, the balance of deposits increased from ¥291.4 billion to ¥7343 billion. Note that the level of ¥7 trillion in deposits is on a par with the top regional banks, such as Kyoto Bank.

There are several factors behind the rapid growth of internet banks, one of which is the low ATM fees. On the other hand, SBI Sumishin Net Bank mainly uses convenience store ATMs for its ATMs, but also offers 1-20 free transfers per month, depending on rank. Looking at the bank's asset management, mortgages for individuals account for around 90% of the bank's assets, especially mortgages with variable interest rates (0.44% for new borrowings as of 2022).

Chart 2 Financial service offering by big tech companies

Big tech	Main business	Banking	Credit provision	Payments	Crowd-funding	Asset management	Insurance
Google	Internet search/advertising	✓		✓			
Apple	Tech/producing hardware			✓			
Meta(Facebook)	Social media/advertising			✓			
Amazon	E-commerce/online retail		✓	✓	✓		✓
Alibaba(Ant Group)	E-commerce/online retail	✓	✓	✓	✓	✓	✓
Baidu(Du Xiaoman)	Internet search/advertising	✓	✓	✓	✓	✓	✓
JD.com(JD Digits)	E-commerce/online retail	✓	✓	✓	✓	✓	✓
Tencent	Tech/gaming and messaging	✓	✓	✓	✓	✓	✓
NTT Docomo	Mobile communications	✓	✓	✓	✓		
Rakuten	E-commerce/online retail	✓		✓		✓	✓
Mercado Libre	E-commerce/online retail		✓	✓		✓	

(source) BIS, *FSI Briefs*,No 12, March 2021

Although lending rates are low, the bank has almost no tangible assets such as buildings, and with a small number of employees (525 (Mar 2021)), expenses are kept low, resulting in a return on equity of 11% (Mar 2021).

(3) Financialisation of giant tech companies

Rapid digitisation will lead to the entry of giant tech companies into financial services, increasing competition between banks and giant tech companies, while at the same time the boundary between the two is disappearing. At the same time, the banking and securities sectors will increasingly merge and integrate.

In 1982, E.G. Corrigan (former president of the Federal Reserve Bank of Minneapolis) wrote an article "Are Banks Special?"11) He argued that banks are special in that they widely offer their own debt as a transferable means of payment (settlement account), are a source of liquidity and are a spillover channel for monetary policy. And the special nature of banks is related to credit risk and liquidity risk (associated with term conversion). Therefore, in addition to a high degree of confidence, banks needed a deposit insurance system and should be allowed access to the central bank's lender of last resort function and direct participation in the central bank payment system.

The current environment is very different from that of the early 1980s, when Corrigan discussed the peculiarities of banking. First, the provision of digital payment services by non-bank providers is becoming more widespread. Chart 2 shows the expansion into financial services by giant tech companies (as of 2021).

Although so-called GAFAM do not have a banking licence, all four Chinese giant tech companies are involved in banking services. However, this includes not only by the giant tech companies themselves, but also by the giant tech companies in partnership with external banks, etc. In Chart 2, the core banking business is deposit taking. Credit (lending) is not only provided by Chinese tech giants, but also by Amazon. Amazon launched Amazon Lending in 2011. More than 20 000 SMEs in Japan (as of 2021) have received loans from Amazon. As far as payments are concerned, they are carried out by all the tech giants. Amazon launched Amazon Pay (payments) in 2007. Customers pay online to sellers within the Amazon Marketplace. As a result, the JP Morgan-VISA-Amazon alliance was reportedly formed in 2017. Google Pay was also launched by Google in 2015. Google has partnered with 11 bank accounts, including Citi, by means of credit cards. The bank accounts can be accessed directly from Google's website and are estimated to be API-connected. Furthermore, in 2014, Apple launched mobile payments with Apple Pay. It is still linked to bank accounts with credit cards, and in 2019 it partnered with Goldman Sachs to form the Apple-Goldman Sachs-MasterCard alliance. However, Apple prohibits payments other than via Apple Pay, and has been warned by governments in relation to antitrust laws.

Second, non-banks are allowed to participate in the central bank payment system: in April 2018, the Bank of England, the UK's central bank, authorised Transfer Wise as the first non-bank payment service provider. This enabled the participation of non-banks in the central bank payment system. Similar measures have been taken in Switzerland.

Third, non-bank lending and investment is expanding. First, direct financing via the securities market is expanding in Japan. The entrenchment of bond and equity issuance financing in the securities markets has forced changes in the bank-based financial system. In addition, non-banks have been entering the market in a conspicuous manner, with the launch of credit by giant tech companies, etc., which have already been mentioned.

Fourth, the transmission (effect spillover) mechanism of monetary policy is changing: there has been a significant increase in excess reserves in central bank reserve deposits, particularly at the ECB and the Bank of Japan. This has been accompanied by a marked decline in the credit multiplier (= money stock / base money). On the other hand, non-traditional monetary policies such as interest attached to central bank current accounts and asset purchases have been initiated.

The special nature of banking has also been considered the information production function of banks. Although there is information asymmetry between banks and firms, banks are said to have produced information by screening firms when lending to them and monitoring them after lending.

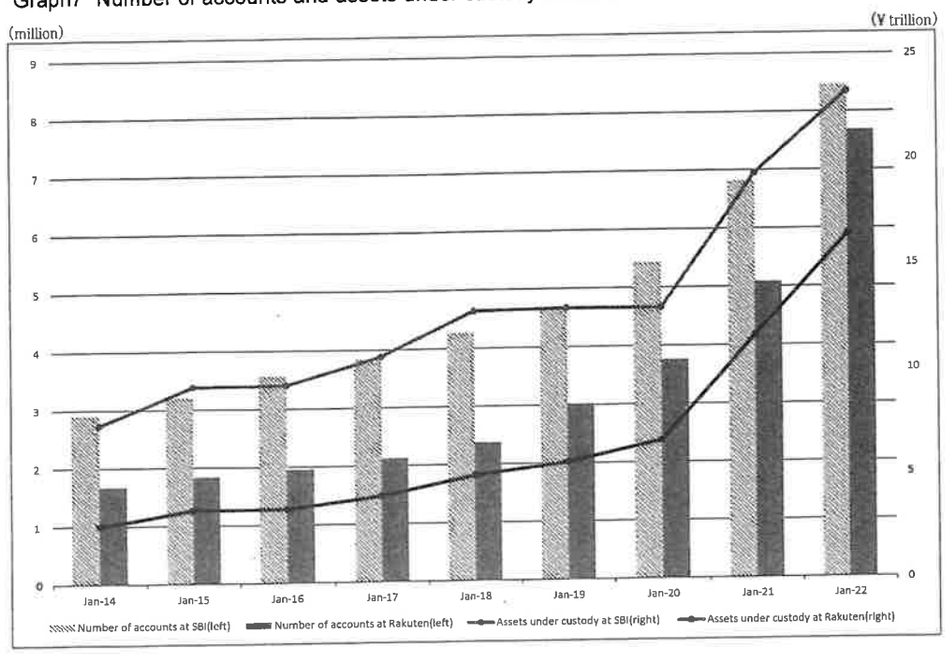
In this case, there are transaction banking and relationship banking methods, with the former focusing on hard information such as financial statements and the latter on soft information such as the relationship with the CEO. In addition to screening and monitoring loans, banks can also monitor the movements of funds in the deposit accounts of companies and individuals, and banks can be considered an information or data industry.

However, even in this information production or data industry, the speciality or advantage of banks has been shaken. In China, Ant Group's MyBank, the ratio of non-performing loans to SMEs was around 1% in 2017-2020, significantly lower than the banking average, which has fallen from 5% to 3% over the same period. This is based on a big data credit risk assessment by the Chinese tech giant Alibaba, which is better than the risk assessment by banks.

Thus, as giant tech companies increasingly become financial institutions, the particularities or advantages of the banking industry are changing, and are likely to do so further in the medium to long term. In this context, the functions of the banking industry are likely to be decomposed (unbundling) and the payment function will shift not only to giant tech companies but also to the non-banking industry at large general companies through APIs and other means. From another perspective, this is also referred to as Baas (Banking as a Service). This means that the functions traditionally carried out by banks, such as settlement, lending and deposit-taking, will be separated from the banks themselves and provided as banking services by general companies, including giant tech companies.

This trend is also known as 'embedded finance'. This is the process of general companies adding financial functions to their services. For example, Japan Airlines (JAL) has partnered with SBI Sumishin Net Bank to launch JAL NEOBANK, offering JAL miles for bank transactions. Yamada Denki has also partnered with SBI Sumishin Net Bank to launch the Yamada NEOBANK, offering mortgage loans that incorporate funds for the purchase of home appliances.

Graph7 Number of accounts and assets under custody at SBI Securities and Rakuten Securities



(4) Fusion of banking and securities businesses

If the banking function is being separated from the banking sector and shifted to the general companies, including giant tech companies, then the banking function will also shift to the securities sector. This would also mean that the banking and securities industries would merge. Already in the US, JP Morgan Chase, historically a commercial bank, operates an investment banking business, while Goldman Sachs, on the other hand, an investment bank, has a payments function as a bank holding company and conducts private payments business.

Goldman Sachs launched Marcus, a mobile bank for individuals, in 2016. Thus, the boundary between commercial and investment banking is disappearing in the US. This trend is expected to continue in Japan in the future.

Graph 7 shows the number of accounts and assets under custody at SBI Securities and Rakuten Securities: the number of accounts at SBI increased from 2.9 million at the end of March 2014 to 8.453 million at the end of 2022, while assets under custody increased from ¥7.5829 trillion to ¥23.2 trillion over the same period . At Rakuten Securities, the number of accounts increased from 1.67 million to 7.7 million over the same period, while assets under custody rose from ¥2.8 trillion to ¥16.4 trillion. Both firms have achieved rapid growth in recent years. Nomura Securities has 5.36 million accounts, with both companies having more accounts than Nomura. One of the factors behind the rapid growth of online securities firms SBI Securities and Rakuten Securities can be attributed to the presence of a bank within the group and the API connection between bank and securities accounts. The SBI Group includes SBI Sumishin Net Bank, with hybrid deposits amounting to ¥2.4 trillion (38% of the bank's deposits, end 2021). From these hybrid deposits, funds are automatically transferred to SBI Securities' accounts.

In addition,The Rakuten Group has Rakuten Money Bridge at Rakuten Bank, with a balance of ¥4.1 trillion (at the end of 2021) and 306.8 accounts, or 43% of all accounts. Rakuten Money Bridge offers a savings interest rate of 0.1%, automatic deposits and withdrawals to and from securities accounts at no charge, and Rakuten Points. Rakuten Securities accounts are API-connected to Rakuten Bank deposit accounts, which is seen as a group strength.

Companies with banking, securities and payment (API) capabilities as a group, such as SBI Group and Rakuten Group, are seen as having an advantage.

(5) Growth of smartphone banking

Smartphone banking is growing not only in Japan but also abroad. Their basic characteristic is that they are mobile-only banks with no branches. Smartphone banks are also increasing overseas, but in Japan, the focus is on Fukoka FG-affiliated *Minna no Ginko* (Bank)and Tokyo Kiraboshi FG-affiliated *UI Ginko*(Bank). In May 2021, Fukoka FG teamed up with Accenture for system development and launched its digital bank, *Minna no Ginko*, on the Google Cloud. In January 2022, Tokyo Kiramboshi FG opened a digital bank, UI Bank, by implementing SBJ Bank's (Shinhan Bank Japan) AiTHER account system. UI Bank's mobile app is running on Amazon Web Services.

Contrasting the existing Fukuoka Financial Group (FG) and Minna no Bank, the following points can be made. First, in terms of customer support, Fukoka FG is branch and internet banking-focused, whereas Minna-no Bank is mobile-only. Secondly, in terms of the account system, the former jointly developed the system with Hiroshima Bank and IBM Japan was the vendor, whereas the latter partnered with Accenture and produced the system in-house. Third, the operating infrastructure was an IBM Japan mainframe in the former, but became Google Cloud in the latter. Fourth, system development was waterfall development in the former (fixed functionality and incidental objectives. Even with advances in digital technology, the functionality is fixed and can easily become outdated). The latter is agile development (purpose-driven, functions can be added and changed, and can reflect digital technology).

UI Bank's account system was adopted from SBJ Bank, whose OHR (cost to revenue ratio) was an astonishing 35.78% (in FY2020). Normally, the OHR of Japanese regional banks is around 60%, which is 25 percentage points lower. On the other hand, SBJ Bank's ROE and ROA are higher, at more than 10% and 0.8-1% respectively. The shift of systems to the cloud is an important factor in the profitability of banks.

At the same time, smartphone securities firms are emerging in the securities sector: as of 2022/4, there are believed to be 12 smartphone securities companies. Smartphone securities do not have branches and can complete securities trading and other transactions on a smartphone, making them easier to operate than online securities. The first feature is that megabanks and major securities firms have invested and become shareholders in Pay Pay Securities, in which Softbank and Mizuho Securities are 49.94% and 49% shareholders (shareholding) respectively. SBI Neo Mobile Securities is 78.9% owned by the SBI Group and 20% by Sumitomo Mitsui Financial Group (FG). These trends suggest that the fusion of the banking and securities industries is likely to progress in the future. Secondly, many of the smartphone securities firms have mutual fund savings as their main business. Young people are accumulating small monthly sums from their salaries and purchasing mutual funds such as US stocks via smartphone securities. This is an example of the 'shift from savings to investment' that has been called for in recent years. Thirdly, robo-advisers (AI) are being used to manage wrap (discretionary investment) accounts via smartphone securities. The balance of robo-advisers under management was more than ¥300 billion at the end of 2019, and is growing rapidly to more than ¥900 billion by the end of 2021. Robo-advisor management is AI-based and fees are cheaper than applying for a wrap account at a brokerage firm. The above trends suggest that smartphone banking and smartphone securities will spread in the future, and

the fusion of the two will also progress, mediated by the evolution of smartphones and other digital technologies.

4 New currencies and banking

Currency has evolved from metal coins such as gold, to banknotes and other paper money, and then to computerised deposits. Today, crypto assets (virtual currencies) are emerging and central bank digital currencies (CBDCs) are becoming a reality. The history of currencies is entering a new phase.

(1) Crypto assets and banks

Crypto assets, as explained below, have become quite diverse. It is not possible to define them all. So-called stable coins are also included in crypto-assets, but the classification is not easy. However, stable coins are underpinned by some other asset. First, let's look at the current market size.

According to the October 2021 edition of the Global Financial Stability Report published by the International Monetary Fund (IMF), the total market value of crypto assets worldwide surged to $2,618.5 billion on 12 May 2021, before plummeting to $1,293.0 billion on 20 July 2021,recovered again to $2,027.5 billion on 23 September of the same year. 12)This rapid change in market capitalisation is due to the high volatility of the price. As of September 2021, Bitcoin was worth $829.4 billion (40.9% of the total), Ethereum (17.7%), while stable coins is only $118.6 billion (5.8% of the total). Nearly 60% of crypto assets are highly volatile, such as bitcoin. Crypto assets are dominated by highly volatile products such as Bitcoin, with stable coin accounting for around 5-6%. However, the market capitalisation of stable coin has surged more than sixfold in one year.

As of 2021, there are estimated to be around 10 000 different crypto assets in the world. Of these, there are believed to be around 70 stable coin types, with a much larger number of non-stable coin crypto assets, which are highly volatile in price. In addition, the crypto-assets and stable coins named here have a high market share and represent a small fraction of the total number of crypto-assets.

Next, a breakdown of stable coins shows that Tether is worth $69 billion(57.4% of the total), USD coins $30 billion (25.3%) and Binance $13 billion (11%), and $6.3 billion (5.3%) for Dai, with Tether and USD coins accounting for 80% of the total.

Crypto assets can be divided into two main categories: conventional those without backing assets (e.g. Bitcoin) and stable coins. However, there are also several types of stable coin. Stable coins can be divided into two main types: collateralised and unsecured. The collateralised type can be further divided into legal tender-backed and crypto-asset-backed. In the legal tender-backed type, assets equivalent to the amount of stable coin issued are held as collateral(deposits, short-term government bonds, etc.). Tether and USD coins, which are currently the main types, are both legal tender-backed. The next type is crypto asset-backed, where crypto assets worth more than the amount of stabled coin issuance (typically 150% or more) are held as collateral. Dai is crypto-asset-backed.

On the other hand, in the unsecured type, the supply of crypto-assets is adjusted by an algorithm (computerised calculation process).The unsecured crypto currencies, also known as stabled coins, have no collateral and are prone to supply instability.

In reality, it is similar to Bitcoin. TerraUSD (third largest stable coin with a total value of approximately $117.5 billion as of April 2022), which was the leading unsecured stable coin until April 2022, collapsed in May of that year.

TerraUSD was pegged at a price of$1, which was dependent on arbitrage with other crypto assets (Luna), and when the Luna collapsed, Terra USD also collapsed. Supervisory regulation of crypto assets and stable coins is being considered by supervisory authorities in Japan, the US and Europe, but, conversely, these have previously been practically unregulated.

The main stable coin backed assets are diverse (according to the above-mentioned IMF report). Tethers, which are collateralised by legal tender, are 34% cash and deposits, 57% short-term bonds and negotiable certificates of deposit, , and USD coins are 92% cash and deposits. On the other hand, for crypto-asset-backed Dai, 57% are in ethereum and 28% in USD coins. Thus. as can be seen, even within the same collateralised stable coin, there are considerable differences in the assets backing the crypto asset.

The Report on STABLECOINS, published in the United States in November 2021 ,points out, ① what assets should be held in relation to the assets backing stable coins, as well as uniform standards for the disclosure of such assets, is not clear. ② There are no checks to ensure that the underlying assets are adequately protected. ③ The number of days required for redemption into legal tender also differs, ranging from immediate redemption to one week later. However, more noteworthy is the suggestion that, with proper regulation and supervision, stable coins will spread widely. In the US, the same report states that issuers of stable coin should be limited to depository institutions and that consideration should be given to introducing regulations on intermediaries at the federal (national) level; in the EU, the European Commission published the Draft Crypto Asset Market Regulation in September 2020, which states that issuers of stable coins must be approved by the authorities and that credit institutions and e-money operators only.13) Following the introduction of such regulations in Europe and the US, the Funds Settlement Law was amended in Japan in June 2022 to limit issuers of stable coin to banks and fund transfer operators. In developed countries in Japan, the US and Europe, the direction is towards limiting issuers of stable coins to banks and other entities. In June 2022, the Basel Committee on Banking Supervision (whose secretariat is the Bank for International Settlements (BIS)) published its second draft on capital adequacy requirements for banks' holdings of crypto assets. 14)The committee categorised crypto assets into two groups: group 1 (e.g. stable coins), which has a low risk of price volatility, and the other group 2. For Group 1, the Commission set an additional capital charge of 2.5%, while for Group 2, the Commission made a strict judgment on the risk weighting for the capital calculation at 1,250%.

(2) Developments in private digital currencies

Stablecoin is expected to gradually move closer to a currency, with twists and turns, while being regulated. Stable Coin was first brought to global attention in 2019. It was the Libra initiative announced by Facebook (now Meta) in June. Libra concept involves a basket of currencies consisting of major legal tender currencies such as the US dollar, the euro and the Japanese yen. Libra was to be circulated as a stable coin linked to a basket of currencies such as the US dollar, the euro and the Japanese yen. If US Treasuries and Japanese government bonds are included in the assets backing Libra, Facebook Inc. would effectively become the central bank. Facebook's Libra facilitated international money transfers and helped to address financial exclusion (many people in emerging and developing countries, for example, cannot afford a bank account).

However, the Libra concept was met with a series of criticisms and concerns from national central banks and international organisations. First, there is insufficient identification and the possibility of money laundering. Secondly, there is a possibility that Facebook will utilise personal data from Libra without the consent of the person concerned. Thirdly, the head office of "Calibra", the operating entity of Libra, is located in Switzerland. Switzerland has traditionally tended to maintain a high degree of secrecy in international finance. In response to these criticisms, Facebook changed its name to Meta and Libra became Diem. However, stricter

regulations have made it more difficult for banks and others to issue stable coins. Rather, the former Facebook's Libra initiative was significant in that it facilitated the introduction of a central bank digital currency. However, the company has stated that it will strengthen the metaverse (virtual space) sector, and future developments are to be watched.

Central bank digital currencies will be dealt with in the next section, and digital currencies by private banks will be examined on in the next section. Bank deposits are already systemised on computers, and digital technology can easily make them more sophisticated. In Japan, there are several private-sector digital currency initiatives, including the Digital Currency Forum, in which some 80 major companies, including NTT and JR, as well as the three major mega-banks, are participating. The Forum is planning to issue the digital currency DCJPY. The issuing entity is a bank. The DCJPY is a digital currency that is fully linked to the yen and is designed as a settlement deposit. The DCJPY is issued by debiting a deposit account held with a commercial bank and posting the same amount of DCJPY to an account held on the user's platform. No exchange for cash, only deposits are exchanged.

DCJPY is a two-tier digital platform consisting of a common area application and an additional area application. The common area is for functions such as recording balances and transferring money to other users. The additional area, on the other hand, allows the writing of various programmes. For example, when paying for electricity, programmes such as selecting and buying clean electricity are possible. Regional banks are also expected to be able to issue these, which is expected to reduce cash costs (e.g. ATMs). Pilot issuance was conducted in April 2022.

(3) Central bank digital currency (CBDC)

With Facebook's announcement of the Libra initiative in 2019, central banks' central bank digital currencies (CBDCs) were promoted. In May 2022, the BIS published a survey of 81 central banks around the world , around 90% were researching and experimenting with CBDC. 62% were conducting demonstrations and 26% were conducting pilot experiments (involving consumers and shops). In addition, 25% of central banks indicated that they may issue CBDC within one to three years.

On the other hand, the countries that have conducted pilot experiments by 2022 include Cambodia, the Bahamas, Jamaica and China, many of which are developing countries. In contrast, central banks in Japan, the US and Europe have all taken a cautious stance, and the Swedish Central Bank has also have slowed down. This is due to concerns that, depending on the design of CBDC, it may have an impact on conventional monetary policy, etc.

As of 2022, the design of the CBDC is an important issue. First, let us review the characteristics of the traditional central bank currencies - cash and central bank current accounts. First, let us examine the characteristics of cash and central bank current accounts, which are the traditional central bank currencies. As Chart 3 shows, cash is available 24/7,anonymity and allows face-to-face payments (transfers). However, cash does not accrue interest and there is no limit to its holdings. Secondly, central bank current accounts are used for interbank settlement, have limited hours of availability, are not anonymous and cannot be used for face-to-face payments (systemic settlement). However, they are interest-attached (including negative interest) and there is no upper limit on the balance.

The first major issue in the design of CBDCs is whether they should be direct-issue (one-tier) or intermediary-issue (two-tier). In the case of direct issuance, the central bank issues directly. Traditionally, central bank notes are issued by the central bank but drawn via private banks. Direct issuance represents a significant change. In the case of indirect issuance, it would be via private banks, but there is concern that this could cause competition with traditional private bank deposits.

Chart 3 Key design features of central bank money

	Existing central bank money		CBDC		
			General purpose		Wholesale
	Cash	Reserves and settlement balances	token	accounts	only token
24/7 availability	☑	×	☑	✓	✓
Anonymity vis-a -vis centarl bank	☑	×	✓	×	✓
Peer-to-peer transfer	☑	×	✓	×	✓
Interest-bearing	×	✓	✓	✓	✓
Limits or caps	×	×	✓	✓	✓

(Source) BIS、CPMI,Central bank digital currencies, March 2018
(note) ☑ =existing or likely feature、✓ =possible feature、× =not typical or possible feature

The second point concerns the question of whether the system should be token or account-based. The token type has monetary value in the data itself. The token type is made possible by using blockchain technology (distributed ledger technology) and by jointly managing the books of account. In the account type, the balance held by each person is managed in an account, similar to a deposit account at a private bank. The centralised management by a central bank, etc., means that there is no anonymity and face-to-face payments cannot be completed.

The third point is the question of whether or not to add an offline payment facility. In the event of a disaster, it is important to be able to make payments offline, for example, if the internet is down. The question of whether to introduce card-type devices other than smartphones is also an issue. This is being considered as a measure for elderly people who cannot use their mobile phones.

Fourth, as already mentioned, there is the issue of anonymity, or in other words, the protection of personal information and privacy. As discussed below, China's digital renminbi allows the central bank to view transaction information.

In relation to the basic design described above, the impact of the introduction of CBDC has been discussed. First, there is a view that it may affect the conventional financial system and monetary policy. Related also to the first point of the basic design, indirectly issued CBDCs are, compete with private bank deposits in some respects, and that a shift from deposits to CBDCs would occur, private banks' balance sheets may shrink.

Second, to prevent the first point, a cap on CBDC holdings and transactions is being considered. In the Bahamas,individuals have holding caps such as BAH$500 for small amounts and BAH$5,000 for medium amounts.

Third, CBDCs can theoretically generate interest (see Chart3) and a sharp shift away from cash can occur. Conversely, there is also a view that they can be used as a monetary policy tool. The CBDC system can also be used as a monetary policy instrument.

CBDCs that have been experimented with in various countries have in common that they are all of the indirect issuance type and do not carry interest attached. However, they differ in terms of whether they are account or token-based and whether they have an offline function. Pilot tests of CBDCs have been conducted in China since 2020 and are characterised as (i) a retail payment instrument, with balances managed by a smartphone app wallet. Basically, it is account-based. (ii) It is an indirect issuance type, issued by the People's Bank of China and supplied through designated banks, etc. (iii) Offline payment function. Using near-field wireless communication technology, direct payment can be made even between smartphones. (iv) It is

Chart 4 From Proof of Concept to Pilot Program in Japan

April 2021-March 2022	⇒	April 2022-March 2023	⇒	Start April 2023
Proof of Concept Phase 1		Proof of Concept Phase 2		Pilot Program
Develop an experimental environment for the CBDC system and conduct experiments on the basic functions of CBDC (issuance,distribution, and redemption)		Implement additional functions of CBDC in the experimental environment developed in Phase 1 and test their feasibility		Test the technical feasibility not fully coverd by the PoCs: utilize the skills and insight of private businesses in terms of technology and operation

(source) BOJ, February 17,2023

centrally managed and uses blockchain. (v) There is no interest attached, and it is a substitute for cash. Experiments have already been conducted in Shenzhen and other major cities (as of 21 April 2022), including Shanghai, and US companies such as Starbucks and McDonald's are also participating.

The Riksbank, Sweden's central bank, announced the e-krona initiative, a CBDC, in March 2017. Initially, it was stated that a decision on whether to introduce the system would be made by March 2018, but as of August 2023, no decision had yet been made. In a report published by the bank in February 2020, the basic design of e-krona can be read as token-based, indirect issuance and settable at retail. There is a view that as Sweden goes cashless and the amount of cash issued decreases, seigniorage tends to decrease, which is why the Riksbank is cautious about introducing CBDC.

Chart 4 shows the schedule for the Bank's proof-of-concept and pilot experiments on CBDC in Japan. Bank of Japan has been conducting a demonstration project with regard to central bank digital currencies since April 2021. Of these, the proof of concept, which confirms the technical feasibility of the basic ideas regarding CBDC, was completed in March 2023; a pilot experiment is to be conducted from April. In the pilot experiment, system connections, etc. from the central system to the intermediary organisation network and end-point devices (individuals, shops, etc.) will be examined. However, no real transactions involving shops or consumers are planned. It has not yet been decided whether CBDC will be introduced in Japan.

5 Conclusion

In Japan, there is a high level of security and the possibility of counterfeit bank note is extremely low. The Japanese people trust cash, and the likelihood of their confidence in cash wavering is currently low. This trust in cash is probably one of the reasons why the shift to cashless transactions has not progressed well. Also, historically, credit cards have been regulated and slow to spread, which may be based on trust in cash. Also, the widespread use of paper bank passbooks has also been a block on various fronts.

The trust in cash in Japan is linked to lax anti-money laundering measures. One of the characteristics of cash is its anonymity, and cash circulation cannot be traced. In addition, Japan's familiarity with cash payments has led to a lack of awareness of monetary independence or sovereignty; in the EU, the rise of Google and Amazon has led to a perceived threat to monetary independence or sovereignty;, which has led to the introduction of the digital euro, the eurozone's own CBDC.

However, the digitization of banking is also progressing in Japan. In addition to banks as a whole using Internet banking, specialized Internet banks

such as Rakuten Bank and SBI Sumishin Net Bank are growing. Rakuten Group and SBI Group also have securities firms within their groups, and at the same time, the banking and securities businesses are being integrated. On the other hand, the financial operations of giant tech companies such as Google and Amazon will be a focus for the future.

Crypto assets include stable coins. Crypto assets are currently chaotic and are unlikely to become a settlement currency in the foreseeable future. Also, central bank digital currencies by Bank of Japan are likely to be slower than ECB. On the other hand, a private bank digital currency will likely be launched in the next 1-2 years.

Footnote

1) ECB(2017),ECB(2020a)
2) METI(2022)
3) Japanese Bankers Association(2022)
4) Jakub Gorka (2016)
5) Japan Fair Trade Commission(2019)
6) Japan Consumer Credit Association(2023)
7) Cashless Payment Promotion Council(2023)
8) Japan Fair Trade Commission(2019)
9) Japan Fair Trade Commission(2019)
10) ECB(2020a)
11) E. Gerald Corrigan(1982)
12) IMF(2021)
13) European Commission(2020)
14) Basel Committee on Banking Supervision(2022)

Reference

Jakub Gorka (2016), *Transforming Payment Systems in Europe*, palgrave

ECB(2011), *Interchange fees in card payment*

ECB (2017), *The use of cash by households in the euro area*

ECB (2018), *Payment statistics*

ECB (2020a), *Study on the payment attitudes of consumers in the euro area (SPACE).*

ECB (2020b), *Report on a digital euro*

ECB(2021), *Eurosystem launches digital euro project*

ECB (2022a), *Consumer payment preferences in the euro area*

ECB(2022b), *Costs of retail payments - an overview of recent national studies in Europe*.

ECB (2022c), *Digital euro- our future money*

ECB(2022d), *The Eurosystem's technical onboarding package for digital euro prototyping*

ECB(2022e), *Payment statistics*

Deutsche Bundesbank (2017),Distributed ledger technologies in payments and securities settlement :potential and risks, *Monthly Report*

Deutsche Bundesbank (2018), Current regulatory developments in the field of payments and in the settlement of securities and derivatives, *Monthly Report*

Deutsche Bundesbank (2019a), Crypto tokens in payments and securities settlement, *Monthly Report*

Deutsche Bundesbank (2019b), Payment services in transition: instant payments, PSD2 and new competitors, *Monthly Report*

Bank of Finland (2018a), *Payment statistics*

Bank of Finland (2018b), Nordic banks go digital, *Bank of Finland Bulletin*.

Bank of Finland (2019), The impact of digitalisation on bank profitability, *Bank of Finland Bulletin*,

Bank of Finland (2022), *Payment statistics*

The Banker, July 2019

The Banker, July 2022.

METI(Ministry of Economy,Trade and Industry Japan)(2022), Ratio of Cashless Payment Among the Total Amount Paid by Consumer

Japanese Bankers Association(2022), The ratio of cashless paid out

Bank of Japan(2023), *Annual Report of Economic Statistics*

Japanese Bankers Association, *Financial Statements of All Banks*

Annual reports of various convenience store companies

Japan Fair Trade Commission(2019), *Survey on Credit Card Market*

Bank of Japan(2023), *Commencement of Central Bank Digital Currency Experiments: Pilot Program*

Japan Consumer Credit Association(2023), Credit Card Statistics

Cashless Payment Promotion Council(2023), *Survey of code payment usage trends*

E. Gerald Corrigan, "Are Banks Special ?", *Annual Report 1982*, Federal Reserve Banks of Minneapolis and New York

IMF(2021), *Global Financial Stability Report: COVID-19 Crypto, and Climate: Navigating Challenging Transition*

European Commission(2020), *Digital Finance Package: Commission sets out new, ambitious approach to encourage responsible innovation to benefit consumers and businesses*

Basel Committee on Banking Supervision(2022), *Consultative Document Second consultation on the prudential treatment of cryptoasset exposures*

(Note)
This paper is a restructured and revised version of my paper written in Introductory Banking Theory (Nyumon Ginkouron), Yuhikaku, 2023.

＜論 説＞

オイルマネーとドル体制のゆくえ

－中東諸国とロシアの動向、および原油取引の脱ドル化の現状と評価－

田 中 綾 一

目 次

はじめに

1973年10月に第四次中東戦争が勃発し、OPEC加盟のペルシャ湾岸6ヵ国が原油公示価格の70%引き上げを宣言してから50年を迎える。翌74年1月には公示価格がさらに2倍に引き上げられ、石油危機として世界史的に記憶される事態へと発展した[1]。

国際通貨体制を研究テーマとする筆者にとっても石油危機は重要である。石油危機は、1971年8月の金・ドル交換停止の混乱を経て12月に再建された固定相場制（スミソニアン体制）が再び動揺していた最中に発生し、結果的に、IMF体制にとどめの一撃を刺すことになった。石油価格急騰による混乱は75年頃には収束したが、国際通貨体制は1976年のIMF暫定委員会（キングストン合意）を経て、正式に金とのリンクが断ち切られた世界に移行したのである。

石油危機そのものや変動相場制への移行については多くの研究が発表されているところであり、筆者があらためて参入する余地はない。しかし、いまなお石油が主要なエネルギーであり続けていることから、オイルマネーは国際的な資金循環の中で大きな存在感を持ち、通貨体制にも大きな影響を及ぼしている。国際通貨体制の現状を理解するためにはオイルマネーの分析

1 本稿は、日本国際経済学会第82回全国大会第14分科会「企画セッション②：第1次石油危機から50年：中東、オイルマネー、エネルギー・トランジションのゆくえ」（2023年10月15日、座長：妹尾裕彦氏（千葉大学））における報告を目的として執筆された未公刊論文をもとにしたものである。セッションにおいて、討論者の西尾圭一郎氏（大阪公立大学）から有益なコメントを頂いた。また、草稿およびそのもとになったアイデアに対して、奥田宏司氏（立命館大学名誉教授）および上川孝夫氏（横浜国立大学名誉教授）から有益なコメントを頂いた。

KOMAZAWA DAIGAKU
KEIZAIGAKU RONSHU
(The Economic Review of Komazawa University)

vol.55
No.2·3·4
Feb.2024

CONTENTS

Articles

The Economic Society of Komazawa University

駒澤大学経済学論集 The Economic Review of Komazawa University 第五十五巻 第二・三・四合併号 二〇二四年二月 駒澤大学経済学会

ISSN 0389-9853

駒澤大学 経済学論集

THE ECONOMIC REVIEW
of KOMAZAWA UNIVERSITY

第55巻
第2·3·4号
2024年2月

論説

駒澤大学経済学会
The Economic Society of Komazawa University