Local government cash flow situation as viewed from the fiscal indicators of the Assessment of Fiscal Conditions[*]

OHNO Taro

Chief Economist, Policy Research Institute, Ministry of Finance

ISHIDA Mitsunari

Associate Professor, Faculty of Economics, Toyo University

KOBAYASHI Wataru

Professor, Faculty of Policy Informatics, Chiba University of Commerce / Senior Research Fellow, Policy Research Institute, Ministry of Finance

Abstract

From the viewpoint of confirming the certainty of repayment of fiscal loans to local governments, the Ministry of Finance (MOF) has been conducting the Assessment of the Fiscal Conditions of local governments by creating an Administrative Cash Flow Statement that focuses on cash flows by recombining existing account settlement statistics. This paper uses the fiscal indicators (FY2007-FY2018) to clarify the characteristics of the indicators and examine the cash flow situation. In recent years, while local governments have improved their accumulated and real debt situations, the administrative current balance ratio, which represents the account balance condition, has declined, and their cash flows are becoming increasingly severe. As a result, the number and potential members of local governments that fall under "Fiscal Considerations" based on the diagnostic criteria for the Assessment of Fiscal Conditions have been increasing, and it was found that the increase in expenditures due to property, assistance, and subsidy expenses has contributed to this increase. When the amount of revenues from the hometown tax donation is large, the administrative current balance ratio may apparently deteriorate. However, this does not affect the results of the study. The Assessment of Fiscal Conditions is an effective indicator for understanding the cash flow situation of local government and is also useful from an academic point of view.

I.   Introduction

Although local governments are required to maintain sound fiscal management, in the past, some local governments have been found to be in significant fiscal deterioration. In fiscal reconstruction legislation, the "Law Concerning the Fiscal Soundness of Local Governments" (hereinafter referred to as the "Soundness Law") was promulgated in June 2007 and fully enforced in April 2009, and in order to prevent the situation from becoming more serious, the law identifies the fiscal deterioration of local governments using uniform indicators and encourages them to work toward fiscal soundness. The law has been encouraging efforts to improve fiscal soundness.

On the other hand, the Ministry of Finance (MOF) has prepared an "Administrative Cash Flow Statement" (hereinafter referred to as "CF Statement") to conduct the Assessment of Fiscal Conditions of local governments from the perspective of confirming the certainty of repayment of fiscal loan redemption. The CF Statement is intended to provide an understanding of the debt repayment capacity and cash management condition of each local government by recombining existing account settlement statistics and focusing on cash flow. The background for this initiative, which began in 2005, was a report by the Fiscal Investment and Loan Subcommittee of the Fiscal System Council ("Comprehensive Review of Fiscal Investment and Loan Reforms," 2004), which stated that "With regard to public funds lent to local governments, the fiscal condition and business profitability of the borrower must be properly checked" (Fiscal System Council, Subcommittee on Fiscal Investment and Loan Programs, 2004, p. 34). Subsequently, the report of the Working Team on Fiscal Loan for Local Governments ("Report on Fiscal Loan for Local Governments," 2009), established under the Subcommittee's "Study Group on Basic Issues Concerning Fiscal Investment and Loan," proposed the enhancement and utilization of the Assessment of Fiscal Conditions. In response, the Financial Bureau of the Ministry of Finance published the "Handbook for the Assessment of Fiscal Conditions of Fiscal Loans to Local Governments," which discloses the basic concept of the Assessment of Fiscal Conditions and how to prepare CF statements. Thus, in addition to the use of existing account settlement statistics and the Soundness Ratio under the Soundness Law, the preparation of CF statements and other methods have been used to assess the fiscal conditions of local governments.

Against this backdrop, looking at the fiscal condition of local governments prior to the COVID-19 pandemic, for example, the number of municipalities that met the criteria for soundness (the early soundness criteria or the fiscal rehabilitation criteria) has been rapidly declining: 42 in FY2007, 2 in FY2011, and 1 in FY2018, and Akai and Ishikawa (2019) not-

ed that the changes in the four indicators of fiscal soundness "can be evaluated as a remarkable progress in fiscal soundness" (Akai and Ishikawa 2019, p. 33). The mean of the real balance ratio is 3.86% in FY2007, 6.48% in FY2011, and 6.17% in FY2018, showing a generally upward trend. The improving fiscal condition is also reflected in the current level of reserve funds, with the current level of municipal reserve funds increasing from 9.2 trillion yen in FY2004 to 15.8 trillion yen in FY2018.[1]

However, when using the indicators generated from the CF Statement, the cash flow conditions of local governments over the same period does not necessarily show similar trends. Figure 1 shows the trends of the real balance ratio and each of the indicators used in the CF Statement since FY2007 (all are means among governments). While the definitions of each indicator are given in Section 2, the CF statement is characterized by the fact that it focuses on the flow of cash (cash deposits) for the general account, and that the scope of cash deposits includes annual account cash, the fiscal adjustment fund, and the bond reduction fund, resulting in a CF balance that is equivalent to the change in cash deposits. Figure 1 shows that the real balance ratio rose in the latter half of the 2000s, as mentioned above, and then remained stable and generally flat in the 2010s. In contrast, the CF balance ratio (ratio of CF balance to administrative current revenue) has increased since FY2007, but has been on a downward trend since FY2010, and the cash flow situation of municipalities has been worsening. In particular, the CF balance ratio has been negative since FY2016, which indicates that the reserve capacity is disappearing. Thus, the picture of local governments from the CF statement reflects an aspect that is difficult to capture from other indicators.

The MOF uses this CF statement to calculate four additional fiscal indicators, including debt redeemable years (DRY), real debt to monthly revenue ratio (RDR), reserve fund to monthly revenue ratio (RFR), and administrative current balance ratio (ACBR). In the literature, efforts have been made to focus on these fiscal indicators for the Assessment of Fiscal Conditions. For example, Doi et al. (2011) examine the correlation between fiscal indicators for the Assessment of Fiscal Conditions and four indicators of fiscal soundness for municipalities. They point out that among the fiscal indicators, the DRY, in particular, has a low correlation with the indicators of fiscal soundness and the primary balance, and thus needs to be observed independently of other indicators. Hirota and Yunoue (2018) also examine the interdependence among fiscal indicators for the Assessment of Fiscal Conditions and the indicators of fiscal soundness in their effort to clarify the behavior of local governments to avoid fiscal rule violations for prefectures. Thus, CF statements and the fiscal indicators based on them are receiving increasing attention among analysts of local government finances.[2]

This paper focuses on the CF Statement and fiscal indicators for the Assessment of Fiscal Conditions (FY2007-FY2018) for municipalities to identify the characteristics of the indicators and to discuss trends in debt repayment capacity and cash flow situation in local governments. Since the severe cash-flow condition that municipalities have been facing in

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[1] Studies examining the factors that contribute to fund growth in local governments include Ishikawa (2017a, 2017b), Miyashita and Sumi (2017), Maeda (2018), and Ito (2018).

[2] Other studies on municipal fiscal adjustment in Japan include Bessho and Ogawa (2015).

recent years is reflected in the ACBR among the fiscal indicators, we will examine the trends and background of the ACBR in depth, in particular.

The composition of this paper is described below. Section II first provides an overview of the structure of the CF statement and its main fiscal indicators. In addition, in order to clarify the relationship between the account settlement statistics and the CF statement, we use a factor decomposition approach to examine what factors cause the discrepancy between the real balance and the CF balance, as shown in Figure 1. In Section III, we review four indicators for the Assessment of Fiscal Conditions and the number of local governments that fall into the category of "Fiscal Considerations" based on the diagnostic criteria for the Assessment of Fiscal Conditions. The fiscal indicators also have statistical peculiarities, and depending on the expenditure and revenue structure faced by each government, the ACBR in particular tends to be out of line. The distribution of the ACBR and the factors that cause outliers will also be discussed. Section IV then examines the distribution and trends of local governments' debt repayment capacity (the RDR and ACBR) and cash flow situation (the RFR and ACBR). In Section V, we use a factor decomposition approach to examine the background of the decline in the ACBR. Finally, Section VI presents the conclusions of this paper.

Figure 1: Trends in real balance ratio and indicators in CF statement
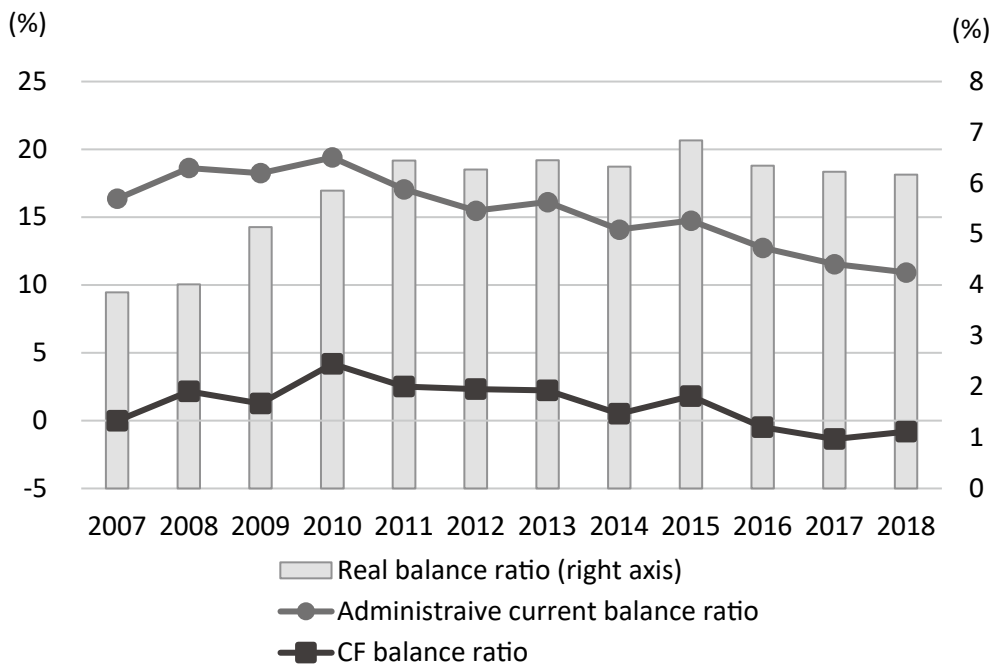
(Note 1) Administrative current balance ratio = (Administrative current balance / Administrative current revenue) × 100
(Note 2) CF balance ratio = (CF balance / administrative current revenue) × 100

II.   Administrative Cash Flows Statement

II-1.   *Composition of the Administrative Cash Flows Statement*[3]

To begin with, an overview of the composition of the CF statement will be presented. The fiscal condition of a local government is assessed from the perspective of confirming the certainty of repayment of fiscal loans (debt repayment capacity and cash flow situation). The CF statement prepared for this purpose is based on the figures from the "Survey of Local Government Finances" (account settlement statistics) in order to capture the flow of cash (cash deposits), and here we focus on the general account.[4] The scope of cash deposits includes annual account cash, the fiscal adjustment fund, and the debt reduction fund. For this reason, there are some differences between the CF statement and the account settlement statistics. For example, in the CF statement, accumulations and withdrawals from the fiscal adjustment fund and the debt reduction fund are not recorded as expenditures or revenues (in the account settlement statistics, they are recorded as expenditures and revenues, respectively), and accumulations to the other special purpose funds among the appropriations of surplus in the annual account are recorded as expenditures (not recorded as expenditures in the account settlement statistics), and the carryover are not recorded as revenues (recorded as revenues in the account settlement statistics).

In the CF statement, the flow of cash deposits during a fiscal year is divided into three categories: (1) administrative activities, (2) investment activities, and (3) financial activities. (1) The administrative activities section consists of administrative expenditures, which are expenses for administrative services that do not lead to asset formation, and administrative revenues, such as general financial resources and specific financial resources for administrative expenditures, from which the administrative balance is calculated. Administrative expenditures are classified into administrative current expenditures and administrative special expenditures, and administrative revenues are classified into administrative current revenues and administrative special revenues, based on whether the expenditures and revenues are incurred on a recurring basis each fiscal year, from which the administrative current balance is calculated. (2) The investment activities section consists of investment expenditures, which are the costs of administrative services that lead to asset formation, and investment revenues, such as specific financial resources and revenues from the disposal of assets, from which the investment balance is calculated. (3) The financial activities section consists of financial revenues, such as the issuance of local government bonds, and financial expenditures, such as the repayment of the principal, from which the financial balance is calculated.

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[3] The description of the CF statement and the Assessment of Fiscal Conditions is based on the Financial Bureau of the MOF (2020a).

[4] In confirming the certainty of the repayment of fiscal loan funds, it is necessary to cover the entire local government, including the general account and the public enterprise account. The Financial Bureau of the MOF (2020a) explains that the reason for this is that "when the debt repayment capacity of a local public enterprise is insufficient, the impact is captured in the form of an increase in transfers from the general account to the public enterprise account or an increase in the future fiscal burden (fund deficiency) of the general account" (Financial Bureau of the MOF, 2020a, p. 2).

The total of the balance of each section is the total balance (hereinafter referred to as "CF balance"), which corresponds to the increase or decrease in cash deposits during the fiscal year. Each of these balances can be summarized as follows

Administrative current balance = Administrative current revenue - Administrative current expenditure

Administrative balance = Administrative current balance + Administrative special revenue - Administrative special expenditure

Investment balance = Investment revenue - Investment expenditure

Financial balance = Financial revenue - Financial expenditure

CF balance = administrative balance + investment balance + financial balance

In addition to the above, the CF statement also includes indicators such as reserve funds and real debt as stock information. Reserve fund, etc. are composed of cash deposits and the other special purpose funds, and real debt is the present value of local government bonds plus interest-bearing debt minus reserve fund, etc.

II-2.   *Key Fiscal Indicators and "Fiscal Considerations" in the Assessment of Fiscal Conditions*

The CF statement is used to calculate four fiscal indicators: (1) administrative current balance ratio, ACBR, (2) reserve fund to monthly revenue ratio, RFR, (3) real debt to monthly revenue ratio, RDR, and (4) debt redeemable years, DRY.

(1) Administrative current balance ratio (S, %)

$$S = \frac{Administrative\ current\ balance}{Administrative\ current\ revenue} \times 100 \tag{1}$$

The ACBR expresses the ability to obtain repayment resources, i.e., how much reimbursement resources are generated from administrative current revenue, and at the same time, it expresses the current cash flow situation, i.e., whether current revenues can cover current expenditures.

(2) Reserve fund to monthly revenue ratio (F, in months)

$$F = \frac{Reserve\ funds, etc.}{Administrative\ current\ revenue \div 12} \tag{2}$$

The RFR indicates how many months of administrative current revenue (on a monthly basis) the reserve funds, etc. are equivalent to, and represents the endurance against cash flow risk.

(3) Real debt to monthly revenue ratio (B, in months)

$$B = \frac{Real\ Debt}{Administrative\ current\ revenue \div 12} \tag{3}$$

The RDR indicates how many months of administrative current revenue (on a monthly basis) the real debt is equivalent to.

(4) Debt redeemable years (T, in years)

$$T = \frac{Real\ debt}{Administarative\ current\ Balance} = \frac{B \div 12}{S \div 100} \tag{4}$$

The DRY indicates the number of years that the real debt is equal to the administrative current balance, which represents the debt repayment capacity.

In addition, in order to serve as a warning bell for the fiscal condition of local governments, the Assessment of Fiscal Condition evaluates whether or not local governments are facing any Fiscal Considerations by taking these four fiscal indicators under certain criteria. The Fiscal Considerations are classified into (1) debt system, (2) reserve system, and (3) balance system, and the following criteria are adopted.

(1) Debt system
  (a) RDR of at least 24 months
  (b) RDR of at least 18 months and DRY of at least 15 years

(2) Reserve system
  (a) RFR of less than 1 month
  (b) RFR of less than 3 months and ACBR of less than 10%.

(3) Balance system
  (a) ACBR of less than 0%.
  (b) ACBR of less than 10% and DRY of at least 15 years

If a local government falls under the criteria (a) or (b) in each system, it is considered to be in a condition that requires Fiscal Considerations. For example, if a local government falls under the criteria of the debt system, it is considered to be in a "high level of debt." If it falls under the criteria of the reserve system, it is considered to be in a "low level of reserve." And if it falls under the criteria of the balance system, it is considered to be in a "low level of balance." In this paper, we will refer to the situation as "serious" when it falls under (1) and "somewhat serious" when it falls under (2) in each system.[5]

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[5] However, the Financial Bureau of the MOF (2020a) notes, "It should be noted that the diagnostic criteria are relative criteria that are categorized using statistical methods in order to identify the Fiscal Considerations, so a local government that meets the diagnostic criteria does not necessarily mean that it is in a situation that requires Fiscal Considerations, and a local government that does not meet the criteria does not necessarily mean that it is not in a situation that requires Fiscal Considerations at all." (Financial Bureau of the MOF, 2020a, p. 23)

As mentioned above, the Assessment of Fiscal Condition is to determine the debt repayment capacity and cash flow situation of a local government from the perspective of confirming the certainty of repayment. Since debt repayment capacity is affected by the debt and balance systems, the RDR and the ACBR are used to ascertain the debt repayment capacity. Although the DRY is also an important indicator, the DRY can be handled simultaneously by using the RDR and the ACBR, based on the definition in Equation (4). In addition, since the cash flow situation is affected by the balance system and the reserve system, it is ascertained by using the ACBR and the RFR.

II-3.   *Relationship between real balance and cash flow balance*

The CF statement is prepared using the figures from the account settlement statistics, but as shown in Figure 1, the trends of CF balance and real balance confirmed by each are different. In order to clarify the relationship between the account settlement statistics and the CF statement, we will use a factor decomposition approach to examine what factors cause the discrepancy between the real balance and the CF balance.

The following identical equation holds between the real balance and the CF balance (both as a ratio to the population).

$$\frac{A}{N} = \frac{C}{N} + \frac{U}{N} + \frac{V}{N} - \frac{Z}{N} - \frac{G}{N} - \frac{Y}{N} \tag{5}$$

A (real balance), C (CF balance), U (carryover),
V (accumulation to The other special purpose funds, OSPF, among appropriation of surplus in annual account),
Z (net increase in Fiscal Adjustment Fund, FAF), G (net increase in Debt Reduction Fund, DRF),
Y (fiscal resources carried forward to next year), N (population)
Net Increase in Fund = Current Year Balance - Prior Year Balance
- Appropriation of Surplus in the Annual Account (for that Fund)

It should be noted that in equation (5), the levels of the net increase in the Fiscal Adjustment Fund, the net increase in the Debt Reduction Fund, and the financial resources carried over to the next fiscal year are expressed as negative values. The following equation is obtained by taking the expected value (means among governments) for government i based on the identity equation at government i time t.

$$E\left[\frac{A_{it}}{N_{it}}\right] = E\left[\frac{C_{it}}{N_{it}}\right] + E\left[\frac{U_{it}}{N_{it}}\right] + E\left[\frac{V_{it}}{N_{it}}\right] - E\left[\frac{Z_{it}}{N_{it}}\right] - E\left[\frac{G_{it}}{N_{it}}\right] - E\left[\frac{Y_{it}}{N_{it}}\right] \tag{6}$$

Based on equation (6), the real balance and the level of each component are measured from year to year.[6] Figure 2 shows the trends related to the decomposition of the real balance.[7] First, it is observed that in most years, the level of the real balance exceeds the level of the CF balance, mainly due to carryover. From FY2007 to FY2010, as the CF balance increased, the accumulation in the Fiscal Adjustment Fund increased along with the real bal-

Figure 2: Factor decomposition of real balance
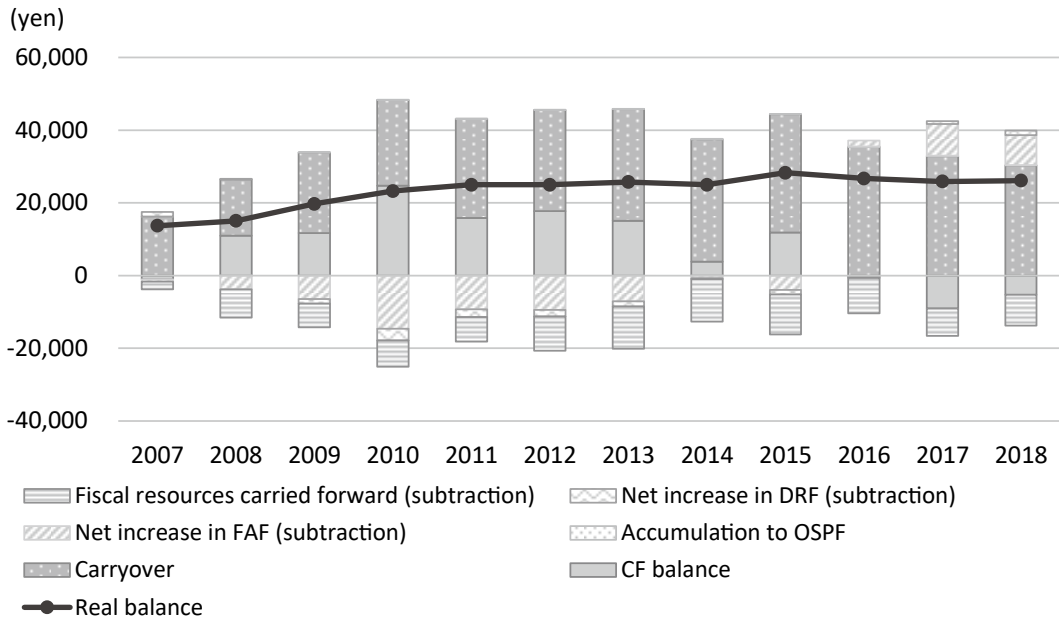
(Source) Ministry of Internal Affairs and Communications, Survey of Local Government Finances

ance. In contrast, from FY2011 onward, the CF balance began to decline, but it is confirmed that the real balance has been maintained while maintaining carryover and reducing accumulations in the Fiscal Adjustment Fund. In particular, since FY2016, the CF balance has been negative, indicating that the real balance has been maintained while drawing down the Fiscal Adjustment Fund. Thus, although the fiscal management of local governments appears to be stable in terms of real balance, especially in recent years, cash flows have been negative, indicating that they are not in a position to obtain resources to accumulate in the fund and that cash management is becoming increasingly severe.

III.   Trends in Indicators for the Assessment of Fiscal Conditions

III-1.   Changes in fiscal indicators and local governments that fall under "Fiscal Considerations"

In considering trends in each indicator for the Assessment of Fiscal Conditions, the years

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[6] Figure 1 uses the real balance ratio (ratio of real balance to standard fiscal size) and the CF balance ratio (ratio of CF balance to administrative current revenue). On the other hand, it should be noted that in equation (6) and Figure 2, both use the ratio to the population in order to capture the relationship between the real balance and the CF balance. The relationship in equation (6) is also measured when the denominator is the standard fiscal size (rather than the population). In this case, the same results as in Figure 2 were obtained.

[7] Here, we used data from the Ministry of Internal Affairs and Communications' Survey of Local Government Finances, and measured all municipalities for each fiscal year for the 12-year period from FY2007 to FY2018.

covered are the 12 years from FY2007 to FY2018, and the local governments covered are all municipalities. In this case, each government is based on the municipalities that existed as of FY2018, and if there was a merger during the same period, the counts of governments that participated in the merger are combined, and the number of governments for each year is 1,741 (sample size is 1,741 governments × 12 years = 20,892).[8] To begin with, we review trends related to fiscal indicators. Table 1 shows trends in four fiscal indicators (all are means among governments). First, the RFR has consistently increased from 4.80 in FY2007 to 7.55 in FY2018, indicating that the reserve fund, etc. continue to improve. In addition, the RDR declined from 14.01 in FY2007 to 7.06 in FY2015, and increased slightly to 7.37 in FY2018. The real debt has also generally improved, which is partly due to an increase in reserve fund, etc. In contrast, the DRY declined from 9.28 in FY2007 to 6.39 in FY2011, but has since turned upward to 8.48 in FY2018. As mentioned above, the DRY is calculated by dividing the real debt by the administrative current balance. The deterioration of the administrative current balance, rather than the real debt, is the reason why the DRY worsened through the 2010s. The ACBR rose from 16.36 in FY2007 to 19.40 in FY2010, but has since turned downward to 10.93 in FY2018. Thus, while the RFR and the RDR have improved, the ACBR has worsened.

These characteristics are also reflected in the number of governments falling under the Fiscal Considerations category, and Table 2 shows the trends. First, looking at the balance

Table 1: Changes in four indicators of the Assessment of Fiscal Conditions

	RDR (month)	RFR (month)	DRY (year)	ACBR (%)
2007	14.01	4.80	9.28	16.36
2008	12.51	4.98	7.08	18.63
2009	11.00	4.87	7.34	18.24
2010	10.00	5.49	6.56	19.40
2011	9.09	6.00	6.39	17.06
2012	8.46	6.76	6.90	15.47
2013	7.75	7.08	6.24	16.11
2014	7.60	7.27	7.68	14.08
2015	7.06	7.37	6.57	14.74
2016	7.09	7.48	7.62	12.75
2017	7.15	7.59	8.24	11.54
2018	7.37	7.55	8.48	10.93

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[8] This treatment of figures in merged local governments is common to all figures except Figure 2.

Table 2: Number of governments falling under Fiscal Considerations

（Number of governments)

	Debt system			Reserve system			Balance system			Fiscal Considerations
	Serious	Somewhat serious	subtotal	Serious	Somewhat serious	subtotal	Serious	Somewhat serious	subtotal	
2007	145	61	206	74	138	212	17	148	165	384
2008	70	24	94	58	78	136	9	77	86	213
2009	42	25	67	52	167	219	32	118	150	284
2010	33	17	50	24	121	145	10	76	86	183
2011	27	18	45	22	150	172	10	96	106	207
2012	29	25	54	17	181	198	26	134	160	262
2013	17	22	39	13	145	158	40	105	145	224
2014	18	31	49	15	175	190	9	157	166	271
2015	13	18	31	13	159	172	16	103	119	228
2016	15	25	40	15	189	204	25	163	188	302
2017	15	36	51	18	189	207	45	170	215	341
2018	13	36	49	15	179	194	45	195	240	344
2007→2018	−132	−25	−157	−59	41	−18	28	47	75	−40
2010→2018	−20	19	−1	−9	58	49	35	119	154	161

system, the number of applicable governments decreased from 165 in FY2007 to 86 in FY2010, but then turned to an increasing trend, reaching 240 in FY2018. The breakdown of this trend shows that the number of "serious" governments increased from 10 in FY2010 to 45 in FY2018, and the number of "somewhat serious" governments increased significantly from 76 in FY2010 to 195 in FY2018. Next, looking at the reserve system, the number of applicable governments decreased from 212 in FY2007 to 145 in FY2010, but then turned to an increasing trend, reaching 194 in FY2018. The breakdown of this trend shows that the number of "serious" governments decreased from 24 in FY2010 to 15 in FY2018, while the number of "somewhat serious" governments increased from 121 in FY2010 to 179 in FY2018. Thus, the number of governments falling into the "fiscal considerations" category in the reserve system has increased through the 2010s, but this is due to the increase in the number of "somewhat serious" governments, which is basically due to the deterioration of the ACBR, not the RFR. In addition, looking at the debt system, the number of applicable governments has decreased from 206 in FY2007 to 49 in FY2018. A breakdown of these trends shows a significant decrease in the number of "serious" governments from 145 in FY2007 to 13 in FY2018. In summary, the number of governments falling under Fiscal Considerations increased by 161 from FY2010 to FY2018. Within this trend, there has been an increase of 154, particularly in the balance system, and an increase of 49 in the reserve system, in both cases mainly due to the deterioration of the ACBR.

III-2.   Impact of outliers in the ACBR

The fiscal indicators also have statistical peculiarities, and depending on the expenditure

and revenue structure faced by each government, the ACBR in particular is prone to outliers. In this section, we examine the distribution of the ACBR and the factors that cause outliers. When the distribution of the ACBR is taken as a full sample, the mean is 15.44, the standard deviation is 8.99, the minimum value is -181.80, and the maximum value is 91.80. Considering the magnitude of the mean and standard deviation of the ACBR, the minimum and maximum values are considered quite extreme. Therefore, if one tries to analyze the overall trend of the ACBR including the outliers, it is necessary to consider the trend from the impact of the outliers because the trend may be misinterpreted.

In this paper, we define an outlier as a sample with an ACBR outside the mean ± 3 × standard deviation interval, i.e., (-11.53, 42.41). A total of 184 governments had an outlier ACBR. Some of them were outliers only once during the 12-year period, while others were outliers more than once. Excluding duplicates, the total number of governments with at least one outlier is 102.[9] These 102 governments are hereafter referred to as "outlier governments." When the sample of outlier governments (102 groups × 12 fiscal years) is removed, the mean value of the ACBR drops slightly to 15.22, the standard deviation also drops to 7.31, the minimum value is -11.20, and the maximum value is 42.40.
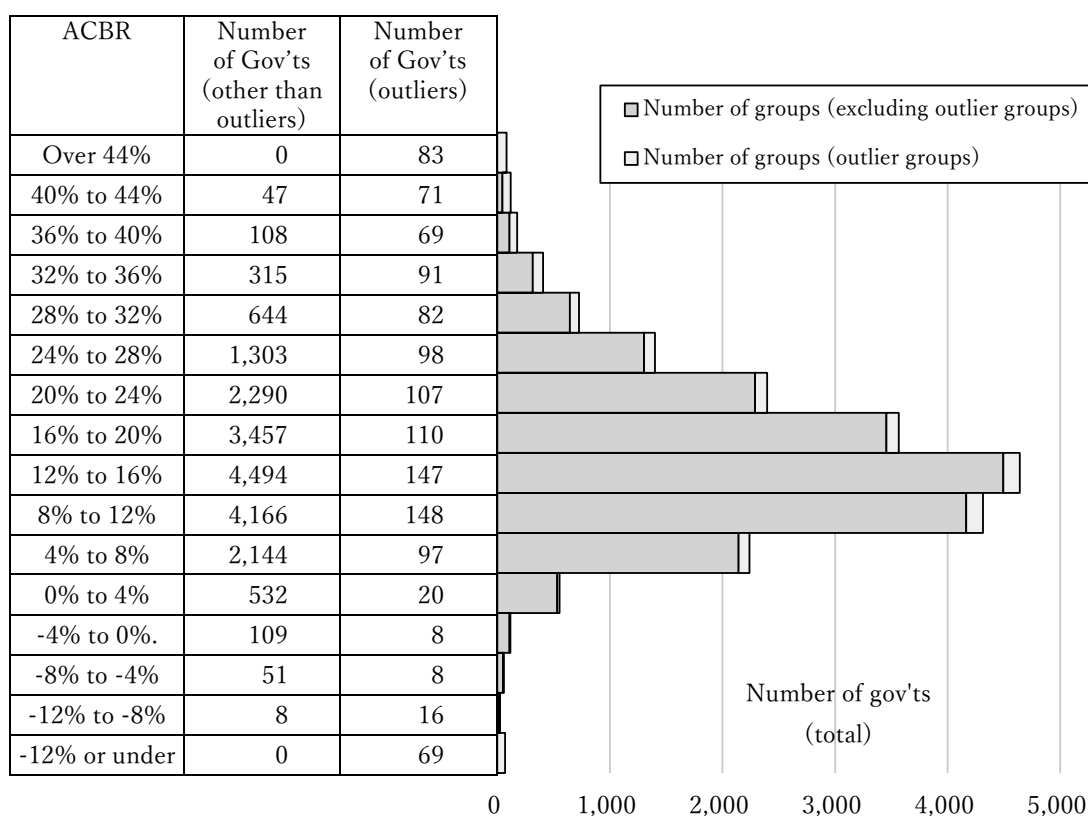
Figure 3 shows a histogram of ACBR. The histogram is constructed by piling up the frequency distribution of the outlier governments on the frequency distribution of the non-outlier governments. About 90.8% of the sample for the non-abnormal governments are within the range of 4% to 28% of the ACBR. Since we defined an outlier as sample outside the range of (-11.53%, 42.41%), any government that once fell into the categories of "less than -12%" and "44% or more" was considered an outlier government. Since the number of outlier governments is 69 for the former and 83 for the latter, it is clear that there is a certain number of outlier governments with extremely low and extremely high ACBRs, respectively.

What are the characteristics of governments with ACBRs outliers? In this section, we will focus on governments that have suffered from the hometown tax donation (HTD) system and large-scale disasters. First, we will look at the relationship between the HTD system and the ACBR. According to the Financial Bureau of the MOF (2020a), the donation revenue from hometown tax is sorted as follows.

> *"Contributions and Donations" is contained in the administrative current revenue, and calculated by subtracting "Contributions and Donations" that are special financial resources in "6. General construction expenses", "10. Reserve funds", "11. Investments", and "12. Loans" of "Table 13 Breakdown of Expenditures and Financial Resources (Part 7)", from the total of "Account Settlement" of "15. Contributions" and "22. Donations" in "Table 05 Status of Revenues."* (Financial Bureau of the MOF 2020a, p. 34)

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[9] Of the 102 governments, 67 governments had an outlier only once, 15 governments twice, 8 governments three times, 6 governments four times, 1 government five times, 2 governments six times, 2 governments seven times, and 1 government eight times.

Figure 3: Distribution of ACBR

ACBR	Number of Gov'ts (other than outliers)	Number of Gov'ts (outliers)
Over 44%	0	83
40% to 44%	47	71
36% to 40%	108	69
32% to 36%	315	91
28% to 32%	644	82
24% to 28%	1,303	98
20% to 24%	2,290	107
16% to 20%	3,457	110
12% to 16%	4,494	147
8% to 12%	4,166	148
4% to 8%	2,144	97
0% to 4%	532	20
-4% to 0%.	109	8
-8% to -4%	51	8
-12% to -8%	8	16
-12% or under	0	69

Number of groups (excluding outlier groups)
Number of groups (outlier groups)

Number of gov'ts (total)

0   1,000   2,000   3,000   4,000   5,000

For example, if the entire amount received from HTD is allocated to the reserve fund, there is no impact on administrative current revenue.[10] On the other hand, since expenses related to the return of HTD are appropriated to subsidy and property expenses, etc., administrative current expenditure will increase when returns to HTD are implemented.[11] Therefore, it can be inferred that the ACBR will be lower for governments that accept a large number of HTD.

Next, we will look at the relationship between governments hit by large-scale disasters and the ACBR. In general, governments hit by large-scale earthquake or typhoon damage are subject to an increase in the central government subsidy rate for disaster recovery projects, based on the Law Concerning Special Financial Assistance to Deal with Intense Disasters (hereinafter referred to as the "Intense Disaster Law"). In addition, a portion of the principal and interest payments on local government bonds related to disaster recovery projects

[10] According to the Local Government Finance Bureau of the Ministry of Internal Affairs and Communications (2017), "The general operation of the hometown tax donation is that the remaining amount utilized in the year of acceptance is accumulated in a fund and then reversed and utilized in the following year or subsequent years".
[11] Ito (2020) compared governments with per capita hometown tax receipts of 50,000 yen or more with other governments, and found that the former had significantly larger per capita reserve funds, property expenses, subsidy expenses.

will be covered by the general allocation tax, as well as by the special allocation tax depending on the extent of damage. In addition, the special allocation taxes for earthquake recovery will be granted to governments affected by the Great East Japan Earthquake. Disaster recovery project expenses are recorded as administrative special expenditure, while central government subsidies to these expenses are recorded as administrative special revenue, so they do not directly affect the ACBR. However, according to the Financial Bureau of the MOF (2020a), local allocation taxes are sorted into administrative current revenue, so the special allocation tax and special allocation tax for earthquake recovery mentioned above are incorporated into administrative current revenue. In other words, it can be inferred that the ACBR will be higher for governments hit by large-scale disasters because administrative current revenue will increase, and a portion of these revenues will go to administrative special expenditure.

Based on the two inferences, there is a possibility that governments with ACBR outliers are related to governments that accept a large number of HTD and disaster-affected governments. In the following section, we will examine the trends in the ACBRs of governments that receive an abnormal amount of HTD per capita and disaster-affected governments. We define "HTD outlier groups" as follows. The mean and standard deviation are calculated from the data of per capita revenue received since the start of the HTD system in FY2008. The governments that once fall under the outlier category are called "HTD outlier governments". Disaster-affected groups are defined as municipalities that fall under the specified local governments to be notified at the end of the fiscal year based on the Intense Disaster Law, or municipalities that fall under the specified disaster-affected local governments to be designated based on the cabinet order to specify municipalities under Article 2, paragraphs 2 and 3 of the Act on Special Financial Assistance and Aid to cope with the Great East Japan Earthquake.

There are 102 governments with an ACBR outlier, 31 governments with an HTD outlier, and 493 disaster-affected governments. Figure 4 depicts the overlapping relationship between these three groups. 15 groups, or roughly half of the HTD outlier groups, also fall under the ACBR outlier group, while 44 groups, or about 10% of the disaster-affected groups, also fall under the ACBR outlier group.

Table 3 shows trends in the mean and standard deviation of the ACBR. Panel (a) shows the mean, while the "All governments" column at the top of the table shows the mean including governments with ACBR outliers, indicating that the mean of the ACBR has been declining since its peak in FY2010. The trend remains the same even after excluding governments with ACBR outliers, and the gap between the two is not so large.

The next three columns on the right of panel (a) show the trends in the mean of the ACBR outlier governments, HTD outlier governments, and disaster-affected governments only, and the mean of the ACBR of these governments. The mean of the ACBR outlier governments remained higher than the mean of all governments until FY2016, but the mean declined by 6.3% from the previous year in FY2016, and the downward trend did not stop thereafter, falling to 2.53% in FY2018, well below the mean of all governments. Similar to

Figure 4: Relationship among the ACBR and the HTD and the disaster-affected governments
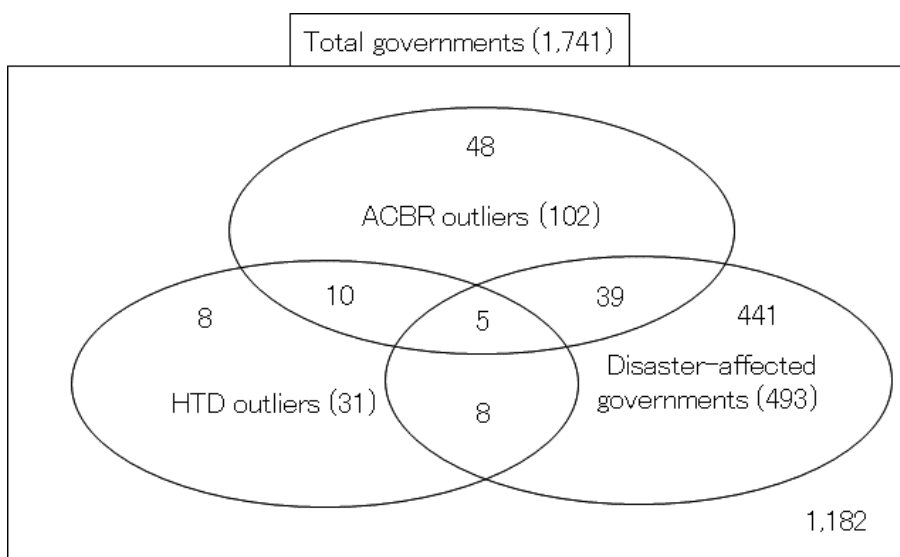
this, the HTD outlier groups are showing a similar trend. The mean of the HTD outlier groups also remained higher than the mean of all governments until FY2016, but dropped sharply from 16.25% in FY2015 to -17.84% in FY2018. The amount of HTD received by local public finances as a whole jumped from 38.85 billion yen in FY2014 to 165.29 billion yen in FY2015 and reached 512.71 billion yen in FY2018. In line with the expansion of HTD, the ACBR of HTD outlier groups and ACBR outlier groups dropped.[12] On the other hand, the mean of the disaster-affected groups is consistently higher than the mean of all governments, but there is no significant change as in the case of the HTD outlier groups.

The results of the above discussion are consistent with our previous expectation that the ACBR tends to be lower in the HTD outlier groups and higher in the disaster-affected groups. The extreme decrease in the mean of the outlier groups in the ACBR is presumably the result of the strong influence of the outlier groups in the HTD.

Panel (b) of Table 3 then shows the standard deviation of the ACBR. The "All governments" column at the top of the table shows the standard deviation including outlier governments in the ACBR, which has generally remained at around 7 to 8. The value temporarily exceeded 9 in FY2009 and FY2010, increased again from FY2017, and reached 11.24 in FY2018. When the sample of ACBR outlier groups is removed, the upward trend in the standard deviation seen in the last two years disappears, and a gradual decline in the standard deviation can be seen since FY2009. When only the ACBR outlier groups are extracted, their standard deviations were around 15 to 20, but in FY2017 and FY2018, the standard deviations were 29.54 and 39.98, respectively, which are quite large values. Similarly to the discussion of the mean in Panel (a) of Table 3, the standard deviation of the HTD outlier

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[12] See Municipal Tax Division, Local Taxation Bureau, Ministry of Internal Affairs and Communications (2020).

Table 3: Trends in ACBR

(a) Mean

(%)

	Total governments	Excluding ACBR outliers	Extracting the following		
			ACBR outliers	HTD outliers	Disaster−affected governments
2007	16.36	16.07	21.42	17.23	18.89
2008	18.63	18.31	23.79	21.37	21.59
2009	18.24	17.85	24.6	23.24	21.99
2010	19.4	19.03	25.31	24.47	22.9
2011	17.06	16.69	22.92	22.87	21.44
2012	15.47	15.17	20.3	21.06	19
2013	16.11	15.93	19.05	21.88	19.85
2014	14.08	13.63	21.35	15.86	17.2
2015	14.74	14.29	21.97	16.25	17.44
2016	12.75	12.57	15.64	7.27	14.97
2017	11.54	11.68	9.23	−5.54	13.12
2018	10.93	11.45	2.53	−17.84	11.85
Whole period	15.44	15.22	18.98	14.01	18.36

(b) Standard deviation

(%)

	Total governments	Excluding ACBR outliers	Extracting the following		
			ACBR outliers	HTD outliers	Disaster−affected governments
2007	7.64	6.66	16.17	12.05	7.37
2008	7.67	6.83	15.11	9.82	7.78
2009	9.66	8.93	16.48	11.46	9.64
2010	9.31	8.32	18.2	11.45	9.55
2011	8.48	7.15	19.31	8.83	7.7
2012	8.42	7.23	18.69	8.97	8.61
2013	8.96	7.34	22.33	10.27	8.3
2014	7.31	6.23	15.29	7.41	8.58
2015	7.09	6.18	13.78	9.61	8.14
2016	7.56	5.83	20.64	26.67	8.3
2017	8.97	5.6	29.54	45.57	10.7
2018	11.24	5.55	39.98	58.76	13.68
Whole period	8.99	7.31	22.53	27.16	9.79

groups shows that the standard deviation of the ACBR outlier groups also increased along with the standard deviation of the HTD outlier groups in the last two to three years.

As mentioned above, it was shown that the ACBR was significantly lower in the HTD outlier groups for the last two to three years, but it should be noted that this does not mean that cash flow is actually deteriorating in the HTD outlier groups. Indeed, this is because an increase in HTD payments decreases the administrative balance through a decrease in the administrative current balance, but increases the investment balance through an increase in the reserve fund, and the two effects cancel each other out. We will confirm this below. Figure 5 shows the changes in each balance ratio in the CF statement. Here, the value obtained by dividing the administrative balance by the administrative current revenue is called the "administrative balance ratio," and the value obtained by dividing the investment balance by the administrative current revenue is called the "investment balance ratio." The CF balance ratio is equal to the sum of the administrative balance ratio and the investment balance ratio plus the financial balance divided by the administrative current revenue. Panel (a) of Figure 5 shows the changes in each of the balance ratios for all governments, indicating that the ACBR and the administrative balance ratio are on a declining trend, and that the changes in these four indicators, including the investment balance ratio and the CF balance ratio, are all gradual. On the other hand, panel (b), which only includes governments with HTD outliers, shows that the ACBR and the administrative balance ratio have declined significantly since FY2016, when the HTD spread rapidly, while the investment balance ratio has increased significantly (through an increase in contributions and donations, which are breakdown items of investment revenue). And the CF balance ratio, which represents the overall cash flow condition, has remained almost unchanged. Thus, it should be noted that when the amount of revenue received from HTD is large, there may be an apparent deterioration in the ACBR. However, the presence or absence of such outliers does not affect the main results of the discussion confirmed in section III-1.

IV. Distribution and Trends in Debt Repayment Capacity and Cash Flow Situation

IV-1. Distribution and trends in debt repayment capacity

First, the distribution and trends of the debt repayment capacity of local governments are examined using the RDR and the ACBR. Since the DRY is composed of the RDR and the ACBR, as defined in equation (4), it is possible to treat the DRY at the same time.

In capturing the distribution of debt repayment capacity, we create categories using coordinate axes. Figure 6 shows four quadrants, with the RDR (B) on the horizontal axis and the ACBR (S) on the vertical axis. The first quadrant indicates the region where $B > 0$ and $S > 0$, in which the DRY (T) takes a positive value. The second quadrant represents the region where $B \leq 0$ and $S > 0$, indicating a situation where there is no real debt. In this case, the DRY (T) takes the value of zero. The third quadrant represents the region where $B \leq 0$ and $S \leq 0$, in-

Figure 5: Changes in each indicator in the CF statement

(a) all the governments
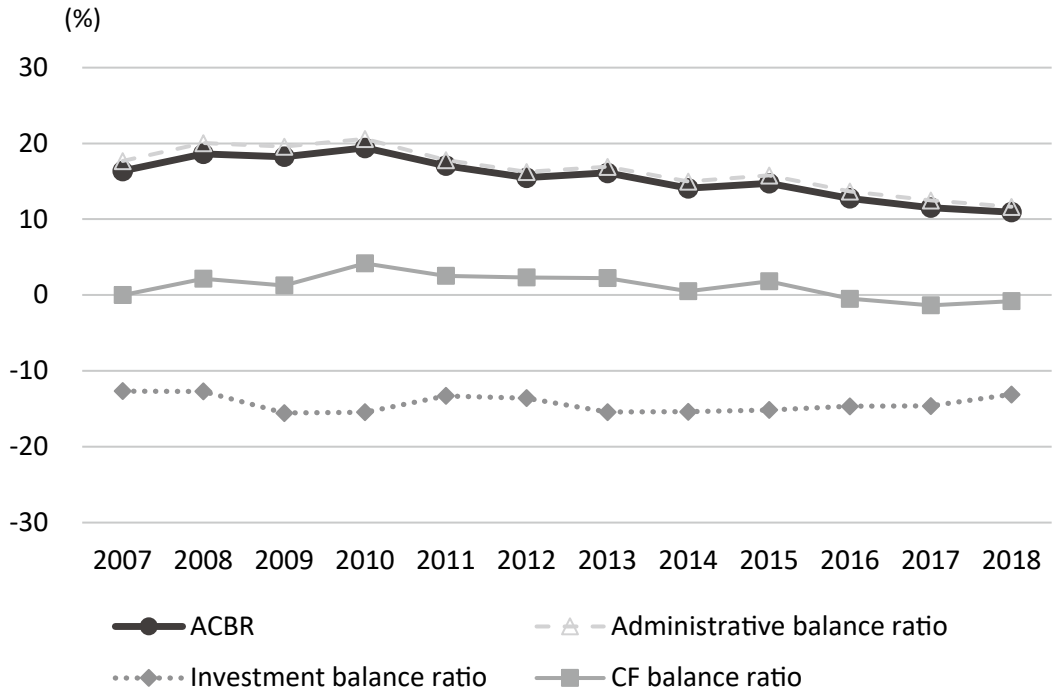
(b) Only HTD outliers
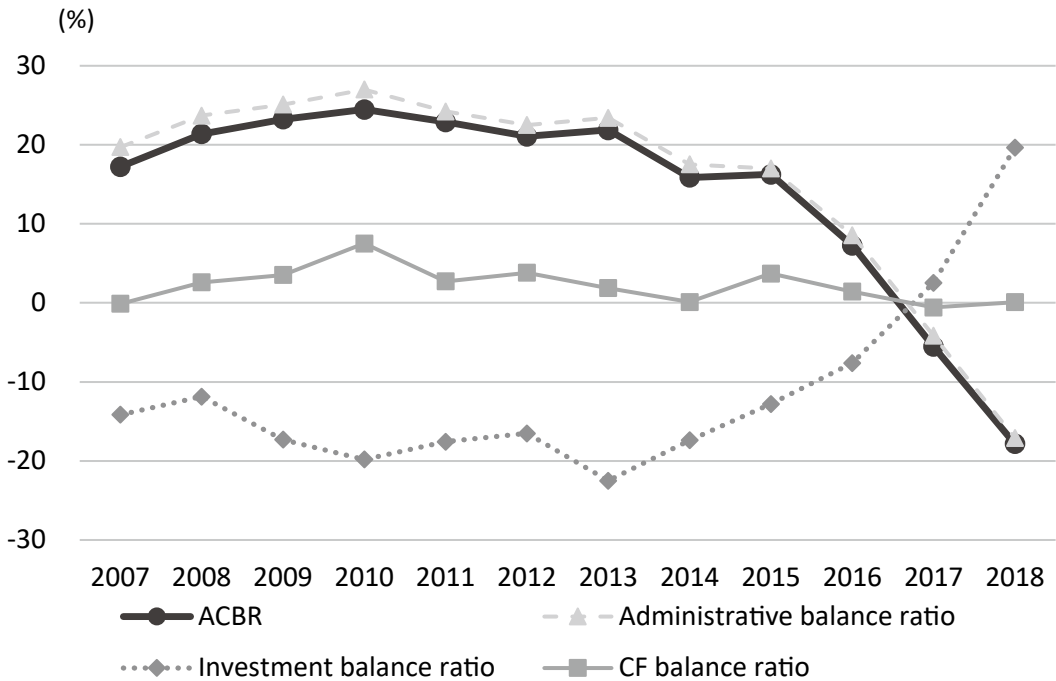
dicating a situation where there is no real debt, but the ACBR is poor. In this case, the DRY (T) takes the value of zero. The fourth quadrant represents the region where B> 0 and S≤ 0, indicating a situation where the ACBR is poor. In this case, the DRY (T) is treated as a deficient value.

Table 4 shows the number of governments that fall into each quadrant and their trends. The majority of the governments fall into the first quadrant, but their transition has decreased from 1,659 in FY2007 to 1,489 in FY2018. In contrast, the number of governments that fall into the second quadrant has increased from 65 in FY2007 to 207 in FY2018. This indicates an increase in the number of governments with no real debt, which is partly due to an increase in reserve funds, etc. The number of governments falling into quadrants 3 and 4 is basically negligible.

In order to understand the distribution and trends of debt repayment capacity in detail, it is necessary to look at the contents of the first quadrant. Figure 7 shows seven subdivisions of the first quadrant of Figure 6, with the RDR (B) on the horizontal axis and the ACBR (S) on the vertical axis. Each category is prepared in relation to the thresholds in the "Fiscal Considerations" section. The straight line $S = (1/15) B$ indicates that the DRY is 15 years, the area above the straight line indicates that the DRY (T) is less than 15 years, and the area below the straight line indicates that the DRY (T) is more than 15 years. The definitions of each category are as follows.[13]

    (1) 15≦T, B<18
    (2) 15≦T, 18≦B, S<10
    (3) 15≦T, 18≦B, 10≦S

Figure 6: Classification by RDR and ACBR

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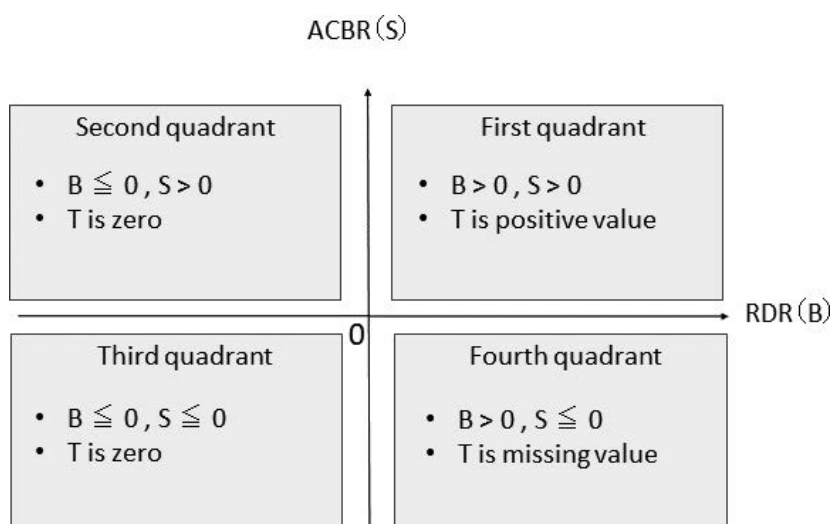
[13] The method used to create the classifications was based on the Financial Bureau of the MOF (2020a, p. 24) and the Financial Bureau of the MOF (2020b, p. 5).

Table 4: Distribution on debt repayment capacity

（Number of governments）

	First quadrant	Second quadrant	Third quadrant	Fourth quadrant
2007	1659	65	0	17
2008	1646	86	2	7
2009	1620	89	3	29
2010	1625	106	0	10
2011	1585	146	0	10
2012	1535	180	1	25
2013	1503	198	1	39
2014	1536	196	0	9
2015	1510	215	1	15
2016	1495	221	1	24
2017	1482	214	9	36
2018	1489	207	16	29
2007→2018	−170	142	16	12
2010→2018	−136	101	16	19

Figure 7: Classification by RDR and ACBR : within the first quadrant
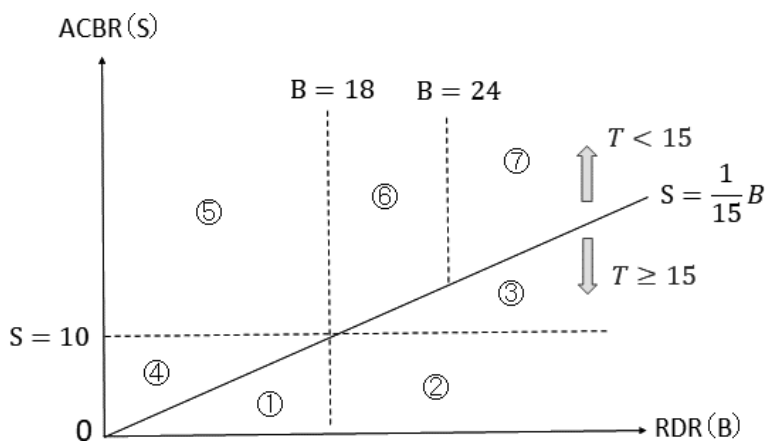
(4) T<15, S<10
(5) T<15, B< 18, 10≦S
(6) T<15, 18≦B≦24
(7) T<15, 24≦B

Of the seven categories, those falling under (2), (3), and (7) are subject to "Fiscal Con-

siderations" (debt system), and those falling under (1) and (2) are subject to "Fiscal Considerations" (balance system).

Table 5 shows the number of governments that fall into each category and their trends. The majority of the governments fall into (5), and the transition has been 935 in FY2007, 1,306 in FY2010, and 799 in FY2018, with the number of governments decreasing by 507, especially from FY2010 to FY2018. In contrast, the number of organizations falling under (1) and (4) has increased. The number of governments in (1) was 59 in FY2010 and 165 in FY2018, an increase of 106. The number of governments in (4) was 124 in FY2010 and 435 in FY2018, an increase of 311 governments. As can be seen, the distribution of local governments has shifted from (5) to (1) and (4) since FY2010, indicating that the ACBR has declined for many governments. Of these, (4) represents cases where the ACBR is less than 10% (DRY is less than 15 years), and although this is not subject to Fiscal Considerations (balance system), it is a situation that is imminent. Therefore, the increase in the number of governments falling under (4) indicates that the number of governments that can be called a potential member for Fiscal Considerations (balance system) is increasing.

Table 5: Distribution on debt repayment capacity : Within the first quadrant

（Number of governments）

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2007	94	54	51	127	935	302	96
2008	52	25	26	82	1166	253	42
2009	90	28	16	173	1158	134	21
2010	59	17	16	124	1306	90	13
2011	73	23	12	168	1227	74	8
2012	109	25	13	227	1089	63	9
2013	86	19	9	178	1153	55	3
2014	128	29	15	316	996	47	5
2015	87	16	9	297	1052	44	5
2016	137	26	8	387	896	37	4
2017	137	33	13	449	816	30	4
2018	165	30	12	435	799	43	5
2007→2018	71	−24	−39	308	−136	−259	−91
2010→2018	106	13	−4	311	−507	−47	−8

IV-2.   *Distribution and trends regarding cash flow situation*

Next, the distribution and trends in the cash flow situation of local governments will be captured using the RFR and the ACBR. In capturing the distribution of cash flow situation,

we will also create categories using coordinate axes. Figure 8 shows nine categories, with the RFR (F) on the horizontal axis and the ACBR (S) on the vertical axis. Each category is created by relating the threshold values in the Fiscal Considerations section. In other words, the RFR (F) are classified with F=1 and F=3 as the threshold values. The ACBR (S) is classified using S=0 and S=10 as the threshold values. The definitions of each category are as follows.[14]

    (1) $F<1, 10\leqq S$
    (2) $1\leqq F< 3, 10\leqq S$
    (3) $3< F, 10\leqq S$
    (4) $F<1, 0< S<10$
    (5) $1\leqq F<3, 0<S<10$
    (6) $3<F, 0<S<10$
    (7) $F<1, S\leqq 0$
    (8) $1\leqq F<3, S\leqq 0$
    (9) $3<F, S\leq 0$

Of the nine categories, those falling under (1), (4), (5), (7), and (8) are subject to Fiscal Considerations (reserve system), and those falling under (7), (8), and (9) are subject to Fiscal Considerations (balance system).

Table 6 shows the number of governments that fall into each category and their changes. First, the number of governments falling under (2) and (3) has decreased. The number of governments in (2) was 405 in FY2007, 307 in FY2010, and 100 in FY2018, showing a decrease of 207 from FY2010 to FY2018. (3) was 989 in FY2007, 1,202 in FY2010, and 924 in FY2018, representing a decrease of 278 governments from FY2010 to FY2018. In contrast, the number of governments in (5) and (6) has increased. (5) was 134 in FY2007, 116 in FY2010, and 174 in FY2018, representing an increase of 58 in the number of governments from FY2010 to FY2018. (6) is 123 in FY2007, 83 in FY2010, and 483 in FY2018, representing an increase of 400 governments from FY2010 to FY2018. As can be seen, the distribution of local governments has shifted from (2) and (3) to (6) in particular since FY2010, and here, too, many governments have experienced a decline in the ACBR. Also, as in section III-2, the increase in Fiscal Considerations (reserve system) is mainly due to the increase in (5), i.e., due to the decline in the ACBR.

V.   Factor Decomposition of the ACBR

Based on the previous discussion, this section examines the background of the recent decline in the ACBR. In order to capture the contribution of both revenue and expenditure,

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[14] The method used to create the categories was based on the Financial Bureau of the MOF (2020a, p. 24) and the Financial Bureau of the MOF (2020b, p. 5).
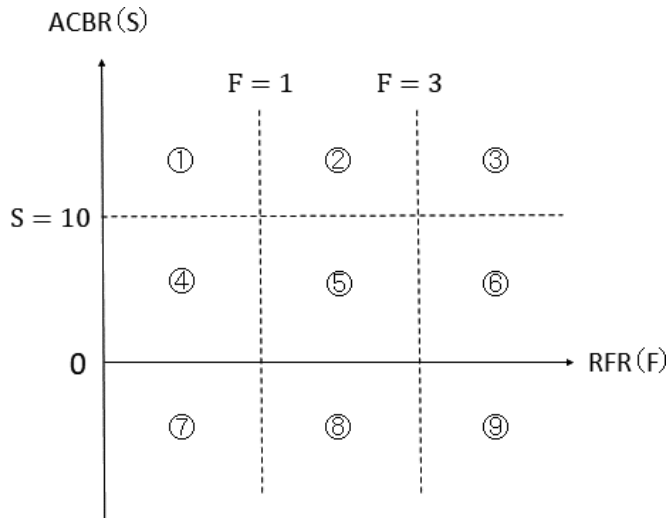
Figure 8: Classification by RFR and ACBR

Table 6: Distribution of cash flow situation

（Number of governments）

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2007	49	405	989	24	134	123	1	4	12
2008	40	441	1089	18	76	68	0	2	7
2009	29	380	992	19	156	133	4	11	17
2010	11	307	1202	12	116	83	1	5	4
2011	10	193	1246	11	142	129	1	8	1
2012	4	133	1189	10	170	209	3	11	12
2013	5	145	1249	7	128	167	1	17	22
2014	6	129	1096	9	173	319	0	2	7
2015	6	141	1166	7	156	249	0	3	13
2016	5	103	1029	10	184	385	0	5	20
2017	2	96	946	16	183	453	0	6	39
2018	4	100	924	11	174	483	0	5	40
2007→2018	−45	−305	−65	−13	40	360	−1	1	28
2010→2018	−7	−207	−278	−1	58	400	−1	0	36

we take the ratio of the administrative current balance to the population and decompose the change. The following identity equation holds for the administrative current balance (ratio to population).

$$S' = \left(\frac{R_0}{N} - \frac{E_0}{N} \right) * 100 = \left(\sum_{j=1}^{J} r'_j * 100 - \sum_{k=1}^{K} e'_k * 100 \right) \tag{7}$$

S′ (administrative current balance: ratio to population),
R_0 (administrative current revenue), E_0 (administrative current expenditure),

r'_j (breakdown items of administrative current revenue: ratio to population),
e'_k (breakdown items of administrative current expenditure: ratio to population)

Administrative current revenue consists of (1) local tax, (2) local transfer tax and subsidy, (3) local allocation tax, (4) national (prefectural) treasury disbursement, (5) contribution and donation, (6) user fee and charge, and (7) business and other revenue. The breakdown of administrative current expenditures is: (1) personnel expense, (2) property expense, (3) maintenance and repair expense, (4) assistance expense, (5) subsidy expense, (6) transfer (other than construction expense), and (7) interest expense. The following equation is obtained by taking the expected value (means among governments) for government i based on the identity equation at government i time t.

$$E[S'_{it}] = \sum_{j=1}^{J} E[r'_{jit}] * 100 - \sum_{k=1}^{K} E[e'_{kit}] * 100 \tag{8}$$

Based on equation (8), the level of administrative current balance and breakdown items are measured from year to year. Table 7 shows the factor decomposition for changes in administrative current balance (ratio to population). First, the administrative current balance is 78,511 yen in FY2007, 115,479 yen in FY2010, and 65,438 yen in FY2018, increasing from FY2007 to FY2010 and then decreasing from FY2010 to FY2018. This background is due to the fact that both administrative current revenue and administrative current expenditure have increased since FY2007, but from FY2007 to FY2010, the increase in revenue was greater than the increase in expenditures, resulting in an increase in balance. Looking at the contribution of the breakdown as a background to the increase in administrative current revenue during this period, local allocation tax and national (prefectural) treasury disbursement contributed significantly. As for the background to the increase in administrative current expenditure, while many expense items increased, the contribution of assistance expenses was particularly large. On the other hand, from FY2010 to FY2018, expenditures have increased more than revenues, resulting in a decrease in balance. Looking at the contribution of the breakdown as a background to the increase in administrative current revenue during this period, the contribution of local allocation taxes is particularly large. As for the background to the increase in administrative current expenditure, the contribution from property, subsidy, and assistance expenses is particularly large.

Thus, in recent years, the ACBR has deteriorated due to a relatively large increase in administrative current expenditures. Under these circumstances, the number of governments that fall under the Fiscal Considerations (balance system) has been increasing. And we will look at what kinds of expenditure items are causing the deterioration of the ACBR. The following identity equation holds for administrative current expenditure (as ratio to administrative current revenue).[15]

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[15] Administrative current expenditure (as a ratio to administrative current revenue) is equal to 1 minus the ACBR (1-S).

$$e = \frac{E_0}{R_0} = 100 - \sum_{k=1}^{K} e_k * 100 \qquad (9)$$

e (administrative current expenditure: ratio to administrative current revenue),
e_k (breakdown items of administrative recurrent expenditure: ratio to administrative recurrent revenue)

The breakdown items of administrative current expenditure are (1) personnel expense, (2) property expense, (3) maintenance and repair expense, (4) assistance expense, (5) subsidy expense, (6) transfer (other than construction expense), and (7) interest expense. The following equation is obtained by taking the expected value (means among governments) for government i based on the identity equation for government i at time t.

$$E[e_{it}] = 100 - \sum_{k=1}^{K} E[e_{kit}] * 100 \qquad (10)$$

Based on equation (10), we measure the level of administrative current expenditure and breakdown items for each group. In this section, all observations (a total of 20,892 for 1,741 governments in FY2007-2018, respectively) were assigned to the three groups of "no concern," "somewhat severe," and "severe" in terms of Fiscal Consideration (balance system). Table 8 shows an intergroup comparison of administrative current expenditure. The groups with serious Fiscal Considerations have particularly high subsidy and property expenses when compared to the groups with no concerns. On the other hand, the groups with some-

Table 7: Administrative current balance (ratio to population): Intertemporal comparisons

(Yen)

	2007	2010	2018	2007→2018	2007→2010	2010→2018
Local Tax	131,582	126,299	137,893	6,311	−5,283	11,594
Local transfer tax and subsidy	23,760	21,881	29,584	5,824	−1,880	7,703
Local allocation tax	189,703	227,217	240,544	50,841	37,515	13,327
National (prefectural) treasury disbursement	51,094	90,211	91,851	40,756	39,116	1,640
Contribution and donation	5,098	4,697	15,535	10,438	−401	10,839
User fee and charge	13,678	13,394	13,950	272	−284	556
Business and other revenue	7,442	7,332	8,670	1,228	−110	1,337
Administrative current revenue (subtotal)	422,358	491,030	538,026	115,668	68,672	46,996
Personnel expense	103,671	100,412	106,498	2,827	−3,259	6,086
Property expense	68,838	77,465	116,545	47,707	8,627	39,080
Maintenance and repair expense	5,829	7,195	10,872	5,043	1,365	3,678
Assistance expense	41,876	59,616	79,699	37,823	17,740	20,083
Subsidy	60,626	65,574	92,406	31,780	4,948	26,832
Transfers (other than construction expenses)	50,499	55,257	62,372	11,873	4,758	7,115
Interest expenses	12,507	10,032	4,195	−8,312	−2,476	−5,836
Administrative current espense (subtotal)	343,847	375,552	472,588	128,741	31,704	97,037
Administrative. current balance (total)	78,511	115,479	65,438	−13,073	36,968	−50,041

what serious Fiscal Considerations have particularly high subsidy and property expenses when compared to the groups with no concerns.

Finally, we will also look at whether the situations that fall under Fiscal Considerations are continuous or temporary. Table 9 shows the transition probabilities for governments that fall into the Fiscal Consideration (balance system) category. When focusing on cases of serious Fiscal Considerations in the current period, panel (1-a) shows the change from the previous period, with 52.8% of the governments (of those with serious Fiscal Considerations in the current period) having no concerns in the previous period. Panel (1-b) shows the change from the next period, with 44.8% of the governments (among those with serious Fiscal Considerations in the current period) having no concerns in the next period. Thus, in many cases, the seriousness of the financial note is a temporary lapse. On the other hand, when we focus on cases of somewhat serious Fiscal Considerations in the current period, Panel (2-a) shows the change from the previous period, with 51.3% of the governments (among those with somewhat serious Fiscal Considerations in the current period) having been somewhat serious in the previous period as well. Panel (2-b) shows the change from the following period, with 53.1% of the organizations (of those whose Fiscal Considerations were somewhat serious in the current period) still being somewhat serious in the following period. Thus, governments with somewhat serious Fiscal Considerations are likely to be in a continuous state of distress.

Behind this recent decline in the ACBR is the fact that administrative current expenditure has grown much larger than administrative current revenue, and among administrative current expenditure, property expenses, subsidy expenses, and assistance expenses have increased. Under these circumstances, the number of governments falling under Fiscal Considerations (balance system) is also increasing. The somewhat serious governments are characterized by particularly large assistance expenses, and the serious ones by particularly large subsidy expenses and property expenses. Furthermore, once again, the Fiscal Considerations (balance system) were shown to be more likely to continue to fall under the some-

Table 8: Administrative current expenditures (ratio to administrative current revenue): Intergroup comparison

(%)

	No concern	Somewhat serious	Serious	Diffrerence between somewhat serious and no concern		Diffrerence between serious and no concern	
Personnel expense	20.75	22.46	22.08	1.71	***	1.33	***
Property expense	17.17	16.69	23.51	−0.47	***	6.34	***
Maintenance and repair expense	1.47	1.35	1.28	−0.13	***	−0.19	**
Assistance expense	15.65	23.58	18.23	7.93	***	2.57	***
Subsidy expense	14.43	15.41	32.79	0.98	***	18.36	***
Transfer (other than construction expense)	12.14	13.37	13.75	1.23	***	1.61	***
Interest expense	1.69	1.74	1.45	0.06	**	−0.23	***
Administrative current espense (subtotal)	83.29	94.61	113.09	11.31	***	29.80	***

(Note) Under t-test, *** indicates 1%, ** indicates 5%, and * indicates significant in the 10% rejection region.

Table 9: Transition probabilities of governments that fall under "Fiscal Considerations" (balance system)

(1) Case of serious fiscal consideration in the current period

(1-a) Change from the previous period

Previous period	Current period	Frequency	Proportion
No concern	Serious	141	52.8%
Somewhat serious		58	21.7%
Serious		68	25.5%
Total		267	100.0%

(1-b) Change to the following period

Current period	Following period	Frequency	Proportion
Serious	No concern	107	44.8%
	Somewhat serious	64	26.8%
	Serious	68	28.5%
Total		239	100.0%

(2) Case of somewhat serious fiscal consideration in the current period

(2-a) Change from the previous period

Previous period	Current period	Frequency	Proportion
No concern	Somewht serious	615	44.1%
Somewhat serious		715	51.3%
Serious		64	4.6%
Total		1394	100.0%

(2-b) Change to the following period

Current period	Following period	Frequency	Proportion
Somewht serious	No concern	574	42.6%
	Somewhat serious	715	53.1%
	Serious	58	4.3%
Total		1347	100.0%

what serious cases.

VI.   Conclusion

From the viewpoint of confirming the certainty of repayment of fiscal loans, the MOF conducts the Assessment of Fiscal Conditions of local governments by preparing an administrative cash flow statement, which focuses on cash flows by recombining existing account settlement statistics. This paper uses the fiscal indicators (FY2007-FY2018) of this Assessment of Fiscal Conditions to clarify the characteristics of the indicators and discuss the cash flow situation.

First, in order to clarify the relationship between the account settlement statistics and the CF statement, we discussed what factors cause the discrepancy between the real balance and the CF balance. As a result, it was confirmed that the level of real balance exceeds the level of CF balance mainly due to carryover. It was also confirmed that although the fiscal management of local governments appears to be stable in terms of real balance, especially in recent years, cash flows have been negative and they are not in a position to obtain resources to accumulate in the fund, thus increasing the severity of their cash management.

Second, we discussed the trends in each of the indicators used for Assessment of Fiscal

Conditions. As a result, the status of the RFR and the RDR improved, while the ACBR declined. In addition, it was confirmed that the number of governments falling under Fiscal Considerations based on the diagnostic criteria for ascertaining financial conditions and their potential members are increasing.

Third, we examined the background of the recent decline in the ACBR. The results show that administrative current expenditure has grown much larger than administrative current revenue, and that among administrative current expenditure, property, subsidy, and assistance expenses have increased. Under these circumstances, the number of governments falling under Fiscal Considerations (balance system) is also increasing. The somewhat serious governments are characterized by particularly large assistance expenses, and the serious ones by particularly large subsidy expenses and property expenses. Furthermore, once again, it was confirmed that Fiscal Considerations (balance system) are more likely to continue to fall under the somewhat serious cases.

Finally, it should be noted that these fiscal indicators also have statistical peculiarities, and depending on the expenditure and revenue structure faced by each government, it is particularly easy to get outliers in the ACBR. Specifically, the ACBR may apparently deteriorate when the revenue from HTD is large. However, this does not affect the results of the study. In addition, given the fact that the real balance is adjusted by carryover and fund accumulations/withdrawals, the Assessment of Fiscal Conditions of local governments is an effective and academically useful indicator for understanding their cash flow situation.

With the current COVID-19 pandemic having a significant impact on the fiscal management of local governments, the importance of knowing the characteristics of the Assessment of Fiscal Conditions and understanding the cash flow situation of local governments through these indicators has become even more important from both an academic and policy perspective.

References

Akai, N. and T. Ishikawa (2019), "Economics of the Local Government Finance Soundness Act and Governance: An Empirical Evaluation in the Ten Years after the Full Enforcement of the System", Yuhikaku (in Japanese)

Bessho, S. and H. Ogawa (1996), "Fiscal Adjustment in Japanese Municipalities", *Journal of Comparative Economics* 43, pp. 1053-1068

Ishikawa, T. (2017a), "Growing Local Government Funds, Part 1: Does Increasing Reserves Matter?" "Researcher's Eye", NLI Research Institute (in Japanese)

Ishikawa, T. (2017b), "Growing Local Government Funds, Part 2: Is it Actually a Growing Underfund?" "Researcher's Eye", NLI Research Institute (in Japanese)

Ito, T. (2018), "Components of Accumulated Reserve Funds in Municipalities and Their Changes", *Regional Economic Studies*, 29, pp. 3-24 (in Japanese)

Ito, T. (2020), "How Were Municipal Hometown Tax Contributions Used?" *Shudo Law Review*, 43(1), pp. 59-107 (in Japanese)

Fiscal Investment and Loan Subcommittee of the Fiscal System Council (2004), "Overall Review of Fiscal Investment and Loan Reform" (December 10, 2004), Ministry of Finance website (in Japanese)

Financial Bureau, Ministry of Finance (2020a), "Fiscal Investments and Loans for Local Governments: Handbook for the Assessment of Fiscal Conditions (Revised June 2020)", Ministry of Finance website (in Japanese)

Financial Bureau, Ministry of Finance (2020b), "The Assessment of Fiscal Conditions in Relation to Fiscal Investments and Loans to Local Governments (June 2020)", Ministry of Finance website (in Japanese)

Local Government Finance Bureau, Ministry of Internal Affairs and Communications (2017), "Key Findings and Analysis of the Survey on the Reserve Fund Conditions of Local Governments" (November 2017), Ministry of Internal Affairs and Communications website (in Japanese)

Municipal Tax Division, Local Taxation Bureau, Ministry of Internal Affairs and Communications (2020), "Results of Survey on Hometown Tax Donation (conducted in FY2020)" (August 5, 2020), Ministry of Internal Affairs and Communications website (in Japanese)

Doi, T., M. Toyama, and D. Yoshioka (2011), "Fiscal Indicators for the Assessment of Fiscal Conditions and Decision Indicators for Local Government Finance Soundness", *Financial Review*, 105, pp. 113-145 (in Japanese)

Hirota, H. and H. Yunoue (2018), "Empirical Analysis of Interdependence in Local Government Finance Soundness Indicators", *Economic Analysis*, 198, pp. 1-21 (in Japanese)

Izuru Maeda (2018), "An Econometric Analysis on Factors of Local Government Fund Accumulations: Have Funds Been Accumulated by Local Governments' Efficiency Efforts?" *Economic Analysis*, 198, pp. 22-49 (in Japanese)

Miyashita, T. and E. Sumi (2017), "Empirical Analysis on the Fiscal Adjustment Fund of Merged Municipalities," Japan Association of Local Public Finance Research Series No. 24: "Local Governments' Role in 'Regional Development' and Local Regions," pp. 125-149 (in Japanese)

Ohno, T., M. Ishida and W. Kobayashi (2022), "Local Government Cash Flow Situation as Viewed from the Fiscal Indicators of the Assessment of Fiscal Conditions", *Financial Review*, 147, pp. 145-168 (in Japanese)