

# Why Fintech Is Not Changing Japanese Banking

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Several years have passed since fintech first attracted attention in Japan. Although various new fintech services have emerged due to deregulation and policies to promote fintech's development and adoption, the overall composition and functioning of Japan's financial industry has not changed significantly despite fintech advances in other economies. The industry in Japan continues to be dominated by face-to-face interactions and has experienced little digitization. In Japan, sophisticated financial services were available before the widespread use of the internet, and most people have resisted conducting financial transactions using their smartphones. In addition, there has been almost no progress in digitizing accounting work in corporations. However, this stagnation in digitization on the demand side of financial services is changing for several reasons. Digitization in the government sector and the introduction of a new invoice system in 2023 will provide an opportunity for change. This time, Japan's financial services should undergo a significant digital transformation.

**Keywords:** cashless payment, digital divide, digital transformation, financial inclusion, fintech, internet banking

**JEL codes:** G20 G21 G28

## 1. Current Status of Fintech in Japan

The term “fintech” is polysemous, and its scope varies from one commentator to another. Let us sort out its characteristics. First, it is provided by fintech startups, not by traditional financial institutions. Second, they use the internet and are cheaper than traditional financial services. Third, disruptive innovation is being promoted by removing the traditional regulatory framework. Specifically, these include personal financial management tools, cashless payments, online corporate accounting services linked to financial transactions, Artificial intelligence-based asset management, and crowdfunding. In this paper, we would like to discuss the relationship between fintech and traditional finance, especially in the banking sector, rather than delve into individual fintech services. This paper will concentrate on solving the puzzle of why fintech is not changing Japanese banking.

Depending on the arguer, crypto-assets (cryptocurrencies) as represented by Bitcoin are also considered included in the definition of fintech. Investing in crypto-assets and new types of transactions using crypto-assets (DeFi: Decentralized Finance) are often perceived as a replacement for currency and

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finance. However, crypto-assets have been focused exclusively on speculative trading, and DeFi is mainly used to stimulate trading between different crypto-assets. DeFi does not replace the essential function of financial intermediary, which is to facilitate the flow of funds between economic entities having a surplus of funds to those running a deficit of funds. So far, crypto-assets have existed in a world isolated from real people's day-to-day economic activities and the settlement and funding of business transactions. In this paper, therefore, we will exclude crypto-assets from the discussion.

Several years have passed since the term “fintech” began to dominate media coverage of financial services in Japan. Over this period, financial regulators have encouraged traditional financial institutions to innovate and have supported fintech startups through legal reforms and deregulation (Financial Services Agency (FSA), 2015). In addition, new businesses that integrate finance and information technology (IT) are gradually expanding, including new smartphone-based payment apps, new types of payment services for e-commerce, and technology-based credit scoring to make loan decisions. Most Japanese banks have made their API (Application Programming Interface) references available to fintech companies, allowing banking customers to manage their household accounts via their smartphones and to connect to cloud-based accounting systems built by fintech companies. These are significant changes from the previous stance of allowing only limited connectivity outside the banking industry.

Nevertheless, if we look at the Japanese financial industry overall, it does not seem to have changed much in its use of new technologies compared to 10 years ago. The banking industry is dominated by traditional banks whose business is based on branch banking.

Although the number of individual depositors who conduct banking transactions online has increased due to the COVID-19 pandemic, bank branches and ATMs are still crowded with people. Although the securities and insurance industries are also gradually expanding the types of transactions individuals can conduct via the internet, these industries are still dominated by traditional firms whose sales activities and customer interactions are primarily face to face.

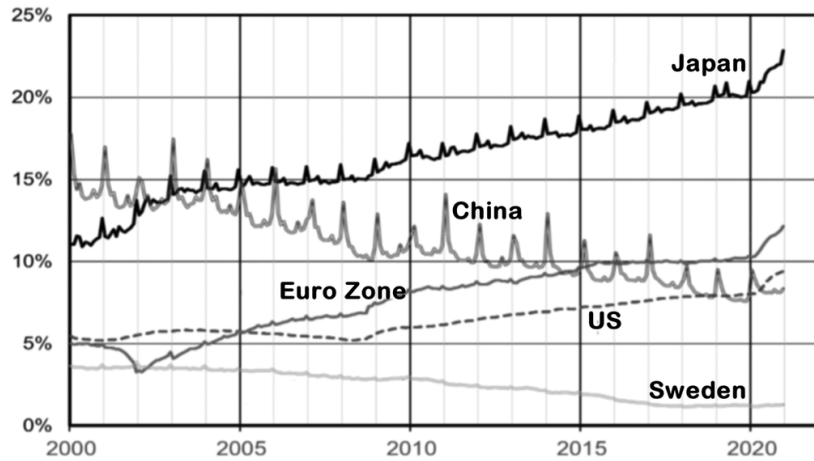
As for the means of payment among consumers, Japan is gradually going cashless. Partly due to the government's promotion measures, the shift to cashless payments by credit card, e-money, and QR code at retail stores began expanding rapidly in 2018 (Table 1).

The amount of shopping by consumers using credit cards issued by credit card companies in Japan reached 74.5 trillion yen in 2020. In Japan, debit cards are not as popular as credit cards. However, the growth of debit card usage in the past few years has been relatively high, reaching 2.3 trillion yen in 2020. This is because the leading major banks and regional banks have begun to focus on international standard debit cards that use the networks of international credit card brands instead of the traditional Japanese domestic standard debit card (J-Debit). Credit and debit cards are services provided by traditional financial institutions and are not the latest in fintech, but their growing use at least indicates

**Table 1** Cashless payments in Japan (value of transactions, trillion yen)

	2015	2016	2017	2018	2019	2020
Credit card	49.8	53.9	58.4	66.7	73.4	74.5
Debit card	0.8	0.9	1.1	1.4	1.8	2.3
E-money	4.6	5.1	5.2	5.5	5.8	6.0
QR code	0.0	0.0	0.0	0.2	1.1	4.2

Source: Japan Consumer Credit Association, Bank of Japan, Payments Japan Association.



**Figure 1** Cash in circulation in major countries (% of nominal gross domestic product).

Source: Shiba (2021).

that the cash-dominated environment is gradually changing. Contactless electronic money issued by railroad operators is widely used in retail stores in Japan. The value of such payments reached 6.0 trillion yen in 2020. In addition, QR-code payments are also growing rapidly, thanks to the fierce competition and incentives offered by IT and venture companies such as Yahoo, LINE, and Mercari.

However, cash payments will continue to be the mainstream in Japan. Japan's cash to nominal gross domestic product ratio exceeded 20% in 2021, which is outstandingly high among the major economies (Figure 1). Part of the reason for this is that people, especially the elderly, store large amounts of cash in their homes as “wardrobe deposits.” It is a global phenomenon that people use cash not as a means of payment but as a store of value (Bech *et al.*, 2018). However, as older Japanese people hold large amounts of cash regardless of the risks of theft or fire, they are likely to prefer cash strongly and continue using it for future payments.

The spread of COVID-19 has caused people to shift their purchasing activities to e-commerce, which has caused a shift from cash payments to credit card payments. In terms of in-store payments, there is a preference for cashless payments due to efforts to reduce the chances of people coming into contact

with the COVID-19 virus. Despite this, Japan's cash balance has continued to increase in 2021. Unlike China and Sweden, where cash balances have been declining, it will be difficult for Japan's cash volume to start declining in the near future, even if the cashless payment ratio increases slightly. From this perspective, it is clear that fintech is not changing Japanese finance in any significant way.

Next, let us look at the current situation in Japan from the perspective of fintech's success as an industry. In the USA, many fintech ventures such as PayPal, Square, Lending Club, and STRIPE have greatly expanded their activities, have established a significant presence among businesses and consumers, and have grown significantly in terms of market capitalization. On the other hand, the presence of fintech companies in the Japanese stock market is limited. Accenture reported that of the \$55.3 billion in global fintech investment in 2018, Japan accounted for \$0.5 billion, compared to \$25.5 billion in China and \$17.0 billion in the USA. Japan's fintech investment is only 1% of the global total, which is too small compared to the size of Japan's economy and financial activities. Japan's use of fintech is far behind that of other countries.

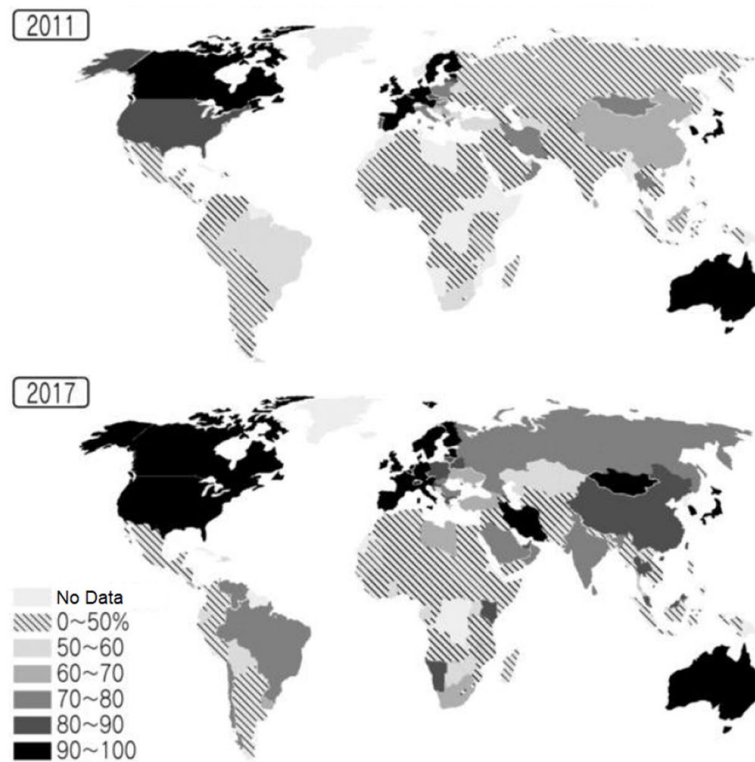
In particular, digital finance has expanded rapidly in emerging economies such as China, India, and some African countries, where many financial services have traditionally been unavailable to a large percentage of their populations. In the 6 years from 2011 to 2017, the percentage of people with payment accounts (the financial inclusion ratio) doubled in some emerging countries, rising to 80%, which is on par with developed countries, indicating that a true financial revolution is taking place (Demirgüç-Kunt *et al.*, 2017; Iwashita & Matsuda, 2019) (Figure 2). Mobile payment services also expanded rapidly worldwide in the 2010s and are now available in nearly 300 countries (Machasio, 2020).

In these emerging market countries, before the development of smartphones, many people could not access financial services; in the 2010s, smartphones spread rapidly in these countries, and the use of smartphone-based financial services exploded.

The expansion of fintech is known to transform not only payments in daily household consumption activities, but also individual investment activities. In China, the increase in online payments through the proliferation of Alipay has lowered barriers to individual investment behavior and improved risk-taking by households (Hong *et al.*, 2021). The more willing consumers are to adopt new technologies, the more willing they are to invest in risky assets in their investment activities. It is well known that Japanese households' financial assets are biased toward cash and bank deposits, and that they are inactive in investing in risk assets. The slow penetration of fintech in Japan is consistent with the overly conservative investment behavior of Japanese households.

In the USA and China, fintech lending, fintech loans, and peer-to-peer (P2P) lending are widely known, but similar businesses are rarely seen in Japan.

In the USA, fintech companies are expanding the scope of financial services by entering into lending to individuals and small and medium-sized businesses. As part of the emergency economic stimulus package in response to COVID-19, a loan program for small and medium size enterprises (SMEs) based



**Figure 2** Remarkable Progress of financial inclusion in emerging economies (the percentage of people with payment accounts).

Source: Demirguc-Kunt *et al.* (2017).

on the “Paycheck Protection Program (PPP)” has been introduced. Intuit and Square are also involved in PPP, along with banks. In particular, fintech companies are playing a more important role in areas with fewer bank branches, lower incomes, and minorities are a sizeable share of the population (Erel & Liebersohn, 2020).

In China, on the other hand, P2P lending has experienced rapid expansion and contraction over the past 5 years. P2P lending in China gained popularity around 2015 as it offered investors a high-interest investment product, and borrowing opportunities for small businesses and individuals. However, due to a lack of proper loan screening and risk management, a number of P2P lending providers went bankrupt, and since 2018, its size has shrunk rapidly (2015: \$95bn, 2017: \$359bn, 2019: \$85bn) (Agarwal & Zhang, 2020; Ziegler *et al.*, 2021).

In Japan, as many banks were striving to expand their lending, it was relatively easy for corporate entities with real estate or other collateral to obtain loans. Therefore, there was originally no room for new fintech firms to enter the SME lending market, which is likely to remain difficult in the future. As for lending to individuals, a system for small loans to individuals based on the transaction history of smartphone cashless payment applications and credit scoring infrastructure has been introduced very recently. However, its use is still limited to a small portion. In Japan, government-affiliated financial institutions mainly handle institutional loans like PPP in the USA.

## 2. Demand Side and Supply Side of Financial Services

Why has the pace of change in Japanese financial services been so slow compared to other countries? Let us go back in history a little here.

More than 50 years ago, 62 regional banks across Japan established a nationwide money transfer system involving about 4100 bank branches. This system was significant because it was the first in the world to connect banks on a nationwide scale through a computer network, enabling real-time money transfers. Subsequently, financial institutions from all over the country participated in this *Zengin* system that could send money to customer accounts in almost real time. At the beginning of the system, as there was no internet or smartphones, users had to go to a bank branch office to transfer money, and the transfer fees were relatively high. Since then, however, technological advances have made it possible for people to request money transfers to *the Zengin* system through ATMs and the internet, and the fees have come down dramatically.

The Japanese banking industry has always been proud that such an information and communication system was established half a century ago, and that it has been used safely and without serious problems ever since.

The services provided by Japanese banks were advanced for their time, and many customers used them conveniently, so customers have become accustomed to them. In emerging countries, the financial inclusion rate was low and financial services were not widely available to the public in general, so people accepted the new financial services through smartphones and the internet, and as a result, the whole system became more efficient. However, in developed countries, there is an older segment of the population that wants to continue with the financial services of the past, which is an obstacle to the spread of new financial services. This tendency is particularly strong in Japan, where the population is aging and the traditional corporate sector's accounting division is conservative.

Payment services offered by traditional Japanese banks have not been inexpensive when it comes to remittance fees. The World Bank publishes “Remittance Prices Worldwide” on a quarterly basis and compares international remittance fees.<sup>1</sup> In a comparison of G-7 countries, Japan has the highest fees: the fee rate for a \$200 transfer is a staggering 8%, compared to 5–6% in other countries. This is partly because there has not been much need for international remittances by individuals in Japan to date, and there has been little competition. With the advent of new internet-based payment services, the international fee gap is narrowing somewhat as consumers have more diverse options and lower fees. Nevertheless, Japan's high cost of international remittances is likely to continue.

For domestic remittances, however, Japanese banks' electronic fund transfer (EFT) services are efficient, both in terms of their convenience and cost. Japan's EFT system uses completely different systems for domestic and international remittances. Banks' domestic remittance services are widely used for

person-to-person transfers, and competition has improved the quality and price of the services. Internet banking provided by Japanese banks uses the existing domestic electronic funds transfer infrastructure, which is nowadays available 24 h a day, 365 days a year. Remittances are also free for up to several times per month.

In Japan and other developed countries, advanced financial services were available to individuals and businesses before smartphones and the internet. Since most people were satisfied with those services, at least to a certain extent, many did not actively consider using their smartphones to conduct financial transactions even after smartphones became fairly ubiquitous. In addition, the elderly in Japan were particularly aware that financial transactions over the internet posed a higher risk of cyberattacks and fraud compared to closed money transfer networks between financial institutions. Japanese financial service users focus on the security of their financial transactions too much, and the desire to avoid risks may have contributed to the delay in shifting to digital finance.

Security-conscious seniors are aware of the many security breaches that can occur with transactions over the internet. The interbank payment infrastructure provided by Japanese banks is a system that does not go through the internet as long as it is used from a bank branch or an ATM. For this reason, the elderly in particular tend to prefer sending money from a bank branch to sending money between individuals via internet banking, Paypay, or LINE pay. Of course, the opinion that “I don't use the internet because its security is easily breached” is not rational; the benefits of using the internet are greater than the security risks, but many elderly people do not seem to see it as that way.

Next, we take a closer look at the slow penetration of fintech in Japan from the perspective of both the supply of and demand for financial services.

There are two main types of entities that use financial services: individuals and corporations. Individuals can be divided into those with a high degree of digital literacy and those with a low digital literacy. In Japan, the primary factor that creates the so-called digital divide for individuals is widely considered to be age. While there are no notable differences in internet usage by income or region, there are clear differences by age. Younger generations are more comfortable with digital finance, while older generations prefer traditional financial transactions. In Japan, since older generations have the most financial assets and are the most active financial service users, Japanese financial institutions have been extremely reluctant to change their traditional business style. Their conservative elderly customers did not want their financial services to be digitized.

The use of internet banking remains low in Japan, but there are no statistics that show whether branch banking or online banking is more widely used. As an alternative indicator, we calculate the ratio of the number of bank accounts signed up for internet banking in each type of bank, divided by the number of bank transaction cards they have issued (Table 2). This ratio is, by definition, 100% for internet-based

**Table 2** Internet banking usage rate by type of financial institution

	Banks	Accounts signed up for internet banking (million accounts)	bank transaction cards issued (million cards)	Estimated internet banking usage rate
Challenger banks	9	19.7	19.7	100.0%
City banks	5	50.3	102.1	49.3%
Regional banks	62	12.2	106.3	11.5%
Second regional banks	35	1.8	28.9	6.1%
<i>Shinkin</i> banks	231	0.9	52.3	1.7%
Total	386	87.8	355.2	24.7%

Source: Center for Financial Industry Information Systems (2019), with calculations by the author.

**Table 3** International comparison of business ICT tool usage (the percentage of companies that responded that they use each IT tool)

	Company SNS (%)	Video conference (%)	Messenger (%)	Electronic approval (%)	Attendance management (%)	Presence confirmation (%)
Japan ( $n = 714$ )	23.5	32.6	23.7	26.2	37.1	23.1
USA ( $n = 565$ )	64.1	65.1	67.4	66.4	66.2	59.3
UK ( $n = 651$ )	53.6	58.8	55.9	51.5	52.7	49.8
Germany ( $n = 678$ )	45.7	46.0	50.6	45.7	57.4	55.6

Source: Ministry of Internal Affairs and Communications (2018).

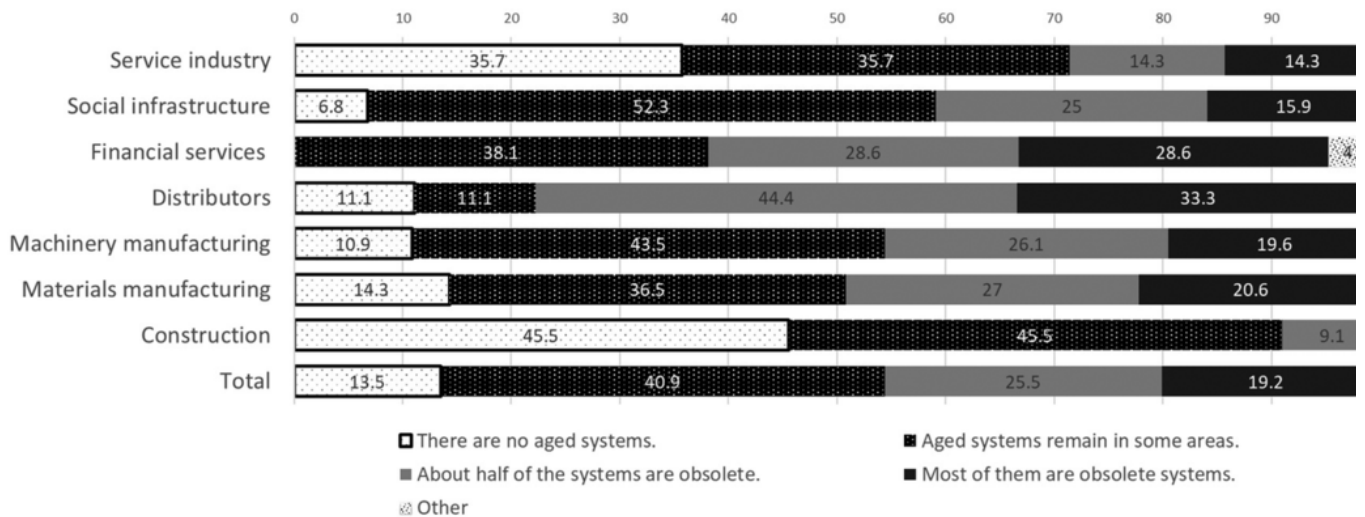
banks (that is, challenger banks) but is around 50% for city banks and only just above 10% for regional banks, indicating that branch banking dominates for small regional banks.

Although Japanese corporations vary in their adoption of digital technologies depending upon their size and industry, international comparisons indicate that they use internal information tools to a lesser degree than companies in the major Western countries (Table 3).

The industrial sector in Japan has made a reasonable investment in IT systems. However, such investments have typically been limited to internal systems, and there has been little exchange of information among external parties via the internet. This is probably because the systemization of mission-critical operations in Japanese companies has been underway since the widespread use of the internet. In addition, national and municipal governments face the same problem of legacy IT systems. As a result, Japanese banks need to maintain their traditional channels of financial transactions for the continuation of business relations with private companies as well as government agencies.



### Does your company have an aged system?



**Figure 3** Results of a survey by METI.

Source: METI (2018).

Old systems restricted to internal use are still the dominant systems in Japan. In fact, according to a survey conducted by the Ministry of Economy, Trade, and Industry (METI), most Japanese companies in most industries reported that their aging systems were hindering business innovation (Figure 3).

Of course, some Japanese ventures are developing businesses using the internet as their backbone. Even among traditional companies, various digital transformations are gradually taking place. However, new internet-based systems are mainly used for sales and marketing operations. Many companies still use their old, in-house systems for accounting, billing, payments, and other financial tasks. The exchange of invoices and receipts between external parties is usually done by mailing a document generated by the IT system.

There is a substantial advantage in using the internet for business-to-consumer transactions, making this transition fairly easy. On the other hand, business-to-business transactions are often initiated by written documents and rely on an outdated system connecting the bank and the business. However, the settlement of funds is done by EFT. Many payments to the government are also based on written documents and paid from bank branches. Handling bank deposits via the internet is anathema to many businesses.

When companies are asked why they maintain their old systems, they cite the risk of cyberattacks and the high transition costs of changing existing practices. The fund settlement services provided by Japanese banks were relatively efficient before the spread of the internet, but given the current technological environment, they are highly inefficient because some of them still require manual

processing. However, changing the fund settlement system across multiple companies will not work if only a few companies try to adopt a new approach. The result is that inefficient practices continue and remain mostly unchanged. This lag in digitization in the corporate sector is also harming the competitiveness of the Japanese industry.

The lag in digitization on the demand side of financial services makes it difficult for financial institutions in Japan to innovate. Regardless of their size, Japanese banks have been providing services via the internet for approximately 20 years. However, they have not been able to migrate to new services due to the limited demand for digitization. This situation has prevented Japanese banks from moving away from their traditional style of business. As things currently stand, Japanese banks will have to continue to maintain high-cost branch banking services, and Japan's traditional securities and insurance companies face the same structural problem.

In 2020, the FSA convened a study group with broad participation from domestic banks to deliberate on measures to promote the use of internet banking and released a report. According to the report, the reasons for the low usage of internet banking for corporate customers were pointed out as problems with the user interface (UI)/user experience (UX) of the services provided by banks, the high cost of learning how to use the services, and the fact that some banks charge a monthly basic usage fee. The report suggests that banks improve their UI/UX and lower their fees to attract customers to internet banking (FSA, 2020).

### **3. Digital Financial Services in the 2020s**

These structural issues have not been easy to address, but there have been signs of change in the current decade. There are several reasons for this.

The first is the global expansion of digital finance. The rapid spread of the internet and the resulting financial revolution have shifted financial services adoption from developed countries to emerging markets (PwC, 2021). Until about a decade ago, financial services offered by traditional financial institutions were not widely available in many emerging economies. It was in this environment that the internet and smartphones spread rapidly. People in emerging economies who had never used traditional financial services had no preference for face-to-face banking interactions or for visiting bank branches.

Although the financial revolution in emerging economies is still crude from the perspective of developed countries, it will, directly and indirectly, encourage the digitization of financial services in Japan because of its rapidly increasing scale and growing influence on other sectors through the use of personal data. The changes in emerging countries ignited the government policy of cashless payment promotion in Japan. If such changes had not occurred, there would have been a stronger argument about what is wrong with Japan continuing its traditional payment practices.

In 2017, METI took the lead in establishing the Payments Japan Association to promote cashless payments. The engine for its establishment was the development of the cashless society in China. Policymakers at the time recognized that China's cashless society was making remarkable progress and that it was contributing significantly to innovation in society as a whole through the use of marketing of purchase data. Because of this change in foreign countries, the government, which had not been interested in what kind of payment methods consumers used in stores, decided to promote cashless payments even by investing vast amounts of tax money in providing incentives for consumers. From October 2019 to June 2020, the government subsidized a project that returned 5% of the purchase price to consumers just for using cashless payments. In the future, as financial innovation progresses in other countries, the government will formulate policies to incorporate this trend in Japan proactively.

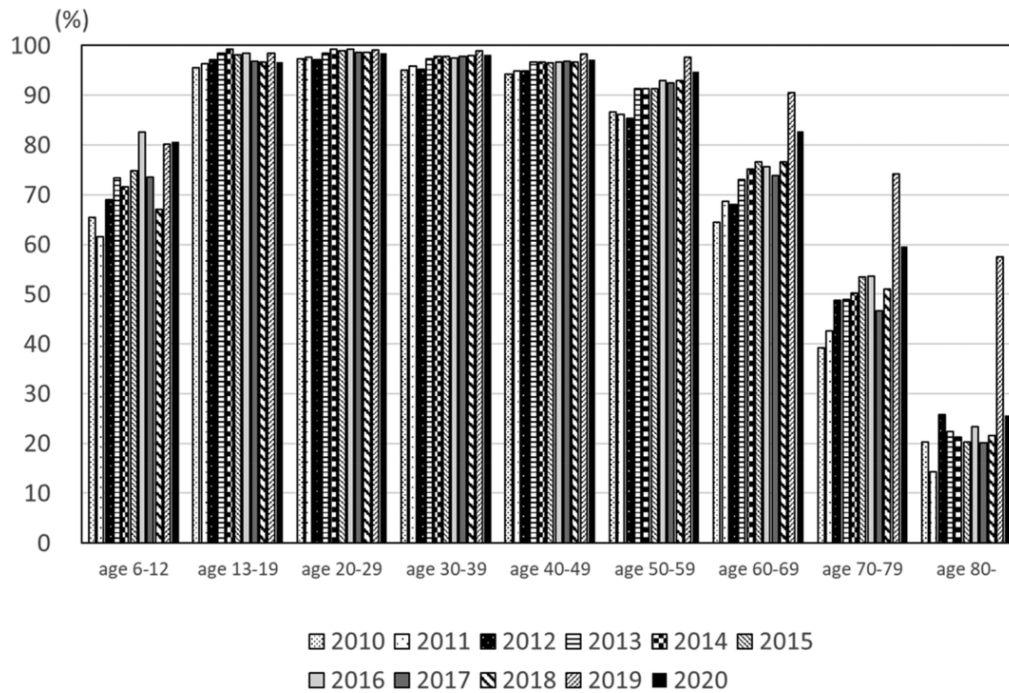
Second, the attitudes of governments are changing. Initially, the central and local governments were as resistant to change as the financial industry. Japanese government agencies, much like traditional financial institutions, were slow to digitize their old information systems. On September 1, 2021, the new Digital Agency was established to oversee Japan's digitization of government services.

The government has set a goal of making the My Number card, a digital ID for citizens, available to all citizens by March 2023. It plans to invest a budget of 100 billion yen to support the promotion of applications by residents and the development of a system to ensure smooth issuance of the cards by local governments.

As the digitization of government services progresses and a shared national digital infrastructure is established, the vague fear of the internet and the sense of caution about the invasion of privacy should decline among the Japanese people.

Third, traditional financial institutions themselves are becoming increasingly aware of the need to change. The megabanks are already changing, but little change has occurred at the regional and *shinkin* banks. Nevertheless, such small and medium-sized financial institutions are also becoming increasingly aware of the danger that they may not be able to survive if things continue as they are. Up to now, Japan's financial institutions have focused their efforts on increasing their size. Even though interest rates have fallen below zero, margins have shrunk, and the meaning of “size” for financial institutions has changed dramatically, many banks still compete for deposits. Even after changes in economic policies, the institutions and practices formed under the previous, regulated interest rate regime have remained in place. Even today, traditional financial institutions fail to charge retail depositors fees commensurate with their services.

Fourth, conservative customers themselves are undergoing a generational shift. According to the Communications Usage Trends Survey published by the Ministry of Internal Affairs and Communications (2020), the ratio of internet users by age group changes from year to year (Figure 4). This survey shows that almost all respondents in their teens up to those in their 40s use the internet.



**Figure 4** Trends in internet user rate by age group (2010–2020).

Source: Ministry of Internal Affairs and Communications (2020).

Note: Since the design of the questionnaire for the 2019 survey differed from the surveys for previous years in some areas, caution is required when making comparisons over time.

However, the percentage of users in their 50s and older gradually drops. The more recent the survey year, the smaller the age gap. The survey results include older people who have switched from using basic cell phones to smartphones, and who are now considered to be internet users without being aware of it. Tracking the rate of users in the middle-aged and older age groups for the past 10 years shows that the effects of this generational change are steadily increasing. Over the past 10 years, older age groups have shown that the effects of the generational change are steadily being felt.

Especially in the corporate sector, there has been a gradual reassessment as people in the age group that sticks to traditional financial transactions retire. However, such a natural generational shift will take too much time. To speed up the process, the government needs to promote digital transformation among companies and introduce fintech into payment operations. Subsidies to support small and medium-sized companies that use internet banking for business-to-business payments are being considered. These efforts will speed up the process more than a simple generational shift if these efforts are effective.

Fifth, financial and accounting systems used in corporate enterprises are about to undergo significant changes. The rules for paying for consumption tax in Japan will change in 2023, making it mandatory for businesses previously exempted from issuing invoices to issue invoices. Companies will be obligated

to keep all of their invoices and receipts, and most of these documents are currently issued and delivered in paper form. However, many industries and companies upgraded and digitized their accounting systems to promote electronic information exchanges with their business partners to comply with these new invoice requirements.

This situation will be an opportunity for the corporate sector in Japan to adapt to the new tools of digital finance. It is my view that, given these five reasons, the demand for digitization will increase on the demand side of financial services as digitization progresses in Japanese society.

In the individual sector, various internet-based services such as messaging tools (LINE), online shopping (Amazon, Rakuten), and customer-to-customer (C2C) marketplaces (Yahoo! Auction, Mercari) are now widely available, and many individuals make full use of them. However, it is strange that some transactions still require face-to-face interactions, written documents, and stamps in the financial industry. Technologically, security chips and biometric authentication functions built into smartphones can provide sufficiently secure financial services. The benefits of using the internet, for both individuals and society, are more significant than well-managed security risks. The key to expanding fintech in Japan will be increasing people's desire to use it.

#### **4. Toward the Era of Digital Finance**

Imagine a situation where digital finance is widely accepted in Japan, and many traditional financial services are digitized. People who consume financial services would have a different perspective in evaluating their providers than in the current system dominated by traditional financial institutions. They will value the natural link between financial services and their everyday activities in the digital world, not because there is a bank branch or ATM located near their home or office.

If Japan's financial institutions are to respond flexibly to people's changing financial needs, they must transform themselves in a way that removes ties to the past. For example, if transactions become more efficient and financial products are seamlessly converted, deposits and electronic money balances used for payments can be small. With digitization, people can develop and expand their business activities using fewer assets and liabilities for the same economic activities. The value of financial services will be measured not by the amount of money outstanding but by how efficient and inexpensive it is to provide financial products with features that “meet users” needs and provide greater profitability and customer satisfaction. The providers of such financial services may be organizations that evolve from the traditional financial institutions of today, or they may be completely new entrants. Regardless of who wins this competition, the financial services offered in Japan will differ from today.

## References

- Agarwal S. & Zhang J. (2020). FinTech, lending and payment innovation: A review. *Asia-Pacific Journal of Financial Studies*, 49 (3), 353-367.
- Bech M.L., Faruqui U., Ougaard F. & Picillo C. (2018). Payments are a-changin' but cash still rules. *BIS Quarterly Review*, March, 67-80. Accessed 16 March 2022. Available from URL: <https://ssrn.com/abstract=3139217>
- Center for Financial Industry Information Systems (2019). *Financial Information Systems in Japan (Kin'yuu Jouhou Shisutemu)*. Irifune 2-1-1, Chuo-ku, Tokyo, Japan: (in Japanese).
- Demirguc-Kunt A., Klapper L. Singer D., Ansar S. & Hess J. (2017). The Global Findex Database: Measuring financial inclusion and the fintech revolution. World Bank Group. Accessed 16 March 2022. Available from URL: <https://globalfindex.worldbank.org/>
- Erel I. & Liebersohn J. (2020). Does fintech substitute for banks? Evidence from the paycheck protection program. NBER Working Paper no. 27659, Accessed 16 March 2022. Available from URL: <https://www.nber.org/papers/w27659>
- Financial Services Agency (FSA) (Japan) (2015). FinTech Support Desk. 14 December. Accessed 16 March 2022. Available from URL: <https://www.fsa.go.jp/en/news/2018/20180717.html>
- Financial Services Agency (FSA) (Japan) (2020). Report of Study Group for Review of "Written, Stamped, Face-to-Face Procedures" in the Financial Industry, December 2020, Available from URL: [https://www.fsa.go.jp/singi/shomen\\_oin/shiryuu/20201225/01.pdf](https://www.fsa.go.jp/singi/shomen_oin/shiryuu/20201225/01.pdf)
- Hong C.Y., Lu X. & Pan J. (2021). FinTech adoption and household risk-taking. NBER Working Paper no. 28063. Accessed 16 March 2022. Available at URL: <https://www.nber.org/papers/w28063>.
- Iwashita N. & Matsuda Y. (2019). Designing a governance framework for the global financial systems - Regulations and promotion. T20/TF2 Policy Brief. Accessed 16 March 2022. Available from URL: <https://t20japan.org/wp-content/uploads/2019/03/t20-japan-tf2-7-governance-framework-global-financial-systems.pdf>
- Machasio I.N. (2020). COVID-19 and digital financial inclusion in Africa. Africa Knowledge in Time Policy Brief, World Bank.. Accessed 16 March 2022. Available from URL: <https://openknowledge.worldbank.org/handle/10986/34637>
- Ministry of Economy, Trade, and Industry (METI) (Japan) (2018). Digital Transformation Report. September (in Japanese). Accessed 16 March 2022. Available from URL: [https://www.meti.go.jp/shingikai/mono\\_info\\_service/digital\\_transformation/20180907\\_report.html](https://www.meti.go.jp/shingikai/mono_info_service/digital_transformation/20180907_report.html)
- Ministry of Internal Affairs and Communications (Japan) (2018). Telecommunications White Paper 2018 (*Jouhou Tsuushin Hakusho Heisei 30 Nenban*). (in Japanese). Accessed 16 March 2022. Available from URL: <https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h30/pdf/index.html>
- Ministry of Internal Affairs and Communications (Japan) (2020). Communications Usage Trend Survey 2020 (*Reiwa 2 Nen Tsuushin Riyuu Doukou Chousa*). Accessed 16 March 2020. An English version is available from URL: <https://www.soumu.go.jp/johotsusintokei/english/>
- PwC (2021). Payments 2025 & beyond: Navigating the payments matrix. Accessed 16 March 2022. Available from URL: <https://www.pwc.com/gx/en/industries/financial-services/publications/financial-services-in-2025/payments-in-2025.html>
- Shiba, Kazuyuki (2021) Japan's new 10,000 yen banknotes and cashless payments (in Japanese). Eyes of IIMA, <https://www.iima.or.jp/docs/column/2021/ei2021.4.pdf>
- Ziegler T, Shneur R, Wenzlaff K, Suresh K, et al. (2021). The 2nd Global Alternative Finance Market Benchmarking Report. Judge Business School, University of Cambridge. Accessed 16 March 2022. Available from URL: <https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/the-2nd-global-alternative-finance-market-benchmarking-report/>