The Latest in Fintech in Japan

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Abstract

Since the birth of the word "Fintech," the financial business has changed from a closed market limited to certain institutions to a highly competitive market in which venture companies and communications companies have taken place to the forefront by taking advantage of technology. Existing financial institutions can no longer survive without the use of technology. Fintech service began in the area close to the consumer, such as the payments and remittances of small amounts, but is now beginning to enter areas that were considered a source of earnings for financial institutions, such as asset management and financing. This paper examines various cases that show the uses of Fintech domestically while comparing them to those overseas use-cases, looking into the background behind companies including non-financial institutions, that have applied Fintech. Consequently, we have begun to see companies with business strategies that use the data gathered to understand customer trends and recommend services that are aligned with customer preferences. Non-financial institutions that have many members use Fintech to solidify their engagements with their customers, while financial companies have been drastically reforming their customer point of contact and user interface to address customers directly with new technology and business models so as to survive.

Keywords: Fintech, payment, remittance, financing, blockchain, crypto asset, token economy
JEL Classification: M

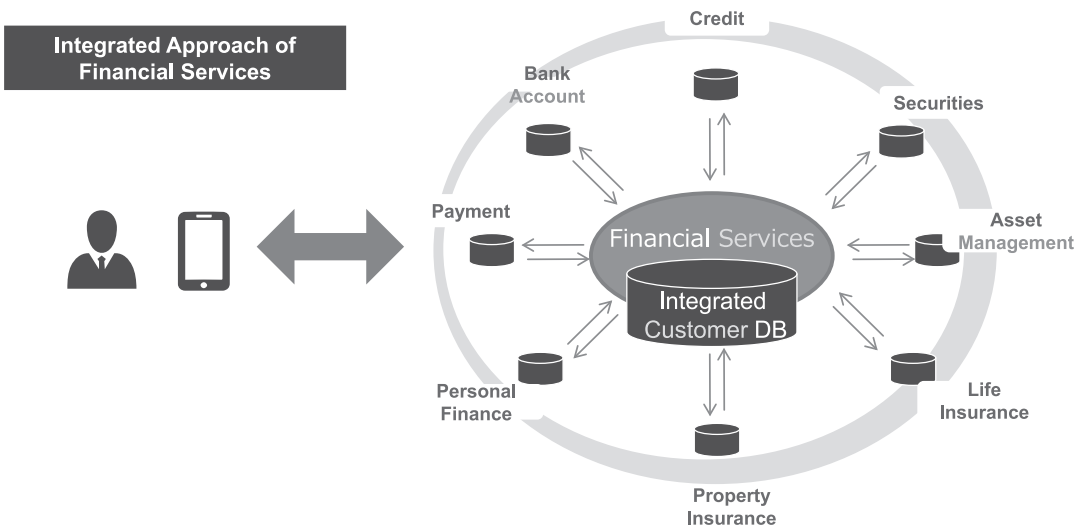
I. Introduction

The circumstances surrounding Fintech have been changing at a dizzying pace. This paper is based on the situation as of the time of writing (February 2019). Please also keep in mind that opinions in this paper are solely the personal opinions of the writer.

Fintech is "the provision of innovative financial services to customers through technology" and has the hidden potential to fundamentally change consumer lifestyle. Fintech is well known as a combination of the words Finance and Technology and possibly as a result of this, there is a tendency to simply interpret this to mean financial institutions that are introducing technology. This interpretation is not ideal when talking about Fintech. For example, before the word "Fintech" was born, there were existing financial institutions that invested large amounts into accounting systems, which under this interpretation would have been

considered as having implemented Fintech. Furthermore, in recent years, we often see RPA (robotic process automation) being introduced in the back offices of financial institutions in an effort to optimize back-office functions, but there is some resistance in calling this Fintech as it does not necessarily lead to "the provision of innovative financial services to customers through technology" or "the possibility to fundamentally change consumer lifestyle," even if the back-office function is optimized. However, no matter how brilliant the application installed on smartphones is, unless the back-office function is significantly improved, the overall lead time cannot be reduced. There are many businesses where everything can be completed by simply operating a smartphone application, creating an environment consumers have become used to. To excel within this kind of competition, companies cannot operate through manual processing as this makes it impossible to respond to the lead times expected by consumers. As a result, it is necessary to digitally transform the entire company's processes through programs such as artificial intelligence (AI) and RPA. Therefore, Fintech not only changes how the company's front-end looks, but also serves as the engine to transform the company's entire structure including the back-office structure that supports the fulfillment function and the structure for improvements based on the data obtained. Fintech is a series of strategic investments that implement a new user experience (also known as UX) while investments to optimize internal functions, such as RPA, are an automation of the process and would ideally be distinguished from Fintech. Therefore, if a company with a large structure, similar to existing financial institutions, seeks to implement UX that can truly respond to the needs of the customer, it would take three to five years at the earliest and will require several hundreds of billions in cost. On the other hand, for companies looking to enter the financial services market now, they are able to evaluate the optimal business processes from a clean slate without concern for the current structure and can also eliminate the implementation of complex systems by narrowing down to products and areas that are easy to understand in terms of point of contact with consumers. In cases where the smartphone is the central point of contact with customers, it is inherently difficult to consider and purchase complex products. Therefore, out of necessity, the product mix is narrowed down to products with affordable unit prices and those that are easy to understand. We have already seen results with bicycle insurance and leisure insurance in the insurance industry and robo-advisor services in securities. Initially, low cost products may not lead to earnings, but with full automation of business operations and processing of high volumes at low costs, the increased scale could lead to earnings. Furthermore, by owning a point of contact with the customers, gathering data to recommend financial products that are aligned with an individual's lifestyle becomes possible. To enable this, I suspect it will become important to offer a variety of financial products, such as securities and insurance. The result will be consumers who are able to obtain services that are even more convenient, possibly affecting a major change in their lifestyle.

Figure 1



II. Differences between Fintech and Technological Innovations to Date

Fintech is different from the technological innovations thus far, not only because of the replacement of existing technology, but because it can cause a disruption in the existing market and business processes, and by adopting Fintech, it leads to the self-denial of existing financial institutions. Although the financial industry has always been an attractive market with significant profit margins, it was one which could not be entered without dealing with strict financial regulations using abundant capital and large-scale systems. However, with the prevalence of smartphones in recent years and the surge in cloud computing, companies recognized that using the latest technology allowed them to provide financial services that are more user-friendly at a lower cost than the existing financial services, albeit limited to a portion of the services since providing services in all aspects of the financial industry still remains difficult. In the beginning, IT companies emerged to provide financial services familiar to consumers, such as payments and remittances between individuals, which was not thought to cause decisive damage to the earnings of existing financial institutions. Still, the unexpected new competitor that entered the financial industry's major market had a reasonable amount of impact. Moreover, once it became clear that capturing the point of contact with customers, through services such as payments, meant they were also taking important customer data, it became a big risk for financial institutions not to adopt Fintech. In other words, Fintech became a sign of destruction for the financial industry brought on by digitalization. In terms of other industries, cases where an existing power suffers a destructive blow from new competitors being born as a result of technology are too numerous to mention. The most noticeable example comes from the media industry. Even industries that were once considered stable winners such as newspaper, publishing, music, television, and adver-

tising, have been unable to respond to the changes in the environment brought on by technology and many companies are struggling to survive as they see their results deteriorate. This wave of destruction caused by technology is advancing in all industries, but we are not yet at a point where the management of existing financial institutions is being threatened. The reason being that the target customers for many of the Fintech companies are individuals rather than corporations, and the services they provide are limited to areas such as financing, asset management, and payments rather than comprehensive financial services. Instead, the macroeconomic market situation, with its prolonged low interest rate, and the distressed regional economy has a more profound impact. However, for example, given that what started as a substitute for a small-scale server used in the development of cloud computing became mission-critical in a flash, it is easy to imagine how the limited services currently provided to consumers could become a substitute for financial functions and eventually break into the main businesses of a financial institution.

Moreover, the battle of Fintech companies is taking place in the digital world, making it difficult for existing financial institutions to maintain their superiority based on their strengths, such as the number of retail storefronts and effective sales staff. On a smartphone screen, what is most important is to be selected as an application that is used on a daily basis and unless you can provide recommendations that are aligned with the customer's preferences within the limited space of the screen, the customer will not look to you, no matter how complete your product lineup. Until now, spending large amounts on advertising expenses and running mass advertising campaigns created wide awareness among consumers, but with television ratings dropping and people no longer subscribing to newspapers and magazines, just having a point of contact with customers has become difficult. Using the massive volumes of data, it will become necessary to provide prompt recommendations to a large number of customers that is in line with each person's preferences and at a low cost, as well as to work through the PDCA cycle quickly, though due to disorganized customer information, companies must first start by building a customer database.

In this way, in the Fintech domain, existing financial institutions are forced to battle in a domain that cannot maximize their strengths. There is still a long way to go to rank and battle amongst the Fintech companies.

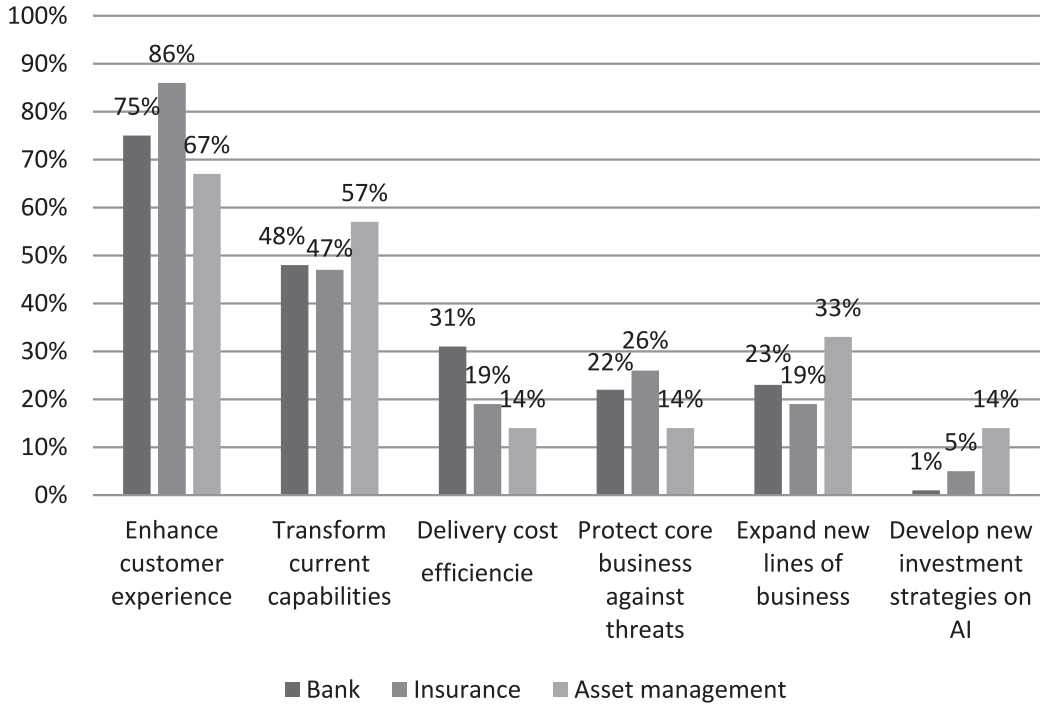
III. Global Fintech Trends

In 2017, KPMG conducted a Fintech survey of 160 major financial institutions from 36 countries around the world. Figure 2 shows the results of the survey of Fintech strategy objectives by industry, where we can see that rather than expanding profits and reducing costs, "enhancing customer experience" was by far the most important objective. We can conject that this is a sign that existing financial institutions clearly understand their weakness against Fintech venture companies. Also, Figure 3 shows investment activity in Fintech, displaying the transformation being driven by Fintech with active acquisitions and partnerships taking place. Furthermore, when combined with Figure 2, we can see that many companies have a

clear strategy to respond to the digital transformation brought on by Fintech. Responding to Fintech requires an immense budget and various policies, and in order to implement them all, a five-year roadmap to digitalization is, in general, necessary. The first year will, of course, be in the red, but companies will need this cost and time to invest in various ventures, build alliances, and settle and update the negative legacy including writing off legacy systems. The success or failure of invested technology and M&A can be realized within a few years, but at the same time, companies must respond to the need to improve their personnel's digital literacy. With regards to personnel hiring and development, a mid-term plan needs to be drawn up that defines what kind of education will take place during the three to five years and what kind of personnel will be hired externally. For such mid-term plans, the progress made in accordance with the plan and analysis of the issues and countermeasures should take place every year with defined KPIs (Key Performance Indicator) that determine the extent to which these plans have been achieved in a quantitative manner.

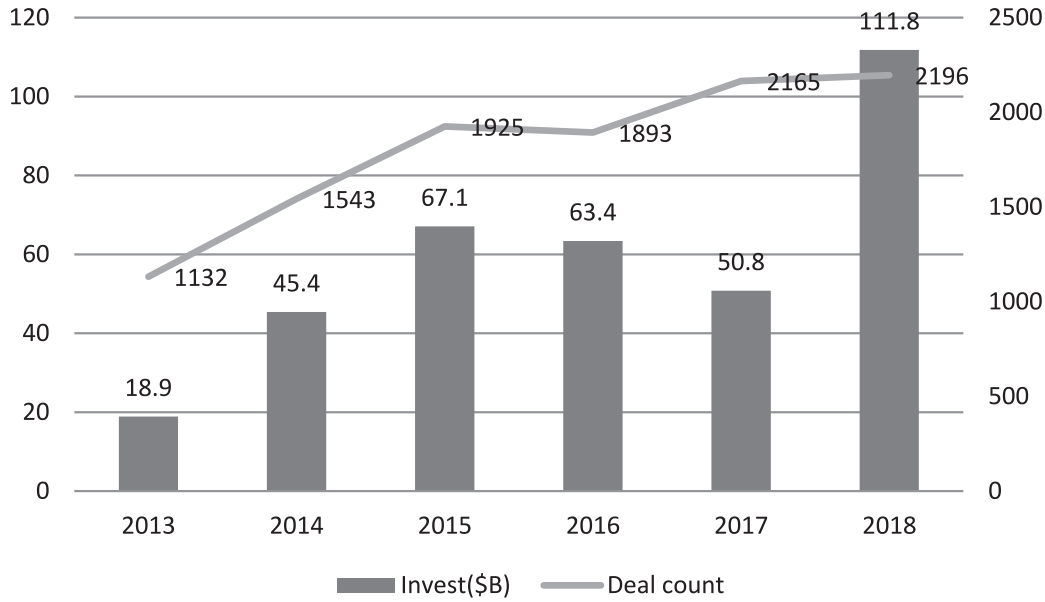
On the other hand, according to survey results regarding the technologies of most interest over the next three years as shown in Figure 4, 67% of respondents cited "analytics and big data" while 24% responded "AI" and 16% responded "blockchain". The crux of Fintech strategies is the ability to increase added value to business by analyzing the data gathered but the status of many of the companies currently is to start collecting and analyzing data. IBM's Chairman, President and CEO, Virginia (Ginni) Rometty has said, "Data will be the natural resource of the 21st century" and for certain, data will be absolutely essential to the creation of new businesses in the same way oil was. By gathering various types of data and analyzing mass volumes of data, companies will be able to improve their existing services to customers and increase sales opportunities to achieve even greater profits. Even in Japan, discussions regarding "information banks" as a line of business have begun, but the word bank here refers not to financial institution but to all companies who use information to conduct business. Some companies are looking at the data gathered from their businesses to use them in other ways. For example, it is said that electric power companies are able to analogically infer each household's lifestyle from the way it uses electricity and by applying that information to create business opportunities, such as providing services that watch over the elderly. As taxi companies have information regarding road conditions using their GPS, they are able to provide real-time information on traffic congestion. In this way, companies are beginning to provide services that previously would not have been thought of and, for financial institutions, the possibility for new businesses using data is expanding. Amongst financial institutions, the insurance industry holds the most personal information but much of it is sensitive information and, therefore, it is even more critical to consider the use and application of this information under strict control and management, such as at a bank.

Figure 2. Fintech Strategy Objectives – by Industry



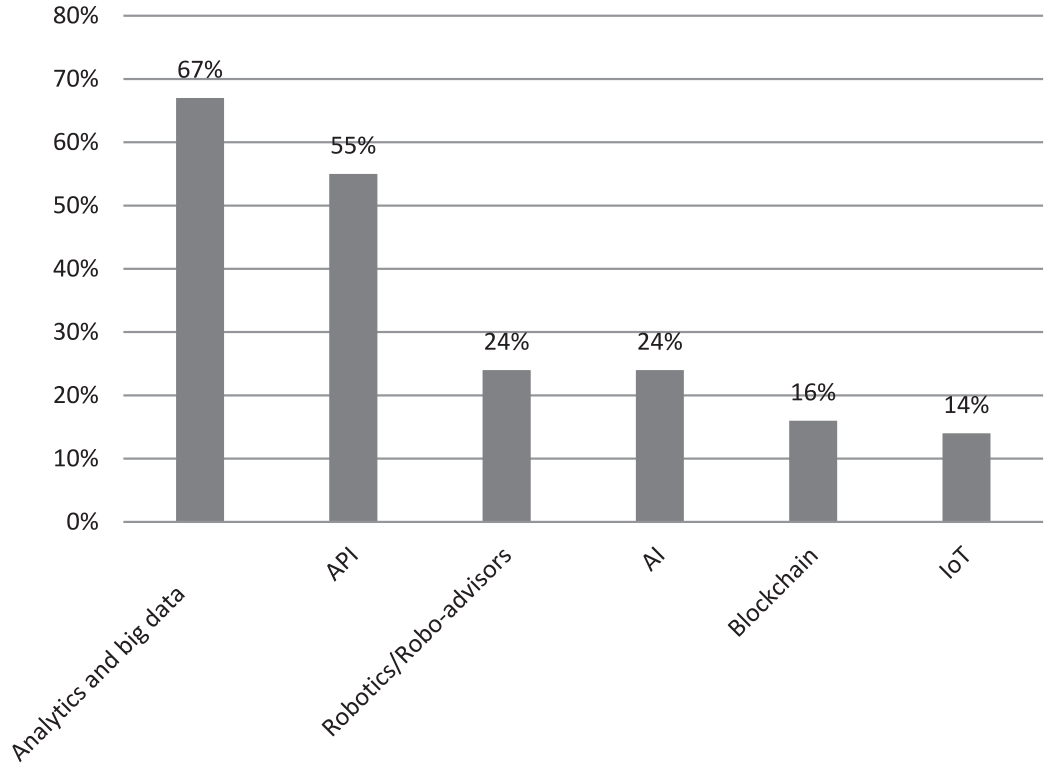
Source: Forging the future: Embracing fintech to evolve and grow, 18 October 2017

Figure 3. Total Investment Activity (VC, PE, and M&A) in Fintech



Source: The Pulse of Fintech 2018, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), January 4, 2019

Figure 4. Emerging Fintech Technologies of Most Interest, Next Three Years



Source: Forging the future: Embracing fintech to evolve and grow, 18 October 2017

IV. Fintech Trends in Japan

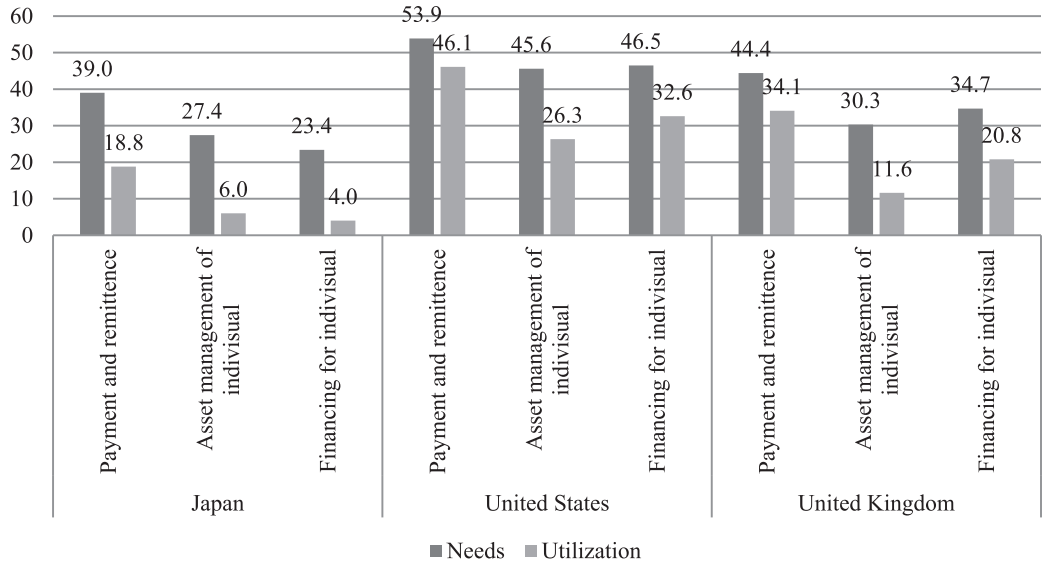
IV-1. Utilization Trends for Fintech Services

Figure 5 shows utilization intent and rate of utilization of major Fintech services in Japan, the United States, and the United Kingdom. It is clear that compared to the United States and the United Kingdom, the domestic trend for utilization of Fintech services is low. On the other hand, Figure 6 highlights the changes in sales revenue for Fintech venture companies and shows a rapid expanding trend suggesting high use of domestic Fintech services in the future.

IV-2. Cashless Trends in Japan

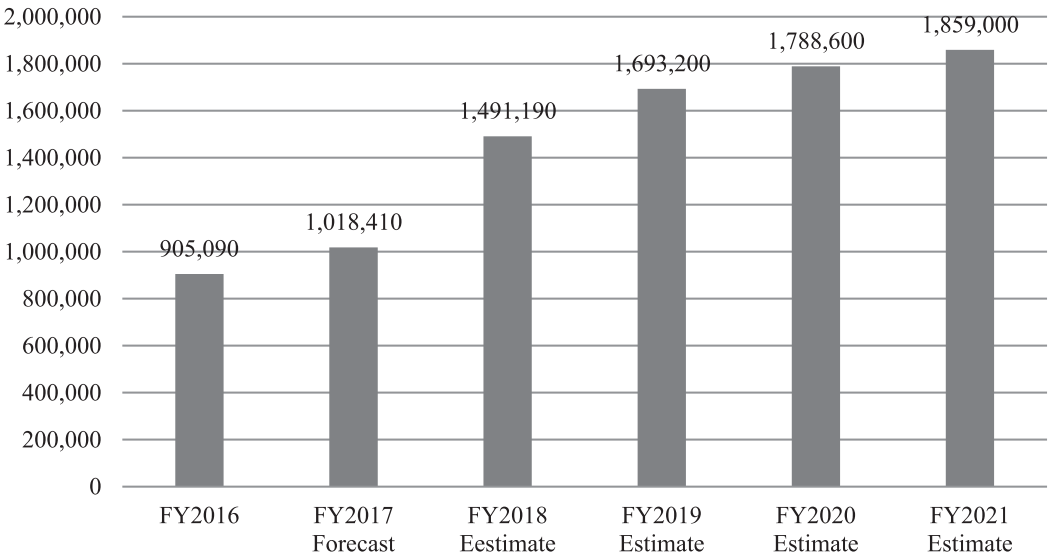
Table 1 shows cash in circulation as a percentage of nominal GDP for the major countries and it is evident that, globally, Japan's cash in circulation as a percentage of nominal GDP is extremely high. Table 2 shows the use of credit cards, debit cards and e-money, and reflects the increasing trend in the proportion of credit cards used as a method of payment

Figure 5. Utilization trends for Fintech services (in percentages)



Source: Created by the writer based on the Cabinet Office, Annual Report on the Japanese Economy and Public Finance 2018 – White Paper: Toward the Economy of Society 5.0 – https://www5.cao.go.jp/j-j/wp/wp-je18/index_pdf.html

Figure 6. Transition and forecast of domestic market size of Fintech ventures (in JPY millions)



Source: Created by the writer based on Yano Research Institute Ltd., "Survey of domestic Fintech market (released July 4, 2018)"

and the settlement amounts for credit cards. This increasing trend is also demonstrated in amounts settled with debit cards and e-money. Furthermore, we can see that the increasing trend is more evident in e-money than the other methods. Table 3 represents changes in the

Table 1. Cash in Circulation as a Percentage of Nominal GDP

(in %)

Year	Japan	Sweden	United States	India	Eurozone	Denmark	China
02	16.25	4.42	6.57		5.12	3.38	14.13
03	16.59	4.33	6.61		6.14	3.46	14.28
04	16.54	4.15	6.36		6.64	3.46	13.19
05	16.70	4.01	6.28	11.59	7.14	3.54	12.70
06	16.63	3.82	6.13	11.74	7.57	3.55	12.24
07	16.74	3.66	5.91	11.85	7.73	3.54	11.16
08	17.17	3.50	6.05	12.27	8.50	3.40	10.70
09	18.15	3.32	6.44	13.09	9.28	3.53	10.93
10	17.99	2.97	6.57	12.18	9.05	3.45	10.87
11	18.02	2.72	6.93	12.21	9.32	3.38	10.44
12	18.43	2.62	7.24	11.87	9.54	3.47	10.10
13	18.83	2.27	7.44	11.58	9.89	3.45	9.81
14	19.03	2.11	7.71	11.64	10.28	3.40	9.31
15	19.45	1.75	7.86	12.16	10.57	3.46	9.04
16	19.96	1.42	8.10	8.79	10.71	3.43	9.15

Source: Bank of Japan, The current state of cashless settlements, CPMI, IMF, statistics from each country (September 28, 2018)

Table 2. Settlement Amounts for Credit Cards, Debit Cards, E-money

(in JPY 100 million)

Fiscal Year	Credit Cards	Debit Cards	E-money	Total
10	359,800	7,021	17,334	384,155
11	377,686	7,382	20,582	405,650
12	406,863	6,387	25,941	439,191
13	417,915	6,404	33,522	457,841
14	462,663	6,995	41,996	511,655
15	498,341	7,737	47,880	553,959
16	539,265	9,170	51,671	600,107
17	583,711	11,317	52,403	647,431

Source: Bank of Japan, The current state of cashless settlements (September 28, 2018)
Credit cards: Japan Consumer Credit Association, e-money: Bank of Japan "Payment and Settlement Statistics", debit cards: Bank of Japan research

cash in circulation by denomination, with 2002 as the base year at 100. Compared to large denomination bills whose cash in circulation show an increasing trend, the small denominations are on a downward trend. Combining Tables 1, 2, and 3, Japan's move towards becoming cashless is lagging behind when looking from a global perspective, but there is progress being made in becoming cashless in terms of the small denomination currency.

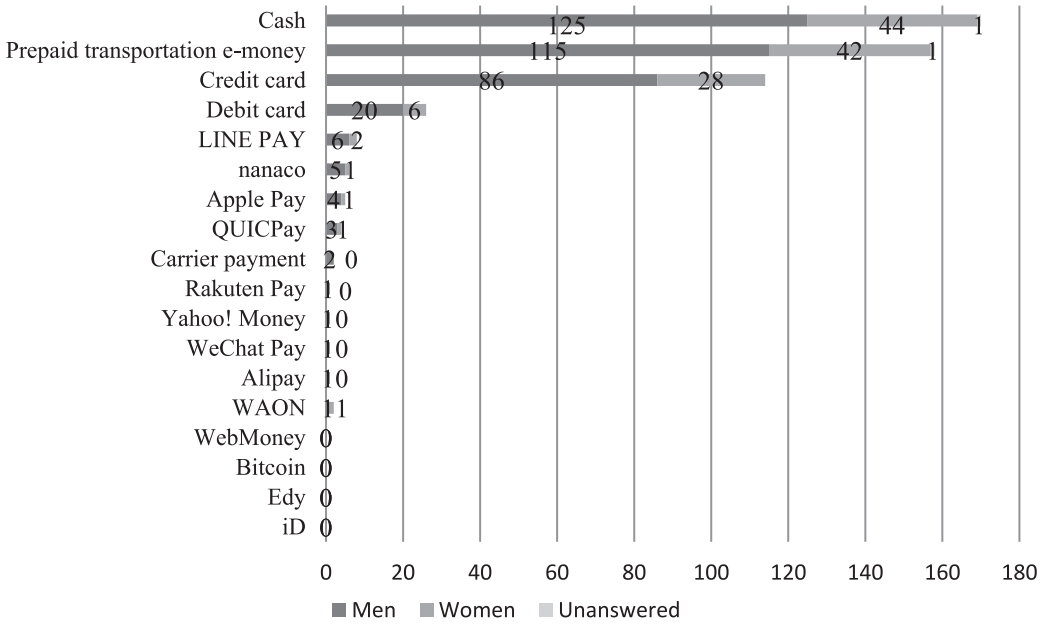
KPMG conducted a survey (in the first half of 2018) of university students in the Tokyo metropolitan area regarding payment methods most often used and the results are shown in Figure 7. Cash, prepaid transportation IC cards, and credit cards were cited as the top three methods of payments used at least once and the most commonly used method of payment. The utilization rate of payment services using smartphone applications yielded low results,

Table 3. Changes in Cash in Circulation by Denomination (base year: 2002)

Year	10,000 yen	5,000 yen	1,000 yen	10 yen	5 yen	1 yen
02	100.00	100.00	100.00	100.00	100.00	100.00
03	101.71	101.07	101.16	100.24	99.52	99.76
04	102.66	110.34	104.62	100.39	98.72	99.51
05	105.38	112.01	102.38	100.05	97.45	99.51
06	106.44	110.40	103.91	99.90	96.49	99.51
07	108.29	115.07	106.27	99.57	95.69	99.27
08	108.60	116.61	106.12	98.60	94.26	98.78
09	107.94	115.56	105.67	97.01	92.34	97.56
10	109.85	116.92	106.74	95.86	90.91	96.83
11	112.23	117.38	108.17	94.94	89.31	95.61
12	115.92	120.19	110.07	94.37	88.36	94.88
13	120.73	125.46	112.10	94.32	87.88	94.88
14	124.84	129.41	113.00	94.13	87.56	94.15
15	132.60	129.46	114.11	93.55	87.08	93.17
16	138.37	130.14	116.10	93.26	86.44	92.68
17	144.38	132.88	118.28	93.16	85.81	92.20

Source: Bank of Japan, The current state of cashless settlements, currency in circulation statistics (September 28, 2018)

Figure 7. Most commonly used method of payment (up to three multiple responses)



Source: Results of KPMG survey of students (first half of 2018)

but it should be noted that the extensive campaigns for new payment services using smartphone applications, such as PAYPAY and LINE, took place from around the end of 2018 and have, therefore, not been reflected in this survey conducted in the first half of 2018.

Options for cashless payment services are increasing and the environment is being put

into place for consumers to use them in various lifestyle situations. For example, convenience stores now accept various methods of payment. When going to work on the train, you can do some shopping using your smartphone, check your household finances using an application during lunch to see if you have spent too much, split the bill using an application at the end of your night out with friends, and settle your taxi ride home using cashless payment. On the other hand, from a business owner's standpoint, the fact this kind of data regarding everyday life is not provided by one company, but rather by a combination of multiple services means the customer's consumption trend data cannot be managed in a uniform manner, which is an issue. If the flow of money for the entire lifecycle can be obtained, it becomes possible to conduct a wide range of analyses using data related to the consumer's interests, preferences, and credit. With the younger generation moving away from television, the means to rouse interest in a product from customers will become increasingly limited. Without moving away from mass advertising and towards communicating individualized recommendations to consumers via a smartphone, etc., it will be difficult to relay information to consumers. To that end, advertising through methods and contents suited to the individual is key, and data which provides consumption behavior will be extremely important for every company. As for China's payment applications, such as Alipay and WeChatPay, money can only be added through a bank account in China and consequently, its use in Japan remains limited. However, if a domestic company does not come out to provide a comprehensive Japan-original payment method, there is the risk of a foreign company seizing control of the payment platform. Already for smartphones, application charges are being monopolized by Apple and Google's platforms, and approximately 30% of content business revenue is flowing outside the country. Moreover, Amazon's EC share continues to increase every year and the recommendations based on data further encourages consumption. I look forward to seeing a domestic company that will at least create a platform for offline payments to go against these overseas platforms.

In order to increase the share of the cashless market, there has been much talk regarding the number of participating merchants, the percentage of reward points, etc., but what is important to the popularization of payment methods is the kind of service provided at both the entry and exit points.

Commonly, QR payments that use a prepaid function are linked to credit cards and bank accounts. If the charge to the credit card is automatic, then each time the credit card is charged to add money, points will be awarded to the credit card. For debit cards that are linked to bank accounts, no handling fees are charged but points are not awarded either. The handling fees are less than when withdrawing cash from an ATM, making it a merit for the consumer, but from the bank's perspective, this is a downside as the user is an existing account holder thereby not leading to increasing the customer base, and they lose the handling fees they would have gotten from the ATM.

On the other hand, for Mercari, Inc.'s Merpay services which began in February 2019, the entry point for funds is the proceeds from items sold on Mercari. Previously, as transferring funds to the bank meant paying handling fees and waiting four to ten days, the only alternative was to reuse it within Mercari. However, now, sales proceeds from Mercari can be

used for other payments as long as it is with a merchant that accepts payment via NTT DOCOMO INC.'s contactless payment system, "iD". This meant that over 30 billion yen in sales proceeds from their 10 million users went into Mercari's wallet monthly. If 400 billion yen in payments are conducted from Mercari annually, we can expect to see more merchants accepting this kind of payment in an attempt to gain a share of those sales proceeds. With more merchants becoming exit points, demand for putting items on sale on Mercari so as to use the proceeds for daily shopping purposes, is likely to increase. The reason prepaid transportation IC cards became accepted in many places in the city was because there were increases in exit points and because it was designed to ensure that money circulated within their economic zone. Moreover, by adding the flow of money to a person to person communication application such as LINE, there is a move to form a large economic zone.

Another development under consideration is the possibility of transferring salary payments using e-money. If this new entry point for funds is secured, it could capture a major portion of the consumer payment business as if they were a main bank. If it replaces the payroll bank account, new regulations will likely become necessary, but it is not difficult to imagine that a large number of payment providers will enter the market.

Currently, only a few companies are conducting the payment business with both the entry and exit points in mind. However, sooner or later, consumers will no longer separate their various payment methods according to use and I believe aggregation will take place at an early stage or a service will be provided where the wallet will automatically select the payment method. Considering this, it is possible the next big theme in the payment business after going cashless will be the wallet service.

One of the changes in the environment towards a cashless future is that the government will be awarding points for cashless transactions consequent to the changes in the consumption tax rate in October 2019. However, what will have an even bigger impact is the reduced tax rate system that will be implemented at the same time. This is because in order to respond to the reduced tax rate, a different tax rate has to be registered for each item, but existing low-cost cash registers are unable to deal with multiple tax rates. As subsidies are available for installing POS equipment that can handle multiple tax rates, a small retail store that previously could not accept credit cards, now has the opportunity to install a machine that can connect with a credit card terminal.

In any case, as an inbound response, the government's strong intent to advance Japan's society into one that is cashless can clearly be felt.

V. Trends of Domestic Fintech Ventures

V-1. Domestic Fintech Companies' Areas of Business and Technology

For domestic Fintech companies, the area of business applicable and the major technology used is outlined in Table 4. This section will be focused on Fintech's business in the financing area and the businesses which use blockchain technology.

Table 4. Areas of Business and Technology of Domestic Fintech Venture Companies

Business Area	Technology	Business Model Summary
Financing (V-2)	Transaction lending	Utilize data that previously would not have been used for screening to provide credit
	Score lending	
	Crowdfunding	Raising funds via the internet by raising awareness of projects that require funds
	Social lending	
Payments	Blockchain (V-4)	Businesses related to crypto assets
		Formulation of an ecosystem using tokens
	Electronic payments (IV-2)	Credit card payment, e-money payment, smartphone application payment, etc.
Trading	Big data / AI	Price forecasting of financial products
Accounting support	Big data	Automation of accounting processing by establishing rules for journalization, etc., using accounting processing patterns
Asset management for individuals	Wearable devices	Display account balance and expenditure on a wearable device
	Big data / AI	Automatically sort receipt information and credit card statement
Asset management	AI (robo-advisors)	Recommend investment behavior such as asset allocation and savings

V-2. Financing

In addition to borrowing from existing financial institutions, customers now have other new methods of obtaining financing. As they are an alternative to existing methods, they are called alternative lending. Alternative lending is different from traditional forms of financing in their screening and lending methodology. Usually when financial institutions consider financing to a customer (company), it determines the amount to finance and the interest rate based on an evaluation of the credit worthiness of the customer (company) based on factors including the attributes of the customer (company), such as industry type and the number of years since establishment, and various financial indicators, as well as the asset value of their real estate holdings, etc., as collateral. When providing financing to a customer (individual), the individual's attributes such as the customer's (individual's) place of employment and years of employment, their creditworthiness based on their income such as salary, and the collateral value of their house are evaluated and reviewed. By using a different data set than the data used for traditional evaluations, alternative lending seeks to provide the possibility of financing with terms that are more favorable than traditional financial institutions in areas such as screening preparation burden, screening period, and interest rate, etc.

Depending on whether the source of financing and the person seeking the loans is a company or an individual, the data used in the loan screening is different and in general, divided into the four categories below.

If the source of financing and loan applicant are both companies: transaction lending

If the source of financing and loan applicant are both individuals: crowdfunding (under a narrow definition of the word)

If the source of financing is a company and the loan applicant is an individual: score lending

If the source of financing is an individual and the loan applicant is a company: social lending

In general, the narrow definition of crowdfunding and social funding are often referred together as crowdfunding but with regards to this broad definition of crowdfunding, the market size of the domestic market in fiscal year (FY) 2017 (April 2017 to March 2018) based on the sum of money collected by supporters for new projects is estimated to be 170 billion yen, a 127.5% increase from FY2016. In FY2017, the number of new project supporters doubled compared to last year and totaled 1.37 million people in the fiscal year with 15,321 projects supported.[1]

"Transaction" refers to the transaction history of sales and payments, and screenings are primarily conducted based on data related to this transaction history. Often times, the customer (company) has not disclosed transaction history data even to financial institutions, but the company conducting the screening operates the EC site and owns the transaction history with its customer (company). Alternatively, in cases where the accounting software used by the customer (company) is linked to the system of the company conducting the screening and disclosure of transaction history is approved, screening becomes possible without the customer (company) having to prepare documents necessary for financing. Furthermore, as a source of information regarding the customer (company), a variety of information can be obtained through sources, such as SNS and the status of customer attraction on EC sites, and by utilizing AI, the accuracy of credit decisions increase. Humans almost never intervene in this type of screening process and credit decisions are made automatically, thereby enabling lower interest rates and faster decision-making than previously available.

Specifically, a customer (company) is always able to obtain notifications regarding loan terms from financial institutions via the internet based on their daily transaction history. Therefore, a customer (company) can benefit from a reduction in time and effort, and stress that often results from the traditional financing process such as "document preparation for loan screening" and "ambiguity during the period until the results of the loan screening". In addition to the existing form of financing from financial institutions, there is another previously available means of financing called "unsecured loans". A comparison of this against transaction lending (Table 5) and specific examples of transaction lending (Table 6) show that transaction lending aims to make lending to companies (customers) more convenient.

V-3. Crowdfunding

Crowdfunding is a combination of the words "crowd" and "funding" and functions by transmitting the details of your idea or project through the internet and solicits funds from a wide range of people who empathize with you. Details of the project are diverse, from vol-

[1] Source: Yano Research Institute Ltd. "Survey of crowdfunding market in Japan (2018)", released December 3, 2018

Table 5. Comparison of transaction lending and traditional methods of financing

Context	Existing Financial Institutions	Unsecured Loans	Transaction lending
Basic Data	Prepare and submit a large volume of documents	Enter personal information into a website	EC site sales, PV, MAU, sales forecast
Financing Method	Verify documents and seek supervisor's decision	System or manually	Automated decision-making by AI using algorithms and machine learning
Screening Period	Two to three weeks	Approximately half a day	Couple minutes
Credit Line	Corporate	Individual	Corporate
Interest	Low	High	Low
Advertising Method	Mass advertising or sales	Mass advertising	Advertising through corporate websites

Source: Created by writer

Table 6. Specific Examples of Transaction Lending

Date of Press Release / Company Name	Overview
December 7, 2017 Altoa, Inc.	Began an online financing service (an online trading service specializing in short-term and small-sum financing needs for small businesses). The company's credit model is not to depend on static data at one point in time, such as financial statements, but utilizes journalization data from the accounting software, which is dynamic and continuous, in order to analyze data. Moving forward, the company plans to gradually expand data for analysis to include transaction data, such as invoices. In order to provide convenience unavailable with traditional business financing, the procedures for financing are online and can be completed in three steps: account registration, financing application, contract and deposit, and at the earliest, same-day financing is possible. By eliminating the need for submission of "financial reports" and "business plans", and the stamping of the official seal on the "contract", which is generally required for loans, the amount of work required from the business owner is reduced. Furthermore, they have also eliminated the "representative guarantee" and "collateral".
August 1, 2018 SBI Sumishin Net Bank, Ltd.	Revised the details of the recommendation model transaction lending for customers of small to medium-sized companies. Provide monthly notifications of loan terms (possible loan amount and loan interest rate) based on the customer's corporate account usage. Preparation of documents such as financial statements and interviews are not required, and loan procedures can be completed entirely online, enabling same day loans the earliest. Customers are able to confirm loan terms (possible loan amount and loan interest rate) via an online site.
November 29, 2018 SMS CO., LTD.	Began a transaction lending introduction service for small to medium-sized nursing care operators using a proprietary scoring system for credit screening. The company's services include invoicing for nursing insurance service and nursing care operator management and operation support functions such as attendance, salary, labor, and accounting, which allows them to utilize nursing care management data. Based on this data, a proprietary score is calculated and our alliance partner GMO Epsilon, Inc. uses the score for their credit screening and provides financing to be executed in a minimum of five business days. Submission of financial reports, collateral or guarantors is unnecessary.

Source: Created by the writer based on each company's press releases regarding a transaction lending announcement

unteer activities to new project launches and event hosting. Domestically, there were many crowdfunding projects to raise funds for disaster reconstruction efforts after the 2011 Great East Japan earthquake. The method of soliciting funds from individuals to make something happen has been around since before the word crowdfunding existed. Solicitation from temples that gathered donations from the masses for the building and repair of temples and Buddhist statues can be considered the crowdfunding of the era before the internet.

Crowdfunding can be divided into two methodologies, "All or Nothing" or "All In". For the former, if the amount raised during the donation period reaches the target, then the project is established and receives the funding, but if the project does not materialize then the funds cannot be received, and the full amount of funds raised are returned to the supporters. The latter, "All In", refers to a project moving forward regardless of the support gathered. However, the person drafting the project must make a commitment to execute the project.

Crowdfunding can be categorized into "rewards-based", "donation-based", "investment or equity-based", and "loan-based" depending on the rights owned (Table 7). "Loan-based" crowdfunding is sometimes referred to as "social lending", which is discussed later in this paper. In Japan, the rewards-based and donation-based methods are not directly subject to the regulations of the Financial Instruments and Exchange Act, making the barriers to entry for individuals and organizations/companies low, leading to growth in terms of the number of projects and amount of funds raised. In crowdfunding, the operator of the crowdfunding platform screens the project plans. If the project passes this screening, the person who drafted the project will launch the plan, regardless of whether it is an individual, organization, or corporation, big or small. Also, traditionally, supporters were primarily institutional investors but by making the project public on the platform, it has become easy for general inves-

Table 7. Types of crowdfunding

	Outline	Merits for Supporter
Rewards-based	When the business is realized, the results of the business, which are the products and services, are returned. This is equivalent to purchasing the products or services in advance.	The possibility of obtaining new products and services is relatively higher.
Donation-based	Equivalent to a donation.	As it is a donation, tax benefits can often be received but returns are not equivalent in value.
Investment or Equity-based	This methodology uses share issuances and the mechanism of a fund. It is different from a regular share purchase in that the shares are sold and purchased in small amounts to the crowd.	Ability to benefit from increase in share price and receive dividends and distribution of the fund's operating profits. This has become a new option for the purchase of private equity.
Debt-based	Also known as social lending (discussed later)	

Source: Created by the writer

tors to become supporters as well. Furthermore, as this method of financing is internet-focused, the person who drafted the project can transmit project status updates through SNS, enabling a wider appeal for funds. In this way, the supporter and the person in charge may establish a two-way communication via SNS. In particular, with the "rewards-based" method, even diverse returns whose financial value is difficult to measure, can be possible, depending on the ideas of the person who brought up the project. Some previous examples of ideas include "participation in the project", "printing one's name on the product", and "ability to purchase in advance". On the other hand, as crowdfunding is a new method of raising funds, there are no specific laws to protect the supporters. Therefore, supporters need to sufficiently examine the possibility of not earning any returns.

An example of crowdfunding has been listed in Table 8. Domestically, this service has been available for at least seven years. What is surprising is that in an independent survey (conducted at the end of 2017) of students regarding starting a business, when asked what methods of fund raising are necessary when starting a business; crowdfunding was the top answer showing that this method of fund raising is well known amongst students as well. Additionally, entrepreneurs also believe successful crowdfunding to be the first step to business success and many services to support entrepreneurs have been introduced. Furthermore, there have been cases where regional banks have aggressively promoted crowdfunding to entrepreneurs because by crowdfunding for new businesses for which the bank itself is unable to provide financing, they are able to measure what the level of needs are in the

Table 8. Specific Example of Crowdfunding

Date of Press Release / Company Name	Overview
June 2, 2011 CAMPFIRE, Inc.	Soliciting the necessary funds to "implement projects" that are creative such as music, books/comics, art, film, products through the internet beginning with amounts as small as 10,000 yen. When the person drafting the project posts the project, the outline can be entered on this company's website and the company provides support to fine tune the project details. They also offer support to create promotional videos and blogs to provide activity reports. Regardless of whether assistance is provided, comments regarding the project can be submitted and a place for communication between the supporter and the applicant is provided. A solicitation period can be set to last anywhere between one and 80 days. For "All-or-Nothing", only when the target monetary amount is reached within the solicitation period, for "All-In", regardless of whether the target amount is achieved or not, handling fees are 12% of the total support amount (excluding payment fees). If the target amount of funds is not reached within the solicitation period for "All-or-Nothing", the project cannot go forth and the amount of funds raised will be returned to the supporters in full. If the project does not materialize, handling fees are unnecessary.

Source: Created by the writer based on the company's press release announcement regarding crowd funding

market. In this way, it is possible to recognize the limits of existing financial institutions and the usefulness of Fintech.

V-4. Score Lending

Score lending is the process of assigning a score to the future prospects of a loan applicant based on multifaceted criteria and calculating the financeable amount and loan interest rate. Factors such as the number of years employed, income, type of employment, age, household ownership, etc. have been used previously for credit reviews but in addition to this, score lending gives a score based on an algorithm that uses AI and includes qualitative data whose direct relationship to financing might be unclear (for example, hobbies, family structure, SNS, alcohol consumption, travel experiences, sex, way of thinking, etc.).

Reviews conducted by traditional financial institutions are based on information that focuses on past and current cash, but score lending takes into account future circumstances and, therefore, the financeable amount could differ from what until now was received through a bank's financing structure. For example, a loan applicant's credit information may have previously been negatively flagged but if after that, it makes a comeback and is seen as having a bright future, then compared to a traditional bank's screening process, which is based on past and current information, the applicant has a higher probability of obtaining better financing terms from score lending. As traditional loan screenings reference credit information first to check whether the applicant has been negatively flagged, it becomes difficult for those who have previously been denied, to bounce back. With score lending, there is no reference to credit information at the time of scoring so despite past failures, for those that make an effort and work hard, there is a path of salvation.

Also, for loan applicants who have no previous loans or no history of credit card use, they face situations where financeable amounts could not be calculated as there was nothing on which to base their loan screening. However, with score lending, a score based on future forecasts can be calculated even if availability of the loan applicant's past data is limited. Additionally, with traditional screenings, if there was an issue with credit information, there was some flexibility with the screening through mediation, etc., but with score lending, the financeable amount is calculated automatically based on an algorithm, potentially eliminating arbitrary involvement. In other words, anyone can receive a fair screening that is based on the AI's algorithm.

Table 9 outlines specific examples of score lending. Examples of score lending domestically are few and far between but J. Score CO., LTD., a joint venture between the megabank Mizuho Bank, Ltd. and SoftBank Corp., has begun providing score lending services. The company's services differ from traditional general credit card loans and by utilizing AI, it is a brand-new financing service for individuals with interest rate levels set particularly low. The process for this service begins by responding to questions via chat which leads to a quick calculation of the score, and upon approval by the user, various data is submitted and the score is recalculated, after which the loan application is submitted. After application of

Table 9. Specific Examples of Score Lending

Date of Press Release / Company Name	Overview
September 25, 2017 J. Score CO., LTD.	J. Score CO., LTD., a Mizuho Bank and SoftBank joint venture company, began providing score lending services to become Japan's first Fintech service provider. By answering 18 questions, it utilized various data and AI to conduct a simple calculation of the score. Furthermore, by providing approximately 150 types of information including lifestyle information, interests and preferences, transaction data from linkages to Mizuho Bank, SoftBank and Yahoo, a more sophisticated score calculation was possible. Consequently, changes, such as an increase in score, were possible. Entering information was not required and was at the discretion of the user. The service was available not only to working adults but to students and foreign exchange students with regular income. The maximum contract amount was between 100,000 yen and ten million yen (in 100,000-yen increments) and the loan rate (actual annual percentage rate) was from 0.8% to 12.0%.
December 22, 2017 CrowdWorks Inc.	For users of the service, CrowdWorks Inc. provides lending by financing the unconfirmed compensation amount for work that has not yet been completed. In addition to regular credit information, the company began a scoring service using CAMPFIRE, Inc.'s evaluation-based credit model that was based on the service user's work performance data. Commonly, with CrowdWorks' transactions, the job recipient delivers the work product and once the person who placed the order inspects the delivered product, compensation is determined. Payment is usually fixed by the 15th and paid via bank transfer at the end of the month or fixed at the end of the month and transferred to the bank on the 15th of the following month, but by utilizing this service the bank transfer date can be brought forward depending on the score.

Source: Created by the writer based on company press release announcements regarding score lending

the loan, in accordance with the Money Lending Business Act, an inquiry on the credit information is conducted and an appropriate maximum loan amount is presented based on the applicant's ability to repay. Even if a high score is received, if there is a discrepancy between facts and what was entered, such as the amount borrowed from other companies, there is a possibility the final financeable amount will change.

V-5. Social Lending

Social lending is a service that matches businesses seeking to borrow money (borrower) with individuals that want to manage money to earn higher returns (lender). The operating company of the social lending platform announces the loan applicant's project on their website and gathers small amounts of money from individuals looking to manage assets. These

funds are used to finance the loan applicant. As it gathers small amounts of money, approximately 10,000 yen, from individuals, this characteristic makes it an asset management tool that is easy for small investors to participate. Specifically, if the loan applicant pays a loan rate of 10%, the social lending platform operating company earns 3% in fees and the individual investors receive a 7% yield. In addition to paying the interest rate, the loan applicant must repay the principal in full at the time of maturity. As social lending gathers funds from individuals (crowd), it is also categorized as debt-based or loan-based crowdfunding.

The merit of social lending is that in this era of zero interest rates, the average yield is at a high level, approaching 10%. At 10%, numerically, it implies that the principal doubles within 10 years. Even if the loan applicant was willing to pay a high loan rate, the background could be such that the applicant does not meet the loan screening standards set by the banks (due to past credit information being negatively flagged) or does not have the data necessary for the screenings (due to the company being recently established, etc.) and, therefore, the company is unable to obtain financing from a bank. For companies that have no financial issues both currently and potentially in the future, but do not meet the loan screening standards or have the data necessary for screenings, they will still seek financing even if they had to pay a high interest rate.

Domestically, there are many businesses that claim to provide social lending services in the areas of real estate financing, financing of capital for business operations, and financing for renewable energy. On the other hand, I would like to note the frequent occurrences in which social lending businesses have received administrative disciplinary action from the Financial Services Agency for interest payment in arrears. Given the structure of social lending, businesses are required to have a Type II Financial Instruments Business and money lending business qualifications, and if the social lending business used does not possess these qualifications, it is necessary to carefully consider this and understand why they do not have the qualifications.

V-6. Blockchain

There are already many explanations regarding blockchain and, therefore, it will not be explained in detail here. However, as Satoshi Nakamoto's thesis was the foundation for blockchain, overseas engineers seemed to have excessive expectations for Japan regarding blockchain. Furthermore, as Japan was the world's first to define cryptocurrency (eventually renamed crypto assets) within the rules of the law, there was an expectation that businesses related to crypto assets in Japan would take off and the community for domestic blockchain engineers also began to show significant activity. Beginning around 2015, multiple Japan-specific blockchains were developed, such as Soramitsu's "iroha" and Tech Bureau Corp.'s "mijin", and due to the many proof of concept tests, the country became known as an advanced blockchain country. However, much of the early stage proof of concept tests focused on whether blockchain could replace existing systems and if so, how that affected performance, security, and cost. For that reason, the positives of the blockchain argument,

such as the "inability to falsify", "high fault tolerance", and "not needing an administrator", were left behind and the resulting conclusion was that its "use case was limited". From the beginning, blockchain was not hypothesized to be used in single organizations with an abundance of administrators and system costs. Organizations that do not function under a centralized authoritarian rule such as alliances with multiple corporations, NPOs, and freelance organizations have organizational entities that are moderate and uncertain, and it is for these corporations that blockchain was created, enabling them to accomplish their proposition to reliably execute transactions. Therefore, without this organizational entity, there is no reason to proactively use blockchain. Also, as was the case with the first internet and Linux, the system itself is still immature and the non-functional requirements, such as performance and security, have not yet been sufficiently implemented. Therefore, at this current stage, it is essential for new frameworks and functions of the existing systems to compensate for this.

As you might recall, when the internet and Linux first appeared about 20 years ago, many said "the risk is too great to use something like this on the company's core system", but now it is routinely used in business. Blockchain is still only effectively used in limited use cases but how it will develop in the future, what kind of peripheral functions will be invented to improve it, and how its popularization will take place, is of great interest.

The cases that utilize blockchain in the finance field are wide-ranging, from crypto assets to payments and remittances, securities transactions, contract management, insurance, trade financing, smart grid, etc. Amongst these, crypto assets have a particularly high affinity for blockchain as bitcoin invented it. Furthermore, token economy[2], which put the crypto assets method to different use, is also said to have high affinity for blockchain. This section will focus on discussing usage cases concerning crypto assets and token economies which are compatible with blockchain.

V-6-1. Crypto assets

Characteristics of crypto assets:

The definition of "crypto assets" is defined in Article 2-5 in the Payment Services Act as the following.

1 Property value (limited to that which is recorded on an electronic device or any other object by electronic means, and excluding Japanese currency, foreign currencies, and currency-denominated assets; the same applies in the following item) which can be used in relation to unspecified persons for the purpose of paying for the purchase or leasing of goods or the receipt of services, and can also be purchased from and sold to unspecified persons acting as counterparties, and which can be transferred by means of an electronic data processing system.

2 Property value which can be mutually exchanged with what is set forth in the preced-

[2] A token economy is a value ecosystem that uses tokens and signifies an abundant economic zone born from an activation of the cycle of practical use and expansion, and exchange, etc., caused by the digitization of assets by individuals and corporations with a foundation in blockchain, that led to a recognition of a new asset value by many people and companies. (Quoted from the Token Economy Section Meeting press release.)

ing item with unspecified persons acting as counterparties, and which can be transferred by means of an electronic data processing system.

From the legal definition, the three characteristics of crypto assets can be said to be the following.

(1) Crypto assets can be used to make payment to "unspecified persons".
(2) It is digitally recorded and (depending on the owner) can be transferred.
(3) It is not the legal currency of any country and is not an asset denominated by legal currency.

Furthermore, considering the reality of crypto currency, it has the following characteristics.

(4) There is nothing tangible, such as bills and coins, and money is transferred via the internet.
(5) It can be exchanged into legal currency at crypto currency exchanges.
(6) A reliable third party is unnecessary.
(7) Data is stored on a distributed ledger.
(8) A crypto asset address, equivalent to an account at a bank, can be voluntarily created.

On the other hand, there have been many challenges with crypto assets resulting from heated speculation and inappropriate operations management.

(9) The market volatility is higher than legal currency, such as the yen and dollar.
(10) In response to the high number of transactions, remittance fees rose sharply, and remittance approvals require extra time.
(11) Incidents of crypto asset leakages originating from crypto asset exchanges occur frequently.

Comparisons of crypto assets to other settlement methods:

As a representative of crypto assets, bitcoin is used to compare against other settlement methods in Table 10. The main difference from points or e-money is that bitcoin has the merits of being able to transfer value. On the other hand, compared to legal currency and other methods of settlements, one of the downsides is the large risk in holding bitcoins.

ICO (Initial Coin Offering):

An ICO (initial coin offering: issuing tokens to raise funds) is a new method of raising funds that resulted from crypto assets and due to the nature of the tokens issued, considerations for regulations are being sought after. However, due to the fact that a variety of tokens are being issued faster than legal decision-making, there have been cases of investors suffering undue damages with ICOs.

Compared to traditional IPOs (initial public offering: raising funds by publicly listing on the stock exchange) and crowdfunding, ICOs are a new scheme to easily obtain funds and it has been growing rapidly, particularly amongst venture companies. However, as fraudulent ICOs took place one after another, regulations regarding ICOs were reinforced by the regulatory agency. As shown in Table 11, there are many arguments surrounding ICOs and in response to this, adequate preparations are now required to implement an ICO, making this scheme not as easy as it previously was. Figure 8 shows the changes in amounts raised

through ICO and it is clear there has been a fall after it peaked in the beginning of 2018.

With regards to domestic regulations regarding ICOs, discussions are taking place through the "research society regarding crypto assets exchange businesses", established at the Financial Services Agency.

STO (Security Token Offering):

Worldwide, fundraising through ICOs are stagnating due to the caution expressed by regulatory agencies of many countries regarding ICOs from an investor protection standpoint. However, recent securities exchanges and crypto asset exchanges conducting proof of concept tests with "security tokens (tokens backed by tradable assets)" have emerged. Major security exchanges that have announced initiatives regarding security tokens are provided in Table 12 while Table 13 provides the same for crypto asset exchanges. In particular, securities exchanges that until now had no direct involvement in crypto assets or ICOs have begun to take part in security tokens, which is a worthwhile change.

Table 10. Comparison of Crypto Assets and Other Settlement Methods

Items Under Consideration	Points	E-money	Bitcoin	Legal Currency
Repayment	Not possible	Not possible	Crypto asset exchange	N/A (no notion of repayment)
Transfer between individuals	Not possible	Not possible	Worldwide	Possible with gift tax
Remittance fee	N/A	N/A	Varies on transaction volume	If conducted through financial institutions, etc.
Holding risk	Depends on the financial health of the issuing company. Half the amount must be in reserves.	Depends on the financial health of the issuing company. Half the amount must be deposited.	Leaks due to cyber-attacks and loss of private key and market volatility	Volatility in the exchange rate market
Law basis	Payment Services Act	Payment Services Act	Payment Services Act	Bank of Japan Act and others
Identity verification	None	None	Required when opening an account at crypto asset exchange	Required when opening a bank account
Value fluctuation	N/A	N/A	Large volatility	Exchange rate volatility
Use	Within the company	Amongst participating merchants	Worldwide	In principal, domestically

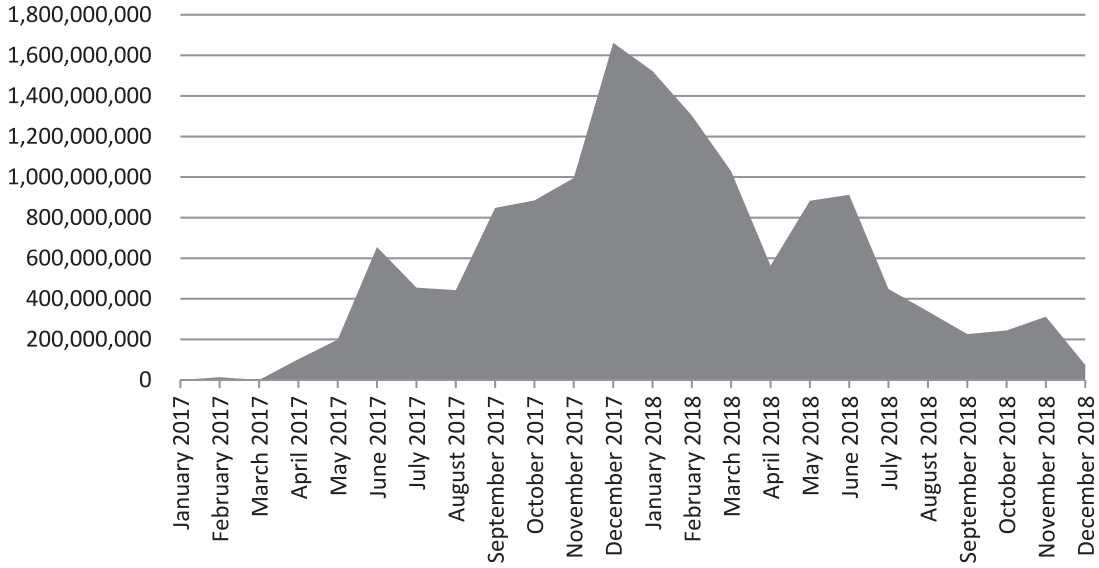
Table 11. Key Issues Surrounding ICOs

Area	Issues Under Consideration	
Accounting	Accounting process for issuer	Whether to realize profits at time of token issuance or take the method of reflecting it as a liability or as part of net assets.
		In terms of crypto assets, how to process accounts at time of acquisition, disposition, and term-end valuation.
	Accounting process for investor	What methodology to use when valuing tokens at term-end (including how to obtain fair market value if using fair market valuation).
Tax	Issuance of tokens	Handling of taxes for token issuance, such as whether to book expenses for issuing tokens as an expense in terms of taxes (liability) or whether it should be considered capital.
	Monetization of tokens	Tax handling when converting crypto asset payments into cash.
	Capital gains tax	Tax handling when distributing investment gains and at time of sale of tokens, etc.
Registration of crypto asset exchange operators	Necessity for registration, capital requirements and financial basis to enable execution of business, preparations for reasonable execution, and establishing structure, etc.	
Anti-money laundering and countering the financing of terrorism	Internal controls structure such as confirmation at time of transaction, storage of records, reporting of questionable transactions, etc.	
User protection	Provision of information to users, systems security management, segregated management of money on deposit and crypto assets, etc.	
Service summary	Clarification of scope of service and redesign of services in line with policies for the above areas.	
Schedule / roadmap	Schedule and roadmaps for disclosure of white paper, implementation of ICOs, when to begin services, etc.	

Source: Created by the writer

Traditionally, in many cases, security tokens incurred higher token issuance costs compared to other tokens due to regulation compliance requirements which were similar to securities and were, therefore, avoided for ICOs. However, with tightening regulations for ICOs, the difference in token issuance costs is beginning to shrink. Also, with scandals related to ICOs occurring frequently, there is a momentum towards obtaining tokens that can be used safely. With this background, focus turned to STOs (security token offerings: raising funds by offering the sales of security tokens) which raise funds in compliance with securities-related regulations. There are no notable activities at domestic crypto asset exchanges and security exchanges, but amongst overseas crypto asset exchanges there has been activity around searching for investment opportunities from traditional and existing financial domains using funds acquired through the crypto asset exchange business, beginning with se-

Figure 8. Changes to Funds Raised Through ICO, by Month (in dollars)



Source: Created by the writer based on icodata.io (https://icodata.io/stats/)

Table 12. Securities Exchanges that Made Announcements Regarding Security Tokens

London Stock Exchange Group, plc (LSEG)	In July 2018, LSEG announced that it would form an alliance with the UK's finance regulatory agency, Financial Conduct Authority (FCA), and emerging companies specializing in blockchain technology to move forward on a joint enterprise to build a security token platform.
SIX Swiss Exchange (SIX)	In July 2018, in order to tokenize securities, SIX announced that it was developing a platform based on blockchain technology.
Malta Stock Exchange, plc (MSX)	In July 2018, MSX announced the launch of a security token platform.

Table 13. Crypto Asset Exchanges that Made Announcements Regarding Security Tokens

Binance (headquarters: Malta)	In July 2018, Binance formed a partnership with Neufund which owned a blockchain platform. In September 2018, it announced that it signed an agreement regarding the development of a security token transaction platform with the Malta Stock Exchange.
Coinbase (headquarters: US)	In October 2018, Coinbase registered with the SEC (Securities and Exchange Commission) as a securities dealer and obtained approval from FINRA (Financial Industry Regulatory Agency).

curity tokens. One such example is a crypto asset company with the largest transaction volume in the world, Binance, based in the Republic of Malta, which established a one-billion-dollar fund in June 2018. According to the company's announcement, the area of investment it will focus on are "stable coins (currency-denominated coins that retain the same exchange rate as legal currency)", "security token platform", "private transaction system for securities", and "storage/payment wallet, etc."

The merits of STO and security tokens compared to IPOs and regular securities is as follows.

(1) Improved convenience

Currently, securities exchanges have operating hours. In the case of the Tokyo Securities Exchange, Inc., it operates from 9am to 3pm and also has a lunch break. Commodities transactions can only take place for five hours out of the 24 hours, but on platforms that trade security tokens, we can expect 24-hour operations such as with crypto assets.

Furthermore, if security tokens of various assets are circulated, mutual exchanges of different tokens, such as stock tokens and patent tokens, painting tokens, etc., will become possible.

(2) Simplification of securities business

The work involved in IPOs involves many parties such as a transfer agent[3], clearing firm[4], custody[5], etc., and requires various tasks. On a platform that uses security tokens, these tasks are simplified, and the securities business is executed at costs lower than with an IPO.

(3) Automation of compliance

For security tokens that have transaction limitations, if the limiting conditions can be contained within a series of systems, streamlining of compliance related to securities can be expected. For example, if the system is implemented with a structure which prevents the circulation of security tokens unless it meets certain predetermined transaction conditions, it will be possible to reduce the costs incurred to monitor compliance to transaction conditions.

V-6-2. Token Economy

Tokens in everyday life refer to a substitute for coins and can be used for particular services, but in the crypto asset business, it refers to the independent coins issued via blockchain.

In Switzerland, where ICOs were actively conducted, the Swiss Financial Market Supervisory Authority (FINMA) announced ICO guidelines in February 2018 in which it categorized ICOs into three classifications based on the purpose of tokens issued in an ICO. These three categories were "payment tokens" represented by bitcoin, "utility tokens" which is

[3] Tasks include opening an account for investors, withdrawing and depositing cash, transferring the registered holder, paying dividends, creating and sending various reports

[4] Responsible for the sale and purchase of shares, and handles the settlement process for other transactions

[5] Holds securities and manages cash flow related to securities

primarily a means to use smart contracts, and "asset tokens" which provide a method for token owners to receive dividend and raise funds. The guidelines also indicated differences in token regulations dependent on their purpose and in all the categories that may be applicable, FINMA was of the opinion that in some cases, handling them as securities may be necessary.

Conceptually, anything can be subject to tokenization. A variety of assets have been tokenized such as shares, bonds, derivatives, real estate, patent, copyright, painting, wine, rights on use of service, etc. However, taking into consideration the applicability of regulations, in reality, it is necessary to understand that there are cases where tokenization is not operationally possible. Currently, many of the cases utilizing tokens are at the proof of concept stage. Amidst this situation, for many of the cases implemented, there are prerequisites. For instance, tokens and legal currency cannot be exchanged, and tokens cannot be exchanged with other tokens.

Economic zones where multiple companies and consumers transfer value via tokens is called a "token economy". Without going through financial networks of existing financial institutions as intermediaries, transferring value through a new network that uses tokens enables payment and remittances in a cheap yet fast way. Furthermore, by tokenizing items in one's surroundings that were not thought to have value, value is created and the creation of a new economic zone, including value transfer, etc., can be expected.

As an example of a token economy, the section below discusses in-game currency and the points system, which have a similar concept to tokens.

Token economy for games:

Traditionally, game players utilize in-game currency to sell and purchase items within the game. However, in-game currencies have the following limitations.

(1) In-game currency can only be used in a specified game.

(2) In principle, in-game currency cannot be sold outside of the specific game.

(3) After the service of the game is completed, the in-game currency becomes invalid.

For these reasons, a universal in-game currency was born from a game player. Also, from the game company's perspective, if the use for in-game currencies diversifies, it makes the game that much more attractive and companies can expect to capture more players, and using the in-game currency could lead to additional business opportunities in addition to the sale of game items. Given this, using blockchain, games have been released which tokenize in-game items and currencies. If the players acquire a tokenized item, even if the game service is terminated for whatever reason, the token whose asset is recorded in the blockchain is independent of the game server and the player can claim ownership of the tokenized item.

Table 14 provides a specific example of a token economy by a domestic game company. According to the press release, only part of the functionalities of the token economy concept are currently being implemented.

Token economy for points:

The objective of the point system for companies is the same as the objective for token economies; increased circulation in the economic zone that was created by the company, to

Table 14. Specific Example Related to Token Economies for Games

Date of Press Release / Company Name	Overview
November 30, 2018 double jump.tokyo Inc.	Formally begins services for blockchain game and crowd sale. Crowd sale here refers to the sales of characters in the game purchasable with Ethereum (ETH). Also distributes in-game tokens in the amount of 50% of purchased ETH. In-game tokens enables the purchase of game characters and item transactions between players.

Source: Created by the writer based on the company's press releases regarding token economy for games.

retain customers. Points are a substitute for coins and thought of as tokens that can be used for particular limited services. In the broad sense of the word, it can be considered a token but, as mentioned previously, tokens in the crypto business refer to independent coins issued via blockchain. There are cases where these points are operated using the independent coins issued via blockchain but, domestically, there are limitations to its operations such as not being able to convert into independent coins and legal currency. The merits of tokenization include the ability to transfer value with others at a reduced cost and in a timely manner but domestically, due to fears of violating regulations, there are limitations to value transfer and the merits of tokenization are not sufficiently enjoyed.

Table 15 provides an example of a token economy by a domestic company. Currently, at this stage, only part of the functionalities of the token economy concept have been released. There are not many companies that have explicitly mentioned their token economy for

Table 15. Specific Example Related to Token Economies for Points

Date of Press Release / Company Name	Overview
September 27, 2018 LINE Corporation	Announced its "LINE Token Economy" concept using blockchain and its decentralized application concept, "dApp". At first, it plans to provide dApp based on LINK in the five areas of "Q&A", "prediction", "product review", "food review", and "location review". It will also issue a universal coin "LINK", for the overseas market and "LINK Point" in Japan, in an effort to distribute LINK through various dApp uses. Although LINK will be rolled out overseas, in accordance with regulations, Japan and overseas will be separated. For markets outside Japan, LINK will be able to participate in exchanges with other crypto assets through "BITBOX", a crypto asset exchange for the overseas market operated by LINE, but as BITBOX cannot be used in Japan and the United States, exchanges will not be possible. Therefore, LINK Point that will be issued within Japan will enable exchanges to LINE points, albeit a one-way exchange, at a rate of 1 LINK to 500 LINE points.

Source: Created by the writer based on LINE Corporation's press release regarding token economy for points.

points as a corporate strategy in their press releases, etc., but as outlined in Table 15, companies such as LINE which own a significant number of members, are highly likely to be making progress on a token economy concept behind closed doors.

Token economies for coins within a group company:

In some cases, independent company coins, which are limited to distribution within the group company, are issued. As it is simple to create a structure to issue independent coins for one's own company, there are many examples of this initiative. Currently, there are examples of company coins being awarded to employees as part of an effort to provide incentives, and employees with these company coins are able to purchase items such as products that are sold internally or use them to pay for internal seminar participation fees, for example. From a regulations standpoint, it is necessary to bear in mind that domestically, these company coins cannot be distributed outside of the country as well as outside of the company, and companies are required to design them with distribution limitations. At this point in time, the purpose of the independent coins is not about applying it to practical business tasks but more to learn about the operation of blockchain and to obtain knowledge about the environment for the purpose of a proof of concept.

VI. Fintech Initiatives at Domestic Financial Institutions

In order for financial institutions to respond to the tide of Fintech, they are being required to come up with new businesses and new services. However, as new ideas are hard to come by from systems and personnel that were already optimized for existing businesses, it became common practice to cooperate with other companies to give birth to new businesses.

In the early stages, they borrowed the power of venture companies for UI/UX only and put off reforming their core business but when the business model as a whole was required to change, there were attempts to bring in businesses themselves by providing investment to or acquiring venture companies. By investing in Freee K.K., MUFG Bank, Ltd. hopes to create points of contact with small to medium-sized companies and individual business owners. It is also proactively investing in technology ventures such as AlpacaJapan Co., Ltd. which is developing a market forecasting AI. However, investments from banks are subject to the Banking Law such as conditions being applied to investments over five percent, making fundamental advancements into new businesses difficult. For this reason, structures are being arranged so that each company's CVC and existing funds can be used to enable investments in various companies. MUFG Bank, Ltd. launched a new 20-billion-yen CVC subsidiary so as to build a foundation that is able to proactively invest in areas outside of finance.

There is also some open innovation activity around large corporations soliciting ideas from external ventures to solve some of their challenges. To that end, there are many accelerator programs being implemented. In particular, MUFG Bank's Digital Accelerator and Nomura Holdings, Inc.'s Voyager are being operated by the financial institutions themselves. In terms of the flow, existing financial institutions and large corporations receive recommen-

dations regarding the challenges they face from many venture companies and ideas are selected on the spot in a contest format. The positives of this process are that internal experts are also included, the judgement criteria is clear and decision makers are present, eliminating the need to explain details and obtain approvals. Contest winners are awarded with prize money and are expected to quickly operate and test a new solution in the form of a PoC (Proof of Concept) in response to a specific issue. If it is successful, it will be rolled out on a larger scale but to provide the actual service, a link to the existing system is vital. For this reason, the expansion of API (application programming interface) product offerings requires urgency. This is not open to those outside the company but rather a function necessary to compress the development period required for system connectivity inside the company. If there is no API, it will be necessary to develop procedures for communications and database connectivity, requiring a significant amount of time and costs. The release of this API to other companies and the coordination with other Fintech companies is known as "Open API".

Open API is the mechanism of opening up the systems at financial institutions using API and making it easy to connect. The use of API for Fintech is particularly in demand from Japanese financial institutions but to understand the reason, it is necessary to explain Japan's specific electronic payment agency business. The service provided by representative Fintech companies, Money Forward, Inc. and Moneytree K.K., is their "household ledger application". Household ledgers have been around since the popularization of computers, but the difference now is that the links to bank and credit card companies that enable detailed data to be pulled automatically and the automatic journalizing of items have drastically eliminated the trouble of manual entry and been well received by many clients. Until now, to connect to financial institutions via internet banking available on a computer, it was necessary to register the ID and password with the household ledger application to access the internet banking site used to view bank accounts and transfer money. This method is referred to as scraping and is subject to security issues. To resolve this security issue, the Financial Services Agency has requested each financial institution to open up the APIs. By connecting financial institutions with household ledger applications using API, an independent password and ID can be set on the household ledger applications and the connection to financial institutions can now be controlled together on the system. Also, companies that take on the financial institutions' front end, such as household ledger applications, are now required to register with the Financial Services Agency as a provider of "electronic payment services". In addition to handling the front end, financial institutions, from megabanks to regional banks, now provide read-only APIs to verify account balance. Moving forward, read and write APIs that can instruct bank transfers are expected to be provided gradually. The majority of the APIs are provided for free from financial institutions but Fintech companies that provide front end applications are combining these multiple free APIs and providing them as a new service to consumers for a fee. Providing these kinds of functions, which extend over companies, are difficult for financial institutions and is a strength of the independent Fintech companies. For financial institutions, this means covering the costs to provide APIs for free, only to lose a point of contact with customers who have the accounts at the bank,

which explains why many financial institutions are struggling to find meaning in opening up API.

Even overseas, due to regulations such as Open Banking and PSD, banks are finding it difficult to contain customer data. The UK particularly, in addition to Open Banking being compulsory, was among the first to adopt the "regulatory sandbox", which eases restrictions on new business models and, therefore, mobile-only banks such as Monzo and Revolut have been gaining traction. By nurturing new financial businesses domestically, it appears the objective of the UK government is to create companies that can hold their ground in the international financial market battle.

Currently, in Japan, there are single function capabilities such as viewing one's account and making bank transfers, but in the future, providing APIs with services that are combined with complex business processes such as KYC (Know Your Customer) will likely lead to significant profits. For example, TRUSTDOCK Inc.'s "e-KYC/identity verification service" focuses on different levels of KYC that are required for different industry types and different industries, and instead of just offering system APIs, it provides various KYC services including substitutes for the KYC process.

In this way, by not only providing system functionalities but also providing services as a business function and being an alternative to the internal processes, it becomes possible to create services that improve business quality and reduce costs, which are necessary conditions to opening up API and to monetize. At the same time, it is an opportunity to contribute to the monetization of the back-office function of financial institutions that was, until now, a cost center. Fintech companies and other non-financial businesses can expect a certain level of needs for back-office functions and structures that can respond to strict financial regulations.

VII. Strategy Considerations Related to Fundraising and Payment for Non-Financial Businesses

The state of financial services for non-financial businesses with a large member base is provided in Table 16. As shown in Table 16, there are already many companies providing prepaid and payment services. With regards to Mercari, members place an item for sale, transfer the proceeds of the item to points and are encouraged to use those points within Mercari. Specifically, withdrawals under 10,000 yen incur a fee and deposits into an account require several days from the time of application and, therefore, this has led to the successful creation of an independent economic zone where points are used within Mercari. If it is for just this, the necessity for financial services outlined in Table 16 is lacking, but as an exit strategy for proceeds, by launching "Merpay" which is a service that enables use at actual stores, they are providing a payment function similar to prepaid cards. The story behind non-financial companies with a large member base entering the financial services business is that by strengthening ties to customers through financial services, companies are able to contain their customers and increase wallet share.

Table 16. Financial Services by Non-Financial Businesses

	Rakuten	LINE	SoftBank	KDDI (Jibun Bank)	Amazon	Mercari
Domestic membership	90 million	79 million	39.5 million contracted	50.64 million contracted	Unknown US prime membership: 85 million	60 million downloads
Prepaid	○	○	○	○	○	x→○[7]
Credit cards	○	x	○	○	○	x
Remittance	○	○	○	○	○	x
Cash on credit	○	x	x	○	○	x
Deposit	○	x	x	○	x	x

Source: Created by the writer based on information disclosed on each company's website

Reviewing each company individually, first, with Rakuten, Inc., its internet service was seen as compatible with financial services that place importance on the transfer of information and value and, therefore, rather than having financial services be a supplement to the existing business, it was instead, considered a pillar for revenue. By acquiring an existing financial institution early so as to expand its financial services, it was able to provide various financial services at an early stage. It already provides services that are equivalent to a comprehensive financial institution with banking, credit card, insurance, securities, and trusts. It is worth noting that with the Rakuten credit cards playing a central role, with its vast number of cards issued, it pursued cross-selling opportunities that lead to peripheral services such as bank accounts and securities accounts. This stimulated the number of bank accounts acquired and amounts loaned, resulting in an operating profit of approximately 78 billion yen (December 2018 financial statements) just for their financial services business which puts them around tenth place even when compared against banks.

In terms of LINE Corporation, according to their IR documents, the number of monthly active users for the major four countries exceeds 160 million people. Furthermore, the volume of payments handled by LINE PAY exceeds one trillion yen. Therefore, it can be said that LINE is not merely a messaging application but also serves as basic infrastructure. Another characteristic is that for each of its financial services, it has collaborated with large corporations such as Nomura Securities Co., Ltd. for securities, and Sompo Japan Nipponkoa Insurance Inc. for insurance. Unlike Rakuten which chose to acquire companies to assemble its financial services in advance, the collaborations were most likely aimed to expand services within a short period of time. Furthermore, it is noteworthy that rather than roll out existing financial products, its product line provides ease of purchase via a smartphone and services that are easy to understand and low cost. As an extension of LINE's usability, product offerings will likely be limited and, therefore, instead of preparing a full line of functions in advance, the company deliberately picked the option to form alliances. Cur-

rently, financial products are like stamps, just one of the contents provided, but once the transfer from a messaging application to a financial platform is complete, it will be possible to gradually shift its product offerings towards high cost products.

Financial services provided by communications carriers such as SoftBank Corp. and KDDI Corporation likely began with the objective to collect monthly connection fees. If payment is through a credit card, rather than the couple percentages being picked up by another company, by switching to one's own financial services, it was possible to create profits of several billion yen annually. Additionally, as the points accumulated and deposit money was required, an exit strategy was created to make using points easier so as to handle the issue of negative impact on cash flow. Payment methods such as NTT DOCOMO, INC's "d Point" and KDDI's "au WALLET" are for that purpose. SoftBank acquired "T-point" from Culture Convenience Club Co., Ltd. and transferred over all points to T-point, making their balance sheet lighter. SoftBank's financial strategy does not stop there. By analyzing the data for payment of mobile phone charges, it also sought to independently calculate an individual's credit. This resulted in the establishment of J. Score CO., LTD. with Mizuho Bank which would provide score lending services based on individual credit data.

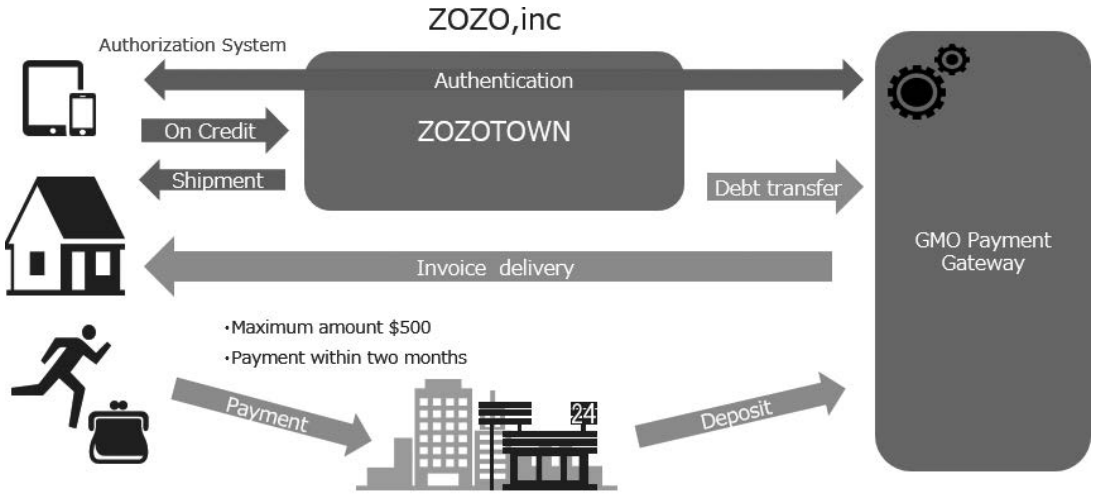
Jibun Bank Corporation was established jointly by KDDI and MUFG Bank, Ltd. and its characteristic is its full line of bank functions within the mobile phone. It handles various products including foreign currency deposits, housing loans, and robo-advisors. There are many mobile-only banks being established overseas as well but their business models vary from those that provide a full line of services on the smartphone, limited functions combined with other services, and web applications that serve merely as a front-end for a main bank. Another possible method is to entrust another company and provide the API, but the answer to which model will obtain the support of consumers in the future is of interest.

In terms of financial services for consumers, Amazon issues credit cards but does not have much that can specifically be called a financial service. However, for companies that are sellers on their site, Amazon already provides them with lending services and also leads the way in providing several services, such as extending the payment terms on their site, selling office supplies to companies. There is much public interest in whether Amazon will enter the bank business, but currently, I believe the possibility for this is low. This is because growth in Amazon's pillar of revenue, Amazon Web Service, is expected mostly from customers who are financial institutions, making it difficult to enter a market in which they would become a competitor. However, Amazon is the kind of company where pursuing convenience for its customers and expanding their product offering is their mission and if it is necessary to increase convenience for customers, they might enter the financial services market. In terms of cashless, they created the Amazon Go service which is an innovative brick-and-mortar store that successfully eliminated the user experience of lining up at a cash register. In a world where discussions of payment method centers around the absence of customers such as QR codes, barcodes, contactless IC cards, Amazon's clever strategy was to get rid of the cashier itself to improve the user experience. To alleviate labor shortage issues in Japan, there were expectations for an unmanned store but Amazon Go is not un-

manned. It is cashierless but there are still employees who work to provide services to customers. But in terms of unmanned stores, there already exists a large number of vending machines in Japan, and personally, I feel the difference between unmanned stores and large vending machines is ambiguous.

Many of UNIQLO CO., LTD.'s stores have already introduced RFID (radio frequency identifier)[6] and self-checkout, presumably to reduce the number of store employees. The move towards eliminating cashiers to reduce employees at businesses such as restaurants and 24-hour convenience stores will likely accelerate in the future. An example of a company using financial services for its own business to drive earnings is the "tsukebarai" (deferred payment option) option introduced on the ZOZOTOWN website operated by ZOZO, Inc. In this day and age where credit cards have become widespread, purchasing items to pay at a later date has almost disappeared but for those young shoppers in their teens or twenties without credit cards who use the ZOZOTOWN website, this was appealing. Since apparel is highly seasonal, popular items often sell out immediately. Therefore, purchasing the item after your pay from your part-time job is deposited would be too late and the seasonality makes you want to purchase it right when you find something you want. Even for users that do not have a credit card, by selecting this deferred payment option, a credit decision is made on the spot and as long as the payment is made at the convenience store within two months, the user, who currently has no money, is able to purchase an item up to an amount of 54,000 yen. It ensures against multiple debts by not allowing additional purchas-

Figure 9



refer: https://www.starttoday.jp/ir-info/financial-data/business-model/
https://money-lifehack.com/diary/9479

Source: Created by the writer based on ZOZO, Inc.'s IR documents

[6] A microscopic IC chip that records data such as identification numbers which is embedded in a tag and attached to items to allow wireless communication with the outside so as to enable individual identification, location management, and movement tracking, etc. Source: Dictionary of IT terminology e-Words

es to be made using this deferred payment option until payment is completed. Instead of a bank or credit card company, a payment collection agency, GMO Payment Gateway, Inc., provides the credit decision structure and conducts the debt collection giving a glimpse of some of Fintech's movement into areas outside of the financial industry. If ZOZO had requested an existing financial institution to create a kind of service that could respond to the needs of these kinds of users, could they have responded? Discussions around the kind of decision criteria they would use to provide credit to young people who do not hold credit cards and just obtaining internal approval could have taken several years. The year this service was rolled out, ZOZO's earnings increased 40%. In the beginning, there were concerns of irrecoverable debts but collection rates were not a big issue and, instead, there was a flood of requests for similar services from other online shopping companies and this became possible through a new service, "GMO Payment After Delivery", which contributed to a significant increase in sales and earnings for the company. Launching a new service, particularly in finance, can come with various risks but this was a good example to learn the importance of designing a service that correctly answered the needs of consumers.

VIII. Japan's Fintech Challenges

One phrase heard often from interviews with financial institutions was "PoC (Proof of Concept) fatigue". In order for financial institutions to adopt Fintech into their company as a strength, they need to have a good command of programs such as Meet Up and Accelerator, find venture companies with business models that utilize the latest technology, and conduct proof of concept tests as a starting point for alliances and joint research. Proof of concept verifies what the new technology can do on a limited scale and usage case. The objective of the tests varies, such as how long it took to process large volumes of data and whether there were any issues in processing once it was applied to the company's business processes. In some cases, it runs processing across multiple companies to check whether business can run as expected. In most cases, these end in successful outcomes rather than large failures. The next step is to use these results to run proof of concept tests in an environment close to the actual environment at a business division level.

At this stage, participation from business divisions is necessary and tests for various usage cases should take place in a manner close to actual conditions. However, business divisions are busy with their existing businesses and are unable to proactively participate in these tests. No matter how amazing the solution, if it cannot be rolled out to the business divisions, it will simply end as a test. From the point of view of the division in charge of innovation, they want to introduce a new solution that will resolve issues and contribute to earnings but often times, an immense amount of time and labor goes into changing the existing procedures and connecting to the legacy system resulting in projects being terminated. Repetitive failures of this sort are what lead to the state of "PoC fatigue". Why do rollouts to business divisions not go smoothly? One reason could be explained by the positioning of the innovation structure. In general, the organization responsible for innovation is under the di-

rect control of the company president or board of directors and is established as somewhat of a research entity separate from the business divisions. As a research entity, it is easy to conduct various proof of concept tests for the purpose of research but when thrown into the actual business divisions, it is not connected to the KPIs of the business divisions and as a business division, the incentive to adopt it becomes unclear. There are very few financial institutions that have committed to raising sales and earnings in their management plans through Fintech and digitalization. Obviously, there are earnings targets, but they are merely an extension of the existing businesses and as long as these targets are met without the introduction of a new system, all is considered fine. Additionally, cost reduction figures that were calculated on one's desk is relatively easy to achieve but contributions to earnings are dependent on various factors including the external environment, and it is possible these cannot be achieved. In most cases, submitting a request for approval for something like this to one's superior will simply be refused at the board meeting.

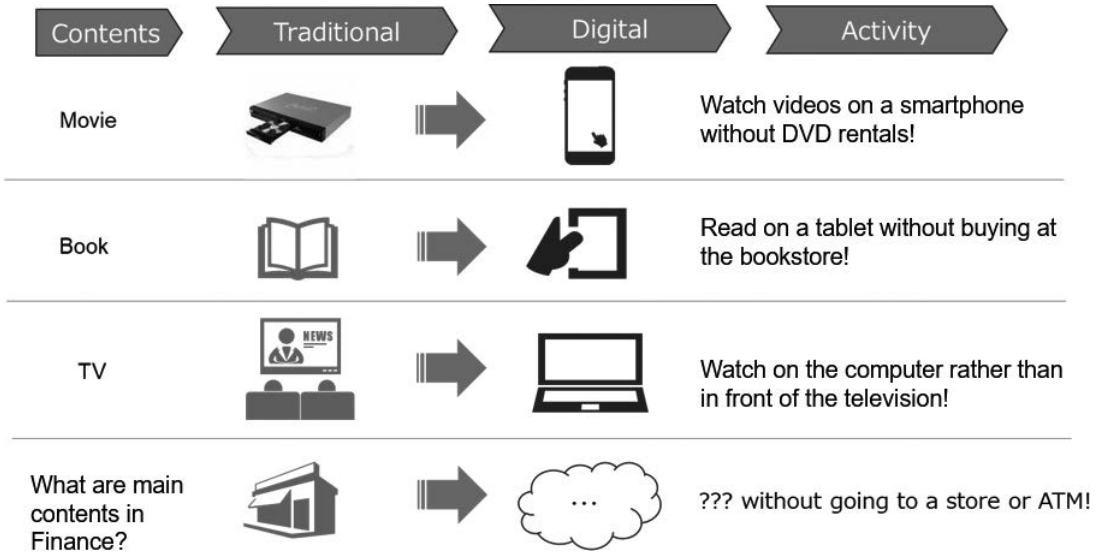
If the use of Fintech at a business division does not go well, in a culture based on a demerit system, it gives a negative image and when considering actual damages, such as delays in promotions, it is highly likely that businesses will not participate in new initiatives. In effect, without reforming the evaluation system of financial institutions, the digitalization of Japan's financial institutions will fall behind the world's.

IX. Conclusion

As mentioned in the beginning, Fintech is "the provision of innovative financial services to customers through technology" and is nothing but a digital disruption to the financial industry. Similar to the shift from paper as a medium to digital, the customer point of contact for financial institutions will shift from teller windows at branches and sales representatives to digital point of contacts such as smartphones and chatbots. The important point to note is that while the medium and point of contact might be different, the contents will not change. Rental videos might disappear, but there are still many people who will watch movies at home and continue to enjoy them as always via a new channel, such as streaming services. When considering this, what is the value of contents provided by financial institutions? What are people seeking when visiting a bank teller at a window or talking with a sales representative? It is probably uncommon that a customer visits a nice building or reception room merely to move some cash around. An elderly business owner might be there to discuss the succession of his business or a young couple might have visited expecting to obtain asset management advice. Isn't the origin of financial services the provision of value such as services, knowledge, and information? Already in insurance, there are insurance intermediary stores (hoken no madoguchi) operated by HOKEN NO MADOGUCHI GROUP INC. with their highly experienced counselors providing a selection of various products from various companies and making recommendations based on the customer's requests, which has seen sales growth despite its business model of having customers go to a store. Amidst advancements in digitalization, face to face counseling needs are also growing. I believe the

only way to survive the upcoming digital era is for each financial institution to reconfirm the strengths it has developed and the services that are considered necessary, and to restructure business from the customer's perspective.

Figure 10



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