A Study on the Profit Sustainability of Financial Institutions in Cashless Society

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Abstract

There is a movement to promote cashless payments in Japan. The total settlement amount of Japanese credit cards, debit cards, and electronic money against personal consumption expenditures was 27% in 2019. The Japanese government aims to raise the cashless settlement ratio to 40% until 2025.

The purpose of this paper is to examine the elements necessary to promote cashless society. I will consider the factors necessary to promote cashless payments especially in Japan based on the situation in the United States, which is leading the way in cashless society. In order to promote cashless society, it is necessary to look at it from four perspectives: the policy of the country, the behavior of consumers, affiliated merchants, and financial institutions. I will pay particular attention to the behavior of consumers and financial institutions comparing Japan and the United States in this paper.

In Japan, cashless payments are centered on the use of credit cards as in the United States. However, Japanese credit cards are often used for monthly payment, and their contribution to profits in the credit card business is not as large as in the United States. In recent years, new payment methods have appeared and mobile payments are increasing in Japan as well. Although many of these new payment methods improve consumer convenience, new payment methods as cashless payments do not necessarily contribute to profits.

In the United States, a cashless society is developing and the usage of credit cards is high among the major developed countries. The expansion of credit card usage has boosted personal consumption expenditures and supported economic growth through the increase of consumer credit in the United States. The cashless society in the United States has progressed in combination with the expansion of the use of credit cards to promote personal consumption expenditures and the actions of financial institutions to generate profits from them. In fact, major US

financial institutions make annual pre-tax profits of 200-300 billion yen mainly in the credit card business.

I clarify that it is necessary for financial institutions to continuously record profits as an element to promote cashless society. The promotion of cashless society in Japan has entered a stage where it is necessary for profit sustainability of financial institutions. In order to promote cashless payments, financial institutions that handle cashless payments must be able to generate profits at the same time as improving consumer convenience.

The contribution of this paper is to present the elements for promoting a cashless society after understanding Japanese peculiar situation. Especially in Japan, the low profitability of financial institutions that make cashless payments is a problem. I hope that this paper will contribute to the further promotion of cashless society in Japan.

1 Introduction

There is a movement to advance cashless payments in Japan. The Japanese government raised measures to promote cashless transactions into the growth strategy summarized in June 2017 by reducing the cost of card payments and improving convenience for consumers thorough utilizing FinTech, which combines finance and IT (information technology). Specifically, the Japanese government aims to raise the cashless settlement ratio to 40% until 2025[1]. It is the first time the Japanese government has set a target figure for cashless settlement.

The purpose of this paper is to examine the elements necessary to promote cashless society. I will consider the factors necessary to promote cashless payments especially in Japan based on the situation in the United States, which is leading the way in cashless society. In order to promote cashless society, it is necessary to look at it from four perspectives: the policy of the country, the behavior of consumers, affiliated merchants, and financial institutions. I will pay particular attention to the behavior of consumers and financial institutions comparing Japan and the United States in this paper. It will be clarified that it is necessary for financial institutions that handle payments to continuously record profits as an element to promote cashless society in the end.

Previous studies on cashless society mainly in Japan and the United States include the following.

Rogoff (2016) conducts extensive research on cashless society touching on the history of money and monetary policy. And Rogoff says that, among the developed countries, "It can be said that there are no countries where the merit when shifting to less-cash society is larger than Japan[2]."

Mann (2002) conducts research on payment methods by comparing Japan and the United States. And Mann expresses the state that credit cards and debit cards are frequently used as card-based payment systems[3].

Kawanami (2017) conducts research on cashless payments in Japan while making international comparisons. Kawanami defines the phenomenon of cashless payments in his research[4].

2 Cashless payments in Japan

2.1 The current state of cashless payments in Japan

First of all, I would like to see the current state of cashless payments in Japan. In this paper, cashless is

defined as "a situation in which money is not handed over in actual transactions" and "cash is not appearing on the surface due to the appearance of credit cards, prepaid cards, etc[5]." In fact, the Japanese government calculated the ratio of cashless settlement based on the total settlement amount of credit cards, debit cards, and electronic money in the growth strategy summarized in June 2017[6]. The total settlement amount of Japanese credit cards, debit cards, and electronic money against personal consumption expenditures rose from 8% in 2003 to 21% in 2017 and 27% in 2019 (Figure 1). Cashless is progressing gradually in Japan.

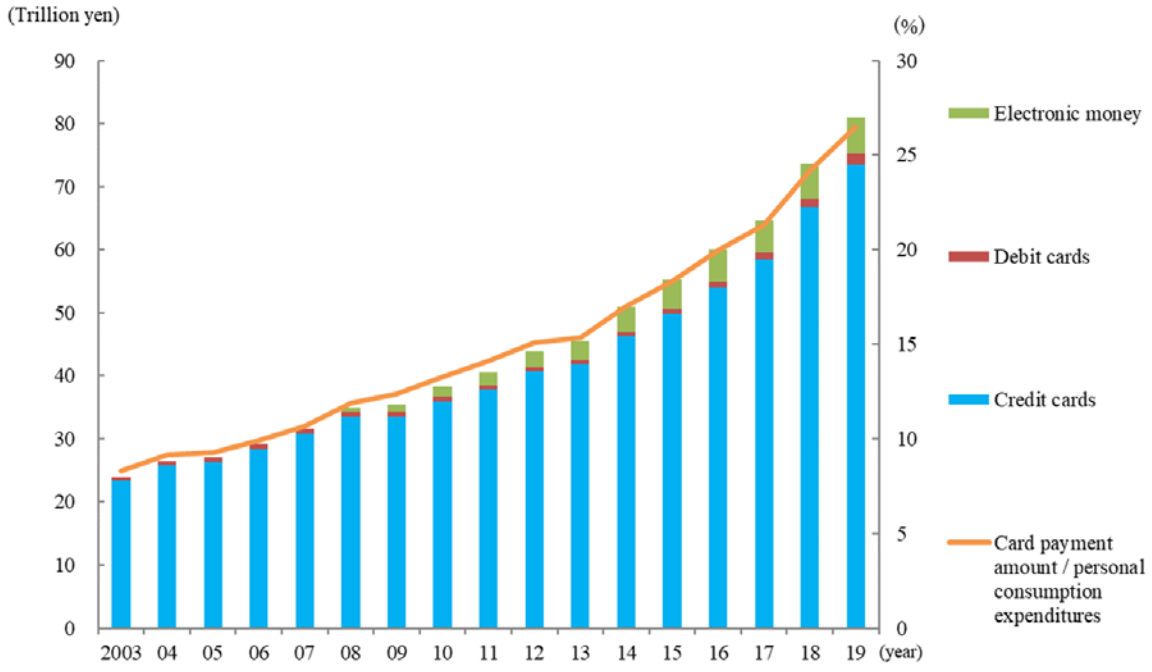
2.2 Japanese financial systems

The form of payment in each countries depends on the financial systems in that country. We analyze the Japanese financial systems focusing on payment style here.

Payment in cash is mainstream in Japan. According to the Central Council for Financial Services Information (2018), "Public Opinion Survey on Household Financial Behavior," cash as a means of settlement in daily payment is 86.1% for below 1,000 yen, 79.4% for 1,001–5,000 yen, 69.5% for 5,001–10,000 yen, 52.1% for 10,001–50,000 yen, and 41.1% for over 50,000 yen.

Japanese people tend to hold more cash than other countries. Looking at the ratio of banknotes and coins in circulation to nominal GDP in 2019, it was 21.3% in Japan, which was significantly higher than 8.3% in the US, 11.1% in the Euro area, and 3.4% in the UK (Figure 2). In addition, the ratio of banknotes and coins in circulation to nominal GDP in Japan has risen sharply from 9.0% in 1988 to 21.3% in 2019 (Figure 2). The form of payment in Japan can be called cash-based payment systems compared to the US and other countries where cards are often used[7].

The one of the reason why Japanese people tend to



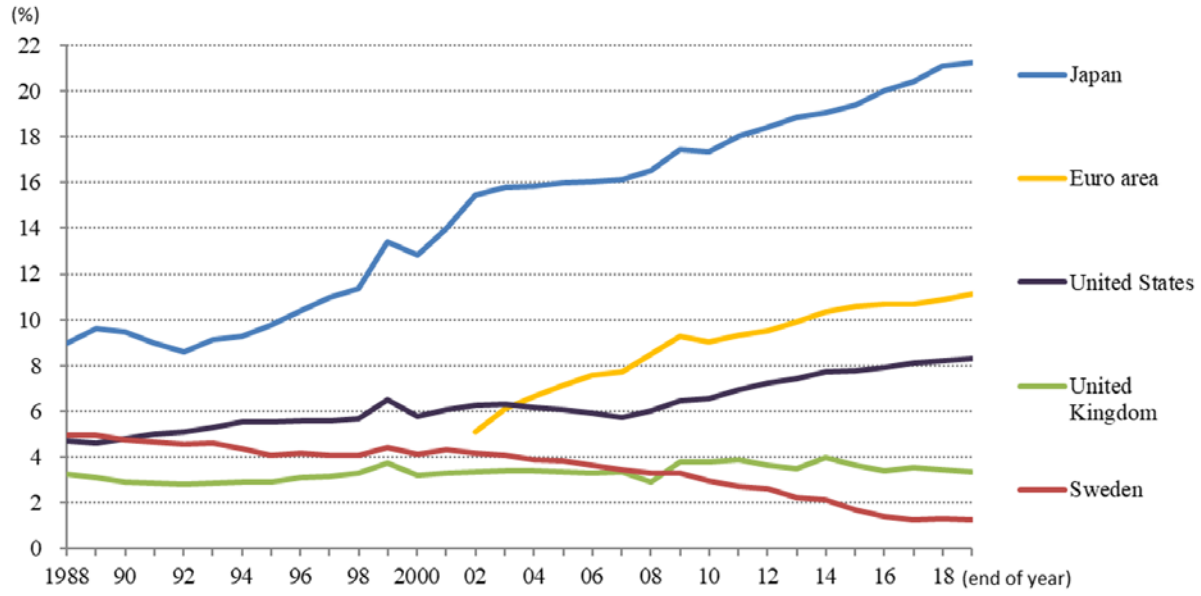
Note: Left scale is the card payment amounts for the year. The figures of debit cards before 2009 are data for J-Debit cards, and those after 2010 include J-debit cards and brand debit cards. The figures of brand debit cards are total for the fiscal year ending March of the following year. The figures before 2007 do not include those of electronic money.
Source: Japan Consumer Credit Association, "Japanese Consumer Credit Statistics, corrected edition" (https://www.j-credit.or.jp/information/statistics/download/toukei_04_a.pdf); and "Japanese Credit Statistics;" Bank of Japan, "Payment and Settlement Statistics;" and "Data of Electronic Money (September 2007 - December 2014)," May 2015; Japan Debit Card Promotion Association, "J-Debit Transaction Results Report;" Bank of Japan, "The Recent Trends of Debit Cards," *Payment and Settlement Systems Report*, Separate Volume, May 2017; Cabinet Office, Government of Japan, "National Accounts of Japan," June 8, 2018 and May 18, 2020.

Figure 1. The ratio of card payment amount to personal consumption expenditures in Japan (2003-2019)

hold more cash is that security in Japan is better than in other countries and, therefore, the risk of holding cash is low. There is little worry of cash being stolen in Japan. Cash is a type of money that must be accepted in payment of debts as a legal currency, and the credibility of cash is also high in Japan. It is thought that holding cash has widely penetrated consumers because the risk associated with holding cash is relatively low in Japan. The long-term low interest rate environment also has reduced the opportunity cost of holding cash.

As a major feature of Japanese financial systems, households have a lot of cash and deposits[8]. The composition of financial assets of Japanese households is 54% in cash and deposits, 1% in debt securities (bonds), 10% in corporate equities and other equities, 3% in mutual fund shares or investment fund shares (including MMFs), 28% in insurance and pension entitlements, and 3% in others as of the end of March 2020[9]. The composition ratio of cash and deposits in Japan is higher than the 14% in the US and 35% in the Euro area. The fact that the majority of financial assets of Japanese households are cash and deposits means that the main flow of funds is made through banks in Japan.

However, Japanese banks lagged efforts towards the card business due to regulatory influence. According to the provisions under the banking law in Japan, banks were unable to issue credit cards directly because the credit card business was regarded as a peripheral, and not an auxiliary, business of the bank itself[10]. So, Japanese banks made another company and entered the credit card business. Diamond Credit (DC card) of the subsidiary of Mitsubishi Bank was established as the first bank-affiliated credit card company in February 1967. After that, banks were able to issue credit cards directly as a result of the revision of the banking law in April 1982, but the first time a Japanese bank issued credit cards was not until October 1983. Historically, Japanese banks have mainly engaged in credit card business through non-banks such as subsidiaries. Credit card operations are built on the banking system from using bank accounts in terms of final payments[11]. It became one of the factors that cashless transactions were delayed in Japan, as the action to the credit card business by banks was late in comparison with the United States and other countries.



Source: Committee on Payments and Market Infrastructures, "Statistics on payment, clearing and settlement systems in the CPMI countries," Figures for 2015, Bank for International Settlements, December 2016, and Red Book statistics for CPMI countries (https://stats.bis.org/statx/toc/CPMI.html); International Monetary Fund, World Economic Outlook Database (http://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx).

Figure 2. The ratio of banknotes and coins in circulation to GDP (1988-2019)

And Japanese credit card companies have also been affected by regulations. For example, credit card companies have lost profit opportunities due to the 2010 revision of the Money Lending Business Act, which regulates consumer loan by nonbanks[12].

3 The international comparison of cashless payments

Let us compare the current situation of cashless payments internationally. The Committee on Payments and Market Infrastructures (CPMI) affiliated with the Bank for International Settlements (BIS) organizes the settlement-related data created by the central banks of the member countries and regions and publishes "Statistics on payment, clearing and settlement systems in the CPMI countries[13]". Table 1 summarizes the card usage trends around the world in 2017 based on CPMI data. The total settlement amount of Japanese credit cards, debit cards, and electronic money against personal (household) consumption expenditures in 2017 was 21%. This was lower than 45% in the US, 56% in the UK, and 43% in France. A figure of about 40%, which the Japanese government has set as a target figure of cashless settlement, is close to the level of the US in recent years, and it intends to raise the cashless settlement ratio as much as the US. In this respect, it will be beneficial to compare with the United States when discussing making Japanese cashless.

Cashless payments are increasing worldwide partly because consumers place importance on hygiene and safety in recent years. From the perspective of international comparison, I would like to see the characteristics of cashless payments in Japan, focusing on credit cards and electronic money.

3.1 Credit cards

The number of credit cards in the United States is the world's largest, exceeding 1 billion. The number of credit cards in Japan is 272 million, the third-largest number in the world after the US and China (refer to Table 1). The number of credit cards per inhabitant in Japan is more than two. There are only four countries with credit cards per inhabitant exceeding two: the United States, Hong Kong, Canada, and Japan. It can be said that, from a global standpoint, credit cards are widespread in Japan. New credit card issuance can be done easily in Japan compared to in the United States, as the competition of credit card business by financial institutions has intensified in Japan in recent years. The credit assessment of credit cards in Japan is considered not as severe as in the United States.

3.2 Electronic money

The number of electronic money cards held in Japan is more than 300 million, which is the highest in the world (refer to Table 1). The number of electronic money cards per inhabitant is 2.9 in Japan, which is the third highest in the world after Singapore and Hong Kong (Table 2). Electronic money is subject to regulation by the fund settlement law as prepaid means of payment, like gift certificates, in Japan. Electronic money also includes the post-payment type that gives credit function for payment in the broad sense. Electronic money in prepayment is prevalent in Japan[14]. Specifically, it often refers to these eight: Rakuten Edy, SUGOCA (Kyushu Railway Company), ICOCA (West Japan Railway Company), PASMO, Suica (East Japan Railway Company), Kitaca (Hokkaido Railway Company), WAON (AEON), nanaco (Seven Card Service). The specification of noncontact IC card called FeliCa is used as electronic money in Japan[15]. Electronic money cards for transportation are particularly popular because there are a lot of trains mainly in metropolitan areas, and now it is possible to obtain a discount service when getting transportation IC cards compared with using cash in Japan. Some companies add reward points to electronic money cards and actively attract customers by using electronic money. These electronic money services often have a business, such as transportation and retail services, and are often used as tools to enclose customers in Japan. As a result, the value of electronic money

Table 1. The card usage trends around the world (2017)

Country	Number of cards issued in the country (millions, end of the year, except as noted)					Value of payment amount (billions, total for the year)						Household consumption expenditure (including non-profit institutions serving households) (billions, currency for each countries)	The ratio of payment amount to household consumption expenditure (%)			
	Credit cards	Debit cards	Delayed debit cards	Debit cards (including delayed debit cards)	Electronic money	Currency for each countries	credit cards	Debit cards	Delayed debit cards	Debit cards (including delayed debit cards)	Electronic money		Credit cards	Debit cards (including delayed debit cards)	Electronic money	Total
Argentina	60.83	45.09	0.57	45.66	nap	Argentine peso	983.58	455.28	nav	455.28	86.07	6,912.80	14.2	6.6	1.245	22.1
Australia	21.80	46.23	nap	46.23	nap	Australian Dollar	315.59	274.24	nav	274.24	nav	1,041.20	30.3	26.3	nap	56.6
Belgium	2.36	16.4	3.44	19.83	4.60	Euro	0.32	68.95	18.27	87.22	0.56	223.86	0.1	39.0	0.252	39.4
Brazil	150.15	323.7	nap	323.71	1.61	Brazilian Real	756.97	495.47	nav	495.47	3.48	4,161.22	18.2	11.9	0.084	30.2
Canada	77.46	28.80	nap	28.80	nap	Canadian Dollar	527.80	242.00	nap	242.00	nav	1,240.92	42.5	19.5	nav	62.0
China	587.58	6,159.12	nap	6,159.12	nap	Yuan Renminbi	nav	nav	nap	nav	nap	31,750.97	nav	nav	nap	nav
France	18.75	48.18	29.44	77.62	23.80	Euro	75.34	331.75	120.79	452.53	0.90	1,239.19	6.1	36.5	0.073	42.7
Germany	5.79	109.29	29.29	138.58	78.74	Euro	6.80	183.06	90.75	273.81	0.78	1,732.18	0.4	15.8	0.045	16.2
Hong Kong SAR	19.67	nap	nap	nap	46.73	Hong Kong Dollar	658.78	303.14	nav	303.14	134.94	1,783.70	36.9	17.0	7.565	61.5
India	37.48	861.08	0.59	861.67	57.81	Indian Rupee	4,589.65	4,600.70	360.9	4,961.63	1,416.34	99,144.01	4.6	5.0	1.429	11.1
Indonesia	17.24	155.66	nap	155.66	90.00	Rupiah	288,912.88	286,214.06	nav	286,214.06	12,375.47	7,787,555.13	3.7	3.7	0.159	7.5
Italy	23.39	54.14	nap	54.14	28.35	Euro	65.83	113.93	nap	113.93	24.88	1,048.86	6.3	10.9	2.372	19.5
Japan	272.01	441.23	nap	441.23	367.25	Yen	58,371.10	1,131.74	nav	1,131.74	5,199.44	303,342.70	19.2	0.4	1.714	21.3
Korea	99.46	161.01	nap	161.01	27.33	Won	642,331.33	170,591.33	nap	170,591.33	756.52	832,234.70	77.2	20.5	0.091	97.8
Mexico	32.74	144.32	nap	144.32	nap	Mexican Peso	877.69	966.50	nap	966.50	nap	14,307.09	6.1	6.8	nap	12.9
Netherlands	2.41	18.28	2.75	21.03	0.02	Euro	nav	118.18	15.67	133.86	0.01	326.89	nav	40.9	0.004	41.0
Russia	32.16	239.60	nap	239.60	177.91	Russian Ruble	1,869.83	34,224.10	nav	34,224.10	1,256.18	47,719.83	3.9	71.7	2.632	78.3
Saudi Arabia	2.74	28.40	nap	28.40	nap	Saudi Riyal	29.73	170.72	nap	170.72	nap	1,063.52	2.8	16.1	nap	18.8
Singapore	8.63	10.95	nap	10.95	45.21	Singapore Dollar	54.01	31.77	nav	31.77	2.88	155.04	34.8	20.5	1.857	57.2
South Africa	nap	nap	nap	nap	nap	Rand	nav	nav	nap	nav	nap	2,764.40	nav	nav	nap	39.2
Spain	nap	26.93	52.71	79.64	0.00	Euro	nav	92.73	73.84	166.57	0	670.50	nav	24.8	0.000	24.8
Sweden	8.15	9.97	0.73	10.70	0.08	Swedish Krona	174.52	765.02	43.77	808.79	nav	2,041.02	8.6	39.6	nav	48.2
Switzerland	6.58	10.51	nap	10.51	2.70	Swiss Franc	40.33	47.91	nav	47.91	2.26	359.50	11.2	13.3	0.629	25.2
Turkey	62.45	110.83	nap	110.83	20.76	New Turkish Lira	606.48	69.49	nap	69.49	1.51	1,834.16	33.1	3.8	0.082	36.9
United Kingdom	61.94	102.73	2.12	104.85	nap	Pound Sterling	164.66	561.94	28.60	590.54	nav	1,343.79	12.3	43.9	nav	56.2
United States	1,044.10	316.50	nap	316.50	nap	US Dollar	3,323.22	2,575.53	nav	2,575.53	160.06	13,321.41	24.9	19.3	1.202	45.5
Above total	2,655.89	9,468.97	121.63	9,590.60	972.91											

Note: The number of credit cards for Japan is data as of end-March of 2017. The number of electronic money function cards for Japan is data as of end-March of the following year, and as for the number of debit cards for Japan, some data are as of end-September of 2017 and others are as of end-March 2018 data. The figure of value of debit card payments for Japan is sum of the data from April to March of the following year, and calculated by submitted data from four debit card networks, i.e., J-Debit, JCB, VISA, and UnionPay. The total ratio of card payment amount to household consumption expenditure for South Africa is the figure calculated from total card payments a breakdown of which by types of function is not available. The notation "nap" means "not applicable," and "nav" means "not available."

Source: Committee on Payments and Market Infrastructures, "Statistics on payment, clearing and settlement systems in the CPMI countries, Figures for 2017," Bank for International Settlements, December 2018; Japan Consumer Credit Association, "Japanese Credit Statistics 2017 edition," May 2018; United Nations, Department of Economic and Social Affairs, Statistics Division, National Accounts - Analysis of Main Aggregates (https://unstats.un.org/unsd/snaama/Downloads), Latest Data Upload: December 2018.

payment transaction in Japan is the second highest in the world after the US (Table 2). The value of electronic money payment transactions per inhabitant is $366 in Japan, which is the fifth highest in the CPMI members (Table 2). However, since the amount of this electronic money payment transaction is small, it is limited as a factor for promoting cashless. According to the Bank of Japan, value per electronic money transaction was 959 yen in 2017[16]. The value of electronic money payment transactions as a ratio to GDP is less than 1% even in Japan (Table 2). In addition, multiple electronic money systems are used as a convenient means of payment, and there are aspects in which cashless is suppressed by cannibalization between means of payment in the case of Japan.

4 Cashless payments in the United States

Next, let us take a look at the status of cashless payments in the United States. The Nilson Report shows consumer payment methods in the United States dividing into three categories: Paper, Cards, and Electronic (Table 3). Of these, the composition ratio of cash payment volume decreased from 19.1% in 2009 to 12.8% in 2019. It is clear that cashless payments are progressing as the ratio of cash payments are declining in the United States.

The card usage is increasing the payment ratio instead of cash in the United States. The composition ratio of card payment volume increased from 46.2% in 2009 to 68.3% in 2019. The card payments account for more than

Table 2. Electronic money payment transactions (2017)

Country	Number of electronic money cards per inhabitant	Value of electronic money payment transactions	Value of electronic money payment transactions per inhabitant	Value of electronic money payment transactions as a ratio to GDP
	(end of year)	(billion $, total for the year)	($, total for the year)	(%, total for the year)
Argentina	nap	5.20	118	0.746
Australia	nap	nap	nap	nap
Belgium	0.405	0.63	56	0.128
Brazil	0.008	1.09	5	0.053
Canada	nap	nap	nap	nap
China	nap	nap	nap	nap
France	0.368	1.01	16	0.039
Germany	0.953	0.88	11	0.024
Hong Kong SAR	6.304	17.32	2,336	5.071
India	0.044	21.75	17	0.828
Indonesia	0.344	0.92	4	0.091
Italy	0.468	28.04	463	1.442
Japan	2.898	46.34	366	0.951
Korea	0.531	0.67	13	0.044
Mexico	nap	nap	nap	nap
Netherlands	0.001	0.02	1	0.002
Russia	1.212	21.52	147	1.365
Saudi Arabia	nap	nap	nap	nap
Singapore	8.057	2.08	371	0.619
South Africa	nap	nap	nap	nap
Spain	0.000	0.00	0	0.000
Sweden	0.008	nav	nav	nav
Switzerland	0.319	2.30	272	0.338
Turkey	0.257	0.41	5	0.048
United Kingdom	nap	nap	nap	nap
United States	nap	160.06	491	0.807
Sum or average	0.396	310.25	110	0.675

Note: The figures of sum or average exclude those countries for which data are not available or not applicable. The number of cards for Japan is data as of end-March of the following year.
Source: Committee on Payments and Market Infrastructures, "Statistics on payment, clearing and settlement systems in the CPMI countries, Figures for 2017," Bank for International Settlements, December 2018 (March 8, 2019 updated).

half of the payment methods. The main ones are credit and debit cards.

The composition ratio of credit card transaction volume has risen from 24.4% in 2009 to 35.8% in 2019, making it the largest payment method for transaction volume (Table 3). In addition, the composition ratio of debit card transactions increased from 26.6% in 2009 to 40.9% in 2019, making it the largest payment method for the number of transactions (Table 3). Therefore, the main factor promoting cashless payments in the United States can be seen as an increase in card payments.

Among card payments, the credit card is the largest payment method for the transaction volume, and the debit card is the largest payment method for the number of transactions. This is thought to be because debit cards are used more often in small lots than credit cards and are used for daily small payments. According to the Nilson Report, the transaction average amount in 2019 was $ 91 for credit cards and $ 40 for debit cards (Table 3).

The United States is characterized as a country with a high credit card usage among the major developed countries. Credit cards have a large transaction volume and have a large impact on personal consumption expenditures in the United States.

US consumer credit balances have expanded rapidly in the postwar. Credit cards have been the driving force behind the expansion of consumer credit. The expansion of credit card usage has led to an increase in consumer credit.

So what happened with the increase in consumer credit? It is an increase in personal consumption expenditures. For example, looking at the trends in

Table 3. US Consumer payment methods

Payment Methods	2009					2014					2019				
	Volume		Transaction		Average Amount	Volume		Transaction		Average Amount	Volume		Transaction		Average Amount
	($ billions)	(Share, %)	(billions)	(Share, %)	($)	($ billions)	(Share, %)	(billions)	(Share, %)	($)	($ billions)	(Share, %)	(billions)	(Share, %)	($)
Paper	3,074.3	40.7	66.66	45.9	46	2,589.4	28.1	57.27	33.9	46	1,996.8	17.7	49.49	24.4	40
Cash	1,444.9	19.1	47.31	32.6	31	1,542.7	16.7	44.75	26.5	35	1,441.0	12.8	43.61	21.5	33
Checks	1,522.0	20.1	18.49	12.7	82	963.9	10.4	11.87	7.0	81	502.3	4.5	5.49	2.7	91
Money Orders	80.0	1.1	0.67	0.5	119	61.0	0.7	0.51	0.3	120	39.8	0.4	0.31	0.2	130
Official Checks	22.7	0.3	0.13	0.1	173	18.2	0.2	0.11	0.1	166	12.3	0.1	0.07	0.04	170
Travelers Cheques	4.7	0.1	0.06	0.04	82	3.6	0.04	0.04	0.02	91	1.4	0.01	0.01	0.01	107
Cards	3,491.1	46.2	69.78	48.1	50	5,290.2	57.3	98.95	58.6	53	7,690.9	68.3	136.97	67.6	56
Credit Cards	1,842.8	24.4	24.30	16.7	76	2,731.1	29.6	30.92	18.3	88	4,026.5	35.8	44.45	21.9	91
Debit Cards	1,431.2	18.9	38.57	26.6	37	2,262.0	24.5	59.23	35.1	38	3,314.4	29.4	83.01	40.9	40
EBT Cards	54.5	0.7	1.85	1.3	29	69.6	0.8	2.50	1.5	28	54.6	0.5	1.98	1.0	28
Prepaid Cards	162.6	2.2	5.06	3.5	32	227.6	2.5	6.30	3.7	36	295.4	2.6	7.53	3.7	39
Electronic	989.0	13.1	8.78	6.0	113	1,346.4	14.6	12.70	7.5	104	1,573.1	14.0	16.31	8.0	96
Preauthorized Payments	511.6	6.8	4.21	2.9	122	737.4	8.0	6.32	3.7	117	826.6	7.3	7.91	3.9	104
Remote Payments	477.5	6.3	4.57	3.1	104	609.0	6.6	6.38	3.8	95	746.5	6.6	8.39	4.1	89
Total	7,554.3	100.0	145.22	100.0	52	9,226.1	100.0	168.92	100.0	55	11,260.7	100.0	202.76	100.0	56

Source: Created from The Nilson Report, December 2015, Issue 1077, p.10 and December 2020, Issue 1188, p.6.

Table 4. US personal consumption expenditures and consumer credit outstanding (2005-2020)

(Billions of dollars)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
GDP	13,037	13,815	14,452	14,713	14,449	14,992	15,543	16,197	16,785	17,527	18,238	18,745	19,543	20,612	21,433	20,937
y-y (%)	6.7	6.0	4.6	1.8	-1.8	3.8	3.7	4.2	3.6	4.4	4.1	2.8	4.3	5.5	4.0	-2.3
Personal consumption expenditures	8,747	9,260	9,706	9,976	9,842	10,186	10,641	11,007	11,317	11,823	12,297	12,770	13,340	13,993	14,545	14,145
y-y (%)	6.5	5.9	4.8	2.8	-1.3	3.5	4.5	3.4	2.8	4.5	4.0	3.8	4.5	4.9	3.9	-2.7
the ratio to GDP (%)	67.1	67.0	67.2	67.8	68.1	67.9	68.5	68.0	67.4	67.5	67.4	68.1	68.3	67.9	67.9	67.6
Durable goods	1,129	1,158	1,188	1,099	1,012	1,049	1,093	1,144	1,189	1,242	1,308	1,350	1,411	1,482	1,534	1,619
y-y (%)	4.4	2.6	2.6	-7.5	-7.9	3.6	4.2	4.6	3.9	4.4	5.3	3.3	4.5	5.0	3.6	5.5
Nondurable goods	1,954	2,081	2,179	2,264	2,168	2,269	2,425	2,494	2,541	2,621	2,615	2,648	2,762	2,890	2,978	3,040
y-y (%)	7.3	6.5	4.7	3.9	-4.3	4.7	6.9	2.8	1.9	3.2	-0.2	1.3	4.3	4.7	3.0	2.1
Services	5,664	6,021	6,339	6,613	6,662	6,868	7,123	7,369	7,587	7,960	8,374	8,772	9,168	9,621	10,032	9,487
y-y (%)	6.7	6.3	5.3	4.3	0.7	3.1	3.7	3.5	3.0	4.9	5.2	4.7	4.5	4.9	4.3	-5.4
Consumer credit	2,321	2,457	2,609	2,644	2,555	2,647	2,756	2,913	3,090	3,310	3,400	3,636	3,831	4,007	4,193	4,188
y-y (%)	4.5	5.9	6.2	1.3	-3.4	3.6	4.1	5.7	6.1	7.1	2.7	6.9	5.3	4.6	4.6	-0.1
Credit card loans	857	924	1,002	1,004	916	839	840	840	854	887	898	960	1,017	1,054	1,092	975
y-y (%)	3.9	7.8	8.4	0.2	-8.8	-8.4	0.1	0.0	1.7	3.9	1.2	6.9	5.9	3.6	3.6	-10.8
Auto loans	823	785	801	777	719	713	751	809	878	955	990	1,062	1,102	1,140	1,184	1,224
y-y (%)	3.2	-4.6	2.1	-3.0	-7.5	-0.8	5.3	7.7	8.5	8.8	3.6	7.3	3.7	3.4	3.9	3.4
Student loans	N.A.	521	589	676	772	855	960	1,055	1,146	1,236	1,320	1,405	1,489	1,571	1,646	1,705
y-y (%)	—	—	13.1	14.7	14.2	10.9	12.2	9.9	8.6	7.9	6.8	6.4	5.9	5.5	4.8	3.5
Other consumer credit	641	226	217	187	148	239	205	209	213	231	192	209	223	243	270	284

Note: Other consumer credit includes student loans in 2005.

Source: Created from Board of Governors of the Federal Reserve System, *Financial Accounts of the United States, Flow of Funds, Balance Sheets, and Integrated Macroeconomic Accounts,* Data Download Program, Z.1 Statistical Release for Jun 10, 2021 (https://www.federalreserve.gov/datadownload/).

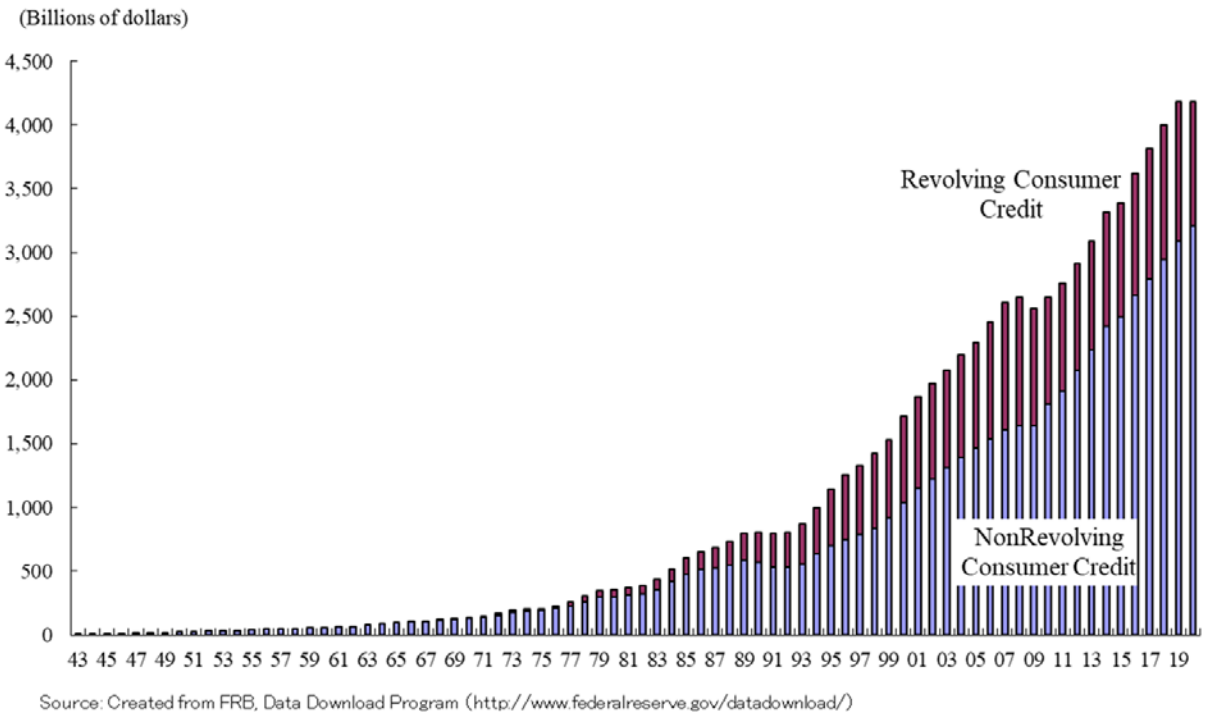


Figure 3. US revolving and non-revolving consumer credit outstanding (1943-2020)

personal consumption expenditures and consumer credit, personal consumption expenditures increased in the year when the consumer credit balance also increased. Conversely, when consumer credit balances declined, personal consumption expenditures also declined in 2009 and 2020 (Table 4). It can be seen that changes in consumer credit lead to changes in personal consumption expenditures.

One of the sources of revenue in the credit card business is merchant fees. The credit card business requires labor and cost for system investment, calculation of fees, monthly invoices, and default. Therefore, there were many financial institutions that did not generate profits from mere commission revenue unless they reached a certain transaction volume even in the United States. The current US financial institutions were able to generate high profits in the credit card business because they were able to generate interest income.

US consumer credit balances have increased with the addition of non-revolving credits and an increase in revolving credits since the 1970s (Figure 3). The use of revolving credits in the United States has been brought with the increasing use of consumer credit. The expansion of the use of revolving credits contributed to the expansion of profits of US financial institutions. In fact, major US financial institutions make annual pre-tax profits of 200-300 billion yen mainly in the credit card business[17]. As cashless society progressed, consumer credit boosted the profits of US financial institutions[18].

5 Payment diversification and financial business

New payment methods are appearing worldwide with the rise of FinTech. What is the impact of such new payment methods spread on financial business and financial systems? We will look at the changes in the Japanese payment systems from the following three aspects. In that case, we also consider from the viewpoint of profitability in financial institutions and business continuity.

(1) Expansion of mobile payment
(2) Utilization of brand debit cards
(3) Comparison of payment source

5.1 Expansion of mobile payment

Mobile payment has been spreading in the widespread use of mobile phones and smartphones. Even in mobile payments, there are various forms such as paying by placing mobile phones and smartphones over readers at retail stores, paying using applications, etc. There are various forms depending on the country. Mobile payment in Japan is often used in an application called a "wallet," usually set up in mobile phones or smartphones in such a way as to capture card information. Card information can be selected from credit cards, debit cards, and electronic money. Mobile payment is mostly used for electronic money in Japan[19].

Mobile payment using electronic money in Japan is carried out by prepaid payment methods via mobile phones and smartphones. In other words, it is convenient for users, but they are only paying in advance[20]. Electronic money requires half of the deposit contribution to the electronic money providers when the unused balance of electronic money is over 10 million yen according to the fund settlement law in Japan. Therefore, this unused balance can be held by the electronic money providers for a certain period, and it is also possible to raise investment profits. However, when electronic money is used, electronic money providers must respond to payment immediately. Although expansion of mobile payment using electronic money contributes to improving the convenience of users in Japan, it is thought that it will take time to become a major source of earnings for financial institutions.

5.2 Utilization of brand debit cards

As the economy and finance become globalized, it is becoming more important to deal with internationalization as a means of payment. In the modern era in which globalization advances, the fact that the same means of payment can be used in some countries but not in others is an impediment to cashless. It is necessary to have a mechanism that can be widely used in the world in order for payment method to generalize[21].

There are Japanese financial institutions that are promoting the issuance of brand debit cards. Debit function is a service in which the usage amount of the debit card is immediately withdrawn from the bank account. Since there is no need to withdraw cash, the user can reduce the ATM usage fee. Financial institutions receive a fee from the merchant according to the transactions of debit cards. Additionally, debit cards for banks can be tools to get deposit accounts. Banks among financial institutions can increase their loan capacity by acquiring deposits. However, the use of debit cards does not directly lead to an increase in lending. Banks need to develop new lenders. The loan to deposit ratio of Japanese banks has declined below 70%, and few Japanese banks issue debit cards for the main purpose of acquiring deposits. Some banks collect fees when issuing debit cards and are trying to improve the profitability of debit cards business[22]. As monthly payment of credit card is mainstream in Japan, it is necessary to add new services to debit cards such as cash back. It seems that it will not easily become a major revenue source as financial business. Japanese banks have different incentives to get small deposits compared to US banks that collect an account maintenance fee. By using debit cards, there is usage information on when and for what consumers used debit cards. Although usage information of debit cards may be useful for banks, the amount of information is limited in the present situation where the use of debit cards is small in Japan. A future issue is how to utilize consumer purchasing behavior for financial business. It would be realistic for banks to carry out business development based on consumer purchasing behavior in collaboration with IT companies.

5.3 Comparison of payment source

As we have seen, cashless is progressing gradually in Japan. Specifically, it is due to expansion of credit cards usage range, increase in brand debit cards, spread of new payment method such as mobile payment etc. It is thought that the methods of payment will change to convenient ones with the spread of FinTech. Even if

consumer's methods of payment spread, the source of payment should not change.

Looking at the consumer's payment as a source of payment, the payment source can be divided into cash, bank deposits, and future income.

Electronic money (prepaid type) is a form in which the form of money is changed from bills or coins to electronic information. As we can see from the spread of electronic money for transportation in Japan, electronic money plays a role of reducing the labor and cost of possessing money. On the other hand, debit cards are payments by bank deposits. Since payment is completed by presenting debit cards without withdrawing cash from bank accounts, it plays a role of saving money.

When consumers use cash, debit cards, electronic money (prepaid type) as a means of payment, the source of payment are cash or bank deposits. On the other hand, when consumers use credit cards as a means of payment, the source of payment is future income. There is a big difference between payment by cash or bank deposits and payment by future income from the view point of financial business as to whether credit is provided or not. Credit cards invented in the United States eventually resolve the credit-debt relationship between the merchant bank and the card issuing bank. On the other hand, there is no credit-debt relationship in debit cards and electronic money. Banks have made profits by executing loans historically among financial institutions. Credit cards became the driving force behind their ability to provide credit with the progress of cashless. At the same time, credit cards also corresponded to internationalization of settlement due to the appearance of Visa and Mastercard.

6 Conclusions

This paper has seen the progress of cashless payments by comparing Japan and the United States, etc. Cashless payments in the United States have been progressing together with the expansion of use of credit cards and debit cards to promote personal consumption expenditures and the activities of financial institutions trying to generate profits[23]. In fact, major US financial institutions make annual pre-tax profits of 200-300 billion yen mainly in the credit card business.

Many of new payment methods that are currently in progress improve the convenience for consumers to pay. For example, when using electronic money, it is convenient to be able to pay by smartphones instead of dedicated cards. However, it means that the medium of payment has switched from cards to smartphones. Such movements are thought to be captured in multilayered payment. "Most payment innovations do not disrupt the existing payment processes[24]." As source of payment, it remains the same as before.

I clarified that it is necessary for financial institutions to continuously record profits as an element to promote cashless society. The promotion of cashless society in Japan has entered a stage where it is necessary for profit sustainability of financial institutions. In order to promote cashless payments, financial institutions that handle cashless payments must be able to generate profits at the same time as improving consumer convenience.

The contribution of this paper is to present the elements for promoting a cashless society after understanding Japanese peculiar situation. Especially in Japan, the low profitability of financial institutions that make cashless payments is a problem. I hope that this paper will contribute to the further promotion of cashless society in Japan.

* On proceeding with this study, I received a 2020 research grant from Japan Academy of Personal Finance. I world like to thank all concerned.

【Notes】

1 Please refer to the Prime Minister of Japan and His Cabinet (2017) and the Ministry of Economy, Trade and Industry (2018).

2 Rogoff (2016) uses the word "less-cash society" in context. Please refer to Rogoff (2016), preface for the Japanese version (Japanese translation pp.3-7).

3 Please refer to Mann (2002).

[4] Please refer to Kawanami (2017).

[5] Kawanami (2017), pp.5-6.

[6] In addition to this, we may consider prepaid cards. Prepaid electronic money and prepaid card are functionally the same. We calculate the cashless settlement ratio except for prepaid cards here due to statistical restrictions.

[7] Please refer to Mann (2002).

[8] Holding a lot of cash can be a hindrance to a cashless economy. However, holding a lot of deposits does not necessarily impede a cashless system. This is because the source of the payment may be deposits when paying with cards. It is necessary to analyze based on the source of payment when discussing cashless transactions.

[9] Please refer to Bank of Japan (2020), p.2.

[10] Please refer to Kawanami and Maeda (2011), Chapter 4, regarding the development of credit card business in Japan.

[11] Please refer to Maeda (2014), Chapter 3, regarding credit card business.

[12] In Japan, the Money Lending Business Act was amended in 2006 and fully enforced in 2010. And the Installment Sales Act was amended in 2008, 2016 and 2020 to tighten regulations.

[13] The CPMI members are the following 26 jurisdictions in 2018: Argentina, Australia, Belgium, Brazil, Canada, China, France, Germany, Hong Kong, India, Indonesia, Italy, Japan, Korea, Mexico, Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States; and one region in the Euro area.

[14] Electronic money counted in "Statistics on payment, clearing and settlement systems in the CPMI countries" does not include electronic money of the post-payment type.

[15] For electronic money in Europe and the United States, the international standard Type A/Type B specification is often used.

[16] Please refer to the Bank of Japan (2018).

[17] Please refer to the Nilson Report (2018), Issue 1124, pp.7-8.

[18] Please refer to Maeda (2017).

[19] Please refer to the Bank of Japan (2017c).

[20] In the United States, "Electronic money grew as an important means of payment being utilized for broader consumers." (Fuchita (2017), p.225) There are a certain number of people in the United States who do not have bank accounts (7% of all US households in 2015). It is a fact that the spread of electronic money that can be used in a prepaid method contributed to the improvement of convenience as a means of payment.

[21] It was international brand cards such as Visa and Master Card that established the mechanism. Please refer to Maeda (2014), Chapter 3 regarding the background of the establishment of Visa and Master Card.

[22] In the United States, Bank of America tried to collect a monthly fee from debit card members but has since canceled it due to the hard repulsion of consumers.

[23] Please refer to Maeda (2017).

[24] World Economic Forum (2015), p.31.

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（Accepted: 20 December 2021）