Toward Audit of Business *

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1. Introduction

During a railway company interview survey, I was impressed by a remark by a railway company employee. He said, "A railway is constructed through huge investment in tunnels, etc.; a railway company cannot earn profit because of early operating-year depreciation costs. They earn profit only after depreciation is completed. They may use completed depreciation facilities for a long time thereafter; then depreciation costs are cut off, and they can earn profit".

At the time of the interview survey (between late 1998 and early 1999) his remark indicated only the difference between depreciation as a formality and actual asset value. In late 1999, however, several tunnel accidents occurred (part of concrete wall fell) on the Sanyo Shinkansen super express railway, among others. Fortunately, railway companies involved in my interview survey did not have such accidents. However, we clearly established that a huge maintenance cost was definitely needed for safety. Essentially, we should examine constructing a particular facility, not limited to railway companies, based on "construction cost + maintenance cost". Even if construction cost is low while maintenance cost after facility completion is high, total cost will significantly increase as the facility is used for a longer period.

For a facility with a high maintenance cost ratio, we may have to give priority to maintenance after facility completion. Therefore, some people argue that we should entrust constructing and operating these facilities to private enterprises that pursue economy (this argument is similar to the PFI (Private Finance Initiative) approach.[1]) If a facility has been constructed using a subsidy and the facility has to be renewed earlier than the original predicted schedule, providing an additional subsidy may be declined, based on a claim that such early renewal results from inappropriate, or lack of, maintenance.[2]

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1) The Association journal, *Communications of the Operations Research Society of Japan* September 1998, Vol. 43, No.9, features PFI and BOT (Build, Operate and Transfer). The article Fukukawa (1998) characterizes BOT based on cash-flow and introduces relevant literature.

2) A financing scheme interview survey in Germany revealed the following: Subsidy term is 25 years. If another subsidy is requested before the first subsidy expires, the Federal Board of Audit may prohibit disbursing the subsidy, if facility renewal, etc. is needed, because of inappropriate, or lack of, railway infrastructure maintenance.

This paper's assertion is reasonable in a sense; a Board of Audit audit object should not be limited to "materials" as physical assets, but should, essentially, include "business," which begins with constructing or acquiring, and involves long-term maintenance and final figures [3]. In general, however, a conventional Board of Audit audit tended to focus on "materials," as mentioned in Section 2. Audits of the three former public corporations were exceptions. Audit reports for these corporations before they were privatized contain some "business auditing" factors. Audits of the three former public corporations differed from U.S. GAO (General Accounting Office) or corporate audits. Audits of the three former public corporations were made within Board of Audit audit capability and approach. In Section 3, I will discuss how business auditing started being adopted.

Business auditing differs from the Board of Audit conventional audit approach. To understand business auditing objectives, we need a viewpoint differing from conventional viewpoints - i.e., 1) accuracy, 2) regularity, 3) economy/efficiency, and 4) effectiveness. The new viewpoint is "total cost". Examining from a total cost viewpoint, auditing differs completely from conventional audit. For example, when we examine facility construction based on total costs over a long period, we must examine total costs (construction cost + maintenance cost + interest paid). Where an interest-bearing fund, such as a Fiscal Investment and Loan Program fund, is used, interest paid will be a bigger than usual cost element. Therefore, we must introduce a longer time span in examining point 3) economy/efficiency, and in examining whether or not the financing scheme was appropriate. In Section 4, therefore, I will discuss financing scheme importance using Japan National Railway's failure as an example, and propose new business auditing approaches considering business life cycle.

2. Board of Audit developed auditing

(1) Conventional studies and questions

In general, a conventional Board of Audit audit tended to focus on "materials." For example, Mochida (1995) classifies audit findings (3,853 cases) reported in all audit reports in 26 years, from 1968 to 1993, by audit viewpoint [4], as follows: audit findings for "regularity" (2,920 cases, 75.8%); those for "economy/efficiency" (780, 20.20%); and those for "effectiveness" (153, 4%). Thus, "regularity" audit findings were dominant. This means that audit mainly identified improprieties based on whether completed public works, or their amounts, complied with contracts, designs, and specifications.

At this time, the trend mentioned in Table 1 became clear. Mochida (1995) clarified that Board of Audit, Japan auditing activities shifted from regularity to economy/efficiency audit during the 1980s; thus, original data related to policies are now collected by field audits and the Board of Audit asks ministries/agencies to improve conditions.

The Board of Audit itself made as similar audit viewpoint study. According to *Nihonkoku Kenpo Kano Kaikei Kensain 50-nenno Ayumi* (*50 Years of Board of Audit Activities under the Constitution of Japan*) (hereinafter referred to as *Ayumi*) published in 1997, we have mainly four types of audit viewpoints: 1) accuracy, 2) regularity, 3) economy/efficiency, and 4) effectiveness, although these may depend on clerical work/projects, accounting, etc. Of these, economy/efficiency/effectiveness audits are referred to as "3E audits." Reportedly, in post war years, regularity auditing shifted to audits equally considering economy/efficiency, and changed further to

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3) In this paper, I use "business" in the sense that long-term economy is the most important audit aspect. I use "business" because conventional "economy, efficiency and effectiveness" viewpoints are not enough, although "profitability" is not customarily considered for central government projects.

4) However, we need to understand the Mochida analysis (1995) by considering 1) Generally, if many similar improprieties reported in audit reports were extracted for the same ministry or agency, the number of such improprieties tended to be counted as one. Therefore, counting improprieties may be meaningless. 2) Even if not mentioned in audit reports, in regularity or economy/efficiency auditing, ministries and agencies were required to act and took action effectively. In effectiveness auditing, however, if no remark was made in an audit report, probably no effective actions were taken. Therefore, we need to understand that the trend for audit findings in reports reflects audit finding criteria, rather than Board of Audit auditing activities as a whole.

Table 1. Comparing audit viewpoints in auditing activities

	Board of Audit, Japan		United States GAO
	Until 1960s high economic growth period	In and after 1980s	In and after 1974
Main audit objects	Public words hardware	Social security software	Federal government programs
Audit viewpoints	Regularity	Economy/efficiency	Effectiveness
Important functions	Extracting individual improprieties	Action requests (project improvement)	Providing information
Audit contents	Big projects were chosen and an audit made to verify whether completed public works, or their amounts, complied with contracts, designs and specifications.	At the beginning of a year, audit themes or projects subject to audit in the year are determined and problems identified through field audits.	Highly reliable data are provided based on huge amounts of data that cannot be collected by parties other than GAO and on unique hearings.

(Source) Author's summary of Mochida study (1995) contents.

audit considering economy/efficiency and effectiveness (3E audit) (p.47).

I understand why audits shifted to economy/efficiency-oriented audits. But did the Board of Audit, Japan, intend to introduce the GAO type of effectiveness audit? In the United States, the 1974 Congressional Budget and Impound Control Act authorized evaluating Federal Government programs and reporting results to Congress. Thus, reportedly, GAO started making effectiveness audits stressing providing information (including highly reliable data provided based on huge amounts of data that cannot be collected by parties other than GAO and on unique hearings). Although they say “special descriptions” in Japanese audits correspond to effectiveness auditing, this understanding is disputable, as we will discuss later. Since “special descriptions” have tended to decrease in recent years, we cannot say that the “special description” approach is developing.

Using the three former public corporations as an example, this paper will demonstrate the following: auditing the three former public corporations was neither an effectiveness audit, as made by the U.S. GAO (General Accounting Office), nor a corporate audit; auditing the three former public corporations was conducted within Board of Audit, Japan auditing capability and approach, and audit reports for these corporations before they were privatized contained “business auditing” factors.

(2) Discussions of corporate auditing attempts [5)]

The monopoly enterprise (Monopoly Bureau, Ministry of Finance), railway enterprise (Ministry of Transport), and telegraph and telephone enterprise (Ministry of Telecommunications) that had been operated as national enterprises using central government special account funds, were assigned to Japan Tobacco and Salt Public Corporation (hereinafter referred to as “JTS”) in June 1949, Japan National Railway (hereinafter referred to as “JNR”) in June 1949, and Nippon Telegraph and Telephone Public Corporation (hereinafter referred to as “NTTPC”) in August 1952.

Since the central government subscribed capital in full for these three public corporations, they were naturally designated audited bodies. In earlier established JNR and JTS documentary audits, “as central government administrative organs, a May 1949 notice on accounts verification required “them” to be subject to accounts verification as before,” just before railway and monopoly enterprises were assigned as public corporations. However, in 1950, GHQ indicated to the Board of Audit that audits should not hamper efficient public corpora-

5) The analysis in the following part and Section 3 is based on interviews with Mr. Yonehiko Honda (Senior Audit Coordination Officer, 5th Bureau, Railway Audit Division) (June 12, 1998) and with Mr. Kazuo Muto (Assistant Director, 2nd Bureau, 2nd Health and Welfare Audit Division) (September 10, 1998), and a discussion meeting on February 20, 1987 titled “Change from Audit of Public Corporations to Audit of Special Corporations,” attended by active and retired persons, as compiled in *Ayumi*.

tion operation and they should follow the U.S. public corporation auditing method. This method is referred to as "corporate audit." In this corporate audit, public corporation accounting and internal control are examined and opinions presented on whether or not financial statements properly indicate periodic profit or loss and financial condition. This is the same as private corporation certified public accountant audit. Here, individual transactions, such as revenues or expenditures, are subject only to sampling audits and internal audit examines details. Based on GHQ indication, the Board of Audit decided to introduce "corporate audit" for JNR and JTS in April 1951 [6].

Japan National Railway 100 Years' History (here in after referred to as *JNR History*) confirms foregoing JNR conditions. This book does not refer to GHQ. JNR concluded that operational autonomy should be respected for a public corporation operated under self-supporting accounting; therefore, efficiency and financial audits should be stressed. Based on this conclusion, JNR submitted on March 7, 1950, to the Board of Audit, a document, signed by the Accounting Bureau Director General, stating that "JNR hopes the Board of Audit audit policy will be revised." In this document, JNR expressed the hope that account-verifying-subjects would be limited to budget documents, statement of accounts for debt burden, cash planning statements, monthly general financial result statements, official financial result reports, financial statements (profit and loss statement, balance sheet and general inventory), and vouchers related to certain accounting procedures. In response to this document, the Board of Audit sent JNR a notice dated April 1, 1950 titled "Accounts Verification In and After FY 1950" and informed JNR that the Board of Audit would designate account verification objects according to JNR's request (*JNR History*, Vol. 12, p.927).

Under such conditions, the Board of Audit was very concerned about JNR financial statement credibility. Next, the Board of Audit established a policy to assess accuracy of trial balances prepared by the local JNR office. For about a week at the end of November 1950, the Board of Audit made the first audit since JNR was established, at the Nagoya Regional Accounting Office, and at various other organizations involved. Based on the audit, the Board of Audit sent out a notice on April 25, 1951, titled "Accounts Verification In and After FY 1951" and informed JNR that effective from FY 1951, audit would be changed from auditing cash and materials receipts and disbursements in the so-called 'governmental and municipal accounting' style, to corporate-accounting audit, mainly studying financial statements and revenues/expenses. Supplementing this notice, the Board of Audit Secretary General submitted a request "Enhancing Internal Auditing" to the JNR president.

"In April 1951, we designated accounts verification objects for JNR audit. We simplified accounts verification on the precondition that JNR internal auditing would be operated successfully. Although we understand that JNR is trying to improve its internal auditing, the number of auditors, capability, cooperation from various sections, etc. are not sufficient in some ways. We hope that both central and regional organizations will more carefully consider these points."

Despite the request and JNR inspectors' efforts, JNR could not improve their internal auditing. On July 1, 1952, the Board of Audit President sent the JNR President a notice titled "JNR Accounts Verification Objects" in which the Board of audit asked JNR to submit evidence of revenues and expenses above a certain amount. Thus corporate-accounting auditing, based on the idea of enhancing internal auditing, ended (*JNR History* Vol.12, pp.927-29). According to JNR explanations, corporate inspections were withdrawn soon after JNR failed to enhance internal auditing, while the Board of Audit listed the following reasons for withdrawing

6) Although *Ayumi* (p.25 and p.48) mentions that corporate audit was introduced only for JNR, JTS was also subject to such a corporate audit.

corporate auditing: [7]

(1) Several existing accounting practices required rectifying. Improprieties were extensive in FY 1949 and 1950, from JTS and JNR foundation to immediately before introducing corporate auditing [8] - as shown in Figure 1. In these audit reports, the "financial statements" item was created as a classification of improprieties. This item refers to many cases where financial statements do not correctly reflect figures for profit or loss, assets, etc. (*Ayumi*, p.25).
(2) Since number of days for business trips and number of staff members were limited, determining in an organizational audit whether financial statements were being properly prepared or not was difficult. (*Ayumi*, p.25).
(3) Since a public corporation was a monopoly or adopted a low-price policy in view of their public responsibility, determining management efficiency by examining business performance, as reflected in their financial statements, was irrational (*Ayumi*, p.256).

It seems that reasons in (2) and (3), above, differ slightly from those indicated by JNR. Anyway, for various reasons, corporate auditing was revised. In February 1953, and Audit Commission confirmed that "an audit shall be conducted to identify improprieties the same as in central government accounting audit, and financial statements and management efficiency shall be audited." In other words, they decided that the same audit would be used as for government enterprises and that financial statements and management efficiency would be audited. This policy remained officially unchanged until JTS was privatized and renamed JT in 1985, NTTPC was privatized and renamed NTT in 1985, and JNR was privatized and divided into seven companies - six JR passenger companies and Japan Freight Railway Co. (JR Freight) - in 1987.

7) For these three reasons we may need the following supplementary explanations: (a) The description in (1) means only that conventional audit was needed because of many improprieties and does not mean that corporate auditing was introduced too early. (b) "The number of staff members" mentioned in (2) means the number of auditors who had experience similar to certified public accountant capability for auditing financial statements; the number of such auditors was very limited. Three auditors were qualified as certified public accountants - two have already retired from office and one is still in service (as of FY 1998). On the other hand, Mochida (1995) reported that in the 1950s all U.S. GAO members were qualified certified public accountants. Since then internal staff has been trained over a 15-20 year period, and with 20% certified public accountants now, other staff members have wider expertise and experience. (c) Unlike corporate audits, the Board of Audit financial statement audit is not organized, but is an individual and occasional audit. Its aim is not to determine, across-the-board, whether financial statements are adequate or not. (d) Auditing management efficiency clarifies whether a certain enterprise earned a profit or incurred losses which cannot necessarily be detected by examining financial statements, and causes can be further analyzed.

8) Since the Japan Railway Construction Public Corporation (JRCC) separated from JNR, March 23, 1964, the number of improprieties for this public corporation is included in the JNR number: One case each in 1967, 1970, 1971, 1973, 1976 and 1980 and two cases each in 1978 and 1979, of improprieties classified as JNR should be attributed to JRCC.

Figure 1. Trend in Number of Improprieties for Three Public Corporations

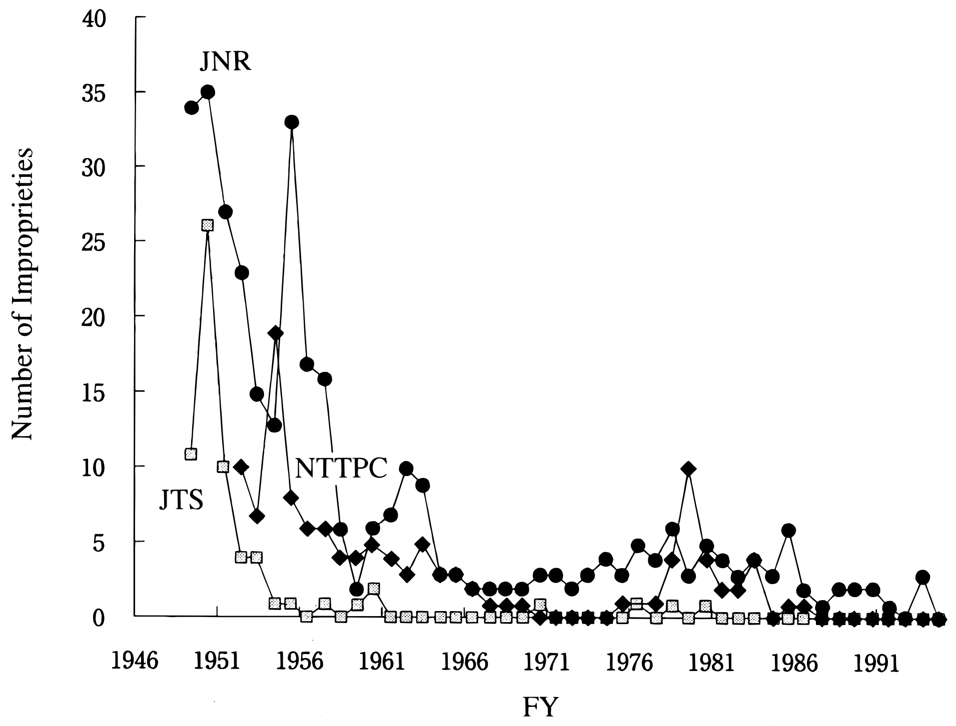
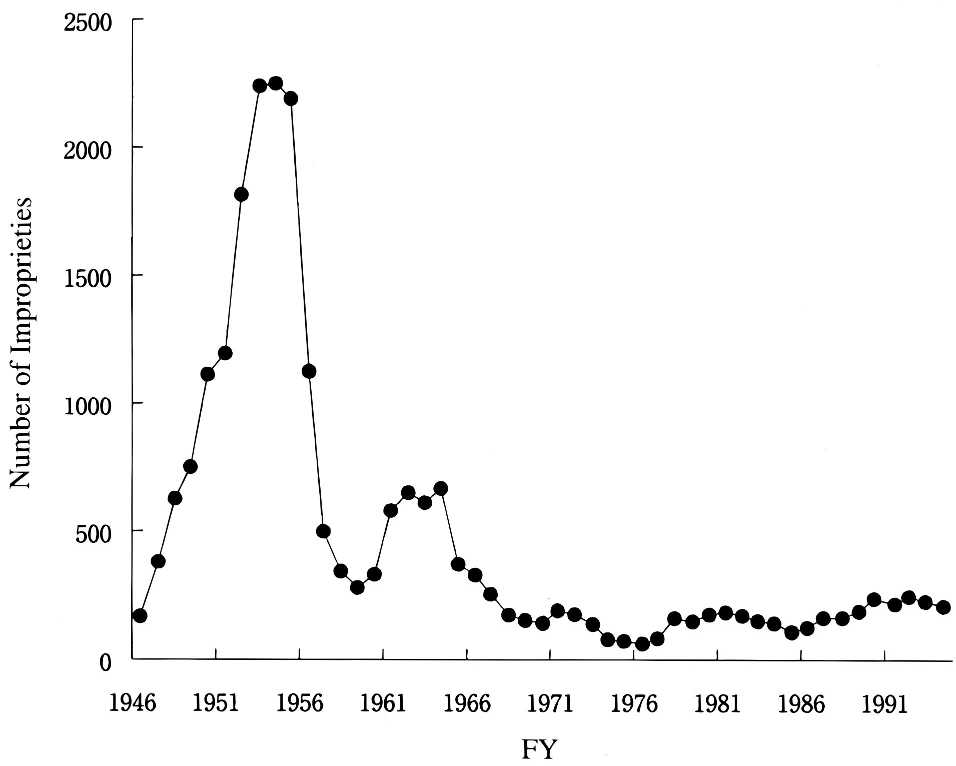


Figure 2. Trend in Number of Improprieties for All Audited Bodies



3. The Board of Audit auditing stance and business auditing in the bud

The above analysis still leaves questions. Reasons for abolishing corporate audit, listed by the Board of Audit, seem far from persuasive. As indicated in (2), above, actually few auditors had expertise similar to that of certified public accounts to audit financial statements. Why, then, didn't the Board of Audit try to recruit personnel with such capacity or educate existing staff members? [9] The Board of Audit, seemingly, did not intend to conduct corporate auditing.

Privatizing the three public corporations should have eliminated the reason in (3), above. However, there was no indication of adopting corporate auditing. After the three public corporations were privatized, the Board of Audit met in May 1987 to examine how to conduct audits for special corporations. Reportedly, they decided to audit from an economy and efficiency viewpoint; in particular audits would stress whether or not corporate management is efficient, considering the purpose of privatizing. Reportedly, after privatizing of the three public corporations, audit comments requesting management improvement became dominant and the Board of Audit often asked audited bodies to submit materials helpful in clarifying profitability of each project. Actually, however, the Board of Audit, immediately after JNR was privatized, commented as follows about auditing JR based on comparison with private railway companies:

(1) Service prices related to vending machines and consignee public telephones in station precincts were revised to adequate levels (*FY 1988 Audit Report*, pp.275-82, Action taken).
(2) Receipt of commissions on sales of commutation tickets for other private railway companies (*FY 1988 Audit Report*, pp.382-86, Action demanded).

Audit comments in (1), above, were given to six JR passenger companies, and those in (2), above, to one of them the East Japan Railway Co. (JR-East). This method, where reformatory measures are taken compared with other companies, is referred to as benchmarking, and is often used by private companies. But this is not corporate audit by certified public accountants.[10]

Regarding the reason in (1), preceding section, seemingly, the Board of Audit did not intend to conduct corporate auditing. It is certain that for a few years after the public corporation was established, several accounting practices required rectifying, as pointed out above. Also, in and after 1962, auditing changed from conventional audits, stressing identifying improper accounting practices, to audits stressing opinions and presentation/action demand resulting from causes of improper or unreasonable accounting practices, so audited bodies could correct such accounting practices (*Ayumi*, p.48). This is notably reflected in Figure 1.

Did having many improprieties prevent introducing corporate auditing? Comparing Figure 1 with 2, it clearly shows that the peak number of improprieties for the three public corporations came earlier than those of all other audited bodies (peak number of JNR and JTS improprieties came in FY 1950, one year after they became public corporations; that for NTTPC came in 1954, two years after it became a public corporation). As number of improprieties decreased thereafter, however, only then did the viewpoint shift from regularity to economy/efficiency auditing, with no shift to corporate auditing. Why didn't auditing for the three public corporations shift to corporate auditing although number of improprieties decreased? From this, I presume that abolishing corporate auditing did not result from increased improprieties, but from the Board of Audit, since its founda-

9) Refer to footnote 7, (b).

10) These audit comments should have been made even before privatizing the public corporation. It seems, however, that before privatizing the public corporation, they avoided referring to related or peripheral business because of the possibility of pressuring private business. Reportedly, the Board of Audit decided to compare JR companies with other private companies earning profits, and these audit comments were given in audit reports. Further, the audit report disregarded "profitability." But, we can safely say that, before privatization, the Board of Audit stressed only expenditure economy, but after privatization considered revenue economy compared with other private companies. Although we have an indication of "business auditing" in the sense that the Board of Audit considered both expenditure and revenue, this "business audit" clearly differs from 'real' corporate auditing.

tion, taking the approach of calling audited bodies to account for improprieties, and this character and auditing stance did not agree with corporate auditing.

In fact, the Board of Audit continued judging operations based on financial performances from 25 years after the three public corporations were established to when these public corporations were privatized, although causes (2) and (3), as mentioned earlier, were not eliminated. For about ten years, the Board of Audit examined profitability, or long-term economy, to use a more accurate term, without resorting to corporate auditing. In other words, the Board of Audit started examining business performance based on a “business auditing” approach.

For example, the following JNR report “Series” appeared:

(1) JNR Profit and Loss (*FY 1976 Audit Report*, pp.194-96, special description);
(2) Construction Conditions, Operating Conditions and Facilities Investment Effect, etc. for Administrative Improvement (*FY 1977 Audit Report*, pp.229-40, special description);
(3) Freight Business (*FY 1980 Audit Report*, pp.167-75, special description);
(4) Baggage Business (*FY 1981 Audit Report*, pp.10-88, special description);
(5) Passenger Transportation Business, etc. (*FY 1982 Audit Report*, pp.240-54, special description).

In particular, items (3), (4) and (5) were referred to as the “Three Series,” where special descriptions were planned to be made every year for freight, baggage, and passenger transportation, in turn.

JTS audit reports mentioned are as follows:

(1) Producing and Procuring Leaf Tobacco (*FY 1977 Audit Report*, pp.211-13, special description);
(2) Managing and Operating Leaf Tobacco Warehouses (*FY 1978 Audit Report*, pp. 165-68, action demand);
(3) Abolishing Excessive Domestic Leaf Tobacco Warehouse Inventory (*FY 1982 Audit Report*, pp.211-14, action demand).

NTTPC audit reports mentioned as follows:

(1) Operating Telegraph Business (*FY1976 Audit Report*, pp.203-4, special description);
(2) Telegraph Business (*FY 1982 Audit Report*, pp.264-68, action demand);
(3) Telephone Operation (*FY1983 Audit Report*, pp.222-29, action demand);
(4) Transporting Operation-Related Documents (*FY1983 Audit Report*, pp.235-37, action taken);
(5) Consignee Public Telephone (*FY 1984 Audit Report*, pp.238-42, action demand).

Also, the Board of Audit made special descriptions common to the three public corporations: Managing Hospitals Owned and Operated by Three Public Corporations (*FY 1977 Audit Report*, pp.213-16, special description).

As background, the Board of Audit started identifying problems through special descriptions in the FY 1975 audit report. Thus, the Board of Audit continued making special descriptions for the three public corporations. Considering this audit using special descriptions as effectiveness auditing may be unreasonable. Reportedly, in the U.S., the GAO started effectiveness auditing with priority on providing extremely reliable data based on a huge amount of data that cannot be collected by parties other than GAO and on a number of unique hearings. Unlike GAO research-based effectiveness auditing, Board of Audit, Japan special descriptions reflected only the auditing stance calling audited bodies to account for improprieties.

Collecting original data through field audit, the Board of Audit observed various “undesirable practices” - for example, for JNR, the labor union was very powerful and consultations were always required; therefore, in many cases machinery could not be put in operation because consultations failed. Since these undesirable practices could not be cured through only JNR authority efforts, these practices could not be considered improprieties and could not be mentioned as improprieties in an audit report. Thus, the Board of Audit mentioned these “undesirable practices” in special descriptions based on effect of investment. Therefore, the Board of Audit approach differed completely from corporate or research-based effectiveness auditing.

The Board of Audit condemnatory stance remained, but it criticized only issues relating to “economy of long term profitability” instead of “improprieties.” Thus, its approach was based on a “business auditing” concept reflecting its auditing stance. This is the main reason why corporate auditing was abandoned. Considering Board of Audit developed audit capability, this paper concludes that the Board of Audit will not adopt corporate auditing in the future. They will not adopt GAO effectiveness auditing. Thus, business auditing discussed in this study is likely to be the only option the Board of Audit will adopt.

4. Toward business auditing - a new audit approach

(1) The total cost business viewpoint

Considering past trends, a new auditing approach, differing form GAO effectiveness or corporate auditing, may be an option.

First, Board of Audit audit subjects are not only physical “materials” as assets, but also aspects of an enterprise’s “business” - including constructing, acquiring, maintaining and long-term profit or loss. For public works, where regularity auditing is mainly applied, problems are identified for materials in audit reports, but enterprise operators are clearly required to explain causes of such problems, and processes within an enterprise are questioned. However, the Board of Audit seems to hesitate in expanding the audit subject for materials to business in its audit reports. Aside from a few exceptions for the former three public corporations, the Board of Audit mainly identified physical evidence.[11)]

Second, we should point out that “business auditing” is not unknown to the Board of Audit. Business auditing is a natural outcome of the Board of Audit conventional auditing stance in which they collect original data through field audits and demand actions to rectify problems.[12)] It seems to me that the Board of Audit has started accumulating business auditing experience and know-how. Of course, auditing materials should be included as a subordinate process in business auditing. We should note that “business auditing,” using a benchmark method for instance, differs essentially from corporate auditing by certified public accountants.

Third, with many improprieties, we should insist that materials audit be justified. As shown in Figure 2, in a sense, government enterprises matured in and after the 1970s and number of improprieties significantly decreased. Thus, we should re-examine insisting on auditing materials. We should now shift from materials to business auditing, and further develop business auditing. Business auditing is considered the only approach by which the Board of Audit can keep its auditing stance neutral to many “undesirable practices.”

Thus, business auditing will be a natural outcome of the conventional Board of Audit auditing stance. Even if audit subject is changed from materials to business, the Board of Audit auditing stance does not need to be changed. To audit subjects from a business viewpoint will require a viewpoint differing from (1) accuracy, (2) regularity, (3) economy/efficiency, and (4) effectiveness: adopting a “total cost viewpoint.”

Examined from a total cost viewpoint, the point of an audit differs completely from conventional auditing. If

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11) For the three former public corporations (comparatively closer to private organizations), even if disgraceful findings were reported to the Diet, they will accept such findings if long-term benefits are generated. Conversely, more bureaucratic organizations probably disliked responding to the Diet and refused to accept some findings involving any uncertainty. However, this acceptance or refusal concerns only findings to be included in audit reports and does not concern audit subjects. We can safely say that bureaucratic organization refusal is based on concern that responsibility will not be limited to materials. The reason why bureaucratic organizations often resist findings is that actual audit subjects are not materials but the organization itself and its business, such as managing, operating, control and policy regarding these materials, and all these can be questioned.

12) In the *FY 1998 Audit Report*, problematic conditions that interest charges could not be paid, were identified based on examining charging schemes, redemption plans, traffic volumes, etc. in the “Plan and Actual Performance of the Honshu-Shikoku Bridge” (pp.525-39).

we examine constructing a facility from a total cost viewpoint over a long period, we must examine total costs (construction cost + maintenance cost + interest paid). If construction cost is low but maintenance cost after facility completion is high, total cost will significantly increase as the facility is used for a long period. If an interest-bearing fund, such as the Fiscal Investment and Loan Program fund, is used, interest paid will be a higher than usual cost element.[13)] If we examine only financing schemes, we may easily calculate interest expenses in advance; therefore, avoiding huge central government losses. Therefore, this paper will discuss importance of financing schemes and possibility of advance auditing, using the JNR failure as an example, and to emphasize total cost viewpoint significance. Next, this paper will demonstrate a new approach to business auditing considering business life cycle. This new business auditing approach is based on an advance audit plan covering a longer time for each enterprise.

(2) JNR failure and its financing scheme

JNR failure was attributed to a variety of causes. However, Takahashi (1999) examined JNR failure from the viewpoint of its financing scheme and pointed out that JNR itself realized from the beginning that the 3rd long-term plan financing scheme, starting in FY 1965, was unstable. On May 10, 1963, the Advisory Committee to JNR submitted a report on "JNR Management Condition" to the JNR President and warned in the report, based on trial FY 1970 calculations, that "JNR would be bankrupt" under heavy burdens of its repayment of borrowings and interest payment.

According to the *JNR History* (Vol. 12, 1973, p.161) the above report concluded in FY 1970, that "JNR would be bankrupt" for reasons given below, based on trial calculations, on the precondition that "future traffic demand will remain satisfactory, although not fully satisfactory, and other conditions, including fares, would remain unchanged, and pay raise rates, etc. would follow current trends":

(1) The giant corporation earns \818.9 billion annual revenue;
(2) The corporation's gross profit is only \7.2 billion after considering operating expenses and interest charges;
(3) To meet increasing traffic demand, \330 billion a year new investment is needed with a huge loan required each year;
(4) Thus, the loan outstanding around 1970 will increase to a vast \2.4 trillion.

Let's compare trial calculation and actual results. According to the *JNR FY 1970 Audit Report*, FY 1970 financial results were as follows:

(1) Revenue was \1.1457 trillion;
(2) A \154.9 billion loss was incurred after deducting operating expenses and interest paid;
(3) JNR capital investment was \326.6 billion, \330.4 billion, and \363.4 billion in the three years from FY 1965; these investments were all financed by interest-bearing borrowings and railway bonds;
(4) Outstanding borrowings (long-term debts + railway bonds) was \2.6037 trillion.

Revenue in item (1), above, increased because of a fare raise. Figures in items (2) through (4) were lower than those in the trial calculation, leading to the conclusion that "JNR will be bankrupt."

As one of the causes of poor operational performance, *JNR History* (1973, Vol. 12, pp.164-66) points out that JNR could not increase revenues by raising fares as expected, because railway traffic status was degraded. As mentioned earlier, a plan to increase revenue through raising fares had been proposed, and in March, 1966, fares were increased 32.2% and freight charges by 12.3% to generate funds needed to carry out the 3rd long-

13) For example: in item (2) (*FY1977 Audit Report*) for JNR facilities, equipment, machinery, devices, etc., about \158.2 billion that had been invested remained unused over a long period, and accumulated interest reached about \43.2 billion at the end of 1977.

term plan. However, reportedly, revenue from transportation increased to only to \768.4 billion, significantly lower than the estimated \823,9 billion, because of a fall in traffic demand (*JNR History*, 1973, Vol.12, pp.168-70). In accordance with an arbitration award, regular pay was increased incrementally from as much as 6% to 10% over that period. The pay raise rate enforced by the arbitration award was so high JNR could not absorb the extra amount in its original budget. Repeated pay raises sharply increased labor cost for each employee. JNR employee age brackets were "barrel-shaped." Since the 35 years and older, but younger than 50 age bracket accounted for 60% of all employees at the end of 1967, labor costs further expanded, because of the seniority-based wage system. Labor costs reported in the profit and loss account doubled from \186.3 billion in FY 1960 to \384.9 billion in FY 1967.

However, concluding that JNR "bankruptcy," pointed out by trial calculations, resulted only from decline in JNR's situation and significant labor cost increases isn't reasonable. "JNR would be bankrupt" because of redemption of borrowings and interest expenses. We should carefully re-examine trial calculation preconditions. Preconditions are that "future traffic demand will remain satisfactory, although not fully satisfactory, and other conditions, including fares, will remain unchanged and pay raise rates, etc. will follow current trends." Trial calculations concluded that JNR would be bankrupt based on these preconditions.

In reality, the JNR declining situation problem was very serious. However, increased transportation revenue, not assumed in the trial calculation, developed, and transportation revenue (annual revenue mentioned in item (1), above) was greater by more than \300 billion than the corresponding trial calculation figure. Labor costs, another factor, sharply increased after the trial calculation in 1963, and created a more aggravated situation than that estimated, causing a \154.9 billion loss, mentioned in item (2), above. However, the 1963 trial calculation never envisaged such a situation.

We should not attribute the cause of bankruptcy given in the trial calculation to JNR's declining situation or to increased labor costs, but to the unreasonable financing scheme. The trial calculation only predicted such an outcome in case new investments of \330 billion a year, mentioned in item (3), would be met through borrowing, under the pretext of meeting increasing traffic demand. Without considering the declining JNR situation or increased labor costs, the trial calculation could have revealed, solely by examining the financing scheme, that JNR would be bankrupt. Since an enormous amount of interest-bearing funds was procured, interest expenses for the outstanding balance of such funds (item (4), above) also increased. Therefore, such interest charges could not be paid under the poor financial conditions (item (2), above), additional borrowing would be needed to pay such charges, leading to a vicious circle in which debts snowballed.

In fact, JNR interest expenses and debt handling expenses increased to \101.2 billion in FY1967, only three years after start of the 3rd long-term plan. This amount almost equaled the \104 in funds procured through railway bonds. Therefore, the 3rd long-term plan, scheduled to be carried out over seven years from FY1965 through FY 1971, failed in only a few years. Thus, the "Japan National Railway Reconstruction Promotion Special Measures Law" was enacted in 1969, and various fiscal actions were adopted, including de facto suspension of interest charge payments of government debts at the end of FY 1968, during the reconstruction period. Effective FY 1969, the 3rd long-term plan was modified into the Fiscal Consolidation Plan.

So, what kind of audit did the Board of Audit make for JNR? This summary had been described by JNR in *JNR History* (Vol. 12, pp.161-73) issued in 1973, before the Board of Audit started making special descriptions of JNR in its audit reports in the last half of the 1970s, as mentioned earlier. Source material for *JNR History* was a report on "JNR Management Conditions" submitted by the Advisory Committee to JNR to the JNR President on May 10, 1963. The report warned, based on FY 1970 trial calculations, that "JNR will be bankrupt." Then why did the Board of Audit not identify anything until it became clear that JNR was bankrupt?[14] Furthermore, the Board of Audit did not refer to financing scheme irresponsibility, the root cause of JNR's huge

14) In audit reports in those days, the Board of Audit simply referred to JNR's operations and financial conditions under titles of "Outline of Operations" and "Profit and Loss."

deficit, in special descriptions for JNR in its audit reports, although JNR itself had pointed out in 1963 that "JNR will be bankrupt".

This results from the Board of Audit avoiding business auditing and sticking to conventional material auditing. The Board of Audit should have at least examined the financing scheme in advance. If the party involved flashed a danger signal, the Board of Audit should have made an advance audit on its own initiative. Apparently, the point of audit is not regularity. Even if a financing scheme is legal in every respect, a business plan lacking debt-servicing capacity is nonsense. If an audited body implemented a certain senseless policy under a certain law, the Board of Audit should audit such a senseless policy and point out improprieties according to its auditing stance.

Financing scheme failure meant more than JNR bankruptcy. Whether a government or private project, if a railway is constructed with a huge amount of interest-bearing funds, railway management must run a race against interest expenses[15]. The important thing is to reduce both amount of interest-bearing funds and "construction period" (period between commencement of construction and start of service), otherwise, the railway business earning structure would deteriorate and subsidies would not be enough to cover even interest expenses (Takahashi, 1999). As demonstrated by JNR bankruptcy, if a railway operator is allowed to procure interest-bearing funds to cover construction funds or emergency funds shortage, the outstanding interest-bearing fund balance and its interest expenses will increase during the construction period, and the railway business earning structure will significantly deteriorate before starting operations. If a railway operator is placed in a situation where interest expenses wipe out operating income, any efforts to improve operational performance will be useless and such efforts would simply peter out in the end.

(3) Business life cycle

So far, our discussions have focused on JNR. JNR became bankrupt after having recorded huge deficits for many years. Let's examine NTTPC which avoided bankruptcy but had to consider business operations more carefully than before. NTTPC completed the 5th Five-Year Plan in FY 1977, and achieved two big targets - dissolving waiting time for establishing new subscriber stations, in FY1977, and direct automatic dialing across the nation, on March 14, 1979. Thus, the 4th Group of the Ad Hoc Commission on Administrative Reform (hereinafter referred to as "the Commission") pointed out emergence of the following conditions in its May 17, 1982 report titled "Desirable Conditions of the Three Public Corporations and Special Organizations" (Takahashi, 1989a).

NTTPC labor costs, accounting for about 1/3 of total expenses, was one of the causes of expanded telephone business expenses. Number of employees increased 40% from about 240,000 in FY 1965 to about 333,000 in FY 1980. The employee increase was mainly because maintenance employees increased to about 150,000 when subscriber stations increased an average of 3 million a year in the early 1970s to help reduce waiting time for establishing new subscriber stations. The Commission pointed out the need to reduce maintenance employees and operations employees (by about 66,000 operators), such as telephone exchange operators no longer needed because of nationwide direct automatic dialing. Before the Commission submitted its report, however, NTTPC continued reducing employees (Takahashi, 1989a).

While NTTPC continued curtailing employees, the Board of Audit pointed out the raise of false accounting cases, such as fictitious business trips, meetings, etc. in its *FY 1978 Audit Report*, and pointed out window-dressing salary settlements infringing general provisions for budgeting, internal regulations, etc. in its *FY 1979 Audit Report*. These events sent a grave signal that the NTTPC organization, as it matured, was not suitable for its activities. The Board of Audit should have deemed such false accounting or window-dressing as crimes. Somebody blowing the whistle on NTTPC for false accounting should show that internal NTTPC labor rela-

15) After JNR was divided and privatized, and having been burdened with JNR debt, East Japan Railway Co. (JR East) reduced debts and average interest rate in the race against interest expenses. (Takahashi, 2000).

tions were not good, and may have meant that some employees hoped improper NTTPC practices would be discovered. NTTPC management tried hard to improve operational efficiency based on the understanding that "NTTPC history is one of rationalization." However, NTTPC accounting practices were carried out the same way as those of the central government. These practices had limitations and may have even invited improper accounting.

In the telecommunications industry, subject to rapid technological innovation, a private company should be able to keep rationalization benefits in retained earnings for future investment, reward employees with pay raises, etc. Otherwise, employees would not cooperate in improving operational efficiency. Conversely, in NTTPC, any surplus was transferred to the National Treasury, and management and employees did not get any additional compensation. Any surplus money paid to employees in NTTPC accounting would be regarded as improper. Regardless, they should not tolerate such improper payments. As long as NTTPC was a public corporation, improper accounting practices would be repeated again and again, even if disclosed. Top management seemed to share this opinion when NTTPC was privatized.

At the official 4th Commission hearing on February 26, 1982, before NTTPC was privatized, NTTPC proposed three operating organization forms - revised public corporation, special corporation, and private corporation. Even for a revised public corporation, NTTPC asked to abolish the total wage system under general budget provisions. NTTPC further asked to abolish National Treasury deposits (with no interest on deposits up to \3 billion and only 30% interest for deposits over \3 billion) and that they be allowed to invest their own funds on their own initiative (Takahashi, 1989a).

Reportedly, an NTTPC executive, involved in preparing operational organization proposals for the 4th Commission hearing, was working at Kinki Telecommunications Bureau when the false accounting took place. The executive was investigated by a public prosecutor and felt strongly that a public corporation system had limitations. Also, when a proposal was made, this person concluded that, to further rationalize NTTPC should abandon being a public corporation, considering the restriction of the public corporation budget having to be approved by the Diet. Thus, NTTPC chose a special corporation operational organization. This NTTPC choice was influenced more by the Board of Audit audit than the Board of Audit understood.

In contrast with the maturity period, in which these "symptoms" were observed, another kind of interesting "symptom" was observed in the starting period. Notwithstanding a three-year gap between JNR/JTS becoming public corporations and NTTPC becoming a public corporation, improprieties peaked in the first 2 to 3 years after they became a public corporation, as shown in Figure 1. Regardless of when they became public corporations, seemingly they all experienced confusion in their initial years.

For JNR, which became a public corporation in June 1949, they tentatively applied conventional laws and regulations and postponed establishing an adequate public corporation accounting system. When the Japan National Railway Law was partially revised in December 1949, accounting defects were rectified. Until accounting was drastically revised by the second amendment to the Japan National Railway Law, in August 1953, however, the Japan National Railway Enterprise Special Account Law, the Public Finance Law, the Public Accounting Law and the National Property Law tentatively applied. In October 1953, the Japan National Railway Law Enforcement Order was drastically amended because of the second amendment to the Japan National Railway Law. Japan National Railway Accounting Regulations were extensively amended in October 1954, with various internal accounting regulations amended thereafter. This took five years. From FY 1964 onwards, the Board of Audit identified improprieties sharply decreased because of effects of unifying calculation methods, various procedures, etc., resulting from JNR setting up various standards, guidelines, etc. (*JNR History*, Vol. 12, pp.589-91; pp.929-30).

Although the former three public corporations were different kinds of industry or enterprises, and their histories before becoming corporations differ, they have common audit reporting life cycles, as described below.

(1) Confused period following start-up: the Board of Audit mainly pointed out improprieties in the confused

period when they became public corporations and they adopted tentative accounting schemes the first few years.

(2) Well-established period: after the confused period, improprieties decreased and efficiency audits generally had more action demands and actions taken (audits were mainly based on quality control, common to private manufacturing industries).

(3) Matured period: each enterprise reached a matured period about twenty years after becoming a public corporation. Problems pointed out in audit reports decreased. However, problems from external factors, which are hard to blame the public corporations themselves for, increased. Therefore, audits were based on investment effect, since describing such problems as improprieties is difficult. This is because public corporation authority is basically limited. Certain kinds of enterprises are not suited to be public corporations.

The three public corporations' common life cycle, mentioned above, would not have emerged if auditing subjects were simply limited to materials. Life cycles emerged because, besides problems concerning materials, audit subjects included aspects of the business or enterprise itself.

To audit in terms of an enterprise's life cycle, we need business auditing based on "total costs," which differs from GAO effectiveness auditing or corporate auditing. Using long-term total costs, we must introduce a long-term audit program considering each business or enterprise life cycle stage, as follows:

(1) First, when planning an enterprise, the enterprise-governing ministry or agency clarifies the object of enterprise, detailed services and evaluation standards over a long term of 20-30 years[16)];

(2) The Board of Audit then clarifies its long-term auditing program and auditing standards for each enterprise, in advance;

(3) An enterprise starts operations only after procedures in items (1) and (2).

Then, the Board of Audit's role may change to that of assisting the "business" in starting an enterprise, in a certain period, through its auditing procedures.

5. Summary - self-determination principles and business auditing

What kind of audit is appropriate for an enterprise that has started up? For the three former public corporations, increased problems from external factors are hard to blame on the public corporations themselves. Therefore, increased special descriptions resulted from audits based on investment effect, because such problems cannot be classified as improprieties. I mentioned earlier that this is because such public corporations' authority is basically limited. More accurately, this is because such public corporations did not correctly adhere to self-determination principles.

16) Twenty or thirty years after an enterprise starts, the Board of Audit should "review" the enterprise and make a "go or no-go" audit (Kuwashima, 1999) to determine whether the enterprise should be privatized, be liquidated, or be continued as a government enterprise. Past audits have never made such judgements or recommendations. In JNR audits, for example, reportedly, the Board of Audit sent a message to the effect that "If these conditions are left as they are, JNR will face grave future difficulties. How do you understand these conditions? We hope that JNR will deal with this soon." In Yokaku Bay Land Improvement *FY1993 Audit Report* special descriptions and in Multipurpose Dam Construction Project *FY 1994 Audit Report* special descriptions, the Board of Audit pointed out problems and proposed reviewing these projects because no benefits were being created. Even if they decided to continue a certain project, persons subject to punishment should take responsibility for their past behavior or activities, and, in the worst case, be dismissed. Even today, persons causing damage to the central government and its activities can be described as improprieties; they are subject to punishment and required to compensate for such damage. *Kaikei Kensa Jyoho* (*Audit Information*), May 28, 1998, reported as follows: Regarding *FY 1996 Audit Report* findings, related ministries/agencies and government-related organizations (or finance corporations) punished 1,619 persons as of the end of March 1998, and special corporations punished 36 persons. However, punishments were "reprimands", "strict admonitions" or "admonitions." Whether persons subject to punishments received appropriate penalties isn't clear. This may be a good chance to clarify appropriate punishments.

A private corporation has the right to dispose of its profit. Therefore, such corporations try to earn profit and increase retained earnings for future investments to expand their business [17]. Private corporations will try to maximize their long-term, rather than short-term, profit [18]. After the three former public corporations were privatized, "self-determination" was most important in improving operational performances.

This applies to JR East after privatization (Takahashi, 2000). NTT is a good example. As NTT became a special corporation, they were guaranteed that they could dispose and manage their profits and funds at their own discretion. The following compares conditions before and after privatization (Takahashi, 1989c).

Before privatization:

(1) The budget (business plan, etc. attached) had to be submitted to the Minister of Posts and Telecommunications and approved by the Diet.

(2) Funds were deposited with the National Treasury, with no interest on deposits less than \3 billion and 3% interest on deposits over \3 billion.

(3) Profits were transferred to surplus reserves and allocated to construction investment.

(4) Equity contributions and investment were limited to defined purposes.

After privatization in 1985:

(1) Only the business plan (outline of main services and construction plans) is subject to Minister of Posts and Telecommunications approval.

(2) Funds management is not limited.

(3) Subject to general shareholders meeting approval, profit is disposed under the Commercial Code (retained surplus + dividend + voluntary reserve) (subject to Minister of Posts and Telecommunications approval).

(4) Equity contributions and investment are not limited.

This is an enormous difference.

In determining salary before privatization, salary budgets had to be passed by the Diet and total salary was limited by general budget provisions. Even if surplus funds were generated by successful operations, NTTPC was not permitted to raise its employees' salaries. More accurately, employees' salary or labor cost, is not part of disposing of profit, but is expense before calculating profit. In a private company, therefore, salaries may be determined without general shareholders meeting resolution. Only after privatization, was NTT finally allowed to determine salary levels. NTT employees may receive extra salary if telecommunications services mechanization or rationalization efforts generate surplus funds. NTT may also reserve part of surplus funds for future investment.

After privatization, NTT could use its discretion in determining surplus funds or profit investment objects, and how to manage them. The business plan mentioned in item (1), above, does not refer to equity participation or investment. NTT did not prepare a budget for equity participation or investment. In other words, NTT could procure equity stocks or invest funds in a timely way without considering the budget, for good investment opportunities. NTT could thus earn investment income.

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17) Importantly, a corporation must have the right to dispose of its profit itself, and must have self-determining power, because by a corporation having self-determining power, its employees can gain more job satisfaction (work motivation). For details, refer to Takahashi (1993a; 1993b; 1997).

18) In NTTPC before privatization, President Shinto, who came from a private company, reportedly gave strong direction in the summer of 1981 that "the term budget should not be used internally." The term "budget" meant ministry or agency expenditure limit. However, previously everybody considered that budgeted expenses should be used without reserve. President Shinto is said to have gotten angry, because employees did not understand that budgeted expenses should not be used unnecessarily. The Board of Audit recalled that employees' awareness of budgeted expenses improved remarkably before NTTPC was privatized and renamed NTT, and that they did not use remaining budget expenses in many local offices. They revised plans and called for additional budget for needed additional expenses.

Although NTTPC was "privatized" and changed into a special corporation named NTT in 1985, NTT remained a public corporation with all-central-government-held shares before NTT was listed on the stock market in 1986, and still remains a semi-public corporation (more than 50% of its shares are held by the central government). In essence, whether it is a public corporation or a private corporation does not matter for long-term operational performance. As with NTT, a corporation must be able to manage profits and funds at its own discretion. Whether the central government or shareholders absorb profit does not matter.

We need only to recall that the shareholders counterrevolution that began in the late 1960s ended management control in the U.S. (Takahashi, 1995). Essentially, self-determination is more important than anything else. Management should be guaranteed that they can establish strategies on their own and members of an organization should be able to autonomously act long-term unaffected by environmental changes. The managerial revolution observed in capitalist economies - if a person is a competent manager, the person can continue to be a professional manager - was symbolic.

Even where self-determination principle is established, business auditing will be effective. As mentioned earlier, in May 1987 the Board of Audit established a policy to audit special corporations stressing whether operations are efficiently conducted or not, after the three public corporations were privatized. With JR (JNR was privatized and renamed JR), the Board of Audit prepared JR audit reports based on benchmarking in comparison with private railway companies. These audits apparently differed from corporate audits. In the idealized "business audit," the Board of Audit should continue advising enterprises or businesses that had successfully started operation as though it was an outside director, rather than acting as an auditing officer or an audit corporation. I believe that ideal business auditing will basically differ from corporate auditing in terms of auditing stance.

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