Management analysis using cash flow statement

Bureau of Waterworks, Tokyo Metropolitan Government

1 Introduction
The business management using cash flow statement, i.e. the cash flow management is increasingly drawing interest in recent years. The cash flow management focuses attention to cash flow in the business management cycle of PLAN-DO-SEE, with the business management pursued taking due account of cash making method in a certain fiscal year.
The history of cash flow statement in Japan does not go so far back, with mainly the listed companies obliged to the disclosure of cash flow statement in March 2000 onward. With the drastic changes in the situation surrounding the banks, the financiers of business, such as economic big bang, etc., however, it became difficult to tell when the loan from the bank will stop, making it necessary for the enterprises to attach importance to cash flow in order to secure appropriate funds.
It was, therefore, required of the enterprises to disclose the information regarding the financial flow in a particular fiscal year such as the amount of cash earned, the amount spent on investments, the recovered amount and the amount of balance to the shareholders, investors, banks, etc.
Further, a company running in the black in terms of the income statement may plunge into the crisis of going bankrupt if cash recovery is delayed. The cash flow statement has come to be recognized as an effective tool to avoid the aforesaid prospect.
Next, when we turn our attention to local public enterprises, they are not obliged (as of August 2005) to make the cash flow statement. The matter has become an issue in the Accounting System Study Group for Municipal Public Enterprises, Ministry of Public Management, Home Affairs, Posts and Telecommunications, and is likely to be an item of obligation in the near future.
Under such situation, the Bureau of Tokyo Waterworks has started making and disclosing in its web site the cash flow statement since the account settlement of FY 2003 with a view to getting an actual picture of the management, pursuing more wholesome management and letting the customers understand the state of our management. This paper presents an analytical description of the management profile of the Bureau of Tokyo Waterworks using the cash flow statement and the various indexes based on the said statement.

2 Management state of the Bureau of Tokyo Waterworks as seen through cash flow statement
2-1 Method of making cash flow statement
There are two methods of making cash flow statement:
1) Indirect method that plainly shows the relationship between the cash flow statement and the income statement
2) Direct method that calls for the improvement in accounting system. The Bureau of Tokyo Waterworks adopts the indirect method.

2-2 Summary
Table-1 (See at the end of this Chapter) shows the cash flow statement for FY2004 based on the indirect method. The cash earned in FY2004 through main business activity amounted to 145.1 billion yen, of which 78.8 billion yen was spent in reinforcement of facilities, etc. and 52.9 billion yen in financial activities such as redemption of industrial bond, etc. As a result, the cash increase for a single year amounted to 13.5 billion yen, with the total cash amounting to 88.2 billion yen at the end of the fiscal year (March 31, 2005).

Fig. 1 shows the graph of business cash flow vs. net profit for the past 7 years. It is evident from the figure that the business cash flow is in the plus for each fiscal year, with the amount showing an annual increase after FY2001. Now let’s see what made the cash flow grow. In the indirect method, the business cash flow is obtained by adding and subtracting various non-cash items, with the current net income as the base. Accordingly, the increase in business cash flow is also caused by various factors. However, the cash flow increasing factors such as increase of allowance, debt service, etc. are bound to go away some time in the future, and cannot be called as healthy funds. Fig. 1 shows that the enhanced business cash flow in the case of the Bureau of Tokyo Waterworks is attributed to the increase of current net come, showing a most desirable state.

The Bureau of Tokyo Waterworks has been putting importance in efficient business based on the “Waterworks Management Plan” drawn up for 4 years between 2000 and 2003. Furthermore, we made another management plan for the next 3 years in 2004 for continued business efficiency. The increased business cash flow driven by the increase in net income may be the result of our efforts for business efficiency.

Next, let’s see the investment cash flow.

Fig. 2 shows the graph of business cash flow vs. investment cash flow for the past 7 years. (The investment cash flow figures are given in positive for easy comparison.) The
investment cash flow is an index to tell you how much money is spent in what item, with the negative figure indicating a prompt investment made in that fiscal year. It is, however, based on the assumption that the amount is within the scope of the business cash flow. The investment cash flow in Fig. 2, however, shows that the amount exceeds the amount of business cash flow in FY2000 and FY2002. Does it therefore mean that our investment for these two fiscal years exceeded our financial strength?

Fig. 3 shows a summarized graph of the investment cash flow and the causes of its fluctuation. (The figures of investment cash flow, acquisition of long-term marketable securities, long-term fund management and construction improvement cost are all given in positive for easy comparison.) First, let’s see the equipment investment. The construction improvement cost showing little fluctuation after the FY1999 indicates that our equipment investment has entered the stage of preservation from the stage of expansion. Next the acquisition amount of long-term marketable securities shows a healthy relationship with the investment cash flow.

As for the trends in long-term fund management and long-term marketable securities, they appear to be linked with the development in national monetary system, especially in the acquisition of long-term marketable securities which started from FY2001, when the issue of “lifting of the complete freeze on the pay off system” became a topic of precise and hot discussion.

Since the long-term fund management in the Bureau of Tokyo Waterworks refers to fixed deposit of more than 3-month term, call deposit and negotiable deposit, our investment activities can be said highly safe. In addition, our purchases of marketable securities are all risk-free in terms of price fluctuation, and we are having steady proceeds from sales of the long-term marketable securities from FY2001 onward, so that our fund management as a municipal public enterprise can be called appropriate. Hence, even in the fiscal years when the investment cash flow exceeded the business cash flow, the cash flow had just been transformed into long-term marketable securities, and was not an excessive investment.
Finally, let’s turn our attention to the financial cash flow.

Fig. 4 shows a graph of financial cash flow and industrial bond related items for the past 7 years. The financial cash flow is an index that helps grasp the way of loss coverage and the method of raising funds when there is insufficiency of funds for carrying out business and investment activities. The positive financial cash flow figures indicate that there is an insufficiency of funds for business and that the amount of loan is being newly added. The negative figure, on the other hand, indicates that the debt with interest is restrained. In the case of the Bureau of Tokyo Waterworks, since the bond issuance is controlled to a low level since FY1999, the amount of industrial bond redemption exceeds the bond issuance amount, resulting in the negative figure of financial cash flow.

Fig. 5 shows a summarized view of the transition of cash flow in the Bureau of Tokyo Waterworks and the term-end cash balance. Further, the figures of Tokyo Electric Power and Tokyo Gas, the public enterprises, are also given as a reference in Fig. 6 and Fig. 7.
Fig. 5 indicates that the term-end cash balance of the Bureau of Tokyo Waterworks is almost at the same level with the business cash flow and well linked with the investment cash flow. The close linkage of investment cash flow to term-end cash balance is attributed to our attitude toward investment. In other words, since our equipment investment has its object changed from expansion to preservation, the amount is almost at a constant level. Thus, our investment activities are mainly for fund management, leading to the phenomenon shown in Fig. 3.

Fig. 8 shows the graph of monthly cash and deposit for FY2004 (partly including the figures of FY2003 as well). The Bureau of Tokyo Waterworks features in that the paid amount is extremely large at the beginning and at the end of the term. The cash and received amount show almost same levels during the period between May and February, and extremely high levels during the period between March and April of the following fiscal year.

As a general trend, cash amount is increased between May and February as preparedness for payment at the beginning and end of the term. However, since there are ample funds left even after concentrated payment at the end of the term, our cash balance shows an excess trend as compared with an appropriate level. Of course cash includes unpaid amount, allowance reserve, brought-forward construction fund, etc., so that we cannot use all of the cash. Hence, the possession of a large amount of cash at the end of the term does not necessarily lead to the conclusion for charge cut or for industrial bond redemption.

The above results show that we are making all-out efforts to improve our management status such as by creating ample cash amount through business activities and positively promoting redemption of industrial bond. As for the fund operation, we are positively investing on marketable securities while giving importance to deposits with high-level security. However, the cash balance at the end of the fiscal year is higher than that of the other two public enterprises, indicating that our unused cash amount is larger than these enterprises. In the future it is desirable for us to carry out analysis of the trend in monthly deposit balance and monthly payment in order to pursue a more appropriate fund management.

2. Analysis using various indexes

Next, in order to learn the ranking of our financial status among other water suppliers, we carried
out analysis through interannual and city-wise comparison of the various indexes obtained from the cash flow statement. Among the twelve major cities in Japan, only 4 cities—Sapporo, Kawasaki, Yokohama and Fukuoka—are making cash flow statements and disclose them in their websites as of August 2005. By comparing with the indexes of these four cities, we tried to find the position of our management status in the national level. The indexes of Tokyo Electric Power and Tokyo Gas are also given as a reference. As for Sapporo and Fukuoka, which adopt different method of making the cash flow statement, we remade their cash flow statements using our method for analysis. It should be noted here that because we used the cash flow statement announced as of August 2005, the figures of other cities are of FY2003.

(1) Cash flow margin rate

*Definition*

Defined as the business cash flow divided by the turnover, the cash flow margin rate is an index to show the percentage of business income acquired in cash. The higher margin rate shows higher efficiency of fund management.

(a) Interannual comparison

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<tbody>
<tr>
<td>Business CF</td>
<td>113,248</td>
<td>124,903</td>
<td>95,963</td>
<td>106,742</td>
<td>114,433</td>
<td>145,135</td>
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<tr>
<td>Business income</td>
<td>350,057</td>
<td>353,174</td>
<td>347,586</td>
<td>348,458</td>
<td>342,944</td>
<td>343,257</td>
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<tr>
<td>Rate</td>
<td>32.4%</td>
<td>35.4%</td>
<td>27.6%</td>
<td>30.6%</td>
<td>33.4%</td>
<td>42.3%</td>
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Steady cash flow of about 30% can be expected. The business income showed a downward trend from FY2001 to FY2003 as compared with the preceding year, but the index has currently turned upward because of the reduction in payment interest due to reduced industrial bond balance, and due to the increase in fund holdings against income because of the increase in internally retained depreciation cost and allowances.

(b) Comparison with other cities

The cash flow margin rate of the municipal public enterprises on average is 27%, indicating that nearly 30% of the business income is in cash. The figure of the Bureau of Tokyo Waterworks shows that, compared with the other cities, the funds are managed more efficiently.
(2) Ratio of investment cash flow to business cash flow

<Definition>
Defined as the business cash flow divided by the investment cash flow, this index indicates whether or not the entire investment cash flow is covered by the business cash flow. If the index is less than 100%, it means that the cash reserves are unprofitable or fund is newly procured. For easy comparison, the investment cash flow figures are given in positive.

(a) Interannual comparison

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<td>95,963</td>
<td>106,742</td>
<td>114,433</td>
<td>145,135</td>
</tr>
<tr>
<td>Investment CF</td>
<td>68,181</td>
<td>139,568</td>
<td>30,542</td>
<td>121,178</td>
<td>90,797</td>
<td>78,792</td>
</tr>
<tr>
<td>Rate</td>
<td>166.1%</td>
<td>89.5%</td>
<td>314.2%</td>
<td>88.1%</td>
<td>126.0%</td>
<td>184.2%</td>
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Although no big change is seen in the construction improvement cost, the fund management for marketable securities, etc. shows some change in every fiscal year. The figure is below 100% for FY2000 and FY2002, which is attributed to the fund management such as fixed deposit, etc. and the purchase of marketable securities. In FY2001, the stoppage of fixed deposit as a countermeasure against payoff caused the investment cash flow to get drastically reduced. For the other fiscal years, the investment cash flow is well covered by the business cash flow.

(b) Comparison with other cities
The ratio of investment cash flow to business cash flow of all enterprises is over 100%, indicating that the investment activity is being carried out safely. The higher the rate, the safer the investment activity. In the meantime, the high rate also shows that the equipment investment is restrained. Therefore, so far this index is concerned, it is important to carry out the investment activity, regarding this index as an index of safety rather than resorting only to increase the rate.

Fig.: Ratio of investment CF to business cash CF

(3) Ratio of current debt to business cash flow

<Definition>
Defined as the business cash flow divided by the current debt, this ratio is an index to show the amount of current debt that can be covered by the business cash flow. The higher the ratio, the higher the safety.
(a) Interannual ratio

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<tbody>
<tr>
<td>Business CF</td>
<td>113,248</td>
<td>124,903</td>
<td>95,963</td>
<td>106,742</td>
<td>114,433</td>
<td>145,135</td>
</tr>
<tr>
<td>Current debt</td>
<td>74,596</td>
<td>87,922</td>
<td>74,855</td>
<td>81,508</td>
<td>76,024</td>
<td>74,180</td>
</tr>
<tr>
<td>Rate</td>
<td>151.8%</td>
<td>142.1%</td>
<td>128.2%</td>
<td>131.0%</td>
<td>150.5%</td>
<td>195.7%</td>
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</tbody>
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The ratio is above 100% for all fiscal years, indicating sufficient short-term repayment capacity.

(b) Comparison with other cities
The outstanding difference between the municipal public enterprises and the private enterprises is attributed to the fact that the two private enterprises regard the fixed liabilities due in less than a year as the current debt. As for the liabilities requiring imminent payment, they are disclosed more clearly to the shareholders, investors, etc. The figures of the municipal public enterprises are comparatively high and those of the Bureau of Tokyo Waterworks are also excellent.

(4) Interest coverage ratio
<Definition>
Defined as the business cash flow added with interest payment divided by the interest payment, this is an index to show the financial expense bearing capacity. The higher the ratio, the larger the leeway for interest payment.

(a) Interannual comparison

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<tbody>
<tr>
<td>Business CF +</td>
<td>149,412</td>
<td>159,133</td>
<td>128,217</td>
<td>136,733</td>
<td>141,659</td>
<td>169,359</td>
</tr>
<tr>
<td>Interest payment</td>
<td>36,164</td>
<td>34,230</td>
<td>32,254</td>
<td>29,991</td>
<td>27,226</td>
<td>24,224</td>
</tr>
<tr>
<td>Rate</td>
<td>413.2%</td>
<td>464.9%</td>
<td>397.5%</td>
<td>455.9%</td>
<td>520.3%</td>
<td>699.1%</td>
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</table>

The payment capacity for each fiscal year is 4 times as large as the required interest payment,
ensuring adequate credibility. Further, with the reduction of interest-bearing debt, the payment capacity is showing an upward trend from FY2002 onward.

(b) Comparison with other cities
Although compared with the other municipal public enterprises, the figure of the Bureau of Tokyo Waterworks stands highest, but is confined to a mere 70% of the private two enterprises. However, in the case of the municipal public enterprises, there is a restriction in financial procurement such as bullet repayment of matured industrial bond, and the fact that repayment of industrial bond cannot be made freely as in the case of the private enterprises. Accordingly, there seems to be no need to raise the figure to the level of the private enterprises.

Fig.: Interest coverage ratio

<table>
<thead>
<tr>
<th>City</th>
<th>Interest Coverage Ratio</th>
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<tbody>
<tr>
<td>Tokyo</td>
<td>783.4%</td>
</tr>
<tr>
<td>Sapporo</td>
<td>520.3%</td>
</tr>
<tr>
<td>Yokohama</td>
<td>488.7%</td>
</tr>
<tr>
<td>Kawasaki</td>
<td>385.8%</td>
</tr>
<tr>
<td>Fukuoka</td>
<td>275.6%</td>
</tr>
<tr>
<td>Tokyo Electric</td>
<td>712%</td>
</tr>
<tr>
<td>Tokyo Gas</td>
<td>0.0%</td>
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</table>

III Conclusion
Finally, we would like to stress the significance of making the cash flow statement. Firstly, unlike the conventional financial statement with the focus put to check the data of a single year, the cash flow statement has an advantage of giving a clearer view of the flow of cash within the fiscal year and the interannual cash flow. In the Bureau of Tokyo Waterworks, we are making the cash flow statement at the end of each fiscal year. If we made the cash flow statement from quarter to quarter, it might be an effective tool to learn term-wise cash flow.
Secondly, it makes the comparison with the other enterprises or with the private enterprises easier.
Thirdly, it allows management of the cash likely to be overlooked in accrual system.
On the other hand, the cash flow statement has some problems too. Firstly, the cash flow statement is made in the private enterprises as an obligation with the purpose of disclosing the information to the interested parties such as shareholders, banks, etc. mainly to raise funds. In the case of the municipal public enterprises, however, there are special fund raising methods, so that the object of making the cash flow statement is different between the two sectors of enterprises. It is therefore difficult to follow the method of making and the method of using the cash flow statement of the private enterprises, calling for development of an analytical method unique to the municipal public enterprises. Secondly, with only a small number of enterprises making the cash flow statement, there are no criteria for various analytical indexes, making it difficult to decide on the target levels.
Thirdly, there being no standardized method for cash flow statement making, the comparative
analysis among the enterprises is limited.
It is necessary to study and establish a more useful analytical method, taking into consideration the problems in the analysis of the cash flow.