

# **Matrix Accounting System of Budget for Local and Central Governments:**

## **Case of Hamada City and Japanese Government**

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### Introduction

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## **Introduction**

When we are thinking of the national and local governments' fiscal landscape in recent years, we need to figure out what the real fiscal situation is: whether it has already broken down, is about to do so, or is no way near it.

Japan's economy is the second largest in the world, but Japan may be on the threshold of fiscal breakdown. There are fears that the local fiscal system also is facing collapse.

We would like to point out that when we are thinking about economic stimulus measures and fiscal reconstruction, we need to increase the transparency of state and local finances. The government must not play hide-and-seek in front of us.

We aim at analyzing the ailing finances of the central and local governments from a new angle.

In the course of economic development, it is necessary for a country to keep the following kinds of balance:

- ① balance between the public sector and the private sector
- ② the balance of budgets of the central government and the local governments.

The Japanese economy has recently experienced a deep crisis in its performance.

We would like to explain our problems and a new way to challenge them by introducing the matrix accounting system<sup>1)</sup> into public budgets management.

We want to pluck up our courage and sincerity, but we are biting off all-out more than we can chew. We hope to have the discussion of the pros and cons about the matrix accounting system on Public Sector Accounting.<sup>2)</sup>

## **I. Deep Depression and the Budgetary Crisis of Local Governments**

### **1. Central and Local Budgets Depending upon Debt**

In the 1990s, the Japanese economy went into deep depression after the so-called “bubble economy.”

The central government tried to make public work policies in order to help the economy get rid of the recession by heavily depending upon the huge amount of public debts.

We have the big scale of the problem which is hard to reconstruct the finances. Some economists urge that the government should sometimes implement measures to support the economy and take steps to restore the fiscal health.

The ruling political parties put priority on implementing measures to buoy up the economy and tackle the task of reconstructing government finances only after the economy has been put on the path to a stable recovery.

However, the ruling parties' economic policies are mainly concerned with allocating funds to conventional public works projects, in order to satisfy everybody.

Our government has a long history of spending money at problems and hoping for the best. Given the depth of its economic and financial troubles, such complacency is dangerous.

Over the past decade, our government has wasted money trying to continue a positive rate of growth, and about ¥100 trillion was spent on additional economic stimulus packages.

The government has little leeway to take fiscal measures to play a pivotal role in working out the program of economic recovery. The recognition of this problem may have come too late, but the assessment is a fair one. Local governments also responded to the policy by making public debts.

As a result, both the central and local governments rapidly accumulated debts. Prefectures, cities, towns and villages have gradually abandoned self-reliance.

They became dependent upon the subsidiary expenditure from the central government.

The amount of debts tended to increase for the central governments as a kind of vicious cycle.

We must say with emphasis that it is “no gain without pain” and reform “without sacred cow”.

Our economy must reform structurally to survive and must not lag behind other nations. As far as we know the amount of debts, we do not have “come-day, go-day attitude” and we must drink as we have brewed.

## 2. Balance sheets for Making Budget Management Sound and Scrutable

Because of budgetary crisis, many local governments are no longer able to maintain their easy policy to distribute money to uncontrolled and expanding public works, which contain unnecessary public works.

The governments need to disclose the budget information to people in order to assess merits and costs, and economize expenditure.

Owing to Keynesian theory,<sup>3)</sup> capitalist economies in the free world have inclined to expand public budget for the purpose of implementing demand, which is relatively smaller than potential supply.

Therefore, the policy of economic development has inevitably accumulated the deficit of the public budget.

While we hope the best, we have to prepare for the worst. The best means that revenue and expenditures are able to be actually received and spent in cash. The worst means that it robs Peter to pay Paul.

Progressive local governments such as the Tokyo<sup>4)</sup> and Mie<sup>5)</sup> Prefectural governments and the Fujisawa city<sup>6)</sup> government in Kanagawa prefecture have also compiled balance sheets in order to reconstruct their finances. We think it is essential to change the fiscal accounting system.

We are able to show whether its investments were effective, with an analysis of yearly changes in the balance sheet of a government. We hope that the central government and more local governments will continue to produce the consolidated balance sheet.

Needless to say, a balance sheet works as mere yardstick to estimate the real budgetary situation of a government. It is possible that a balance sheet become a pie in the sky as the cut-and-dried story.

We are able to conclude that financial reconstruction will mean checking an item-by-item analysis of spending included in the budget, and considering the results, low-performing projects will need to be cut or downsized after gaining the understanding of nations.

This is the practical measures to improve the unsatisfactory financial situation. We suppose to be “out of the frying pan into the fire”, and it will become the uphill fight.<sup>7)</sup>

### 3. The Accrual Accounting and Current Value Accounting as Global Standard

(1) The situation can change when we have a will to change, and we know the knowledge that we do not put off until tomorrow what we can do today.

Japan's system of accounting the public administration is based upon the current value accounting in single entry book keeping.<sup>8)</sup> The corporate accounting system, on the other hand, is based upon the accrual system in double entry book keeping. The former should be changed to the latter.

In the former system, we calculate gain and loss each financial term. Every economic transaction is included in bookkeeping even if gain or loss does not really arise.

(2) In the historical cost basis, both the case of real profit and the case of real loss are taken into account when the nominal value of assets is not corresponding to the real values.

The most problematic case is when sharp asset deflation comes after the end of bad inflation, a bubble economy. In this case the asset values shrink radically, leaving the amount of debt unchanged in the bookkeeping, with the decreasing ratio of equity.

There is still a mountainous debt and it stokes debate over fiscal collapse, to say the least. The historical cost method can not assess the situation correctly.

Without the calculation of such fluctuating real asset values, local governments are not able to do public works autonomously with their own capital expenditure.

Actually, almost all governments have gone into heavy dependence upon borrowing as the form of public debt to cover their increasing expenditure. Improving the balance sheet is crucial, but there are limits to nation's indulgent eyes. We think the risk of doing too little, too late is big.

The public authority must take the current value accounting in order to know the present values of assets and the double entry bookkeeping in order to know the real situation of self-capital which makes the public expenditure of local government possible.

We must replace a lax accounting with a full-fledged accounting. The financial reform seems to be like a lull before the storm.

We have to take it to heart that the longer a solution is put off, the worse the problems

become. Now, financial condition is standing at a historical crossroads.

#### 4. How to grasp the budget in terms of assets, capital and debt

We must take into consideration the change of asset values together with capital and debt. The brought down amount of asset values is equal to the amount of capital and debt.

<the former term> total assets = total debts + net assets

<the next term> total assets = total debts + net assets

When the amount brought down is bigger than the amount carried down, it means the public budget has expanded, and conversely, when the brought down amount is smaller than the carried down amount, it means the budget has contracted.

Needless to say, our central and local governments administer projects based on budget statements, but we can not see revenue produced by each project and also costs induced in those statements.

It is almost impossible to find out the value of assets accumulated or liabilities induced by each project.

Our statements bring in balance sheets which divide assets and liabilities and list them accounting item by accounting item, an administrative cost statement (profit and loss statement)<sup>9)</sup> and a cash flow statement that shows receipts and debits in the cash account, as shown figure 1.

These three statements are surely in a deep relationship with each other.

We are not the bona fide accounting pro like the commissioner of audit to be able to see both the trees and the forest.

We want to avoid the mistake of failing to see the forest for the trees. It is very important to see the forest.

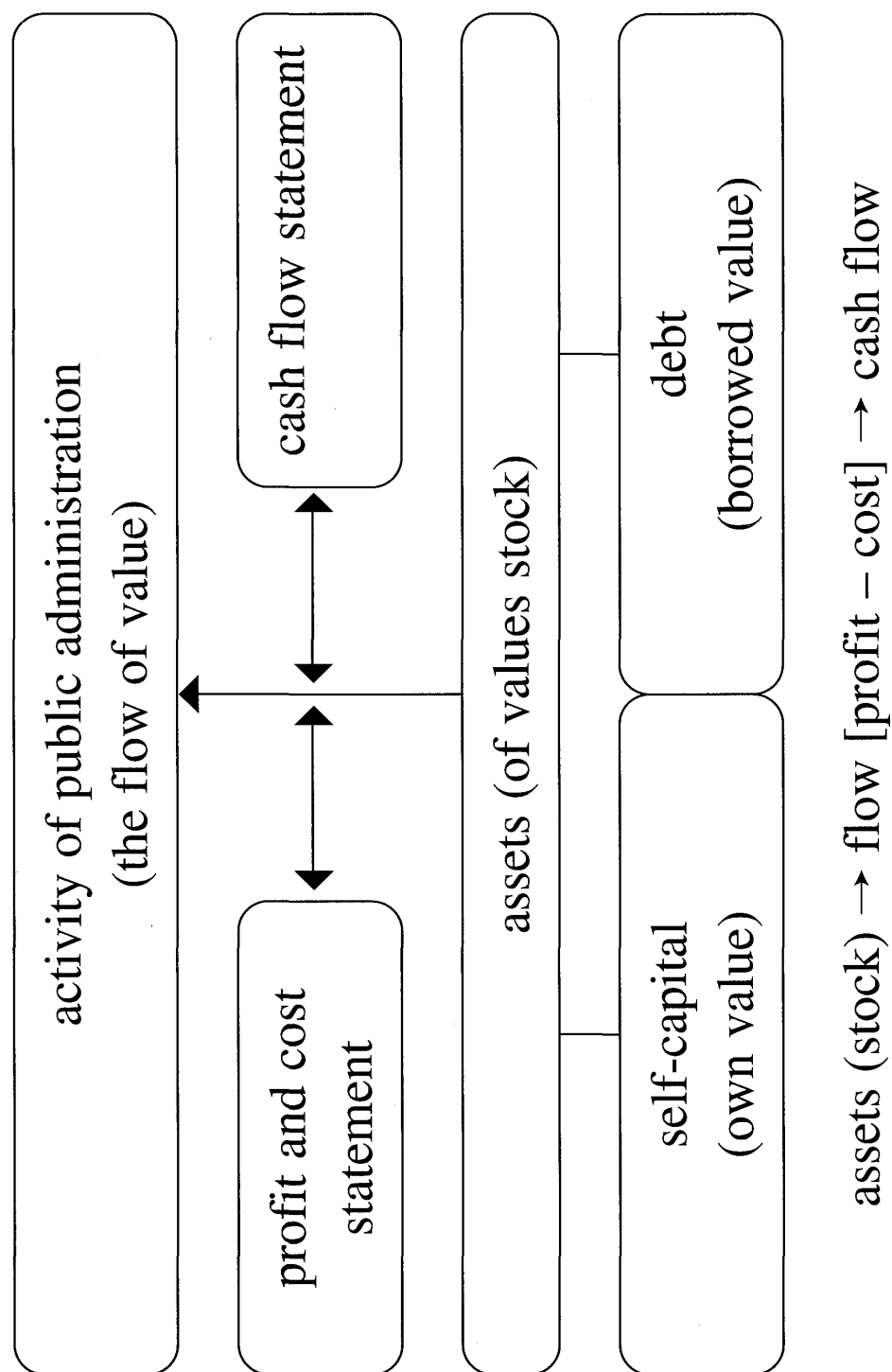
## II. Matrix Accounting Statement of the Budget

### 1. Hamada City in the Fiscal Year 1999

(1) Employing the current arrangement, a matrix table is composed of lines 0 ~ 15 as well as rows 0 ~ 15 (as shown in figure 2-1, figure 2-2.).<sup>10)</sup> The debit is shown on the lines, the credit is shown on the rows, with positive number showing outflow and decrease.

In the profit (earning) and loss account parts, plus / minus ( $\pm$ ) number shows the increase / decrease of profit or loss. The number in minus / plus ( $\mp$ ) means decreased or increased profit (earning).

Figure 1. Double Entry Book Keeping System for Public Administration



(2) The 1998 year end balance sheet is shown as the 1999 beginning of year sheet, which is on [line 0, row 0] following the next way of transformation;

1) Using the 1998 year balance sheet, asset values (total amount of debit composed of cash, deposit, receivable, tangible fixed assets, investments) are expressed on [line 0, row 2], [line 0, row 3], [line 0, row 4] of the matrix statement.

2) Next, asset values of the credit side (fixed debt, current liability, net asset, total amount of credit) are shown on [line 11, row 0], [line 12, row 0], [line 13, row 0], [line 15, row 0].

### (3) How to Read the Matrix Account Statement

1) On [line 0, row 0] on the brought down sheet, capital (net asset) and debt are shown on lines 11, 12, 13, and the total amount of value on line 15.

We must be careful about the procedure so that the credit side of the year end balance sheet is expressed on the debit side of the matrix system, and therefore the debit side of the balance sheet is shown on the credit side of the matrix system.

2) The amount of cash and deposit on [line 1, row 1] are shown 0 ~ 15 line of the debit side as increase of cash, and on the other hand, on 1 ~15 row the increase of outflow are expressed.

This is called the cash flow statement, which is necessary for the government to know its investment possibility without public borrowing.

3) On lines 5, 6, 7 of [line 10, row 10] in the profit and loss account costs of public administration are shown. On the 13th line net profits, and on the 15th line total amount are shown.

On the row 8, 9 of the credit side revenues necessary governmental activities as taxes and other income, and on the 15 row its total amount are shown.

This part is the costs statement of governmental administrative activity.

4) [line 14, row 14] of the carried down statement shows the year end balance sheet. On lines 1, 2, 3, 4 of the debit side, assets of the year end sheet, and on the 15th line total amount of assets are shown.

On 11, 12, 13, row of the credit side, fixed and current debts, and net assets are shown.

## 2. Japanese Government in the Fiscal Year 1999

According to the matrix accounting statement of our state, our government's assets in the form of land, buildings and outgoing loans, etc amount to about ¥701 trillion on the debit side (as shown in figure 3).<sup>11)</sup>

Figure 2-1. Hamada City in the Fiscal Year 1999

		0	1	2	3	4	5	6
	row → debit	brought down	cash & deposit	accounts receivable, etc	tangibl fixed asset	investment money, etc	welfare expenditure	educational expenditure
line → credit			(+)	(+)	(+)	(+)	(+)	(+)
0 brought down	(-)		1,642,413	666,991	54,105,864	4,095,756		
1 cash & deposit	(-)		342,728				5,027,896	2,118,204
2 accounts receivable, etc	(-)							
3 tangibl fixed asset	(-)		61,788					
4 investment money, etc	(-)							
5 welfare expenditure	(-)							
6 educational expendiature	(-)							
7 other expenditures	(-)							
8 tax revenues	(+)		5,440,023	29,717				
9 other revenues	(+)		13,397,927			596,082		
10 profit & loss	(±)							
11 fixed liability	(+)	26,579,791						
12 current liability	(+)	1,938,000						
13 net asset	(+)	31,993,233						
14 carried down	(+)							
15 total	(+)	60,511,024	20,884,879	696,708	54,105,864	4,691,838	5,027,896	2,118,204

Source: Finance Division of Hamada City



Matrix Accounting System of Budget for Local and Central Governments

(Unit: Thousand Yen)

7	8	9	10	11	12	13	14	15
other expenditures	tax revenues	other revenues	profit & loss	fixed liability	current liability	net asset	carried down	total
(+)	(-)	(-)	(±)	(-)	(-)	(-)		
								60,511,024
11,545,609				65,622			1,784,820	20,884,879
		214,556					482,152	696,708
465,459							53,578,617	54,105,864
							4,691,838	4,691,838
			5,027,896					5,027,896
			2,118,204					2,118,204
			12,071,460					12,071,460
								5,469,740
				1,053,380		284,398		15,331,787
	5,469,740	15,117,231						20,586,971
33,834								26,613,625
26,558								1,964,558
			1,369,411					33,362,644
				25,494,623	1,964,558	33,078,246		60,537,427
12,071,460	5,469,740	15,331,787	20,586,971	26,613,625	1,964,558	33,362,644	60,537,427	

Figure 2-2. Hamada City in the Fiscal Year 1999

		0	1	2	3	4	5	6
line → credit	row → debit	brought down	cash & deposit (+)	(+)	(+)	(+)	(+)	(+)
0 brought down	(-)		1,642,413	666,991	54,105,864	4,095,756		
1 cash & deposit	(-)		342,728				5,027,896	2,118,204
2	(-)							
3	(-)		61,788					
4	(-)							
5	(-)							
6	(-)							
7	(-)							
8	(+)		5,440,023	29,717				
9	(+)		13,397,927			596,082		
10 profit & loss	(±)							
11	(+)	26,579,791						
12	(+)	1,938,000						
13	(+)	31,993,233						
14 carried down	(+)							
15 total	(+)	60,511,024	20,884,879	696,708	54,105,864	4,691,838	5,027,896	2,118,204

Source: Finance Division of Hamada City

Matrix Accounting System of Budget for Local and Central Governments

(Unit: Thousand Yen)

7	8	9	10	11	12	13	14	15
(+)	(-)	(-)	profit & loss (±)	(-)	(-)	(-)	carried down	total
								60,511,024
11,545,609				65,622			1,784,820	20,884,879
		214,556					482,152	696,708
465,459							53,578,617	54,105,864
							4,691,838	4,691,838
			5,027,896					5,027,896
			2,118,204					2,118,204
			12,071,460					12,071,460
								5,469,740
				1,053,380		284,398		15,331,787
	5,469,740	15,117,231						20,586,971
33,834								26,613,625
26,558								1,964,558
			1,369,411					33,362,644
				25,494,623	1,964,558	33,078,246		60,537,427
12,071,460	5,469,740	15,331,787	20,586,971	26,613,625	1,964,558	33,362,644	60,537,427	

Figure 3. Japanese Government in the Fiscal Year 1999

	0	1	2	3	4	5	6
row → debit	brought down	cash & deposit	securities	accounts receivable, etc	tangibl fixed asset	investment money, etc	national debt expenditure
line → credit		(+)	(+)	(+)	(+)	(+)	(+)
0 brought down		34	107	328	170	40	
1 cash & deposit (–)			5				20
2 securities (–)							
3 accounts receivable, etc (–)							
4 tangibl fixed asset (–)							
5 investment money, etc (–)							
6 national debt expenditure (–)							
7 social security expenditure (–)							
8 other expenditures (–)							
9 tax revenues (+)		47					
10 other revenues (+)		54		1	6	11	
11 profit & loss (±)							
12 fixed liability (+)	659						
13 current liability (+)	154						
14 net asset (+)	▲134						
15 carried down							
16 total	679	135	112	329	176	51	20

※ Figures are corresponding to total.

Source: Ministry of Finance

Matrix Accounting System of Budget for Local and Central Governments

(Unit: Trillion Yen)

7	8	9	10	11	12	13	14	15	16
social security expenditure (+)	other expenditures (+)	tax revenues (-)	other revenues (-)	profit & loss (±)	fixed liability (-)	current liability (-)	net asset (-)	carried down	total
									679
19	50							41	135
								112	112
								329	329
								※ 168	176
								51	51
				20					20
				19					19
				108					108
									47
									72
		47	72						119
	58								717
									154
				▲29					▲163
					※ 710	154	▲163		701
19	108	47	72	119	717	154	▲163	701	

On the other hand, the state government's liabilities, such as borrowing are recorded on the credit side.

The state government's net assets is the difference between assets and liabilities, or the equivalent of capital for a private company.

Our government has produced three kinds of balance sheets in the way of accounting calculation of public pension. State liabilities, such as borrowing, amount to total about ¥863, ¥1001, and ¥1507 trillion.

The amount of our government's assets is about ¥701 trillion, but the amount of state liabilities is about ¥863 at minimum or about ¥1507 trillion at maximum.

Therefore our government's liabilities exceed their assets. The amount of outstanding public debts is ¥162, ¥299, ¥806 trillion. With liabilities exceeding assets by ¥806 trillion, the central governments is effectively bankrupt, and must take bold steps.

The central government has no choice but to financial reform.

The financial statements allow to clear citizens with valuable access to financial information, and are useful to judge the cost efficiency of administration.

Our treasury is cash-strapped and, sooner or later, we must pick up the tab for the government's lavish spending. Needless to say, the central and local governments should put a scalpel to public expenditures and press ahead with administrative reform.

As long as the balance sheet shows debt hangover- the unbalance situation of debts and assets – the Japanese economy will not be able to escape from tailspin.

The debt-hangover balance sheet may cause deflation pressure, and therefore, the important thing is to correct the balance sheet.

The role of the government is to prevent deflation and the growth rate from falling below zero. The central and local governments must appeal to the public to "bear the pain" and "not to be afraid of the pain".

### **III. Utility of the Matrix Accounting System**

This system has the following merits:

① Governmental activities are shown continually in the course of time. They are usually carried on the basis of uninterrupted time flow.

② The cash-flow statement, the cost statement of public activities and the balance sheet are integratively made and disclosed.

This makes governmental policies based upon the self reliance principle without unnecessary debt.

③ This system increases scrutability disclosure, accountability and informed consent

in the field of government for the people.

Economic policy should introduce this system to maintain sustainable potentiality.

In economic development, infrastructures and life lines should be created and maintained by central and local governments.

However, as shown in advanced market and welfare economies, public debt had become extremely critical.

Japan has begun especially to explore the third way of development suitable for the global environmental disruption and information (IT) revolution.<sup>12)</sup>

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## Notes

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**Key words** cash flow statement profit and cost statement brought down balance sheet  
carried down balance sheet self-capital (own value) debt (borrowed value)  
assets (of values stock) matrix accounting statement credit