Effects of Downsizing on Corporate Financial Performances in Japan

by

Tomonori Tomura

CEO, Japan Management Research Institute (www.jmri.jp)

Chairperson, Japan ERM Association (www.j-erm.org)

Lecturer, Okayama University, Grad School of Technology

Certified Fraud Examiner (CFE)

Ex. Executive Officer, Japan Association of Administrative Schience

Contact:

tomura@jmri.jp

FAX: +81-50-1402-5157

Suite #302, 2-16-18, Higashiyaguchi, Ohta-ku

Tokyo, 146-0094

JAPAN

Executive Summary

Japanese firms have faced long-term recession and tried to find out the ways to improve corporate profitability. Downsizing is currently one of the most critical issues for the Japanese companies. This research examines the effects of the downsizing on the corporate financial performances in Japan. Some may think downsizing improves corporate profitability. However, this research hypothesizes that the downsizing reduces the overall profitability due to hidden costs of the downsizing. As for the change rates of stock prices of the firms, this study hypothesizes that the change rates outperform the rate-of-change in the points of TOPIX (Japanese major stock price index) through the downsizing.

To investigate the downsizing effects, three-year average net profit margins and the change rates of the stock prices of the downsizing firms are taken as dependent variables based on the downsizing implemented in the fiscal year 1997. The population of this thesis is the firms that are registered with the first division of Tokyo Stock Exchange as large capital stocks. Japanese popular CD-ROM databases are used to collect necessary data. According to previous researches, this study assumes that the firms implemented the downsizing when the companies reduced the workforce of the firms by more than 3% within the fiscal year. The average net profit margins of the firms before and after the downsizing are tested by t tests. The change rates of the stock prices before and after the downsizing are examined by chi-square tests. Both statistical tests are performed based on the level of confidence at .05.

The data of the downsizing firms are also compared with the data of the non-downsizing companies based on the average net profit margins. Consequently, the financial ratios are not improved by the downsizing. The change rates of the stock prices of the downsizing firms significantly outperform the rate-of-change in the points of TOPIX after the downsizing. This is because investors expect the potential growth of the downsizing firms regardless of the actual overall profitability.

To improve the overall profitability in the long-term, downsizing may not be an effective corporate strategy. When the firms cannot avoid the implementation of downsizing, the top managers should reduce the hidden costs of downsizing by open communications and inspired leadership. However, downsizing arouses the expectation of the investors. To improve the change rates of the stock prices, downsizing is an effective strategy for the firms. This study also discusses the effects of the work-share for the Japanese firms as one of the possible options for the corporate strategic planning. In either case, adopting the downsizing or the work-share as the corporate strategies for the firms, top management should treat the employees as important human resources and choose the best organizational change plans based on comprehensive costs and benefits analyses of the planned changes.

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Chapter One – Introduction

Kounosuke Matsushita, the founder of Matsushita Electric Industrial Corporation, said to his subordinates, "If somebody asks you what your company produces, please answer the person that our company produces human resources and, additionally, we produce electric products." (Ise, 2002, para. 4).

Background

Japanese corporations have been struggling with severe recession since the collapse of *bubble prosperity*. Coy (2002) reported that Nikkei 225-stock index (Nikkei) had recorded the highest point at 38,915 on December 29, 1989, however, the Nikkei (at 9791.43 points on Friday, February 1, 2002) fell below the Dow Jones Industrial Average (at 9920.00 points on Thursday, January 31, 2002) for the first time since 1957. According to Yoshida (1998), Japanese firms had too optimistic views to overcome the serious economic situation at the beginning of the 1990s because the firms believed that Japanese management systems were excellent. Ohba (2001) pointed out that, until 1993, most of all Japanese firms couldn't seriously realize the necessity of corporate downsizing.

Kwon (2001) explained that Japanese firms hadn't adopted layoffs on a large scale but kept long-term contracts with the employees based on implicit contract theory. This is because the companies could provide enough salaries and positions in the workplaces for the employees until the mid 1990s (Kwon, 2001). However, the globalization of Japanese corporate activities, the advent of an aging society, low economic growth, and so forth made Japanese management systems such as lifetime employment system or seniority order wage system collapse (Kosugi, 1999; Suzuki, 2001; Tripod, 2001). According to Clark (1998), the number of bankruptcies in Japan dramatically increased since 1997. The Ministry of Foreign Affairs (2002) showed that the Japanese unemployment rate sharply increased by 1.3% for 2 years: Unemployment rate was 3.4% in 1997, 4.1% in 1998, and 4.7% in 1999. CNN.com (2001) reported that the Japanese unemployment rate in November, 2001 was 5.5% and consumer price index had been dropping for 26 straight months until November, 2001.

Yamane (1999) argued that the higher fixed costs such as personnel expenses, financing costs, and so forth had been burdens on corporate profitability while the recession had decreased the revenues of the firms. Therefore, the pressure for cost reduction drove the companies to implement downsizing to improve the financial conditions

of the firms. However, as The Economic Planning Agency (1999) pointed out, there was a dilemma: On the one hand the corporate downsizing made it possible for the firms that implemented the downsizing to improve the cost structure of the firms, but on the other hand the corporate downsizing could make the recession worse in the terms of the Japanese economy as a whole.

Purpose of Study

The purpose of this paper is to investigate the effects of downsizing on the corporate financial performances in Japan. Downsizing is booming among Japanese firms. It is important for strategic planners in each firm, investors, or other stakeholders to know whether the downsizing brings favorable effects for the corporations that implemented the downsizing.

Statement of the Problem

The purpose of this research is to examine the effects of downsizing on the corporate financial performances in Japan. There are two hypotheses of this study. The first hypothesis is that, before the downsizing, the firms achieve better financial performances than the ones after the downsizing in terms of three-year average net profit margins. The second hypothesis is that the rates of changes in the stock prices of the firms that adopted the downsizing outperform the rate of

change in the points of stock price index after the downsizing.

Data Location

This research uses Kaisha Shikihou CD-ROM Perfect Version 2000 (Shikihou, 2000) and 2002 (Shikihou, 2002). Shikihou (2000, 2002) were published by Toyo Keizai Shinpo-sha in Tokyo. These CD-ROMs have in total, ten-year corporate financial data and five-year data about the number of employees in Japanese companies registered with the Japanese stock market based on annual reports of the firms. These CD-ROMs published by the firm are one of the most useful data sources in Japan.

This study will test the first hypothesis with paired t-tests. The second hypothesis will be examined by calculating the rates of changes in the points of TOPIX (i.e., Japanese major stock price index) and in the stock prices of the firms that adopted the downsizing based on chi-square for independence tests with 2 x 2 contingency tables. TOPIX yearly data and information on market capital in Tokyo Stock Exchange (TSE) are available at TSE (2002b, 2002c).

Assumptions

This study assumes that the firms implemented the downsizing when the rates of changes in the number of the employees were decreased by more than 3% within a fiscal year. This is because there

are differences between the number of the employees that are actually dismissed and the number of the employees to be laid off announced by the companies before the implementation of the downsizing. The standard rate of change in the number of the employees which is 3% is determined based on the previous research by Cascio (1998).

Another assumption is that Japanese recession caused decreases in revenues of each company and in the points of TOPIX that was the stock price index of the first division of TSE where Japanese major firms were registered. TOPIX shows the movement of total current market prices of all the firms in the first division of TSE (TSE, 2002a). Hence, this study sets population based on the firms categorized into large-capital stocks in the first division of TSE because the large-capital stocks have a great impact on TOPIX.

Time Frame

This study focuses on the firms that implemented the downsizing in 1997 when the Japanese unemployment rate started increasing rapidly. In this research, the three-year corporate financial data before and after the downsizing will be used to test the hypotheses to examine the long-term effects of the downsizing as organizational changes. It is important for Japanese firms or other stakeholders to know the effectiveness for the strategic planning.

Limitation

The data in the CD-ROMs may include all employees who are in domestic branches and in overseas branches in the firms. In cases of mergers and acquisitions, the screening systems in the CD-ROMs show the results based on the data of resulting corporations as a whole. If the stock codes of the corporation that implemented the downsizing are changed or eliminated, this study excludes the firms from the data to test the hypotheses. This is because the changed or eliminated stock codes mean the firms that had the codes were bankrupt or dissolved. It is not proper for testing the hypotheses of this research based on the long-term effects of the downsizing to include these firms in the sample of this study.

This research deals with the firms that existed from March of 1995 to March of 2001 as the sample of the research. In addition, the sample is taken from the firms that release the annual reports every March as the settlement terms that are popular in Japan. As for the stock prices and the stock price index points, the data about all stock prices and TOPIX yearly data are based on the closing prices.

Overview of Paper

The effects of downsizing on the corporate financial performances are analyzed to test hypotheses. Introduction (including purpose of

study, statement of problem, and so forth) is in chapter one. A literature review on independent and dependent variables and the effects of the downsizing will be held in chapter two. Detailed methodologies will be shown in chapter three. Analysis on research findings will be presented in chapter four. Finally, the research will be concluded in chapter five.

Chapter Two – Literature Review

Overview

In this chapter, a literature review is presented. First, the literature related to the independent variable (i.e., the corporate downsizing) is reviewed. Second, the dependent variables (i.e., the average net profit margins and the rates of the changes in the stock prices) are considered through the literature review. Then, the effects of downsizing on the corporate financial performances are explained based on the opinions of the experts on the downsizing.

Literature Related to Independent Variable

According to Hill and Jones (2001), there are three major ways to pursue strategic changes to improve the competitive power of the firms (i.e., reengineering and *E-engineering*, innovation, and restructuring) and the downsizing is categorized into the restructuring. Robbins (1997) pointed out that these organizational changes were driven by the environmental changes such as technological changes, economical changes, changes in the competitiveness in each industry, and so forth. Ramu (1999) explained that there were three types of restructuring (i.e., portfolio restructuring, financial restructuring, and organizational restructuring) and the downsizing was one of the types of the organizational restructuring. The corporate downsizing is aimed to

make the operation of the firms more efficient (Gaughan, 2002). The corporate downsizing is implemented to lower bureaucratic costs and to rebuild a flatter and decentralized organizational structure (Thompson & Strickland, 1998).

As Lurie (2002) explained, downsizing reduces the overall workforce of the firms as a decision on the part of management. Cascio (2002) revealed that two-thirds of the corporations that executed workforce reductions in a given year would do the additional job cuts in the following year. As Wong (1999) explained, downsizing may include the reduction of hiring new graduates, early retirements and transfer to affiliations, layoffs, and so forth. Lurie (2002) pointed out that there were two types of downsizing: the downsizing for survival under crises and the downsizing as a strategic technique to manipulate the corporate profitability to attract shareholders and other stakeholders. Lurie (2002) implied that the researchers should have focused attention on the differences in the effects of two different types of downsizing on the corporate performances in the future studies. According to The Economic Planning Agency (1999), Japanese companies tended to downsize the workforce when the firms reached deadlock in terms of the corporate strategies. Additionally, corporate downsizing is not aimed to increase competitive advantages but to

reduce competitive disadvantages (Dr. S. Fox-Wolfgramm, personal communication, March 11, 2002).

In this study, the implementation of the corporate downsizing is defined as the workforce reduction by more than three percent within a fiscal year (3% rule) based on Cascio (1998). The researches (Lo, 1999; Maluzo, 2000; Yoshida, 1999) based on detailed information derived from the announcement of the implementation of the downsizing by the firms dealt with limited small samples. These studies didn't reveal the effects of the downsizing on the corporate financial performances based on a large size sample besides the company-specific effects. As Komaki (1998) pointed out, it is important to deal with a large size sample to investigate the effects as an overall issue.

Literature Related to Dependent Variables

In this research, the three-year average net profit margin is set as the first dependent variable. The profit margin shows an overall corporate profitability and it is derived from net income divided by sales revenues (Anthony, Hawkins, and Merchant, 1999; Stubbs, 2002). Appelbaum, Berg, & Baker (1996) pointed out that productivity growth progressed gradually. The studies (Cascio, 1998; Ong, 2000) were based on the net profit margins to investigate the effects of downsizing. Yoshida (1999) and Lo (1999) used net income as the dependent

variable to test the hypothesis but what seems to be lacking was a consideration of the economic situations: the recession or the prosperity. If the firms implemented the downsizing under the booming economy, the net income of the firms might tend to increase because of growth in the sales revenues. In the same way, the net income of the downsized firms might tend to decrease during the depression. At this point, the first dependent variable in this research is proper to test the first hypothesis with the consideration of the sales revenues.

The second dependent variable is the rates of changes in stock prices of the firms that implemented the downsizing. The stock prices are defined as the perceived values by shareholders and stock market players in terms of expectations (Lurie, 2002). Therefore, the stock prices are not the real returns of the firms. Yokoyama (2002) reported that stock option plans for Japanese firms were legalized in 1997. As Takahashi (2000) stated, it became important for Japanese firms to consider the stock prices in corporate decision-making due to the changes in the corporate governance of Japanese companies (i.e., indirect finance with strong support from banks was changed to direct finance from the stock market).

Cascio (1998) also investigated the effects of the downsizing on the changes in the stock prices. Ong (2000) contrasted the rates of the

changes in stock prices and the rates of the changes in the points of a major stock price index to examine the effects of the downsizing. In this research, the former rates are compared or contrasted with the rates of the changes in the points of TOPIX. According to TSE (2002a), the point of TOPIX is derived from total market value in the first division of TSE divided by a certain standard total market value times one hundred.

Literature Related to the Effects of Downsizing

According to Frahme (2002) and Lipper (2002), downsizing increased corporate profits. Kunii (2000) implied that the downsizing was the methods for the firms to boost the profit margins. However, even though these arguments about the downsizing effects on the corporate profitability are logically correct under ceteris paribus conditions, the real results are different from the arguments. As Gregory (1999) pointed out, there was little research showing that the organizational performances were increased as the result of downsizing. Lurie (2002) indicated that if the total wage bill of the downsized company was not changed even after the workforce reduction because the survivor of the downsizing with increased productivity would be paid a higher salary, the corporate profitability could not be increased by the downsizing. Moreover, Frahme (2002) and Downs (2002)

referred to the unintended consequences of the downsizing such as negative impacts on the morale of the employees in the downsizing corporations and human relations among the other stakeholders.

These aspects are considered as *"hidden costs of retrenchment"* (Feeney, 2001, para. 1) or *"survivor syndrome" (*Committee for Economic Development of Australia, 2000, para. 5). As American Psychological Association (1997) pointed out, downsizing creates many negative psychological and behavioral results for all of the survivors. Downsizing causes distrustful psychological relationships between labor and management (Arai, 2001; Kono & Clegg, 1998). The main negative psychological or behavioral consequences for the survivors or the hidden costs of downsizing are shown in Table 1. Those possible outcomes are derived from the experts' opinions. The success of reorganization of the firms by the downsizing heavily depends on the psychological conditions of the survivors (Bacal, 2002; Lufkin, 2001).

As Itami and Kagono (1989) argued, when the effects of downsizing were examined, not only accounting or economic aspects but also managerial issues must be considered together. Downs (2002) pointed out that the negative consequences of downsizing outweighed the usual cost reduction expected from the downsizing. Moreover, the advantages of Japanese production systems in international

Table 1

The Negative Consequences or Hidden Costs of Downsizing

Experts	Negative consequences or hidden costs
Carlson (2001)	Degrading or destroying a firm's margins by employee disloyalty, continuous turnover, training and retraining costs, hiring and firing activities, legal costs, theft, and damage and sabotage of equipment.
Heritage & Davidson (2001)	Traumatic workers, loss of focus, denial of the event, and sense of helplessness.
Hickok (2002)	Fear of losing jobs.
Padilla (1997)	Higher turnover, demoralized employees, risk averse behavior to avoid penalty, lower job satisfaction, and fear of losing jobs.
Smallwood (2002)	Diminished values, demoralized employees, disappointments on the bottom line, trauma and fear of layoffs, loss of trust in organization, anger, anxiety, depression, survivor's guilt, grief, a loss of the psychological contract between employees and the company, decline in productivity, loss of talent, sacrificed teamwork and collaboration, lawsuits, unscheduled absences, theft, worse customer service, recruitment costs, training costs for new employees, and losing company's reputation based on *word of mouth* by dismissed people.

competitions are derived from the close connection with each team, section, or division within the firms under the long-term commitment to the companies (Abo, 1995). It is obvious for Japanese labor that has been working for the firms with lifetime contracts that downsizing has a serious impact on the employees and other stakeholders. Therefore, this study assumes that the implementation of the corporate downsizing lowers the overall corporate profitability as the total results.

As for the effects of the downsizing on the second dependent variable, Appelbaum et al. (1996) said that the stock prices were not necessarily increased by downsizing. However, the stock prices are usually increased by the implementation of the downsizing (Cappelli, 1999; Frahme, 2002; San Francisco State University, 1998; Tuerk, 1999). Nissan Motor Co., Ltd (2002) reported that the stock price of the company increased after the implementation of the downsizing plan. The downsizing is considered to affect the stock prices of the firms that performed the downsizing regardless of the actual financial conditions of the firms.

Summary

In this chapter, the independent variable, the dependent variables, and the effects of the downsizing on the dependent variables are reviewed. Based on the definitions that are shown in this chapter, the

two hypotheses will be tested. The following chapter explains the methodology of this study.

Chapter Three – Methodology

Overview

This chapter explains the research methods to test two hypotheses stated in chapter one. First, the population of this study is determined. Second, sampling methods are shown. Third, methods for data collection are described. Fourth, methods for data analysis are accounted for. Finally, this chapter is summarized.

Sampling biases might happen through setting the determination of the implementation of the downsizing based on the certain *downsizing ratio* which is derived from the formula: the number of employees at t+1 divided by the number of employees at t. This is because there are differences between the number of the employees announced by the firms to be reduced and the number of the employees that were actually downsized. Moreover, it is meaningful for the researchers of the effects of the downsizing on the corporate financial performances to stay consistent with other methods such as Cascio (1998). Therefore, this study relies on the actual changes in the number of the employees to determine whether the firms accomplished the downsizing. Based on Cascio (1998), this study adopts the *3% rule* (i.e., when the firms show more than 3% decreases in the downsizing ratio, this study assumes that the firms implemented the downsizing).

Population

The population is the firms that have large-capital stocks registered with the first division of TSE. Most of all the firms are major Japanese companies in terms of sales revenues, the scale of the number of employees, reputations, and so forth. The fluctuation of the stock prices of these firms tends to have a great impact on the changes in the points of TOPIX.

Sampling Methods

At first, the researcher needs to set conditions in the screening systems of Shikihou (2000, 2002): settlement terms in March of 1997, the downsizing ratio (i.e., more than 0% and less than 97%), the three-year average net profit margin, and the rates of changes in stock prices based on the closing prices for 3 years before and after the downsizing. Then, select the large-capital stocks in the first division of TSE to see the results. The screening systems show the necessary data to test hypotheses in a spreadsheet. Shikihou (2000, 2002) requires Japanese language to set screening conditions or other operations. In this research, the firms that have no historical data due to some reasons such as new firms or simply unavailable data are excluded from the sample.

The level of confidence is set as 5% according to Cascio (1998).

To perform the statistical t tests and chi-square tests, this study uses Statcel developed by Yanai (1998). This is a useful software that is an *add-in* program for Microsoft Excel.

Then, the sample is divided into two sub-samples that are a profitable downsizing group and a non-profitable downsizing group to know the differences between the two groups. This is because it is important for strategic planners or the stakeholders of the firms that implement the downsizing to investigate each effect of the two different downsizing types, as Lurie (2002) pointed out. The profitable and non-profitable downsizing groups are determined based on the three-year average net profit margins before the downsizing period (i.e., from t-2 to t). The firms that have the positive ratios are categorized into the profitable downsizing sub-sample. The companies that have the negative ratios are in the non-profitable downsizing sub-sample. When the ratios of the firms are equal to zero as the average net profit margins based on the calculation rules of the screening systems in Shikihou (2000, 2002), this research excludes these firms from the sub-samples. The screening systems round off to four decimal places.

In addition, a non-downsizing sample is taken from the population to precisely examine the downsizing effects based on the average net profit margins for supplemental statistical tests. This research assumes

that the firms didn't carry out the downsizing when the companies had the downsizing ratios of greater than –3% and less than 3%. The non-downsizing sample is divided into two sub-samples as the non-downsizing profitable firms and the non-downsizing and non-profitable firms in common with the sub-samples in downsizing firms as previously stated. The firms that have the downsizing ratios of more than 3% are considered as *upsizing* firms (i.e., the workforce of the firms are increased). As the purpose of this research is concerned, it is not necessary to discuss the effects of the upsizing in detail.

Methods for Data Collection

This study collects the data on each firm from Shikihou (2000, 2002) and the yearly data on TOPIX from TSE (2002b). Shikihou (2000, 2002) are the CD-ROMs that include the detailed Japanese corporate financial data and the useful screening systems. Through the screening steps that are explained in the preceding part in this chapter, the required data to test two hypotheses of this research is obtained. TSE (2002b) is an online data source in the form of Microsoft Excel format. These data sources are reliable, as many Japanese investors trust the information. In addition, Microsoft Windows operation systems in Japanese versions such as Windows 95, 98, 2000, and so forth are required for the access to Shikihou (2000, 2002).

Methods for Data Analysis

To examine the first hypothesis based on one-tailed (upper) paired t test, the three-year average net profit margins before and after the downsizing (i.e., the three-year data before the downsizing according to the annual reports dated from t to t-2 and the three-year data after the downsizing based on the annual reports dated from t+1 to t+3) are statistically analyzed. The first null hypothesis for the first hypothesis of this research is that there is no difference between the two data before and after the downsizing. The first alternative hypothesis is that the average net profit margins before the downsizing are better than the ones after the downsizing. If the first null hypothesis is significantly rejected and the first alternative hypothesis is adopted, the first hypothesis of this research is significantly supported. The average net profit margins before and after the downsizing in sub-samples are investigated into the t tests based on the first hypothesis of this research.

As for the second hypothesis, the rates of the changes in the stock prices based on each closing price in the sample is compared with the rates of the changes in the points of TOPIX based on the closing points. Through checking whether the rates of the changes in the stock prices outperform the ones of the changes in the points of TOPIX or not, this

study develops 2 x 2 contingency tables to perform the chi-square for independence tests. The second null hypothesis for the second hypothesis of this research is that there is no relationship between the implementation of the downsizing and the rates of the changes in the stock prices. The second alternative hypothesis is that there is a significant relationship between the implementation of the downsizing and the rates of the changes in the stock prices of the firms that are downsized. If the second null hypothesis is significantly rejected and the second alternative hypothesis is adopted, the second hypothesis of this research is significantly supported. The data in two sub-samples is statistically tested by the chi-square tests in the same way as the examination into the sample based on the second hypothesis of this research.

Additionally, the non-downsizing sample and sub-samples are tested in common with the investigation into the first hypothesis of this research. Then, the average net profit margins before the downsizing periods in the profitable firms in sub-samples are tested by the student's t test with one-tail (lower). In this way, each average net profit margin before and after the downsizing periods in each sub-sample are statistically tested. The null hypotheses in the tests are that there is no difference between the two ratios. The alternative

hypotheses in the tests are that there is a significant difference between the two ratios. The downsizing groups can be considered in the weak positions in terms of the overall profitability in comparison with the profitability of the non-downsizing firms. This is because the downsizing decreases the competitive disadvantages of the firms.

Additional Comments on Japanese Banks

Consequently, the sample based on the downsizing firms doesn't include any Japanese banks in this research. This is because the Japanese government had supported the banks to avoid financial crises (e.g., zero interest rate offered by Japanese central bank, relief fund for the banks, and so forth), even though the banks had large bad debts during the time frame of this research ("Nihon Keizai," 2001). The banks were not asked to take responsibility of the financial problems by the government ("Kenzenkou Demo," 2002). Tsuda (1999) also stated that Japanese banks had been protected by the government based on administrative guidance.

Summary

In this chapter, the detailed research methods are explained. The research results and findings will be shown in the following chapter.

Chapter Four - Analysis

Introduction

In this chapter, the results of the statistical tests to examine the hypotheses are shown. At first, the consequences of the tests for the sample are presented. Second, the results of the examinations into the two sub-samples (i.e., the downsizing by profitable firms and by unprofitable firms) are shown. Third, the supplemental statistical results related to the non-downsizing sample and sub-samples are presented. Then, the results are interpreted.

Summary of Statistical Tests

First, the results of the paired one-tailed (upper) t test and the chi-square for independence test with a 2 x 2 contingency table for the sample in 95% confidence are reported. As for the differences in the effects of downsizing on the average net profit margins before and after the downsizing based on the t test, the null hypothesis is significantly rejected (Table 2). According to the differences in the effects of downsizing on the rates of the changes in the stock prices, the null hypothesis was significantly rejected (Table 3).

Second, based on the average net profit margins, the sample is divided into two sub-samples: the downsizing groups based on the profitable firms and the non-profitable firms. In the downsizing

Table 2: *Downsizing Firms (Total: Net Profit Margins)*

	N	*M*	*SD*
Before Downsizing	123	0.0127	0.0329
After Downsizing	123	0.0023	0.0425

t	3.6566
t Critical	1.6574
P One-tail	.0002
Level of confidence	.05

Table 3: *Downsizing Firms (Total: Stock Price Changes)*

Observation

	Outperform TOPIX	Below TOPIX	Total
Before Downsizing	24	99	123
After Downsizing	48	75	123
Total	72	174	246

Change Rates of TOPIX

	Rate of Changes
Before Downsizing	−0.2552
After Downsizing	0.1809

Results of Chi-square Test

χ^2	11.3103
P One-tail	.0008
χ^2 Critical	3.8415
Level of Confidence	.05

group based on the profitable firms, the null hypothesis is significantly rejected based on the t test for the average net profit margins before and after the downsizing (Table 4). As for the effects on the stock price changes, the null hypothesis is significantly rejected based on the chi-square test (Table 5).

In the downsizing group based on the non-profitable firms, the null hypothesis is significantly rejected based on the t test for the average net profit margins before and after the downsizing (Table 6). As for the effects on the stock price changes, the null hypothesis is significantly rejected based on the chi-square test with the fisher's *P* due to the existence of the cell that has the expected frequency of less than five (Table 7).

Third, the supplemental statistical results derived from the data of the non-downsizing firms are reported. As for the differences before and after the downsizing periods based on the paired t test, the null hypothesis is significantly rejected (Table 8). The statistical results of the data based on the non-downsizing profitable firms show that the null hypothesis is significantly rejected according to the t test, as Table 9 shows. However, the non-downsizing group based on the non-downsizing and non-profitable firms has different results. The null hypothesis is significantly accepted based on the t test (See Table 10).

Table 4: *Downsizing by Profitable Firms (Net Profit Margins)*

	N	*M*	*SD*
Before Downsizing	104	0.0199	0.0265
After Downsizing	104	0.0078	0.0383

t	4.7311
t Critical	1.6598
P One-tail	3.6724E-06
Level of confidence	.05

Table 5: *Downsizing by Profitable Firms (Stock Price Changes)*

Observation

	Outperform TOPIX	Below TOPIX	Total
Before Downsizing	23	81	104
After Downsizing	39	65	104
Total	62	146	208

Change Rates of TOPIX

	Rate of Changes
Before Downsizing	-0.2552
After Downsizing	0.1809

Results of Chi-square Test

χ^2	5.8825
P One-tail	.0153
χ^2 Critical	3.8415
Level of Confidence	.05

Table 6: *Downsizing by Non-profitable Firms (Net Profit Margins)*

	N	*M*	*SD*
Before Downsizing	17	−0.0298	0.0382
After Downsizing	17	−0.0316	0.0536

t	0.1310
t Critical	1.7459
P One-tail	.4487
Level of confidence	.05

Table 7: *Downsizing by Non-profitable Firms (Stock Price Changes)*

Observation

	Outperform TOPIX	Below TOPIX	Total
Before Downsizing	1	16	17
After Downsizing	8	9	17
Total	9	25	34

Change Rates of TOPIX

	Rates of Change
Before Downsizing	−0.2552
After Downsizing	0.1809

Results of Chi-square Test

χ^2	7.4044
Fisher's *P*	.0083
Level of Confidence	.05

Table 8: *Non-Downsizing Firms (Total: Net Profit Margins)*

	N	*M*	*SD*
Before Downsizing Period	199	0.0265	0.0334
After Downsizing Period	199	0.0163	0.0452

t	4.3586
t Critical	1.6526
P One-tail	1.07E-05
Level of confidence	.05

Table 9: *Non-Downsizing Profitable Firms (Net Profit Margins)*

	N	*M*	*SD*
Before Downsizing Period	183	0.0308	0.0291
After Downsizing Period	183	0.0193	0.0441

t	5.0664
t Critical	1.6533
P One-tail	4.69E-07
Level of confidence	.05

Table 10: *Non-Downsizing and Non-Profitable Firms (Net Profit Margins)*

	N	*M*	*SD*
Before Downsizing Period	16	−0.0231	0.0399
After Downsizing Period	16	−0.0185	0.0447

t	−0.3503
t Critical	1.7531
P One-tail	.6345
Level of confidence	.05

To consider the differences between the sub-samples based on the downsizing firms and the sub-groups based on the non-downsizing firms, each average net profit margin in each sub-sample is tested by the student's t tests. According to the statistical results based on the downsizing and the non-downsizing profitable firms, each average net profit margin before the downsizing period has a significant difference based on the t test (Table 11). Each average net profit margin after the downsizing period has also a significant difference based on the t test (Table 12). However, the statistical results of both non-profitable sub-samples show there is no difference between the average net profit margins according to Table 13 and Table 14.

Table 11: *Profitable Firms (Before Downsizing Period: Net Profit Margins)*

	N	*M*	*SD*
Downsizing Firms	104	0.0199	0.0265
Non-downsizing Firms	183	0.0308	0.0291

t	-3.1479
t Critical	-1.6502
P One-tail (Lower)	.0009
Level of confidence	.05

Table 12: *Profitable Firms (After Downsizing Period: Net Profit Margins)*

	N	*M*	*SD*
Downsizing Firms	104	0.0078	0.0383
Non-downsizing Firms	183	0.0193	0.0441

t	-2.2252
t Critical	-1.6502
P One-tail (Lower)	.0134
Level of confidence	.05

Table 13: *Non-Profitable Firms (Before Downsizing Period: Net Profit Margins)*

	N	*M*	*SD*
Downsizing Firms	17	−0.0298	0.0382
Non−downsizing Firms	16	−0.0231	0.0399

t	−0.4896
t Critical	−1.6955
P One−tail (Lower)	.3139
Level of confidence	.05

Table 14: *Non-Profitable Firms (After Downsizing Period: Net Profit Margins)*

	N	*M*	*SD*
Downsizing Firms	17	−0.0316	0.0536
Non−downsizing Firms	16	−0.0185	0.0447

t	−0.7556
t Critical	−1.6955
P One−tail (Lower)	.2278
Level of confidence	.05

Interpretation of Results

In the t tests, the null hypotheses are rejected when the t value is greater than the critical t value (.95) in terms of absolute values, and when the provability in the t tests is less than the level of confidence (5%). In the chi-square tests, the null hypotheses are rejected when the χ^2 value is greater than the critical χ^2 value (.95) based on the absolute values, and when the provability in the chi-square tests or Fisher's *P* are less than the level of confidence (5%).

The first hypothesis of this research (i.e., after the downsizing, the average net profit margins of Japanese firms became worse than the ones before the downsizing) is supported besides the case of the sub-sample based on the downsizing firms with the negative average net profit margins. As the supplemental statistical results show, the data of the non-downsizing firms as a whole shows that, before the downsizing period, the firms have better financial performances than the ones after the downsizing period. The average net profit margins of the non-downsizing firms with the positive average net profit margins before the downsizing period have the better financial performances than the ones after the downsizing period. The average net profit margins of the non-downsizing firms with the negative average net profit margins before and after the downsizing periods have no

difference according to the statistical test. Additionally, as Table 11 to Table 14 reveal, the average net profit margins before and after the downsizing in the profitable and the non-profitable downsizing firms never outperform the ones before and after the downsizing periods in the non-downsizing firms.

Therefore, in the downsizing firms with the positive average net profit margins, the downsizing may cause more serious negative effects on the corporate financial performances than the effects of the increases in the efficiency or the potential productivity derived from the workforce reduction. In the downsizing firms with the negative average profit margins, the hidden costs of the downsizing may be offset by the benefits of the workforce reduction, but further researches must look carefully into this point.

The second hypothesis (i.e., after the downsizing, the rates of the changes in the stock prices of the Japanese firms that implemented the downsizing outperform the rate-of-change in the points of the Japanese stock price index) is supported by the results of all chi-square tests. The stock change rates of the firms that adopted downsizing outperform the rate of the change in the points of the stock price index. Downsizing arouses the expectation of the investors, who think the companies that adopted the downsizing will achieve corporate growth

or restore corporate financial health through downsizing. Even though the average net profit margins are decreased, the change rates of the stock prices of the downsizing firms outperform the one of the change in the points of the stock price index.

Summary

Downsizing doesn't significantly improve the average net profit margins in any case. However, the rates of changes in the stock prices outperform the one of the change in the points of the stock price index after downsizing in every case. Downsizing arouses the expectation of the investors who assumes that the downsizing can bring the financial health to the firms that implemented downsizing. In the following chapter, the conclusions of this research, recommendations, discussion on the work sharing in Japan, and future research needs will be presented.

Conclusions

Conclusions

This research is to test the two hypotheses on the effects of downsizing on the corporate financial performances in Japan. The first hypothesis is that Japanese firms achieve better financial performances before the downsizing than the performances after the downsizing in terms of the three-year average net profit margins. The second hypothesis is that the rates of changes in the stock prices of the firms that implemented the downsizing outperform the rate of the change in the points of the Japanese stock price index after the downsizing.

The previous researches on the effects of downsizing in America and Japan were reviewed in chapter two to consider the appropriateness of the hypotheses. The literature and the opinions of the experts on the downsizing study showed the importance of this study. Chapter three explained the methodology of this research. This study assumes that the firms implemented downsizing when the companies reduced the workforce by more than 3% in a fiscal year. The statistical results were analyzed in chapter four, based on the t tests and the chi-square tests. The first hypothesis of this research is supported in the sample and the sub-sample (the profitable firms that implemented the downsizing). In the other sub-sample (the non-profitable firms that carried out the

downsizing), the hypothesis is not supported but it is safe to say that the overall profitability of the firms is not significantly improved by downsizing. The second hypothesis of this research is supported in the sample and the two sub-samples.

This research concludes that downsizing may reduce the overall profitability of the firms that implemented the organizational change plans when the firms are profitable. This indicates that the hidden costs of downsizing outweigh the benefits from the workforce reduction. However, when the firms are not profitable, the hidden costs of downsizing may be offset by the benefits of downsizing.

Downsizing attracts the investors regardless of the actual profitability of the corporations. The implementation of downsizing arouses the expectation of the investors and makes the stock price performances of the firms outperform the return of the stock price index. In the matter of corporate governance, the results imply that Japanese companies can get into danger in terms of the long-term growth if the top management of the firms thinks little of the negative effects of downsizing and is easily swayed by the thought of the wealth of the shareholders.

Recommendations

For the top managers in Japanese corporations, the effects of

downsizing on corporate financial performances are currently critical issues under the serious recession. The managers should carefully assess the needs of the organizational changes in order to regain profitability. From the aspects of Japanese culture, the work motivation of Japanese businesspersons tends to be related to harmonious human relationship, with the sense of collective obligation (Hofstede, 1991; Trompenaars & Hampden-Turner, 1998). Moreover, Hornestay (1996) pointed out that it was difficult to find out what size the *right-sizing* was. It is appropriate to avoid implementing the downsizing in terms of the corporate profitability as long as the firms can avoid it. As Lazear (1998) argued, the top managers should carefully consider the organizational change plans to balance between the total costs and benefits of the implementation of the organizational changes.

However, the managers should pay attention to the mental health of the employees if the firms can't avoid adopting the downsizing. According to Sen and Farzin (2000), the top management should consider innovation process, institutional development based on economic and sociopolitical rationality, and compensation systems when the firms execute the planned changes. As Tamari (2002) advised, the firms should assist the workers who are affected by the downsizing for the successful implementation of organizational changes. Padilla

(1997) suggested ten steps for successful implementation of downsizing. Smallwood (2002) also showed fourteen tips to minimize the negative effects of downsizing. Moller (1999) reviewed the literature on the survivor syndrome derived from downsizing and concluded that open communications between the top management and the employees were the most important component of downsizing to reenergize the survivors. In addition to the open communication, Walters (2001) argued that inspired leadership was critical for the firms to reduce the hidden costs of downsizing.

Furthermore, the firms should avoid offering early retirement to reduce the workforce. According to Okuchi (2001), Japanese corporations tended to offer early retirement plans to the employees. As Choy (2002) stated, many excellent employees left the firms due to the early retirement plans. This means that the organizational knowledge and memory in the firms are lost by downsizing (Gregory, 1999). It is obvious that the excellent human resources moved to other firms in the same industry has now become the threat for the firms that implemented early retirement plans. To carry out the downsizing plans, top management should think about how to successfully reduce the workforce.

Discussion: Consideration of Work Sharing

The problem that the top managers have to consider next is other options (e.g., Bush, 1996; DePamphilis, 2001; Weston, Chung, & Siu, 1998) to revitalize the firms. In addition to the negative effects, there are some issues on the downsizing. As Japan Productivity Center for Socio-Economic Development (1999) and ELIC NEC (2002) argued, downsizing can be a reasonable action for individual firms but it increases the unemployment rate, decreases consumption, and makes the Japanese economy worse as a whole. From the macro-economic aspects, Nikkei4946.com (2002) also indicated that downsizing increased social costs that imposed a burden on all the firms in Japan in terms of higher unemployment insurance rates than ever.

The Ministry of Health, Labour and Welfare (2001) reported that both labor and management showed deep interest in the introduction of the work sharing in the corporations. As Maenaka and Natori (2002) pointed out, when the actual unit wage outperforms the marginal productivity of labor, the firms should move toward the equilibrium between marginal productivity and the actual unit wage by the reduction of wages or the labor input (i.e., multiplying the number of the employees and labor hours). The Ministry of Health, Labour, and Welfare decided to offer the public assistance to firms that adopted the

work sharing plans in Japan (Mainichi Interactive, 2002). Kobayashi (2002), the secretary-general of The Japan Committee for Economic Development, appealed to labor and management to consider the implementation of the work sharing plans. Moreover, the committee that involved government, *Rengo* (labor unions), and the chairman of The Japan Federation of Employers' Association agreed to implement the work sharing (The Mainichi Shimbun, 2002).

Monday Edition (2002) stated that work sharing is one of the proper options for Japanese companies from the aspects of solving those problems. As Employment Development Department (2000) and Bush (1996) reported, work sharing can reduce some of the negative effects of the organizational changes in comparison with downsizing. Geddes (1997) also indicated that the firms could improve the productivity through implementing work sharing. In addition, Maenaka and Natori (2002) pointed out that Japanese private consumer spending was increased by the introduction of work sharing into the firms even if total personnel expenses of the firms were at the same level before and after the implementation of the work sharing.

However, there are some obstacles to introduce work sharing in Japanese companies due to current management systems and legal aspects in Japan (Ishikawa, 2002; Keidanren, 2002; "Ochanoma

Houritsu," 2002; The Ehime Shimbun, 2002). Mainichi Interactive Debate (2001) stated that *Service Zangyo* (i.e., the popularly performed voluntary overtime work without any allowances of the overtime work that was illegal in the strict sense) and the difficulty to take paid vacations were the major problems related to work sharing. Maenaka and Natori (2002) showed that the effectiveness of work sharing depended upon the types of industry in the Japanese case and, from the angle of the supply side, the work sharing reduced the work hours of the employees whose productivity of added value was better than the other employees in the firms. Iida (2002) pointed out that the work sharing was good for blue color workers but not effective for white color workers. As Aizawa (2002) and Kansai Keieisya Kyokai (2000) showed, the introduction of work sharing in Japanese firms remains as a matter to be discussed further.

In either case, implementing downsizing or work sharing, the strategic planners in the firms should treat the employees as important human resources. The strategists should choose the best organizational change plans for each firm based on a thorough discussion from the various angles. The researchers on the corporate strategies should carefully investigate the effectiveness and limitations of work sharing in Japan.

Future Research Needs

There are five main points to be considered in future researches on the downsizing based on the large samples. First, as Coleman (1999) stated, Japanese companies tend to reduce the workforce over several years to reduce the painful effects of downsizing. Moreover, Code-man (2000) indicated that the researchers on downsizing needed to collect further financial data to investigate the effects of downsizing in Japan. Therefore, the researchers need to examine the profitability or the rates of changes in the stock prices in the longer term than the time frame of this research.

Second, as Lurie (2002) indicated, there is a difference of the definition between downsizing and layoffs in the strict sense of the terminology. The difference is whether the workers are dismissed eternally or temporally. The researchers should pay attention to the differences and collect more detailed information based on these strict definitions.

Third, future researches need to include macro-economic variables. Based on the ideas of Galbraith (1996), there is the low margin and high margin cycle due to the macro-economic aspects. Under prosperity, the margins tend to increase as a whole, and vice versa. Future researchers are expected to examine the effects of

downsizing in Japan from various angles with macro-economic variables.

Fourth, the reasons why the hidden costs of downsizing may be offset by the benefits of the reorganization in the non-profitable firms remains unsolved. The downsizing effects on the overall profitability in the non-profitable firms are matters to be discussed further. Future researches should investigate the details related to the problems, such as the existence of open communications and inspired leadership during the downsizing periods.

Finally, the researchers must be careful with the existence of the overall corporate strategies while the firms are implementing downsizing. Kashefi (2002) and RHR International Company (1997) said that there were two types of the downsizing: proactive and reactive. According to the classification by Kashefi (2002), the downsizing types in this research may be ambiguous. Moreover, as Cappelli (1999) showed, whether the stock prices are increased depends on the existence of the corporate restructuring plans. The stock prices are decreased by downsizing when the firms that implemented the downsizing didn't have any restructuring plans in the overall corporate strategies (Cappelli, 1999). In Japan, as Yamaguchi (1999) indicated, in many cases, the downsizing was carried out by the firms as a part of the

corporate restructuring plans. Therefore, the researchers should precisely investigate the overall corporate strategies in the firms that implemented the downsizing to examine the effects on the corporate financial performances in Japan.

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