

Labor Reduction and Foreign Shareholders in Japan Since the Late 1990s

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ABSTRACT

The Japanese employment system has often been characterized as one that favors long-term, stable employment. It is said that institutional complementarity has existed between this system and the Japanese relational financial system, in which the financial transactions mainly comprise loans by banks. In recent years, the percentage of foreign shareholders and that of stable shareholders such as banks or nonfinancial firms has increased, whereas the number of employees in the listed Japanese firms has decreased. It is possible that changes in the shareholder structure affected the employment system. This study analyzes the effects of foreign shareholders on the number of employees in listed Japanese firms from 1997 to 2007. A small effect of foreign shareholders was found among all firms examined. This finding suggests that a decrease in employees during this period is unrelated to the percentage of foreign shareholders.

Keywords: foreign shareholders, number of employees, labor reduction

JEL Classification Numbers: G30, J21

1 Introduction

It is commonly said that the Japanese employment system favors long-term employment or lifetime employment.¹ This system has developed over time: according to Nitta (2003), lifetime employment agreements between labor and management in Japan were achieved around the year 1960.² Long-term employment guarantees stable employment and helps firms and employees invest in firm-specific skills. Aoki (2001) argues that this effect has been strengthened mainly in the banking system. In addition, managers who have experience with internal proportions and cross stock-holding help others act in accordance with long-term requirements (Noda and Hirano, 2010).

¹Long-term stable employment—that is, *Chouki Antei Koyou*—was previously called *Shushin Koyou*. However, *Shushin Koyou* can be misunderstood, since the term literally means “employment until retirement age” (Hisamoto, 2010).

²Okazaki (1991) points out that employment adjustments were carried out rapidly in Japan prior to WWII.

Long-term, stable employment has faced several serious challenges in recent years—for example, with stagnation in the Japanese economy following the burst of bubble economy, intensification of international competition caused by globalization, and deals in the security market, such as with foreign shareholders. Since the mid-1980s, the percentage of foreign shareholders has increased. It is said that a large proportion of foreign shareholders are represented by American institutional investors (Fukuda 2012). American institutional investors may want Japanese firms to carry out employment adjustments rapidly, given that dismissals in America are culturally easier to carry out than in Japan.

In this study, the relationship in Japan between changes in the percentage of foreign shareholders and the number of employees from 1997 to 2007 is analyzed. During this period, the percentage of foreign shareholders increased and the number of employees in most industries decreased. This study concludes that since the effect of foreign shareholders is small, any decrease in the number of employees is likely unrelated to any increase in the percentage of foreign shareholders.

This paper is structured as follows. In Section 2, the process by which long-term stable employment and employment adjustments have taken place in Japan is explained, and a literature review is undertaken. In Section 3, this study's analytical method is introduced and empirical analysis is carried out. Finally, Section 4 presents a summary of this study's findings.

2 Background, and Literature Review

2.1 Long-Term Stable Employment and Employment Adjustments in Japan

The employment system in Japan is often described as one that emphasizes long-term stable employment or lifetime employment. Yashiro (1997) states that “lifetime employment” actually denotes long-term job security based on an implicit agreement between firms and employees, that firms will not fire regular workers, even in periods of recession, and that employees will not voluntarily change jobs. Moreover, Nitta (2008) suggests that lifetime employment combines two conditions: firms do not freely fire employees, but continue to employ them, and employees do not freely change jobs but continue to work in the same firms (Noda 2010).

There has been a weakening of long-term stable employment in Japan since the late 1990s. Increases in the percentage of offices carrying out employment adjustments, and in the rate of employment adjustments, corroborate this observation. Moreover, Japan's Federation of Employers' Associations (*Nikkeiren*) (1995) states that Japanese employees can be divided into three groups. Employees in the first group apply for long-term employment, and their skills accumulate over time within the same firm. Employees in the second

group have highly sophisticated technical skills and move from firm to firm. Employees in the third group are not highly skilled and are moved about, or “adjusted,” as a function of firm production. This statement means that firms actively use the external labor market to carry out employment adjustments and to diversify their employee typology.

However, it would not be accurate to say that the long-term stable employment system in Japan has completely collapsed. The aforementioned employment adjustments could be due to the long period of economic stagnation that the Japanese economy has experienced since the 1990s (Hisamoto, 2010). With respect to managerial inclinations, there is strong support for lifetime employment, but there could be some push-back.³

Moreover, the employment adjustments prevailing in Japan can be examined in detail. A study by Jackson (2007) analyzed the employment adjustments made in Japanese firms during the 2000–2003 period, using survey data gathered in 2003 by the Ministry of Economy, Trade, and Industry. This study held that the main methods of employment adjustment are the suppression of new hires, early voluntary retirement, employment transfers,⁴ and reassignments within firms, while outright dismissals are rarely carried out. In addition, employment adjustments are frequently carried out in firm groups, including the *keiretsu* firms. However, the survey data do not indicate whether foreign shareholders or outsider directors affected employment adjustments. This pattern of employment adjustments is consistent with other statistical analyses, none of which have indicated any radical changes in job security since the 1980s (Kato, 2001).

These employment adjustments within Japanese firms—which, remember, tend to avoid outright dismissals as much as possible—are strongly supported by Japanese laws, even though some labor laws have been revised in recent years (Araki, 2005; Yamakawa, 2002).

Previously, in contrast with continental European countries such as Germany, the job security of workers in Japan had been based not on written law, but on legal precedent. In other words, Japanese employers could freely fire employees under the written laws of Japan, such as those under civil or labor standards law.⁵ However, Japanese courts built a legal precedent that a dismissal with no objective, rational basis was invalid and an abuse of civil rights under article 1, index 3 of civil law and not acceptable according to conventional

³Ministry of Health, Labor, and Welfare, “Koyou Seisaku Kenkyuu Kai” (<http://www.mhlw.go.jp/shingi/2009/12/dl/s1216-11f.pdf>).

⁴Employment transfer (*Shukko*) includes stricter *shukkou* and *tenseki*. In the former, a transfer to a subsidiary firms is temporary, and the firm pays a wage to the transferred employee, along with that paid by the subsidiary firm. In the latter, the transfer to the subsidiary firm is permanent. These were previously called *zaiseki shukkou* and *tenseki shukkou*, respectively.

⁵This means that a dismissal does not require a rational basis: firms can freely fire employees at their discretion, even if a certain notice period exists (Araki, 2000a).

wisdom. Courts tend to side with employees and consider dismissals an abuse of civil rights, although rights abuses per se rarely occur.

Kaiko Ken Ranyo Houri, a lay-off doctrine and rule governing the firing of employees, was specially established after the oil shock in 1973, when large-scale dismissals were the rule of the day. Under this doctrine, dismissals are considered an abuse of civil rights and invalid if four conditions⁶ are not satisfied (Araki 2000a).⁷ In 2003, the Labor Standard Act was amended and *Kaiko Ken Ranyo Houri* was documented. In addition, the Labor Contract Act came into force in 2008, and *Kaiko Ken Ranyo Houri* became part of this law.

Then, another important change took place in Japan. Previously, firms used to transfer employees to their subsidiary and related firms, but this practice fell into disfavor when the consolidated accounting system was introduced in 2000 (Nakata and Takehiro 2001). Moreover, the Japanese Business Federation (*Keidanren*) and Japanese Trade Union Confederation (*Rengo*) published in January 2009 the Joint Statement by Labor and Management toward the Stability and Creation of Employment (*Koyou Antei Soushutsu ni Muketa Roushi Kyoudou Sengen*).⁸ This statement held that labor and management should reaffirm the merit of long-term employment and that the government should make it easier for firms to receive the Grant for Employment Adjustment (*Koyou Chousei Josei Kin*), which the government pays to firms when they do not fire employees, even under circumstances in which their business operations have been forced to reduce in size. It has generally been said that this grant inhibits structural change, and it is true that the number of grants paid to firms has greatly increased since January 2009. The reasons for this increase are that the grants rate paid to firms was raised, the grant conditions were eased, and employment insecurity became serious as a result of the financial crisis stemming from the U.S. subprime mortgage crisis (Hisamoto, 2010).

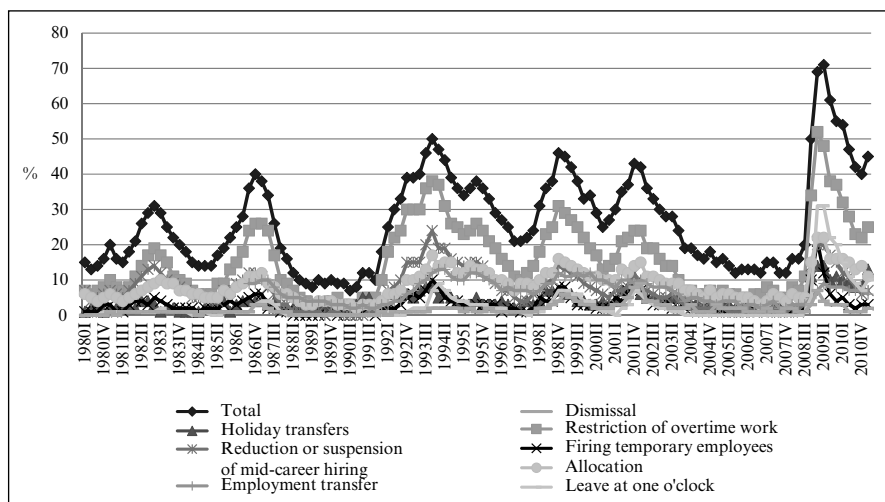
2.2 Trends in Employment Adjustments in Japan

This section discusses trends in employment adjustments in Japan. Figures 1 and 2 show the percentage of employment adjustments carried out among manufacturing firms. There have been eight spikes in employment adjustment since the late 1970s. The first spike occurred at the time of the first oil shock,

⁶First, downsizing is an economic necessity. Second, efforts should be made to avoid dismissal. Third, the selection of candidates for dismissal must be decided rationally. Fourth, prior consultations should be made between firms and labor unions or employees prior to dismissal (Araki, 2000a).

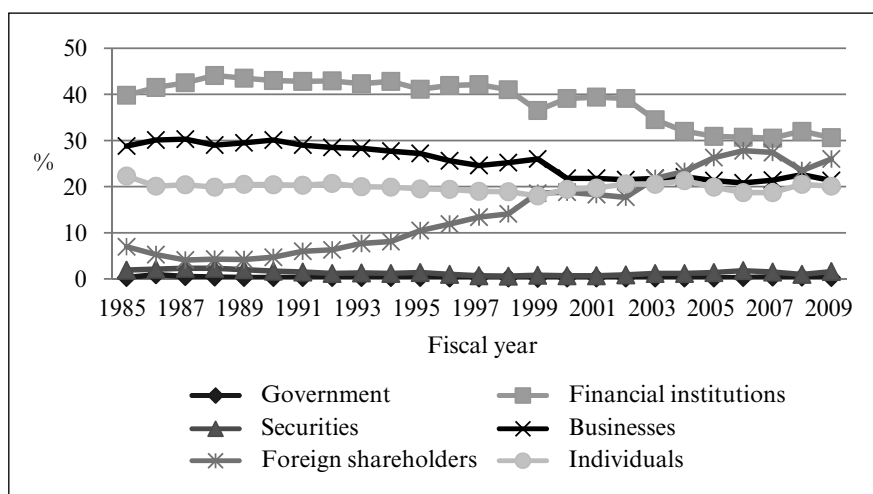
⁷There has been a popular understanding that these four standards are not four conditions but four elements in general (Araki 2000b).

⁸*Keidanren* (<http://www.keidanren.or.jp/japanese/policy/2009/004.html#besshi>).

Figure 1. Trends Across those Offices that Carried Out Employment Adjustments.

Note: Value is that of manufacturing. Beginning in the second quarter of 1986, "allocation" and "employment transfer" comprise the same items.

Source: Ministry of Labour and Ministry of Health, Labour, and Welfare, *Roudou Keizai Doukou Chousa*.

Figure 2. Trends Regarding Shareholder Structure.

Note: Percentage values are based on monetary amounts.

Source: Tokyo Stock Exchange, *Kabushiki Bunpu Jokyo Chosa in FY 2009*.

when the percentage of firms that carried out adjustments exceeded 70%. The second spike occurred at the time of the second oil shock, which started before the employment adjustment associated with the first oil shock had ended. The third spike occurred during the first half of the 1980s, and the fourth during the second half, when there was a high yen recession. The fifth spike occurred during the early 1990s, at the start of the recession following the crash of the bubble economy, while the sixth spike occurred in the late 1990s. The seventh took place during the early 2000s, when the IT bubble burst, and the eighth occurred in 2008. The last of these was generated by the financial crisis and had an impact as large as that of the first oil shock.

Moreover, methods of employment adjustment were introduced. Restrictions on overtime work could be used during any period; employment adjustments were carried out not to reduce the number of employees, but to reduce the working hours per employee (Figure 1) whenever the work output decreased as a result of worsening employee performance. In addition, the reduction or suspension of mid-career hiring was an important adjustment method taken up during the oil shock period; on the other hand, resorting to employment transfers was an important method used in the 1980s. It is believed that this change relates largely to the creation of *keiretsu*—that is, firm groups. In addition, *ichiji kyuugyou* or *ichiji kikyū*, which means “leave at one o’clock or layoff,” became an important adjustment method during the 2008 financial crisis.

2.3 Literature Review: The Relationship Between Shareholder Structure and Job Losses

Abe (1999) analyzed the effects of shareholder structure on job losses, using data from chemical, steel, and electric equipment companies, or from wholesale or retail firms listed in the first or second sections of the Tokyo, Osaka, or Nagoya Stock Exchanges between 1978 and 1995. However, that study did not analyze the effects of foreign shareholders.

In addition, Noda and Hirano (2010), using data from April 1991 to March 2003, analyzed by probit regression the relationship between shareholder structure and voluntary or early retirement. The samples comprised firms that had carried out any employment or wage adjustments within the period studied.

The data used were divided into two periods: the employment stability period, from 1991 to 1996, and the adjustment period, from 1997 to 2003. The coefficients of the percentage of stable shareholders, such as financial institutions and business firms, and of foreign shareholders were not significant during the employment stability period. In addition, the coefficients of the interaction term between these shareholders and the profitability down dummy or red dummy were not significant.

On the other hand, Noda and Hirano's study found that the coefficients of the percentage of stable shareholders were significantly negative, and that these shareholders maintained employment during the adjustment period. In addition, the coefficients of the interaction term between these shareholders and the profitability down dummy or red dummy were not significant. Further, the coefficient of the interaction term between the profitability down dummy and the percentage of foreign shareholders was significantly positive, although the coefficient of the percentage of foreign shareholders was not significant. These findings imply that foreign shareholders played a role in encouraging dismissals when profitability was low, and that the need to dismiss was great. In summary, the effect of foreign shareholders was limited.

Moreover, the Japan Institute for Labor Policy and Training (2007) reports a difference between listed firms and nonlisted firms in stakeholder emphasis. It was found that listed firms especially emphasized individual investors and institutional investors, while nonlisted firms largely comprised business partners, governments, and affiliates. It is important that both sets of firms emphasized employees to almost the same degree.

3 Empirical Analysis

3.1 Analysis of Industrial Data

Figure 2 shows the trends in shareholder structure from fiscal year 1985 to 2008. The figure shows that the percentage of both nonfinancial firms and individual shareholders was around 20%, from fiscal year 2000 to 2009. The percentages of government and securities firms were extremely low, but stable; on the other hand, the percentage of financial institutions reached its highest point around 1990, and almost consistently decreased thereafter. In contrast, the percentage of foreign shareholders reached its lowest level during the late 1980s, although it almost consistently increased thereafter.

Table 1 shows the trends of the percentage of foreign shareholders and number of employees in the listed firms in each industry, from fiscal year 1997 to 2007. During this period, the percentage of foreign shareholders decreased only in the mining industry, and the number of employees increased only in the real estate industry. Moreover, during this period, the percentage of foreign shareholders increased mostly among warehousing transportation-related businesses, while the number of employees decreased mostly in the land transportation sector.

Figure 3 is a scatter plot that shows the correlation between the changes in the percentage of foreign shareholders (x) and number of employees (y) in Table 1.

Figure 4 is a scatter plot showing the same correlation when the values of the warehousing transportation-related and real estate industries, which are outliers, are excluded.

Table 1. Change in the percentage of foreign shareholders and number of employees in each industry.

	Percentage of foreign shareholders (%)			Change in the number of employees (%)
	Fiscal 1997	Fiscal 2007	Change	Fiscal 1997–2007
Agriculture	8.9	18.4	9.5	–31.1
Air transport	2.0	8.8	6.8	–14.9
Chemical	9.4	25.6	16.2	–31.1
Construction	7.7	12.7	5.0	–21.8
Electric equipment	17.4	30.5	13.1	–28.7
Electricity and gas	5.3	14.5	9.2	–21.6
Fiber	9.1	13.1	4.0	–48.7
Food	8.9	21.2	12.3	–37.7
Glass and stone	8.7	21.0	12.3	–30.1
Gum	11.2	22.4	11.2	–13.9
Land transport	5.9	17.0	11.1	–59.7
Machinery	9.8	23.7	13.9	–20.2
Mining	16.0	15.0	–1.0	–48.6
Nonferrous metal	13.7	19.6	5.9	–43.7
Other products	11.7	21.3	9.6	–26.2
Petroleum and coal	22.2	43.1	20.9	–31.6
Pharmaceutical products	17.9	36.1	18.2	–14.5
Precision instruments	11.1	30.6	19.5	–15.9
Pulp and paper	7.4	12.0	4.6	–48.6
Real estate	13.9	21.2	7.3	35.1
Retail trade	9.5	23.4	13.9	–26.5
Service	10.9	17.5	6.6	–2.9
Shipping	9.3	24.1	14.8	–43.4

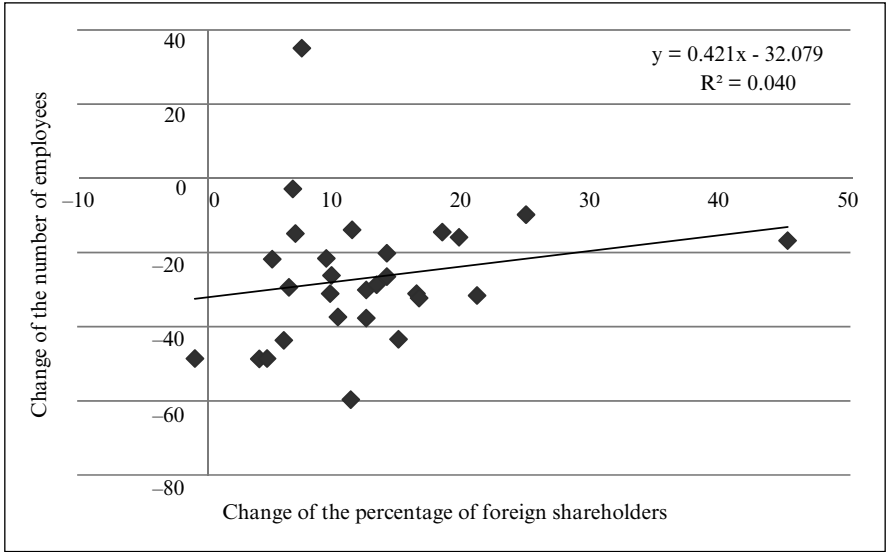
(Continued)

Table 1. Continued.				
	Percentage of foreign shareholders (%)			Change in the number of employees (%)
	Fiscal 1997	Fiscal 2007	Change	Fiscal 1997–2007
Steel	9.4	19.5	10.1	–37.4
Telecommunications	16.6	22.9	6.3	–29.4
Transport equipment	13.1	37.8	24.7	–9.8
Warehousing transportation	6.7	51.7	45.0	–16.8
Wholesale	7.7	24.1	16.4	–32.3

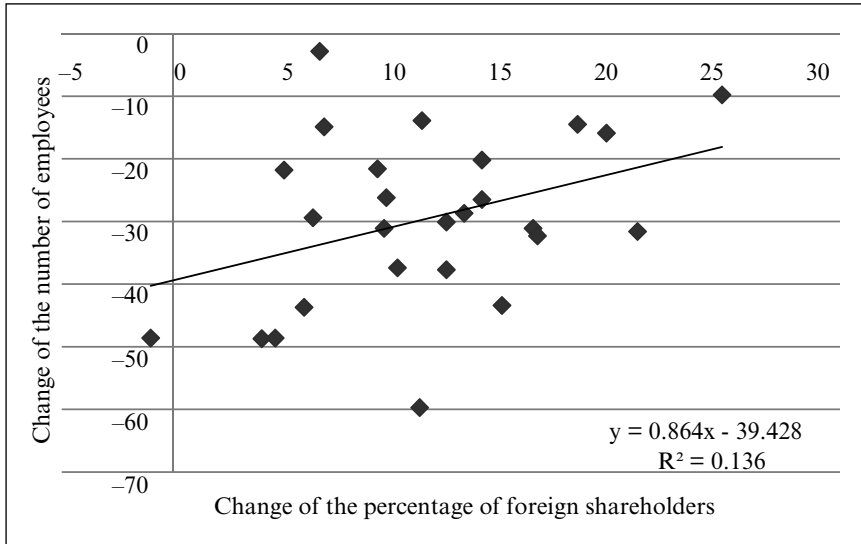
Note: The number of employees in transport equipment and automobiles in *Industry aggregate value* in Nikkei NEEDs Financial Data is integrated into transport equipment. Banks, securities, insurance, and other financial services have been removed, since the financial documents of these industries are different from those of other industries. In addition, metal production is removed, since this industry is not included in the *Industry aggregate value*.

Source: Tokyo Security Exchange *Kabushiki Bunpu Chousa*, Nikkei NEEDs Financial Data *Industry aggregate value*.

Figure 3. Correlation at Industry Level.



Source: Table 1.

Figure 4. Correlation at Industry Level (Outlier Removal).

Source: Table 1.

There is a positive correlation between changes in the percentage of foreign shareholders and changes in the number of employees, although the significance level is not high within industry data. Uemura (2011) points out that profitability gaps between industries expanded beginning in 1997, because the differences in each industry's environment had become large.⁹ Any change in the number of employees is assumed to be positive, with the exception of small negative changes in high-profitability industries. Further, any aggressive investment by foreign investors in high-profitability industries can lead to a positive correlation in industry data, between changes in the percentage of foreign shareholders and in the number of employees.

However, firm-level data must be used to control for inter- and intra-environmental differences among firms, if we are to understand the relationship between changes in the percentage of foreign shareholders and in the number of employees. The sample firms are those listed as of March 31, 2008; however, firms within the banking, insurance, securities, and other financial sectors in the Tokyo Stock Exchange classification are excluded. The timeframe under consideration is from March 1998 to March 2008—in other words, the data used are from fiscal year 1997 to 2007. The settlement period needs to be adjusted, since panel data are used in this study. Further, this study uses the data of firms

⁹One example of heterogeneity in Japanese firms is discussed by Ahmadjian (2007).

that maintain the month of March as the settlement period. The dependent variable is the change in the number of employees.

The independent variables for this study's analysis are the change in sales adjusted by the price index,¹⁰ change in capital intensity (the ratio of tangible fixed assets adjusted by the price index to the number of employees), capital ratio (equity capital divided by total asset), percentage of foreign shareholders, logarithm of labor costs per employee adjusted by the price index, return on assets (ROA; operating profit divided by total asset), logarithm of the number of employees, and a subsidiary firm dummy. The data of parent-only earnings are used. The time-lag between the dependent variable and independent variables is settled to reveal a causal relationship. The data comprise balanced panel data. Eviews v6.0 is used in the estimation.

In the next section, the coefficient of independent variables is forecasted.

3.2 Hypotheses

3.2.1 Independent Variable

3.2.1.1 Change in Foreign Shareholders

If foreign shareholders call upon firms to improve their ROA or their return on equity (ROE; operating profit divided by equity),¹¹ firms may attempt to reorganize themselves through the dismissal of workers. In addition, firms whose percentage of foreign shareholders is high may face pressure from the capital market, since foreign shareholders buy and sell stocks more frequently than do domestic shareholders. The managers of these firms may reduce the number of employees to satisfy stock market demands; this implies that the coefficient of changes in the percentage of foreign shareholders would be negative, as shown by Noda and Hirano (2010).

On the other hand, there is a positive relationship between the percentage of foreign shareholders and the number of employees, as shown in Figures 3 and 4. Investments made by foreign shareholders may not be in exceptionally strong companies that do not need to carry out dismissals.¹²

¹⁰The change in sales, change in capital intensity, and logarithm of labor costs per employee are adjusted as per the price index. This index is a general average value based on the previous fiscal year in corporate goods price released by the Bank of Japan.

¹¹Aoki (2008) argues that the possibility for firms to aggregate business increases would be high if the percentage of foreign shareholders were high. In addition, Okamura (2007) argues that labor productivity would be high, even if ROA were low, if the percentage of foreign shareholders were high; Matsuura (2002) argues that ROA would be high if the percentage of foreign shareholders were high; Yonezawa and Miyazaki (1995) argue that the total factor productivity would be high if the percentage of foreign shareholders were high.

¹²In fact, investments by foreign shareholders in Japanese firms are limited to particular firms (Murase 2001; Miyajima et al. 2003).

3.2.2 Control Variables

3.2.2.1 Capital Ratio

The capital ratio of a firm indicates its corporate governance index. Firms whose capital ratios are low—that is, firms whose debt ratios are high—may be dependent on banks or *main banks*.¹³ With respect to the functioning of *main banks* following the collapse of the bubble economy, a soft-budget problem is created whenever banks give additional loans to noneffective firms and generously rescue them. It means that the managers of the firms receiving the loans will delay their restructuring, since banks continue to loan firms additional funds even when they consider the positions of those firms to be worsening (Noda, 2007).¹⁴ Therefore, firms whose debt ratios are low—that is, firms whose capital ratios are high—tend to reduce their numbers of employees; therefore, a negative capital ratio coefficient can be forecasted.

3.2.2.2 Change in Capital Intensity

Given that the ratio of capital to output is fixed, any increase in capital intensity will increase labor productivity. The coefficient of change in capital intensity will be negative, because an increase in labor productivity will reduce the number of employees required.

3.2.2.3 Logarithm of Labor Cost per Employee Adjusted by Price Index

Noda and Hirano (2010), in examining a selection of firms, could find no relationship between average wage and the voluntary or early retirement of employees. On the other hand, Noda (2007) found a significant and positive correlation between the average wage and labor reduction in the machinery industry, and a significant and negative correlation in the chemical industry. In summary, the effect of the average wage of employees varies by industry.

3.2.2.4 Return on Assets

Noda (2007) and Noda and Hirano (2010) each found a low probability of labor reduction in high-ROA firms.¹⁵ Therefore, the coefficient of ROA is positive.

¹³A high debt ratio does not always mean that firms depend heavily on banks and *main banks*, since financing by bonds has become popular in recent years.

¹⁴Hoshi (2000) states that zombie firms exist even if *main banks* provide additional loans to firms whose business conditions have deteriorated. Sekine et al. (2003) discuss this problem, as do Obata and Sakai (2005), Miyahira (2006), and Peek and Rosengren (2005).

¹⁵Abe (1999) found that the probability of dismissals decreased in the steel industry if the current account deficit were high. Moreover, Koike (1983), Muramatsu (1986), and Suruga (1997) each found that firms carried out large-scale dismissals if deficits were generated in two successive years.

3.2.2.5 *Change in Sales Adjusted by Price Index*

The coefficient of change in sales is positive, because the number of employees needed in a firm will increase as its sales figures increase. In fact, Noda and Hirano (2010) found a low probability of labor reduction in firms whose sales growth rates are high.

3.2.2.6 *Logarithm of the Number of Employees*

Uni (2009) points out that there was a rapid increase in the number of indirect and nonregular employees—such as dispatched workers and contract laborers—from the 1990s through the 2000s, and notes that manufacturing firms in Japan aggressively replaced large numbers of regular employees with nonregular employees, rather than other regular ones. This implies an increase in the number of dispatched and contract workers as a proportion of all employees, within firms with a large number of employees. In addition, Uni asserts that it was not a complementary relationship but a substitution relationship that existed between regular workers and dispatched or contract workers in Japan; this implies that a decrease in the number of regular workers simultaneously generated an increase in dispatched or contract workers. Dispatched and contract workers are not cited in the securities reports of firms, as they are indirect employees. We believe that large firms in the machinery industry very aggressively decrease their numbers of regular employees; therefore, the coefficient of the logarithm of the number of employees is predicted to be negative.

3.2.2.7 *Subsidiary Firm Dummy*

Job security is generally weaker in subsidiary firms than in their parent firms. Therefore, the coefficient of the subsidiary firm dummy is predicted to be negative.

3.2.3 *Regression Analysis*

This section presents the results of the analysis, by industry. The results are shown in the following equation. Analysis is carried out by ordinary least squares (OLS)¹⁶ estimation. The regression equation is as follows:

¹⁶At first, individual and time effects are carried out by fixed-effects models. Second, an F test on individual and time effects is carried out. Third, the model with the lowest Akaike's Information Criterion is selected. Fourth, the selected model is translated into a random-effects model and estimated. Finally, the model with the highest F value in the Hausman test is selected. A more detailed methodology is provided by Matsuura and McKenzie (2005) and Kitaoka et al. (2008).

Table 2. Explanation of Variables.

Abbreviation	Description
lemp	logarithm of the number of employee
fore	percentage of foreign shareholders
capiratio	capital ratio
capiinten	capital intensity
lwage	logarithm of labor cost per employee adjusted by price index
roa	return on assets
sale	sales adjusted by price index
sub	subsidiary firm dummy

$$\begin{aligned}
& (\text{lemp}_{i,t} - \text{lemp}_{i,t-1}) / \text{lemp}_{i,t-1} \\
&= \frac{-0.991}{(-1.450)} + \frac{0.019}{(2.010)} (\text{fore}_{i,t-1} - \text{fore}_{i,t-2}) + \frac{0.003}{(1.871)} \text{capiratio}_{i,t-1} \\
&\quad + \frac{0.002}{(14.751)} (\text{capiinten}_{i,t-1} - \text{capiinten}_{i,t-2}) / \text{capiinten}_{i,t-2} \\
&\quad + \frac{0.076}{(1.822)} \text{lwage}_{i,t-1} + \frac{0.103}{(13.103)} \text{roa}_{i,t-1} \\
&\quad + \frac{0.006}{(3.028)} (\text{sale}_{i,t-1} - \text{sale}_{i,t-2}) / \text{sale}_{i,t-2} - \frac{0.170}{(-6.492)} \text{lemp}_{i,t-1} \\
&\quad + \frac{0.334}{(2.239)} \text{sub}_{i,t-1}
\end{aligned}$$

The top number is the coefficient; the bottom number is the t -value. For the results of the F test and Hausman test, the time fixed-effects model is adopted. Firms = 1,837; N = 16,533; Durbin–Watson stat = 2.047; Adjusted R-squared = 0.035; F-statistic = 38.136.

The coefficient of change in the percentage of foreign shareholders is significantly positive; however, it is also small. The number of employees changed by only 0.01 percentage points, even though the percentage of foreign shareholders had increased by 0.5 percentage points annually.¹⁷ The effect is small, since

¹⁷The average change in percentage of foreign shareholders during this period is 0.58 percentage points.

the average change in the number of employees was -0.38% during this period. The results suggest that the number of employees in many industries decreased because of a fall in profitability or the nonregularization of employment, irrespective of changes in the percentage of foreign shareholders. In other words, the effect of the shareholder structure is small and is blocked by other institutions within Japan's employment system.

The results with the control variables are as follows. The coefficient of the capital ratio is significantly positive; this result is inconsistent with our hypothesis, and it implies that soft-budget problems do not occur. The coefficient of change in capital intensity is also significantly positive; this result, too, is inconsistent with our hypothesis. However, the results vis-à-vis ROA and changes in sales are mostly consistent with our hypothesis. The coefficient of the logarithm of number of employees is significantly negative, and this is consistent with our hypothesis. This finding implies that large firms tend to replace their employees with nonregular and indirect employees, rather than other regular employees. This result aligns with Uni's (2009) finding that the overall number of employees with job security has decreased within manufacturing industries. Finally, the coefficient of the subsidiary firm dummy is significantly positive, and this is inconsistent with our hypothesis. This result implies that employees are moved from parent firms to subsidiary firms in times of employment adjustment.

4 Conclusions

The conclusions of this study are as follows.

First, in most industries, the percentage of foreign shareholders increased and the number of employees decreased, between 1997 and 2007. Second, regression analysis using the data of each firm indicates that the effect of foreign shareholders is very small: even though it is significantly positive, the coefficient of the percentage of foreign shareholders is small. This implies that the number of employees in listed Japanese firms has decreased since the late 1990s, and that this change had no relationship with the percentage of foreign shareholders. Finally, no soft-budget problem has been found. However, stricter independent variables need to be set to analyze this problem more in-depth. One such method is to separate bank loans from bonds.

Moreover, there are several subjects that need to be taken up in future research. The first subject concerns the number of employees. Most employees are regular ones. The method used in this study estimates exactly the changes in the number of regular employees, because the employment adjustments carried out during this period were largely done by decreasing the number of regular workers and increasing the number of nonregular workers, such as dispatched and contract-based workers. However, this study does not consider changes in the number of nonregular workers, and so this should be addressed in future research.

Second, this study could not address the effects of the financial crisis stemming from the U.S. subprime mortgage crisis, since the most recent data used here are from March 2008. The effect of the financial crisis on the shareholder structure, and the roles thereof, needs to be analyzed. In addition, the role of the Grant for Employment Adjustment in the time since the financial crisis requires analysis. I intend to take up these issues in future research.

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