

Overbanking in Japan?

Jun Shirota

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1 Introduction.

This paper compares Japan and Europe with regard to the so-called overbanking problem. The definition of the overbanking problem is problematic, and the approach to the problem differs greatly depending on the definition. Therefore, we first survey the previous studies.

Ishida and Mio held that it is the demand for deposit currency as a means of settlement, rather than the demand for financial intermediation, that determines the optimal size of the banking industry. The essential functions of banks are not financial intermediation, but the creation and supply of deposit currency as a means of settlement through the provision of credit.¹⁾ The financial intermediation and settlement functions of banks are inextricably linked. Differences in countries' M1/GDP are defined by differences in payment structures. Countries with higher cash settlement ratios also have higher cash/GDP ratios.

In the context of financial liberalisation, non-bank borrowing as a means of raising funds has increased. If the essential function of banks is sought in their financial intermediation function, then banks become oversized (overbanking) in the context of financial liberalisation. Ishida and Mio criticised the

overbanking theory in relation to deposit currencies as a means of payment, as they sought the essential function of banks to be the settlement function. It is entirely correct to seek the essential function of banks as the settlement function. However, unlike in the 1990s, in 2019, the payment structure is changing with the focus on fintech.

Masaya Sakuragawa states that overbanking is an excess of deposits, and from this perspective Japan is overbanking.²⁾ Excess deposits created an asset bubble in the 1980s, which led to over-lending, and caused the bad loan problem. Households' asset management was effectively regulated and much of the savings flowed into bank deposits. This caused banks to compete for limited lending by cutting interest rates, which led to a fall in the rate of return on loans. In addition, banks became more lax in assessing the credit risk of loan deals and tended to target increased lending rather than profit. At the same time, banks use excess deposits to buy government bonds. When banks hold large amounts of JGBs, the BOJ loses flexibility in its monetary policy due to concerns about falling JGB prices and financial system instability. Furthermore, banks holding large amounts of JGBs will be bailed out, resulting in Too-Big-To-Fail, they say.

As of 2019, Japanese banks' holdings of government bonds have declined, but deposits remain the main source of households' asset management and continue to flow into bank deposits, thus making it difficult for banks to invest, which remains the case today. As a result, banks have reduced their effective lending rates in a lending competition. Sakuragawa's argument still has broad validity today.

Shigeru Uebayashi surveys the conventional debate on overbanking and divides the definition and focus of overbanking into three main categories: excessive deposits, overcapacity in lending capacity and an excessive number of financial institutions and branches.³⁾ He then states that the number of financial institutions and branches in Japan is not particularly high compared to other countries. However, a comparison of indicators per branch by prefecture shows that regional disparities are widening. Econometric analysis also shows that the number of financial institutions' branches per population is positively correlated with the volume of deposits and loans relative to the economic size of the prefecture (an increase in the number of branches leads to overbanking). Furthermore, the number of bank branches per population is positively correlated with the loan-to-deposit ratio (an increase in the number of branches leads to an increase in lending).

Although Uebayashi denied that international comparisons showed that the number of branches is not much and overbanking nationally (macroeconomically), it can be assessed as demonstrating that the number of branches locally (microeconomically) leads to overbanking as regional disparities widen. As this paper will show, the number of banks and branches (as a percentage of the population) remains an important argument for overbanking.

Toshihiro Sugiyama noted that the debate on overbanking in the 2000s was mainly related to over-lending and the bad loan problem, but that in the 2010s, the emphasis was on the relationship with

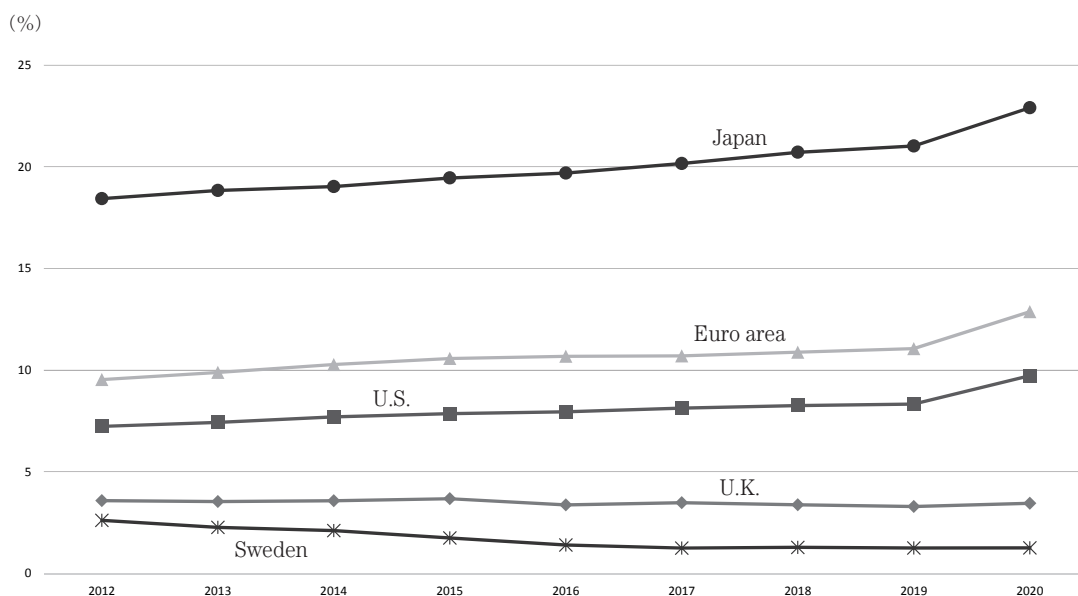
the low profitability of financial institutions, which became more serious due to low interest rates and a declining population.⁴⁾ He then defined overbanking as a situation where the oversize of the banking sector can become a problem in the financial system (the number of financial institutions, branches and loan balances are not huge, but the deposit balances are huge), and that the direct cause of this was the problem of low profitability of Japanese financial institutions. The low profitability was attributed to low fee profits, low and flat yield curves and excessive domestic operating costs, as well as overcapacity.

As shown in this paper, Japanese banks have the lowest loan/deposit margins compared to European countries. The US bank spread is relatively high, while the Japanese bank spread is the lowest in the world. The extremely low loan/deposit spread of Japanese banks is due to an excess of deposits, while corporate demand for borrowing is low and in excess of supply. In this sense, the low profitability of Japanese banks is undeniable and deeply related to the overbanking problem.

The overbanking problem has diverse aspects, including the relationship with cash and deposit balances, the relationship with banks' lending capacity, the relationship with the number of banks and branches, and the relationship with bank profitability. The conclusions of this paper can be stated in advance: at least in terms of the size of cash and deposit balances, lending capacity, profitability and the number of ATMs per population, Japanese banks are overbanked.

2 Overbanking problem in terms of cash and bank balances

Cash payments have traditionally accounted for a high proportion of payments in Japan. Accordingly, cash balances have been large in comparison with those of major countries. Graph 1 shows cash balances as a percentage of GDP. For the participating countries of the eurozone, cash



(source) BIS, redbook

Graph 1 Cash balance to GDP ratio

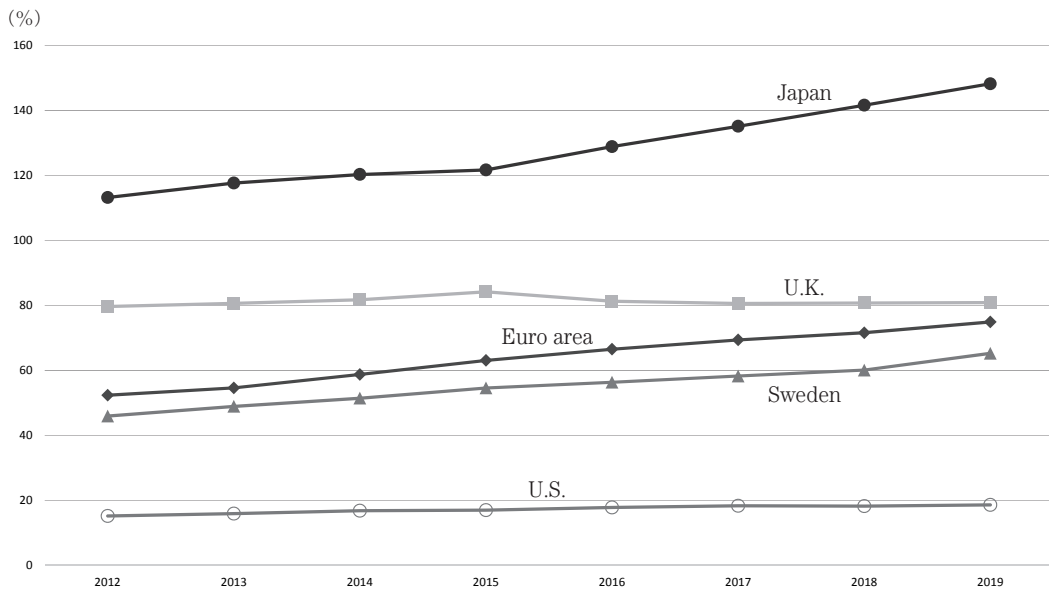
balances are shown only for the eurozone as a whole, as data are not available for each country separately. According to this, the ratios in the euro area are generally between 10-12%. Data are available separately for Sweden and the UK, which were EU member states but have not joined the euro. The UK has a relatively low ratio of 3.5-4%. However, in Sweden, which is a cashless country, it is extremely low, falling from 2.6% (2012) to 1.3% (2020). In Sweden, cash is reportedly often not accepted in general retail outlets. On the other hand, the ratio in Japan is 18.4%(2012) to 22.9% (2020).

Japan's cash-to-GDP ratio is thus unusually high compared to other major countries. Basically, this may be defined by the fact that cash payments are still the main form of settlement.

Graph 2 then shows the ratio of M1 to GDP, which is based on cash and deposit currencies, although the definition of M1 varies strictly between countries. In the euro area, the ratio of M1 balances to GDP has increased from 52.4% (2012) to 58.75% (2014) and further to 74.9% (2019). In the euro area, it is noteworthy that in the seven years between

2012 and 2019, the ratio increased by 23 percentage points. As indicated in Graph 1, cash balances in the euro area are around 10%, which means that there are 40-60% of deposits. In the euro area, this is likely to be due to the fact that many payments are made by credit card or other means, coupled with bank deposits, rather than cash payments. Similarly, in Sweden, the ratio of cash balances to GDP is very low, but the same ratio in M1 has increased from 46% (2012) to 65.3% (2019). Although cashless transactions are progressing in Sweden, it is seen that they are mainly made by withdrawals from bank deposits via smartphones and other devices. Therefore, even though the proportion of cash balances is low, the proportion of deposit balances is expected to be high and the proportion of M1 balances is expected to be high.

In the U.S. on the other hand, the M1 to GDP ratio has remained at levels such as 15.2% (2012) to 18.6% (2019). As shown in Graph 1, the ratio of cash balances was 7-9%, which means that the ratio of bank deposits is around 10% in the U.S. The development of mutual funds such as MMFs



(source) BIS, redbook

Graph 2 M1 to GDP ratio

and other investment trusts in the U.S. has led to large MMF balances, and it is likely that many credit cards are also linked to MMFs. Of course, although the settlement itself is made in the bank deposit account, it is seen as being settled by a transfer from the MMF to the deposit account. Bank deposit balances in U.S. are therefore probably less than in Japan and Europe.

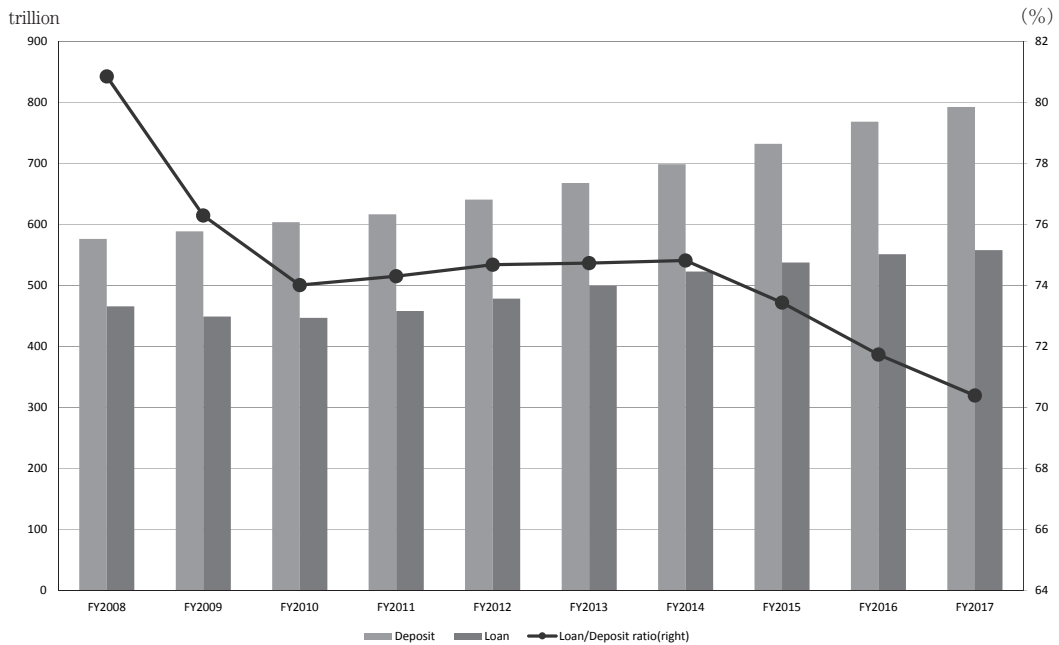
In contrast, the M1-to-GDP ratio in Japan has increased from 113.2% (2012) to 148.2% (2019), a level that is outstanding. M1 in Japan is the sum of cash and deposit currency and includes the Japan Post Bank portion. The M1-to-GDP ratio in Japan has risen to 148%, which is more than seven times higher than in the US, as the ratio in the US is around 18%. Japan's M1 ratio is outstanding internationally, but this is due to a high proportion of cash payments in Japan, the preference for bank deposits, which are easy to convert into cash, the convenience of withdrawing cash due to the large number of bank branches and ATMs (as discussed below), the low cost of bank deposits (unlike overseas, account fees are not incurred), and other

factors are seen to have had an impact.

A high proportion of cash and cash equivalents, M1, means an inflow of deposits for the bank. For banks, if deposits are to increase, they need to invest the funds from the balance sheet. This poses a rather serious problem for banks. The basis of banks' fund management is lending. Therefore, if deposits flow in, the natural course of action is to increase lending. As banks have an abundance or excess of lending resources in the form of deposits, they will try to increase lending even at their own expense. As a result, banks try to reduce lending rates and increase lending volumes. On the other hand, the non-financial sector (firms) has a surplus of funds and demand for borrowing from banks is subdued, so banks are forced to compete in lending. Herein lies the primary cause of overbanking.

3 Overbanking problem from the perspective of lending capacity

As payments in Japan have traditionally been cash-based, the increase in bank deposits, which are close to cash, means that lending capacity will



(source) Bank of Japan

Graph 3 Deposit, Loan and Loan-to-Deposit ratio in Japan

increase for banks. Graph 3 shows the total deposits of all banks in Japan, outstanding loans and the loan-to-deposit ratio (loans divided by deposits, the ratio of loans to deposits, which exceeds 100 per cent, indicating stronger credit creation by banks). Deposits increased from 576 trillion in 2008 to 793 trillion in 2017. On the other hand, the outstanding loan balance was ¥466 trillion in FY 2008, which was less than deposits, but was ¥558 trillion in FY 2017, significantly less than deposits. The difference between deposits and loans was ¥110 trillion in 2008, but increased to ¥235 trillion yen in 2017. The loan-to-deposit ratio fell from 80.9 per cent in FY 2008 to 70.4 per cent in FY 2017, a drop of 10 percentage points in nine years, meaning that banks have had difficulty in lending.

The movement in the loan-to-deposit ratio can be seen from Graph 3, which shows a rapid decline from 80.85% in FY 2008 to 74% in FY 2010. From FY 2010 to FY 2014, the loan-to-deposit ratio remained almost unchanged at the 74% level. However, from FY 2015, the loan-to-deposit ratio declined again to 70.4% in FY 2017.

The decline in the loan-to-deposit ratio between FY 2008 and FY 2010 appears to have been largely due to the Lehman shock. Deposits increased from ¥576 trillion in FY2008 to ¥604 trillion in FY2010, while loans fell from ¥466 trillion to ¥447 trillion over the same period. In the wake of the Lehman Brothers collapse, companies (corporates) became more cash-oriented in order to increase their liquidity on hand. On the other hand, banks and other institutions were wary of lending risks and curbed lending. While deposits increased, lending declined and the loan-to-deposit ratio fell dramatically. By type of bank, lending by city banks fell sharply, while lending by regional and regional banks II did not decline as much.⁵⁾ The BIS capital adequacy rules (Basel II) came into force at this time, imposing international standards on city banks, which may have had a stronger impact than on regional banks and others.

The loan-to-deposit ratio declined again from 2014, falling to 70.4 per cent in 2017. Over this period, lending has increased by 6.7% from ¥523 trillion to ¥558 trillion, while deposits have

increased significantly, by 13.4% from ¥699 trillion to ¥793 trillion. When banks lend, deposits increase on the banks' balance sheets. However, deposits have increased more than lending has increased, suggesting that deposits have increased due to factors other than lending.

One factor behind the increase in deposit balances since FY 2014 is likely to be the increase in corporate retained earnings and deposit inflows. Corporate (including financial) profit reserves increased by ¥118 trillion from ¥328 trillion in FY 2013 to ¥446 trillion in FY 2017. Retained earnings are the final profits of companies that are transferred into profit reserves. Abenomics-led depreciation of the yen and corporate tax cuts have increased corporate profits. An increase in the legal reserve is an increase in equity in the company's balance sheet. On the other hand, looking at the asset composition on corporate balance sheets, there are two major changes. The first is an increase in 'investment securities' in fix assets, which rose from ¥258 trillion to ¥343 trillion. This is seen as an investment (shareholding) in overseas subsidiaries. Second is the increase in 'cash and deposits' in current assets, which rose from ¥174 trillion to ¥222 trillion. Companies, mainly large corporations, increased their liquidity on hand and increased their cash and deposits.⁶⁾

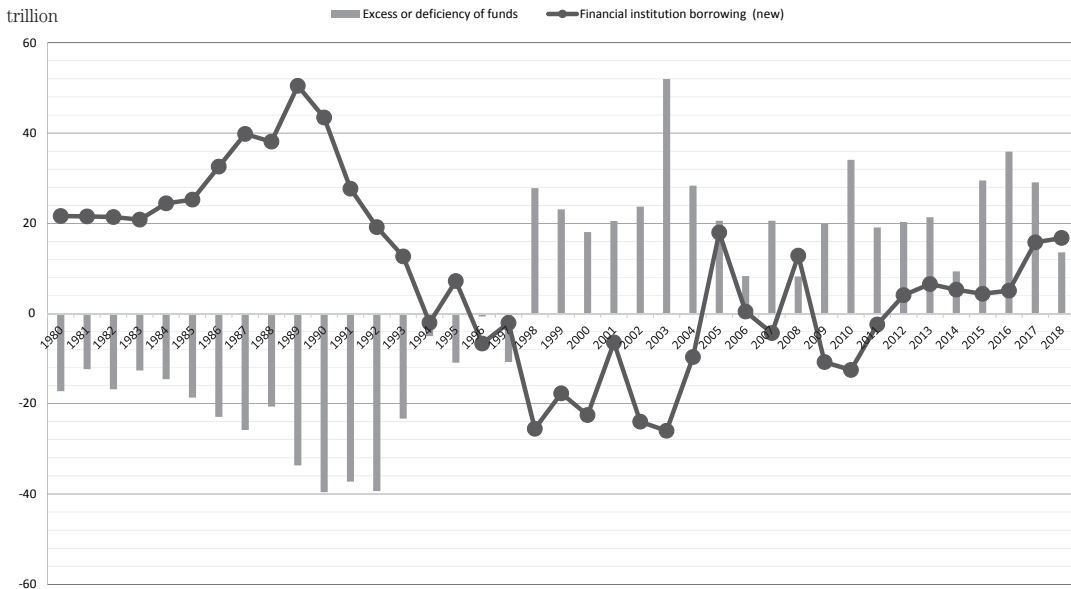
From FY 2014 onwards, there was increase in individual(retail) deposits until FY 2018, but it was not so much as corporate deposits.⁷⁾ According to the Bank of Japan's deposits by depositor, at end-September 2013, individual deposits stood at ¥414 trillion. And at end-March 2018, they were ¥459 trillion, an increase of ¥45 trillion. Individual savings deposits increased by about ¥63 trillion, while time deposits decreased by about ¥20 trillion, resulting in a net increase of ¥45 trillion. The decrease is seen as a result of low interest rates on time deposits and the impact of the pay-off. On the other hand, according to the Bank of Japan's deposits by depositor, total deposits by corporations increased by ¥63 trillion, from ¥185 trillion to

¥248 trillion. As expected, the increase in deposits since 2014 appears to have been mainly driven by corporations.

The basic structure of finance changed significantly in the late 1990s as a turningpoint. The corporate (non-financial corporations) sector, which had previously been the under-funded sector, was transformed into the over-funded sector. Table 4 shows the excess/deficit of funds and borrowing from financial institutions by non-financial corporations: in the 1980s, the corporate sector was underfunded, generally by around ¥20 trillion. There appears to have been a certain amount of demand for funds related to actual capital investment. Furthermore, around 1990, the corporate sector's funding shortfall reached around ¥40 trillion. This appears to have been due to an increase in so-called 'zaiteku' (speculative fund management) and an increase in equity investment and property investment combined with bank borrowing. As a result, bank borrowing by companies was around ¥20 trillion in the 1980s and exceeded ¥50 trillion in 1989.

However, from 1997 onwards, companies had a surplus of funds: in 2003 they had a surplus of about ¥52 trillion, again in 2010 they had a surplus of ¥34 trillion and again in 2016 they had a surplus of ¥36 trillion. The corporate sector as a whole has curbed capital investment, with profits, depreciation and other internal funds able to cover their funding requirements. As a result, corporate bank borrowing became negative, i.e. repaid, mainly around 2000. Bank borrowing became positive in 2005, 2008 and since 2012. There have been acquisitions of foreign companies by Japanese companies and the acquisitions have been financed by bank borrowing. However, by and large, the corporate sector has been in a cash surplus since 1998.

As we have seen above, while bank deposits have increased, bank lending has been sluggish and the loan-to-deposit ratio has declined. The main reason for the increase in bank deposits was the inflow of corporate retained earnings into deposits,



(source) Bank of Japan

Graph 4 Non-financial corporations' over/under funding and new borrowing from financial institutions

which reduced corporate demand for borrowing. Bank lending capacity became excessive relative to borrowing demand.

4 Overbanking problem in terms of number of banks and branches

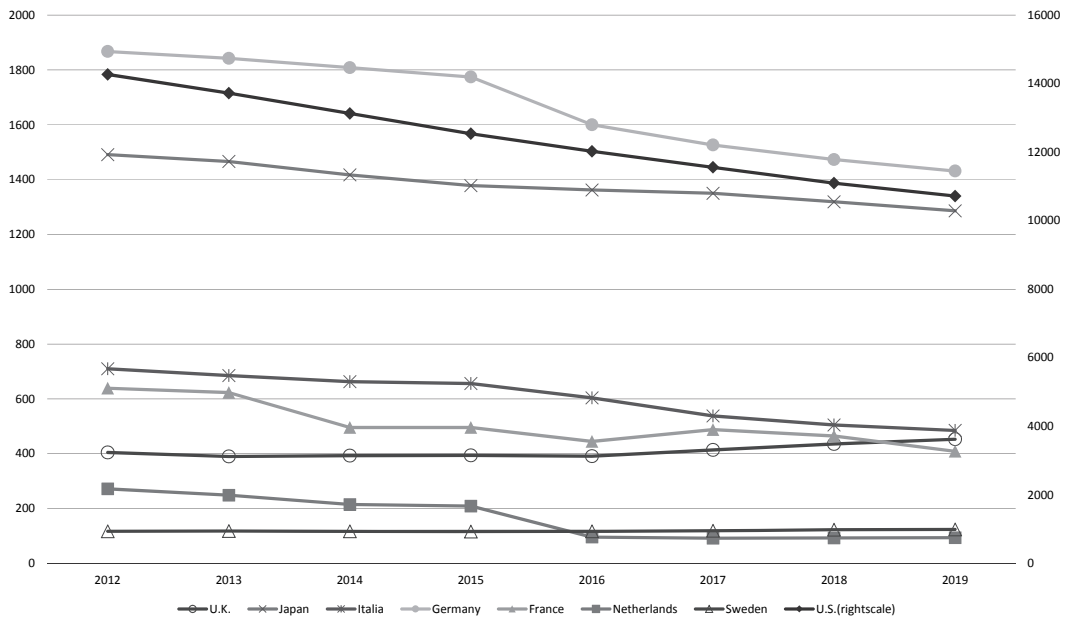
The overbanking problem is then considered in terms of the number of banks, branches and ATMs. Graph 5, based on data from the BIS, shows the number of banks in major countries. The United States of America has the largest number of banks of any of the major countries, having declined from 14,267 in 2012 to 10,718 in 2019, but it still has by far the largest number of banks compared to Japan and Germany. This is due to historical financial regulation in the USA. The US has historically imposed regulations on the banking industry.

First, it has imposed deposit rate regulations (Regulation Q) since 1935. Second, the McFadden Act of 1927 strictly regulated the scope of banks' operations, as it banned interstate banking, prohibited the establishment of branches across state lines and did not allow commercial banks

to establish branches within a state (single-store banking system). This resulted in a structure with a large number of small banks in the USA.⁸⁾ Third was the regulation of the scope of business under the Glass-Steagall Act, which separated the banking and securities businesses.

These regulations were gradually relaxed, and by 1992 deregulation of interstate operations had largely been achieved. The 1990s saw a series of large bank mergers, resulting in a small number of very large banks and many small or medium sized banks in the U.S..

The industry has polarised into large banks and smaller or medium-sized banks. In the USA, the number of commercial banks decreased by approximately 3300 between 1992 and 2001 (from 12058 to 8755), with 67.5% (as of 2001) of total industry assets concentrated in the top 100 banks (approximately 1.1% of all commercial banks). During this period, the number of large banks in the USA with more than \$ 50 billion in assets increased from seven to 22, while the number of banks with less than \$ 300 million in assets (the



(source) BIS, redbook

Graph 5 Number of banks in the major countries

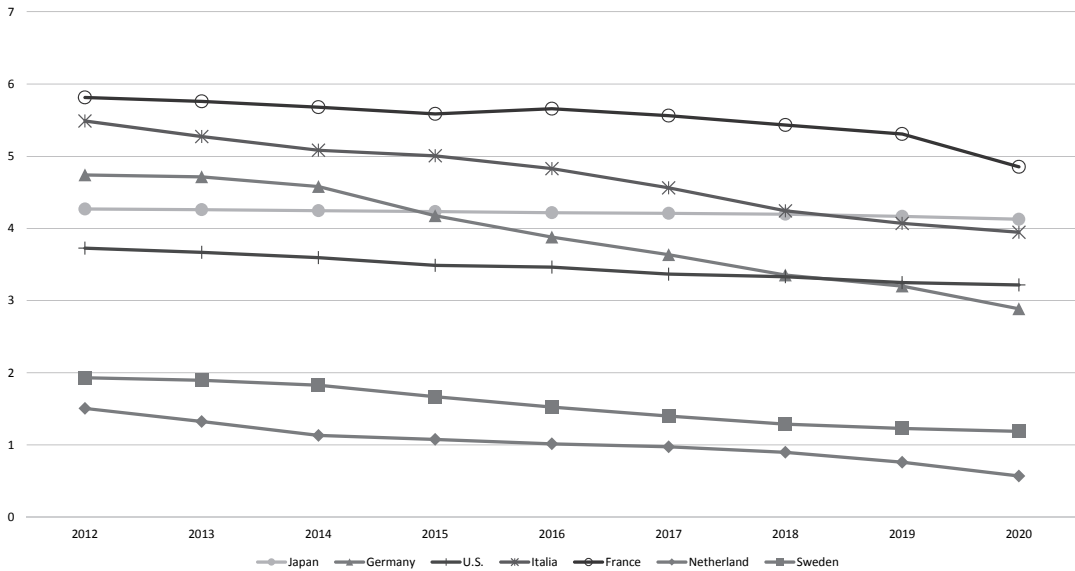
smallest community banks) fell by about 3,400 from 10567 to 7113. About half of community banks are independent banks with no branches.⁹⁾ The US banking industry consists of large oligopolistic banks and a large number of smaller community banks, and the number of banks at 10,718 (2019) is a consequence of historic regulation and deregulation. The large number of unbranched banks places the USA in the middle of the major economies in terms of branches per population, as can be seen in Table 6.

While the number of banks in the USA is unique, Germany has the second largest number of banks. The number of banks in Germany fell from 1867 in 2012 to 1431 in 2019. Germany is also a federal state, albeit not to the same extent as the USA, with strong state authority and regulation. In Germany, state banks and savings banks are public banks, which were mainly owned by state governments. The relationship between state banks and savings banks is close and mutual shareholdings can be observed. For example, in the case of the Bavarian State Bank, the Bavarian State Government held 75% of the shares and the Federation of Bavarian

Savings Banks 25%. On the other hand, there were 65 savings banks in Bavaria, which were effectively owned by the Bayerischer Landesbank.¹⁰⁾ Savings banks therefore existed as a single savings bank in a small geographical area. (It had been suggested that the 65 savings banks in Bavaria alone should be counted as one savings bank.¹¹⁾

Graph 5 shows that there were 1,431 banks in Germany in 2019, of which around 400 were savings banks and 900 were creditcooperatives (Kreditgenossenschaft). As mentioned above, savings banks exist as a single savings bank in a small geographical area, and the same applies to credit cooperatives. Credit cooperatives in Germany largely comprise the Volksbank and the Raiffeisenbank (Raiffeisen is the name of the founder).¹²⁾ Both the Volksbank and the Raiffeisenbank have existed as independent banks, subdivided by region. Although they are now rapidly merging, they had been subdivided by region, so that there were around 900 credit cooperatives in the country.

Both the USA and Germany are federal states and have in common the strong authority of the



(source) BIS, redbook

Graph 6 Number of branches per 10000 population

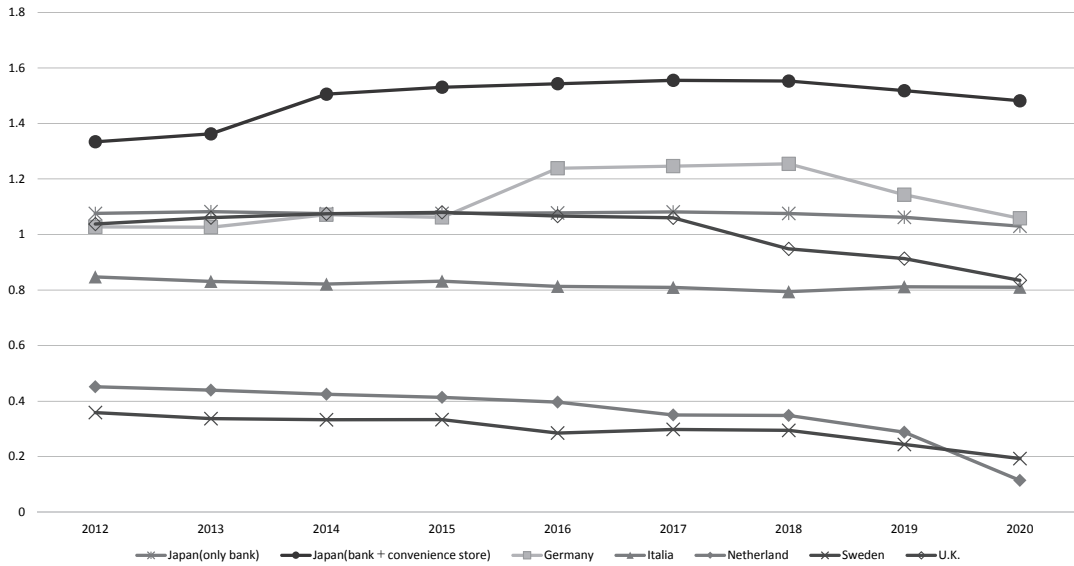
state governments. In the USA, interstate business has historically been regulated and there are still numerous community banks today. In Germany, state banks used to be located in each state, and there are numerous savings banks under the state banks. Credit cooperatives have also been subdivided by region.

As a non-federal, centralised state, Japan has the largest number of banks. As shown in Graph 5, the number of banks in Japan fell from 1491 in 2012 to 1286 in 2019. The origin of the Japanese banking system is probably the National Bank Ordinance of 1872. It is believed to have been introduced with reference to the National Law Banking System in the USA. The National Bank Ordinance authorised local banks, numbered for each prefecture, under the one-prefecture-one-bank principle. However, for various reasons, the one-prefecture-one-bank principle has not been applied even when limited to regional banks (excluding regional banks II). For example, Niigata Prefecture had two regional banks, Daishi Bank and Hokuetsu Bank (which merged as Daishi Hokuetsu Financial Group in 2018), while

Shizuoka Prefecture has three regional banks, Shizuoka Bank, Suruga Bank and Shimizu Bank. Generally, each prefecture has a regional bank II, with Daiko Bank in Niigata Prefecture and Shizuoka Chuo Bank in Shizuoka Prefecture. In addition, each prefecture has its own shinkin banks, credit unions, agricultural cooperatives and Japan Post Bank.

The country with the lowest number of banks in Table 5 is the Netherlands with 94 banks, followed by Sweden with 124 banks. In the Netherlands, the number of banks has plummeted from 272 in 2012 to 94 in 2019. The Netherlands is a country with a high ratio of banking assets to GDP: in 2016, the Netherlands had a ratio of 388.5 %. The banking sector is also increasingly oligopolistic, with the top five banks accounting for 84.7% of total banking assets in 2016.¹³⁾

The European Systemic Risk Board (ESRB), which is closely linked to the ECB, focuses on the ratio of bank assets to GDP and the degree of bank oligopoly as indicators of the overbanked problem. From this perspective, the Netherlands is a typical overbanked country.¹⁴⁾ On the other hand, Dutch



(source) BIS, redbook

(foot note) Japan (bank + convenience store) is calculated by the author.

Graph 7 Number of ATMs per 1000 population

banks have one of the highest proportions of interest income (net interest income, the difference between interest income received and interest paid) in their profits in the EU, around 70%. With this structure, the ECB's negative interest rate policy might have reduced the margins of Dutch banks, leading to a reduction in the number of banks (e.g. mergers).

The next section examines the overbanking problem in terms of the number of branches. Table 6 shows the number of branches per 10 000 inhabitants from BIS data. It shows that the country with the highest number of branches (as of 2020) is France, which has gone from 5.8 branches per 10 000 people in 2012 to 4.85 in 2020. The country with the second highest number of branches after France is Italy, also with 5.5 branches in 2012, which decreased to 4.8 branches in 2016.

Compared to France and Italy, the number of branches in Japan has remained between 4.3 and 4.1, which is slightly less, but almost the same level as in Germany. The number of branches in the USA has decreased from 3.7 to 3.2, which is low for a major country. This is likely to be due to the large

number of community banks in the USA that do not have branches. It has been argued that the number of branches in Japan is not overbanking, as it is at about the same level compared to major countries.

However, as of 2016, there was only one branch in the Netherlands and 1.5 in Sweden. Sweden is reportedly rapidly becoming fintech-oriented, with an increasing number of branches where cash is not accepted. As a result, the number of bank branches is also seen to be declining rapidly. When looking at overbanking in terms of the number of branches, if Sweden and the Netherlands are used as a benchmark, it can be said that Japan is also included, and France, Italy and Germany are also overbanking.

The number of ATMs per population is then examined. Graph 7 shows the number of ATMs per 1,000 population for major countries. According to this, as of 2016, the number of ATMs in Japan, limited to banks, was 136,810, or 1.08 per 1,000 population, which is almost the same level as the UK with 1.07 and Germany with 1.24. This data is from the BIS, but ATMs are defined as those with a cash

withdrawal function (ATM with a cash withdrawal function), which does not appear to include ATMs installed in convenience stores. According to the JBA's Annual Report on Payment Statistics, there are 106,994 ATMs at commercial banks and 29,092 at Japan Post Bank (2018). On the other hand, 7-Eleven alone has 2,5304 ATMs (as of July 2019), 6193 from AEON Bank, 12,756 from E-Net (FamilyMart) and 10,314 from Lawson Bank.

The number of convenience-type ATMs is estimated to be around 57,246. Convenience stores are seen as a business type almost unique to Japan in major countries, and ATMs installed in convenience stores are seen as increasing the number of ATMs in Japan.

Graph7 shows that the number of ATMs is extremely low compared to Japan, the UK and Germany, with 0.1 in the Netherlands and 0.2 in Sweden. In Sweden, the number of ATMs is decreasing and fewer as the country is increasingly cashless.

5 Number of branches by prefecture in Japan

As seen in Graph 6, the number of branches or offices per 10 000 people was 4.23 in Japan (2015), which was the second highest among major countries, after France (5.59 in 2015) and Italy (5 in 2015). With this, the number of branches per population in Japan was sometimes assessed as not necessarily higher than in other countries. The number of branches in Japan was 53,812 (according to BIS statistics. According to the Nikkin Material Annual Report, there were 50,597 branches in Japan as of March 2015).

Table 1 was prepared from the Nikkin Material Annual Report 2019 by Japan Financial News Agency and shows the number of financial institution branches by financial institution type and by prefecture (total of head office, branch and sub-branch offices, does not include out-of-store ATMs). According to this, the total number of branches in Japan is 49,982 (end-March 2018). The number

of branches by financial institution type is 2234 for city banks, 7480 for regional banks, 3053 for regional banks II, 7347 for shinkin banks, 7825 for agricultural cooperatives and 20,074 for Japan Post Bank (post offices). A distinctive feature of Japan by financial institution type is that regional banks, shinkin banks and agricultural cooperatives all have a large number of branches in the 7,000-store range, and Japan Post has the largest number of branches, in the 20,000-store range.

Then, by prefecture, the number of branches per population and per 10,000 people shows a national average of 3.95 branches per 10,000 people. However, there is a considerable disparity between prefectures: six branches per 10,000 people.

Those exceeding the number include 6.49 in Akita, 6.72 in Yamagata, 6.1 in Yamanashi, 6.24 in Toyama, 6.71 in Fukui, 6.8 in Tottori, 7.85 in Shimane, 6.64 in Tokushima, 6.38 in Kagawa, 6.38 in Ehime and 7.14 in Kochi.

On the other hand, the number of branches per 10,000 people is in the range of two branches in four metropolitan prefectures, including Saitama (2.29 branches), Chiba (2.52 branches), Kanagawa (2.15 branches) and Tokyo (2.82 branches). Aichi, Osaka and Fukuoka prefectures follow, with 3.48, 3.04 and 3.34 branches respectively. Firstly, it should be noted that there is a 3.7-fold disparity between the largest prefecture, Shimane (7.85 branches), and the smallest, Kanagawa (2.15 branches), indicating a large disparity between the prefectures. A national average of the number of branches per population, based on a international comparison, does not imply that Japan is not overbanking. There are large regional and inter-prefectural differences.

In prefectures with more than six branch per 10,000 people, the proportion of agricultural cooperatives tends to be high in the composition of branches. The national average ratio of the number of agricultural cooperatives to the total number of branches is 15.7% (see the bottom column of the ratio of agricultural cooperatives in Table1). In contrast,

Table 1 Number of financial institution branch by prefecture

	city bank	other banks	trust bank	regional bank	regional bank II	shinkin bank	credit union	agricultural cooperative	post bank	total	population	number of branch per population	ratio of agricultural cooperative
Hokkaido	10	2	4	175	171	508	94	309	1,208	2,481	5,286	5	12.45466
Aomori	1	0	0	181	5	85	32	93	267	664	1,263	5	14.00602
Iwate	1	0	0	146	56	74	4	120	300	701	1,241	6	17.1184
Miyagi	6	2	4	176	92	81	33	121	347	862	2,316	4	14.03712
Akita	1	0	0	171	5	53	16	118	273	637	981	6	18.52433
Yamagata	1	0	0	138	98	54	27	126	288	732	1,090	7	17.21311
Fukushima	4	0	0	132	110	132	58	194	415	1,045	1,864	6	18.56459
Ibaraki	14	0	0	296	15	97	86	147	465	1,120	2,877	4	13.125
Tochigi	6	0	1	139	77	87	17	121	312	760	1,946	4	15.92105
Gunma	8	0	2	126	44	178	74	150	301	883	1,952	5	16.98754
Saitama	209	1	12	151	75	300	23	279	629	1,679	7,330	2	16.61703
Chiba	87	3	16	246	125	147	54	212	689	1,579	6,255	3	13.42622
kanagawa	201	4	31	248	97	357	23	263	753	1,977	9,177	2	13.30298
Yamanashi	3	0	1	75	0	52	59	107	201	498	817	6	21.48594
Tokyo	817	19	77	229	159	796	178	143	1,475	3,893	13,822	3	3.67326
Niigata	4	0	3	198	71	125	119	203	534	1,257	2,246	6	16.14956
Nagano	6	0	1	133	53	158	57	289	443	1,140	2,063	6	25.35088
Toyama	3	0	2	146	56	90	18	129	211	655	1,050	6	19.69466
Ishikawa	4	2	2	134	5	114	6	109	250	626	1,143	5	17.41214
Fukui	2	0	1	102	32	78	5	92	207	519	774	7	17.7264
Gifu	6	0	1	194	9	186	48	266	355	1,065	1,997	5	24.97653
Shizuoka	15	0	6	324	32	412	4	395	484	1,672	3,659	5	23.6244
Aichi	142	3	14	169	291	693	53	417	839	2,621	7,537	3	15.90996
Mie	11	0	1	180	81	85	4	177	372	911	1,791	5	19.4292
Shiga	3	0	1	98	52	76	19	123	230	602	1,412	4	20.43189
Kyoto	31	2	4	149	16	226	9	95	440	972	2,591	4	9.773663
Osaka	402	8	28	358	129	363	94	210	1,083	2,675	8,813	3	7.850467
Hyogo	133	1	13	144	124	433	68	272	837	2,025	5,484	4	13.4321
Nara	31	0	3	101	7	52	2	99	241	536	1,339	4	18.47015
Wakayama	5	0	2	78	7	49	3	94	263	501	935	5	18.76248
Tottori	1	0	1	104	9	37	0	82	147	381	560	7	21.52231
Shimane	1	0	0	67	25	57	6	121	257	534	680	8	22.65918
Okayama	5	0	6	147	66	131	19	151	417	942	1,898	5	16.02972
Hiroshima	10	2	5	191	113	152	99	266	580	1,418	2,817	5	18.75882
Yamaguchi	6	0	1	128	58	95	12	124	351	775	1,370	6	16
Tokushima	2	0	1	107	69	30	0	79	201	489	736	7	16.15542
Kagawa	5	2	3	116	65	47	18	140	187	583	962	6	24.01372
Ehime	4	0	1	138	103	81	1	217	317	862	1,352	6	25.17401
Kouchi	1	0	0	60	68	44	5	100	226	504	706	7	19.84127
Fukuoka	18	2	7	453	61	140	61	259	714	1,715	5,107	3	15.10204
Saga	2	0	1	76	31	38	21	89	166	424	819	5	20.99057
Nagasaki	2	0	1	175	20	24	19	111	309	661	1,341	5	16.79274
Kumamoto	4	0	2	119	70	71	21	140	386	813	1,757	5	17.22017
Ooita	2	0	1	102	41	64	39	83	302	634	1,144	6	13.09148
Miyazaki	1	0	0	101	47	62	4	114	195	524	1,081	5	21.75573
Kagoshima	2	0	2	120	63	114	42	168	432	943	1,614	6	17.81548
Okinawa	1	0	0	139	50	19	0	108	175	492	1,448	3	21.95122
Total	2,234	53	262	7,480	3,053	7,347	1,654	7,825	20,074	49,982	126,443	4	15.65564

(source) Nikkin (2019)

18.5% in Akita prefecture, 17.2% in Yamagata prefecture, 21.5% in Yamanashi prefecture, 19.7% in Toyama prefecture, 17.7% in Fukui prefecture, 21.5% in Tottori prefecture, 22.7% in Shimane prefecture, 16.2% in Tokushima prefecture, 24% in Kagawa prefecture, 25.2% in Ehime prefecture and 19.8% in Kochi prefecture. In 11 prefectures there were more than six branch per 10,000 people, but in all

11 prefectures the ratio of agricultural co-operative branch was above the national average. These trends can be read as an overabundance of bank branches per population in agricultural areas, as the population is declining due to falling birthrates and an ageing population.

However, these trends were not always readily apparent for Japan Post Bank (Post Office). There

Table 2 The prefectures with more than 6 branches per 10,000 people and low loan-to-deposit ratio

	loan-to-deposit ratio	deposits as a percentage of gross prefectural product	loans as a percentage of gross prefectural product i	branches per 10,000 people
Akita	54.63	110.82	60.53	6.493
Yamagata	59.15	105.10	62.16	6.716
Toyama	60.76	119.80	72.80	6.238
Fukui	53.81	104.79	56.39	6.705
Yamanashi	39.38	91.69	36.11	6.095
Tottori	59.49	135.03	80.32	6.804
Shimane	53.52	95.97	51.36	7.853
Tokushima	44.59	149.33	66.58	6.644
Kagawa	51.13	142.65	72.94	6.060
Ehime	85.16	143.15	121.91	6.376
Kouchi	57.69	112.72	65.03	7.139
Total	63.85	144.36	92.18	3.953
The prefectures with more than 3 branches per 10,000 people and high loan-to-deposit ratio				
Miyagi	65.52	111.10	72.80	3.722
Tokyo	78.37	263.38	206.40	2.817
Fukuoka	81.13	124.82	101.27	3.358
Okinawa	80.46	118.64	95.45	3.398

(source) Bank of Japan (2019) and Cabinet Office (2018)

are 20,774 Japan Post branch nationwide, accounting for 40% of all financial institutions. Looking at this by prefecture, the highest prefectures (ratio of Japan Post branch to total financial institution branch) were Hokkaido with 48.7%, Kyoto with 45.3%, Wakayama with 52.5%, Nagasaki with 46.7%, Kumamoto with 47.5%, Oita with 47.6% and Kagoshima with 45.8%. Among the 11 prefectures with more than six shops per 10,000 people, Akita, Shimane and Kochi prefectures had high rates of 42.9%, 48.1% and 44.8% respectively, while the remaining eight prefectures were at or below the national average.

Next, we will look at whether a trend towards lending difficulties has emerged in prefectures with a high number of branches per 10 000 inhabitants. Table2 shows at the loan-to-deposit ratio, deposits as a percentage of gross prefectural product and loans as a percentage of gross prefectural product in prefectures with more than six branches per 10,000 people. The loan-to-deposit ratio is used as an indicator of whether lending difficulties have been created. This indicator uses deposits as the denominator and lending as the numerator. In the case of Japan, the national average is 63.85%, as

Table2 shows. Looking at the loan-to-deposit ratio by prefecture, for the 11 prefectures with more than six branches per 10,000 people, only Ehime prefecture's ratio of 85.16% is above the national average, while the other 10 prefectures are all below the national average. In particular, Yamanashi prefecture's 39.38% and Tokushima prefecture's 44.59% are some 20 percentage points below the national average. Yamanashi prefecture has a deposit balance of ¥2,980.8 billion, but a loan balance of ¥1,173.8 billion, making it the smallest prefecture in Japan in terms of loan balance. The average outstanding loan balance for prefectures is ¥10,719.2 billion, while the outstanding loan balance in Yamanashi prefecture is about one tenth of the national average. This may be due to the fact that there are few companies with strong demand for funds and the prefecture's population of approximately 830,000 (2015) is the second smallest after Tottori and Shimane prefectures.

In Tokushima prefecture, the ratio of loans to deposits is low, with a deposit balance of ¥4,605.3 billion and a loan balance of ¥2,053.4 billion. The small number of companies in Tokushima

Table 3 The number of financial institution and HH index

	regional bank	shinkin bank	credit union	top bank lending share	HH index
Shimane	2	3	1	85.2%	7340.411
Tottori	1	3	0	74.9%	5854.324
Toyama	3	7	2	73.2%	5574.346
Kouchi	2	2	2	66.8%	5235.319
Ehime	2	4	0	67.3%	5210.225
Tokushima	2	2	0	60.3%	4870.781
Akita	2	2	1	62.6%	4852.588
Kagawa	2	2	1	63.6%	4829.593
Yamanashi	1	2	1	66.7%	4746.837
Fukui	2	4	2	65.6%	4710.947
Yamagata	3	4	3	42.7%	3002.605

(source) Nikkin (2019)

prefecture and the prefecture's small population of approximately 756,000 (in the same year) may have had an impact.

Both Yamanashi and Tokushima prefectures also have a high proportion of individual (retail) deposits among their deposit balances. While the national average for individual deposits is 59.5% (end-March 2019), in Yamanashi and Tokushima prefectures the ratio is 72.7% and 71.9% respectively. This means that in both prefectures, deposits by enterprises are low. If banks increase their lending to enterprises, deposits by enterprises will also increase. In both prefectures, the sluggish growth in lending to enterprises is probably one of the reasons for the lower loan-to-deposit ratio.

The ratio of deposits/gross prefectural product showed that while the national average was 144.4%, only Tokushima prefecture was above the average at 149.3%, while all the other 10 prefectures were below. However, the ratio of loans/gross prefectural product was above the national average of 92.2% in Ehime prefecture alone, at 121.9%, but below in all the other 10 prefectures. In other words, the loan-to-deposit ratio is low in 11 prefectures, not because deposits are large relative to the size of the economy, but because lending is too small relative to the size of the economy. The lack of growth in lending is probably due to the fact that there are few companies in the prefectures and that mortgages and other loans are not increasing due to the decline

in the population. The ageing of the population will lead to sluggish growth in mortgage lending, as mortgage borrowers are usually in their 30s and 40s.

On the other hand, high loan-to-deposit ratios are found in some prefectures where the number of branch per 10,000 people is around three. As Table 2 shows, the number of branch per 10,000 people is as low as 2.8 in Tokyo, 3.4 in Fukuoka, 3.4 in Okinawa and 3.7 in Miyagi. The loan-to-deposit ratio is 78.4% in Tokyo, 81.1% in Fukuoka and 80.5% in Okinawa prefectures, and 65.5% in Miyagi prefecture. Tokyo has a large number of companies and a population of approximately 13.52 million people, so it may be regarded as a natural choice. Okinawa prefecture's gross domestic product is below the national average at ¥4.142 trillion, but it has a population of approximately 1.43 million, almost three times that of Tottori prefecture (approximately 570,000).

As seen above, in 11 prefectures with more than six branches per 10,000 people, the loan-to-deposit ratio was below the national average in 10 prefectures. In 9 of these 10 prefectures, the loan-to-deposit ratio was below the national average. The number of branches relative to the population is high and lending to individuals (e.g. mortgages) appears to be sluggish.

However, even in prefectures with more than six branches per 10,000 people, there are considerable differences in competitive conditions. Table 3 shows the HH index (Herfindahl-Haschmann index)

Table 4 The core business profit of regional banks in the prefecture with much branch

prefecture	bank	(¥million)			(%)		(%)
		FY2016	FY2017	FY2018	rate of change	ratio of capital adequacy	NPL ratio
Akita	Akita	8,520	6,952	6,002	-29.55	10.75	1.94
	Hokuto	2,366	2,402	1,819	-23.12	10.98	1.17
Yamagata	Shonai	3,225	3,975	2,730	-15.35	9.38	2.5
	Yamagata	5,750	5,786	6,317	9.86	11.19	1.2
	Kirayaka	3,059	2,931	2,538	-17.03	8.56	1.59
Yamanashi	Yamanashi chuo	6,442	7,112	7,480	16.11	13.54	1.83
Toyama	Hokuriku	24,708	23,743	22,692	-8.16	9.02	1.81
	Toyama daiichi	5,755	4,923	5,661	-1.63	11.25	1.21
	Toyama	915	1,079	1,379	50.71	8.82	2.67
Fukui	Fukui	4,688	3,173	3,122	-33.4	9.07	1.68
	Fukuhou	506	359	372	-26.48	8.14	4.16
Tottori	Tottori	1,202	1,442	933	-22.38	9.4	1.35
Shimane	Sanin Godo	23,325	22,816	22,543	-3.35	13.48	1.73
	Shimane	-103	-281	-389	—	8	3.05
Tokushima	Awa	17,743	16,759	15,569	-12.25	11.09	2.39
	Tokushima	6,379	6,927	8,075	26.59	8.87	1.66
Kagawa	Hyakujyushi	13,046	13,711	10,199	-21.82	9.04	1.7
	Kagawa	7,777	6,890	6,732	-13.44	9.82	1.77
Ehime	Iyo	25,613	28,450	25,818	0.8	14.14	1.44
	Ehime	6,849	8,418	6,843	-0.09	8.15	2.3
Kochi	Shikoku	7,243	7,765	9,009	24.38	9.71	2.3
	Kochi	1,849	2,418	1,521	-17.74	9.65	4.11

(source) Financial Service Agency homepage

(footnote) Mar-22

calculated for regional banks (including regional banks II), shinkin banks and credit unions based in each prefecture with more than six branches per 10,000 people, based on their outstanding loans. The HH index is a measure of market concentration, calculated by squaring the market shares of the companies in an industry and summing them. The higher the value, the more oligopolistic (less competitive) the market is; the lower the value, the less oligopolistic and more competitive. Simply, the share of outstanding loans of the top banks (mostly regional banks) is also shown. As Table3 shows, the HH index is almost positively correlated with the lending share of the top banks. As can be seen from Table3, even in prefectures with more than six branches per 10,000 people, there are considerable differences in the oligopoly (competitive) conditions calculated from the HH index. The highest HH index is in Shimane prefecture, where the HH index is 7340. In Shimane prefecture, Sanin Godo Bank

has an extremely high share of the market and, as shown in Table4 below, Shimane Bank, the second largest regional bank in Shimane prefecture, has been in the red for three consecutive terms since FY 2016. On the other hand, the HH index is lowest in Yamagata prefecture, at 3003, meaning that the competitive situation in Yamagata prefecture is more than twice as strong as in Shimane prefecture as far as the HH index is concerned. Yamagata prefecture has two regional banks, Shonai Bank and Yamagata Bank, and a further regional bank, Kirayaka Bank. Competition between the three banks is likely to be fierce. In addition to the three regional banks, there are four shinkin banks and three credit unions, making a total of 10 financial institutions in Yamagata prefecture. The large number of financial institutions is also seen as affecting competition in Yamagata prefecture.

However, just because the HH index is large in Shimane prefecture and small in Yamagata

Table 5 The number and profit of shinkin banks

(¥million,%)

Prefecture	Shinkin bank	Number of branch	Loan	net business profit	capital adequacy ratio	NPL ratio
Akita	Akita shinkin	18	67,406	262(-2)	12.82	4.88
	Ugo shinkin	35	67,236	149(-339)	16.44	18.48
Yamagata	Yamagata Shinkin	14	75,694	378(+20)	9.65	6.74
	Yonezawa Shinkin	13	58,325	599(-233)	17.21	5.22
	Tsuruoka Shinkin	18	84,157	575(-87)	28.82	4.44
	Shinjyo Shinkin	9	40,443	718(+192)	11.59	8.67
Toyama	Toyama shinkin	29	170,729	444(-91)	17.21	3.39
	Takaoka shinkin	25	160,297	159(-441)	13.64	5.7
	Niikawa shinkin	10	66,642	29(-68)	9.03	7.45
	Himi fusiki shinkin	7	23,746	143(-9)	21.26	6.99
	Shiraminato shinkin	7	23,790	4962(-1047)	16.78	4.79
	Tochiha shinkin	9	40,216	3045(41)	15.19	4.46
	Sekidou shinkin	4	21,445	1051(236)	19.02	4.46
Fukui	Fukui shinkin	49	390,139	1090(20)	16.06	6.36
	Tsuruga shinkin	9	51,764	180(66)	12.44	9.38
	Obama shinkin	7	41,440	130(47)	24.42	4.99
	Echizen shinkin	12	44,209	451(135)	21.04	4.92
Shimane	Shimane chuo shinkin	23	114,480	311(115)	9.04	8.2
	Shimane shinkin	13	56,567	204(-18)	12.43	3.5
	Nipponkai shinkin	13	49,980	139(-13)	13.38	7.58
Tottori	Kurayoshi shinkin	11	40,267	235(-38)	13.84	8.47
	Tottori shinkin	18	104,447	285(-199)	7.92	4.95
	Yonago shinkin	15	110472	-114(-532)	7.23	4.25

(source) Financial Service Agency homepage

(footnote) March 2018 The bracket in net business profit is the rate of change compared previous year.

prefecture does not mean that competition is weak in the other nine prefectures. As illustrated in Table3, the top bank in Toyama prefecture has a 73.2% share of the market and a high HH index of 5574. The top bank in Toyama prefecture is Hokuriku Bank, but there is also Toyama Bank as a regional bank and Toyama Daiichi Bank as a regional bank II. In addition, there are seven shinkin banks and two credit unions in Toyama prefecture, making a total of 12 financial institutions. Although the share of the top bank is high at 73.2%, due to the large number of financial institutions, as Table 4 shows, in Toyama prefecture, Toyama Daiichi Bank has also experienced a decline in profits, along with Hokuriku Bank.

Even in Shimane prefecture, which has the highest HH index, even the top bank, Sanin Godo Bank, saw a decline in profits. Furthermore, in Tottori prefecture, where there is only one regional

bank, Tottori Bank has seen a 22% decline in profits. In Akita prefecture, where there are two regional banks, Akita Bank's profits have fallen by nearly 30% and Hokuto Bank's profits have also fallen by 23%. In Kagawa prefecture, too, the regional bank Hyakujushi Bank saw a 22% fall in profits, while the second regional bank, Kagawa Bank, saw a 13% fall. The same is true in Fukui prefecture, where the regional bank Fukui Bank saw a 33% fall in profits and the second regional bank Fukuho Bank saw a 26% fall. As a result, 15 of the 22 banks in Table4 have seen a decrease in profit (core business profit in FY18 compared to FY16), and one bank (Shimane Bank) has been in the red for three consecutive years. Looking at the NPL ratio, it is generally between 1 and 2%, which can be said to be within an acceptable range. However, Fukuho Bank, Shimane Bank and Kochi Bank are in the 3-4% range, at 4.16%, 3.05% and 4.11% respectively. The

Table 6 The location of regional banks'branch and proportion outside their own prefecture
(real number,%)

prefecture	banks	own prefecture	Tokyo	Kanagawa	Chiba	Saitama	Osaka	Other	Overseas	Outside own prefecture total	Total	proportion outside own prefecture
Yamagata	Shonai	65	4					18		22	87	25.29
Gunma	Gunma	104	9	3	1	23	1	12	1	49	153	32.03
Tochigi	Ashikaga	112	1	0	0	17	0	23		41	153	26.8
Ibaraki	Jyoyou	148	5	0	7	3	1	19		35	183	19.13
Chiba	Chiba	160	14	0	—	3	1	3	3	24	184	13.04
Kanagawa	Yokohama	177	23				1	4	1	29	206	14.08
Nagano	Hachijiyuni	131	6			5	1	8	1	21	152	13.82
Toyama	Hokuriku	92	7	1			3	84		95	187	50.8
Fukui	Fukui	77	1				1			21	98	21.43
Shizuoka	Shizuoka	172	3	22			1		3	33	205	16.1
Shizuoka	Suruga	76	7	40	1	1	1			56	132	42.42
Gifu	Ogaki kyoritsu	86	1				1	61		63	149	42.28
Gifu	Jyuroku	105	1				1	54		56	161	34.78
Kyoto	Kyoto	111	1				31	30		62	173	35.84
Osaka	Ikeda sensyu	107	1					33		34	141	24.11
Nara	Nanto	90	1				20	27		48	138	34.78
Wakayama	Kiyou	68	1				40	2		43	111	38.74
Simane	Sanin godo	60	1				1	68		70	130	53.85
Hiroshima	Hiroshima	136	1				1	29		31	167	18.56
Kagawa	Hyaku jyushi	86	2				5	31		38	124	30.65
Kochi	Shikoku	56	1				3	42		46	102	45.1
Total		2219	91	66	9	52	114	548	9	917	3,136	29.24

(source) Nikkin (2019)

noticeable decline in profits among regional banks is due to the shrinking margins on deposits and loans, which, in addition to the overbanking problem, has been affected by the Bank of Japan's negative interest rate policy.

However, regional and regional banks II are still relatively stable. The business environment for shinkin banks is even more difficult. Table 5 shows the shinkin banks' management indicators for prefectures with more than six branches per 10,000 people. First, as also indicated in Table 3, prefectures with a high number of branches relative to their population tend to have a high number of financial institutions. In Toyama prefecture, there are two regional banks, one regional bank II and seven shinkin banks. In Toyama prefecture, regional and regional banks II have experienced a decline in profits, while five of the seven shinkin banks have also experienced a decline in profits. Moreover, the decline in profits of shinkin banks is

significant. Yamagata prefecture also has 10 financial institutions, second only to Toyama prefecture, with two of the four shinkin banks reporting a decline in profits. Of the 23 shinkin banks in Table 5, 14 have experienced a decline in profits.

However, what is noteworthy about shinkin banks is their high non-performing loan ratios. While the NPL ratio for regional banks was 1-2%, the NPL ratio for shinkin banks was generally high, in the range of 4-8%. Among them are Ugo Shinkin Bank in Akita prefecture with a ratio of 18.48%, Shinjo Shinkin Bank in Yamagata prefecture with 8.67%, Tsuruga Shinkin Bank in Fukui prefecture with 9.38%, Shimane Chuo Shinkin Bank in Shimane prefecture with 8.2% and Kurayoshi Shinkin Bank in Tottori prefecture with 8.47%. In the local economy, the recovery and expansion of the economy has not benefited from Abenomics, and in some parts of the region there appears to be a state of exhaustion.

When considering local and regional financial

institutions on a prefectural basis, it is important to bear in mind that the regional banks and others are increasing the number of out-of-prefecture branches. Table 6 shows at the location of local banks' branches and the proportion outside their own prefecture. Of the 64 regional banks, 21 are selected in Table 6 as those with a large number of out-of-prefecture branches: the 21 banks have a total of 3136 branches, of which 2219 are in their home prefecture (the prefecture in which the head office is located) and 917 are out-of-prefecture branches outside their home prefecture. Thus, the out-of-prefecture ratio (in total) has reached 29.24%. Local banks now have two branch in their own prefecture and one out-of-prefecture. Looking at individual banks with high out-of-prefecture ratios, the Sanin Godo Bank in Shimane prefecture has the highest ratio at 53.85%. Sanin Godo Bank has 60 branches in Shimane prefecture, followed by 49 in neighbouring Tottori prefecture, nine in Hyogo prefecture, and five each in Okayama and Hiroshima. The Hokuriku Bank in Toyama prefecture is next with a high percentage of out-of-prefecture branches (50.8%). Hokuriku Bank has 92 branches in Toyama prefecture, 19 in Hokkaido, 36 in neighbouring Ishikawa prefecture, 22 in Fukui prefecture, seven in Tokyo and three each in Aichi and Osaka. Hokuriku Bank, together with Hokkaido Bank, forms the Hokuohoku Financial Group, which is believed to have a large number of branches in Hokkaido. Shikoku Bank in Kochi prefecture also has a high proportion of out-of-prefecture branches, at 45.1%. Shikoku Bank has 56 branches in its own prefecture of Kochi, 23 in neighbouring Tokushima, 7 in Kagawa and 6 in Ehime. The top three banks with the highest percentage of out-of-prefecture branches are located mainly in neighbouring prefectures and not necessarily in metropolitan areas such as Tokyo and Kanagawa.

According to the BOJ's analysis, the characteristic of regional banks' lending by area is that lending by metropolitan branches is declining, and from

the perspective of ensuring profitability, they are curtailing lending to large metropolitan companies with thin margins and increasing their focus on the local area.¹⁵⁾ However, the share of lending in the location of their head office (their own prefecture) has been declining in trend. In addition, the share of lending by branches in Tokyo hit a ceiling in the mid-10% range around 2014, and lending in neighbouring areas is increasing.

On the other hand, some regional banks have increased the number of branches in the metropolitan area. Suruga Bank and Shizuoka Bank are representative examples. Both of these banks are regional banks in Shizuoka prefecture, but Suruga Bank has 76 branches in its own prefecture, seven in Tokyo and 40 in Kanagawa. Shizuoka Bank has 172 branches in its home prefecture, 3 in Tokyo and 22 in Kanagawa. Shizuoka Bank has a large number of branches in its own prefecture, so its out-of-prefecture ratio is 16.1%, while Suruga Bank does not have a large number of branches in its own prefecture, so its out-of-prefecture ratio is 42.4%.

In the case of Suruga Bank, the apartment house scandal appears to have arisen as an extension of the bank's metropolitan-centre branch expansion. Suruga Bank had financed a women-only apartment house, 'Pumpkin Carriage', but in making the loan, it was alleged that the bank had falsified the passbooks and other documents of the loan recipient (owner). The scandal was said to have taken place at three branches in Yokohama, Shibuya and Futakotamagawa.¹⁶⁾ Although many local banks are shying away from the metropolitan area due to fierce competition for interest rates, Suruga Bank is believed to have caused the problem by increasing the number of branches in the metropolitan area and trying to increase personal loans.

Suruga Bank has had problems with housing loans to individuals. However, with the exception of Suruga Bank, many local financial institutions are no longer profiting from lending. This has led to an increase in the weighting of non-lending activities.

Table 7 The amount of mutual fund sales by regional banks and ratio of fees and commissions profits to net business profits (¥ million,%)

type of bank	bank	mutual fund sales	change	net business profit(a)	revenue of fees(b)	payment of fees(c)	fees profit (b-c)=d	ratio(d/a)
regional banks	1 Fukuoka	177,900	45,100	60,439	36,612	20,013	16,599	27.5
	2 Chiba	134,500	32,100	66,520	43,476	19,735	23,741	35.7
	3 Senshu ikeda	99,652	14,625	8,399	15,385	9,127	6,258	74.5
	4 Musashino	89,391	27,264	14,253	12,974	4,203	8,771	61.5
	5 Gunma	89,276	35,523	30,078	19,306	8,253	11,053	36.7
regional banks II	1 Nagoya	62,737	4,951	7,026	9,004	2,779	6,225	88.6
	2 Tokyo Star	57,070	7,665	9,913	11,224	6,451	4,773	48.1
	3 Keiyou	56,698	24,908	18,022	10,166	3,752	6,414	35.6
	4 Towa	50,231	-9,577	14,431	5,845	4,027	1,818	12.6
	5 Ehime	26,720	7,658	8,527	4,351	5,930	-1,579	-18.5

(source) Nikkin (2019),Zenginkyo(National Banks Association) various issues

(footnote) change is compared with previous year.

Table7 shows the amount of mutual fund over-the-counter sales by regional and regional banks II and the ratio of fees and commissions profits to net business profits. Many local banks and other regional banks have increased their commissions on mutual fund sales as interest rates on loans have fallen and they are no longer earning interest income. The regional bank that sold the most mutual funds in 2018 was Fukuoka Bank, which sold ¥177.9 billion(an increase of ¥45.1 billion year-on-year). Banks sell investment trusts and earn sales commissions, which are recorded under revenue of fees and commissions. At the same time, banks pay fees to mutual fund companies (including foreign-affiliated companies, securities companies, etc.), which are recorded as payment of fees and commissions. Fees and commissions profit is calculated by deducting payment of fees and commissions from revenue of fees and commissions. Fees and commissions profit are included in the bank's net business profit, which is the profit from the bank's core business.

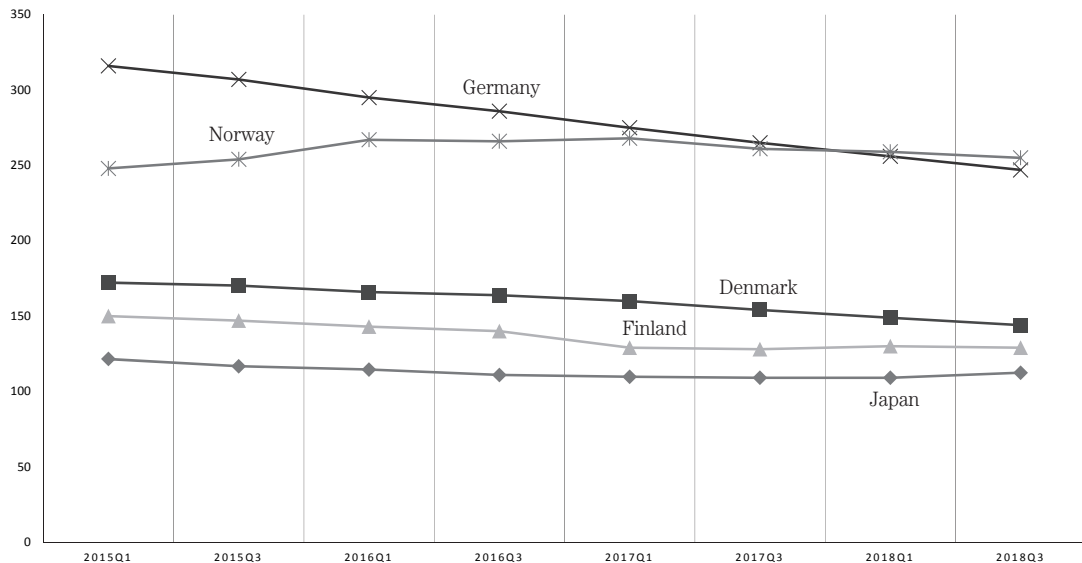
However, the problem is that the ratio of profits from fees and commissions to net business profits is increasing. The ratio (profit from fees divided by net business profit) has reached 88.6% for the regional bank II, Nagoya Bank, and 74.5% for the regional bank Senshu Ikeda Bank.

In the case of Nagoya Bank and Senshu Ikeda Bank, most of their net business profits come from investment trust sales commissions. Although not as large as Nagoya and Senshu Ikeda, even large and prestigious regional banks such as Fukuoka Bank and Chiba Bank generate around 30% of their net business profits from investment trust sales commissions. The true nature of banking is to make profit from the interest margin between lending and deposit rates. The essence of banking business is lending, deposits and settlements. The sale of mutual funds was originally the responsibility of securities firms and is not the essential business of banks. The transformation of today's banks is symbolised by their reliance on mutual fund sales.

6 Overbanking in terms of bank profitability

Finally, let us examine the overbanking from the perspective of profitability, i.e. the issue of low profit margins, particularly for Japanese banks.¹⁷⁾ There are several indicators of profitability and profit margins, including return on assets (ROA) and return on equity (ROE). Here, the interest rate spread between lending and deposit rates, i.e. the loan-deposit spread, is used as an indicator.¹⁸⁾

Graph8, prepared from IMF data, shows the spread between the reference lending and deposit rates (spread between reference lending and



(source) IMF

Graph 8 Interest rate spread between lending and deposit rates (basis points)

deposit rate). According to this, the highest country is Norway, with 248 basis points (bp) in Q1 2015, rising to 268 bp in Q1 2017 and 255 bp in Q3 2018. Germany is also relatively high, with 316 basis points in the first quarter of 2015, which has since declined, but is 247 basis points in the third quarter of 2018. In contrast, the country with the thinnest (lowest) margin is Japan. Japan's loan/deposit margin was 121.5 in Q1 2015, but fell to 109.1 in Q1 2018.

It is not clear which interest rate the IMF used as a reference rate in calculating the loan/deposit margin. In Japan, reference interest rates for lending include the JBA TIBOR (Tokyo Interbank Offered Rate), the short-term prime rate and the long-term prime rate. However, these reference rates have become a formality and the actual average real lending rate continues to decline. One example of the deformation is that the short-term prime rate has remained unchanged at 1.475 since 2009, while the long-term prime rate, which is supposed to be higher than the short-prime rate, has been at 1.0 since 2017.¹⁹⁾ In addition, market interest rates such as call rates and treasury bills (three-

month Treasury bills) have sunk into negative territory since around 2016, while the three-month TIBOR has remained positive. On the other hand, the average real lending rate has fallen below 1% in 2013, even in the short term, to 0.531% in January 2019. Since the deposit rate is as low as zero in Japan, the loan-to-deposit margin of Japanese banks is estimated to be only 0.5% (50 basis points) at the higher end of the range.

7 Summary

In summary, the number of banks and branches in Japan is not so much when compared to the other countries. However, the number of bank branches in Japan varies considerably between prefectures, and it cannot be denied that there are significant regional differences. However, the ratio of cash and deposits to GDP in Japan is extremely high, reflecting the fact that payments are mainly made in cash. The number of ATMs relative to the population is also extremely high due to the addition of convenience store ATMs, and the many number of ATMs is closely linked to cash-based payments.

Furthermore, Japanese banks have the lowest loan/deposit margins in international comparison and a low-profit structure. The strong deposit orientation of the Japanese public and companies has led to an inflow of money into bank deposits, forcing banks to invest and lend even at low margins. With this structure, it is undeniable that Japan is overbanked.

For the time being, mergers and alliances among regional banks and other regional financial institutions are likely to continue. Recent examples include the Daishi Hokuetsu Financial Group (October 2018) mentioned in the text, as well as Mebuki Financial Group (Joyo + Ashikaga, October 2016), Tokyo Kiraboshi Financial Group (Yachiyo + Tokyo Tomin + New Bank Tokyo, May 2018), the Concordia Financial Group (Yokohama + East Japan, April 2016), Kansai Mirai Financial Group (Kinki Osaka + Kansai Urban + Minato, April 2018), Kyushu Financial Group (Higo + Kagoshima, October 2015), Fukuoka Financial Group (Fukuoka, Kumamoto and Shinwa + Juhachi, April 2019), among others.

In creating the Fukuoka Financial Group, the Fair Trade Commission had stopped temporarily for the creation of the company, saying that it would have too high a share of lending in Nagasaki prefecture. However, the government has set up a special law under the antimonopoly law to encourage the restructuring.

Another issue outside the FTC is the increasing proportion of foreign shareholders in regional banks. On average, the ratio of foreign shareholders in regional banks is approaching 15%, and in Concordia Financial Group it has risen to 33%. There are concerns that foreign shareholders may demand higher dividends, which would worsen the financial situation of regional banks, but there also remains the possibility that they may oppose a merger.

In any case, however, the choice of mergers, while reducing the number of banks, does not reduce cash and deposit balances or lending capacity, and does not lead to an end to overbanking.

The universities in Japan, despite the decline in

the population of 18-year-olds, have also expanded the number of students it accepts, mainly in rural areas, by allowing junior colleges to convert to four-year universities. Furthermore, many universities have been attracted in order to promote regional economies. This was based on the assumption of a system of high economic growth in which the population was increasing. The same applies to regional financial institutions, which have been slow to restructure, believing that population growth and economic growth would continue.

On the other hand, banks without branches or ATMs, such as Rakuten Bank and Sony Bank, have entered the market and gained market share. The basic direction for the future is to curb cash payments, and the promotion of cashless payments and fintech is a prerequisite. It is also necessary to eliminate excessive protection for deposits, and the current ban on payoffs, with the exception of deposits for payments, needs to be reformed. It is also necessary to introduce deposit costs, which have been considered free, and in particular high corporate deposits should be made to bear the costs. Lower fees for credit card payments are also needed. It is also necessary to move away from the banking business model as an 'equipment' industry, which is based on own branches and ATMs.

Note)

- (1) Ishida, K. and Mio, H. (2000).
- (2) Masaya Sakuragawa (2004).
- (3) Shigeru Uebayashi (2014)
- (4) Toshihiro Sugiyama (2018).
- (5) Zenginkyo (National Bank Association) (2018)
- (6) Institute for Financial Policy Studies (2018).
- (7) Bank of Japan (2014).
- (8) Higuchi, O. (2003).
- (9) Imura, S. (2002).
- (10) Bayern Landes Bank (2019).
- (11) Daniel Detzer (2017).
- (12) Jun Shirota (2019b).
- (13) De Nederlandsche Bank (2016) Note that

an email enquiry to the Dutch Central Bank regarding the sharp decline in the number of banks in the Netherlands was answered that this was due to the unification of banking licences for the cooperative Rabo Bank.

- (14) European Systemic Risk Board, *Report of the Scientific Committee, Is Europe Overbanked?*, No. 4 /June 2014 The report focuses on public guarantees and public banks as overbanking in Europe. The logic is that although there are fewer bank failures in Europe than in the US, the banking sector is overbanked in Europe because public support and public guarantees are used to bail out banks that are about to fail. Similarly, it states that deposit insurance creates moral hazard and impedes governance.
- (15) Bank of Japan (2019).
- (16) Nihon Keizai Shimbun, 16 May, 22 May and 7 June 2018.
- (17) Toshihiro Sugiyama (2018).
- (18) Jun Shirota (2019a).
- (19) See Bank of Japan, *Monthly Report on Financial and Economic Statistics*, March 2019.

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