

**The Determinants of Executive Compensation and its Effect on Company
Performance in Japan and in the UK**

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Abstract

The purpose of this thesis is to analyse directors' incentives in large companies in Japan and the UK, with particular emphasis on the relationship between corporate governance and executive compensation. This thesis seeks to contrast the effect of corporate governance on the determinants of executive pay, by comparing the UK and Japan.

Firstly, this research estimates the determinants of executive compensation in Japan. We find a positive relationship between an employee's wage and a director's salary, which is consistent with our hypothesis that both directors and employees are paid in similar ways. In contrast, this research can not find any relationship between shareholders' return and directors' pay in Japan, suggesting that directors have little incentive to pursue shareholders' interest.

In contrast, this research finds that top pay in the UK is positively correlated with most company performance variables, including profit, stock market capitalisation and sales, which is consistent with our hypothesis that shareholders in large UK companies have relatively strong powers to control top managers and their compensation through remuneration committees.

This research also analyses the effects of company's pay policy on corporate performance. Our analysis on data from the UK shows that there is a positive relationship between 'company's pay policy' and firm performance. The company with an annual bonus scheme is more likely to improve company profit and earnings per

share, for example.

In contrast, there is no relationship between pay-performance sensitivity and firm performance in Japan, showing that the performance-pay sensitivity does not affect company performance in Japan's large companies, or the directors in those companies are not motivated by the change in performance-pay sensitivity.

To my parents

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Abbreviations

AGM	Annual General Meeting of shareholders
AI	Annual Incentive
CEO	Chief Executive Officer
CPI	Consumer Price Index
EPS	Earnings Per Share
LTI	Long Term Incentive
RH	Ranking Hierarchy
ROA	Return on Asset
ROC	Return on Capital
ROE	Return on Equity
ROT	Rank Order Tournament
RPI	Retail Price Index

Glossaries

Executive positions in board in large Japanese companies

<i>Kaicho</i>	Chairman
<i>Fuku Kaicho</i>	Vice Chairman
<i>Shacho</i>	President
<i>Fuku Shacho</i>	Vice President
<i>Senmu</i>	Senior Director (Superior to <i>Jyomu</i>)
<i>Jyomu</i>	Senior Director
<i>Torishimariyaku</i>	Director
Non-title director	(<i>Torishimariyaku</i>)

Non-title director is usually working full-time in the company.
‘Non-title’ means that the person is not *Jyomu*, *Senmu*, or *Shacho*, who are members of higher management board, such as *Jyomukai*.

Jyomukai (Keiei kaigi)

Higher management board that discusses important managerial issues in large Japanese firms

Directors’ pay (Japan):	Director’s pay which is paid monthly
Directors’ bonus (Japan):	Director’s annual bonus
Employees’ wage (Japan):	Includes both monthly wage and bonus

Chapter 1. Introduction

1.1. Purpose and Background of the Thesis

The purpose of this thesis is to analyse directors' incentives in large companies in Japan and the UK, with particular emphasis on the relationship between corporate governance and executive compensation.

It is widely believed that large Japanese companies work differently from their British counterparts. Some studies suggest that Japanese firms are more concerned with the welfare of their core employees than with the interests of their shareholders (Komiya, 1988, Iwai, 1988, Kuwahara, 1988, Itami, 1993, 1994, Dore, 1987), whereas British firms strive to satisfy their shareholders, who wield considerable power. In our opinion, it is important to examine whether the behaviour of large Japanese firms is indeed different from those in the UK, since some authors have argued that the performance of the Japanese economy can be attributed to precisely such a difference. Weitzman (1984) has argued that this difference is behind Japan's low unemployment rate. Theoretically, 'profit maximising firms' gain profit by reducing the number of employees, while 'labour managed firms' protect employment by reducing their profits.

Some suggested that directors of large Japanese firms believe that the goal of companies includes protecting the job security and welfare of their

employees, in addition to improving their financial position¹ (Tachibanaki, 1995, Noda, 1995, Nihon Keizai Shinbun, 1995, Kagono et al 1983). Over ninety percent of directors choose ‘employees’ job security’ and ‘employees’ welfare’ as very important objectives (Tachibanaki, 1995, Noda, 1995)².

Although standard economics textbooks assume that the objective of a firm is to maximise its profit, it is often argued that companies are not really run in accordance with this. It has been argued that managers work in their own interests, rather than that of the shareholders (Baumal, 1959, Marris, 1964, Williamson, 1986). Some studies focus on the financial incentive of top managers in order to test this self-serving hypothesis. They estimate the determinants of executive compensation, though the results are not clear (Cosh, 1975, Iwasaki, 1977, Williamson, 1986, Benston, 1985)³.

¹ These works are based on questionnaire surveys and interviews.

² According to Kagono et al (1983), one of the most important objectives of Japanese firms is to maximise their market share. One reason why a company pursues growth may be to protect its employees’ jobs.

³ Cosh (1975), Iwasaki (1977), Ciscel and Carol (1980) find a positive correlation between executive pay and company size. It is argued that this correlation suggests that managers are maximising the size of the company, rather than the profit. But as Simon (1957), and Lydall (1968) show, this correlation may reflect the internal structure of the firm. Benston (1985) shows that there is a strong correlation between the financial return of directors in major conglomerates and the shareholder’s return. He argues that this result is inconsistent with the self-serving managerial hypothesis.

1.2. Economic Theory of Executive Compensation

1.2.1. Principal-Agent Theory

There have been many studies on executive compensation in both the US and the UK (Jensen and Murphy, 1990a, Gibbons and Murphy, 1990, Cosh and Hugh, 1997, Conyon, 1995, 1997, Conyon, Gregg, and Machin, 1995, Conyon and Leech, 1994, Conyon and Nicolitsas, 1998, Gregg, Machin and Szymanski, 1993, McKnight, 1996, Wolfram, 1998). Most of these studies investigated whether there was a significant relationship between top pay and company performance (Jensen and Murphy, 1990a, Gibbons and Murphy, 1990), and were trying to test whether directors in large companies have an incentive to increase a shareholder's value. According to principal-agent theory, executive pay may depend on shareholders' return, so directors may have an incentive to pursue this.

1.2.2. Rank Order Tournament

It is often argued that executive compensation not only motivates the directors, but also the employees of companies (Lazear and Rosen, 1981, Lazear, 1991, 1995). According to rank order tournament theory, employees may work hard to be promoted to executive positions⁴. Some scholars have used this model

⁴ According to Lazear (1995), there are certain characteristics of rank order tournament. Firstly, the compensation is attached to the rank of the employee, rather than his performance. Secondly, newly recruited employees start their career from the bottom layer of the company hierarchy, and

to explain the incentive structure of typical Japanese firms (Aoki, 1990, 1994, Ito, 1994).

According to rank order tournament theory, directors' pay may be larger than their productivity. This 'overpayment to the directors' may be efficient under some circumstances, because other employees may work harder to be promoted.

1.3. Previous Empirical Research⁵

1.3.1. The Determinants of Executive Pay

As described above, there are many studies that estimated the determinants of executive compensation in the US and in the UK, analysing whether CEOs in large companies have incentives to improve shareholders' values (Coughlan, A., and Schmidt, R., 1985, Jensen and Murphy, 1990a, Gibbons and Murphy, 1990, Cosh and Hugh, 1997, Conyon, 1995, 1997, Conyon, Gregg, and Machin, 1995, Conyon and Leech, 1994, Conyon and Nicolitsas, 1998, Gregg, Machin and Szymanski, 1993, McKnight, 1996, Wolfram, 1998).

Many studies suggest that in large UK companies the relationship between directors' salaries and a firm's performance was weak (Gregg et al., 1993, Conyon, 1995), while McKnight (1996) finds a positive relationship.

Although relatively few attempts have made to analyse directors' incentives in Japan, it has sometimes been argued that there is little difference between Japan and the US in this respect. Some previous studies on executive pay

compete with each other for promotion. Thirdly, promotion is based on relative performance.

and turnover state that there is a significant similarity between the two, in terms of the financial incentives of directors (Kaplan, 1994, Xu, 1992, 1993, 1996, 1997, Abe, 1997). According to Kato and Rockel (1991), however, there is little relationship between a shareholders' return and executive pay.

1.3.2. The Effect of Executive Pay on Firm Performance

Although there are many studies on the determinants of executive compensation, there are relatively few studies on the effect of pay policy on company performance (Jensen and Murphy, 1990b, Abowd, 1990, Ehrenberg and Bognanno, 1990).

Jensen and Murphy (1990b) find that the performances of companies with high pay-performance sensitivity are much better than those with low sensitivity. Abowd (1990) also analysed the effect of performance-based executive compensation on company performance, finding that companies with higher pay-performance sensitivity are more likely to achieve better economic returns in the following year. Ehrenberg and Bognanno (1990) tested whether tournament acts as incentive device, suggesting that rank order tournament is indeed an effective incentive device.

⁵ We will show the details of these empirical studies in chapters 2 and 3.

1.4. Corporate Governance and Executive Pay

1.4.1. Why Compare?

Much of the literature on the determinants of executive compensation in the US and the UK tend to focus on the relationship between directors' pay and the shareholders' return. Many of these studies often take for granted the 'Anglo-American style of corporate governance'. This thesis seeks to contrast the effect of corporate governance on the determinants of executive pay, by comparing the UK and Japan.

As will be discussed in chapter 2, there is a considerable difference between Japan and the UK in terms of corporate governance. Shareholders and the financial market have considerable power over directors in large UK companies. There are more hostile take-overs in the UK than in Japan (Odagiri, 1994, Prowse, 1994). In contrast, because of the long-term employment relationship, employees in large Japanese firms have strong incentive to monitor top managers (Itami, 1994).

1.4.2. The Determinants of Executive Compensation

As seen above, shareholders in large UK companies have relatively strong powers to control top managers and their compensation through remuneration committees. Principal-agent theory predicts that a directors' salary

depend on a firm's performance, particularly its stock market performance, in order to motivate top managers to work towards increasing shareholders' interest. Then, we hypothesise that there is a positive relationship between directors' salary and a firm's performance in the UK.

Similarly, this research will estimate the determinants of executive compensation in Japan. As will be discussed in chapter 5, a director's salary has many similarities with an employee's wage in large Japanese companies: Both directors and employees are paid a monthly wage and bonuses. Both a director's salary and an employee's wage are reflected in the firm's performance, such as its sales and profit. In addition, an employee's wage is, in practice, one of the most important determinants of a director's salary (Abe et al., 1997, Okushima eds., 1996). Thus, we can hypothesise that there is a positive relationship between a director's salary and an employee's wage in Japan.

1.4.3. The Effect of Pay Policy on Firm Performance

Various incentive schemes for directors are used in large UK companies, with the aim of strengthening the link between director's incentive and shareholders' interest. Many listed companies in the UK have stock options and annual incentives. Many of them are disclosing the details of their executive pay, remuneration policy and performance criteria, in response to the Cadbury and Greenbury report (Cadbury Committee, 1992, Greenbury Committee, 1995)

In addition, in the UK, many large companies seem to be strengthening

the link between firm performance and executive pay, with more of them introducing an annual incentive scheme (Conyon, Gregg, and Machin, 1995, Monks partnership, 1994), often with the intention of motivating directors to work hard and set clear performance targets (Williams, 1994).

This brings us to the next important question. Namely, are these remuneration policies really effective? For example, do companies with annual incentives perform better than those without? Is there any relationship between pay-performance sensitivity and company performance? Though more and more companies seem to be trying to introduce new compensation schemes for directors (Conyon, Gregg, and Machin, 1995, Monks partnership, 1994), little attempt has been made to test whether pay policy affects company performance.

As will be discussed in chapter 7, principal-agent theory predicts that CEOs are more motivated with higher pay-performance sensitivity, leading to a firm's higher performance. If large UK companies strengthen the link between a firm's performance and CEOs pay, the firm's performance may improve. This research hypothesises that there is a positive relationship in large UK companies between director's compensation and the performance of the firm, including how it fares in the stock market.

This research will analyse the effects of company pay policy on corporate performance. The main hypotheses are as follows. 1) Companies with high pay-performance sensitivity will perform better than those without. 2) Companies with annual incentive schemes will perform better than those without them. In particular, we estimated logistic regression, investigating the possibility of the company improving its performance. Similar equations are estimated using data

from Japan.

It is believed to be important to compare the results for Japan with those for the UK since the two countries have a different corporate governance style. In the UK, the financial market plays a more active role in monitoring top directors (Prowse, 1994, Odagiri, 1994). In addition, many companies are trying to strengthen the relationship between company performance and top pay, in response to the recommendations of the Cadbury and Greenbury committees. By contrast, few large Japanese firms show an interest in this. As a result, it may be that directors in the UK understand their goals better than their counterparts in Japan. As suggested in Marsden and French (1998), appropriate goal setting may help managers to concentrate on specific targets, leading to higher performance. Thus, it may be of interest to compare the effect of 'pay policy' on firm performance in Japan and the UK.

1.4.4. Rank Order Tournament

According to Aoki (1990), and Ito (1994), rank order tournament theory can explain how these internal promotion systems in large Japanese firms motivate their employees.

Although relatively few empirical studies have been done on the internal promotion systems in large Japanese firms, recent works show that the internal structure of Japanese firms have many similarities with the rank order tournament system. Pay in large Japanese firms depends on the rank of the employee (Koike, 1994, Tachibanaki, 1987). Promotion is based mainly on tenure and relative

performance (Koike, 1994, Hanada, 1994, Tomita, 1992).

Thus we can hypothesise that the rank order tournament is used as an incentive device for employees, and that directors are motivated by performance-related compensation in large companies in Japan. This research analyses the effect of the promotion probability on the pay gap between directors and employees. Tournament theory implies that there is a negative relationship between promotion probability and this pay gap.

1.4.5. Data

The Japanese companies are taken from the 210, which are included in the NIKKEI STOCK MARKET INDEX, excluding firms in the finance sector. The time period covered is 1995 and 1996. Most variables, including directors' pay and their bonuses, are taken from the NIKKEI NEEDS DATABASE. Other variables are taken from Toyo Keizai Yakuin Shikihou (Directory of directors), and Kabushiki Toshi Shuekiritsu (Rate of Return on Stocks in Japan). This research focuses on the director's average pay, calculated on the basis of these data. For the analysis of UK companies, data from almost 1500 listed companies are used as a sample. The time period covered is 1994 and 1995. The data analysed here are taken from Monks partnership's "United Kingdom board earnings", which is based on companies' annual reports. This research focuses on the highest paid director's pay, which is disclosed in these data.

Using these data, this research estimates the determinants of executive remuneration in both countries. The main hypotheses are as follows. 1) In Japan,

there is a positive correlation between director's salary and employees' average wage, rather than shareholders' return. 2) In the UK, the director's pay depends on corporate performance, particularly in the stock market.

1.5. Structure of this Thesis

This dissertation consists of 9 chapters. In chapter 2, an account is provided of the corporate governance systems of Japan and the UK, showing that there are important differences between the two.

We begin by comparing the institutional difference in corporate governance, with particular emphasis on the power of shareholders over directors. We examine various mechanisms that monitor the managers, such as annual shareholders' meetings, outside directors, and the financial market. In addition to these monitoring devices, it is suggested that the employer-employee relationship may be a further constraint on how directors manage the firm.

It is shown that there is a difference in the role of these mechanisms in Japan and the UK. In particular, shareholders in Japan have very limited control over the managers of large companies. In most large companies in Japan, both annual shareholders meetings and board of directors are controlled by the current management team. Thus, it is suggested that the directors have little incentive to pursue shareholders' return, as the shareholders have very limited power to punish the current management team. In addition, it is suggested that the financial market may fail to motivate directors to work in the shareholders' interests in Japan, compared with in the UK. For example, there are fewer hostile take-overs in

Japan than in the UK (Odagiri, 1994, Prowse, 1994).

We also analyse the employee-management relationship in both countries. It is suggested that top directors in large Japanese firms are more restricted by this relationship. It may not be easy for directors in large Japanese firms to lay-off their employees. In addition, employees in such firms have strong incentives to monitor top management, as they are implicitly investing through deferred compensation.

How then, can the stakeholders motivate directors to work in their interests? Executive compensation can be such an incentive mechanism, as it is possible to link the manager's financial incentive to those of other stakeholders.

In chapter 3, we review relevant existing theories, and examine the institutional characteristics of executive compensation in both countries. Firstly, we examine principal-agency theory, most widely cited in explanations of the executive compensation, as well as other theories. Agency theory suggests that managerial compensation is tied to performance measures. For example, if, the directors are managing the company on behalf of the shareholders, or in other words, if they are agents of principals (shareholders), then, their compensation will depend on the shareholders' return. If, on the contrary, employees have considerable power over managers, then a positive relationship will be observed between directors' salary and employees' wage⁶. Other theories of executive pay are reviewed, including the 'hierarchical structure' theory (Simon, 1957, Lydall,

⁶ The employees may be more concerned about their job security than their average wage. However, this research focuses on the relationship between director's compensation and employees' wage. One reason is that it is very difficult to measure job security.

1968). Chapter 3 also outlines previous research on executive compensation. There have been many empirical studies done on the determinants of executive compensation, particularly in the US (Rosen, 1990, Milgrom and Roberts, 1992).

In addition to this, we explain the internal incentive structure of large companies. After providing a review of rank order tournament theory, (Lazear and Rosen, 1981, Lazear, 1991, 1995), we explain the results of empirical studies into the career paths of directors in the UK and in Japan (Korn/Ferry, 1981, Yamamoto and Takase, 1987). This research also uses Labour Force Survey and Census to compare the characteristics of directors in both countries.

Chapter 3 also describes the characteristics of employment structure in large Japanese companies, often described as ranking hierarchy (Aoki, 1988). This research suggests that rank order tournament type incentive structure is used for managerial positions in large Japanese firms, while for non-managerial positions, ranking hierarchy is used.

Chapter 4 examines the data set and their source. Firstly, we examine and compare some of the available data sources. Particular attention is paid to the executive compensation data, as individual executive compensation data are not disclosed in Japan. It is suggested that executive compensation data based on a company's annual report are more reliable and accurate than data from other sources, for example, data based on income tax in Japan. The sources of data on UK companies are also examined. Some basic characteristics of the data are also reported in this chapter in order to compare our data set with those used in previous studies.

Chapters 5 and 6 investigate the determinants of executive compensation in Japan and the UK. In chapter 5, it is shown how our hypotheses are drawn from theories, and how these hypotheses can be examined using micro-data from companies. We explain the model and methodology used to analyse the determinants of executive compensation in Japan and in the UK.

The discussion in chapter 3 suggests that shareholders have considerable power over top directors in the UK, while in Japan, employees may have some power to monitor top directors. In other words, top directors of large UK companies may be seen as agents of shareholders. In large companies in the UK, directors' salaries are often determined by remuneration committees, which are composed of non-executive directors. The number of companies that have remuneration committees are increasing (Conyon et al. 1995).

In contrast, in Japan, directors and employees are paid in similar ways. Both of them are paid monthly wages and bonuses, which usually make up 15-30% of the annual salary. A firm's performance, such as profit and sales are important determinants of salaries. Why are directors and employees paid in similar ways? One of the most important reasons is that both of them can be seen as implicit investors in the company.

Thus, we obtain our main hypothesis: The effect of employees' wage on directors' compensation is positive, whereas the effect of shareholders' interests is not, in Japan. It is also hypothesised that there is a positive relationship between top pay and company performance, particularly stock market performance, in the UK.

We explain the basic model for estimating executive compensation in Japan and the UK. As in previous studies, this research estimates the executive compensation function for both countries. The dependent variable is executive compensation; The independent variables include company performance, in addition to employees' wage.

For the Japanese data, the average pay and average bonus of directors are used as dependent variables. Independent variables are employees' average wage, profit, return on capital, shareholders' return, sales, number of employees, and directors' characteristics such as average age and tenure. For the UK data, the highest paid director's total pay, their fixed pay, and their annual incentive are used as dependent variables. The independent variables include company profit, earnings per share, the stock market value of the company, and sales. We give the definition and explain the expected effect of these independent variables.

In chapter 6, the results of these estimations for both countries are shown. By estimating the determinants of executive compensation, we test the hypotheses which are put forward in previous chapters.

Firstly, the result of the analysis of the data from Japan is given. The main hypothesis here is that there is a positive relationship between a director's salary and an employee's wage. Thus, particular emphasis is put on the relationship between director's compensation and employees' wage. The effect on director's bonus, particularly by company profit, is also assessed.

The result of the analysis of the UK data is then given. The main hypothesis here is that the director's pay in large UK companies depends on company performance, and particularly on the stock market valuation of the firm.

Thus, particular emphasis is put on the correlation between director's remuneration and the stock market evaluation of the company. The effect of other independent variables, such as earnings per share and profit before tax, is also estimated. The effect of earnings per share and profit before tax is of particular interest because these two indicators are the most frequently used performance indicator in large UK companies (Williams, 1994).

The main findings of this research with respect to the Japanese data can be summarised as follows. There is a positive relationship between directors' compensation and employees' wage in Japan, but we cannot find any positive relationship between shareholders' return and top salaries. This research also finds a positive relationship between the director's bonus and the profit of the company. These findings suggest that a director's compensation is jointly determined with an employee's wage in large Japanese companies. By contrast, this research finds that top pay in the UK is positively correlated with most company performance variables, including profit, stock market capitalisation, and sales.

Chapter 6 also examines the pay gap between director and employee in large companies in Japan. The main hypothesis explored here is that there is a negative relationship between pay gap and the possibility of employees becoming directors. This hypothesis is implied by rank order tournament theory (Lazear and Rosen, 1981, Lazear, 1991, 1995), which suggests that if the probability for promotion for each employee is small, the pay gap may become larger in order to motivate employees. Thus, it is considered that there exists a negative correlation

if the company uses a tournament type pay structure⁷.

The pay gap is calculated as the ratio of compensations between directors and employees. Promotion probability is approximated by the ratio of numbers between directors and employees⁸. Thus, we estimate the determinants of the pay gap in Japan. The independent variables include promotion probability and the size of the company in question.

We estimate that there is a negative and significant relationship between pay gap and promotion probability. The pay gap between directors and employees is larger when employees see less change of promotion. This suggests that rank order tournament is used in large Japanese companies as an incentive device.

Chapters 7 and 8 analyse the effect of pay policy on company performance in the UK and in Japan. Chapter 7 outlines our hypotheses and explains the model and methodology used to test these. The definition of pay-performance sensitivity is also discussed, as it is not easy to observe this for individual companies.

As we will see in chapter 3, many attempts have been made to estimate the determinants of executive compensation. Many of these empirical studies on executive pay implicitly assume that directors are more motivated if their salary is more performance sensitive. However, relatively little attempt has been made to

⁷ Tournament theory implies that the compensation of top directors may exceed their real productivity, as this compensation includes a premium for winning the competition. It is of interest to see if this holds in large companies in Japan, as the pay gap between directors and employees is considered to be smaller than in other industrial countries.

⁸ This promotion possibility is calculated by dividing the number of directors by the number of employees. This calculation does not show the real possibility of promotion for each employee, as it may be the case that 'outsiders' are appointed as directors. However, we use this ratio as the proxy for the promotion, as most directors in large companies in Japan are former or current

analyse the effect of pay policy on company performance⁹ (Abowd, 1990, Jensen and Murphy, 1990b). This research hypothesises that the performance of companies with high performance-pay sensitivity is superior to that of companies with low sensitivity. It is also hypothesised that companies which intensify their performance-pay sensitivity perform better than others.

It is not easy to assess the degree of pay-performance sensitivity for individual companies. However, this is necessary in order to examine whether companies with high sensitivity perform better. This research defines pay-performance sensitivity as the ‘% change of pay when performance improves by 1%¹⁰’. In this chapter, we also examine alternative ways of measuring of pay-performance sensitivity, suggesting that our definition is more appropriate for the research objectives at hand¹¹.

This sensitivity variable is calculated for each company, each year. Thus, it is possible to examine the effect of ‘change of sensitivity’ on company performance. Using this sensitivity definition, we test whether a company that intensifies its pay-performance sensitivity will achieve better results.

Next, we specify the model to be estimated for both countries. Firstly the basic model is explained. In our basic model, the dependent variable is a dummy

employees of the company, and are promoted from the bottom layer of the company hierarchy.

⁹ Gibbons (1997) gives a summary of the research in this field.

¹⁰ This pay-performance sensitivity is calculated by dividing the % change of pay by the % change of performance. % Change of pay is calculated by dividing the change of pay by the amount of pay.

¹¹ Jensen and Murphy (1990b) calculate pay-performance sensitivity by estimating the determinants of directors’ pay for each company. They compare the performance of companies with high coefficient and those with low coefficient, showing that there is a difference in performance between these two groups. Though it is possible to distinguish ‘companies with sensitive pay’ from ‘companies with insensitive pay’, they assume implicitly that a company’s pay-performance sensitivity holds constant across time. The advantage of our definition of pay-performance sensitivity is that our sensitivity index can capture the change in companies’ pay policy each year, for each company.

variable that shows whether or not the company improves its performance. As company performance depends on so many factors, we focus on a dichotomous variable that only shows whether the company improved its performance or not. If the company improves its performance, this variable is set to 1; If not, it is set to 0¹². The independent variables indicate the companies' pay policy, including pay-performance sensitivity, and annual bonus dummy. The particular equation is specified for the data from each country. For the Japanese data, the dependent variables include profit, return on capital, and wage¹³, while the independent variables include pay-performance sensitivity. For the UK data, independent variables include the profit and earnings per share¹⁴, while the dependent variables include not only pay-performance sensitivity, but also dummy variables that show whether the company has particular incentives, such as annual incentives. In addition, we include a dummy variable that shows whether a company increases its pay-performance sensitivity, and a dummy variable that shows whether a company introduces an annual incentive scheme for a particular year.

Chapter 8 gives the results of these estimations. The main hypothesis is that companies with high pay-performance sensitivity perform better than the rest. We also test the hypothesis that companies with annual incentive schemes perform better. This research estimates the performance function, using the same micro data used in chapter 6. As the dependent variable is a dummy variable, logistic

¹² We can interpret this dependent variable as the probability that the company will improve its performance.

¹³ Wage is included as a dependent variable because our analysis in chapter 6 shows that there is a significant relationship between wage and director's compensation.

¹⁴ We could not include stock market performance as a dependent variable because our data set does not have enough time coverage. We need at least 3 years' data to calculate pay-performance sensitivity, and our data on stock market performance covers only 2 years.

and probit regressions are employed to estimate these equations.

In this chapter, we begin by giving the results of the estimation using the Japanese data, then moving on to the UK data. The results show whether there is a difference between the two countries regarding the effect of pay policy on company performance. Particular emphasis is given to the UK results, because British companies seem to make more of an effort to tie directors' pay to company performance than their Japanese counterparts. If a positive correlation can be found between pay-performance sensitivity and corporate performance, these pay policies may be considered to be effective.

The main results of this chapter can be summarised as follows. In general, there is a positive correlation between incentive plans and company performance in the UK, but not in Japan. For one thing, in the UK, companies which have an annual bonus are more likely to improve their profit and earnings per share. Similarly, companies with high pay-performance sensitivity perform better than those with low sensitivity. In addition, companies that intensify their pay-performance sensitivity are more likely to achieve better results.

In contrast, there is virtually no relationship between performance pay sensitivity and company performance in Japan. In addition, companies that intensify their pay-performance sensitivity are unlikely to achieve better results there. This all suggests that there are substantial differences between two countries with respect to the effect of incentive schemes on company performance. It is shown that companies' pay policy, or "way to pay" is a very important factor in company directors' incentives in the UK. In contrast, performance-pay sensitivity does not affect company performance in the large companies of Japan.

This difference may reflect the fact that British companies have much better designed pay plans for their directors.

Finally, chapter 9 summarises the main findings of this thesis. After doing this, the contribution of this research to the literature on corporate governance and executive compensation in Japan and the UK is explained. In the first place, this research represents the first attempt to compare the financial incentives of directors in these two countries¹⁵. There are a number of reasons why the UK and Japan were chosen, firstly, the fact that companies in these countries have different styles of corporate governance, and secondly and relatedly, because this research hypothesises that differences in corporate governance will lead to differences in the financial incentive of directors.

This research compares the effects of employees' wage and shareholders' return on directors' compensation in Japan¹⁶. A positive and significant relationship is found between director's remuneration and employees' wage in the large companies.

In addition, this research is the first to compare the effect of companies' 'way to pay' on corporate performance in the UK and Japan. The comparison is made between these two countries because many British companies have more detailed pay plans.

¹⁵ Kato and Rockel (1992), and Kaplan (1994) compare the determinants of directors' compensation in Japan with those in the US, though their results are quite different. Kaplan argues that the financial incentive of director's in Japan is similar to that of their American counterparts, finding a significant relationship between corporate performance and top pay. In contrast, Kato et al show that there is no significant relationship between director's compensation and shareholders' return.

¹⁶ Xu (1993) compares the effect of employees' wage on director's compensation with that of company profit, but fails to obtain a positive relationship between wage and top pay.

Chapter 9 also discusses some possible limitations of this research and suggests some further projects for further investigation. Some policy implications of this thesis are also discussed¹⁷.

¹⁷ In this thesis, we will use 'he' and 'his', rather than 'she' and 'her'. This is because most directors in Japan and the UK are male, although there are a significant number of female directors, particularly in the UK.

Chapter 2. Corporate Governance in Japan and the UK

2-1. Introduction

In this chapter, we examine corporate governance in both Japan and the UK, with particular emphasis on the effectiveness of mechanisms for monitoring top management. The main question to be addressed is this: How are top managers controlled by shareholders and other stakeholders? And are these mechanisms effective?

Section 2.2 discusses economic theories of corporate governance. It is shown that both financial markets and shareholders may fail to monitor senior managers because of the moral hazard problem. Section 2.2 also argues that employees may have an incentive to monitor top managers.

We then go on to examine the effectiveness of these monitoring devices for managers in Japan and the UK. In section 2.3, the legal structure of corporate governance in the two countries is discussed, as well as the effectiveness of monitoring by shareholders. In a similar vein, section 2.4 examines the effectiveness of the monitoring of directors by the financial market. It is suggested that both the financial market and shareholders have a very limited ability to

monitor top managers of large companies in Japan.

Next, we examine the employee-management relationship. It is suggested that top managers in Japan may be more constrained by the employee-management relationship there. Lastly, we summarise the discussion.

2-2. The Economic Theory of Corporate Governance

This section examines economic theories of corporate governance. The principal-agent problem is discussed, as well as the effectiveness of various monitoring mechanisms for directors from the perspective of economic theory. We then explore the possibility that managers may be restricted by the management-employee relationship.

2-2-1. The Principal-Agent Problem

Many economists have examined the relationship between shareholders and directors (Fama, 1980, Gibbons, 1997, Holmstrom, 1979, Milgrom and Roberts, 1992, Mirrlees, 1976). One of the basic challenges is to design an incentive system which encourages directors to manage the company on behalf of its shareholders. Although shareholders want directors to pursue their interests, managers may have goals of their own in mind. This conflict of interests is often known as the principal-agent problem. It is not easy for individual shareholders to monitor the top director, because they do not usually have sufficient knowledge; This would include knowledge of the product market, and of the company's day-

to-day operations. As a result, it may not be easy for shareholders to know whether the directors are really pursuing their interest.

Although shareholders have limited power to keep an eye on the top management, there are various mechanisms and institutions which motivate directors to work in the interest of shareholders. For example, the stock market may punish directors who fail to achieve certain share price, as outside investors may be able to gain profit by taking over the firm, resulting in the management being replaced. For this reason, directors may be encouraged to keep stock price at a certain level.

In addition, there are certain institutions and groups which act as a good monitors of top managers. For example, outside directors are considered to be relatively independent, and may therefore be able to monitor the top directors. We examine the efficiency of these mechanisms and institutions in the following subsection.

2-2-2. Efficiency of Monitoring Mechanism for Directors

In this subsection, I will examine the efficiency of monitoring mechanisms and institutions for directors based on Stiglitz (1985) and Hart (1995). In the first place, we look at monitoring and control by the financial market, including hostile take-over and banks. Then, we will examine whether various stakeholders can monitor the top directors. Outside directors, large shareholders, annual shareholder's meetings and proxy fights are discussed.

Hostile take-overs

The financial market may have a mechanism that forces managers to pursue their shareholders' interests. For example, if the actual stock price is lower than the potential stock price for that company, investors can gain profit by taking over the company and then replace the senior managers. Hence managers must keep their stock prices high in order to prevent a hostile take-over and in so doing, keep their jobs. However, Hart (1995) suggests that this mechanism suffers from the problem of moral hazard.

According to Hart (1995), hostile take-overs are a very strong device for disciplining managers, because they allow whoever takes over the company to receive large amounts of gains from it. Once a person can identify an underperforming company and take it over, he will receive a large proportion of gains by improving the company's efficiency. Thus, many potential investors will have an incentive to check whether the company is well managed, in distinct contrast to other mechanisms of corporate control. But Hart argues that even hostile take-overs have problems. Small shareholders may not co-operate with the raider, so that they make a profit after the completion of the take-over. The raider will compete with other raiders because they will be aware that the targeted company is undervalued, and also fight with the current management team. Hart suggested that this problem would make hostile take-overs less profitable than expected.

Stiglitz (1985) also points out that hostile take-overs may not be efficient because the assets of the company may be smaller than they appear. The potential buyer of the company has less information about it than the current management

team, which means that they may misjudge the potential profitability of the company. Since the chief executive has much more information about the company, if he sells his shares to raiders, he may have a rational reason to do so. This means that outside investors can take over the company only when they overevaluate it. Since there are a lot of measures that current managers can take to prevent hostile take-overs, known as the “golden parachute” and “poison pill”, take-over may not be a good incentive device.

The Capital Market

If the current managers of a company fail to run it well, they may have difficulty in raising funds from the capital market. This mechanism can serve as an incentive device for managers. The directors may be encouraged to make the company attractive to potential investors. However, if managers are able to raise capital from banks, or if managers do not have any plans that require additional capital, this mechanism will not be effective as a mechanism for corporate control.

Banks

Stiglitz (1985) argues that banks and lenders can be a better monitor for managers than shareholders. He also argues that banks and large shareholders can be a better incentive device for managers than other classical mechanisms such as annual general meetings of the shareholders, or hostile take-overs.

Banks can be the most important monitoring agent, according to Stiglitz (1985). By their nature, banks know the profitability of companies. They also have a strong incentive to monitor their clients in order to protect their credit.

However, banks can not replace the role of shareholders, because their interest is different. As banks are usually concerned with their credit, they will be satisfied when companies gain a sufficient amount of money for them. In addition, banks may want managers to take smaller risks, while shareholders are likely to want managers to take risks to achieve higher returns.

Outside directors

Outside directors are considered to be an effective way to monitor CEO. The Cadbury and Greenbury committees recommended that companies should have more outside directors. However, Hart (1995) argues that outside directors may not be a good monitor since they may not have sufficient financial incentive to check the top management. Outside directors may receive good compensation and be happy to remain where they are. Since outside directors are usually nominated by CEO (Prowse, 1994), they may want to keep a good relationship with managing directors. This means that they will have little incentive to monitor managing directors.

Large shareholders and proxy fights

Large shareholders have strong incentives and power to monitor the management of the company, as their financial wealth depends on this. They can use their vote to replace current managers if they think this is necessary. However, there are some limits on large shareholders as a mechanism for controlling top management. The biggest problem is that large shareholders must share the benefit of monitoring with other small shareholders whilst having to bear all the

cost of it. Instead, they may choose to exercise their power in another way, by colluding with top managers. If a large shareholder is a supplier or client of the company, they can use this to make better deals, for example.

Similarly, proxy fights may not be a good monitoring mechanism. The person who initiated them must share their gains with other shareholders, whilst shouldering all the costs themselves.

Annual general meetings of shareholders

For small shareholders, the cost of obtaining information about the management and evaluating managers appropriately is very large. They receive little benefit from this monitoring, because the result of meetings will not be influenced by their vote. In addition, they may not have enough knowledge of the company to monitor it effectively; For example, knowledge of the product market may be lacking. Thus, many small individual shareholders do not try to monitor the company by themselves.

2-2-3. The Management-Employee Relationship from the Viewpoint of Corporate Governance

In addition to the financial market and shareholders, employees may also act as monitors of the top management. In this subsection, we will explore the possibility that the employer-employee relationship restricts the behaviour of top managers. In particular we will examine to what extent managers are constrained by the employee-management relationship in managing their firms. As seen in

previous subsections, managers may be controlled and monitored by the financial market, by shareholders and by other monitoring mechanisms. Managers may be able to pursue their own interests, on the condition that they satisfy these monitoring agents.

In addition to these constraints imposed by the financial market and shareholders, directors may be restricted by the employer-employee relationship in how far they manage the company in their own individual interests. For example, if it is difficult for managers to fire employees because of legal regulations, they will hardly be able to reduce labour costs in order to improve company performance. In addition, employees may have some power over management; For example, they may not co-operate with managers when they think that current policy is not favourable to them.

According to Itami (1993), employees may be involved in the governance of the company, by investing their monetary and non-monetary assets, and by sharing in the risk that the company takes. In the first place, employees may contribute to the company through deferred compensation.

For example, a certain proportion of employees' wage depends on their age in large Japanese companies. When wages increase according to the employee's age, it may be the case that someone's salary is less than his contribution to the company when he is young. His salary increases as he gets older, because of the seniority based pay system, and at a later age, his salary may be more than his contribution to the company. In other words, an employee may deposit his salary to the company in the earlier stage of his career, then gets it back when he is older. That is, he is implicitly investing his money in the

company. If the company fails, he may not be able to receive any return on his investment. On the other hand, if the company succeeds and grows, he may receive a good salary in later life.

In addition to these monetary investments, employees may have firm-specific skills, which may be of use only in their own particular company. As these firm-specific skills are essential managerial resources for the company, employees may be investing in the company by acquiring them. As employees are implicitly investing in the company, they will have a strong incentive to monitor the top management. They may also have incentives to use their power if their interest is threatened.

Secondly, employees may take more risks than shareholders. When a company is in financial distress, shareholders can get out by simply selling their stocks. However, it may not be so easy for employees to escape from the company, owing to their firm-specific skills or implicit investment. This being so, employees may have a strong incentive to monitor the directors, to protect their own interests.

2-3. The Shareholders-Managers Relationship in Japan and the UK

In this section, we explain how directors are monitored and controlled by shareholders in Japan and the UK, looking in particular at the difference in the structure of corporate governance between the two countries. The effectiveness of monitoring by shareholders is also discussed. We begin by reviewing the legal structure of corporate governance. Table (2-1) summarises the discussion to come.

Table 2-1 Corporate governance in Japan and the UK (1) : Monitoring by shareholders

	JAPAN	UK
Nomination of directors	Legally, annual general meeting of shareholders nominates directors. But AGM is usually controlled by the current management team	Legally, annual general meeting of shareholders nominates directors. In practice, shareholders just confirm the list of directors presented by current board.
Non executive directors (NED)	Very few Some directors come from group companies, particularly from banks and government.	About 40% of board of directors are NED. Recommended by Cadbury/Greenbury,
Remuneration /nomination committee	No	Recommended by Cadbury/Greenbury, Many large companies already introduced.
Auditors	All the listed companies must have full-time auditors within the company. In practice, they have very limited power and incentives to monitor top managers.	Cadbury committee recommends companies to establish auditing committees

2-3-1. Legal Structure of Japanese Firm¹

In Japan, members of the board of directors are nominated by shareholders at their general meeting. They form a board of directors. The term of director is two years in most companies. The board nominates representative directors, who represent the company. Representative directors are chosen from among the board members. It is often the case that there are a number of representative directors in a company. Among representative directors, one is nominated to be the president of the company, who is usually the top manager². It is noted that both representative directors and other directors carry out the day-to-day business of the company. The board of directors is a decision-making body, and also supervises representative directors.

Auditors are also appointed by the annual general meeting of shareholders. The number of auditors must be two or more. In a company whose capital exceeds 500 million-yen, or whose debt exceeds 20 billion yen, auditors check the accounts of the company and the legality of the management. Although they check the legality, they are not entrusted to check the appropriateness of the conduct of directors. Auditors are entitled to participate in the board meeting but they do not have a vote. Employees do not have power to control the company legally. In addition to be audited by the auditors, these large companies are also required to be audited by a chartered accountant or by an accounting firm.

¹ See Oda (1992, 1997) and Fukao (1995) for detailed discussion.

2-3-2. The Structure of Top Management Teams in Japan

In many of Japan's large companies, the directors are classified into chairman, president, senior executives, and non-title directors. All of these are members of the board. In addition to these directors, there are auditors who are supposed to monitor them.

Usually, non-title directors have responsibility for a section of the company, rather than for the company as a whole. It is noted that these non-title directors are different from non-executive directors in the UK. Non-title directors are usually full-time directors of the company. 'Non-title' means that they do not have a specific title, such as *Shacho*, *Senmu*, or *Jyomu*.

One of the characteristics of the board of directors in large Japanese companies is that there is a hierarchy. All directors are classified as *Kaicho* (chairman), *Fuku-Kaicho* (vice chairman), *Shacho* (President), *Fuku-Shacho*, *Senmu*, *Jyomu*, or other Non-title directors (*Torishimariyaku*). This hierarchy is not based on company law³.

It is often the case that companies form higher senior executive boards. One reason for this is that number of directors on the board is too large for decisions to be made quickly⁴. This higher board is sometimes called *JOMUKAI*⁵. Although this higher board is not based on company law, it acts as the "real" top

² It may be the case that the chairman has more power than the president.

³ According to company law, companies have representative directors and non-representative directors. Representative directors can represent the company.

⁴ In our sample, the average number of directors is 29, while the maximum is 60.

⁵ In some companies, this higher board is called *Keiei Kaigi* (Management committee).

management team in day-to-day business. The board of directors, on the other hand, tends merely to approve what the senior executive board has decided.

Board of directors

It is often argued that boards of directors fail to monitor senior management in Japan (Kubori, 1996, Fukao et al. 1997). There are two main reasons for this. The first is that directors regard the president as their boss. In many companies, it is the president who makes decisions on the promotion and dismissal of directors. Although company law states that the shareholders' annual general meeting (AGM) determines the board members, in practice the AGM just approves what the current management team has already decided. The AGM approves the list of candidates, which is submitted by the current board. In addition, the board meetings also approve the list of candidates for new board members. It is often the case that the president chooses the candidates from among his employees in many large companies in Japan.

The second reason is that the board may not have full information on the company. The board tends to be too large to discuss and decide company policy quickly. Many companies have *JOUMUKAI*, or senior executive boards that work as the real senior management team. Once a policy is determined by the senior executive board, then the board of directors approve it. In my sample of 210 large companies in Japan, the average number of directors is 29, and the maximum, 60. The survey by the *TOKYO BENGOSHI KAI* (The Tokyo Bar Association)⁶, which collected answers from both listed and unlisted companies, shows how often the

⁶ Cited in Fukao, et al (1997). This survey is based on 576 companies in 1993.

board is called and how long it lasts. In more than 95% of the companies, a board meeting is called only once a month or less⁷. In almost 80% of them, the board meeting lasts less than two hours⁸. In contrast, the same survey reveals that in 61.7% of the companies, senior executive board meetings are called more than twice a month. In 32.3% of the companies, a senior executive board meeting is called more than once a week. For these reasons, some scholars maintain that the boards of directors in large Japanese companies are not effective enough to monitor the senior management teams⁹.

Auditors

Many studies (Kubori, 1996, Fukao, et al., 1997) argue that auditors are also failing to monitor presidents or senior management teams. First of all, in practice, auditors are nominated by boards, or in many cases, by the president. According to a survey carried out by the University of Kobe¹⁰, almost 90% of candidates for auditors are chosen by the president or chairman. It is often the case that presidents or chairmen have the power to replace them. Thus, auditors may not feel that they are independent from the senior management teams, but rather subordinate to them¹¹.

⁷ In 3.2% of the 576 companies, board meetings are called only 4 times a year, which is the minimum requirement under company law. In 13.7% of the companies, the board is called 5 to 7 times a year, while in 14.1% of the companies, it is called 8 to 11 times. In 65.1% of the companies, boards are called once a month.

⁸ In 22.4% of the companies, the board meetings last more than two hours.

⁹ Fukao (1999) gives some examples of presidents being dismissed by board of directors in Japan.

¹⁰ This survey was conducted by the University of Kobe, department of management, committee for studying the environment for auditors. This survey was published in 1991, based on 437 companies. (96.9% of them with 500 million yen of capital or more. These results are cited by Fukao et al. (1997).

¹¹ According to company law, at least one of the auditors in some large joint stock companies must be an 'outside' auditor. This regulation applied to those joint stock companies whose capital is

Secondly, auditors simply do not have access to enough information to monitor senior management (Kubori, 1996, Fukao et al., 1997). They can attend board meetings and gather information about management in this way. But in many companies, important company policy is not actually determined by the board of directors, but by the senior executive board. It is often the case that auditors do not attend senior executive boards. The survey by *TOKYO BENGOSHI KAI* (The Tokyo Bar Association) shows that in 52.9% of the companies investigated, auditors do not attend senior executive board meetings¹². Thus many auditors fail to gather important company information relevant to monitoring the senior management team, because this information is often reported only at the senior executive board.

Thirdly, auditors do not usually have their own staff to collect information on company management. According to the survey in *KEIZAI DOYU KAI* (Japan Association of Corporate Executives)¹³, 60% of auditors do not have their own staff. Among those auditors who do, the average number of staff is only 2.1 per company. It is not easy for them to collect information about senior management teams by themselves.

For the above reasons, it is considered that both boards of directors and auditors are inadequate to monitor the presidents of Japan's large companies.

more than 500 million yen, or whose sales exceed 20 billion yen. 'Outside' means that the person has not been an employee or the director of the company within the last 5 years. But in many companies, these auditors come from the same company groups (Fukao et al., 1997).

¹² Cited in Fukao et al. (1997). The sample is of 576 listed and unlisted companies.

¹³ This survey is based on the presidents and chairmen of listed and unlisted companies, conducted in 1995. This result is cited in Fukao et al. (1997).

2-3-3. Annual General Meetings of Shareholders

Many studies suggest that the annual general meeting of shareholders also fails to control the board of presidents of the company (Matsumoto, 1991, Kubori, 1996).

First of all, the annual general meeting of shareholders is usually controlled by the current management team. The directors ask shareholders to send a blank proxy to support an agenda submitted by the current management. In 57% of companies, more than 50% of the vote at the meeting was sent by mail, and most of these were blank proxy, supporting the current management team. Among listed companies, 76% finished their meetings within 30 minutes. At 90% of the meetings, there were no questions from shareholders at all.

Secondly, it is the board of directors and auditors who are supposed to monitor senior management teams on behalf of the shareholders. But, as stated above, both fail to do this. Therefore, shareholders in Japan have very limited influence over the company. As a result, the current management team has no incentive to pursue the shareholders' interests because the shareholders are powerless to punish them if they fail to do so¹⁴.

2-3-4. The Legal Framework of Corporate Governance in the UK

In the UK, members of the board of directors of public companies are

¹⁴ Because of cross-shareholdings between large companies in Japan, large shareholders may not withdraw their capital even if the performance of the firm is not satisfactory. Instead, these large shareholders try to intervene with the management team by sending directors, for example (Aoki,

nominated by the shareholders. In practice, the shareholders just confirm the list of directors presented by the current board. The board of directors is composed of inside directors and outside directors, both of whom have responsibility for the shareholders. It is often the case that there are a number of non-executive directors on the board in large British companies, as though there is no legal obligation for this (Sheridan and Kendall, 1992). In big British companies, the proportion of non-executive directors on the board of directors is about 40% on average (Conyon, Gregg, and Machin, 1995). In addition, 9% of the UK's largest companies have no outside director (Monks and Minow, 1995).

In response to public concern about directors' salaries in the UK, The Cadbury and Greenbury committees issued a number of recommendations, the main points of which are as follows. Directors' salaries should be determined by a remuneration committee, which is composed mainly of non-executive directors. This committee will report their remuneration policy and each director's pay packages, including a detailed disclosure of remuneration. Greater transparency and accountability on the determination of executive compensation is required. In addition, it is recommended that there should be sufficient non-executive directors for it not to be dominated by CEO and the current management team.

2-3-5. Remuneration Committees

In many big British companies, executive pay is set by a remuneration committee. Although remuneration committees have not been popular, more and

1990, Kaplan and Minton, 1993).

more large companies in the UK are adopting them, in response to the recommendations of the Cadbury and Greenbury committees. As suggested in their recommendations, remuneration committees are expected to strengthen accountability to the shareholders. In addition, it is also expected that the link between firm performance and top compensation will be made clear.

About 94% of big companies had a remuneration committee in 1992, whereas only 54% had one in 1988 (Conyon et al., 1995). Main and Johnston report that 30% among 220 Britain's large companies mentions that they have remuneration committee in their 1990 annual report (Main and Johnston, 1993).

2-4. The Financial Markets in Japan and the UK

In this section, we examine the monitoring of top managers by the financial markets in Japan and the UK, and attempt to compare the effectiveness of monitoring. Table (2-2) summarises the coming discussions.

Table 2-2 Corporate governance in Japan and the UK (2): Monitoring by financial market

	Japan	UK
Majority of shares are owned by	Group companies, institutional shareholders	Individual and institutional shareholders Only 0.7% of total stocks are owned by financial institutions on their own behalf.
Are banks large shareholders in other companies?	Yes	No Banks can own other companies stocks only after approval by Bank of England
Hostile take-overs and M&A	Rare	Common

2-4-1. Share Ownership of Listed Companies in Japan

In Japan, the majority of shares in large companies are owned by other companies and financial institutions, rather than individual investors. Banks and insurance companies may own shares in other companies, up to a certain limit. Banks are allowed to own other companies' stocks up to 5%. Insurance companies are allowed to have up to 10% of the total stocks of other companies. In 1990, 25% of the total shares on the stock market were owned by non-financial institutions, while 48% were owned by financial institutions such as banks and insurance companies (Fukao, 1995). These financial institutions own most of their shares on their own account, as opposed to on behalf of other investors.

Many large companies belong to company groups, such as Sumitomo and Mitsubishi. There are six big company groups in Japan: Mitsui, Mitsubishi, Sumitomo, Fuyo, Dai-Ichi Kangin, and Sanwa. Within these groups, it is often the case that each company owns stocks of the others. In 1987, 25% of the total stocks of companies belonging to the Mitsui group, were owned by companies within that group. This practice of cross-shareholding has been developed mainly to prevent take-over by foreign companies and other potential hostile investors (Ito, 1993, Hsu, 1994, Morikawa, 1992).

Among the large shareholders of a company, most non-financial institutions and banks belong to the same company group as the focal company. Since each company owns shares of their shareholders, they will act as 'silent shareholders'. Banks will not intervene in the management of a company unless it

is in financial crisis¹⁵. Although insurance companies have a significant proportion of stocks in Japan, they do not try to intervene in the management of other companies. Because of cross-shareholding among companies, few hostile takeovers are observed in Japan in comparison to the US and the UK¹⁶ (Odagiri, 1994). Thus, managers of large companies in Japan face less threat of being taken over by outside investors, even if their stock market performance is not very good. In other words, the financial market and mergers and acquisitions do not have the power to discipline managers who are failing to achieve high stock market returns¹⁷.

Above description of corporate governance in Japan suggests that both the financial market and shareholders have limited power over the executives of large firms. In other words, directors can avoid sanction even if they fail to take their shareholders' interests in account.

2-4-2. Share Ownership and the Financial Market in the UK

Most shares in listed companies are owned by institutional shareholders and companies in the UK. However, most institutional shareholders are agents of small shareholders. 57.8% of shares are owned by financial institutions who are just agents, while only 0.7% are owned by financial institutions in their own right.

¹⁵ In the case of financial crisis, banks try to push their own personnel into the company as directors to monitor the management properly (Kaplan and Minton, 1993).

¹⁶ Companies are relatively protected from the pressure of the stock market because of these cross shareholdings.

¹⁷ It should be noted that large companies in Japan are monitored by banks as well as by other companies in the same company group, as they are also large shareholders of the company (Aoki, 1990, Kaplan and Minton, 1993).

Banks can own other companies' stocks only with the approval of the Bank of England (Prowse, 1994).

Hostile take-over may be an important mechanism for disciplining managers in the UK. Mergers and acquisitions are often observed, and significant numbers of these are hostile take-overs. According to Prowse (1994), 37.1% of attempted mergers and acquisitions in the UK were hostile take-overs, in the period 1985-1989. It is suggested that executives in the UK are under more pressure from the financial market.

2-5. The Employee-Employer Relationship in Japan and the UK

As described in previous sections, managers face various constraints in managing their company, including monitoring by shareholders and the financial market. In this section, we will focus on the constraints imposed by the employer-employee relationship. Table (2-3) summarises the discussion to come.

Table 2-3 Corporate Governance in Japan and the UK (3) : Employment relationship

	Japan	UK
Output-employment flexibility	Rigid	Less rigid
Deferred compensation? (Do employees have implicit investment in the company?)	Yes	Less so than in Japan
Is job security an important managerial goal?	Yes	Less so than in Japan
Does employees' salary reflect firm performance?	Employees' annual bonus usually consists of about 30% of their total salary, and reflects firm performance.	Less so than in Japan

2-5-1. Output-Employment Flexibility in Japan and the UK

In 1989, the OECD published a report on the output-employment flexibility in OECD countries. The output-employment relationship was estimated for each country using long-term macroeconomic data. One of their main focuses was on employment flexibility in response to change in output. Their results show that in Japan, employment is more rigid with respect to the change in output than it is in the UK. The number of employees is less likely to be reduced in Japan when firm output declines.

This may suggest that managers in Japan have little scope to make people redundant in order to improve performance. In contrast, employment is more likely to be adjusted to output in the UK, implying that managers in the UK are less compelled to keep their employees on.

2-5-2. Employees in Large Companies in Japan are Implicitly Investing in the Company.

As seen in previous sections, employees may implicitly invest their assets in the company. Firstly, deferred compensation can be interpreted as a kind of implicit investment since employees' money is deposited in the company for the long term. If the company does well, employees may eventually receive a good return, or alternatively lose their money if the company fails. As it is often

argued that pay in large Japanese companies depend more on age and tenure than is the case in other countries, employees in these companies can be seen as implicit investors in them (Itami 1993). Thus, employees in these companies may have strong incentives for monitoring the management, to ensure that their implicit investment is protected.

2-5-3. Top Managers in Large Japanese Firms Protect Their Employees' Job Security.

It is often argued that job security for employees has been one of the most important management objectives. Japanese firms are less likely to reduce labour costs when their business declines (Fukao, 1995), even when they do this, they try to avoid laying people off (Fukao, 1995, Muramatsu, 1995).

According to a survey of the difference in company behaviour between the US and Japan¹⁸, managers of large Japanese firms are more likely to reduce non-labour costs when company performance declines, while their American counterparts are more likely to reduce labour costs. Only 4.5% of Japanese companies try to reduce their labour costs as a first response to a deterioration in business, as compared with 17.9% of American companies.

In addition, American companies are more likely to lay-off their employees to reduce their labour costs while Japanese companies are more likely to reduce working hours. 29.1% of American companies say that they will lay

¹⁸ The following results are based on the survey by *Kigyo Kodo ni Kansuru Chosa Kenkyu Iinkai* (Research committee on firm behaviour), cited in Fukao (1995). These results are based on questionnaires sent to large manufacturing companies in the United States and in Japan.

people off when they want to reduce their labour costs, compared with only 1.8% of Japanese firms (Fukao, 1995).

Muramatsu (1995) shows how the typical Japanese company tries to avoid laying off employees even when in financial distress. It is often said that the senior management should make every effort to avoid redundancies. According to Muramatsu, Japanese firms typically try to reduce their labour costs while protecting their employees' job security. Faced with setbacks in their product market and the need to reduce their labour costs, they try firstly to reduce the amount of overtime work done and therefore the amount of overtime pay they have to pay. The firm may discontinue contracts with part-time and seasonal workers, and stop taking on new employees. Lay-off is considered only when management has tried these measures and found that they are not enough to reduce labour costs. Even if the management decides to lay-off staff, it is often the case that 'voluntary redundancy' is suggested so as to avoid explicitly nominating people.

2-5-4. In Japan, Employees Exercise Their Power When Their Interest is Threatened.

In some cases, employees exercise their power in order to protect their interests. They may say no to senior managers when their interests are threatened. For example, the agreement by their senior management to merge the Dai-Ichi and Mitsubishi banks failed to be realised, because the employees of these banks refused to co-operate. Similarly, when the Sumitomo bank tried to acquire the

Kansai Sogo bank, the employees contested the agreement by the senior managers (Komiya, 1988).

In some cases, employees co-operate with the senior management when their company is about to be taken over. In 1981, for example, Daiei, a large supermarket company, tried to take over the Takashimaya department store, but failed. In this case, both the senior management and the employees of Takashimaya, as well as the main bank, were said to have co-operated to prevent the take-over going ahead (Komiya, 1988).

2-5-5. A Significant Proportion of Company Profit is Distributed to Employees in Japan.

Some empirical studies suggest that wages in Japan are more flexible than in other countries because of bonuses and the wage bargaining system. The bonus usually makes up 20-30% of the total salary, while the monthly wage makes up the rest. The amount of bonus changes every year, reflecting the company's performance: Freeman and Weitzman (1987) find a positive relationship between bonus and company profit. In addition, the amount of the monthly wage is determined through bargaining between the company and company union. As company performance is an important factor in determining the monthly wage in this bargaining, the monthly wage may reflect a change in this respect (Mizuno, 1987). Thus, it is suggested that employees are sharing risk with other investors in large companies in Japan. If the company performs well, they will receive a larger return; But if the company fails, their bonus will be

smaller. Thus, as seen in previous sections, employees may have a strong incentive to monitor the company, so that they can receive larger bonuses.

2-6. Summary and Conclusion

In this chapter, the structure of corporate governance in Japan and the UK has discussed. We have paid particular attention to the following question: To what extent are managers autonomous in running companies? Top directors may have their own interests, which do not necessarily coincide with those of their shareholders. The shareholders may then want to monitor the senior directors so that they manage the company with their interests in mind. Thus these directors in large companies are monitored and controlled by a variety of devices, such as the financial market or the board of directors. In addition, senior managers are constrained by the employer-employee relationship.

We began by examining some theories of corporate governance and control. Though there are various mechanisms and institutions which monitor senior directors, these devices may not be that effective due to the moral hazard problem (Hart, 1995, Stiglitz, 1985). For example, outside directors may collude with current CEOs, instead of pursuing the shareholders' interests by monitoring them. In addition to monitoring by the financial market and shareholders, it is also suggested that the employer-employee relationship constraints the way in which directors behave.

We then looked at the pattern of corporate governance in Japan and the UK, examining its legal structure and monitoring by shareholders. It was noted

that there are few non-executive directors in Japan. Most members of board of directors in large Japanese companies are full time directors who regard the president as their boss, rather than someone they should be monitoring. It was suggested that both boards of directors and auditors are ineffective as monitors of senior managers in Japan. In the UK, on the other hands, almost 40% of members of boards of directors in large companies are non-executive directors (Conyon, Gregg, and Machin, 1995). Many companies have remuneration committees to discuss executive pay. Although non-executive directors and remuneration committees have their limitations as monitoring devices for senior directors, they may be more effective than the Japanese system. In other words, shareholders may have more power over current management teams than they do in Japan.

As there are few hostile take-overs in Japan, the financial market may also fail to punish those directors who do not pursue the improvement of share prices. In contrast, hostile take-overs and M&A are observed relatively often in the UK, showing stronger monitoring of directors than exists in Japan.

Lastly, we examined the employer-employee relationship. It was shown that directors in Japan are more constrained by this. For example, OECD (1989) suggests that managers in Japan are less likely to reduce employees than their UK counterparts. In addition, it was shown that employees in large companies in Japan may have a strong incentive to monitor the senior management, since they are implicitly investing their assets in the company. Some examples were also given which suggest that employees have significant power over the management.

The above arguments suggest that British managers face more pressure from shareholders and the financial market, while their counterparts in Japan are

constrained by the employment relationship rather than by the financial market and shareholders. As managers in both countries face different types of monitoring and restrictions on the way in which they work, their compensation scheme may reflect these differences. For example, if shareholders have very limited power, there may be little relationship between shareholder's return and the top director's salary. The next chapter examines executive compensation in both countries, as well as the relationship between this and the internal employment structure of the firm.

Chapter 3. The Managerial Labour Market and Executive Compensation in Japan and the UK

3.1. Introduction

As described in the previous chapter, shareholders and the financial market have only limited power to monitor directors. They may fail to punish directors who pursue their own interests instead of those of their shareholders. In Japan in particular, the financial market and large shareholders have very limited power. By contrast, it has been suggested that executives in the UK may be facing more pressure from the financial market.

Certain questions arise at this point. If, as we have seen, the financial market and other governance mechanisms are not effective monitoring devices, then what kind of incentive do managers have? How do stakeholders try to control executive compensation? In an attempt to address these questions, this chapter focuses on the determinants of executive compensation in both countries. The internal structure of large firms is also discussed.

Section 3.2 reviews previous studies on the determinants of executive compensation. Particular emphasis is given to the relationship between remuneration and company performance, leading to some research hypotheses.

Section 3.3 explains rank order tournament theory, which we will employ in analysing the internal structure of large firms. Career paths and promotion systems are discussed in section 3.4.

Lastly, section 3.5 examines the internal employment structure of large Japanese firms, which is described as a ‘ranking hierarchy’ by Aoki (1988). It is shown that there are some similarities between ranking hierarchy and rank order tournament, leading to a further research hypothesis about the pay structure in Japanese firms.

3.2. The Determinants of Executive Compensation

In this section, we survey previous studies on the determinants of executive compensation in Japan and the UK. Firstly, the relationship between executive compensation and firm performance is discussed as well as the size effect. We then summarise the results of previous empirical studies.

3.2.1. The Relationship between Executive Pay and Firm Performance

There have been many studies that analyse the determinants of executive pay, particularly in the US¹ and in the UK (Coughlan, A., and Schmidt, R., 1985, Jensen and Murphy, 1990a, Gibbons and Murphy, 1990, Ciscel and Carroll, 1980, Dunlevy, 1985. Cosh, 1975, Cosh and Hugh, 1997, Conyon, 1995, 1997, Conyon, Gregg, and Machin, 1995, Conyon and Leech, 1994, Conyon and Nicolitsas, 1998,

¹ Rosen (1990) reviews much of the literature on this topic.

Gregg, Machin and Szymanski, 1993, McKnight, 1996, Wolfram, 1998)².

Many of these set out to investigate whether there is any significant relationship between top pay and company performance (Jensen and Murphy, 1990a, Gibbons and Murphy, 1990), in response to advances in agency theory (Fama, 1980, Holmstrom, 1979, Mirrlees, 1976)³. Some scholars have focused on econometric issues surrounding this topic (Ciscel and Carroll, 1980, Dunlevy, 1985), while earlier studies dwelt on the relationship between executive compensation and company size (Roberts, 1956, Cosh, 1975).

These authors examine whether the coefficients for firm performances are significant, or whether they are large enough to motivate directors. If the coefficient of firm performance is large, the executives will have a strong incentive to work towards these performance measures, but if the coefficient is small, they may have little motivation to pursue the interest of the shareholders. If the latter is the case, managers may want to invest in a project that will increase their own utility⁴.

These same studies suggest that there is a positive relationship between executive compensation and both accounting return and stock performance (Rosen, 1990), though some argue that the coefficients are too small to motivate them (Jensen and Murphy, 1990a)

In many studies, it is assumed that executives are the agents of shareholders. Although shareholders will want top managers to run the company

² The results of these empirical studies that analysed UK data are discussed in following sections.

³ Rosen (1990), Milgrom and Roberts (1992) give a survey of this topic.

⁴ Stiglitz and Edlin (1992) prove that the possibility exists that managers will invest in idiosyncratic projects so that nobody else can understand what is happening in the company, thus making them irreplaceable. Managers may use company money to increase their own utilities (Milgrom and Roberts, 1992).

in such a way as to achieve a better stock market performance, they do not have enough information to monitor them. Thus, the shareholders will set the directors' pay based on company performance, because the directors will have a strong incentive to work in the shareholders' interests.

Both the Cadbury and Greenbury committees recommended that there should be more responsibility, accountability and transparency in the determination of executive pay. It was also recommended that remuneration committees should be set up in which non-executive directors play a major role. In response to these recommendations, many large UK companies have tried to change their executive pay policy. For example, some studies report that more companies are establishing remuneration committees in recent years (Conyon, Gregg, and Machin, 1995, Main and Johnson, 1993). In 1988, 54% of large companies in the UK had remuneration committees, compared with 94% in 1992 (Conyon, Gregg, and Machin, 1995). In addition, many large UK companies have annual incentive schemes for their top directors. The Monks partnership reports that 71% of FT-SE 350 companies have such schemes (Monks partnership, 1994).

Many companies introduce annual incentive schemes in order to motivate the directors. As many annual incentives set a performance target, managers should have a clear idea of their goals (Williams, 1994). For this reason, many large companies in the UK are trying to motivate managers to work harder toward achieving shareholders' goals by strengthening the link between directors' pay and firm performance.

These arguments raise a question. Does executive pay in large UK companies really reflect the interest of shareholders? In order to address this

question, we will make following hypothesis.

Hypothesis 3-1: There is a positive relationship between directors' pay and company performance, and particularly stock market performance, in the UK⁵.

Principal-agent theory predicts a positive relationship between directors' pay and firm performance. As shown in the previous chapter, although shareholders naturally want top directors to manage the company in their interests, they have little information and power to monitor the situation. Thus, according to this theory, the top director's compensation will be tied to firm performance to give him some incentive. Principal-agent theory suggests that the incentive of directors depends on pay-performance sensitivity⁶. If this is larger, then directors may have more incentives, suggesting that the company's performance may improve.

With this in mind, it may be of interest to examine whether the pay-performance sensitivity does improve firm performance. There are relatively few studies examining the effect of the pay system on company performance (Abowd, 1990, Jensen and Murphy 1990a, 1990b)⁷. Here, we will test the effect of pay-performance sensitivity on firm performance. The main hypothesis will be as follows.

⁵ These hypotheses are discussed in detail in chapters 5 and 7.

⁶ Principal-agent theory also argues that there is a trade-off between incentive and insurance in this contract. If pay-performance sensitivity increases, the director's salary may be affected by various factors, such as market conditions.

⁷ Gibbons (1997) reviews some studies of the relationship between pay systems and performance.

Hypothesis 3-2: Companies with high pay-performance sensitivity will perform better than those without.

As mentioned above, many companies in the UK have annual incentive schemes (Monks partnership, 1994), and many of these schemes in the large companies are designed to encourage the top managers to work hard to improve performance⁸. In a typical annual incentive program, there are a number of performance targets, profit and Earnings Per Share (EPS) being most widely used. (Income Data Services 1996, Williams, 1994). Directors are paid an annual bonus in accordance with the firms' performance. It is often the case that some extra money is added to their bonus if they can achieve a certain performance target. According to Williams (1994), many companies believe that an annual incentive scheme will motivate managers to work towards the target⁹. In particular, annual incentive schemes are introduced to motivate managers to focus on performance targets that can be measured within a year. However, there have been few investigations into whether these pay policies are really effective. Thus, we will test the following hypothesis.

Hypothesis 3-3: Companies with annual incentive schemes will perform better than those without.

We will test the first hypothesis using both British and Japanese data, and

⁸ Details of annual incentive schemes in large UK companies are discussed in chapter 5.

the second hypothesis using just British data. These hypotheses are analysed in chapters 7 and 8.

There are various pay policies for directors, such as long-term incentives and stock options. However, we will focus here on the effect of annual incentive schemes. The first reason for this is that it may be easier to assess the effects of annual incentive schemes than those of long-term incentives. As long-term incentives are designed to motivate managers to pursue long-term goals, we would need a larger data set and more detailed information. Secondly, as most large UK companies have stock option plans, it is not easy to compare the performance of those with them to those without.

3.2.2. The Relationship between Top Pay and Company Size

Simon (1957) and Lydall (1968) explain why directors' salary is linked to company size on the basis of certain assumptions about company structure. Rosen (1990) explains the relationship between top pay and company size from the viewpoint of marginal productivity theory.

Simon (1957) explains why top pay relates to the size of the company. He derives this relationship from the following assumptions. 1) The wages of workers in the bottom layers of the firm will be determined by the labour market and thus will be almost same across firms. 2) The pay of middle managers is higher than that of the workers they supervise and this difference will be within a

⁹ Some companies state that goal setting help managers to understand their managerial goal.

small range across firms¹⁰. And 3) the number of workers that one manager can supervise is within a small range across firms. If these three conditions hold, then, the salary of one manager will be determined by number of total employees whom he supervises directly or indirectly¹¹. The pay of senior and middle managers can be written as a function of the number of employees who are supervised by him. For example, the compensation of a top executive depends on the number of total employees in the company that he manages. Simon also shows that the relationship between the number of employees and executive compensation is log-linear.

Lydall obtains similar results in explaining the size distribution of income within companies, which he argues follows Pareto's Law. According to this law, the number of people who receive more than income level X can be written as follows.

$$N = A \cdot X^{-a}$$

(Equation 3-1)

Where N is the number of people, and A and a are constants. This function is considered to be able to explain the upper tail of a distribution (Lydall, 1968). Lydall derived this relationship from the same assumptions used in Simon's model. From this model, the salary of a top executive can be calculated as a function of the number of employees; The pay of senior and middle managers

¹⁰ However, this assumption is inconsistent with recent empirical findings, as the pay gap will be larger as one climbs up the corporate hierarchy. Main et al. (1993) and O'Reilly et al (1988) found that the wage difference would be largest between the CEO and the vice president, and smallest at the bottom layer of the directors' hierarchy.

¹¹ Simon argues that there is a certain limit to one's rationale (Simon, 1951).

depends on the number of people who belong to the sub-hierarchy of the company that the manager supervises.

Rosen (1990) also shows theoretically why pay relates to the size of the company. He assumes that the ability of a top manager affects the productivity of the whole company. The marginal productivity of a manager in a big company is larger than that of a top manager in a small company with the same ability, because the ability of a CEO in a large company will influence more people than that of his counterpart in a small company. Thus, an efficient market will allocate highly able managers to large companies. They will get higher wages because of their high productivity.

All these theories aim to explain the relationship between top pay and firm size. It should be noted that they do not analyse motivational aspects of director's compensation. Simon (1957) and Lydall (1968) approach the question of why top directors of large companies receive higher pay from the viewpoint of the hierarchical structure of the firm, and Rosen (1990) examines this relationship based on the productivity of the CEO.

Most empirical work on the determinants of top director's compensation reports a strong relationship between firm size and directors' compensation (Rosen, 1990, Milgrom and Roberts, 1992). This suggests that top directors' pay may be explained to a certain extent by these theories.

3.2.3. Executive Compensation in the UK

A number of scholars have analysed the determinants of executive compensation in the UK (Cosh, 1975, Cosh and Hugh, 1997, Conyon, 1995, 1997, Conyon, Gregg, and Machin, 1995, Conyon and Leech, 1994, Conyon and Nicolitsas, 1998, Gregg, Machin and Szymanski, 1993, McKnight, 1996, Wolfram, 1998). Table (3-1) summarises their results.

Much attention has been paid to the relationship between directors' pay and firm performance. Some empirical studies have suggested that the relationship is very weak, or does not exist (Gregg et al., 1993, Conyon, 1995), others, that there is a positive relationship (McKnight, 1996)

According to Gregg, Machin and Szymanski (1993), the link between directors' remuneration and company performance is disappearing. They estimate the determinants of the remuneration of the highest paid directors in 500 largest companies in the UK, between the years of 1981 and 1991. The coefficient of change in shareholders return to growth in directors remuneration is 0.027 (statistically significant) according to the data from 1983–1988 and -0.024 (insignificant) according to the data from 1989 to 1991, suggesting that the link between stock performance and remuneration was disappearing by the late 1980's. They also found that rapid growth in the highest paid directors' pay (about 20 per cent a year), and that the growth of pay is correlated with the growth of the company.

Conyon (1995) took as a sample 28 privatised utilities between 1990 and

1994. He found that there was little relationship between top pay and corporate performance in these companies. Coefficients of company performance to top pay were not statistically significant. Conyon and Leech (1994) found a positive relationship albeit a very weak one.

In contrast, some studies have suggested that there is a positive relationship between company performance and directors' remuneration (McKnight, 1996, Conyon, 1997, Ingham and Thompson, 1995). For example, McKnight (1996) finds a positive correlation between change in top pay and firms' earnings per share.

Some authors look at the relationship between directors' remuneration and firm performance for the previous year, while others focus on the relationship with current performance (Conyon, 1997, Ingham and Thompson, 1995). It appears that current performance has stronger explanatory power than does the performance of the previous term. By analysing 213 large UK companies between 1988-1993, Conyon (1997) finds that directors' compensation in large UK companies is positively related to current shareholders' return but much less so to previous year's shareholders' return. Ingham and Thompson's results similarly show that top pay is positively correlated with current profit, but there is no relationship between top pay and previous year's profit.

These results may be consistent with current practice in top director's pay in large UK companies. As will be discussed in chapter 7, top director's pay is typically determined in the following way (Williams, 1994): Firstly, the remuneration committee set a performance target at the beginning of the year. They also set some kind of 'formula' to calculate the directors' annual bonus.

Directors are given this information at the beginning of the year. Thus, it is clear that their bonuses will probably be dependent on current performance, rather than the performance of the previous year.

As pointed out by Rosen (1990), most previous studies on executive compensation show a strong correlation between top pay and company size. In the UK, most relevant research shows that size is indeed a very important factor. This relationship is observed in most papers¹².

¹² Ingham and Thompson reports negative relationship between size and performance using building society data. They suggest that this negative relationship can be attributed to the deregulation in the industry.

Table 3-1 Previous studies on executive pay in the UK

	Conyon (1995)	Cosh and Hughes (1997)	Conyon (1997)	McKnight (1996)
Dependent variable	ln (Salary + Bonus)	ln (CEO pay)	ln (CEO pay)	% change in top pay
Coefficient Profitability	-0.0018774 Earnings per share	-0.005 profit / net assets		0.135028** Change in EPS
Coefficient Stock return	-0.0001025 Shareholders' return	-0.0006 relative shareholders' return	0.060602** shareholders' return	
Coefficient Size	0.475157** ln (Capital employed)	0.27 ** ln (Net assets)	0.220227** ln (Sales)	0.2759** ln (Sales)to ln (top pay)
Year	1990-94	1989-94	1988-1993	1992-1994
Sample	28 privatised utilities	64 electrical firms	213 quoted firms	90 listed firms
	Conyon and Nicolitsas (1998)	Gregg, Machin, Szymanski (1993)	Conyon and Leech (1994)	Ingham and Thompson (1995)
Dependent variable	ln (CEO pay)	Change in ln (HPD's pay)	Change in ln (salary + bonus)	Change in top pay
Coefficient Profitability	0.00276	0.121 change in EPS		0.021* (change in profit)
Coefficient Stock return		0.01 change in shareholders' return	0.094416** change in ln (shareholders' wealth)	
Coefficient Size	0.146 change in ln (Asset)	0.005 ln (Sales)	0.066219 change in ln (Sales)	-0.119** ln (Asset)
Year	1987-1992	1982-1991	1983-1986	1986-1990
Sample	39 small firms	288 large listed firms	294 listed firms	117 building societies

HPD: Highest Paid Director

EPS: Earnings Per Share

Note that the coefficients in this table are those reported in the papers in question.

It is not possible to compare these directly, as different equations were used.

Goodness of fit is not reported, as these coefficients are not always taken from one equation.

Table 3-2 Previous studies on executive pay in Japan

	Iwasaki (1977)	Xu (1992)	Xu (1993)	Kaplan (1994)	Kato, Rockel (1992a)	Kato (1997)
Dependent variable	Average pay per director	ln (Presidents’ salary)	Director’s average salary	Change in ln (Average salary per director)	ln (president’ income)	ln (presidents’ income)
Coefficient Profitability	1.312** profit per asset	1.1142** profit / capital	0.000054** profit	1.618** change in income/assets	0.1319E-03 ROE	3.068** ROA
Coefficient Stock return				0.095** Stock return	-0.4274E-03 Stock return	0.061 Stock return
Coefficient. Size	12.01** ln (Asset)	0.24113** ln (sales)	0.0000071** Sales	0.247** Sales growth	0.1803** ln(Employees)	
Coefficient. Wage		0.24595 ln (wage)				
Year	1973	1984-1987	1970-1990	1981-1984	1985	1985
Sample	349 firms in manufacturing	37 firms 104 samples	31 firms in manufacturing	121 largest listed firms	599 firms	154

** Significant at the 1% level

* Significant at the 5% level

ROA: return on asset

ROE: return on equity

Note that the coefficients in this table are those reported in the papers in question.

It is not possible to compare these directly, as different equations were used.

Goodness of fit is not reported, as these coefficients are not always taken from one equation.

3.2.4. Executive Compensation in Japan

There has been relatively little work analysing the determinants of executive compensation in Japan. Recently, however, some studies have been published in response to the increasing attention to this topic in the US and the UK (Iwasaki, 1977, Kato, 1997, Kato and Rockel, 1992a, Kaplan, 1994, Xu, 1992,1993,1996,1997). Table 3-2 summarises the results of these studies. It should be noted that there are two types of data set on executive compensation in Japan¹³.

A strong relationship between firm size and directors' pay is observed in most studies and this cuts across time and industries. For example, Iwasaki (1977) showed that there is a strong relationship between sales and directors' average pay, as did Xu (1992, 1993). According to Xu (1992), the elasticity of sales to presidents' pay is 0.24113. It is also reported that both sales growth and number of employees are important factors (Kaplan 1994, Kato and Rockel, 1992).

Many studies have suggested that there is a positive relationship between firm performance and directors' pay (Kaplan 1994, Xu, 1992, 1993). Kaplan finds a positive and significant relationship with stock return, suggesting that directors in large Japanese firms have an incentive to work towards shareholders' return. In addition, Xu (1992, 1993) and Kato (1997) show a positive relationship between profit and directors' pay. Xu (1993) shows that the coefficient of profit is

¹³ As listed companies in Japan are not required to disclose the pay packages of individual directors, we cannot observe president's pay directly. Instead, some research uses 'president's income' estimated from income tax, or 'directors' average salary', calculated from a company's

significant while the coefficient of wage is not.

In contrast, Kato and Rockel (1992a) find no relationship between shareholders' return and presidents' pay. They also fail to obtain any significant relationship between profit and presidents' pay. They compare the determinants of executive salaries in Japan and in the US, finding that performance variables (return on equity and shareholders' return) are significant in the US, but not in Japan.

3.2.5. The Theory of Executive Compensation: Other Factors

There are a number of other theories about executive compensation. These are the pay compression hypothesis, social comparison theory, and rank order tournament theory. After a brief description of the pay compression hypothesis and social comparison theory, we will examine rank order tournament theory extensively in section 3.3.

The Pay Compression Hypothesis

According to Lazear (1989,1991), the pay difference between managers may be smaller than the productivity difference, because pay compression will lead to high performance. He argues that pay compression makes them more team-oriented.

The idea is that if someone's compensation is based on his relative performance within the team, he can benefit from his rivals' failure. Thus he will

annual report. The strengths and weaknesses of these data sets are discussed in chapter 4.

have an incentive to sabotage his colleagues, and will not share important information with his colleagues since this may be to his own detriment.

If success depends on co-operation between workers or directors, compressed pay is more efficient than performance-based pay or tournament type pay. Lazear states that a compressed pay scheme is effective if the tasks of managers are team-oriented, and if each director has a non-co-operative, competitive personality. If directors' jobs are interdependent and if co-operation leads to higher productivity, pay compression will make them more co-operative.

Social Comparison Theory

CEO pay may be affected by other social psychological factors (O'Reilly et al., 1988). They argue that CEO compensation is determined through comparison with the compensation of those of other companies, this is possible because some members of the compensation committee may be CEOs of other companies. Using 105 firms in 1984 as a sample, they show that CEO compensation is positively and significantly related to that of other committee members as well as to outside directors' salaries from their own companies. They conclude that this result is consistent with social comparison theory¹⁴.

¹⁴ However, this relationship can also be seen as the result of market mechanism of labour market for CEOs. If the labour market for directors works, compensations of CEOs may be correlated with each other.

3.3. Rank Order Tournament Theory

In this section, we will examine rank order tournament theory, which analyses the internal employment structure of the firm.

3.3.1. Characteristics of Rank Order Tournament Theory

Rank order tournament is a type of employment structure within a company. The tournament system may motivate workers through competition and promotion (Lazear and Rosen, 1981, Lazear, 1995). Lazear and Rosen (1981) show that the rank order tournament system has some advantages over piece rate compensation schemes.

Certain characteristics of rank order tournament are as follows. Firstly, people's salaries are determined not by performance, but mainly by their position within the company. In big companies, the amount top managers earn exceeds their contributions¹⁵. This difference between productivity and salary can be regarded as a prize for making it to the top, which encourages all employees to work hard promotion.

Secondly, managerial vacancies are filled by promoting the company's

¹⁵ The company must finance this difference to keep the total labour cost equal to the total productivity of the company. In this model, employees who want to be promoted must work hard to win the game. Their salaries may be lower than their productivity. If a contestant wins the game and is promoted, the sum of salaries he received from the company is bigger than the sum of his contributions to the company. But if he is not promoted, his salary remains constant because it is attached to the position. Then his salary is still smaller than his contribution to the company, though he may still work hard to win the prize. In this way, the company can finance the extra bonus for the winner by lowering the losers' salaries.

own employees rather than recruiting from other companies. Newcomers will be assigned a job in the bottom layer of the company, and most employees will have entered via this route. They may then be promoted to higher ranked jobs through competition.

Thirdly, the effort of contestants depends on the probability of promotion, and on the prize they will get once this happens. If employees think that the possibility of promotion is slight, they will have little incentive to work hard¹⁶, and likewise if the prize is small. Hence, the prize will be bigger in cases where there is a smaller probability of promotion to keep the effort of employees constant. In this case, some proportion of director's compensation can be seen as the bonus for winning the competition. Then, there may be a negative relationship between 'probability for promotion' and 'pay gap between top directors and employees'.

Fourthly, as employees climb up the hierarchy and become part of the senior management, they must compete with many others at every layer. They will get a prize for winning at every stage, as their pay will increase. Tournament theory predicts that the prize for promotion will be larger, the closer one gets to the top. One reason for this is that the probability of someone winning becomes smaller, the more contests they win. Since contestants at the higher stages will have won many games before getting to this position, they will be more talented than contestants at lower layers, and the competition will be more severe. Therefore, to keep the incentive of each contestant constant, the prize must be

¹⁶ To avoid this problem, large Japanese companies use 'slow promotion'. Typically, it takes many years to be promoted, meaning that most employees will think that they have fair chance of being promoted. 'Slow promotion' will be explained later in this chapter.

bigger.

3.3.2. The Advantages of Tournament as an Incentive Device

Tournament has several advantages as an incentive device. Firstly, this type of pay structure reduces the information cost of the company. In a company where the wage is determined according to the contributions of each employee, the company must know what each person's productivity is. However, in some circumstances, it is much easier to find out who is performing better than others, than to measure each person's absolute performance. For example, it may be difficult to assess two managers who are running different divisions of the company. If one division is subject to severe foreign competition and long-term labour problems, while the other produces high-demand products with few competitors, it may not be appropriate to assess the contribution of the executives running these divisions in terms of absolute performance value (Milgrom and Roberts, 1992).

A company with tournament type pay structure does not need to know the exact productivity of each employee, but simply the order among employees i.e. who is the best candidate for promotion. The salary is attached to the position and is determined in advance: All the company has to decide is who will be promoted to the job. It is less costly to find out who the best person is than to establish the productivity of each individual employee.

Secondly, employees have little risk of their salaries decreasing. In the tournament, there is always one winner in the competition, but no explicit loser.

Everyone in the company knows who the winner is, but not who the worst employee is. Furthermore, since every loser has an opportunity to win next time, people do not lose their incentive to work hard. If, on the other hand salary is determined by output, employees may receive very low wages due to external circumstances beyond their control.

Thirdly, as the prize for the winner is set in advance, the company does not have any incentive to reduce labour costs by claiming that their employees' performance was not worthy of a high salary. Moral hazard is thereby prevented.

3.3.3. The Limitations of Tournament Type Pay

There are also certain limitations to the tournament system. Firstly, it may fail to motivate CEOs (Demsetz, 1995). In a tournament type pay structure, employees work hard to be promoted. But the CEO will have little incentive to work hard, because he cannot be promoted any higher. Part of his compensation is not based on his current performance, but on his past performance as a vice president. In addition, an employee who will be retiring, or who decides to give up competing with his colleagues will have equally little motivation to work hard, for the same reason. With little chance of promotion, such a person will have no reason to strive for the prize. Similarly, if the company has a smaller number of high positions, employees will lose the will to make an effort because they know that their chances of promotion are limited.

Secondly, employees may seek promotion not by doing their job well, but by sabotaging their fellow employees. As promotion is based on relative

performance, sabotaging colleagues may increase one's own chances. In addition, there is the possibility of employees colluding not to work hard. If the winner is going to be the same whether or not everyone works hard, the workers may agree to be unproductive. Such collusion can create inefficiencies for the employer.

3.3.4. Testing Tournament Theory Empirically

Some attempts have been made at testing tournament theory (Demsetz, 1995, Main, O'Reilly and Wade, 1993, O'Reilly, Main and Crystal, 1988). Tournament theory predicts that the prize will be bigger, the higher someone gets on the company ladder, because the competitors will be progressively more talented. Main et al (1993) found that the pay gap between the directors of adjacent layers increases as the layers climb up to CEO. They used the annual base salary and bonus of executives from more than two hundred public companies in 1980-1984. The average pay of a CEO is 142% larger than that of second tier executives, while the ratio becomes 75%, 44%, 28% as the level of executives falls. These figures are almost constant over the sample year. This result is consistent with tournament theory, though these differences may also reflect the different performance of individual directors. They also computed how much pay increases when a vice president is promoted to CEO. They found that the present value of the total pay difference between CEO and the vice president is considerably large.

Main, et al. (1993) also estimated the determinants of pay difference between CEO and vice president. According to the tournament theory, there is a

positive relationship between the pay gap and the number of vice presidents, because the larger the number of vice presidents, the less chance any given one has of being promoted. They computed the present value of the total prize given to the CEO, showing a significant and positive relationship between log of the pay gap and number of vice presidents, a result consistent with the theory. In their sample, the average CEO receives a salary \$325,000 higher than the vice-president, annually. Demsetz (1995) also confirmed that the pay gap increases in keeping with the position within the board. On the other hand, the results of O'Reilly et al. (1988) do not indicate a positive relationship between the level of CEO compensation and the number of vice presidents.

3.4. Career and Promotion of Executives and Managers

As rank order tournament theory suggests, there is a close relationship between the employment structure and pay system of companies. In this section, we compare career paths and promotion patterns in Japan and the UK, as differences in the promotion pattern may affect the incentive structure of the firm. In addition, we will illustrate the proportion of managers to total employees in both countries, using data from the Labour Force Survey and Census.

3.4.1. Career Paths of Directors and Managers

In this subsection, we analyse the career paths of directors in both countries. We are particularly interested in the following question: What

proportion of directors is nominated from among the existing employees of the company? This question may be important in terms of the incentive structure of the company, because employees will work hard if they think that there is sufficient chance of them getting promoted. If most directors are recruited from other companies, employees are likely to assume that they have little chance of becoming directors. According to tournament theory, if employees think they have little opportunity for promotion, the pay gap between top directors and other employees will be larger.

Some studies have shown that in both the UK and Japan, a significant proportion of directors have no experience of working for other companies, although this proportion is higher in Japan. It takes many more years to reach director level in Japan than it does in the UK (Korn/Ferry, 1981, Yamamoto and Takase, 1987). The results of these studies are summarised in the following table.

Table 3-3 Career paths and promotion speed of directors in Japan and the UK

	Japan	UK
Proportion of ‘pure company bred’ directors ¹⁷	Large 51% (Yamamoto et al., 1987)	Small 22% (Korn/Ferry, 1981)
Promotion speed Average length of service of director within the company	Slow 27 years (Yamamoto et al., 1987)	Fast 18 years. (Korn/Ferry, 1981)

According to these studies, in the UK, 22% of directors worked for one company only. Over 80% of directors worked for not more than 4 companies. The average length of service in a company was 18 years (Korn/Ferry, 1981).

In Japan, 59% of directors worked previously for other companies, but this proportion was larger among top executives: 77% of chairmen had worked in other organisations and 60% of presidents. On average, it took 27 years for them to be promoted to their current position (Yamamoto and Takase, 1987)¹⁸. Kato et al (1992) found that about 50% of chief executives in Japan¹⁹ had already spent 25 years or more in their current firm at the time of appointment. On average, they become presidents at the age of 56.

¹⁷ The proportion of directors who spend their entire career only in a single company
¹⁸ Among the directors who have worked for other organisations, a large proportion may come from the government, banks, and parent companies.
¹⁹ Their sample consists of some 1,000 of largest companies in Japan.

In many large Japanese companies, some of the directors are from the government, many from the Ministry of Finance and Ministry of International Trade and Industry. In 1988, about 300 bureaucrats resigned to become directors or take up other high positions in companies (Hsu, 1994). These studies show that there is a difference in promotion structure between Japan and the UK. The internal structure of large Japanese firm is discussed later in this chapter.

3.4.2. Managers in the Census and Labour Force Survey in the UK and Japan

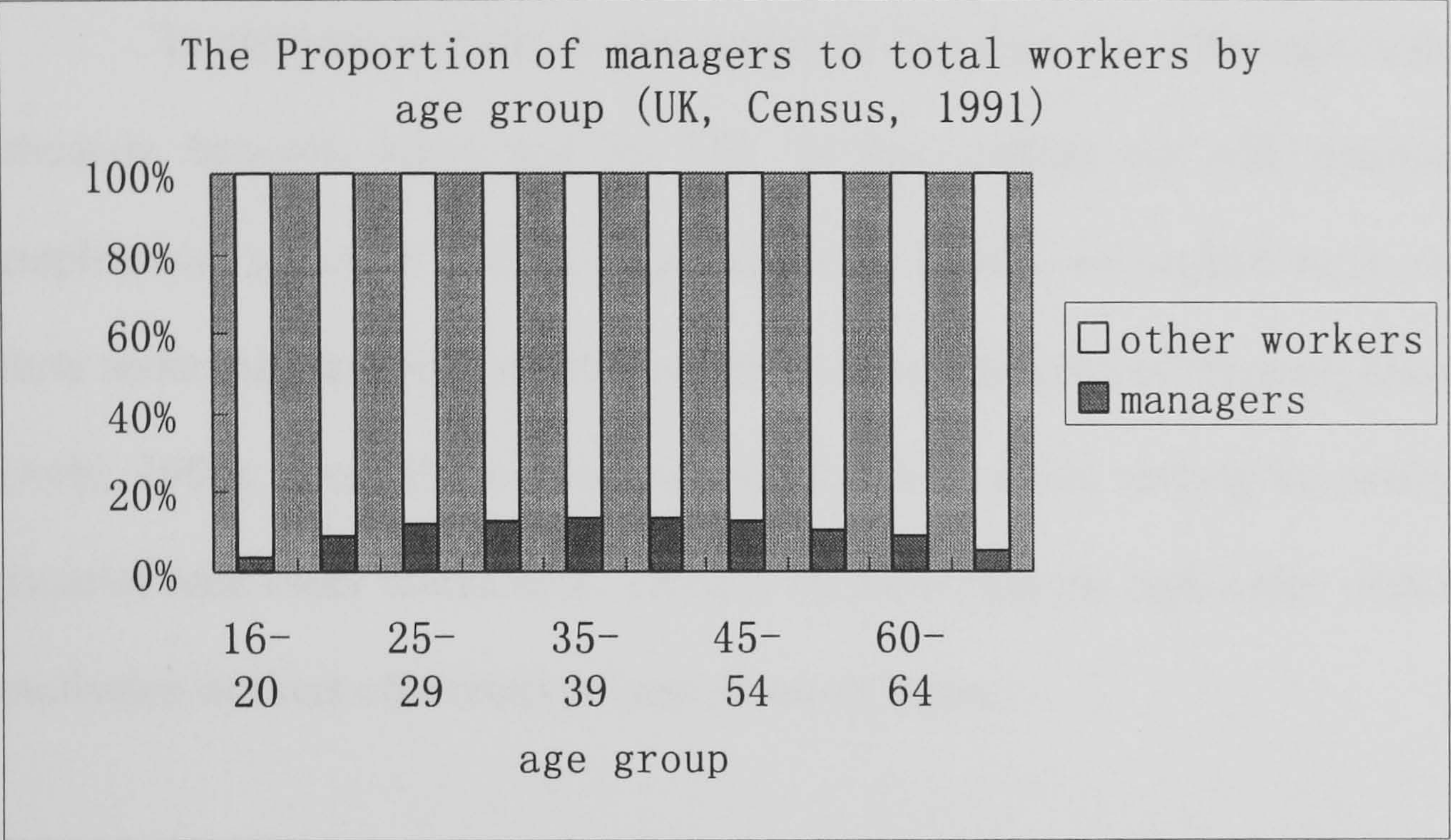
In this subsection, we examine some characteristics of managers in both countries, using census (1991, UK), census (1990, Japan), and the labour force survey (1995, Japan)²⁰.

On average, managers in Japan are older than those in the UK. In Japan, more than 90% of managers are 40 or older, while in the UK, 51% of managers are under 40, and 30% are under 30.

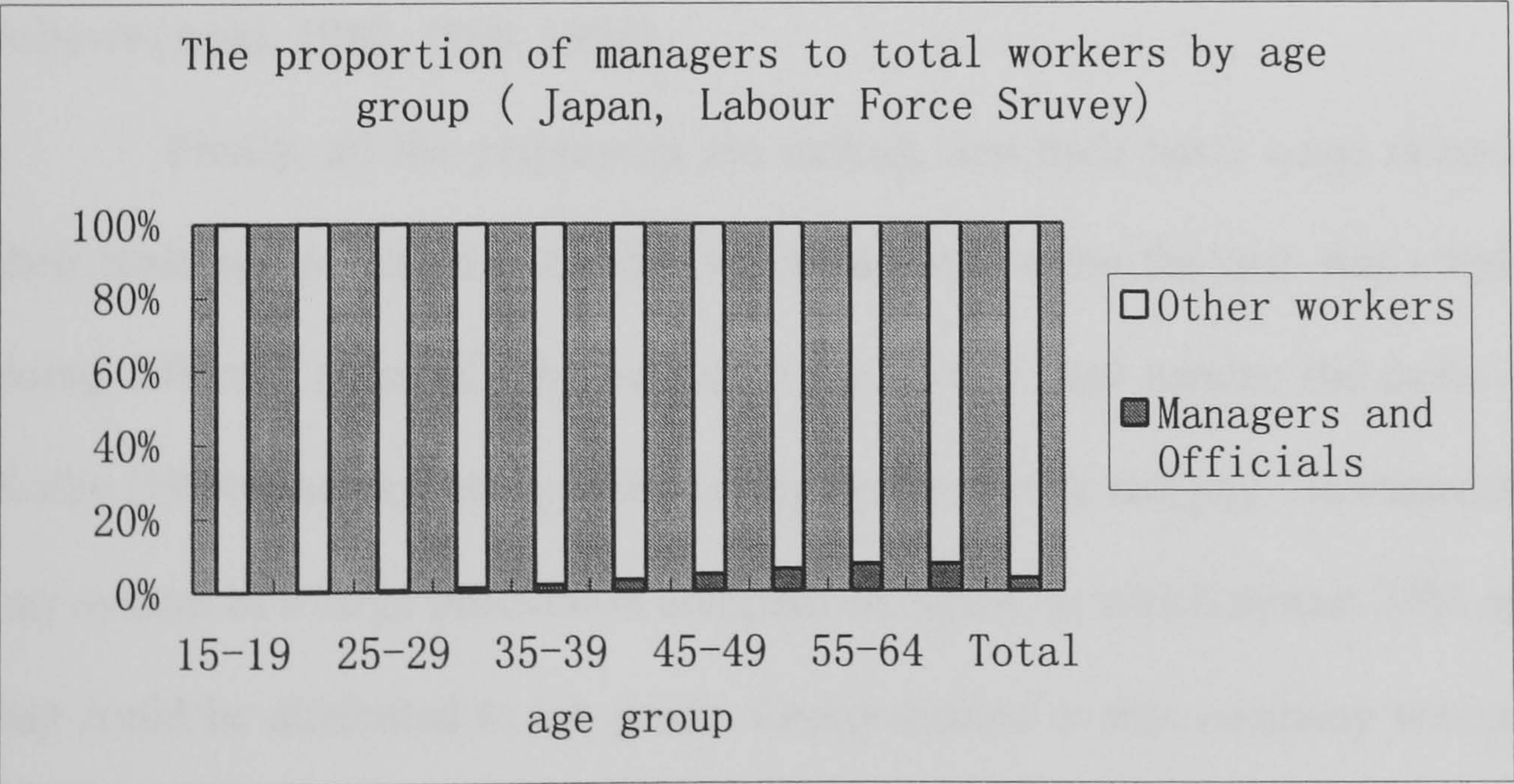
Graph (3-1) shows the proportion of managers to total workforce in each age group. In the UK, significant proportions of the workforce are managers in the 21-24 age group. In Japan, managers start to account for a significant proportion in the age group 45+, reaching a peak in the group of 55-65. This obviously suggests that it takes longer to be promoted in Japan.

²⁰ The definition of manager is different in the two countries, it seems that the British definition of manager is much broader than Japanese definition.

Graph 3-1 Proportion of managers to total workforce in the UK



Graph 3-2 Proportion of managers to total workforce in Japan



3.5. The Internal Structure of Large Japanese Firms

In previous sections, it was suggested that there is a difference in internal structure between Japan and the UK. In this section, we will examine the employment structure of large Japanese firms. Firstly, we explain some stylised facts about this structure, which is often described in terms of ‘ranking hierarchy’ (Aoki, 1988). Secondly, we compare the features of this ranking hierarchy with those of rank order tournament. Thirdly, we show that the rank order tournament motivates workers effectively in large firms in Japan.

3.5.1. Ranking Hierarchy in Japanese Firm

The main characteristics of ranking hierarchy can be summarised as follows (Aoki, 1988, 1990, 1994).

Firstly, all the employees are ranked, and their basic wage is based on their rank, rather than the job they are doing. It is often the case that employees doing different types of jobs belong to same rank, and receive the same wage. Koike (1994) shows a strong relationship between rank and pay. He examined the pay system in a large production company in Japan, in which almost 75% of base pay could be attributed to job grade. Compensation in this company was mainly composed of four elements, namely ‘basic rates’, ‘age rates’, ‘job grade rates’ and ‘merit rates’. There is a correlation between job grade and these components. According to Tachibanaki (1987), a large part of the earnings difference between

employees in Japanese companies can be explained by their rank.

Secondly, newly recruited employees are allocated to the bottom rank of the hierarchy. They compete with each other for faster promotion. Decisions about promotion are mainly based on tenure and the boss's assessment. Tomita (1992) studied the individual level micro-data in a bank, and found that promotion is positively correlated with tenure and assessment.

Koike (1994) gives the example of the job grade system for blue-collar workers in a large Japanese automobile company, suggesting that both relative and absolute performance evaluations are used. There are eight grades for blue-collar workers, from p1 (junior workers) to P8 (foreman). New employees are allocated to the p1 grade, and compete with each other for faster promotion, which is based on skill development, such as breadth and depth of experience. One of the most important characteristics of this grade system is that the number of employees is not limited at the grades p1-p5, which means that all workers who have the necessary breadth and depth of skills will be promoted up to the p5 grade. For example, the criteria for promotion to P5 (group leader) level are 1) the ability to perform all tasks in the subforeman's unit, and to teach these tasks to others. 2) the ability, as a leader, to promote quality and productivity in the unit. It is clear that workers are required to develop a wide range of skills. Once they are considered to meet these criteria, they are promoted. Thus, assessment is based on each employees' absolute performance. For the higher positions, on the other hands, i.e. job grades p6-p8, the number of slots is fixed, as these grades are directly connected with functional posts: Grade p6 corresponds to subforeman, and grade p7 and p8 correspond to foreman. As the number of positions is fixed

for these jobs, it is considered that absolute performance evaluation should not be widely used.

Some authors suggest that the assessment of white-collar employees is based on relative performance evaluation in typical large Japanese companies (Hanada, 1994, Tomita, 1992). For example, employees may be evaluated as 'good', 'normal', or 'bad'. The proportion of each category is fixed in advance. Usually, 50-60% of the employees are rated as 'normal', and 25-30% are rated as 'good' or 'bad' (Hanada, 1994). Investigating a particular bank in Japan, Tomita (1992) showed that white-collar employees were assessed in this way.

Thirdly, it is often said that 'slow promotion' is one of the characteristics of large companies in Japan. There is little difference among employees as to speed of promotion at early stages of their careers, but a wider difference can be observed after 10-15 years of tenure (Tomita, 1992, Koike ed., 1991a, Hanada, 1994).

Tomita (1992) shows that the difference in rank among colleagues is not observed until 10 years after joining the company. According to his data, there is little difference in rank between employees who have been in the company for 12 years since graduating high school, though the company has been evaluating each individual throughout. After 16 years, however, a significant difference in rank can be observed. Koike ed. (1991a) also shows that selection among workers is observed after 15 or more years with the company, though this selection is based on their assessment over all the years they have been there. Based on interviews with almost 60 companies, Koike gives some examples of slow promotion. In a typical Japanese firm, some employees are appointed to managerial positions

when they are about 40 years old. Some are assigned to sectional managerial positions, and the rest to non-managerial positions, which is typically a lower rank compared with managerial positions. Until then, the differences among employees are not apparent.

Hanada (1994) analysed the career of employees in a number of Japanese companies. He examined the careers of 259 employees, all of them male university graduates, who joined a manufacturing company in the same year. All these employees were promoted to level 2 or *Kakaricho* (section chief) after eight years. A difference in promotion speed could be observed in the 12th year, when 20% of them were promoted to *Kacho* (subdivision manager). Further, 24% of the employees were promoted to this level the next year. It took 24 years for the first cohort to be promoted to level five. These data clearly indicate the existence of slow promotion in large Japanese companies. In the 28th year after joining the company, 23.8% of them were upgraded to level 5, and 27.5% to level 4.

Fourthly, it may be the case that employees who fail to meet the required standards of their rank leave the company. It is sometimes considered to be disadvantageous to leave a company before retirement, in terms of working conditions. However, some do leave the company spontaneously because they realise that they have little chance of being upgraded. Others are forced to leave by their employer. The company may lay off them explicitly, or simply suggesting that they leave. The company may provide them with another job, in a subsidiary company, for example. In many cases, those who leave a company in the middle of their career will be unable to find a better or even comparable job. Their wages

may be smaller, and their new positions less powerful²¹. Because of these disadvantages, workers are reluctant to leave their original companies²².

According to Hanada (1994) people who fail to be promoted are highly likely to leave the company before reaching official retirement age, stating that there is a strong negative correlation between promotion speed and likelihood of leaving the company. Hanada examined this relationship using individual data from a well-known company. In this company, the selection of employees for promotion to level two positions begins 12 years after they join the company. In the 12th year, 20% of the cohort are selected for promotion to level 2. Others are promoted during the 13th-16th years. Among those who are promoted in the 16th year, 71% leave the company thereafter. It takes 16 years for even the first selected group to be promoted to level 3 position, and more than 22 years for others. Of those who take more than 22 years to be promoted to level 3, 92% leave the company²³. Similarly, it takes 20 years for first selected group to be promoted to level 4, and 25 years for the less successful. Among these latter, 91% leave the company. In contrast, those who are selected for fast promotion rarely leave the company before retirement age. These data clearly illustrate that there is severe competition among employees for faster promotion, and that those who do not succeed are highly likely to leave.

²¹ It is often the case that people change their company at a very early stage of their career, for example, 2 or 3 years after they graduate. This is not considered to compromise their career.

²² Those who have special skills, or who are 'head hunted' by foreign institutions, may be offered better conditions, but these are considered to be a special case.

²³ These losers may leave the company spontaneously, or the company may suggest that they do so. They may be able to find another job in a group company.

3.5.2. Comparison between Ranking Hierarchy [RH] and Rank Order Tournament [ROT]

There are both similarities and differences between ranking hierarchy [RH] and rank order tournament [ROT].

Firstly, in both systems, an employee is promoted if he meets certain criteria. In ROT, promotion is solely based on relative performance evaluation, with the employee getting promoted if he achieves the best performance among his colleagues. In RH, tenure and assessment by the line manager are the two important factors for promotion. The assessment may be based on either absolute or relative performance. Koike states that absolute performance evaluation is used at the shop floor level. Some research suggests that white-collar workers are assessed by relative performance in large Japanese companies (Tomita, 1992, Hanada, 1994, Koike, 1994). On the other hand, Miyamoto (1999) states that employees are promoted to a higher rank on the basis of their absolute performance. As there is no explicit limit to the number of employees who can belong to certain ranks of the company, employees may be promoted when they have met certain criteria.

Secondly, in ROT, the number of employees promoted to the upper ranks is fixed in advance while this is not necessarily so in RH, though see Koike (1994), Hanada (1994) who suggest that the number of promotion slots is fixed for managerial positions.

Thirdly, in both systems, the amount of pay depends on rank rather than

individual or company performance. In RH, the base pay will be fixed in the short run. In ROT, the amount of pay for each rank is fixed in advance.

Fourthly, in ROT, the pay gap between ranks may be larger than the actual difference in productivity. This difference can be an incentive device for other employees, encouraging them to work hard to be promoted.

The two systems are different when it comes to companies which are growing rapidly. In this situation, many managerial positions are still to be created in the future, and the company will not need to use relative performance evaluation as there may be enough positions for all the employees who meet the relevant criteria. In contrast, if a company is not growing, the number of managerial positions will be fixed, and in such a case, relative evaluation is more appropriate than absolute performance evaluation. In general, as the growth rate of large Japanese companies slows down, we can say that the two systems become closer.

Koike (1994) showed 'ranking hierarchy type' promotion being used for blue-collar workers in a factory, with promotion based on absolute performance. By contrast, Hanada (1994) states that the number of managerial position is fixed, suggesting that 'rank-order tournament type' promotion is used to fill managerial positions with white-collar workers. These studies suggest that both ranking hierarchy and rank order tournament are used in large Japanese companies.

3.5.3. Can Rank Order Tournament Work Effectively in Large Japanese Companies?

According to Lazear (1995), one of the most important advantages of rank order tournament over the piece rate pay system is that companies can reduce their spending on monitoring employees' performance. In other words, this system works effectively if it is not easy for companies to assess the performance of individual workers²⁴. As many scholars have suggested, in large companies in Japan, job descriptions are typically less clear cut than they are in western companies (Aoki, 1988,1990, Ito, 1994, Kagono, et al., 1983). In other words, it is difficult to determine each worker's contribution because the responsibility of each worker is not well defined. Rank order tournament may be effective in this situation, as exact performance figures are not required to assess each worker.

Rank order tournament is supposed to be less effective if co-operation is very important, because of relative performance evaluation. Employees may engage in uncooperative behaviour in order to outdo their rivals. Considering that a co-operative attitude is one of the most highly-valued skills in Japan, it would appear that rank order tournament type pay/promotion scheme can not work, since relative performance evaluation is considered to discourage co-operation among workers. However, many Japanese companies avoid this problem by emphasising co-operative behaviour in assessing its employees. In typical Japanese companies, factors like a co-operative attitude, willingness to help others, and ability to

²⁴ Otherwise, piece rate pay may be better to motivate employees.

communicate with other team members, are important criteria in assessment. In this way, employees are supposed to ‘compete to co-operate’, and co-operative behaviour can be encouraged even under relative performance evaluation²⁵.

One of the problems with this is that employees may merely behave as if they are co-operating with their colleagues. As it is not an easy matter to assess someone’s ‘attitude to co-operation’, employees may choose to be seen to co-operate. It may be the case that an employee colludes with his boss. In large Japanese companies, this is typically avoided by frequent job-rotation (Koike, 1991b). As well as learning new skills, employees will work with many bosses, helping the company to assess them with less bias. In other words, there is less possibility that an employee will collude with a particular boss.

We can summarise our discussion as follows. The ranking hierarchy and rank order tournament have similar structures, particularly when the company is not growing rapidly. In addition, as employees in large companies are assessed by their attitude to co-operation, it is unlikely that they will sabotage each other. In other words, the ranking hierarchy can be effective as an incentive device.

This leads us to another question: Do Japanese firms have tournament type pay structure? We will address this question by examining the determinants of pay gap between director and employees. Tournament theory suggests that the pay gap will be larger when employees see themselves as having less chance of being promoted. If the pay gap is large enough, and if employees think they have at least a fair chance of being promoted to director, they will have an incentive to

²⁵ There is a problem of collusion of employees in rank order tournament scheme. Employees may collude each other not to work hard. But in typical Japanese firm, this problem is avoided by frequent job rotation.

work hard. If they think that their chances are slim, the pay gap will have to be large enough to motivate them. Thus, we suggest following hypothesis which we will test this hypothesis in chapter 6.

Hypothesis 3-4: The pay gap between director and employee is in a negative relationship with probability of promotion to director in Japan.

3.6. Summary and Conclusion

This chapter has reviewed previous studies into the determinants of directors' remuneration in Japan and the UK. Rank order tournament theory was also explained. In addition, we examined differences in the promotion patterns of directors in both countries. The internal employment structure of large Japanese firms was also discussed.

As seen in the previous chapter, shareholders have considerable power over top directors. In response to the Cadbury and Greenbury recommendations, many large British companies are trying to strengthen the link between pay and performance, for example, by setting up remuneration committees composed of outside directors. Thus, this research hypothesises that there is a positive relationship between directors' pay and company performance in the UK. In Japan, by contrast, it is hypothesised that there is a positive relationship between director's' pay and employees' wage in large firms. This hypothesis implies that

directors in large Japanese firms have incentives to look after their employees' wages. These hypotheses are tested in chapters 5 and 6.

Although there have been many studies into the determinants of executive compensation, relatively few have been done on the effect of companies' top pay policies on their performance. This research aims to do exactly that. Principal-agent theory predicts that director's incentive will increase as pay-performance sensitivity increases. Thus we hypothesise that companies with high pay-performance sensitivity are more likely to perform well. It is further hypothesised that companies with annual incentive schemes are more likely to improve their performance. These hypotheses are tested in chapters 7 and 8.

This chapter also summarised the results of empirical studies of the determinants of executive compensation in Japan and the UK. Although a strong relationship between size and top pay is observed in both countries, it is controversial whether or not there is a relationship between pay and performance.

Moreover, rank order tournament theory was discussed as well as the promotion pattern of directors in Japan and in the UK. Previous studies suggested that it takes longer to be promoted to the director in Japan. Census and Labour Force Survey in both countries also suggest 'slow promotion' in Japan.

Lastly, this chapter explained some characteristics of the internal structure of Japanese firms, often described in terms of 'ranking hierarchy'. It was shown that ranking hierarchy can be an effective incentive device for employees,

as there are many similarities with rank order tournament. We then hypothesised that there is a negative correlation between the possibility of employees getting promoted to the position of director and the pay gap within the company. This hypothesis will be tested in chapter 6.

Chapter 4. Data Sources, Variables, and Basic Statistics

4.1. Introduction

This chapter examines various types of data on executive compensation in the UK and Japan. Some basic statistics of executive compensations are also given.

One of the difficulties in analysing the determinants of executive pay in Japan lies in obtaining a good data set. The remuneration packages of individual directors are not usually disclosed. Neither the commercial code nor stock exchange listing rules require companies to disclose this information. In this chapter, we present some of the data which are available on executive pay in Japan in order to examine the strengths and weaknesses of each types of data. It is shown that ‘annual report’ data are less biased and more reliable than ‘income tax data’. In addition, some basic statistics about executive compensations are given, using various data sources, in an attempt to investigate the real nature of top pay in Japan.

Similarly, this chapter also examines some data sets relating to executive compensation in the UK. More large British firms are disclosing the details of

their directors' remuneration packages in response to the recommendations of the Cadbury and Greenbury committees. We explain the strengths and weakness of each data set. In addition, basic statistics on directors' remuneration are shown. Lastly, we summarise the discussion.

4.2. Japanese Data

In this section, we examine some data sets relating to directors' remuneration in Japan. The strengths and weaknesses of these data sets are discussed in order to establish which is most appropriate for this research. This section also gives some basic statistics from our data in order to compare it with data used in previous studies.

4.2.1. Sources and Variables of Executive Pay

As mentioned above, the amount of executive compensation for each director is not usually disclosed in Japan, so, we can not directly observe the amount of compensation for CEOs in large companies. Instead, listed companies are required to report the total amount of remuneration for all their executives. Several previous studies on executive pay have used this data, while others use data based on income tax. In addition to this, some private institutions in Japan do collect and disclose a certain amount of data on top pay. We will discuss the strengths and weaknesses of these various data sets in this subsection. Table (4-1) summarises the main characteristics of the available data sources on executive pay in Japan.

Table 4-1 Executive compensation data in Japan - 1

Data source	Company Annual Report	Income Tax	Seikei Kenkyusyo (The Political Economy Research Institute)	Romu Gyosei Kenkyusyo (the Labour and Administration Research Institute)
Time Period	Every year	Limited	Almost every year	Almost every year
Sample Company	All listed companies	Limited	Limited	Limited
CEO Pay?	No	Yes	Yes	Yes
Director's average pay?	Yes	No	Yes	No
Pay or Income?	Pay	Total income	Pay	Pay
Performance?	Yes	No	No	No
Company name?	Yes	Yes	No	No
Available from	NEEDS DATABASE	Tax office	Seikei Kenkyusyo	Romu Gyosei Kenkyusyo

The amount of income tax is disclosed by the tax office every year, if it exceeds certain amount. However, there is no survey that calculates and discloses directors' actual income every year.

Data Based on Annual Reports

Listed companies are required to report the total amount of the directors' monthly pay and their bonus. As they disclose all the names of their directors, we can then work out 'directors' average pay' and 'directors' average bonus'. These figures are disclosed in companies' annual reports, and are available from the NIKKEI NEEDS DATABASE.

This data set has its advantages. One of these is that it is the only data disclosed by individual companies themselves, showing how much they pay. As these data are disclosed with other financial statement of the company, it is not difficult to match company performance and directors' compensation.

The other advantage is that we are able to obtain a relatively large number of samples, every year, as all the listed companies (more than 1000) are included in this database. Hence, it is possible to examine pooled data, which is considered to be important as many researchers focus on longitudinal data in analysing executive pay.

In addition, we can analyse directors' base pay and bonuses separately. There are two types of executive compensation in Japan: One is base pay, which is paid monthly, and the other is the bonus, which is paid at the end of the company fiscal year. Directors' base pay is disclosed as an item in the profit and loss account, while their bonus is disclosed as an item in the distribution of profit table. It may be an advantage that we can analyse bonus and pay separately. It is often said that directors' pay is relatively fixed, not reflecting the company's current or previous performance, while their bonus will vary according to the company's

performance.

We obtain ‘director’s average pay’ by dividing ‘pay bill for directors’ by ‘number of directors’, which is disclosed in the annual report. It should be noted that there is a possibility that the resulting figures will be smaller than the real figures. Firstly, there may be hidden payments made to some non-title directors¹. In many large companies in Japan, it is often the case that a non-title director is also an employee of the company.

When a new director is appointed from among the employees, the chosen employee usually terminates his existing contract, and makes a new one as a director. However, in some cases, the employee retains his old contract as an employee while also entering into his new one. In this case, the person receives both his employee’s salary and his director’s salary². Usually, most of his salary consists of his employee’s wage. Many companies do not include this part of the salary in their pay bill for directors.

Secondly, the number of directors³ includes the number of auditors. As described above, the directors’ average bonus is calculated by dividing total directors’ bonus by the number of directors. The number of directors includes not only directors, but also auditors. But in some companies, auditors receive only monthly pay, and do not receive any bonus because this is considered to be a

¹ As described in chapter 2, non-title directors in Japan are usually full-time directors. Therefore, they are different from non-executive directors in the UK. Non-title directors are called ‘non-title’ as they belong to the bottom layer of the hierarchy in the board of directors.

² Usually, the total amount of his salary is almost the same as that of directors who are not employees of the company.

³ In our sample, the average number of directors in a company is 29.2. The maximum number of directors in a company is 60 while minimum is 9 in our sample.

reward for performance. Thus, the calculated 'director's average bonus' can come out smaller than the real figure. Taking this into account, this research focuses not only on the level of pay, but also on the change of pay, which is less affected by these problems.

Data Based on Income Tax

The other data source on executive compensation is the income tax of top directors. The amount of income tax someone pays is disclosed by the tax office if it exceeds a certain amount. As the income tax of the president of a large company may exceed this threshold, it will be possible to estimate his income by consulting the income tax table.

For example, Seikei Kenkyusyo (The Political Economy Research Institute), a private research institute, disclosed the income of presidents in some large Japanese companies in 1991, using data from the tax office (Seikei Kenkyusyo, 1992).

The advantage of this data set is that we can examine the individual income of presidents. As it is based on individual data, it is possible for us to analyse the relationship between company performance and the top director's income. This may make it easier to compare the results of our analysis with previous studies done in other countries, as most do use data sets based on individual compensation. In addition, in some companies, we can observe the income of senior directors, in addition to the income of president.

However, there are also some disadvantages with this data set, namely

bias in estimating income, the problem of sample selection, and the problem of data availability.

As this data set is based on income tax, estimated income includes not only directors' salary from the company, but also other income from various sources, meaning that their income is likely to be overestimated. For example, it may be the case that the president of a company is also a director of one of their subsidiary companies or other companies. For example, the chairman of Seven-Eleven Japan in 1992, was also a chairman of Denny's Japan, and a president of Ito-Yokado. We cannot know what proportion of his income came from each of these companies. Thus, it will be difficult to examine the relationship between firm performance and compensation.

Secondly, the income tax office only reveals the amount of income tax paid by those who earn a considerable amount. As some directors do not receive such high compensation, the sample obtained by this approach is incomplete.

A third important problem is that it is not easy to obtain income tax-based data every year. No other research institution calculates and discloses their income every year. The most recent obtainable data set is from 1991 (Seikei Kenkyusyo, 1992).

Seikei Kenkyusyo Data

Seikei Kenkyusyo (The Political Economy Research Institute) a private research institution, publishes executive compensation data every year (Seikei Kenkyusyo, 1995), in addition to the data set based on income tax mentioned above. They collect their data through questionnaire surveys and interviews. Their

data contains both listed and non-listed companies, though the sample size is not that large; For example, their 1995 data includes 55 listed companies, among them, 41 listed in the premier section of the Tokyo stock exchange. There are also 164 unlisted companies in the set.

One advantage of their data is that it shows individual compensation paid by companies. In addition, the compensation for different positions within the board is given for some companies. For example, they show the compensation of the president, the senior executive directors, and the non-title directors.

On the other hand, neither the name of the company nor its performance is disclosed, making it impossible to match executive pay and company performance.

Romu Gyosei Kenkyusyo Data

Romu Gyosei Kenkyusyo (the Labour and Administration Research Institute) collect top pay data through questionnaire surveys and interviews and disclose this in their journal *Rosei Jihou* (*Romu Gyosei Kenkyusyo*, 1997, 1995, 1995, 1994, 1993, 1992, 1990, 1988, 1986). These data are different from previous sets. As they show only average compensation across companies, we can not obtain the relevant information for individual companies. Thus, it is clearly not possible to match company performance and director's salary. *Romu Gyosei Kenkyusyo*'s survey includes the compensation of non-title directors.

Comparison of Data

Which of these data sets should we use? In order to decide, let us examine them in terms of reliability and availability. Starting with the question of reliability, we ask the following questions. Which data set contains the most accurate estimation of top pay information? Are their estimations biased? Is there any sample selection bias? Our argument is summarised in table (4-2).

Table 4- 2 Executive compensation data in Japan - 2

	Annual report	Income tax	<i>Seikei Kenkyusyo</i> (The Political Economy Research Institute)	<i>Romu Gyosei Kenkyusyo</i> (the Labour and Administration Research Institute)
Bias in estimating the pay bill for directors	Yes Pay bill may be smaller than actual amount.	N.A.	N.A.	N.A.
Bias in estimating the amount of individual top pay	Yes (may not be very serious) Estimated figure may be smaller than actual amount.	Yes Estimated figure may be larger than actual amount	Not definite Company may not give correct figures on top pay.	Not definite Company may not give correct figures on top pay.
Bias in selecting sample firms	No (All the listed companies discloses)	Yes Only CEOs whose income exceeds certain amounts are chosen	Yes Only those who received and responded to questionnaire	Yes Only those who received and responded to questionnaire
Who collects & discloses the data?	Company	Tax office	<i>Seikei Kenkyusyo</i>	<i>Romu Gyosei Kenkyusyo</i>

As discussed above, all the data sets have their advantages and disadvantages. Among them, *Romu Gyosei Kenkyusyo* and *Seikei Kenkyusyo* data are based on independent questionnaire surveys. Although the *Romu Gyosei Kenkyusyo* data do not reveal the director's salary for individual companies, the *Seikei Kenkyusyo* do.

One of the problems with these two data sets (*Romu Gyosei Kenkyusyo* and *Seikei Kenkyusyo* data) may be the reliability of their top pay figures. As these are collected by private research institutions through questionnaire surveys, we have little guarantee that they are reliable.

Further problems with the *Romu Gyosei Kenkyusyo* and *Seikei Kenkyusyo* data may lie in the sample selection. As sample companies are selected by these institutions, it may not be easy to control their various characteristics, such as size.

Turning to 'income tax data', the advantage of this is that it comes from the tax office. As their figures are collected for tax purposes, they are likely to be reliable. However, as mentioned before, the amount of top directors' income in this data contains not only their company salary, but also any income from other sources. For example, top directors may own some stocks in their company, some are founders of the company, or belong to the founder's family, in which case, they will have a considerable amount of stocks, and their income may include revenues from these, such as dividends or capital gains. It is clear, then, that the figures in this 'income tax data' may be considerably larger than people's actual salary from the firm.

'Income tax data' are also problematic with respect to its sample in that

the tax office only discloses the amount of income tax of people whose annual income exceeds a certain level. This is a serious problem because top directors who receive a relatively small amount of compensation will not be included. In other words, this ‘income tax data’ has some bias in selecting sample companies.

The top pay figures in ‘annual report data’ are based on company annual reports. The company discloses the ‘total pay bill for all directors’ and the ‘total amount of bonus for all directors’. These figures are reported in the financial tables of the annual report, and are audited by the CPA and reported to the Tokyo Stock Exchange. Thus, the ‘pay bill for all directors’ and the ‘total amount of bonus for all directors’ does show the actual amount of directors’ salaries, which are paid by the company.

However, ‘annual report data’ has some problems with the reliability of its figures. Firstly, there is the possibility that these will not contain some proportion of the salary of directors, i.e. that which is paid as ‘employee’s wage’, as described above, so, there is the risk that the ‘pay bill for all directors’ figures will be smaller than the true amount. In addition, there is the further possibility that the ‘director’s average pay’ figures in ‘annual report data’ may come out lower than they should be, because non-executive directors receive smaller salaries than other directors⁴. However, this problem is not particularly be serious, since most large Japanese companies do not actually have non-executive director.

One of the crucial advantages of ‘annual report data’ is that it allows us

⁴ As described above, we calculate ‘average director’s compensation’ by dividing ‘pay bill for all directors’ by the number of directors. It may be the case that the company has non-executive directors, though these are not common in large companies in Japan.

to obtain the pay data for all the listed companies⁵; In other words, there is little bias in selecting samples. As all the listed companies are included, we can control for various characteristics of the company, such as industry or size.

Which of these data sets is more reliable? Each set has advantages and disadvantages from the viewpoint of reliability. Data based on public information ('income tax data' and 'annual report data' in the Tokyo stock exchange) may be more reliable in the sense that the data are collected via more standardised procedures, such as tax law, company law and stock market exchange rules.

It may be true that questionnaire survey data are useful for examining top pay in Japan, but there is some risk of sample selection bias. In addition, as these data are collected and disclosed by private institutions, it is not easy for us to assess their accuracy and reliability. 'Income tax' data also suffers from some biases in its sample selection. In addition, their data disclose the general income of the top directors, rather than their salary from the company in question.

Although 'annual report' data may also suffer from some bias, this may not be very serious, as noted above. In addition, there is little bias in sample selection, which may make the data more reliable.

Let us next examine the data sets from the viewpoint of availability. Recall that one of the main purposes of this research is to analyse the relationship between directors' pay and company performance. This requires that information on both the executive salaries and the performance of individual companies is

⁵ NIKKEI data base also contains financial information of some large non-listed companies, in

available.

This suggests that neither *Seikei Kenkyusyo Data* nor *Romu Gyosei Kenkyusyo Data* are not appropriate for our needs as they do not allow us to match firm performance with executive compensation. In addition, these data sets are not available every year. In other words, we cannot obtain panel data to analyse the relationship between director's salary and firm performance. Thus, *Seikei Kenkyusyo Data* nor *Romu Gyosei Kenkyusyo Data* may not be appropriate for our research from the viewpoints of data availability. Similarly, we cannot obtain panel data sets using 'income tax data', as it is not available every year.

We can construct panel data sets using 'annual report' data, as this is disclosed every year and is available through the NIKKEI NEEDS DATABASE. It is considered to be important to use panel data in our analysis because these are micro data. Firm level data are likely to be affected by firm-specific factors, unless we use panel data, where these factors can be excluded to some extent (Baltagi, 1995, Greene, 1993). In addition, we can observe 'changes in top pay', as well as the level. Much of the research on the determinants of executive compensation focuses on the relationship between change in top pay and change in company performance. One reason for this may be that this relationship is considered to be stronger than that between the *level* of top pay and company performance, as these are affected by many other factors. We suggest then that 'annual report data' are more appropriate from the viewpoint of availability as well as reliability.

addition to those of listed companies.

4.2.2. How Much do They Earn?

In this sub-section, we examine the basic characteristics of executive compensation in Japan. The main questions to be addressed are as follows. How much is the directors' average salary in a large Japanese firm? Is there any difference between presidents' pay and that of other directors? Table (4-3) and (4-4) summarises directors' pay figures, as reported in previous studies on directors' salary as well as in other articles. We will also analyse why some figures are much lower than others. Table (4-5) summarises top pay data by position within the board.

Table 4-3 Executive pay in Japan: Data from various sources

	Tachibanaki (1997)	Kato et al (1992)	Xu (1992)	Xu (1997)	Kaplan (1994)	Kubo (2000)
Directors' salary (1995 yen)	36.6 m JPY (193,000 GBP)	50.8 m JPY (267,700 GBP)	37 m JPY (195,000 GBP)	28.3 m JPY (149,000 GBP)	18.2 m JPY (96,000GBP)	19.4 m JPY (102,000 GBP)
Whose salary or income?	President's salary	President's income	President's salary	Average pay per director	Average pay per director	Average pay per director
Year	1992	1985	1984-1987	1983-1991	1981-1984	1995-1996
Sample	1569 Large firms (Employees, 1000+)	599 firms	37 firms, 104 samples	82 listed firms	121 largest listed firms	210 listed firms
Source	Questionnaire	Income tax	Seikei Kenkyusyo	Annual report	Annual report	Annual report
Top pay/Wage ratio			6.5	5.25	4.8	2.38 ⁶

1. 1 GBP = 190 yen
2. JPY: Japanese yen, GBP: Sterling pound, USD: US dollar
3. Tachibanaki's figure is based on their original questionnaire survey. They do not ask about executive compensation directly, but ask respondents to choose one of 7 ranges of pay level, such as 30 million JPY to 50 million JPY.
4. Top pay/wage ratio is the pay gap between director and employees. However, it may not be appropriate to compare these figures as each study uses a different method to calculate the ratio.
5. All the figures are in 1995 yen adjusted by consumer price index (CPI).

⁶ In our sample, the average wage for employees is 8.14 m yen, including both monthly wage and their bonuses.

Table 4-4 Executive pay in Japan: Data from various sources
(Continued)

	<i>Nikkei Business</i> (1998)	Seikei Kenkyusyo (The Political Economy Research Institute) (1992)	<i>Business Week</i> (1993)	<i>Nikkei Business</i> (1998)	<i>Romu Gyosei</i> <i>Kenkyusyo</i> (the Labour and Administration Research Institute)
Directors' salary (1995 yen)	46.5 m JPY (245,000 GBP)	3,244.8 m – 313.8 m JPY (17,078,000- 1,651,000 GBP)	858.7 m –47.4 m JPY (4,519,000- 249,000 GBP)	27.7 m JPY (146,000 GBP)	15.5 m JPY (82,000 GBP)
Whose salary or income?	President's pay	Chairman, vice chairman or President	Top executives	Non-title directors' salary	Non-title directors' salary
Year	1996	1991	1991	1996	1997
Sample	Companies whose capital is larger than 10 billion yen or 52.6 million GBP	All the listed and large non-listed companies	Top executives of the 50 largest Japanese industrial companies	Companies whose capital is larger than 10 billion yen or 52.6 million GBP	2653 firms All listed companies and large non-listed companies
Source	Questionnaire and interview by <i>Seikei</i> <i>Kenkyusyo</i>	Income tax	Income tax	Questionnaire and interview by <i>Seikei</i> <i>Kenkyusyo</i>	Questionnaire and interview
		Includes Business Week's data as a sub-sample			

1. 1 GBP = 190 yen
2. *Business Week*, April 26, 1993
3. *Nikkei Business*, January 5, 1998
4. JPY: Japanese yen, GBP: Sterling pound, USD: US dollar
5. All the figures are adjusted to 1995 yen by CPI.

Tables (4-3) and (4-4) show the level of executive compensation in Japan. These figures are based on different data sources, covering different times. Some figures show the president's income while others show the director's average salary. Some figures are based on the data from 1981-84, and others on the data from 1996. Thus, amounts of pay or income vary from sample to sample,

Notice that some data are much higher than others. Why, for example, is *Business Week's* data much higher than other data, such as Kaplan's? The largest figures are found in the data of Seikei Kenkyusyo and of *Business Week*, as they show the income of Japan's highest earning presidents. Both figures are based on the same income tax data, though Seikei Kenkyusyo's data cover a larger sample. In these data sets, the highest earning executive in Japan receives 3,245 million yen, or 17,078 thousand GBP. As this figure is based on income tax, it includes not only the salary from the company, but also various income from other sources. The smallest figure is found in *Romu Gyosei Kenkyusyo's* data: just 15.5 million JPY. One reason for this difference may be because he focuses on the average directors' compensation, rather than the president's income.

The above tables show that the presidents in Japan earn on average around 200 thousand to 250 thousand GBP. In addition, the average directors' salary is around 100 thousand to 150 thousand GBP.

As discussed above, presidents' salaries are likely to be overestimated while directors' average salaries are likely to be underestimated. For example, Kaplan's (1994) data may underestimate directors' average salary, due to the

presence of part-time directors and employee-directors⁷. Among the above samples, *Nikkei Business* (1998) and *Romu Gyosei Kenkyusyo* Data are free from this problem, as their data are based on questionnaires and interviews. According to *Nikkei Business*, the average director's salary is 146 thousand GBP on average for 1996, while *Romu Gyosei Kenkyusyo* gives a figure of 82 thousand GBP for 1997. This difference stems from a difference in their samples, namely that *Nikkei Business* data are based on much bigger companies, and suggests that size may be a major factor in explaining directors' pay in Japan. In our sample, the figure is 102 thousand GBP in 1994-95, suggesting that our data are not very different from that from other sources.

Table (4-3) also shows the basic statistics of our data set. We can compare this with other data in tables (4-3) and (4-4). This is an important way of checking the reliability of our data: We need to know how our data fit in with other data. In our data, director's average salary⁸ is 102 thousand GBP. Director's average salary in Xu's data set (Xu, 1997) is 149 thousand GBP, higher than the amount in our own data. Why should this be? One reason may be that Xu takes his data from an economic boom period. As will be described in chapter 5, in large Japanese firms, a certain proportion of profit is distributed to the directors when the company is in good condition. As many Japanese companies achieved good results during that particular period, directors' salaries may well have been

⁷ Some non-title directors in large Japanese firms are also employees of their company, and are paid both as a director and as an employee. Thus their salary is composed of employee's wage and directors' salary. As this 'employee's salary' proportion of their salary is not included in 'directors' pay', we cannot include this 'employee's salary' in our analysis.

⁸ Average director's salary in our data set in table (4-3) includes both director's pay and their bonus.

higher than (Okushima, 1996, Xu, 1997). In contrast, our own data set is based on the recession period of 1995-1996. As many companies suffered serious setbacks during that period, directors' salaries were almost certainly lower. Okushima (1996), Xu (1997) suggest that directors will not be paid bonuses when the company is not performing well. As many companies were in financial distress during our data period, some of them probably did not pay their directors any bonus. This may explain the discrepancy between our data and Xu's⁹.

Table (4-3) also shows the pay gap between directors and average employees. It is noticeable that the figures for this vary across studies. Our data set reports the smallest pay gap between directors and employees, namely 2.38. Why is the pay gap in our data set smaller than those in others? This may reflect the fact that the four studies all used different methods to calculate the pay gap. One study took employee's average wage from another data set (Kaplan, 1994) while another uses president's salary (Xu, 1992), rather than director's average salary.

Kaplan (1994) reports that the pay gap between directors and employees is 4.8. He compared director's average salary as calculated from his own data set with employee's average wage, which he took from another study. The average wage data in Kaplan's study are based on data about employed Japanese males, reported in other paper. In other words, he drew his information on director's salary and employee's wage from different samples. As the wage data he used may have been calculated from a much wider sample, the resulting average wage

⁹ In our sample from 1994-1995, the ratio of directors' bonus to their total annual income is 16%, as directors' average pay is 16 million yen while their bonus is 3 million. According to Xu (1997), the ratio of bonus to total annual salary of director is 26% in 1983-1991.

may be smaller than that in the largest companies. This means that the pay gap reported in Kaplan's data may be larger than it actually is in the large companies on which Kaplan bases his director's salary figure.

Xu (1992) reports that the average pay gap is 6.5, the largest among the four studies. However, it is not appropriate to compare this with the pay gap in our own data set, because Xu calculated the gap between *president's* salary and employee's wage, while we used director's average pay. As president's salary is likely to be larger than the average director's pay, it is reasonable to expect Xu's pay gap to be larger than ours. Xu (1997) calculates the gap between director's average pay and male employee's wage, but this is still larger than our own figure. This may be because his male employee's wage data include only cash compensation for employees, excluding benefit and other labour costs, while our own wage data do include labour costs. It has been shown that the main reason that the pay gap figure varies across studies is that each of them uses a different method and different data.

Table 4-5 Executive pay by position within the board in Japan

	Tachibanaki (1997)	Romu Gyosei Kenkyusyo (the Labour and Administration Research Institute)	Nikkei Business
Year	1992	1997	1996
Chairman (<i>Kaicho</i>)	44.94 m JPY (237,000 GBP)	36.62 m JPY (193,000 GBP)	45.39 m JPY (239,000 GBP)
Vice Chairman (<i>Fuku Kaicho</i>)	32.02 m JPY (169,000 GBP)		
President (<i>Shacho</i>)	36.65 m JPY (193,000 GBP)	34.15 m JPY (180,000 GBP)	46.54 m JPY (245,000 GBP)
Vice President (<i>Fuku Shacho</i>)	35.43 m JPY (186,000 GBP)	29.99 m JPY (158,000 GBP)	37.3 m JPY (196,000 GBP)
Senior Executive Director (<i>Senmu</i>)	22.06 m JPY (116,000 GBP)	22.94 m JPY (121,000 GBP)	27.94 m JPY (147,000 GBP)
Executive Director (<i>Jyomu</i>)	26.85 m JPY (141,000 GBP)	18.99 m JPY (100,000 GBP)	23.8 m JPY (125,000 GBP)
Non-title director (<i>Torishimariyaku</i>)	18.31 m JPY (96,000 GBP)	15.46 m JPY (81,000 GBP)	27.68 m JPY (146,000 GBP)
Sample	1569 Large firms (Employees, 1000+)	2653 firms All listed companies and large non-listed companies	Companies whose capital is larger than 10 billion yen or 52.6 million GBP
Source	Questionnaire	Questionnaire and interview	Questionnaire and interview by <i>Seikei Kenkyusyo</i>

1 GBP = 190 yen

JPY: Japanese yen, GBP: Sterling pound, USD: US dollar

Nikkei Business, January 5, 1998

Romu Gyosei Kenkyusyo (Labour and administration research institution), (1997),

“*Yakuin Hoshu Shoyo, Teinensei, Ote Chushobetsuno Zittai*” (Executive Compensation, Bonus, Mandatory Retirement, of large and smaller companies),

Rosei Jihou, No. 3305

All the figures are adjusted to 1995 yen by CPI.

There is very limited information available on the pay differences among directors within the board. Annual reports do not disclose such information. Table (4-5) shows the results of some surveys.

Tachibanaki (1997) and Noda (1995) report directors' salaries by their rank within the board. Their figures are based on questionnaires carried out on directors in Japan. The questionnaires are sent to listed firms and large life insurance companies that are not listed. It is worth noting that they do not ask for the actual amount of compensation, but ask simply for one of the pay categories. Their results show that the compensation of top executives (chairperson, vice chairperson, president, vice president) is much higher than that of other directors. In large companies with more than 1000 employees, the average salary of the chairperson is 237 thousand GBP while that of non-title directors is 96 thousand GBP.

It is not clear whether the chairman is the highest paid director or not. Among the three surveys in Table (4-5), two show that chairman is the highest paid position, while according to *Nikkei Business*, the presidents' salary is higher.

4.3. UK data

4.3.1. Sources and Variables of Executive Pay

This section examines available data sets on executive compensation in the UK. After discussing the strengths and weaknesses of each data set, we will explain why we chose to use the Monks partnership data. In the UK, listed companies are required by the stock exchange to disclose their highest paid executive's remuneration. Certain institutions collect and disclose information about top pay in the large companies: the Monks partnership, the Income Data Service (IDS), and DATASTREAM. Some characteristics of these data sets are summarised in Table (4-6).

Table 4- 6 Executive compensation data in the UK

Data source	Monks	IDS (1995)	DATASTREAM
Time Period	Every year		Every year
Sample Company	All listed companies	FT-250 companies	All listed companies
CEO Pay?	Yes	Yes	Yes
Detail of CEO pay?	Yes	Yes	No
Other Top Pay?	Yes ¹⁰	No	No
Performance variables included	Profit, EPS, Sales, and Capitalisation	Not included	Any performance variables

Data Published by the Monks Partnership

The Monks Partnership, a consulting firm, publishes a broad survey of executive compensation, giving details of directors' remuneration and the main performance figures for the firm. One of the advantages of this data set is that it reveals the details of directors' remuneration, showing the fixed salary and annual bonus of the highest paid director, in addition to the salaries of the five highest paid directors. This enables us to know if the company has an annual incentive or other long-term incentive scheme. Another advantage of their data is that it includes a large number of companies. In addition, as this data set is published each year, we can obtain pooled data.

The disadvantage of the Monks partnership data is that it contains only limited information on company performance compared to DATASTREAM. However, it is considered that Monks' data contain enough variables for our analysis: profit, earnings per share, and stock market capitalisation.

DATASTREAM

The strength of DATASTREAM is that it contains a lot of information on the financial condition of companies. DATASTREAM is a large database that includes not only company account data but also macroeconomic indicators. In particular, it contains very detailed information on the company's financial tables, in addition to stock market data. This database also shows the salaries of the highest paid directors. Thus, it is possible to analyse the relationship between the

¹⁰ The salaries of the top five highest paid directors are shown.

salaries of highest paid director and the performance of companies. Another advantage of DATASTREAM is that it covers all the listed companies and many others besides.

The disadvantage of DATASTREAM is that it does not give detailed information about directors' remuneration, showing only the highest paid directors' salaries. It does not tell us the amount of fixed pay, annual bonus, and other incentives.

Data Published by the Income Data Service

The Income Data Service (IDS) discloses some information about directors' remuneration. For example, IDS (1995) gives the top pay in FT 250 companies. They show the amount of CEO pay as well as fixed pay and annual bonuses. IDS's data set covers 250 companies, which makes it smaller than the other two sets. One of the weaknesses of IDS is that it is not disclosed every year. As a result, we may not be able to obtain a pooled data set and it will not be appropriate to use IDS's set as the main data for our research.

Comparison of Data

Which of these data should we use as our main data set? One of the most important points is that in all of these sets, most figures, including top pay data, are based on the same source: the company's annual report. Most previous studies on executive pay in the UK use such data.

Since all the data sets are based on the same source, there will be little difference in their reliability. What about availability? Firstly, note that IDS's data

may not be appropriate for our research, as we cannot obtain panel data sets. As discussed above, this data set is not published regularly. The choice is then between DATASTREAM and the Monks partnership. One of the strengths of DATASTREAM is that it contains various financial data from the company, on the other hand, it provides limited information about top pay. By contrast, the Monks partnership provides very detailed information on top pay. As our main concern is with executive compensation, the Monks partnership data will therefore be very useful. In addition to giving the amounts of directors' salaries, they also show whether the company has some kind of pay scheme, such as an annual incentive scheme. Bearing all this in mind, we shall use the Monks partnership's data, rather than DATASTREAM's. This is in keeping with the main goal of our research, which is to analyse the relationship among executive compensation, corporate governance, and firm performance, with special emphasis on directors' incentives.

4.3.2. How Much do They Earn?

In this sub-section, we examine the basic statistics on directors' pay in the UK. As mentioned above, many large UK companies disclose the salaries of individual directors, and we are therefore able to focus on top directors' pay. Table (4-7) summarises the amounts of top director's salaries reported in various studies.

This table shows that the amount of directors' pay varies according to the sample. For instance, according to IDS (1995), top directors in FT-SE 250 firms are paid on average 588 thousand GBP in 1994/5, while Conyon and Nicolitsas's data show the median pay of top directors of small companies to be just 66

thousand GBP in 1992. These figures suggest a positive correlation between firm size and directors' pay, as shown in many previous studies.

Table (4-7) also shows top executive compensation data according to our data set. The average top director's pay in our set is 225 thousand GBP, based on a sample of 1431 companies in 1994-95. As our data set is much larger than the others, it includes many relatively small listed companies, meaning that the top director's salary figures may be smaller than those in other studies that focus on large companies. For example, IDS (1995) reports that the average top executive compensation in FT-SE 250 companies is 588 thousand GBP, much higher than the figure in our sample. Conyon (1997) reports an average figure for top director's pay of 254 thousand GBP, which is similar to that in our data.

The above discussion suggests that some proportion of the variation in top director's pay across studies in table (4-7) may be attributed to differences in the samples in terms of firm size. As average top pay in our data set is lower than it is in the data sets using larger companies as a sample, it is appropriate to conclude that our data set is consistent with other data sets.

Table 4-7 **Executive pay in the UK (in GBP)**

Table 4-7 **Executive pay in the UK (in GBP)**

	Gregg, Machin, Szymanski (1993)	McKnight (1996)	IDS (1995)	Conyon (1995)	Conyon and Leech (1994)
Total pay	183,901 (median)	485,639 (mean)	587,833 (mean)	222,699 (mean)	140,027 (mean)
Year	1982-1991	1994	1994 / 95	1990-1994	1986
Sample	288 large listed firms	90 listed firms	FT-SE 250 companies	28 Privatised Utilities	294 listed firms
	Cosh and Hughes (1997)	Conyon (1997)	Conyon and Nicolitsas (1998)	Kubo (1999)	
Total pay	151,373 (median)	254,991 (mean)	65,684 (median)	225,915 (mean)	
Year	1994	1988-1993	1992	1994-1995	
Sample	64 electrical firms	213 listed firms	39 small firms	1431 listed firms	

All figures are adjusted to 1995 GBP by retail price index (RPI).

4.4. Summary and Conclusions

This chapter has examined some data sets on directors' remuneration in Japan and in the UK. One of the problems in studying directors' pay in Japan lies in the difficulty in obtaining sufficient information. Listed firms are not required to disclose details of the pay packages of individual directors. This chapter reviewed some of the data sets that are available, examining advantages and

disadvantages of each. It was suggested that 'annual report data' are more reliable than other sources. One reason for this is that such data are least affected by biases, although it must be said that all of the available data sets do have some biases. There is relatively little bias in the selecting of samples in 'annual report data': All the figures are reported using standardised procedures, such as company law and stock exchange listing rules. In addition, these figures are audited by CPA.

In addition, 'annual report data' have some advantages from the viewpoint of availability. We can use large pooled data, as it is possible to obtain a large number of observations for each year. 'Annual report' data also shows the actual salary the company pays directors, while the alternative data source shows only their total income.

Using various sources and empirical studies, then, it was shown that the average income of company presidents in Japan is around 170 thousand to 250 thousand GBP while the average director makes around 100 thousand to 150 thousand GBP. However, it was noted that there are big differences in the figures across studies.

We also examined some available data sets on executive compensations in the UK, showing the strengths and weaknesses of each set. It was suggested that Monks' data set contains the most detailed information on executive pay, including the amount of fixed pay, and annual incentives.

Previous studies have shown that top directors in the UK receive around 90 thousand – 600 thousand GBP on average. The amount varies across studies as the figures are taken from different time periods and samples. It was suggested that there is a positive relationship between company size and top pay, and that

top pay seems to have increased rapidly in the last 10 – 20 years, as suggested by earlier work.

The overall purpose of this thesis is to analyse the relationship between directors' pay, corporate governance, and firm performance. Using these data sets, we will analyse these relationships in the following chapters. In Chapters 5 and 6, we analyse the determinants of executive compensation in Japan and in the UK.

Chapter 5. The Determinants of Executive Compensation: Hypothesis and Methodology

5-1. Introduction

In Chapters 5 and 6, this research analyses the determinants of executive compensation in the UK and in Japan, following the literature review and institutional analysis in the previous chapters. The purpose of these chapters is to analyse the director's incentive in large companies in Japan and in the UK, with particular emphasis on the relationship between corporate governance and executive compensation. This chapter outlines the methodology and set of variables employed in this study.

In this chapter, firstly, we will explain the objectives of large companies in the UK and Japan. Then, we will examine how the difference in the corporate governance in Japan and in the UK affects the determinants of executive compensation in both countries. We employ the principal-agent theory to draw our research hypotheses in the UK, and employ a joint determination hypothesis to draw our hypothesis in Japan. In addition, we also show how directors' pay is paid in practice in these countries.

Then, we show our research models that are analysed in Chapter 6. Sets of

variables are explained and the expected effect of each variable on directors' salary is examined. Finally, we show our research model for both countries.

5-2. The Objective of the Firm in Japan and the UK

In this section, the objectives of large companies in Japan and in the UK are examined. We examine why directors in large Japanese firms are motivated to pay attention to the welfare of employees in managing the company.

5-2-1. The Objective of the Firm in Japan

Many studies suggest that Japanese firms are pursuing the welfare of their employees, rather than the interest of shareholders (Aoki, 1984, 1988, 1990, Aoki and Itami, 1985, Dore, 1987, Komiya, 1988, Itami, 1994, Iwai, 1988, Kagono and Kobayashi, 1988, Kuwahara, 1988, Tachibanaki, 1995, Noda, 1995). If this is the case, we can say that Japanese firms are similar to 'labour managed firms'. In other words, the firm behaves as if the true owner of the firm is an employee and the managers are agents of their employees. According to studies by Tachibanaki (1995) and Noda (1995), directors in large Japanese companies believe that one of the most important goals of directors is to protect employment and the welfare of their employees, although they are equally concerned with the financial well being of the company¹. Over ninety percent of directors believe that protecting the

¹ In addition, Tachibanaki (1995) and Noda (1995) point out that expanding their business, contributions to the society, and increasing dividend are important objectives of the top managers in large Japanese companies. Their studies are based on questionnaires whose sample was 2246 directors in large companies in 1992.

employment and employees' welfare is one of the most, if not most, important goals of directors. According to Kagono et al. (1983)², the most important objective of the Japanese company is the market share and new products, whilst share prices are least important.

5-2-2. The Reasons Why Managers are Motivated to Prioritise Employee's Welfare in Japan

The above arguments suggest that large Japanese firms prioritise employee's welfare. So why are managers motivated to prioritise the welfare of their employees in Japan³? There are three main reasons (Itami, 1993). Firstly, as seen in Chapter 2, shareholders of large Japanese firms have very limited power to control the top managers. There are very few non-executive directors in large companies. There is no remuneration committee or nomination committee in most companies. The current management team usually controls annual general meetings of shareholders. The board of directors and auditors have little power to control the president of the firm (Matsumoto, 1991, Kubori, 1996, Fukao et al. 1997).

In addition, the majority of shares of large listed companies is owned by other institutions, such as banks and group companies. Large shareholders try to control the company only when the company is in financial crisis (Aoki, 1990, Sheard, 1989, Kaplan and Minton, 1993). The financial market may fail to monitor

² Their study is based on a questionnaire survey of directors in large companies in Japan.

³ Milgrom and Roberts (1992) explain two main reasons why economists see shareholders as the 'owner' of the firm. One reason is that the physical asset is more vulnerable than human capital. Shareholders may have more authority to control the firm as they face greater risk than the owner of human capital, or than the employee does. The second reason is that the shareholders may have longer perspective than the employees do.

top directors as there are few hostile take-overs⁴ (Odagiri, 1994).

These arguments suggest that shareholders have very limited power to control top managers of large Japanese companies. In other words, directors may not be penalised even if they fail to achieve good stock market performance.

Secondly, most directors in large Japanese firms are ex-employees of the company⁵. It may be the case that some directors, at the same time as being directors of the company, are also employees⁶. In addition, the number of directors is very large in some large companies. In our sample, the average number of directors in a company is 29.2, while the maximum is 60. In the companies whose number of directors are very large, some directors may regard themselves as employees rather than top directors⁷. Thus, they are considered to have some incentives to pay attention to the welfare of the employees as they were, or they are, employees of the firm.

Thirdly, in Japan employees are considered to be ‘implicit investors’ to the company in a long-term employment relationship. It is often the case that an employee’s salary is less than his contribution to the company when he is young. His salary increases as he become older because of the seniority based pay system. When he becomes older, his salary may be more than his contribution to the

⁴ As discussed in chapter 2, many large Japanese companies own stocks in other large companies within the same company group to prevent being taken over. Because of this cross-shareholding, large shareholders may not withdraw their capital even if the performance of the firm is not satisfactory. Instead, these large shareholders try to intervene with the management team by sending new directors, for example (Aoki, 1990, Kaplan and Minton, 1993).

⁵ Both employees and ex-employees are implicitly investing in the company.

⁶ When an employee is nominated as a director, he usually quits being an employee. He is given a new contract as a director with the company and terminates the contract as an employee. However, in some cases, he continues the contract as an employee while he starts a new contract as a director of the same company. In this case, he is both an employee and a director of the firm.

⁷ It is often the case that these junior directors have responsibilities for certain divisions of the company.

company. In other words, he receives money that is implicitly deposited to the company. Because of this implicit investment, employees may be considered to be implicit equity holders of the company. In addition, whilst in long-term employment, many employees acquire firm specific skills. It may be the case that employee skills specific to the firm, are an essential asset to the company. If this is the case, employees may be the owners of asset that is the core asset of the firm.

The above argument explains why top managers in large Japanese firms focus more on employee's welfare, rather than shareholder's interest⁸.

5-2-3. The Objectives of the Firm in the UK

Much of the literature employs the principal-agent theory to analyse the relationship between top managers and shareholders⁹ (Gibbons and Murphy, 1990, Gibbons, 1997). As described in previous chapters, shareholders of large UK companies have more power to control top directors than those in Japan. In addition, many large UK companies are trying to strengthen the tie between executive pay and firm performance in response to Cadbury and Greenbury recommendations (Cadbury committee, 1992, Greenbury committee, 1995, Monks partnership, 1994, Williams, 1994). For example, many large UK companies have annual incentive schemes, to attempt to intensify the link between top pay and firm performance.

⁸ Formally speaking, large Japanese firms are not 'labour managed firms' as banks and group companies may exercise their power when the firm is in serious financial distress (Kaplan and Minton 1993). There are many studies that analyse the behaviour of labour managed firms (Mead, 1972, 74). They assume that labour managed firms maximise employee's wage subject to other costs. The company may not be insolvent by maximising employee's wage if they maximise wage on the condition that they pay all the costs, such as capital costs.

⁹ Kay and Silberston (1995) state that corporate managers should be regarded as trustees of the assets of the company and that the objective of the managers should be to further the interests of the business.

According to Monks partnership (1994), 71% of FT-SE 350 firms have annual bonuses. Managers may be motivated by these annual incentives to work hard to improve performance with a clear view of their goal, as annual incentive schemes may set some performance targets (Williams, 1994). Large UK companies also try to improve disclosure and accountability of executive compensation from the viewpoint of shareholders. For example, about 40% of the members of board of directors in large UK companies are non-executive directors. In 1992 most large UK companies had a remuneration committee (Conyon, Gregg and Machin, 1995).

In addition, top directors in large UK companies face more pressure from the financial market to improve stock market performance compared to those in large Japanese companies. Companies may be taken over if top directors fail to achieve good stock market performance. Many shares are owned by individual investors rather than by institutional shareholders (Prowse, 1994).

The above argument suggests that shareholders have considerable power over the company. Managers who fail to achieve good stock market performance may be punished by the financial market by hostile take-overs. In other words, directors in large UK companies have strong incentive to focus on stock market performance in order to manage the firm. .

5-3. The Determinants of Executive Pay

Following the discussions in the previous section, this section examines the determinants of executive compensation in Japan and in the UK. One of the main focuses in this section is on the effect of the corporate governance style on the

determinants of executive compensation.

5-3-1. Principal-Agent Theory

As described in Chapter 3, many scholars have studied the determinants of executive compensation. One of the main topics in these studies lies in the relationship between executive pay and shareholder's return. As our discussion in Chapter 2 shows, the principal-agent theory has been employed to explain this relationship.

Most previous studies on top compensation referred to the principal-agent theory when they analysed the determinants of top compensation. As a principal, shareholders try to motivate top manager to work towards higher shareholders' return. However, managers may have their own goals and may want to pursue their own interest in managing the company. Although shareholders want to monitor the top directors, shareholders may not have enough information or knowledge for this. Therefore, shareholders may design a contract which motivates managers to work towards the shareholders' values. Shareholders may link executive compensation with shareholders' returns. If this is the case, there is a positive relationship between shareholders' returns and executive compensation. As top pay depends on the stock market performance, directors may be motivated to work hard to improve the stock market value of the company. In addition, if shareholders want managers to work toward profit, then director's pay will depend on profit of the company. Shareholders may want managers to pursue profit because top director's effort may be reflected more in the profit than in stock market performance.

As discussed in chapter 2, shareholders in large UK firms have more

power over top managers than their Japanese counterparts. Most large UK companies have remuneration committees (Conyon, et al., 1995, Main and Johnson, 1993), which is often composed mainly by non-executive directors, who are relatively independent from CEO. These arguments lead to our research hypotheses.

Hypothesis 5-1: In the UK there is a positive relationship between directors' compensation and company performance, particularly stock market performance.

5-3-2. Joint Determination Hypothesis: Why is There a Positive Relationship between Directors' Pay and Employees' Wages in Japan?

In this subsection, we describe how directors' pay and employees' wages are paid in large Japanese companies, sketching out our hypothesis on the relationship between the two variables.

How are employees' wages paid in Japan?

Koike (1994) and Shimada (1994) show how an employee's wage is paid

¹⁰ It is noted that the top manager is legally not an agent of the employees. Directors are nominated in the annual general meeting of the shareholders.

¹¹ In addition to wage, employees may want job security. However, this research focuses on the relationship between director's salary and employee's wage. One reason is that it is not easy to measure job security of the company.

in a typical Japanese firm¹². Employees usually receive monthly pay and bonuses.

One of the most important characteristics of pay in large Japanese companies is that wages increase every year through 'annual wage increase' (Mizuno, 1987, Sano, 1989, Hart and Kawasaki, 1999). The amount of wage increase is determined through a spring offensive, in which the company union bargains with employers every year. It is often the case that the amount of bonus is also bargained for in the spring offensive.

As company performance is one of the most important factors that affect this bargaining in addition to inflation rate, both employees' monthly wage and their bonus reflect company performance (Mizuno, 1987, Sano, 1989, Hart and Kawasaki, 1999). Sano (1981) and Hart and Kawasaki (1999) showed a positive relationship between profit and wage increase. Both sales and profit are considered to be important performance figures, as sales determine the company's ability to pay.

As seen in chapters 2 and 3, another main characteristic of employees' wage in large Japanese firms is that a firm's performance is reflected through the amount of bonus given. A bonus usually makes up 20-30% of an employee's total annual salary (Hart and Kawasaki, 1999)¹³. As shown by Freeman and Weitzman (1987), there is a strong relationship between a firm's performance and an employees' bonus. The amount of bonus changes every year, reflecting the company performance, and so employees are sharing the risk with other investors,

¹² There are many studies that analyse the determinants of an employee's wage in large Japanese firms (Hashimoto and Raisian, 1985, Mincer and Higuchi, 1988, Shimada, 1981). According to these studies, age-wage profile is steeper in Japan than in the US.

¹³ According to Hart and Kawasaki, (1999), bonuses consist of 19% of the total labour cost in Japan while in the UK it is 1.09%.

such as shareholders. In addition, as an employee's bonus is calculated as a proportion of their monthly pay, their bonus also reflects the change in their monthly pay.

The above discussion shows that in large companies in Japan, both monthly wages and bonuses reflect a firm's performance, that is their sales and profits. We can then express the determination of an employee's wage as follows.

Employees' monthly wage = f (sales, profit, other factors¹⁴)

Employees' bonus = f (sales, profit, employees' monthly pay,
other factors)

(Equation 5-1)

How are directors' compensations determined in Japan?

As will be discussed later in this chapter, directors' salary usually consists of monthly pay and an annual bonus in large Japanese companies. The proportion of bonus is usually around 10-30% of the total annual salary, reflecting the firm's performance¹⁵. Directors receive an annual bonus at the end of the fiscal year. The amount of bonus reflects a firm's profit, as it is paid as part of the distribution of profit. Xu (1997) and Abe et al (1997) suggest that directors do not receive their bonuses when a company performs badly. The amount of bonus for individual

¹⁴ Other factors include for example, education, rank and inflation rate (Koike, 1994, Tachibanaki, 1987).

¹⁵ In our sample from 1994-1995, the ratio of directors' bonuses to their total annual income is 16%,

directors is determined by presidents, according to their rank (Abe et al., 1997, and Okushima ed., 1996).

Directors' monthly pay is also determined by presidents (Abe et al., 1997, and Okushima ed., 1996), according to a pay table which is based on the rank and performance of the firm, such as its sales and profit. As a director's bonus is calculated as a proportion of their monthly pay, it also reflects the change in monthly pay.

It is often the case that a director's monthly pay increases after wage bargaining between management and employees. As a director's monthly pay is often determined as a proportion of the highest paid employees' monthly wage, it will increase when an employee's wage increases. In addition to employees' wages, company performance, and the rate of inflation are also important factors that determine the amount of a director's monthly wage (Abe et al., 1996).

Then, we can write the determinants of directors' monthly pay and their bonus as follows

$$\text{Change in directors' monthly pay} = f(\text{sales, profit, change in employees' wage, other factors}^{16})$$
$$\text{Change in directors' annual bonus} = f(\text{sales, profit, change in directors' monthly pay, change in employees' wage, other factors})$$

(Equation 5-2)

while Xu (1997) reports it is 26% in 1983-91.

Why are both directors and employees' paid in a similar way?; Joint determination hypothesis

Equations (5-1) and (5-2) show that the salaries of both directors and employees are determined in similar ways in large Japanese companies. The next question then arises. Why are both directors and employees paid in a similar way? One of the most important reasons may be that from the viewpoint of corporate governance, both directors and employees are in similar positions in the firm: Both of them are implicitly investing in the company.

As discussed in chapter 2, employees in large Japanese firms are investing in a company by acquiring firm specific skills and by implicit investment through deferred compensation (Itami, 1993, Kagono and Kobayashi, 1988), suggesting that they have a strong incentive to monitor top management. Directors are also implicit investors in the company, as in large companies most of them are ex-employees, as is shown in chapter 2. As both employees and directors are implicit investors in the company, both a director's salary and an employee's wage can be seen as the return for their investment. As these are returns on their implicit investment, their salaries and wages reflect a firm's performance. In other words, they are sharing the risks of the company with other stakeholders, such as banks and large shareholders.

¹⁶ Other factors include for example inflation rate, their age.

Hypothesis

The above discussion shows that both a director's compensation and an employee's wage are paid in similar ways: Both employees and directors receive monthly pay and bonuses. Both a director's salary and an employee's wage are determined in similar ways, and reflect the firm's performance, such as their profit and sales. It is also suggested that both a director's salary and an employee's wage can be seen as the return for their implicit investment in the company. As they are paid in similar ways, and as an employee's wage is one of the important factors determining a directors' pay, we can draw the following hypothesis.

Hypothesis 5-2: In Japan, there is a positive relationship between directors' pay and employees' wage

So, this research will test these hypotheses in this chapter and in Chapter 6.

5-3-3. Company Size and Top Pay

Much of the previous research on executive compensation shows that compensation of the CEO depends largely on the size of the company, such as the number of employees or the sales. The research suggests that the coefficient for size is similar across the countries, industries and time (Rosen, 1990). Rosen pointed out that the elasticity of CEO's compensation with respect to the company size is around 0.25. As explained in Chapter 3, there are two theories that explain why there is a strong relationship between size of the company and top manager's remuneration¹⁷. By focusing on the hierarchical structure of the firm, the first theory is developed by Simon (1957) and Lydall (1968). The other theory is developed by Rosen (1990) who focuses on the marginal productivity of the directors in large organisations.

As shown in Chapter 3, Simon (1957) derives this relationship from the following assumptions: 1) The labour market determines the wage of new entrants for the company. Then, the wage of new workers, who belong to the bottom layers of the firm, is similar in every firm. 2) Manager's pay is greater than that of the worker he supervises. This pay gap ratio between boss and subordinate is similar in every firm. 3) The number of workers that one manager can supervise is similar in every firms. If these three conditions are fulfilled, then CEO pay may be determined by the number of employees within the company and the pay of senior and middle managers can be expressed as a function of the number of employees

¹⁷ Some researchers suggest that this relationship shows that directors may be motivated to maximise

who are directly or indirectly supervised by them. Simon also shows that the relationship between the number of employees and executive compensation is log-linear.

Rosen (1982) also shows theoretically why top pay relates to its size. He assumes that the ability of top managers affects the productivity of the whole company. Marginal productivity of top managers in a big company is larger than that of top managers in a small company even if they have the same ability, because the ability of the CEO of a large company will influence more people than that of the CEO of a small company. Therefore, an efficient market will allocate managers with high ability to a large company and they will receive a higher wage because of their high productivity.

Thus, following these arguments, we will include size variables in estimating top pay in Japan and in the UK. The main reason for including size variables is to control the size effect to the director's salary in both countries¹⁸.

This research will include the size variable in our equations that estimate the determinants of top pay in the UK and Japan. For Japan's data, we will use both sales and number of employees as the size variables. For UK's data, we will use sales as a size variable. The coefficients for these variables are expected to be positive.

the size of the company (Cosh, 1975).

¹⁸ As described in chapter 3, above theories on the relationship between director's salary and firm size do not mention incentive aspects of director's pay.

5-3-4. Personal Characteristics and Directors' Pay

Relatively little attention has been paid to the relationship between CEO's remuneration and their personal details, such as age and experience (Ingham and Thompson, 1995, Kato and Rockel, 1992a). It is suggested that directors' pay will increase as their tenure is long and they are relatively old, as both age and tenure may show director's experience.

Kato and Rockel (1992a) show that the professional details of top directors, such as education and tenure, have significant effects on directors' pay in the US and in Japan. In the UK, Ingham and Thompson (1995) show that there is a strong relationship between age and CEO compensation while education and tenure as a CEO have little effect on their pay.

Much empirical research on wage shows that there is a positive relationship between pay and experience. According to the human capital theory, pay will increase according to experience because productivity may increase as one gains more experience (Becker, 1964). However, Medoff and Abraham (1980) report that they fail to find positive relationship between experience and productivity while they find a positive correlation between experience and earnings.

In this research, we will include 'average age of directors' and 'average tenure of directors' in Japan as our independent variables. The coefficients of these variables should be positive.

5-3-5. How Directors' Pay¹⁹ is Determined in Japan²⁰

According to Japan's company law, directors' compensation must be approved by shareholders at the annual general meeting (AGM). All types of compensation, such as pay, bonuses and retirement bonuses are required to be approved at the AGM. However, it is unlikely that the AGM does not approve director's compensation plan proposed by current directors.

In practice, at the AGM, current management teams propose 'the maximum pay bill for directors' which the company can pay and then it is approved by the AGM. This pay bill is usually larger than the amount actually paid so that current management teams do not have to propose pay bills for AGM every year²¹. The shareholders do not know how much money will actually be paid for directors on approval. Although the actual payments for directors are disclosed in annual reports, amounts of compensation for each of the directors are not disclosed.

¹⁹ Japan's company law treats auditors as directors as well. So, in this discussion, the word 'directors' includes auditors unless specified otherwise.

²⁰ There is little literature to show how executive compensation is determined in Japan's large companies. Abe et al., (1997) and Okushima, ed., (1996) are useful sources for this topic.

²¹ In practice, many companies set the 'maximum pay bill for directors' for one month, rather than for one year.

Table 5-1 Approval and disclosure of directors' compensation in Japan

	Approval by AGM of shareholders	Disclosure
Maximum pay bill for directors that company can pay	Yes Not every year	Yes Disclosed in AGM
Pay bill for directors actually paid by the company	No	Yes Disclosed in annual report
Compensation for each of the directors	No	Not disclosed

Annual general meeting (AGM) of shareholders

Source: Abe et al., 1997, Okushima ed., 1996

It should be noted that the 'maximum pay bill' that the company is able to pay may not be the same as the pay bill that the company pays in reality. Table (5-1) summarises the approval and disclosure of pay bill in Japan. Usually, the 'maximum pay bill' is larger than the 'actual pay bill' paid by the company.

It is not required that this 'maximum pay bill' has to be approved every year. For example, this pay bill should be renewed when the number of directors increases. In Nippon Steel the 'pay bill which the company can pay for all of the directors was on the agenda of the AGM only 6 times from 1975 until 1997. In 1996, amongst 2286 listed companies in Japan, only 140 companies changed their pay bill for directors.

Companies are required to explain the reason why the pay bill should be

increased by company law. The reasons actually explained in the AGMs include 1) an increase in the number of directors, 2) inflation and 3) an increase in employees wages. Usually company performance, such as stock price, is not used to justify the increase in the pay bill. Thus, company performance, such as the profit before tax or stock price, are not considered, either by the directors or shareholders, to be an important factor for the determination of the executive compensation.

After the ‘maximum amount’ is set in the AGM, the board of directors decides how much pay should be paid to each director within this maximum. In practice, the president is asked by the board to decide the pay package for each director. Then, the president decides the pay package for everyone, including himself.

So what then are the factors that determine executive pay in Japan in practice²²? In general there are two types of executive compensation in Japan’s large companies; directors’ pay and directors’ bonuses²³.

Directors’ pay is usually paid each month. Firstly, the monthly wage of non-title directors is determined, which should exceed the monthly wage of the highest paid employee. So, monthly salaries of non-title directors²⁴ are determined by adding a fixed amount to the monthly wage of the ‘highest paid employee’. As for the senior executives, their pay depends on their rank and as the rank within the

²² Fukao et al. (1997) and Abe et al. (1997) are a useful source for this section.

²³ There are other types of compensation, such as stock options, company cars, company houses etc. But stock options are still not widely used in Japan, as company law did not allow this until recently. Sometimes other benefits, such as golf club membership, company car, company house, are very generous. In addition, the director usually receives retirement bonuses on retirement. In many companies, the amount of retirement bonus is calculated based on 1) the rank of the director, 2) the tenure as a director, 3) the amount of monthly pay when the director retires.

²⁴ As described in previous chapters, a non-title director in Japan is not a non-executive director in the UK. Non-title directors in large Japanese companies are usually working full-time in the company. Non-title means that they do not belong to a higher managerial board, such as *JOMUKAI*.

board goes up, then the pay also rises. The pay of *JOUMU* must be higher than that of non-title directors and the pay of the president must be higher than that of *JOUMU*. It is often the case that a company has a table showing the ratio of the amount of pay among different ranks and the pay of each director is determined according to that table. In this case, the age and tenure is not considered. Thus, the pay of two directors with different age and tenure can be the same if they belong to the same rank within the board.

In addition to monthly pay for directors, most listed companies pay bonuses to their directors. Their bonus is paid from company profit so if the company fails to make enough profit, it is often the case that directors receive no bonus. For example, if the company reduces the amount of dividend to the shareholders, directors will not receive bonuses²⁵.

5-3-6. The Determinants of Director's Pay in the UK

There are three main types of cash compensation for directors in the UK; fixed salary, annual incentive (AI) and long-term incentive (LTI). In addition to cash compensation, other form of compensation, such as stock option, may be paid to directors. Though not all the companies have all these types of compensation, most large companies in the UK have some kind of annual incentive.

It is often the case in large companies in the UK that the amount of annual incentive is determined according to firm performance. Typical annual incentive

²⁵ Freeman and Weitzman (1987) suggest that employee's wage in Japan depends on company profit.

schemes in large UK companies can be described as follows. First, the performance measure for company performance, for example, profit before tax, is chosen. Then the performance target is set in terms of this performance measure.

The amount of annual incentive may be linked to the firm performance, though this link may not necessarily be able to be described by a formula. Usually, some minimum performance target is set and if managers fail to achieve this target, then they will not receive any bonus. It is often the case that the link between bonus and performance is larger as performance improves.

The maximum amount of annual bonus is usually set and is shown as a percentage of the director's fixed salary. Usually, the maximum amount is within the range of 20 to 50% of the fixed salary. This maximum amount of bonus is set to prevent companies from paying enormous amount of bonus to directors.

Based on these figures, the formula to calculate the amount of annual bonus is set at the beginning of the company year, though the formula may not be explicit. It is common practice to define the amount of annual bonus as the percentage of the person's fixed salary. At the end of the term, the amount of annual incentive is calculated based on this formula and company performance. Thus, directors are likely to know their performance-bonus sensitivity a year in advance. So, we can assume that the director's effort is influenced by current year's performance-pay sensitivity.

Income Data Services (1996) report that profits and growth in earnings per share are the most important measures for company performance, accompanied by individual achievement in relation to agreed targets. Williams (1994) reports that the most widely used performance measures among companies are profit both in

the Hay consulting survey and in the Monks partnership survey. Hay reports 67% of companies use profit as the measure for company performance, while Monks shows that 77% of companies measure their performance by profit. In both surveys, EPS comes next to profit, 49% in the Hay report and 52% in the Monks report. They show that these two measures are much more widely used compared to other measures, such as cash flow or stock price.

5-4. Variables

In this section, we will explain the variables that are used in our analysis. In addition to other data sources and definitions, we show the expected effect of these variables on director's remuneration.

5-4-1. Japan's Data

In this research, 210 of Japan's large listed companies are used as the sample²⁶. The stock price of these companies are used to calculate the NIKKEI INDEX, Japan's most widely used stock market index²⁷ and the time period covered is 1995 and 1996. Most variables, including directors' pay and their bonus, are taken from the NIKKEI NEEDS DATABASE. Other variables are taken from *Toyo Keizai Yakuin Shikihou (Directory of Directors)* and *Kabushiki Toshi*

²⁶ Although Nikkei NEEDS DATABASE contains financial data of all the listed companies, some important information is not included, such as the number of directors and stock market return. This information is not available electronically.

²⁷ NIKKEI index calculated using the share price of 225 companies. Among them, 15 financial companies are excluded from our sample.

Shuekiritsu (Rate of Return on Stocks in Japan). The NIKKEI NEEDS DATABASE and *Toyo Keizai Yakuin Shikihou* is based on each company's annual report. The shareholder's return, which is taken from *Kabushiki Toshi Shuekiritsu* (Rate of Return on Stocks in Japan), is calculated by *NIHON SHYOKEN KEIZAI KENKYUSHO* (Japan Institute of Securities and Economics), and is based on stock price and dividend.

Variables (Japan)

EXECUTIVE COMPENSATION; ADPAY and ADBONUS: ADPAY, directors' average compensation, is calculated by dividing the pay bill for directors by the number of directors²⁸. ADBONUS, the director's average bonus, is calculated by dividing total bonus for directors by number of directors. Change of ADPAY and change of ADBONUS are calculated by taking first the difference of these variables. Every listed company is required to report the pay bill for directors in their annual report. These pay variables are dependent variables in this research and the data are taken from the NIKKEI NEEDS DATABASE. The data source is each company's annual report.

The strengths and weaknesses of several executive compensation data sets are described in Chapter 4 and it is suggested that the data based on company's annual reports are most appropriate in terms of reliability and data availability. However, there is a possibility that the 'director's average pay' figures may be smaller than the actual figures, as noted in Chapter 4.

There are two main reasons why the 'director's average pay' and

²⁸ The number of directors includes auditors.

‘director’s average bonus’ may be smaller than the real figures. First, the director’s average pay may be smaller than the real average figure. In many of Japan’s large companies, it is often the case that a non-title director is also an employee of the company²⁹. In this case, the person receives his salary both as the employee and as the director. His salary can be separated into employee and director salary. Usually, most of this salary is paid as employees’ wages. Many companies do not include this ‘employee part of the salary’ in their director’s pay figure.

Secondly, the calculated director’s average bonus figure may be smaller than the actual one. As described above, the director’s average bonus is calculated by dividing the total director’s bonus by the number of directors. The number of directors does not only include directors, but also auditors. In some companies auditors only receive monthly pay and do not receive bonuses. Thus, the calculated ‘director’s average bonus’ can be smaller than the real figure.

SHAREHOLDERS’ RETURN: The shareholders’ total return (ROR) is reported on *Kabushiki Toshi Shuekiritsu* (Rate of Return on Stocks in Japan). This ROR, shows the percentage gain for shareholders, including the dividend, capital gain from stock price evaluation and other gains, such as stock. If the coefficient for this ROR is positive and significant, then the director may have an incentive to work toward the shareholders’ return, to gain more income.

PROFITABILITY: Both profit before tax (PBT) and return on capital (ROC) shows the profitability of the company. ROC is calculated by dividing profit by capital.

²⁹ As described in chapter 2, non-title directors are usually full-time directors of the firm. They

These variables show how profitable the company is. If the coefficients for these variables are positive and significant, then the managers have an incentive to pursue the profit.

AWAGE: AWAGE shows the employees' average wage of the company. This is calculated by dividing the total labour cost by the number of employees. Thus, this variable includes all the labour costs to the company, including both cash compensation and other benefits. Cash compensation includes both monthly salary and bonus. The hypothesis predicts that the coefficient of an employee's average wage is positive and significant.

DIRECTORS' PERSONAL AND PROFESSIONAL DETAILS: Directors' average age and tenure: Age and tenure of directors may show their experience, skill, or their human capital. If these skills are important in their jobs and if their pay is based on their individual performance, then the coefficient for these variables may be positive and significant.

Alternatively, the coefficients for these variables may show the difference of salaries of directors in different position within the board. In large companies in Japan, it is often the case that senior executives, such as presidents or chairmen, are older than other executives. As compensation of these senior executives may be larger than those of other directors, the coefficients for age and tenure may reflect the pay difference between positions within the board. Some specialists in this field say that the directors' pay in Japan's large companies is determined by their rank

belong to the bottom layer of the hierarchy within the board of directors.

(Abe et al., 1997). If this is the case, the relationship between pay and age/tenure may not be strong.

SIZE: In this research, two size variables, SALES and number of employees (NOE) are used. Following previous studies³⁰, both variables are log-transformed. In the previous studies, both variables show a strong correlation to executive pay. The coefficients for these variables in this research are also supposed to be positive and significant. These size variables are included to control the size effect on top executive compensation.

5-4-2. UK's Data

Almost 1500 listed companies data are used as the sample. 1994 and 95 data are collected for each company. The data analysed here are taken from Monks partnership's "United Kingdom Board Earnings, October 1995" and "United Kingdom Board Earnings, October 1994". These data sets contain comprehensive data on executive compensation and company performance, including the detailed composition of highest paid director's pay. This data are taken from annual reports of listed companies, for example, the 1995 data set consists of 1431 quoted companies in the UK whose annual reports are available in September 1995. The data source for these surveys are companies' annual reports.

³⁰ Size variables are log-transformed because the variance of size variable; such as sales is much

Variables (UK)

TOP DIRECTORS' PAY: Three types of their pay are observed in each firm; fixed salary, annual incentive and total salary. The amount of total salary is not necessarily the sum of the fixed salary and annual incentive, as some companies have long-term incentive scheme. The stock option is not included. It may be the case that highest paid director is not a CEO of the company.

The dependent variables are total salary of highest paid directors, their fixed salary, annual incentive and the change of these three salaries.

PROFIT: Profit (PI) and change of profit (DPI) are used as independent variables to explain the highest paid director's salary. The amount of profit may be affected by the size of the company but our survey does not use log of profit, log of profit cannot be recorded when the amount of profit is negative. Our hypotheses suggest that the coefficients for these profit variables are positive. The coefficients for profit variables may be particularly significant to explain top director's annual bonus because in many large British companies, profit is one of the most frequently used performance variables to indicate performance target, in addition to Earnings Per Share.

EARNINGS PER SHARE: Earnings Per Share (EPS) is also used as the independent variable to show company performance. Our hypothesis predicts that the coefficients of EPS will be positive and significant, suggesting that top director's pay in the UK depends on performance. If this is the case, directors may

larger than that of other variables, such as shareholders' return.

have an incentive to work toward earnings per share. We expect that the coefficient for annual bonus will be particularly significant and positive as EPS is also one of the most frequently used performance variables to determine the amount of annual bonus.

STOCK MARKET CAPITALISATION (CAP): In addition to profit and EPS, this research will use stock market capitalisation as an independent variable to explain top directors' pay in the UK. Stock market capitalisation shows the 'value of the company' in the stock market and therefore, reflects shareholders' wealth in the stock market. Thus, if the coefficient of CAP is positive and significant, top directors may have strong incentives to work toward the 'value of the company'. Our hypotheses suggest that the coefficient of CAP will be positive and significant in the UK.

SIZE: Following previous studies, a size variable is included in our equations. Log of sales is used to explain top directors' pay in the UK. As described in Chapter 3, many previous studies show that top director's pay in the UK is correlated to company size. Thus, we expect that the coefficients for size variables will be positive and significant. This size variable is included to control the size effect on director's pay.

5-5. The Model

In this section, we explain our models in estimating the determinants of executive compensation in the UK and Japan. After describing our basic model, we will show models for each country.

5-5-1. The Basic Model

The purpose of this research is to analyse the financial incentive of directors in Japan and in the UK. We will estimate the determinants of executive pay in both countries, trying to examine our hypotheses.

Firstly, we try to analyse the relationship between firm performance and top directors' pay in both countries. In the UK, this research tries to estimate the relationship between firm performance and top directors' pay. We expect that there is a positive and significant relationship between top pay and performance, such as stock market capitalisation and company profit. In Japan, we will analyse if firm performance affects top directors' pay, as well as the effect of employee's wage on top pay.

In addition to performance variables and wages, we include in our model the company size variable and directors' personal characteristics, as described in the previous section.

Our basic model can be written as follows.

$$\text{Director's compensation} = f(\text{performance, wage, other variables})$$

(Equation 5-3)

It should be noted that wage is included only for Japan's data. Our focus is on the coefficient of the performance and wage, trying to test our hypotheses described above. Size variables, such as sales and the number of employees are included to control the size effect on director's compensation, which is reported in many previous studies (Rosen, 1990).

Before we proceed to explain the equations for each country, some econometric problems are mentioned in estimating these equations. Since micro data of individual companies are used, there will be a problem of heteroscedasticity (Ciscel and Carrol, 1980 Dunlevy, 1985). The variance of each variable, such as sales, number of employees, profit, average wage, cannot be assumed to be constant. The variance of profit in large companies will be larger than that of small companies. To avoid these problems, we will use heteroscedasticity-adjusted standard error and adjusted t-values to test the significance of each coefficient.

In addition, there may be some multi-collinearity between independent variables and the sales, profit and wages of the company may be correlated to some extent.

5-5-2. Japan's Model

In this sub-section, we explain the equations to estimate the determinants of directors' average salary in Japan. One of the main questions is whether there is a positive relationship between director's pay and employee's average wage. In addition, we will analyse the correlation between directors' salary and other performance variables, such as profit and stock market return. Our joint-determination hypothesis predicts a positive correlation between directors' salary and employees' wage. Independent variables include size, directors' age and tenure. As directors receive annual bonuses in addition to their pay, we will estimate the determinants of these salaries separately.

The following equation is estimated to analyse the determinants of directors' average pay and their average bonus.

$$\text{Directors' pay} = f(\text{performance, wage, size, age and tenure})$$

$$\text{Director's bonus} = f(\text{performance, wage, size, age and tenure})$$

(Equation 5-4)

It is not necessarily clear whether the executive compensation in the year 't' depends on the performance in the year 't' or that in the year 't-1'³¹. The profit

³¹ In previous studies that estimate the determinants in western countries, many scholars assume that

and shareholders' return of the term 't-1' is available at the beginning of term 't'. Employees' wages are paid throughout the year. The profit, shareholders' return of the term 't' is available at the end of the term 't'. Directors' pay is paid every month. Since the director's monthly pay is adjusted according to the change of employee's wage, directors' pay may not necessarily be the same each month and is paid throughout the year. After the profit figure of the company at 't' is available the amount of director's bonus at term 't' is set. Then, after the profit (t-1), shareholders' return (t-1) and wage (t) are determined, the directors' pay for the term 't' is set. After profit (t), shareholders' return (t) and wage (t) is set, the directors' bonuses for the term 't' are set. Thus, the equation to be estimated can be specified as follows:

$$DP(t) = f(Pi(t-1), SR(t-1), W(t), size(t), directors' age(t), \\ directors' tenure(t))$$

Change in directors' pay (t)

$$= DP(t) - DP(t-1)$$

$$= f(Pi(t-1) - Pi(t-2), SR(t-1) - SR(t-2), W(t) - W(t-1), size(t))$$

$$DB(t) = f(Pi(t), SR(t), W(t), size(t), directors' age(t), directors' tenure(t))$$

executive pay in the year 't' depends on the company performance in the year 't-1'.

Change in directors' bonus (t)

$$= DB(t) - DB(t-1)$$

$$= f(Pi(t) - Pi(t-1), SR(t) - SR(t-1), W(t) - W(t-1), size(t))$$

(Equation 5-5)

DP: Directors' pay

DB: Directors' bonus

Pi: Profit

SR: Shareholders' return

W: Wage

These equations are estimated using a least squares dummy variable model (fixed effect model)³². In this estimation, dummy variables are assigned to each individual company to exclude individual effects.

5-5-3. UK's Model

Similarly, this research estimates the determinants of top directors' pay in the UK. Dependent variables include the fixed salary of the highest paid director, their annual bonus and total salary. We also use the change of these variables as dependent variables.

Many previous studies that analyse the determinants of executive compensation in the UK assume that the pay in the year (t) depends on the performance in the previous year, or year (t-1). However, Conyon (1997) and

³² As we will show in next chapter, the results of the estimation of least squares dummy variables and

Ingham and Thompson (1995) suggest that directors' pay is affected by the firms' performance of the same year, rather than that of the previous year.

We assume that top directors' pay in the year (t) is mainly affected by the company performance in the year (t-1). In many large companies in the UK, the amount of director's annual bonus is determined according to their performance in that year. It is often the case that companies have some kind of formula to calculate the amount of bonus they will receive from the firm's performance. Thus, we analyse the relationship between directors' pay in the year (t) and firm performance in the same year (t). In addition, we will include change in earnings per share, change in profit, and the previous year's profit as independent variables as these are frequently used performance measures in large UK companies. Thus, our equations are as follows:

$$DS(t) = f(Pi(t), Pi(t-1), EPS(t), \text{Stock market capitalisation } (t), \ln(\text{sales}))$$

Change in director's salary (t)

$$=DS(t)-DS(t-1)$$

$$= f(dPROFIT(t), dEPS(t), Profit(t), Profit(t-1), \text{Stock market capitalisation } (t), \ln(\text{sales}))$$

(Equation 5-6)

DS: Directors' salary (total pay, fixed pay and annual bonus)

Pi: Profit

dPROFIT (t): Profit(t)-Profit(t-1)

those of the random effect model are quite similar.

EPS: Earnings Per Share

dEPS: $EPS(t) - EPS(t-1)$

5-6. Conclusion

This chapter describes the research model to analyse our hypotheses on executive compensation in the UK and Japan. The objectives of large companies in the UK and Japan are discussed, as well as institutional aspects of directors' pay in both countries. As described in Chapter 2, shareholders have considerable power over top directors in the UK, while in Japan they have very limited power to control the firm. Instead, top managers in large Japanese companies pay more attention to the employee's interest rather than to the shareholder's return.

Following that, the principal-agent theory is examined, drawing up our research hypotheses. Particular emphasis is laid on the relationship between directors' salary and employee's wage in Japan. In the UK, this research focuses particularly on the relationship between directors' pay and stock market performance.

This chapter shows that in large Japanese companies, both a directors' compensation and employees' wage are paid in similar ways: Both employees and directors receive monthly pay and bonuses. Both directors' salary and employees' wage are determined in similar ways, and reflect the firm's performance, such as

their profit and sales. It is also suggested that both directors' salary and employees' wage can be seen as the return for their implicit investment in the company. As they are paid in similar ways, and as employees' wage is one of the important factors determining a directors' pay, we can draw the following hypothesis that there is a positive relationship between a director's pay and an employee's wage.

The next chapter shows the results of our empirical investigations on the determinants of executive compensation in both Japan and the UK. In addition, Chapter 6 examines the pay gap between directors and employees in Japan.

Chapter 6. The Determinants of Executive Compensation: Results in the UK and Japan

6-1. Introduction

In this chapter, by estimating the determinants of executive compensation, we test the hypotheses that are given in Chapter 5 and the results of these estimations in both countries are given.

As described in Chapter 5, the determinants of executive compensation in both Japan and the UK were estimated. Firstly, this research shows the results of our empirical investigations using Japan's data. We examine whether there is a positive and significant relationship between directors' average pay and employees' average wage. We also test whether the coefficient of shareholders' return is significant or not. If the coefficient for shareholders' return is not significant, directors may not have an incentive to work toward shareholders' return. Next, the results of our estimation in the UK are given. Particular emphasis is laid on the relationship between firm performance and directors' pay.

In general, both of our hypotheses are confirmed. In Japan, there is positive relationship between director's salary and employee's average wage while shareholder's return has little effect on the director's salary. We used both the levels of director's salary

and change in director's salary as dependent variables, obtaining similar results that support our hypothesis.

In contrast, in the UK all the performance variables, including stock market performance, have a positive effect on the director's compensation. Again, we obtained these results by using both levels of director's salary and their changes as dependent variables.

In addition to showing the results of these regressions, this chapter examines the pay gap between directors and employees in Japan. Particular emphasis is laid on the relationship between pay gap and promotion probability of employees. Rank order tournament theory predicts a negative correlation between pay gap and employee's probability to be promoted. Then, we analyse whether the pay gap is affected by employees' probability of being promoted.

6-2. Result from Japan's Data

In this section, we show the results of regressions that analyse the determinants of directors' average pay and their average bonus in Japan. As described in previous chapters, particular emphasis is laid on the relationship between directors' average pay and employees' wages. As described in Chapter 5, these equations are estimated using the least squares dummy variable model¹.

The results of regressions are summarised in Tables (6-1) to (6-4)². Table (6-1) shows the results of regressions on the directors' average pay and Table (6-2) shows the

¹ As we will show in the following section, we can obtain similar results if we use the random effect model for estimating these equations.

² Tables (6-1) to (6-12) are at the end of this chapter.

results of regressions on the directors' average bonus. In Table (6-3), the dependent variable is the change in directors' average pay, and in Table (6-4), the dependent variable is the change in directors' average bonus.

Table (6-1) shows the results of regression on the director's average pay. The dependent variable is the directors' average pay and the independent variables are directors' average age, their average tenure, log of number of employees, log of sales, shareholders' return (lagged), profit before tax (lagged), return on capital (lagged), employees' average wage³, and constant. One of the most important results in this table is that the coefficient for the employees wage in Equation 1, is positive and significant at the 1% level. This shows that there is a positive relationship between directors' average pay and employees' wage in Japan. Alternatively, no other company performance variables, such as the shareholders' return and the profitability of the company, are significant. These variables fail to explain the variation of directors' pay. The coefficients for the shareholders' return of the company, the profit, and the return on capital, are not significant, and the coefficient for the return on capital is negative. These coefficients show that the director's average salary does not depend on the shareholders' return. It is also shown that the profit has little effect on director's monthly pay. These results support our hypothesis that there is a positive relationship between employees' wage and directors' salary in large Japanese firms.

It should be noted that the coefficient for employees' wage is not significant when sales are included as an independent variable. In equation 2 in table (6-1), the coefficients for both sales and employees' wage are not significant. One of the main

³ As shown in Chapter 5, the average employee's wage includes both cash compensation and other benefits. Cash compensation includes monthly salary and bonus.

reasons may be that there is a correlation between sales and employees' wage⁴, as sales are an important determinant of employees' wage in large Japanese companies.

As described in chapter 5, employees receive a monthly wage and bonuses in large Japanese companies. The amount of employees' wage and bonus are determined through 'spring bargaining' between employer and the company union. According to Kawasaki and Hart (1999) and Sano (1981), both employees' monthly wage and their bonus reflect company performance. Both sales and profit are considered to be important performance figures, as sales determine the company's ability to pay. In addition, Freeman and Weitzman (1987) showed that there is a positive relationship between bonuses and firm performance. A positive correlation between employees' wage and sales in our data is consistent with these studies.

The other important results in Table (6-1) are that, most coefficients for sales are strongly significant and positive. These results are consistent with previous studies. In contrast, the coefficients for the log of numbers of employees, are not significant at all, and sometimes negative. So, we cannot conclude that the size variables are an important factor for the determination of directors' pay in Japan. According to Simon's theory⁵ (Simon, 1957), or Rosen's theory (Rosen, 1990), the executives' pay depends on the number of employees of the company. Our results do not confirm these theories.

Table (6-1) also shows that directors' average age is not an important factor for

⁴ The correlation coefficient between sales and employees' wage is 0.399.

⁵ According to the study by Simon (1957), CEO's compensation X can be written as follows.

$$N = A X^{-a}$$

N : number of employees in the firm

the determination of their pay. In fact, the coefficients for the directors' age are all negative and there is a weak relationship between directors' tenure and directors' pay. Three out of eight coefficients for directors' tenure are significant at the 10% level. These coefficients suggest that some part of the directors' pay can be explained by their tenure. This may be because higher rank directors receive higher pay than non-title directors do and also the tenure of those higher rank directors is longer than that of non-title directors.

Table (6-2) shows the results of similar regressions. The dependent variable is the directors' average bonus, and the independent variables are the same as in Table (6-1). One of the most important results in Table (6-2) is that the coefficients for the profitability variables are positive and strongly significant. The coefficient for the profit before tax in Equation 3 is significant at the 1% level, and the coefficient in Equation 4 is significant at the 5% level. The coefficient for return on capital, another profitability measure, in Equation 5, is significant at the 5% level. These coefficients show that director's bonus depends on the profit of the company.

The coefficient for the employees' average wage, in Equation 7, is also significant at the 1% level. This result is consistent with our discussion in chapter 5 that both a director's salary and an employee's wage are determined in similar way.

The coefficients for shareholders' return are negative. These coefficients show that there is no positive relationship between director's bonus and shareholders' return. It is suggested that directors in these companies have little financial incentive to work toward shareholders' interest, because directors may receive little reward for pursuing

A and a: constant

⁶ Our AWAGE, employee's wage includes their bonus.

shareholders' interest.

In Table (6-2), the coefficients for the directors' age are not significant, and they are sometimes negative. These coefficients suggest that the director's bonus does not depend on the age of directors⁷. In contrast, the coefficient for the directors' tenure in Equations 1 and 3, are significant at the 5% level. Thus, there is a positive relationship between the tenure and the directors' bonus. This may be because higher rank directors have a longer tenure than non-title directors. As higher rank directors also receive a larger bonus, then we can observe a positive relationship between tenure and bonus.

All the coefficients for the sales in Table (6-2) are positive and significant at the 1% level. These results show that sales is a very important factor for the determination of directors' bonus. But the coefficients for the number of employees, are not significant, and sometimes they are negative. Both sales and number of employees, are considered to represent the size of the company.

Table (6-3) shows the results of the regression on the change in director's average pay. The dependent variable is the change in director's average pay, and the independent variables are the same as in Table (6-1), except for directors' age and tenure, which are excluded. The most important results in this table are that coefficients for the change in employees' wage are positive and significant. These results show that the increase of directors' pay depends on the increase of employees' wage. The coefficients for the change in wage in Equation 1 is significant at the 1% level, and in Equation 2, is significant at the 10% level. As in Table (6-1), these results support our hypothesis that

⁷ There is a possibility that pay rises with age for each director. If this is the case, directors' average pay is not affected by age because the speed of promotion for each director varies.

directors' pay in Japan depends on employee's wage.

The other important result in this Table (6-3) is that the coefficient for change in shareholders' return, in Equation 3, is positive and significant at the 10% level. This result shows that there is a relationship between shareholders' return and directors bonus. The coefficient for the profitability variables, the change in profit, and the change in return on capital, are not significant. The coefficients for the return on capital are negative.

Most coefficients for sales are positive and significant at the 1% level, though the coefficients for the number of employees are not significant, or negative. This result is of interest as most previous studies suggest a positive relationship between director's compensation and firm size.

Table (6-4) shows the regression on the change in director's average bonus. The dependent variable is the change in director's average bonus. The independent variables are the same as in Table (6-3).

The most important result in Table (6-4) is that the coefficients for change in profit are positive and significant. The coefficients are significant at the 1% level both in Equations 3 and 4. The coefficient for the change in return on capital in Equation 5 is positive and significant at the 10% level. These results show that the directors' bonus depends on the profit of the company. We can not find any positive relationship between shareholders' return and the directors' bonus. The coefficients for the change in shareholders' return in Equations 1 and 2 are negative. The coefficient for the employees' average wage in Equation 7 is positive and significant at the 1% level. This shows that there is positive relationship between employee's wage and director's bonus.

In Table (6-4), we find a strong relationship between the sales of a company and its directors' bonus. In Equations 2, 4 and 6 the coefficients for the log of sales are positive and significant at the 1% level, however, coefficients for the log of number of employees are not significant and sometimes negative.

6-3. Evidence from the UK Data

In this section, we will explain the results of our empirical investigation on the determinants of executive compensation in the UK. Particular emphasis is laid on the relationship between firm performance and directors' pay, trying to analyse if top directors in the UK have any financial incentives to manage the company in order to improve firm performance. As described in the previous chapters, our main hypothesis is that in the UK there is a positive relationship between directors' pay and company performance, particularly stock market performance.

Tables (6-5) to (6-10) show the results of top pay regressions in the UK. Table (6-5) shows the results of regressions that analyse the determinants of total pay of highest paid directors. The total pay includes all the cash compensation, including fixed pay, annual incentive, and long-term incentive. In addition, Table (6-5) shows that both profitability and stock market capitalisation are significant factors for the determination of top pay in the UK. All coefficients for the performance variables are positive and significant. The coefficients for the profit, lagged profit are both positive and significant at the 1% level. The coefficients for the profit change and EPS changes are also significant. In addition, the coefficient for the market capitalisation is also positive and significant at the 1% level. These results show that both profit and stock market capitalisation have a strong link with top pay in the UK's listed companies. Table (6-5) also shows that there is a positive relationship between company size and top pay. All the coefficients for the log of sales is positive and significant at the 1% level.

Table (6-6) analyses the determinants of ‘change in total pay’. The coefficient for the change in EPS in Equation 2 is positive and significant at the 5% level. But other profit variables in Equations 1, 3 and 4 are not significant. The coefficient for stock market capitalisation in Equation 5 is positive and significant. The coefficients for the log of sales is not significant, and some of these coefficients are negative, showing there are little relationship between size and the change in total pay.

Table (6-7) shows the results of regression on fixed pay. The coefficients for the profit and lagged profit in Equations 3 and 4 are positive and significant at the 1% level, showing a strong link between profit and fixed pay. The coefficient for the stock market capitalisation in Equation 5 is also positive and significant at the 1% level. All the coefficients for log of sales are positive and significant at the 1% level, indicating the strong size effect on fixed pay.

Table (6-8) shows the determinants of change in fixed pay. Among the profit variables, only the change in EPS has a positive and significant effect. The coefficients for other profit variables and stock market capitalisation are not significant. As given in the Table (6-6), the coefficients for the log of sales is not significant and some of them are negative, showing that there is little relationship between size and the change in fixed pay.

Table (6-9) shows the results of a similar analysis on the annual incentive. The coefficients for the change in profit and change in EPS is positive and significant at the 5% level and 1% level, though the coefficients for the profit are not significant. The

coefficient for stock market capitalisation is not significant. The coefficients for the log of sales are positive and significant at the 1% level.

Table (6-10) shows the results on the change in annual incentive (AI). The coefficients for the ‘change in profit’ and the ‘change in EPS’ are positive and significant at the 10% level while other performance variables fail to explain the change in annual incentive. All the coefficients for the size variable, log of sales are positive and significant at the 1% level.

These results are consistent with our hypothesis that directors’ pay in the UK depends on firm performance. As there is a significant relationship between top pay and firm performance, such as stock market value of the company, directors may have financial incentives to pursue firm performance.

6-4. Cross-National Comparability and Summary Table: To What Extent can We Compare the Results of These Two Countries?

In the previous sections the determinants of executive compensation in Japan and in the UK were examined. In this section, we examine the cross-country comparability of these results. Firstly, we describe the main differences in the estimation models of the two countries. Then, we estimate some additional equations trying to show that our main results will hold even when we control these differences.

As described in previous sections of this chapter, there are some differences between the Japanese model and that of the UK. There are two main differences and they

are the difference in independent variables and that in estimation method.

There are some differences in the choice of independent variables between Japan and the UK. Some equations in Japan include employee's wage as an independent variable, while wage is not included in the UK's model. Director's age and tenure are included in the equations in Japan while in the UK they are not. This may be a problem as the two models are not 'matched' as they include different independent variables.

In addition, we use a different estimation method for each country. For Japan's data we used the fixed effect model while the random effect model was used for UK's data⁸. This may be a problem in comparing the coefficients between two countries. For example, as we use the fixed effect model for Japan's data, we are estimating the determinants of 'the difference' of variables. The fixed effect model estimation can be seen as if estimating the relationship among changes of the variables (Johnston and DiNardo, 1997, Greene, 1993). Therefore, it may be inappropriate to compare the magnitudes of coefficients directly between the two countries. This is because Japan's model estimates the relationship among 'changes of variables' while the UK's model estimate does not, even though the dependent variables are 'the level' of director's compensation in both countries.

Then, we ask the question, to what extent can we compare our results? In this section, we estimate some additional equations for both countries to examine cross-country comparability and then to show we can obtain similar results if we control the above-mentioned effects. This research estimates the determinants of director's pay in Japan and those of fixed pay in the UK.

⁸ We used the random effect model for the UK because UK data is too large to calculate heteroscedasticity adjusted standard error using least squares dummy variable model.

Table (6-13) shows the results of these estimations. These equations are estimated for comparison of two countries. We use the random effect estimation for these equations in both countries as then, the econometric problem that is described above is insignificant. In addition, the independent variables are matched as close as possible, for example, we use same sets of independent variables in Equation 3 in Japan and in Equation 5 in the UK.

In general, our results in Table (6-13) are quite similar to those in previous sections. It is suggested that there is a significant difference in the determinants of executive compensation in Japan compared with those in the UK. The coefficients profit and stock market performance are positive and significant by 1% in the UK while they are not significant in Japan and the coefficient of wage is significant in Japan. In other words, directors in the UK have financial incentives to manage the company to pursue profit and stock market performance.

As described in the previous sections, one of the main reasons for a positive relationship between wage and director's pay in Japan may be that a significant proportion of an employee's wage is the bonus⁹. This is because employees' bonus in Japan reflects performance of the firm (Freeman and Weitzman, 1987). Therefore, we can observe the relationship between employees' wage and director's pay because both director's pay and employees' wage may depend on the firm's performance. It is also noted that the proportion of bonus to total salary is similar for both directors and employees. Both employees and directors receive around 30% of their salary as a bonus.

It is noted that employees' wage is not included in the UK's regression. Thus, it is not possible to examine the effect of employees' wage on director's pay in the UK.

However, it may be the case that we cannot observe any significant relationship between employees' wage and director's pay in the UK, as it is often the case that employees in large UK firms do not receive bonus schemes that reflect firm's performance. In other words, the effect of the firm's performance on employees' wage may be small in the UK.

⁹ As described in previous chapters, our employee's wage includes their bonus.

Table 6-13 Summary table of chapter 6
The determinants of executive compensation in Japan and the UK

	Japan		Japan		UK	
	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5	Eq. 6
profit	0.000013		0.000015		0.129	
	(0.000017)		(0.000017)		(0.011)***	
stockmarket		-0.0053		-0.0088		0.0244
		(0.019)		(0.0194)		(0.0016)***
ln(sales)	1.325	1.433	1.801	1.939	31.529	34.65
	(0.365)***	(0.344)***	(0.353)***	(0.326)***	(1.49)***	(1.638)***
wage	0.773	0.777				
	(0.207)***	(0.205)***				
const.	-6.948	-8.221	-6.681	-8.27	-33.035	-43.079
	(4.31)	(4.069)**	(4.426)	(4.179)**	(7.287)***	(7.517)***
R-sq.	0.174	0.164	0.139	0.127	0.329	0.449

*** Statistically significant at the 1% level
 ** Statistically significant at the 5% level
 * Statistically significant at the 1% level

Standard errors are in parentheses.
 Random effect GLS regression is used to estimate these equations.

The relationship between employees' wage and directors' pay in large UK companies

As suggested in above sections, there are some differences in our estimations in Japan and the UK. Almost 1500 large companies data are used in the UK as the sample while 210 large companies are used in Japan. In addition, there are some differences in the choice of independent variable, as employees' wage is not included in the UK's model.

In this subsection, we will test whether there is a relationship between employees' wage and directors' salary in large UK firms.

Discussions in the above sections have shown that there is a positive relationship between employees' wage and directors' pay in large Japanese companies. In chapter 3, it is also suggested that both directors' salary and employees' wage are influenced by company performance in Japan through spring bargaining. The amount of annual wage increase is influenced by both sales and profit (Mizuno, 1987, Sano, 1989, Hart and Kawasaki, 1999). According to Hart and Kawasaki (1999), there is a positive relationship between profit and wage increase. Sales are also considered to be an important factor in this bargaining process as the amount of sales may show the company's ability to pay for its employees.

As described in chapter 5, both directors' monthly pay and their bonus increase when employees' wage increase, as directors' salary is often determined as a proportion of the highest paid employees (Abe et al., 1996). In addition, directors' salary is also affected by firm performance in these companies (Abe et al., 1997, Okushima ed., 1996).

Therefore, we showed that there is a positive relationship between directors' pay and employees' wage in the Japan.

In contrast, there are few such mechanisms in the UK by which directors' salary is influenced by employees' wage. In most large UK companies, directors' pay is determined by a remuneration committee, which is often composed of non-executive directors. Remuneration committees try to set directors' salary according to firm performance, such as Earnings Per Share (EPS), profit, or stock market return. In other words, we can predict that there will be little relationship between directors' salary and employees' wage in the UK.

In this subsection, we test this relationship between top pay and employees' wage in large UK companies. The main objective is to compare this relationship between the UK and Japan, as we have already shown a positive relationship in Japan. We will estimate the determinants of executive pay in the UK, using employees' wage as an independent variable.

As our main aim is to compare the results between the UK and Japan, we will choose samples which will match the Japanese sample. In this section, we will choose 210 companies from UK's dataset which we have used in the above sections. We have chosen these companies as the size distribution of the companies will be similar in both samples¹⁰. Sales are used as the criteria to construct a new sample as sales are one of the

¹⁰ Specifically, we have sorted the whole UK samples by the amount of sales. As described in chapter 4, there are 210 companies in the Japanese sample. In this sample, there are 139 companies whose sales are larger than 1,000 GBP in 1993, and 71 companies whose sales are less. In our original UK sample, there were 116 companies whose sales are larger than 1,000 GBP and we include all these 116 companies in our new UK sample. In addition, we randomly chose another 94 companies from the original UK sample, whose sales is less than 1000 GBP.

most important factors that affect the amount of executive compensation.

Table (6-14) shows the results of these regressions. Dependent variables are fixed pay, and annual incentive (AI) of highest paid director in the UK. Independent variables includes $\ln(\text{sales})$, stock market capitalisation, profit and employees' average wage. The equations 5 and 6 in this table are same as equations 1 and 2 in table (6-13).

It is clearly shown that there is little relationship between directors' salary and employees' wage in the UK. Both fixed pay and annual incentive are not influenced by employees' wage in large UK companies.

This test finds no relationship between directors' salary and employees' wage in large UK companies. It is also confirmed that there is a significant difference in the effect of employees' wage on directors' salary between the UK and Japan. In Japan, there is a positive relationship between employees' wage and directors' pay.

Table 6-14 The effect of employees' wage on directors' salary in the UK and Japan

	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5	Eq. 6
	UK		UK		Japan	
Dependent. Var.	Fixed pay	Fixed pay	Annual incentive	Annual incentive	Average pay	Average pay
Employees' Wage	-0.1132194 (-0.112)	-0.0347079 (-0.034)	0.1752196 (0.151)	0.3110857 (0.273)	0.773 (3.7343)***	0.777 (3.7902)***
Profit		0.1164058 (3.092)***		0.075298 (2.368)**	0.000013 (0.7647)	
Stock Market	0.0185828 (0.0041953)***		0.001882 (1.666)*			-0.0053 (0.019)
ln(Sales)	70.97229 (15.05251)***	85.41046 (5.824)***	12.00673 (0.632)	13.75711 (0.776)	1.325 (3.6301)***	1.433 (4.1657)***
Constant	-260.9286 (-2.507)**	-349.3654 (-3.415)***	-22.94112 (-0.171)	-35.12421 (-0.277)	-6.948 (1.6121)	-8.221 (-2.0204)
R-sq.	0.2692	0.2573	0.0265	0.0172	0.174	0.164
N	395	399	395	399	368	368

Estimation using random effect model

Heteroscedasticity adjusted t-values are in parenthesis

*** Significant at the 1% level ** Significant at the 5% level * Significant at the 10% level

Total: total pay Fixed: Fixed pay AI: Annual Incentive

Stock market: Market capitalisation (UK), shareholders' return (Japan)

Employees' Wage Employees' average wage

6-5. Tournament Pay

We have analysed the financial incentive of directors in previous sections. As described in chapter 3, rank order tournament theory suggests that there can be another kind of incentive scheme for top directors. This may be of particular importance in large Japanese companies. As a large number of directors are ex-employees of the company, promotion may be act as an important incentive in these companies.

In this section, the pay gap between directors and employees in Japan is analysed. The purpose of this section is to test whether or not there is tournament type pay structure in Japan. The determinants of pay gap are estimated using micro data of Japan's large companies. Tournament theory suggests that the directors' pay may be larger than their productivity. This means that the pay gap between directors and employees may be larger than the difference of their productivity. This 'overpayment to the directors' may be efficient under some circumstances, because other employees may work harder to be promoted. As discussed in Chapter 3, if the pay gap is large enough, employees may be motivated to work hard. However, if employees think they have very little possibility to be promoted, then they will not work hard unless the bonus for gaining promotion is very large. Thus, this theory suggests that the pay gap between director and employee will be larger as the possibility of promotion will be smaller. In this research, the relationship between pay gap and the possibility of promotion is estimated. The estimation shows that there is a significant negative relationship between pay gap and the possibility to be promoted, as tournament theory suggests.

6-5-1. Rank Order Tournament and Pay Gap

It is sometimes claimed that compensation for executives are larger than their productivity, or that they are overpaid, compared with their real contribution to the company. One reason why companies 'overpay' their directors is that the directors' compensation does not work only to motivate director himself, but also to motivate other employees. If the director's compensation is high enough, then many employees may work hard to be promoted to the director.

As described in Chapter 3, rank order tournament theory analyses incentive structure within firms. Rank order tournament has some characteristics. Firstly, according to rank order tournament theory, directors' pay may be larger than their real contribution to the company. In a company which has a 'tournament type pay system', the payment for directors includes some premium for gaining promotion to climb to the top of the corporate hierarchy. Employees are likely work hard if the bonus for gaining promotion is large.

Secondly, in a rank order tournament, the promotion to a managerial position is filled internally within the firm. This may encourage employees to work hard, as the possibility is there for one of them to be promoted as soon as there is a vacancy to a higher position. Then, the promotion decision is based on relative performance rather than absolute performance.

Thirdly, salary is related to the position, rather than the performance and the amount of salary is fixed in advance. Employees who achieve better performance will receive a higher salary only after they are promoted to the higher positions.

Fourthly, the effort of employees may depend on the probability that they are

promoted to higher positions within the company. If employees feel that they may become their companies' directors by climbing up the corporate ladder, they are more likely to be motivated to work hard. However, it may be the case that employees do not work hard if they think that they stand little chance of promotion. If this is the case, the pay gap between directors and employees must be large to motivate employees, as they may have the incentive to work hard if the prize for gaining promotion is very large.

If director's salary is much larger than employee's average pay, then employees may work hard even when their chances of promotion are low. In other words, pay gap between directors and employees may be large if the probability of employees to be promoted is low. The firm may want to keep 'the bonus for gaining promotion' high when the competition for promotion is very hard to win.

One of the most important implications of the rank order tournament theory is that the incentive for employees may depends on the pay gap between director's pay and employee's average wage, rather than the level of director's pay. The tournament theory predicts that the pay gap between directors and employees must be made larger when the probability of promotion is smaller. If the possibility of promotion is small, employees may be less motivated as the effort is relatively unimportant to be promoted. However, if the pay gap is large enough, employees may be motivated to work hard. Thus, we can deduce following hypothesis.

Hypothesis 6-1: The pay gap between directors and employees is inversely proportional to the employee' probability of being promoted.

If the pay gap is large, employees may work hard even though the possibility

of promotion is low. If employees believe they do not have any possibility, they will not work hard toward promotion unless the reward for the promotion is very large.

As shown in Chapter 3, there are some studies that suggest that the ‘rank order tournament’ type of promotion is used in managerial positions in large firms. Assessment of individual performance is not easy as the job description of white-collar workers is not clear (Aoki, 1988,1990, Ito, 1994, Kagono et al., 1983). The tournament theory suggests that a ‘tournament type pay system’ is effective when it is not easy to assess individual performance. One reason is that the ‘tournament type pay structure’ does not require information on absolute performance of each employee. White-collar workers tend to be assessed by their relative performance in Japan (Tomita, 1992, Hanada, 1994, Koike, 1994). Promotion is based on tenure within the firm and assessment by their boss (Tomita, 1992), showing that vacancies in managerial positions is filled by internal promotion. These studies suggest that tournament is used in large Japanese firms, therefore, we will test the above hypothesis in large Japanese firms.

Some studies have tried to test the tournament theory. The study by Main et al. (1993) shows that the pay gap between the directors of adjacent layers increase as the layers climb up to the CEO level. The average CEO pay is 142% larger than average pay of second tier executives, while the ratio becomes 75%, 44%, 28% as the level of executives go down. This result is consistent with the tournament theory. According to the theory, as the competition to be promoted will be more intense as the person goes up the corporate hierarchy, the reward for being promoted should be larger. Demsetz (1995) also shows the increasing pay gap between directors on ascending the company ladder up to the CEO. He shows that the ratio of the pay gap between the CEO and

second highest paid director is 40%, while the ratio of pay gap between third and fourth highest paid director is 14%.

Main et al. (1993) also show that the pay gap between the CEO and the vice president has a positive relationship with the number of vice presidents. This result is also consistent with tournament theory, because large number of vice presidents means a lesser probability of each vice president being promoted. However, O'Reilly et al.'s (1988) result does not show the positive relationship between the level of CEO compensation and the number of vice presidents.

6-5-2. Tournament Theory: Research Method

To test the above hypothesis, the determinants of pay gap between directors and employees will be estimated. The data set employed here is the same as the one used in the previous chapter. Data on 210 companies in 1995 and 1996 are used. These companies are listed companies and used as the sample for NIKKEI STOCKMARKET INDEX. For each company, each year, we obtain the following variables. Directors' average pay, directors' average bonus, employees' average wage, the number of directors, the number of employees and sales.

Firstly, the following Equation will be estimated to test the relationship between pay gap and the probability of being promoted. The hypothesis is that the pay gap is larger when the employee has little probability of being promoted.

Pay gap = f (prom, size, dummy)

Paygap1: (directors' pay + bonus) / employees' wage

Paygap2: directors' pay / employees' wage

Prom: number of directors / number of employees

(Equation 6-1)

$$Paygap1 = \frac{directors' pay + directors' bonus}{employees' wage}$$

$$Paygap2 = \frac{directors' pay}{employees' wage}$$

Two types of pay gap variables are calculated. Paygap1 is calculated by dividing directors' total annual salary by employees' wage. This shows the ratio of compensation directors receive compared with employees. Paygap2 is calculated by dividing directors' pay by employees' wage. Paygap2 excludes directors' bonus. Both paygap1 and paygap2 are used because bonus is considered to be compensation for their performance rather than the premium payment for being promoted to the director¹.

According to the tournament theory, there will be a negative correlation between pay gap and probability of promotion. If employees think that they have little possibility of being promoted to the position of director, the company needs to increase the pay gap to motivate them. If pay gap, or the premium payment for the winner is large enough, then employees are more likely to work harder to join the contest. Thus,

the pay gap between director and employee is larger when the possibility of promotion is smaller. If the coefficient for promotion is negative and significant, then it is consistent with our hypothesis. Of course it is often the case that the director in a company is not recruited from its employees. It is true that some directors in Japan's large companies come from a member of the family of the company's founders, their parent company, the government, or a bank. Thus, the variable 'prom' is not exactly the probability of promotion. However, it is also true that most directors in Japan's large companies are chosen from their employees. Then, it may not be inappropriate to use 'prom' as the proxy for employee's probability of promotion.

The effect of the size variable on the pay gap is also estimated. Both pay gap¹ and pay gap 2 are used as dependent variables. As a size variable, log of sales is used. It is sometimes argued that the wages of newly recruited, recently graduated workers are almost the same across companies, because the market determines their wages. Once they are promoted to higher ranks within the companies, their salary may increase according to their position within the company. As larger companies tend to have more layers within their hierarchy, the salary of 'highest paid employee' in a large company is larger than that of a small company. As the directors' pay is larger than the salary of the 'highest paid employee', the pay gap between directors and employees are considered to be bigger in larger companies. Thus, we can predict that the coefficient for the size variable may be positive and significant.

Both company dummy and industry dummies are used independently in our

¹ Our employees' wage figure includes employees' bonus in addition to monthly payment.

estimation. According to the tournament theory, the pay gap also depends on the risk each company or industry faces. If the performance of the person depends largely on chance, rather than their effort, then pay gap may be larger to motivate employees and those employees only make an effort if the premium for promotion is large enough. If the pay gap is small, and if performance depends on chance, then the employee is likely not to work hard because working hard may bring no reward. One of the biggest uncertainties is the fluctuation of demand of their product. Thus, companies in the same industry may share the risk that arises from their product market. Each company also faces other risks that are specific to that company. That risk may come from their management strategy or their geographical location. In our analysis, both company dummy and industry dummy are used independently. Company dummies are supposed to proxy company specific factors including the risk that the company faces. Industry dummies are supposed to proxy industry specific factors that include the industry specific risk, such as the fluctuation in the market.

6-5-3. Tournament Theory: Results

Tables (6-11) and (6-12) show the results of the regression. The dependent variables are pay gap and the independent variables include promotion probability, size and dummy variables. The dependent variable in Table (6-11) is the paygap1, which is the ratio between director's salary (pay + bonus) and employee's wage. The most important result in Table (6-11) is that the coefficients for the promotion are all negative and significant. The coefficients for promotion in Equations 1 and 2 are significant at the 1% level. The coefficients for promotion in Equations 3 and 4 are also significant, at

the 5% and 10% level, respectively. These results show that the pay gap between the directors and the employees are larger when the director/employee ratio is smaller.

It should be noted that the coefficients for sales in Table (6-11) are not significant. In Equation 4, the coefficient for $\ln(\text{sales})$ is negative. One reason may be that we used employee's average pay to calculate pay gap between directors and employees. There are many middle and senior managers in large companies, who receive higher pay and in such a case the employee's average pay may be larger in large companies. In addition, we use director's average pay in calculating the pay gap between directors and employees. As there are many directors in large companies, the director's average salary may be smaller in large companies where even the top director receives a very high salary. Therefore, the pay gap in large companies may be small because the employee's average wage may be large and the director's average salary may be small. This may be one of the reasons why we fail to find a positive relationship between pay gap and firm size. In Equation 4, the coefficient for promotion probability is smaller than that in Equation 3 while $\ln(\text{sales})$ is included in Equation 4. The coefficient in Equation 4 becomes smaller as the coefficient for $\ln(\text{sales})$ is negative.

In Equation 4 in Table (6-11), industry dummies are included as independent variables. According to the rank order tournament theory, pay gap between directors and employees may depend on the relationship between effort and performance. If the performance of employees depends more on 'luck' than their effort, employees may not have enough incentive to work hard. In this case, the pay gap should be larger to motivate employees. There may be many factors that affect the relationship between effort and performance. If industry specific factors affect this relationship, the pay gap may vary across industries.

Table (6-12) shows the results of similar regressions that estimate the determinants of the pay gap between directors and employees. In Table (6-12), the dependent variable is the pay gap between the director's average pay and the employee's wage, excluding the director's bonus. The results in Table (6-12) are similar to those in Table (6-11). There are significant negative relationships between pay gap and promotion probability. It is noted that in Equation 8, the coefficient for sales is significant. However, it is still unclear if size does affect the pay gap, as other coefficients for size variables are not significant.

We can summarise the results in the Table (6-11) and (6-12) as follows: There is a strong and significant negative relationship between the pay gap and the probability of promotion. The pay gap between directors and employees is larger when employees perceive a lower chance of promotion, supporting our hypothesis².

6-6. Conclusion

The purpose of this chapter is to analyse the directors' incentive in large companies in Japan and in the UK, with particular emphasis on the relationship between corporate governance and executive compensation. The main questions analysed are as follows: 1) Is there a positive relationship between directors' salary and employees' wage in Japan? 2) Is there a link between profit, stock market capitalisation and top pay in the UK?

The main findings of this research from Japan's data can be summarised as

² One limitation of this study is that we estimate only one pay gap between directors and employees and do not estimate the successive steps in the hierarchy.

follows. There is a strong relationship between directors' compensation and employees' wage, while no positive relationship has been found between shareholder's return and top pay. This research also finds a positive relationship between director's bonus and profit of the company. In contrast, this research finds that top pay in the UK is positively correlated with most company performance variables, including profit, stock market capitalisation and sales.

In this chapter, firstly, the determinants of directors' pay and their bonuses in Japan's large companies are estimated. The independent variables include shareholders' return, profit, return on capital, employees' average wage, directors' age, their tenure, number of employees and sales. We can summarise the main results from Japan's data as follows:

- 1) In Japan, there is a positive relationship between directors' salary and employees' wage. These relationships are positive and strongly significant.
- 2) In Japan, shareholder's return has little effect on director's pay and their bonus.
- 3) In Japan, the coefficients for the profitability variables are not significant in the regression on the directors' pay.
- 4) In Japan, there is a positive relationship between directors' bonus and profit. This relationship is strong.
- 5) In Japan, there is a strong positive relationship between sales and pay, and between sales and bonus but no significant relationship exists between number of employees and pay or bonus.

This research can not find any relationship between shareholders' return and directors' pay, suggesting that directors have little incentive to pursue shareholders' interest, because they will receive little reward for doing so.

In contrast, we find a positive relationship between an employee's wage and a director's salary, which is consistent with our discussion in chapter 5, that both directors and employees are paid in a similar way in large Japanese companies.

This research finds a strong relationship between profit and directors' bonus in Japan. This relationship suggests that directors' have a financial incentive to pursue the profit of the company, in addition to employees' wages.

Many previous studies find a strong link between size of the company and executive pay. This research finds a positive relationship between sales and pay in Japan, and between sales and bonus, however, another size variable, number of employees, explains neither directors' pay nor their bonus. As it may be the case that there are many directors in large companies, the compensation of non-title directors, who belong to the bottom layer of the hierarchy within a board, may be much smaller than the president's salary. If this is the case, the director's average pay may not be very large even if the top director of a large company receives a large amount of salary. The other reason may be that the size effect is captured by tenure and it may be that it takes a long time to become a director in a large companies³.

³ We observed a positive relationship between sales and the director's salary. This may be because sales may show the firm's performance as well as the size of the company.

This research also analyses the determinants of executive pay in the UK's large listed companies. The pay equation is estimated from data from almost 1500 of UK's listed companies between 1994 and 1995. The main findings from the UK sample are as follows:

- 1) In the UK, profit (both current and previous) has a significant effect on the total- and fixed pay.
- 2) In the UK, stock market capitalisation has a significant effect on total- and fixed pay.
- 3) In the UK, the 'change in EPS' has a significant effect on the 'Change in total pay' and on the 'change in fixed pay'.
- 4) In the UK, 'change in profit' and 'change in EPS' have a significant effect on the annual incentive and its change.
- 5) In the UK, there is a significant relationship between log of sales and the amount of compensation given.

In addition, we analyse the pay gap between directors and other employees in large Japanese firms. The rank order tournament theory implies a negative correlation between pay gap and the possibility of employees of being promoted. If employees see little chance of being promoted to the top layer of the corporate hierarchy, then a large pay gap is needed to motivate them. If the pay gap is not large enough, the employees have little incentive to work hard. The work in this chapter finds a negative relationship between pay gap and the promotional opportunities of workers in Japan. This result is consistent with our discussion in Chapter 3 describing the fact that the 'rank order

tournament' type of employment structure is used for managerial positions in large Japanese firms (Koike, 1994, Hanada, 1994, Tomita, 1992).

Table 6-1 Determinants of directors' average pay in Japan

Independent variables	Eq.1	Eq. 2	Eq.3	Eq.4	Eq.5	Eq.6	Eq.7	Eq.8
Director's Age	-0.1812682 '(-0.281)	-0.2389476 '(-0.347)	-0.2366346 '(-0.338)	-0.3505686 '(-0.487)	-0.2472912 '(-0.353)	-0.3860306 '(-0.521)	-0.2399397 '(-0.352)	-0.3595818 '(-0.507)
Director's Tenure	1.342706 '(1.480)	1.374333 '(1.484)	1.47455 '(1.725)*	1.407947 '(1.591)	1.567457 '(1.747)*	1.509201 '(1.585)	1.577823 '(1.750)*	1.499593 '(1.581)
ln(Number of Employees)	2.785469 '(0.560)		-1.279582 '(-0.291)		-2.481703 '(-0.529)		-1.451884 '(-0.321)	
ln(Sales)		3.587771 '(1.367)		5.953564 (3.135)***		6.14773 '(3.200)***		6.340238 '(3.323)***
Shareholders' Return(lagged)			0.055252 '(1.485)	0.0509057 '(1.354)				
Profit before tax(lagged)					0.0000196 '(0.630)	0.0000148 '(0.496)		
Return on Capital(lagged)							-2.854466 '(-0.673)	-3.923604 '(-1.034)
Employees' Wage	1.244446 '(2.808)***	0.6798482 '(1.320)						
Constant	-18.42367 '(-0.283)	-33.35299 '(-0.685)	31.2082 '(0.526)	-51.54237 '(-1.090)	41.10164 '(0.651)	-52.95482 '(-1.107)	32.48973 '(0.537)	-56.38011 '(-1.217)
No. Observations	368	368	368	368	368	368	368	368
R-square	0.8086	0.8095	0.8046	0.8114	0.8015	0.8087	0.8013	0.8091

Estimation using least square dummy variable model

Heteroscedasticity adjusted t-values are in parenthesis

*** Significant at the 1% level ** Significant at the 5% level

* Significant at the 10% level

Table 6-2 Determinants of directors' average bonus in Japan

Independent variables	Eq.1	Eq. 2	Eq.3	Eq.4	Eq.5	Eq.6	Eq.7	Eq.8
Director's Age	-0.1381764 '(-0.702)	-0.2351165 '(-1.193)	-0.0425296 '(-0.320)	-0.1332828 '(-0.837)	0.0391323 '(0.275)	-0.114122 '(-0.713)	-0.0618032 '(-0.473)	-0.1103282 '(-0.794)
Director's Tenure	0.3166432 '(2.068)**	0.242827 '(1.551)	0.2759165 '(2.210)**	0.1875687 '(1.325)	0.1837848 '(1.512)	0.1478952 '(1.055)	0.1263745 '(1.152)	0.1337163 '(1.084)
ln(Number of Employees)	-0.6802173 '(-0.539)		-0.8278796 '(-0.652)		-0.7029999 '(-0.491)		1.134113 '(0.827)	
ln(Sales)		2.350795 '(5.455)***		2.079131 '(4.885)***		2.269551 '(5.377)***		1.965356 '(3.146)***
Shareholders' Return	-0.0051666 '(-1.316)	-0.0050223 '(-1.857)*						
Profit before tax			0.0000278 '(3.260)***	0.0000109 '(2.280)**				
Return on Capital					7.33563 '(2.443)**	1.90469 '(1.430)		
Employees' Wage							0.4306033 '(3.559)***	0.1001184 '(0.856)
Constant	17.53854 '(1.275)	-13.27826 '(-1.048)	12.94288 '(0.970)	-15.47046 '(-1.440)	7.788354 '(0.521)	-18.7675 '(-1.751)*	-5.532134 '(-0.371)	-15.77508 '(-1.295)
No. Observations	282	282	282	282	282	282	282	282
R-square	0.9379	0.9679	0.95	0.9682	0.9425	0.9669	0.9598	0.9671

Estimation using least square dummy variable model

Heteroscedasticity adjusted t-values are in parenthesis

*** Significant at the 1% level ** Significant at the 5% level

* Significant at the 10% level

Table 6-3 Determinants of change of directors' average pay in Japan

Independent variables	Eq.1	Eq. 2	Eq.3	Eq.4	Eq.5	Eq.6	Eq.7	Eq.8
ln(Number of Employees)	-5.751056 '(-0.779)		-14.56952 '(-1.962)*		-9.438188 '(-1.264)		-10.23208 '(-1.352)	
ln(Sales)		1.217699 '(0.293)		6.009124 '(2.717)***		6.70854 '(2.924)***		6.896235 '(2.903)***
Change in Shareholders' Return(lagged)			0.0542063	0.0468702				
Change Profit before tax(lagged)			'(1.837)*	'(1.631)				
					0.0000581	0.000059		
Change Return on Capital(lagged)					'(1.223)	'(1.260)		
							-1.021109 '(-0.304)	-1.574868 '(-0.573)
Change of Employees' Wage	1.424668 '(2.982)***	1.372025 '(1.797)*						
Constant	48.58308 '(0.771)	-16.54172 '(-0.301)	123.6627 '(1.959)*	-80.08517 '(-2.741)***	80.47815 '(1.265)	-88.89506 '(-2.919)***	87.15409 '(1.352)	-91.47549 '(-2.903)***
No. Observations	365	365	365	365	365	365	365	365
R-square	0.1914	0.1902	0.2045	0.2046	0.1836	0.1913	0.1742	0.1819

Estimation using least square dummy variable model

Heteroscedasticity adjusted t-values are in parenthesis

*** Significant at the 1% level ** Significant at the 5% level

* Significant at the 10% level

Table 6-4 Determinants of change of directors' average bonus in Japan

Independent variables	Eq.1	Eq. 2	Eq.3	Eq.4	Eq.5	Eq.6	Eq.7	Eq.8
ln(Number of Employees)	-1.728264 '(-0.714)		-1.411472 '(-0.568)		-1.576958 '(-0.603)		-0.2844167 '(-0.126)	
ln(Sales)		2.41641 '(5.046)***		1.983435 '(4.853)***		2.240922 '(4.726)***		1.705992 '(1.761)*
Change of Shareholders' Return	-0.0060061 '(-2.174)**	-0.0073343 '(-3.329)***						
Change of Profit before tax			0.0000201 '(3.381)***	0.0000157 '(3.139)***				
Change of Return on Capital					4.441338 '(1.909)*	2.763497 (1.650)		
Change of Employees' Wage							0.408834 '(3.459)***	0.1608906 '(0.820)
Constant	14.52552 '(0.705)	-32.26003 '(-5.080)***	11.96819 '(0.565)	-26.37877 '(-4.857)***	13.35436 '(0.600)	-29.82094 '(-4.738)***	2.173874 '(0.113)	-22.80529 '(-1.782)*
No. Observations	272	272	272	272	272	272	272	272
R-square	0.5212	0.6554	0.6051	0.69	0.5309	0.6417	0.6117	0.639

Estimation using least square dummy variable model

Heteroscedasticity adjusted t-values are in parenthesis

*** Significant at the 1% level ** Significant at the 5% level

* Significant at the 10% level

Table 6-5 Determinants of total pay of highest paid director in the UK

	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5
dprofit	0.0059211 (0.0035166)*				
dEPS		0.0076099 (0.0037059)**			
profit			0.0927054 (0.0255223)***		
profit(-1)				0.0866205 (0.265151)***	
cap					0.0421592 (0.0053091)***
ln(sales)	60.63744 (4.852609)***	60.76386 (4.860624)***	57.66315 (4.931319)***	58.21914 (4.937196)***	52.27616 (5.877446)***
Constant	-59.05411 (25.48156)**	-59.67105 (25.51642)**	-50.3067 (25.60005)**	-51.74761 (25.69503)**	-37.89536 (28.85696)
R-sq.	0.0871	0.0874	0.0904	0.0882	0.0981
n	2665	2662	2666	2659	2356

Estimation using random effect model

Heteroscedasticity adjusted t-values are in parenthesis

*** Significant at the 1% level ** Significant at the 5% level * Significant at the 10% level

dprofit: Change in profit dEPS: Change in Earnings Per Share

profit(-1): Profit of the previous year cap: Market capitalisation

Table 6-6 Determinants of change of total pay of highest paid director in the UK

	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5
dprofit	0.002898 (0.001986)				
dEPS		0.0063669 (0.0028458)**			
profit			-0.0042763 (0.0081567)		
profit(-1)				-0.0094511 (0.0072746)	
cap					0.000226 (0.0012874)**
ln(sales)	-0.6179614 (0.9340512)	-0.6821718 (0.9321412)	-0.3507925 (1.025145)	0.8085333 (0.819348)	-0.963757 (1.301486)
Constant	20.88358 (4.79629)***	21.1054 (4.787798)***	19.9294 (5.034633)***	14.02154 (4.024909)***	23.02893 (6.003326)***
R-sq.	0.0009	0.0021	0.0002	0.0012	0.0003
n	2665	2662	2666	2659	2356

Estimation using random effect model

Heteroscedasticity adjusted t-values are in parenthesis

*** Significant at the 1% level ** Significant at the 5% level * Significant at the 10% level

dprofit: Change in profit dEPS: Change in Earnings Per Share

profit(-1): Profit of the previous year cap: Market capitalisation

Table 6-7 Determinants of fixed pay of highest paid director in the UK

	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5
dprofit	0.00434				
	(0.002284)*				
dEPS		0.0027703			
		(0.0029162)			
profit			0.1286358		
			(0.0114203)***		
profit(-1)				0.1556856	
				(0.0126675)***	
cap					0.0244027
					(0.0016208)***
ln(sales)	37.88844	37.95325	31.52914	31.44123	34.65043
	(1.431695)***	(1.431002)***	(1.490463)***	(1.467045)***	(1.63787)***
Constant	-55.68116	-55.77699	-33.03545	-32.93683	-43.07892
	(7.27914)***	(7.276896)***	(7.287269)***	(7.209938)***	(7.51742)***
R-sq.	0.2852	0.2851	0.329	0.3392	0.4488
n	2665	2622	2666	2659	2356

Estimation using random effect model

Heteroscedasticity adjusted t-values are in parenthesis

Significant at the 1% level

**

Significant at the 5% level

*

Significant at the 10% level

dprofit:

Change in profit

dEPS:

Change in Earnings Per Share

profit(-1):

Profit of the previous year

cap:

Market capitalisation

Table 6-8 Determinants of change of fixed pay of highest paid director in the UK

	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5
dprofit	0.0021893 (0.0016967)				
dEPS		0.0062542 (0.0024533)**			
profit			0.0022172 (0.00657)		
profit(-1)				-0.0016075 (0.0046926)	
cap					0.0002776 (0.0010396)
ln(sales)	-0.7162813 (0.7491398)	-0.787831 (0.7473971)	-0.7987154 (0.8244144)	0.1739504 (0.5308668)	-0.8850342 (1.052812)
Constant	11.02696 (3.861449)***	11.31933 (3.853822)***	11.34907 (4.06172)***	6.0782 (2.607515)**	12.21781 (4.870309)**
R-sq.	0.0009	0.0027	0.0003	0	0.0003
n	2665	2662	2666	2659	2356

Estimation using random effect model

Heteroscedasticity adjusted t-values are in parenthesis

***	Significant at the 1% level	**	Significant at the 5% level	*	Significant at the 10% level
dprofit:	Change in profit	dEPS:	Change in Earnings Per Share		
profit(-1):	Profit of the previous year	cap:	Market capitalisation		

Table 6-9 Determinants of annual incentive of highest paid director in the UK

	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5
dprofit	0.0186478 (0.0080125)**				
dEPS		0.0451918 (0.0115865)***			
profit			0.0163837 (0.031026)		
profit(-1)				-0.0231866	
				-0.341464	
cap					0.0065823 (0.0047754)
ln(sales)	21.16361 (3.429805)***	20.69358 (3.428576)***	20.60785 (3.776681)***	22.50646 (3.746451)***	22.53388 (4.839595)***
Constant	-60.40473 (17.71277)***	-58.45071 (17.70963)***	-58.17281 (18.63936)***	-65.14756 (18.58467)***	-65.49629 (22.41095)***
R-sq.	0.0165	0.0201	0.0146	0.0146	0.0181
n	2665	2662	2666	2659	2356

Estimation using random effect model

Heteroscedasticity adjusted t-values are in parenthesis

***	Significant at the 1% level	**	Significant at the 5% level	*	Significant at the 10% level
dprofit:	Change in profit	dEPS:	Change in Earnings Per Share		
profit(-1):	Profit of the previous year	cap:	Market capitalisation		

Table 6-10 Determinants of change of annual incentive of highest paid director in the UK

	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5
dprofit	0.0064976				
	(0.0035564)*				
dEPS		0.0094499			
		(0.0051521)*			
profit			-0.0084919		
			(0.0133558)		
profit(-1)				-0.0197084	
				(0.0151467)	
cap					-0.0017172
					(0.002127)
ln(sales)	4.149825	4.083126	4.695457	5.101646	6.156207
	(1.522339)***	(1.524586)***	(1.675624)***	(1.661857)***	(2.15561)***
Constant	-1.413292	-1.077598	-3.340538	-4.761846	-7.898175
	(7.861917)	(7.874942)	(8.269844)	(8.243821)	(9.98186)
R-sq.	0.0042	0.0042	0.0031	0.0035	0.0038
n	2665	2662	2666	2659	2356

Estimation using random effect model

Heteroscedasticity adjusted t-values are in parenthesis

*** Significant at the 1% level ** Significant at the 5% level * Significant at the 10% level

dprofit: Change in profit dEPS: Change in Earnings Per Share

profit(-1): Profit of the previous year cap: Market capitalisation

Table 6-11 Determinants of pay gap between directors and employees -1

Dependent variable: the ratio between directors total salary (pay + bonus) and employees' wage

Independent Variables	Eq.1	Eq.2	Eq.3	Eq.4
Promotion prob.	-30.11936	-30.17867	-12.96068	-15.22934
	(-2.701)***	(-2.702)***	(-1.996)**	(-1.793)*
lnsales		0.0388269		-0.0400638
		'(0.325)		'(-0.361)
Constant	2.314446	1.799876	1.496162	1.98073
	(29.661)***	'(1.137)	(10.442)***	'(1.488)
Company Dummy	yes	yes		
Industry Dummy			yes	Yes
No. Observations	414	414	414	414
R-square	0.8971	0.8971	0.4058	0.4062

Estimation using least square dummy variable model

Heteroscedasticity adjusted t-values are in parenthesis

*** Significant at the 1% level ** Significant at the 5% level * Significant at the 10% level

lnsales: ln(sales)

Table 6-12 Determinants of pay gap between directors and employees -2

Dependent variable: the ratio between directors pay (not including bonus) and employees' wage

Independent Variables	Eq.5	Eq.6	Eq.7	Eq.8
Promotion	-25.79453	-25.7929	-14.49864	-5.357565
	(-2.520)**	(-2.512)**	(-2.166)**	'(-0.733)
lnsales		-0.0010955		0.1771861
		'(-0.007)		(2.230)**
Constant	1.726822	1.741341	1.351782	-0.7728471
	'(24.575)	'(0.795)	(9.209)***	'(-0.800)
Company dummy	yes	yes		
Industry Dummy			yes	yes
No. Observations	368	368	368	368
R-square	0.8463	0.8463	0.5296	0.5384

Estimation using least square dummy variable model

Heteroscedasticity adjusted t-values are in parenthesis

*** Significant at the 1% level ** Significant at the 5% level * Significant at the 10% level

lnsales: ln(sales)

Chapter 7. The Effects of Pay Policy on Company Performance: Hypothesis and Methodology

7-1. Introduction

Chapters 7 and 8 examine the effect of company's pay policy on corporate performance. The purpose of these two chapters is to analyse whether company's 'way to pay to their director' matters or not. In this chapter, we describe our hypotheses, research method and our data. Particular emphasis is laid on the definition of the pay-performance sensitivity that this research introduces as a new concept.

The purpose of Chapters 7 and 8 is to investigate the effect of executive compensation on company's performance. In this chapter, hypotheses and data, research methods are described. One of the main questions in Chapters 7 and 8 is whether the company's pay policy affects company performance. In particular, an attempt will be made to investigate whether or not the company that changes its pay policy improves its performance. For example, in the UK, can the companies, which recently introduced an annual incentive, improve their profit? This study does not focus on the effect of 'the amount paid to directors' on company performance, but on the effect of 'the way compensation is paid'.

There are relatively few studies on the relationship between pay scheme and performance (Jensen and Murphy, 1990b), while many studies on the determinants of executive compensation exist (Conyon, 1995, Conyon et al., 1995, Cosh, 1975, Jensen, et al., 1990a, Gregg et al., 1993, Main, et al., 1993, Rosen, 1990). Jensen and Murphy (1990b) analysed the effect of performance pay sensitivity on company performance. By estimating the pay-performance sensitivity, they can categorise companies by their pay-performance sensitivity. They choose 'best' companies whose sensitivity is highest, and 'worst' companies whose sensitivity is lowest among their sample. They then compared the performance of the two groups of companies. One group consists of 25 companies whose CEOs have the 'best' incentives in companies within the US, while the other group consists of 25 companies with the 'worst' incentives. In the companies with the 'best' incentives, CEOs receive the highest reward for creating additional shareholder's wealth. In the 'best' company, the CEO receives \$232.53 for \$1000 change in shareholder wealth, while in the 'worst' company, the CEO receives - \$1.41 for creating \$1000 shareholder wealth.

Jensen and Murphy analyse data between 1970-1988 and show that the performances of companies with the highest pay-performance sensitivities are much better than those with the lowest. The average return on stock is 14.5% among companies with the 'best' incentives and 10.8% among companies with the 'worst' incentives.

Abowd (1990) analysed the effect of performance based executive compensation on company performance, using data from 1981-86 on 250 large companies in the US. He showed that strong sensitivity of compensation to

corporate performance yields better economic return the following year. He used the logistic model to test whether performance sensitive pay yields better future performance.

Ehrenberg and Bognanno (1990) tested whether tournament has an incentive to increase performance. Working with data on the professional golf tournament, they analysed the effect of the level and structure of prizes in the professional golf tournament (PGA) and the each player's performance. They find that a higher prize leads to better results, particularly in the later rounds of a tournament, when the players tend to be tired. Other things equal, as the prize money increases, the score will become lower for every player. This result suggests that tournament does work as an incentive device.

In this chapter, the effect of the pay policy on the company policy in both the UK and in Japan will be studied. The following questions are analysed: 1) Do those companies with higher pay-performance sensitivity achieve better performance than those without? 2) Can the performance of the company that intensifies the performance-pay sensitivity outpace the performance of other companies? 3) Is the performance of the company with annual bonus better than those without? 4) Does the company that introduces an annual incentive program for executives, improve its performance?

This research estimates logistic and probit regressions to analyse these hypotheses. Dependent variables are dummy variables that indicate whether the company improves its performance or not. The performance variables include profit and earnings per share for the UK, and for Japan, profit, return on capital and wage. Wage is included because it is assumed that the employee's welfare is one of

the important objectives for directors in Japan, as seen in previous chapters (Aoki, 1984, 1988, 1990, Aoki and Itami, 1985, Dore, 1987. Komiya, 1988, Itami, 1994, Iwai, 1988, Kagono and Kobayashi, 1988, Kuwahara, 1988, Tachibanaki, 1995, Noda, 1995). As shown in Chapter 6, in Japan there is a strong link between director's compensation and employee's wage.

We compare the results of our estimations between the two countries, UK and Japan. This comparison is considered to be of importance because both countries have a different attitude toward executive compensation. In the UK, many companies are trying to create a relationship between company performance and top pay, in response to recommendation from the Cadbury and Greenbury report, although there is a debate on the effect of these recommendations. In contrast, few large Japanese firms show an interest in linking company performance and director's pay.

Our results can be summarised as follows. In the UK there is a positive relationship between 'way to pay' and corporate performance. Companies with a high pay-performance sensitivity are more likely to improve their profit and earnings per share. The companies that intensify the sensitivity are more likely to improve their performance. In addition, in the UK the companies with an annual incentive are also likely to improve their profit and EPS. In contrast, Japan's data do not show a positive relationship between the performance-pay sensitivity and company's performance.

7-2. Do Incentives Matter?

Many previous studies on the determinants of executive compensation assume that executive compensation depends on firm's performance, though their relationship may be explicit or implicit¹. The directors' compensation may increase when the company achieves good performance. These studies implicitly assume that the top director and shareholders are in a 'principal-agent' relationship. Principal-agent theory predicts that as the performance-pay sensitivity increases, directors are more motivated, therefore, high performance-pay sensitivity may yield a higher company performance. Top directors in the company with high pay-performance sensitivity will work hard and perform better. However, there are relatively few studies that examine the effect of pay-performance sensitivity on firm performance (Abowd, 1990, Jensen and Murphy 1990a, 1990b).

The above arguments lead us to the following hypotheses. First, we will test whether companies with high pay-performance sensitivity achieve higher company performance. By estimating the relationship between pay-performance sensitivity and performance, we are able to calculate by how much each performance improves in percentage terms when a company increases its sensitivity by 1 %. The hypotheses analysed here are:

¹ Many large companies in the UK indicate their performance measure and performance target.

Hypothesis 7-1: The performance of those companies with high performance-pay sensitivity is larger than that of those with low sensitivity.

Hypothesis 7-2: The companies that intensify their performance-pay sensitivities achieve a higher company performance than other companies.

Most British companies have some kind of incentive program, such as annual bonus or a long-term incentive. An annual bonus is quite common among large UK companies, while the long-term incentive is not widely used. In our sample, in 1995, only 13.8% among 1436 companies had some kind of long-term incentive, while 68.9% had an annual incentive. According to the Monks partnership (1994), only 19% of FT-SE 350 companies have long-term incentives, compared to 71%, which have annual incentives².

There may be two main reasons why these companies introduce an incentive program; namely the ‘motivation effect’ and the ‘goal-setting effect’. As described above, the principal-agent theory predicts that higher pay-performance sensitivity will motivate top directors. As directors may receive a higher salary according to their performance, they have more of an incentive to work hard and thus, the company will achieve a higher performance.

In addition, these incentive schemes may help top managers to understand what their goal is in managing the company. Usually, a remuneration committee

(Williams, 1994)

² In addition, Williams (1994) cites that 7% of companies have a long-term incentive plan from the Hay consulting report (1993).

sets the performance target at the beginning of the year. Top executives are notified of their performance objectives and some 'formula' to calculate their bonus.

According to Williams (1994), many companies report that the major benefit of introducing an incentive scheme to top directors are that directors focus their attention on the defined performance objectives. Marsden and French (1998) also suggest that the 'goal setting effect' is more effective than the 'incentive effect' in improving productivity in their sample taken from workers in the public services.

Companies introduce annual bonuses to motivate directors to raise their awareness of short-term performances (Williams, 1994). In particular, one of the most important objectives in introducing an annual incentive scheme is to help the top directors to focus on performance targets that can be measured. These annual incentives do not only motivate directors to work hard, but also they make directors focus on some performance measures, set by a remuneration committee, such as growth of EPS and profit. It should be noted that these performance measures can be measured every year. In other words, firms may be able to assess the performance of top directors every year. In particular, those directors who are working towards recently applied annual incentive schemes may have a greater incentive to concentrate on the short-term targets of one year. These hypotheses will now be tested.

Hypothesis 7-3: In the UK, those companies with an annual incentive scheme will achieve higher company performance than those without one³.

³ As described in chapter 5, almost all the listed companies in Japan have an annual bonus. Thus, it is

Hypothesis 7-4: In the UK, those companies that have recently introduced an annual bonus will achieve better performance.

Hypotheses 1 and 2 are tested using the micro data of listed companies in the UK and in Japan. As virtually all the large companies give annual bonuses in Japan, hypotheses 3 and 4 are tested only for those companies in the UK⁴.

7-3. Data

UK data

The data analysed here are the same as the one we used in the previous chapters⁵. This data are taken from the Monks partnership's "United Kingdom Board Earnings, October 1995", and "United Kingdom Board Earnings, October 1994". These data sets include comprehensive data on executive compensation and company performance, including the detailed composition of the highest paid director. For example, the 1995 data set covers 1431 quoted companies in the UK, whose annual reports are available in September 1995. Thus, the coverage of this data set is large.

One of the advantages of this data is that it includes the detail of the pay packages, such as the amount of annual /long-term incentive, pension contribution,

not possible to compare the performance of companies with an annual bonus to those without.

⁴ Some large companies in Japan report no director's bonus. These companies may not have an annual bonus plan. However, it is possible that the bonus is set to 0 because of bad company performance. As we can not distinguish between the two possibilities, we will not be able to test hypotheses 3 and 4.

⁵ Details of this data set, including reliability, are discussed in chapter 4.

and benefit, for the highest paid director⁶. In addition, this data give us information on whether a company has an annual incentive. Therefore, we can distinguish between those companies that do not have any annual incentive scheme and those that do not pay out any annual incentive because the company's performance is not sufficient. This data also includes previous year's figures for top pay, profit and earnings per share. Thus, the time coverage for these variables is 3 years, from 1993 to 1995. For other variables, the coverage is 2 years from 1994 to 1995.

Japan's data

In this research, we use the same data set as the one we used in previous chapters. In Chapter 4 we examined the reliability of this data set. 210 of Japan's large listed companies are used as our sample. The stock prices of these companies are used to calculate the NIKKEI INDEX. The data for 1995 and 1996 are used. Most variables, including directors' pay and their bonuses, are taken from the NIKKEI NEEDS database. Other variables are taken from the *Toyo Keizai Yakuin Shikihou* (Directory of directors) and the *Kabushiki Toshi Shuekiritsu* (Rate of Return on Stocks in Japan). Both the NIKKEI NEEDS database and the *Toyo Keizai Yakuin Shikihou* are based on each company's annual report. The shareholder's return, which is taken from the *Kabushiki Toshi Shuekiritsu* (Rate of Return on Stocks in Japan), is calculated by the NIHON SHYOKEN KEIZAI KENKYUSHO (Japan institute of securities and economics) and is based on stock price and

⁶ However, this data set does not include stock option data. Therefore, we cannot assess the effect of stock option on firm performance. In addition, it is not possible to compare the performance of the company with those without stock option. However, it may not be worth to comparing the performance those companies with stock option with those without because almost all the large UK companies have some kind of stock option scheme (Monks partnership, 1994).

dividend.

The company discloses the total amount of directors' pay and their bonuses, in addition to the number of directors. This research calculates director's average pay (ADPAY) and director's average bonus (ADBONUS) by dividing the total amount of pay and bonus for all the directors by the number of directors.

As mentioned in Chapter 4, it is noted that this research focuses on 'director's average pay', instead of top director's pay for Japan. Some may think this is a serious problem as we focus on top directors in the UK. However, we believe that this is appropriate because the role of the top director and the board of directors are not the same in Japan as the UK. In general, in the UK, the CEO is responsible for the day to day operation of the company, while in Japan, directors have this responsibility. In the UK, the board of directors is supposed to monitor the CEO on behalf of the shareholders and there are some non-executive directors⁷ on the board. In contrast, in Japan, each director is responsible for running certain sections of the company. In addition, there are very few external directors in Japan. Thus, the board of directors is supposed to discuss day to day business operation, rather than to monitor the top managers⁸.

Cross national comparability

Data from both Japan and the UK provides information on executive compensation and company performance; there are however, many differences. Firstly, with regard to the executive compensation data, the UK's data provide

⁷ According to Conyon et al. (1995), almost 40% of directors in large UK firms are non-executive directors.

⁸ In our sample, the average number of directors in a company is 29.2. The maximum number of

information on the highest director's pay while Japan's data provide information on the director's average compensation. Secondly, with regard to performance measures, the UK's data provide information on profit and earnings per share, while Japan's data provide information on profit, return on capital and employees' wage. Thirdly, with regard to the coverage, Japan's data provide information on 210 large company's data, whereas data from the UK are taken from almost 1500 companies. Thus, the UK data include smaller companies and data of financial companies, which is not the case of the data from Japan.

7-4. How Can We Measure the Pay-Performance Sensitivity?

The purpose of this research is to examine the relationship between company's performance and their pay policy, such as pay-performance sensitivity. However, it is not easy to observe each company's pay-performance sensitivity directly, as their pay policy varies across time and across the spectrum of industries⁹. Thus, pay-performance sensitivity should be estimated from disclosed information. Although much research has been carried out on the relationship between director's pay and company's performance, relatively little has been studied on pay-performance sensitivity for each company¹⁰. Jensen and Murphy (1990a) estimated each company's pay-performance sensitivity by running pay-performance regression for more than 400 companies. Their approach to pay-performance sensitivity has some advantages. Firstly, it is possible to assess the relationship

directors is 60, while the minimum is 9.

⁹ Some companies in the UK reveal how annual bonus is determined.

¹⁰ Most studies estimate the pay-performance relationship across companies.

between each company's pay-performance sensitivity and its performance. It is important to observe individual company's sensitivity when the relationship between sensitivity and performance is examined, as both sensitivity and performance vary between companies. The other advantage is that sensitivity is stable over time, as Jensen and Murphy estimated this sensitivity using more than 10 years of data. However, their approach has some weaknesses. Firstly, as they estimate the determinants of executive compensation for each company, they assume that the pay-performance sensitivity is unchanged over time. This may be an incorrect assumption as many companies are trying to strengthen the link between company performance and top pay. For example, annual incentive schemes were not widely used in the UK 10 years ago compared to these days. Thus, secondly, we are unable to assess the effect of 'change in pay policy' on firm's performance by their sensitivity measure. For example, we cannot test the hypothesis that those companies that intensified their sensitivity will perform better. To test this hypothesis, the pay-performance sensitivity for each company must be analysed each year.

This research will employ a more direct approach to calculate each company's performance pay. We calculate the sensitivity using current and previous year's pay and performance data and it is defined as the percent change in payment divided by the percent change in company's performance. Alternatively, we can define performance-pay sensitivity as:

$$sensitivity \equiv \frac{\frac{\Delta pay}{pay_t}}{\frac{\Delta performance}{performance_t}} = \frac{\Delta pay}{\Delta performance} \frac{performance_t}{pay_t}$$

$$\Delta pay = pay_t - pay_{t-1}$$

$$\Delta performance = performance_t - performance_{t-1}$$

Using this definition, each company's pay-performance sensitivity for each year has been analysed. This sensitivity shows the percentage change in director's pay when the company's performance changes by 1%. If this sensitivity is 1, that means that a 1 % increase in the company's performance yields a 1% rise in the director's compensation in that company.¹¹

We have also calculated the 'sensitivity change dummy variable'. As performance-pay sensitivity is calculated for every year, we are able to observe if this sensitivity increases or not in each company. For example, this research computes this pay-performance sensitivity in 1994 and 1995 for each UK company. Thus, it is possible for us to identify whether the sensitivity increases in 1995 for each company. This research then defines 'sensitivity change dummy variable'. If this sensitivity for year t is larger than or equal to that for the year t-1, then we interpret that this company intensifies the pay-performance sensitivity in the year t. In that case the 'sensitivity change dummy variable' is set to 1 otherwise, this

¹¹ The denominator in this definition includes performance at the year 't'. We will discuss later in this chapter how this variable affects pay-performance sensitivity. This may be important as we will examine the relationship between this sensitivity and performance at the year t.

dummy is set to zero.

These sensitivity figures for each company are obtained for the years 1995 and 1994 in the UK, since our data set includes information on percent change in compensation and percent change in company performance for each year.

To calculate the sensitivity for 1995, we need the pay and performance data for both 1994 and 1995. To calculate the sensitivity change dummy for 1995, we need the sensitivity for 1994 and 1995. Thus, we need pay and performance for 1993, 1994 and 1995. As our data set for the UK includes data on top pay and performance for 1993-1995, we can obtain the sensitivity change for 1995. As for Japan's data, the maximum time period covered is between 1992-1995 and therefore, it is possible to calculate the sensitivity change dummy for 1994 and 1995. Thus, this research uses a panel data set for Japan and cross-section data for the UK so we will apply different estimation methods for data from each country. As both the data and estimation methods are different, it may not be appropriate to compare the magnitude of coefficient directly.

For the UK's data, we calculate this sensitivity for two compensation components and two performance figures. As a compensation measure, we use annual bonus and total compensation, and as performance measures, we use profit and earnings per share (EPS). Thus, four sensitivity measures are obtained: 1) annual bonus-profit sensitivity, 2) total compensation-profit sensitivity, 3) annual bonus- EPS sensitivity, and 4) total compensation- EPS sensitivity. We will analyse the effect of these sensitivity measures on company's performance. After these four sensitivity measures are calculated for 1994/5, we calculate the 'sensitivity change dummy' for 1995 for each company. We have chosen profit and EPS as the

performance measures because these are most frequently used performance criteria by remuneration committees in large UK companies (Williams, 1994, Monks partnership, 1994).

We assume that the pay-performance sensitivity in the year t will have an effect on the company performance of the same year t , rather than the year $t+1$ ¹². In typical large companies in the UK, the performance-pay sensitivity for term t is set at the beginning of term t by the remuneration committee of the company. Usually, the remuneration committee sets the performance target and some ‘formula’ to calculate the bonus using this performance. Directors are informed in advance of the target performance and how their bonuses will be calculated, so that they have an incentive to work toward the company’s performance over the term t . After being informed, directors are supposed to work toward these performance targets. Thus, this research assumes that the pay-performance sensitivity in year t in the UK affects the motivation of directors in the same year t .

This research uses the data of both annual bonus-performance sensitivity and total pay-performance sensitivity. In general, annual bonus is more sensitive to performance than total compensation because it is introduced to make managers focus on particular performances such as profit or earnings per share. However, it may be the case that our annual bonus-performance sensitivity does not reflect the real sensitivity of the company. One reason is that the company may change the proportion of annual bonuses and fixed bonuses that it pays out. For example, the proportion of annual bonuses to total pay may increase from 10% to 30%. In this

¹² As described in chapter 5, it is often the case in large UK companies that directors are given performance targets at the beginning of the term. Remuneration committees also notify directors about possible rewards for achieving targets. In this case, directors know their pay-performance

case, our annual bonus-performance sensitivity can not measure real sensitivity because the amount of annual bonus increases with or without good performance. This may be serious problem as it is often the case that the company changes its pay package. In addition, directors' incentives may not only depend on annual incentive, but also on the total pay. Thus, this research calculates total pay-performance sensitivity in addition to annual bonus-performance sensitivity.

For Japan's data, this research assumes that the pay-performance sensitivity in the year t affects the performance in the year $t+1$. The main reason is that in Japan the pay-performance sensitivity for the year t is shown at the end of the year. The director's bonus is paid at the end of the year, after they have been informed of the performance. Thus, directors are aware of the pay-performance sensitivity for the year t at the end of the year. If this is the case, the pay-performance for the year t affects the performance of the year $t+1$ because the directors have no knowledge about the sensitivity for the year t when they make a decision about the amount of their effort for the year t ¹³.

It should be noted that we make different assumptions on the time point when the sensitivity the year t affects the performance of the company. We assume that in the UK, the sensitivity in the year t will affect the performance in the year t . In contrast, in Japan we assume that the sensitivity in the year t affects the performance in the year $t+1$. These assumptions are made, as there is a difference in the way that compensation is paid in practice. In general, in the UK, pay-

sensitivity for the year at the beginning of the year.

¹³ This assumption is held even if there is a turnover of directors between the year t and year $t+1$. The reason is that, in a typical large Japanese company, director's pay is in accordance with the rank, rather than the person (Abe et al., 1997). Thus, we assume that the motivation of the new director in the year $t+1$ depends on the pay-performance sensitivity in the year t .

performance sensitivity for the year t is determined at the beginning of the year t , while in Japan, directors know the sensitivity for the year t at the end of the year t .

It may be of importance to make it clear that pay-performance sensitivities in these countries are estimated using different statistical measures because of the difference in the accounting procedure in Japan and in the UK,

One of the most important advantages of this pay-performance sensitivity over other alternative measures that are discussed below¹⁴ is that this sensitivity index may well relate to the top director's incentive. We define this pay-performance sensitivity index to analyse the relationship between pay-performance sensitivity and firm performance in order to examine whether director's incentive matters. Thus, our sensitivity index is required to be related to director's incentive. In other words, it is required to reflect the degree of association between pay and performance. As our pay-performance sensitivity shows the percentage change in pay when performance improves by 1%, it may reflect the director's motivation better than other alternative sensitivity indices, which are discussed below.

Alternative definitions of sensitivity

Though this research will use the above definition of pay-performance sensitivity, it is possible to define pay-performance sensitivity in other way. For example, the ratio between profit and director's annual bonus can be interpreted as a kind of pay-performance sensitivity. We will discuss the strengths and weaknesses of these alternative definitions of pay-performance sensitivity in the chapter appendix, describing why this research uses our pay-performance

¹⁴ We discuss the advantages and disadvantages of alternative sensitivity indices in chapter

sensitivity.

7-5. The Model

Using our pay-performance sensitivity, this research analyses the relationship between ‘way to pay’ and company performance. The theory predicts that more sensitive pay schemes will motivate directors and thus yield higher company performance.

As the dependent variable, we use a dummy variable that indicates if the company improved its performance compared with its previous year’s performance. We try to estimate the relationship between this performance dummy and the company’s various pay policies. As our main purpose is to analyse whether the company's pay policy affects company's performance, our basic model to be estimated can be described as follows:

$$performance.dummy = f(sensitivity, pay.scheme)$$

(Equation 7-1)

In addition to pay-performance sensitivity, independent variables include a dummy variable that indicates if the company has an annual bonus, and a dummy variable

appendix.

¹⁵ For example, if the CEO of company A with profit –100 receives 10, this alternative sensitivity is calculated as –0.1. However, we can not say that the CEO receives –10% of the performance as his reward for the achievement.

¹⁶ This may be possible if we consider the stock option. However, the data that we have on top pay do not include the information on stock option.

¹⁷ In many large companies in Japan, the director’s bonus is not paid when the company profit is seriously low.

that indicates if the company has introduced an annual incentive plan this year. As almost all the Japanese companies in our sample are considered to have an annual bonus, the annual bonus dummy and new annual bonus dummy are only used for the UK data. By applying this basic equation, we can specify the equations to be estimated for each country's data.

UK model

Firstly, this research will examine if those companies with annual incentive (AI), or with new AI are more likely to improve their performance than those without. We also examine if those companies with high pay-performance sensitivity are more likely to improve their performance than those without. Next, we will estimate the following equation:

$$\Pr(\Delta profit_t \geq 0) = f(AI_t, newAI_t, sensitivity_t, sensitivitychange_t, industry)$$

(Equation 7-2)

AI: dummy variable that shows if the company has an annual incentive.

This variable is set to 1 if the company has an annual incentive and to 0 if not.

NewAI: dummy variable that shows if the company has introduced an annual bonus this year. This variable is set to 1 if the company has introduced an annual bonus this year and to 0 if not.

Sensitivity: performance-pay sensitivity, including both annual bonus-

¹⁸ There are 194 cases where profit increases and 225 cases where profit decreases.

performance sensitivity and total pay-performance sensitivity.

Sensitivity change: dummy variable that shows if the pay-performance sensitivity increased this year. This variable is set to 1 if the company increases its sensitivity and to 0 if not.

Industry: industry dummies (two digits)

We will estimate this equation using logistic regression. This equation will be estimated based on cross-sectional data in 1995.

As the dependent variable is a dummy variable, we can interpret this as the probability that the company improves its performance. Then, we will focus on the coefficients of each independent variable. In general, we predict that all the coefficients for independent variables are positive. According to our hypotheses, we can expect that the coefficient for AI should be positive and significant because directors who receive an annual bonus are motivated to work and to focus on measure of performance.

In this analysis one of our focuses is on the coefficient for newAI because this variable shows the change in company's policy. As we can predict that a recently introduced bonus plan will motivate managers, the coefficient for this variable will be positive. If this coefficient is significant, it provides a support for our hypothesis. The newAI variable is set to 1 when the company introduces an annual incentive in that year, and zero otherwise.

We predict that the coefficient for sensitivity will be positive, because directors with high sensitive-pay are considered to be more motivated toward performance criteria. Another main emphasis of our study is laid on the coefficient

for sensitivity change because this coefficient also shows the effect of the company's change in pay policy. Many large UK companies change performance-pay sensitivity these days in their annual bonus program, trying to increase director's incentives toward performance. If the coefficient for sensitivity change is significant and large enough, those pay policies are considered to be effective. The sensitivity change dummy is set to 1 when the performance-pay sensitivity increases, remains unchanged and to 0 when it decreased. Each equation includes an industry dummy to exclude industry specific factors, such as their market condition on their products.

Japan model

We will estimate similar equations using Japan's data to analyse the effect of company's pay policy. Firstly, we will estimate the following equation to examine the correlation between pay-performance sensitivity and future performance improvement.

$$\Pr(\Delta profit_{t+1} \geq 0) = f(sensitivity_t, sensitivitychange_t, const.,)$$

(Equation 7-3)

Sensitivity: performance-pay sensitivity, including annual bonus-performance sensitivity and total pay-performance sensitivity.

Sensitivity change: dummy variable that shows whether the pay-performance sensitivity increased this year. This variable is set to 1 if the company intensifies its sensitivity or to 0 if not.

We estimate this equation using the data on 1993, 94 and 95. Some of the equations are estimated using these 3 year's data, and some are estimated using only 94 and 95 data¹⁹. As our data set is panel data, we estimated these equations using the random effect probit model.

Our main focus is on the coefficient for pay-performance sensitivity. This coefficient is supposed to be positive, because directors with highly sensitive pay are considered to be more motivated toward higher performance. Another main focus of our study is on the coefficient for sensitivity change because this coefficient also shows the direct effect of the company's change in pay policy. If the company strengthens the link between pay and performance, then the directors may be more motivated. The coefficient for this sensitivity change is supposed to be positive, because the directors with strengthened performance-pay sensitivity may be more motivated.

There are some differences between this equation and the UK-equation. Firstly, the dependent variable in equation for Japan is future performance while it is current performance in the UK model. This difference is based on our assumption on pay-performance sensitivity. We assumed that in the UK, pay-performance sensitivity is shown at the beginning of the term, while in Japan, it is shown at the end of the year. Thus, the dependent variable in Japan's model is performance dummy (t+1), while that in the UK model is performance dummy (t).

The other difference is that Japan's model does not include AI (Annual incentive dummy) and newAI (new annual incentive dummy). This is because

¹⁹ We use 1993-95 data for equations not including sensitivity change, and 1994-95 data for

almost all the companies in Japan have an annual bonus scheme. In addition, the industry dummy is not included in Japan's model.

Causality problem

These models predict a positive relationship between performance and pay-performance sensitivity. However, there is a possibility that we can interpret positive coefficients for pay-performance sensitivity in another way. There is a possibility that excellent managers may choose a high sensitivity contract. If, directors can expect high performance in advance, and if they can exercise some power to the remuneration committee, they may wish their pay to be highly sensitive to the performance. Alternatively, if they cannot expect good performance, they may not wish their pay to be sensitive to performance. If either of these is the case, then we may observe a positive relationship between performance and pay-performance sensitivity.

However, it may not be the case in the UK, as many large companies have a remuneration committee. Some of these companies claim that remuneration committees are mainly composed of non-executive directors and are therefore independent from top directors. If this is the case, the above problem may not be serious because CEOs may have limited power in deciding their own compensation package.

In addition, there is a possibility that directors may transfer to other companies seeking higher pay-performance sensitivity when they think that the company may achieve higher performances that year. However, significant

equations including sensitivity change.

numbers of directors in large UK companies are promoted from within the company. According to a study by Korn/Ferry (1981), in the UK, 22% of directors worked for one company only. The average length of service in a company was 18 years (Korn/Ferry, 1981). Directors in large UK companies may have relatively little scope to change to other companies seeking higher pay-performance sensitivity.

In Japan, the pay-performance sensitivity for the year t is observed after the performance for the year t is observed. If this is the case, the 'reverse causality' problem may not be serious because pay-performance sensitivity is not set in advance. In addition, as significant numbers of directors are promoted from within the company, they may have little scope to transfer to another company seeking higher pay-performance sensitivity.

Are there same variables on both sides of the equation?

In this section, we will examine if this equation allows different interpretations. Even if we find a positive correlation between sensitivity and performance sensitivity, some may claim that this correlation is due to the fact that the performance variable is included on both sides of the equation²⁰. We will examine the detail of our model to show that this argument will not necessarily hold.

It is true that both sides of our estimation include a performance variable because pay-performance sensitivity is calculated from pay and performance. For

²⁰ Sensitivity is calculated from pay and performance.

example, our UK model is as follows. We will examine the sign effect of profit (t) on both sides of equation, for example.

$$\Pr(\Delta profit_t \geq 0) = f(sensitivity, others) = f\left(\frac{\Delta pay_t / pay_t}{\Delta profit_t / profit_t}, others\right)$$

(Equation 7-4)

Both profit (t) and profit (t-1) are on both sides of the equation. As for the left-hand side of the equation, it is obvious that profit (t) has a positive effect. In other words, the larger the profit (t) is, the larger the left-hand side is if other things are equal. Now we would like to know the sign effect of profit (t) on pay-performance sensitivity.

Pay-performance sensitivity can be written as follows:

$$sensitivity = \frac{pay_t - pay_{t-1}}{profit_t - profit_{t-1}} \cdot \frac{profit_t}{pay_t}$$

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$$= \left(1 + \frac{profit_{t-1}}{profit_t - profit_{t-1}}\right) \cdot \frac{pay_t - pay_{t-1}}{pay_t}$$

As the pay (t) can not be negative, the sign effect of profit (t) on pay-

performance sensitivity depends on the sign of profit (t-1) and that of (pay (t) – pay (t-1)), or delta pay. If both are positive, the sign effect of profit (t) on sensitivity is negative. Similarly, if both profit (t-1) and delta pay is negative, the increase of profit (t) will make sensitivity smaller. Thus, it has been shown that the sign effect of profit (t) on both sides of the equation of the UK model is not necessarily the same²². Similarly, the sign effect of performance on Japan model is not stable, depending on the sign of other variables.

The above discussion suggests that the effect of that performance variable is not stable even though the same performance variable is found on both sides of our model. Thus, if this research finds a positive relationship between pay-performance sensitivity and performance improvement, it may be appropriate to interpret this relationship as the support for our hypothesis, rather than as the ‘same variable effect’.

In addition to this ‘same variable effect’, some may claim that the company size may have some effect on our estimation. It may be true that in the UK, large companies are more likely to have a more detailed pay plan for their directors, such as an annual incentive. However, as our dependent variable is the dummy

$$\begin{aligned}
 \text{sensitivity} &= \frac{\text{profit}_t}{\text{profit}_t - \text{profit}_{t-1}} \cdot \frac{\text{pay}_t - \text{pay}_{t-1}}{\text{pay}_t} \\
 &= \frac{\text{profit}_t - \text{profit}_{t-1} + \text{profit}_{t-1}}{\text{profit}_t - \text{profit}_{t-1}} \cdot \frac{\text{pay}_t - \text{pay}_{t-1}}{\text{pay}_t} \\
 &= \left(\frac{\text{profit}_t - \text{profit}_{t-1}}{\text{profit}_t - \text{profit}_{t-1}} + \frac{\text{profit}_{t-1}}{\text{profit}_t - \text{profit}_{t-1}} \right) \cdot \frac{\text{pay}_t - \text{pay}_{t-1}}{\text{pay}_t}
 \end{aligned}$$

²² We can obtain the same result by differentiating pay-performance sensitivity with respect to profit (t).

$$\frac{\partial \text{sensitivity}}{\partial \text{profit}_t} = \frac{-\text{profit}_{t-1}}{(\text{profit}_t - \text{profit}_{t-1})^2} \cdot \frac{\text{pay}_t - \text{pay}_{t-1}}{\text{pay}_t}$$

The sign effect of profit (t) on sensitivity depends on the sign of profit (t-1) and that of (pay(t) – pay

variable that shows if the company improves its performance or not, it is unlikely that our dependent variable may be affected by size of the company. As for Japan's data, neither a performance improvement dummy or pay-performance sensitivity is particularly affected by company size.

(t-1)).

Appendix Alternative Definitions of Pay-Performance Sensitivity

In this appendix, the strengths and weaknesses of alternative definitions of pay-performance sensitivity is discussed.

First of all, the ratio between profit and director's annual bonus can be interpreted as a kind of pay-performance sensitivity or we can define alternative pay-performance sensitivity as follows:

$$\text{Alternative.Sensitivity}_1 = \frac{\text{bonus}_t}{\text{performance}_t}$$

This sensitivity shows how much proportion of performance, such as profit, is paid to the director. The largest advantage of this approach to pay-performance sensitivity may be that this sensitivity is easy to interpret. As the director has a responsibility for the performance of the company, they may take some portion of the performance of the company.

However, this alternative sensitivity, 1, has some disadvantages over our pay-performance sensitivity. Firstly, it is difficult to interpret this sensitivity when the company's performance is negative, or when the performance figure is smaller than director's pay²³. Secondly, this alternative sensitivity, 1, fails to reflect the change in performance. The change in performance, such as the profit growth is considered to be as important as the absolute value of profit.

²³ For example, if the CEO of company A with profit –100 receives 10, this alternative sensitivity is calculated as –0.1. However, we can not say that the CEO receives –10% of the performance as his reward for the achievement.

Thirdly, it may be difficult to compare the pay-performance sensitivities of the companies by using this alternative sensitivity, 1. This is because the variance of the performance, such as profit, is much larger than that of top pay. It may be the case that the profit of company A is more than 100 times larger than that of company B. However, it may not be often the case that the top pay of the company A is 100 times as large as that of the CEO in company B²⁴. Thus, this alternative sensitivity, 1, will overestimate the pay-performance sensitivity in smaller companies, and will underestimate the pay-performance sensitivity of large companies. In addition, it may not be easy to compare this alternative sensitivity, 1, between companies because the proportion of bonus to total pay varies. This alternative sensitivity, 1, will overestimate the sensitivity of the company where annual bonus consists of a large proportion of the total compensation. In addition, because of the same reasons listed above, it is difficult to compare the sensitivity in the UK with that in Japan. Because of these reasons, this research will be based on pay-performance sensitivity rather than alternative sensitivity, 1.

Finally, it may not be appropriate to interpret this alternative sensitivity, 1, as a reflection of the director's incentive. One reason is that this sensitivity index does not include the director's fixed pay, therefore, it fails to show the degree of association between performance and director's pay.

Alternative sensitivity 2

The other alternative pay-performance sensitivity can be defined as follows. In a typical large UK company, the annual bonus for the CEO is calculated

²⁴ This may be possible if we consider the stock option. However, the data that we have on top pay do

as a proportion of fixed pay. We can describe this relationship as follows:

$$Annual.Bonus = (\beta) fixedpay$$

Beta shows the proportion of the annual bonus to fixed pay. This proportion depends on the performance, usually profit or earnings per share, or both and this relationship can be described as follows:

$$\beta = (\gamma) performance$$

By substituting this second equation into the first, we obtain the following equation.

$$Annual.Bonus = (\gamma) performance \cdot Fixedpay$$

By dividing both sides of the equations by fixed pay, we obtain the following equation.

$$Annual.Bonus / Fixed.pay = (\gamma) performance$$

As the coefficient gamma shows the relationship between the performance and director's pay, we can define alternative pay-performance sensitivity by transforming this equation.

not include the information on stock option.

$$\text{Alternative.Sensitivity2} \equiv \gamma = \frac{\text{Annual.Bonus} / \text{Fixed.pay}}{\text{performance}}$$

The biggest advantage of this alternative sensitivity 2 is that it is calculated based on common practice in the UK. However, there are similar weaknesses as the previous alternative sensitivity measure, particularly when we try to compare this sensitivity between companies and countries.

This alternative sensitivity 2 fails to reflect the effect of ‘change in performance’ on top pay and it is difficult to compare it between companies of different size. This sensitivity varies according to the proportion of annual bonus to total pay. In addition, it is impossible to assess the director’s total pay-performance sensitivity.

The other disadvantage of this alternative sensitivity is that it is calculated on the practice in the UK. Thus, in addition to the reasons listed above, it is not appropriate to apply this approach to Japan’s data. In Japan, the directors’ annual bonuses are not calculated as the percentage of their fixed pay. Rather, they are calculated as the percentage of profit before tax²⁵. These arguments also suggest that this sensitivity measure also fails to reflect the director’s motivation, as it does not show the degree of association between pay and performance.

Lastly, this alternative index may show the proportion of annual incentive to fixed pay, rather than the degree of association between pay and performance. In this definition, the numerator shows the proportion of annual bonus to fixed pay.

²⁵ In many large companies in Japan, the director’s bonus is not paid when the company profit is

This numerator is large if the proportion of annual bonus to fixed pay is large. Although this proportion may suggest company's pay policy, it does not show the degree of association between pay and performance, which we are particularly interested in. The alternative sensitivity 2 tries to measure the degree of association between pay and performance by dividing this proportion by the level of performance. However, our pay-performance sensitivity that is defined above may reflect the association of pay and performance better than this alternative sensitivity 2.

Because of these weaknesses of alternative pay-performance sensitivities, this research will use our pay-performance sensitivity that shows the percentage change in pay when the performance changes by 1%. It is true that our pay-performance sensitivity has a weakness, as it cannot be defined when firm profit is zero. However, this would not be a serious problem because our data do not include many cases where change in pay is zero. For example, the Japanese data that we use includes 420 profit figures as this data set includes 210 companies over a period of two years. Among these 420 cases, only one case shows zero change in profit²⁶.

Our pay-performance sensitivities have some advantages over those alternative sensitivity measures mentioned above. Firstly, our sensitivity will reflect the effect of 'change in performance' on 'change in pay'. As these changes are normalised as percentage, the effect of size on sensitivity may not be very large. As we calculate total pay-performance sensitivity in addition to annual bonus-performance sensitivity, the effect of bonus-total pay ratio on sensitivity is avoided.

seriously low.

This sensitivity makes sense even if the performance or change in performance is negative because this sensitivity is a percentage change in pay when performance improves by 1%. In addition, we may be able to compare the sensitivity across companies, as it is standardised as the ratio. Lastly, as this sensitivity shows percentage change in pay when performance improves by 1 %, it may reflect the director's motivation better than other alternative sensitivities, which are examined above. Because of these reasons, this research will calculate this pay-performance sensitivity for both Japan's data and the UK's data, and will examine the relationship between pay-performance sensitivity and company performance.

²⁶ There are 194 cases where profit increases and 225 cases where profit decreases.

Chapter 8. The Effects of Pay Policy on Company Performance: A Comparison between the UK and Japan

8-1. Introduction

Following the research method explained in Chapter 7, this chapter reports the results of our analysis on the effect of company's pay policy on corporate performance. Our main hypothesis in this chapter is that companies with higher pay-performance sensitivities are more likely to achieve better performance. Prior to testing this hypothesis, this chapter looks into the basic characteristics of pay-performance sensitivity that are given in Chapter 7. Basic statistics and some histograms are employed to describe the basic nature of this pay-performance sensitivity. Then, the impacts of pay policies, such as pay-performance sensitivity and the change of sensitivity are examined using logistic regression and probit regression.

8-2. Basic Characteristics of Pay-Performance Sensitivity

In this section, we examine the basic characteristics of pay-performance sensitivity. As defined in Chapter 7, this pay-performance sensitivity shows percentage change of executive pay when company performance improves by 1%. Tables (8-1) to (8-4) show basic statistics of pay-performance sensitivities in the UK and Japan. Graphs (8-1) and (8-2) show the histograms of those pay-performance sensitivities in both countries.

UK

Tables (8-1) and (8-2)¹ show the basic statistics of pay-performance sensitivities in the UK². Table (8-1) shows the mean, standard deviation and other statistics of pay-performance sensitivities in 1994 and 1995. We have four pay-performance sensitivities for two years, as we use two pay variables (total pay and annual incentive) and two performance variables (profit and earnings per share (EPS)).

Table (8-1) shows firstly, that the mean of profit-total pay sensitivity is between 0 and 1 both in 1994 and 95. As our pay-performance sensitivity shows ‘the percentage change of executive compensation when performance improves by 1%, a 1% increase in the profit before tax will lead to a 0.159% increase in

¹ Tables (8-1) to (8-9) are at the end of this chapter.

² We excluded some observations whose values were equal to zero. Because of our definition of pay-performance sensitivity, it may be the case that our sensitivity is calculated as zero, even though the ‘real’ sensitivity is not zero. For example, if the performance is zero, our sensitivity is automatically calculated as zero. However, the number of those observations is small.

director's total pay in 1994, for example. Similarly, in 1995, total pay will increase by 0.197% when the firm's profit improves by 1%.

Secondly, the annual bonus-profit sensitivities are larger than total pay-profit sensitivities. On average, annual bonuses are more sensitive to the change in profit than total pay is. For example, average profit-annual incentive (AI) sensitivity in 1994 is 1.36, which shows that a 1% rise in profit leads to 1.36% rise in annual bonus. As total pay is usually composed of fixed pay and annual incentive, it also implies that the fixed pay is less sensitive to the change in performance than annual incentive is. These findings are consistent with our understanding that annual incentives are designed to link the director's incentive with company performance in many UK companies.

Table (8-2) shows the basic statistics of our 'pay-performance change dummy'. As described in Chapter 7, this change dummy shows whether the company's pay-performance sensitivity intensified or not. The table shows the number of companies whose performance-pay sensitivity increased and also the number of those companies whose sensitivity decreased in 1995 in the UK. As we are able to calculate the pay-performance sensitivity for each company in 1994 and 95, we are able to find out whether the pay-performance sensitivity in 1995 is greater than that in 1994. If the pay-performance sensitivity in 1995 is greater than or equal to that in 1994, we set the sensitivity change dummy to 1.

According to Table (8-2), many companies are trying to intensify their annual bonus-performance sensitivities and almost two thirds of companies intensified its annual bonus-performance sensitivity in 1995. For example, 653 companies intensify their annual bonus-profit sensitivities while 383 companies

weakened the sensitivity. In contrast, the number of companies that intensify the total pay-performance sensitivities is smaller than the number of those that weakened the sensitivities. For example, 701 companies out of 1374 weakened their profit-total pay sensitivities while 673 of them intensified theirs.

One problem in Table (8-1) is that, the average value may be affected by a few extraordinary value observations. For example, in Table (8-1), the averages of 'EPS-TP sensitivity in 1994', and 'EPS-AI sensitivity in 1995' are negative. These averages may be greatly affected by their negative extraordinary values, as the minimum of 'EPS-TP sensitivity' is -1250, and that of 'EPS-AI sensitivity' is -950. As these values are extremely small, the average figures without these extraordinary values may be different. Thus, this research will draw the histograms of pay-performance sensitivities.

The histograms within Graph (8-1) are of pay-performance sensitivities in the UK in 1995. These graphs show the frequency distributions of these sensitivities. As pay-performance sensitivity is calculated for each company, the height of each bar shows the number of companies whose pay-performance sensitivities are within the interval. The horizontal axis of this graph is the value of pay-performance sensitivity and the vertical axis is the frequency in terms of proportion to the total.

These histograms are shown to investigate the frequencies in each sensitivity interval. Our primary interests include the following questions: 1) What is the proportion of sensitivity that is greater than zero and more than 1? 2) Which interval has the maximum number of sensitivities? Although almost all the observations are included in these histograms, some observations are excluded,

such as those whose sensitivities are extremely large or small³, and those whose sensitivities are zero⁴. Most diagrams are drawn using the sample between -5 and 5.

These graphs disclose some important points. Firstly, most of the sensitivities fall into the interval between 0 and 1. In other words, in most companies in the UK, the director's pay will increase by 0-1% when the company performance improves by 1%. For example, in Graph (8-1) almost half of the 'total pay-profit sensitivity in 1995' falls into the interval between 0 and 1%.

Secondly, it is noted that the frequency is largest in the interval 0 and 1/3 for all the pay-performance sensitivities in 1994 and in 95⁵. This shows that in many companies in the UK, a 1% increase in performance will lead to 0-1/3% increase in director's pay.

Thirdly, there is a difference in the distribution of total pay sensitivities and those of annual bonus sensitivities. The dispersion of annual bonus sensitivities is greater than that of total pay sensitivities. The distribution of the total pay sensitivities is more centred than those of annual bonus sensitivities. In other words, annual bonuses seem to be more sensitive to the change of performance. Some of the bonus sensitivities are more than 1 while there are a few total pay sensitivities that are larger than 1.

Fourthly, these graphs show that pay-performance is negative in some

³ Pay sensitivities that are more than 5 or less than -5 are excluded. It is possible to widen the scale of the graph, for example, to the interval between -30 and 30. However, we focus on this relatively small scale as there are few observations outside this interval and as the shape of the distribution is unchanged if we draw in a wider scale.

⁴Observations, whose sensitivities equal to zero, are excluded. They may be set to zero because some of the variables in the formula are equal to zero. According to our definition of pay-performance sensitivity, sensitivity is calculated as zero if company profit equals zero, for example. In this case, we cannot obtain sensitivity, as sensitivity does not necessarily equal zero.

⁵ It should be noted that the observation of companies whose sensitivities are equal to zero are excluded, because of the definition of our pay-performance sensitivity.

companies, although this applies to only a few companies. Executive compensation may increase even though the performance worsened in these companies⁶. Although it is not easy to interpret this negative relationship between pay and performance, we have made some attempts. Firstly, there is a possibility that top pay depends on relative performance. For example, performance may be compared with those of other companies in the same industry. If, the decline in company performance is smaller than that of other companies, executives may be rewarded for their relatively 'improved' performance. Alternatively, there is a possibility that the company does not have a bonus scheme that is based on performance. If the director's pay increases gradually every year, and if the company performance declines, then our sensitivity is calculated as negative.

Japan

In attempting to investigate the basic characteristics of pay-performance sensitivity, similar tables and graphs have been compiled based on Japan's data⁷.

Table (8-3) shows the basic statistics for pay-performance sensitivities in Japan between 1993 and 1995. Firstly, some sensitivities are less than 0. It should be noted that none of the wage sensitivities are between 0 and 1, while most ROC sensitivities fall within this interval. In general, the wage sensitivities are larger than other sensitivities, i.e. are larger than 1. These sensitivities show that a director's pay in Japan is more sensitive to a change in employees' wages than to other performances. Director's pay in Japan will increase by more than 1% when

⁶ Or there is a possibility that executive pay decreases even though the performance improves.

⁷ Profit before tax (PBT), return on capital (ROC), and wage are used as performance variables.

employees' wage increases by 1%. In contrast, the top pay increase will be less than 1% when ROC improves by 1%.

Table (8-4) shows the basic statistics of pay-performance sensitivity change in Japan between 1994 and 1995. As given in Table (8-2), these sensitivity change dummies show whether the company intensifies its pay-performance sensitivity or not. In general, there is little sign that large Japanese firms are trying to strengthen or weaken their pay-performance sensitivities. For example, the number of companies that intensified the total pay-profit sensitivity is almost the same as the number of companies that weaken the sensitivities. Similarly, the numbers of companies that strengthened the pay-ROC sensitivities and pay-wage sensitivities, are almost the same, or smaller than the numbers of those that weakened the sensitivities. These tables suggest that large Japanese companies are not trying to strengthen the link between director's pay and company performance.

It is of particular interest to compare Table (8-4) with Table (8-2) that shows a comparable table for UK companies. It has been shown that there is a substantial difference in the change in annual bonus sensitivities in both countries. In the UK for example, more than 60% of companies increase their annual bonus sensitivities while in Japan, only 127 companies out of 270 intensify their bonus-profit sensitivities in 1994 and 1995. It has been suggested that the companies in the UK are more interested in increasing the link between company performance and director's pay.

Graph (8-2) shows the histograms of pay-performance sensitivity in Japan. As is the case for Graph (8-1), these histograms are drawn to investigate the frequency distribution of sensitivities. This research examines if the pay-

performance sensitivity is larger than 0, or is larger than 1. Performance pay data include profit, return on capital (ROC) and wage⁸. The vertical axis shows the number of companies in terms of the proportion to the total and the horizontal axis shows the value of pay-performance sensitivity. As shown in Graph (8-1), some extraordinary value sensitivities are excluded⁹.

Some points in Graph (8-2) will now be focused on. As in the UK, many sensitivity observations fall into the interval between 0 and 1. For example, the most frequent interval of total pay-profit sensitivity in 1995 are 0-1/3. In general, director's pay is not very sensitive to the change in performance as their pay increases by 0-1/3% when company performance improves by 1%.

It should be noted that the proportion of negative sensitivities is quite large in Japan. It is difficult to explain why there is a negative relationship between pay and performance.

Another point to raise with regards to this Graph (8-2) is that the pay-wage sensitivity is much larger than other performance sensitivities. For example, the histogram of pay-wage sensitivity is drawn between -50 and 50, rather than -5 and 5. In other words, the director's compensation in Japan is very sensitive to the change in wage

⁸ As explained in Chapter 7, wage is included because employee's wage is considered to be one of the most important management objectives in large companies in Japan.

⁹ Sensitivities equals to 0 are excluded, in addition to those whose sensitivities are very large or small.

¹⁰ Or director's pay decreases when company performance improves.

¹¹ This observation is consistent with our results in the empirical analysis in previous chapters. In Chapter 6, it is shown that there is a positive and significant relationship between profit and director's bonus. In contrast, we found a strong relationship between director's pay and employees' wage in Japan.

8-3. Regression Results: The Effect of Pay-Performance Sensitivity and Annual Incentive in the UK

In this section, we report the results of our analysis on the effect of company's 'way to pay' on firm performance. Tables (8-5) and (8-6) show the results of the logistic regression. These equations are estimated using the data of listed companies in the UK, following the method described in Chapter 7.

The sample size is 1415 covered over a time period of 1 year in 1995 . As this research analyses the relationship between pay policy and company performance, the performance improvement dummy is used as an dependent variable. This performance dummy is set to 1 if the company improves its performance, and otherwise set to 0. Independent variables include the annual incentive (AI) dummy¹², the new annual incentive dummy,¹³ pay-performance sensitivity and the pay-performance sensitivity change dummy.

Equations 1 to 3 in Tables (8-5) and (8-6) test the effect of an annual incentive on company performance. These equations compiled to analyse the following questions: 1) Are those companies with an annual incentive more likely to improve their performance compared to those without? 2) Did those companies that recently introduced annual incentive improve their performance? The results show that there is a positive correlation between annual incentive and company performance. All the coefficients for annual incentive in Tables (8-5) and (8-6) are

¹² The annual incentive dummy is set to 1 if the company has an annual incentive, and is otherwise set to 0.

¹³ The new annual incentive dummy is set to 1 if the company introduced an annual incentive in

positive as expected, and they are statistically significant. For example, in Equation 1 in Table (8-5), the coefficient for annual incentive is statistically significant at the 5% level.

Although a positive relationship between annual bonus and profit improvement dummy is shown, some may argue that this relationship may be a ‘fake’ as both variables are affected by the size of the company. It may be claimed that larger companies may have a more detailed pay scheme, such as annual incentive. However, our dependent variable is not the level of profit, but the dummy variable that shows whether the firm improved its performance. Therefore, our dependent variable is not affected by the size of the firm. In addition, according to our sample there is no obvious relationship between the size of the company and AI dummy¹⁴. We can also exclude size effect by examining Table (8-6), as the dependent variable in Table (8-6) is change in earnings per share (EPS), which is less affected by size of the company.

According to Table (8-6), the coefficients of annual incentive are positive and significant. For example, the coefficient in Equation 1 is statistically significant at the 1% level, showing a positive relationship between annual incentive and earnings per share. Similarly, the coefficient in Equation 3 is also positive and significant at the 10% level. These coefficients suggest that the companies with an annual bonus scheme are more likely to improve their profit and EPS. As the annual incentive dummy is a variable that is either 1 or 0, this variable does not show the level of the compensation, but the way that it is paid. These results show the positive association between ‘the way to pay’ and the company performance. In

1995, and is otherwise set to 0.

other words, the company with an annual incentive scheme is more likely to improve its profit and EPS than those without one.

Equations 2 and 3 in Tables (8-5) and (8-6) show, as expected, that all the coefficients of a recently introduced AI are positive. However, 3 of them are not statistically significant. The coefficient in Equation 2 in Table (8-5) is significant at the 10% level. Thus, it is not clear if the introduction of a new annual incentive scheme may lead to higher performance.

Equations 4-9 in Tables (8-5) and (8-6) show the results of an estimation that tests the effect of pay-performance sensitivity on company performance, using the same data. These equations are estimated to answer the following questions: 1) Are those companies with high performance-pay sensitivities more likely to improve their performance? 2) Are those companies that intensify the pay-performance sensitivities more likely to improve their performance?

Equations 4 to 6 in Table (8-5) analyse the effect of ‘profit-AI sensitivity’ on profit growth, while Equations 7 to 9 in Table (8-5) analyse the effect of ‘profit-total pay sensitivity’ on change in profit. It has been shown that the coefficients of annual bonus sensitivities are not significant while the coefficients of total pay-profit sensitivity are positive and significant.

Equations 4 to 6 in Table (8-5) show the effect of profit-annual bonus sensitivity on company profit. The coefficients of AI sensitivities are not significant and also the coefficients for AI sensitivity changes are not significant. It has been suggested that those companies with high AI sensitivity are not more likely to improve their profit than those with low AI sensitivities. In addition, there is little

¹⁴ In our sample, the correlation between AI dummy and sales in 1995 is only 0.0785.

difference in the probability of improving profit between a company that recently introduced annual incentive and the company that did not. In other words, ‘the profit-annual incentive sensitivity’ has little effect on company profit.

Equations 4 to 6 in Table (8-6) show similar results on earnings per share (EPS). These equations analyse the effect of ‘EPS-AI sensitivity’ on EPS. As given in Table (8-5), the coefficients for annual bonus sensitivities are not significant, suggesting that there is no relationship between AI sensitivities and EPS. Similarly, the coefficients for AI sensitivity change in Equations 5 and 6 are not significant. These results show that there is no relationship between annual bonus sensitivity and company performance.

Why does this research not find any affect of annual pay sensitivity on company performance? Firstly, it may be because pay-performance does not affect company performance. If this is the case, then incentives do not matter for the CEOs in large UK companies. The other possibility is that our annual bonus sensitivities do not reflect real pay-performance sensitivities in these companies. As described in Chapter 7, a company may change the proportion of annual bonus to total compensation. If this is the case, we fail to obtain a relationship between sensitivity and performance improvement because our sensitivity variable is not appropriate. Thus, we will test the effect of total pay-performance sensitivity on company performance because total pay-performance sensitivity is not affected by the ‘composition effect’ that arises when a company tries to change the proportion of annual bonus to total pay. A company may increase the proportion of annual incentive to total compensation to motivate directors to work hard toward performance targets. However, our ‘annual incentive-performance’ sensitivity fails

to analyse this effect. Thus, we will analyse the effect of ‘total pay-performance’ sensitivity on performance using Equations 7-9 given in Tables (8-5) and (8-6).

Equations 7 to 9 in Tables (8-5) and (8-6) analyse the effect of total pay-performance sensitivity on corporate performance. The equations in Table (8-5) show the effect of total pay-profit sensitivity on company profit, and those in Table (8-6) show the effect of total pay-EPS sensitivity on earnings per share. These equations are estimated using logistic regression like the other equations in these tables. It has been shown that there is a strong relationship between total pay-profit sensitivity and company performance, showing that the company with high ‘profit-total pay sensitivity’ is much more likely to increase its performance.

Equations 7 and 9 in Table (8-5) show that all the coefficients of ‘total pay sensitivity’ and those of ‘total pay sensitivity change’ are positive and significant at the 1% level. For example, the coefficient, 0.57451, in Equation 7 in Table (8-5) is positive and significant and significant at the 1% level. These coefficients show a positive relationship between performance-pay sensitivity and increase in company profit. In other words, companies with high ‘profit-total pay sensitivity’ will be more likely to improve their profits compared to those with low sensitivities. Equations 8 and 9 in Table (8-5) show that coefficients for ‘total pay sensitivity change’ are positive and statistically significant at the 1% level. In other words, the company that increases its ‘pay-performance sensitivity’ this year is more likely to increase its profit.

Similarly, all the coefficients of the ‘total pay sensitivities’ and ‘total pay sensitivity changes’ in Equation 7 to 9 in Table (8-6) are positive and significant, showing a strong relationship between pay-performance sensitivity and company

performance. Equations 7 and 9 in Table (8-6) show that ‘the total pay sensitivity’ has a large explanatory power to the change in EPS. The coefficients are positive and significant at the 1% level. In other words, those companies with a larger ‘EPS-total pay sensitivity’ are more likely to increase their EPS than those companies with low sensitivity.

In addition, it is also suggested that those companies that intensify their pay-performance sensitivity are more likely to improve their EPS than other companies. The coefficients for ‘total pay sensitivity change’ in Equations 8 and 9 are also positive and statistically significant at the 1% level. These results show that there is a positive relationship between pay-performance sensitivity and company performance. These tables show that those companies with high pay-performance sensitivities are more likely to improve their performance.

It should be noted that these results are obtained using only variables that show how directors are paid as all the independent variables show ‘how directors are paid’ and none of them show ‘how much they are paid’. The AI dummy, the new AI dummy¹⁵, and the sensitivity change dummy are dummy variables that indicate the company’s pay policy. Pay-performance sensitivity is the ratio of percentage between pay and performance¹⁶. Our results suggest that in the UK ‘way to pay’ does affect the company performance.

¹⁵ As shown in chapter 7, the new AI dummy shows whether the company has introduced an annual bonus this year.

¹⁶ Although the amount of pay is used to calculate this sensitivity, it is reported as a percentage in

8-4. The Regression Results from Japan's Data

In this section, we report the results of the regression that analyse the effect of company's pay policy on firm performance in Japan. Tables (8-7) to (8-9) show the results of these regressions. As our data are from the years 1993-95, these equations are estimated using the random-effects probit model¹⁷. The independent variables are pay-performance sensitivity and sensitivity change dummy. The annual incentive (AI) dummy and the new AI dummy are not included because almost all of the large Japanese companies have annual incentives. We use three types of pay variables and three types of performance variables. The pay variables are: total pay, pay and bonus, where total pay is the sum of pay and bonus. The performance variables are profit before tax, return on capital (roc) and employees' wages. As in the previous section, the sensitivity change dummy is set to 1 when the sensitivity in the year is larger than that in the previous year. Tables (8-7), (8-8) and (8-9) show the effect on profit, return on capital, and wage, respectively. It should be noted that the dependent variable is the future performance improvement dummy¹⁸.

Table (8-7) shows the effect of profit-compensation sensitivity on company profit. The dependent variable is future profit that shows whether the company improves its profit the following year. If the company profit increases or

calculating the sensitivity.

¹⁷ XTPROBIT commands in STATA is used to estimate these equations.

¹⁸This research assumes that the pay-performance sensitivity in the year (t) will affect the performance in the next year in Japan, as directors are informed of the sensitivity at the end of the year. In contrast, we assumed that the sensitivity (t) affects the performance of the same year in the UK. This is because directors are informed of sensitivity at the beginning of the year.

remains unchanged, then it is set to 1, otherwise it is set to 0. The independent variables are profit-TOTALPAY sensitivity change, profit-PAY sensitivity, profit-PAY sensitivity change, profit-BONUS sensitivity and profit-BONUS sensitivity change. Sensitivity variables show the magnitude of the link between profit and compensation, and the sensitivity change variables show whether the sensitivity has increased. If the pay-performance sensitivity of this year is larger than that of the previous year, then the sensitivity change variable is set to 1, otherwise it is set to 0. All the coefficients for these variables are expected to be positive, according to our hypotheses.

Equations 1 to 7 in Table (8-7) show the result of these estimations¹⁹. Contrary to our expectations, none of the coefficients are positive and significant. In other words, there is no positive relationship between pay-profit sensitivity and company profit. Some coefficients are positive, such as the coefficient for sbnpbtd (bonus-profit sensitivity change dummy), but these coefficients are not significant. Some coefficients are significant, but the sign of the coefficients is negative contrary to our theory, which predicts positive coefficients. These results suggest that the sensitivity does not effect company profit in Japan.

Table (8-8) shows the effect of return on the capital (ROC)-compensation sensitivity on company's return on capital, showing no relationship between pay-performance sensitivity and company ROC. The independent variables are ROC sensitivity and its change. As given in Table (2-7), there is no positive and significant coefficient in Table (8-8). It has been suggested that the ROC is not affected by performance sensitivity. These results show that there is no difference

¹⁹ The effect of total pay-profit sensitivity is not included because the XTPROBIT command in

in the probability of improving the ROC between the company with high sensitivity and the company with low sensitivity.

Table (8-9) shows the results of the regressions on wage. These equations are estimated in order to test whether the ‘compensation-wage sensitivity’ affects wage. The results in this table are similar to the results in Tables (8-7) and (8-8), which show no relationship between pay-performance sensitivity and company performance. Only one coefficient in Equation 4 is positive and significant. However, considering that the coefficient of the same variable is not significant in Equation 6, this sensitivity may not be very effective. None of the other positive coefficients are significant. The results in this table show that pay-wage sensitivity does not affect employee’s wage.

The results in Tables (8-7) to (8-9) show that in Japan there is no relationship between pay-performance sensitivity and firm performance. Neither sensitivity nor sensitivity change affect the profit, return on capital, or wage. According to Tables (8-7) to (8-9), the probability that the company with high pay-performance sensitivity improves its performance is not significantly different from that for the company with low pay-performance sensitivity. Our results also enable us to reject the hypothesis that those companies that increase their sensitivity will achieve a higher performance. Thus, our hypothesis that pay-performance sensitivity affects the company performance, is not supported in Japan.

STATA fails to obtain the results because the estimation result does not converge.

8-5. Summary and Concluding Remarks

In this chapter, firstly, the basic characteristics of the pay-performance sensitivity are examined. As described in Chapter 7, pay-performance sensitivity is defined as the percentage change in executive compensation when the firm performance improves by 1%. The basic statistics of these sensitivities and frequency distributions are examined. The main results can be summarised as follows. Firstly, in the UK, the number of companies that intensify annual bonus-performance sensitivity is larger than the number of companies that weakened the sensitivity. In contrast, in Japan, the number of companies that intensify the sensitivity is roughly equal to the number of companies that do not strengthen the link between pay and performance. Secondly, most pay-performance sensitivity is between 0 and 1 in both countries. In many histograms representing either country, frequencies of sensitivities are largest in the interval between 0 and 1/3. In other words, in either country in many companies, a 1% increase in company performance will lead to a 0-1/3% increase in director's pay. Thirdly, in the UK the distribution of total pay sensitivities are more centred than those of annual incentive sensitivities. Fourthly, the proportion of negative sensitivity is large in Japan, showing that the link between pay and performance is weak.

This research estimates performance regression to examine the relationship between pay policy and firm performance. The objective is to analyse whether the company's 'way to pay for executive' affects the company performance in both the UK and Japan. Our primary interest is to answer the

following questions: 1) Does the company with a higher pay-performance sensitivity perform better than those with a low sensitivity? 2) Can the performance of the companies that intensify performance-pay sensitivity outpace the performance of other companies? These questions are examined using the data from both the UK and Japan. This research also tries to answer the following questions: 3) Do companies with an annual incentive (AI) perform better than those without AI in the UK? 4) Can those companies that recently introduced an annual incentive program for executives improve their performance in the UK? Table (8-10) summarises these results.

Table 8-10 Summary table of chapter 8
The effect of pay system on firm performance in Japan and in the UK

	Japan Profit	ROC	Wage	UK Profit	EPS
Annual Incentive (AI)				.3142087**	.3539875***
				(0.1380967)	(0.1341149)
New AI				0.2629953*	0.2180987
				(0.1507894)	(0.1488575)
AI sensitivity	-0.0020683	-0.0263091	-0.0001467	0.0153522	0.013814
	(0.0007292)***	(0.0108491)**	(0.0003518)	(0.0208039)	(0.0121101)
AI sensitivity change	0.0303204	0.1010043	0.1539803	-0.18782	0.0350315
	(0.1684597)	(0.1662911)	(0.1783185)	(0.1830827)	(0.1740047)
Total pay sensitivity			-0.0008566	0.5727451***	0.7516764***
			(0.0010103)	(0.2998957)	(0.1308436)
Total pay sensitivity change	-0.149547	-0.0443269	0.1351245	0.8237644***	1.024789***
	(0.1285413)	(0.1270848)	(0.1417282)	(0.1402958)	(0.1408631)
Pay sensitivity	-0.0019241	-0.0076261	-0.0001004		
	(0.0013167)	(0.0073508)	(0.0008585)		
Pay sensitivity change	-0.0624996	0.0369197	0.2548321		
	(0.1353013)	(0.1315936)	(0.1517213)*		

It is noted that these coefficients are not obtained by same equations.

Our analysis on UK's data shows that there is a positive relationship between company's pay policy and firm performance. The main findings from the UK's data are as follows: The company with an annual bonus scheme is more likely to improve company profit and earnings per share. However, the relationship between the introduction of a new annual bonus and company performance is weak. The 'performance-TOTALPAY sensitivity' for executives has a positive and significant effect on both the profit and EPS, although the sensitivity of the annual bonus does not. Those companies with high 'total pay sensitivity' are more likely to improve their performance compared to those with low sensitivity. In addition, all the coefficients of 'change of total pay sensitivity' are positive and significant. In other words, those companies that intensify the total pay sensitivity are more likely to improve their firm performance. It should be noted that our independent variables do not show 'how much directors are paid', but show 'how they are paid'. Thus, our results suggest that in the UK the company's pay policy, or 'the way to pay' is an important factor for the company director's incentive.

This research estimates a similar equation using Japan's data. The main findings from the Japanese data are as follows: Firstly, there is no relationship between the performance-pay sensitivity and company performance. Thus, these results do not support our hypothesis that those companies that intensify the performance-pay sensitivity are more likely to improve their performance. In addition, this research fails to find a positive relationship between the change of pay policy and performance. These results show that the performance-pay sensitivity

does not affect company performance in Japan's large companies, or the directors in those companies are not motivated by the change in performance-pay sensitivity.

The most important contribution of this study is that it shows that there is a substantial difference in the effect of company's pay policy on firm performance in the UK and Japan²⁰. This research shows that the company's 'way to pay' for executives does indeed affect the company performance in the UK, suggesting incentive does matter. In contrast, there is no relationship between pay-performance sensitivity and firm performance in Japan.

Why then is there a difference in the effect of pay policies on performance between two countries? Although the answer to this question is not trivial, one reason may be due to the differences in corporate governance and in company's pay policies in these countries.

As seen in chapters 2 and 5, shareholders have strong powers to control top managers, and their compensations in the UK. It is often the case that the remuneration committee in a large UK company is mainly composed of non-executive directors, who are relatively independent from CEOs.

As described in Chapter 3, the UK companies seem to have a more detailed pay plan, which attempts to strengthen the link between pay and performance.

As directors in the UK are informed of performance targets and reward for achieving these targets in advance, they may be motivated to pursue these performance targets. In contrast, most large Japanese companies do not have

²⁰ It should be noted that there are big differences between Japan's data set and the UK's. Firstly, 'the highest paid directors' pay' is used in the UK while 'directors' average pay' is taken in Japan. Secondly, cross-sectional data are used in the UK's analysis while panel data are used in Japan's analysis. Thus, it may not be appropriate to compare the results of the two countries.

explicit performance based pay systems for directors. In other words, directors in the UK are more informed about their ‘goals²¹’ than those in Japan. As suggested by Marsden and French (1998), appropriate ‘goal setting’ may help people to improve their productivity. Our results suggest that the ‘goal setting effect’, in addition to the ‘motivation effect’, helps managers to improve their performance.

As directors in the UK seem to be more informed of the relationship between pay and performance than Japanese counterparts, they may be motivated to work hard toward these goals when the company intensifies pay-performance sensitivity. In other word, the directors in the UK may be able to respond to the change in pay policy, as they are well informed. In contrast, it takes time for the directors in Japan to respond to the change in company’s pay policy, as they are less well informed.

Although this research points to a positive relationship between pay policy and performance improvement in the UK²², it is not obvious whether this means that company performance depends on the company’s payment policy²³. Firstly, there is a possibility that directors in the UK may introduce a higher pay-performance sensitivity only when they can foresee a better performance in the coming year. As discussed in Chapter 7, if they know that the performance is to improve, they may try to intensify the pay-performance sensitivity to increase their compensations. However, there are two reasons why we believe this is not the case.

²¹ These goals include profit and earnings per share (EPS).

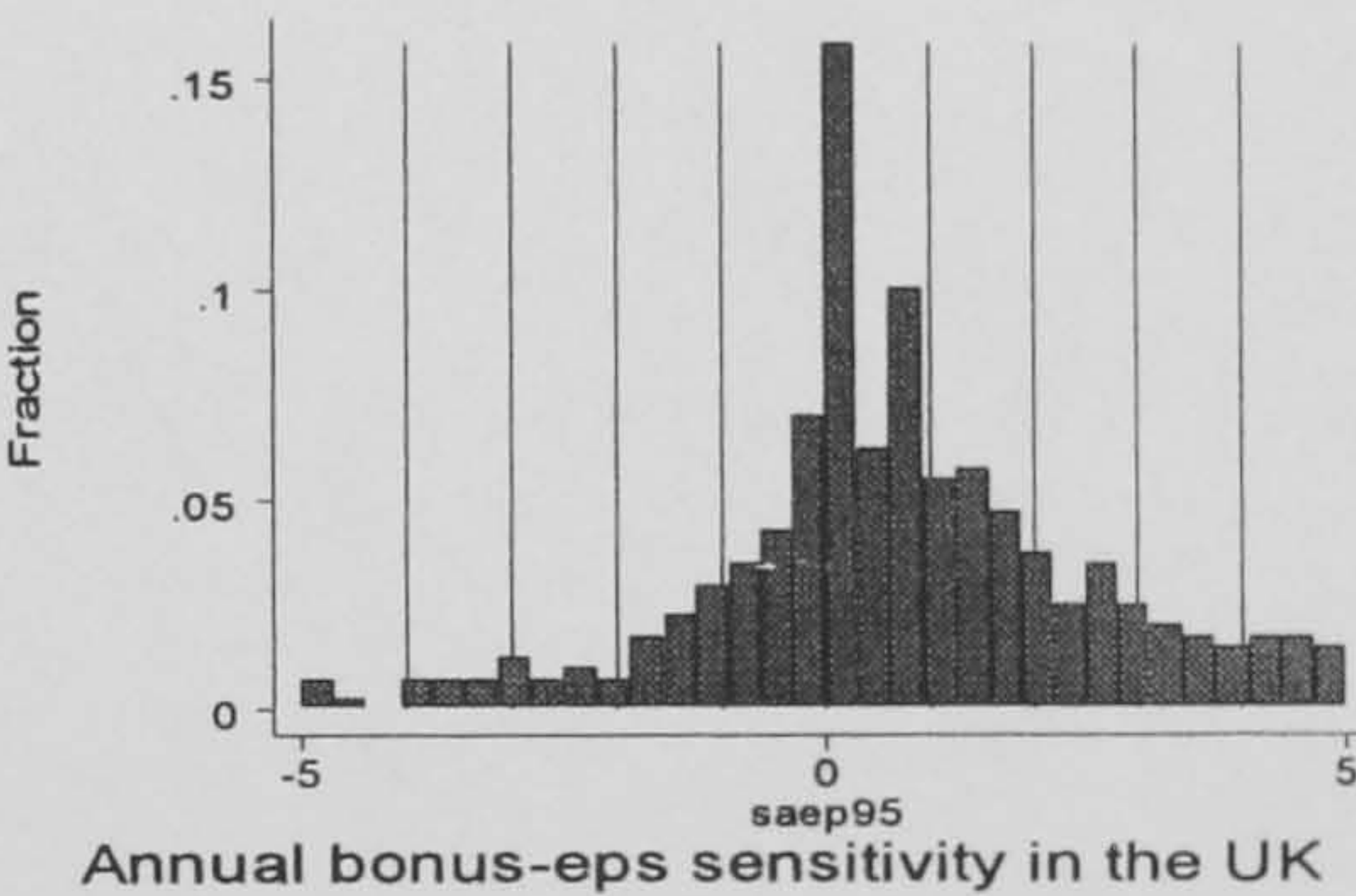
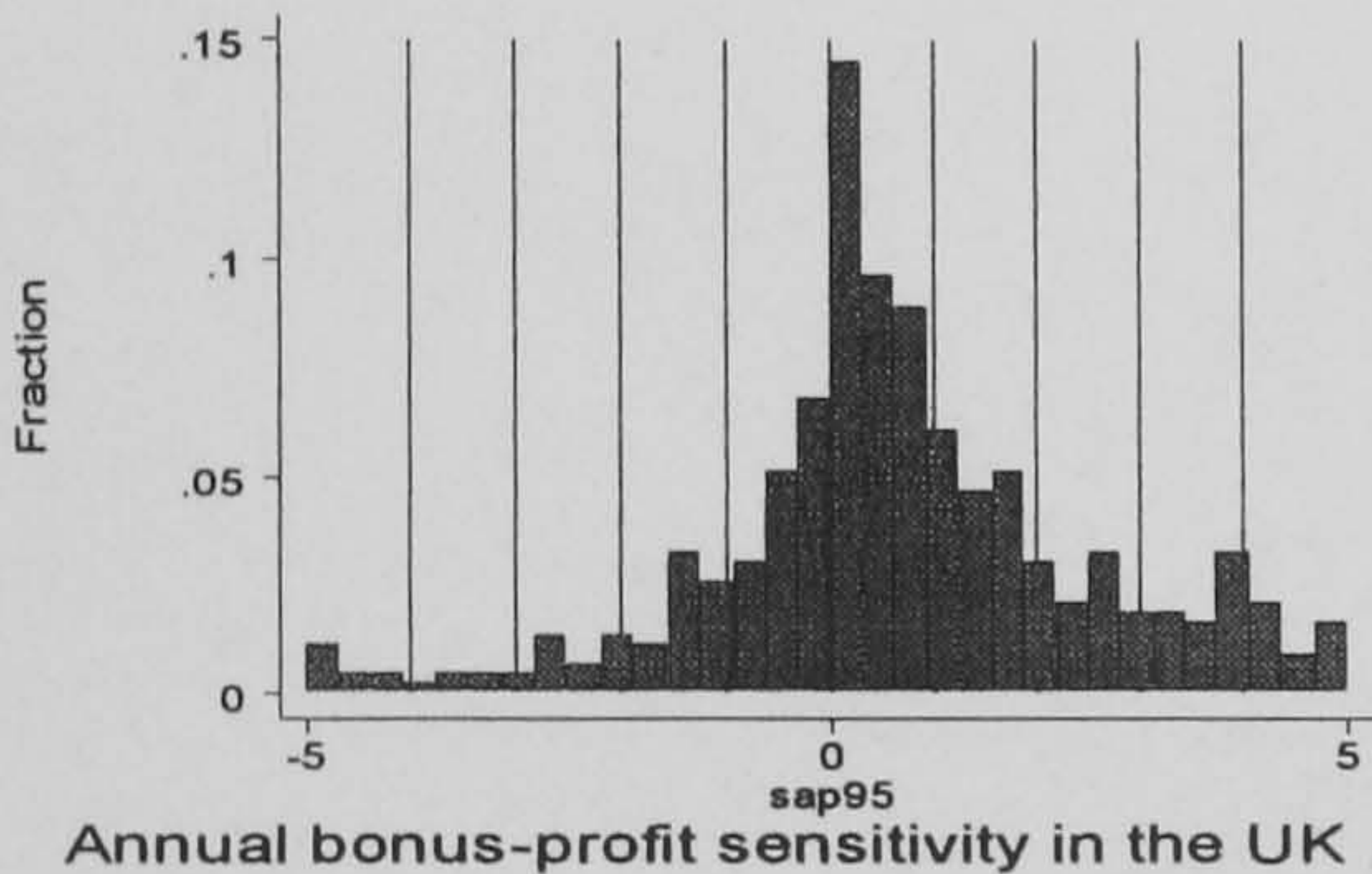
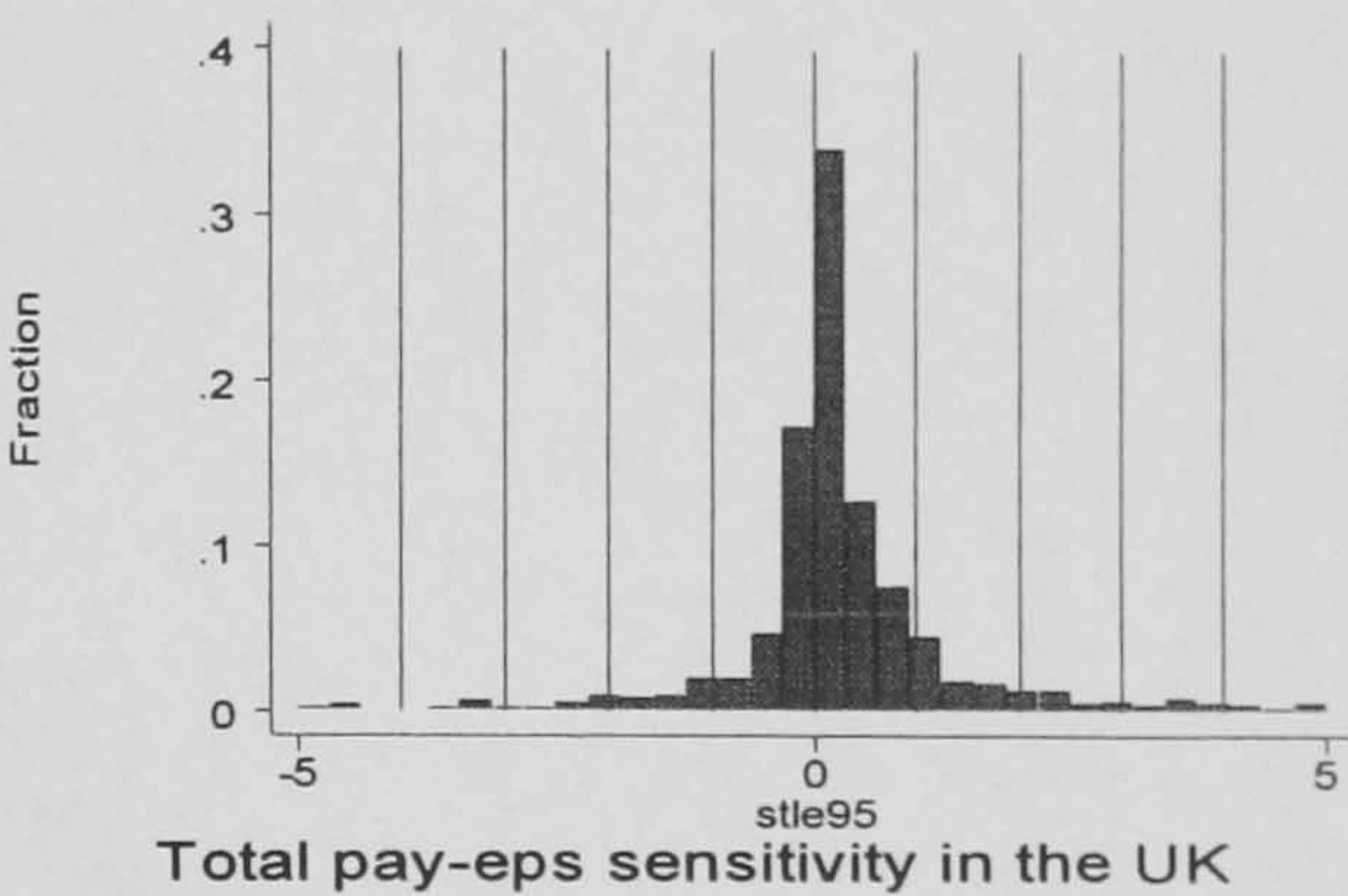
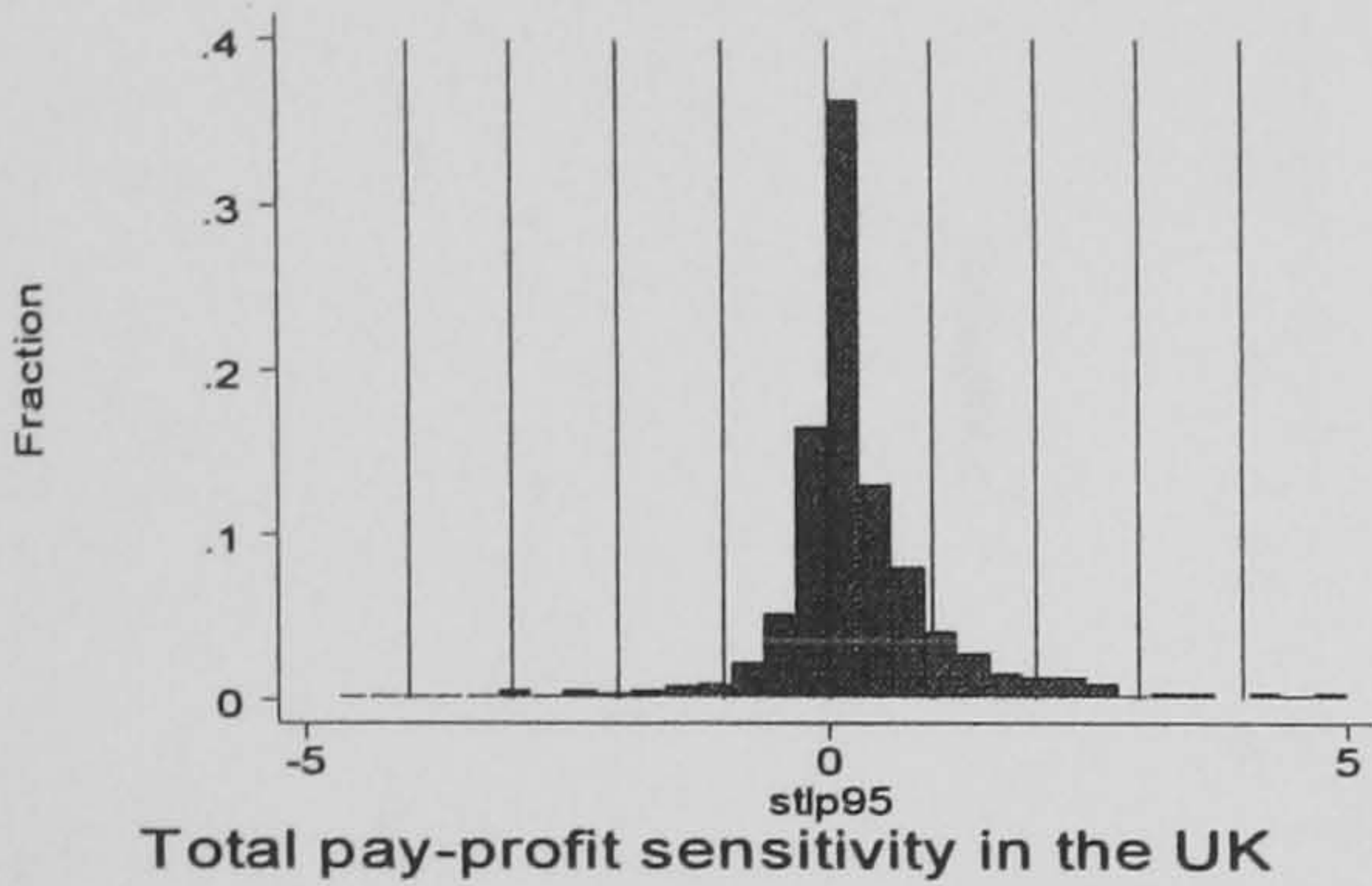
²² It should be also noted that we are analysing a certain kind of performance of large UK companies; EPS and profit. As we are analysing only short term performance, we cannot assess the relationship between pay schemes and the long term performance of the firm.

²³ We assumed performance is observed one year after pay-performance sensitivity is observed. This assumption is based on our understanding of widely accepted practice in the UK

Firstly, if the CEO can foresee the change in performance, and can therefore change the pay-performance sensitivity, then we would observe a positive relationship between annual incentive and sensitivity, as it may be easier to change the performance-annual bonus sensitivity than to change performance-total pay sensitivity. Secondly, CEOs may not have enough power to determine the pay-performance sensitivity in some companies. In many companies in the UK, a remuneration committee is appointed to determine the executive compensation. Some companies argue that remuneration committees are comprised of non-executive directors. If this is the case, the CEO may not have enough power to control their pay-performance sensitivities.

It may be also argued that firms performing well may have a more detailed pay plan, as these companies have enough resources to manage a complex pay plan. However, as we have seen, there is a no correlation between company size and whether or not a company has an annual incentive. In addition, it is not clear why companies that perform well prefer a performance related salary compared to other companies. However, this is of minor concern to us in this current research.

Graph 8-1 Distribution of pay-performance sensitivity in the UK in 1995



Graph 8-2

Distribution of pay-performance sensitivity in Japan in 1995

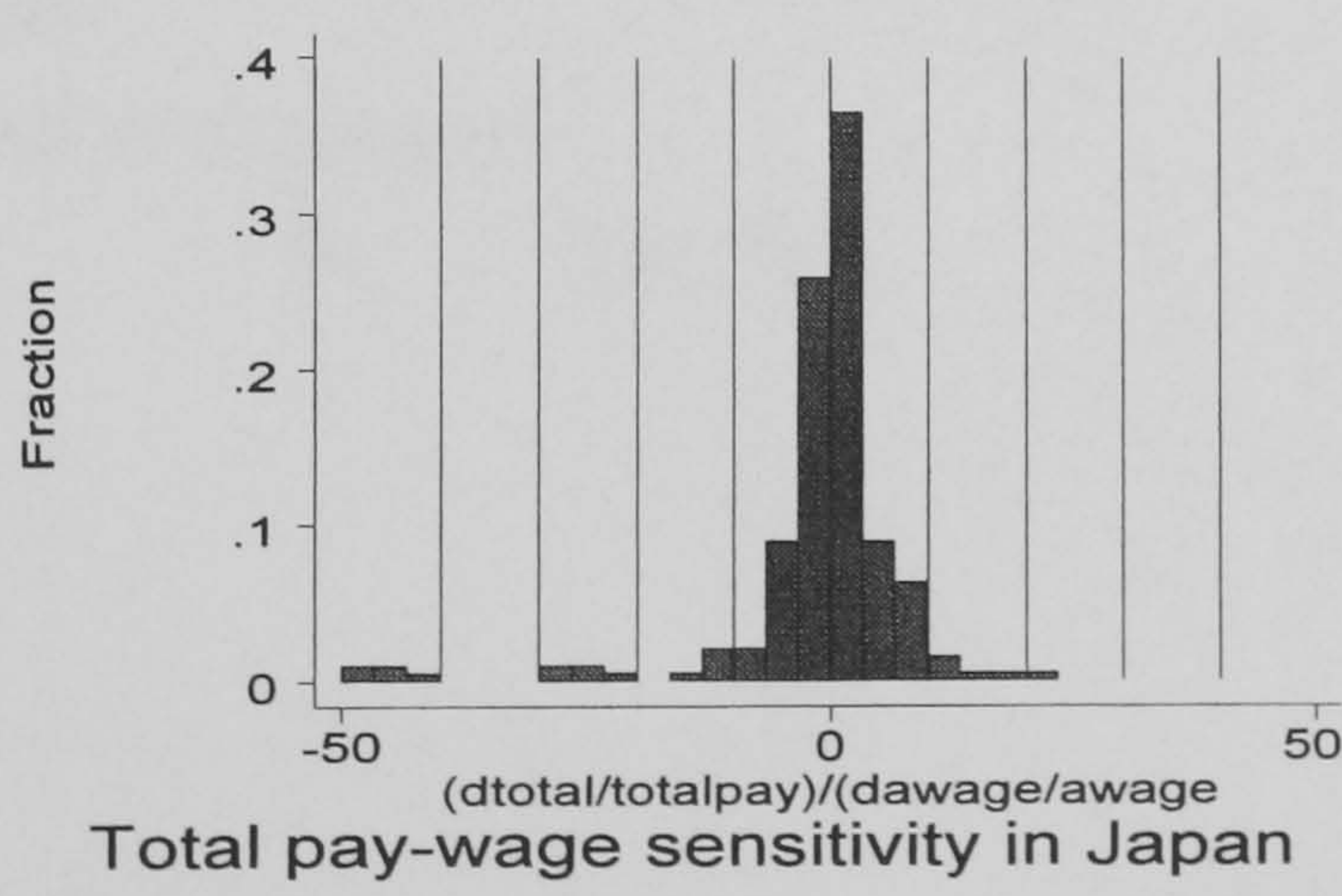
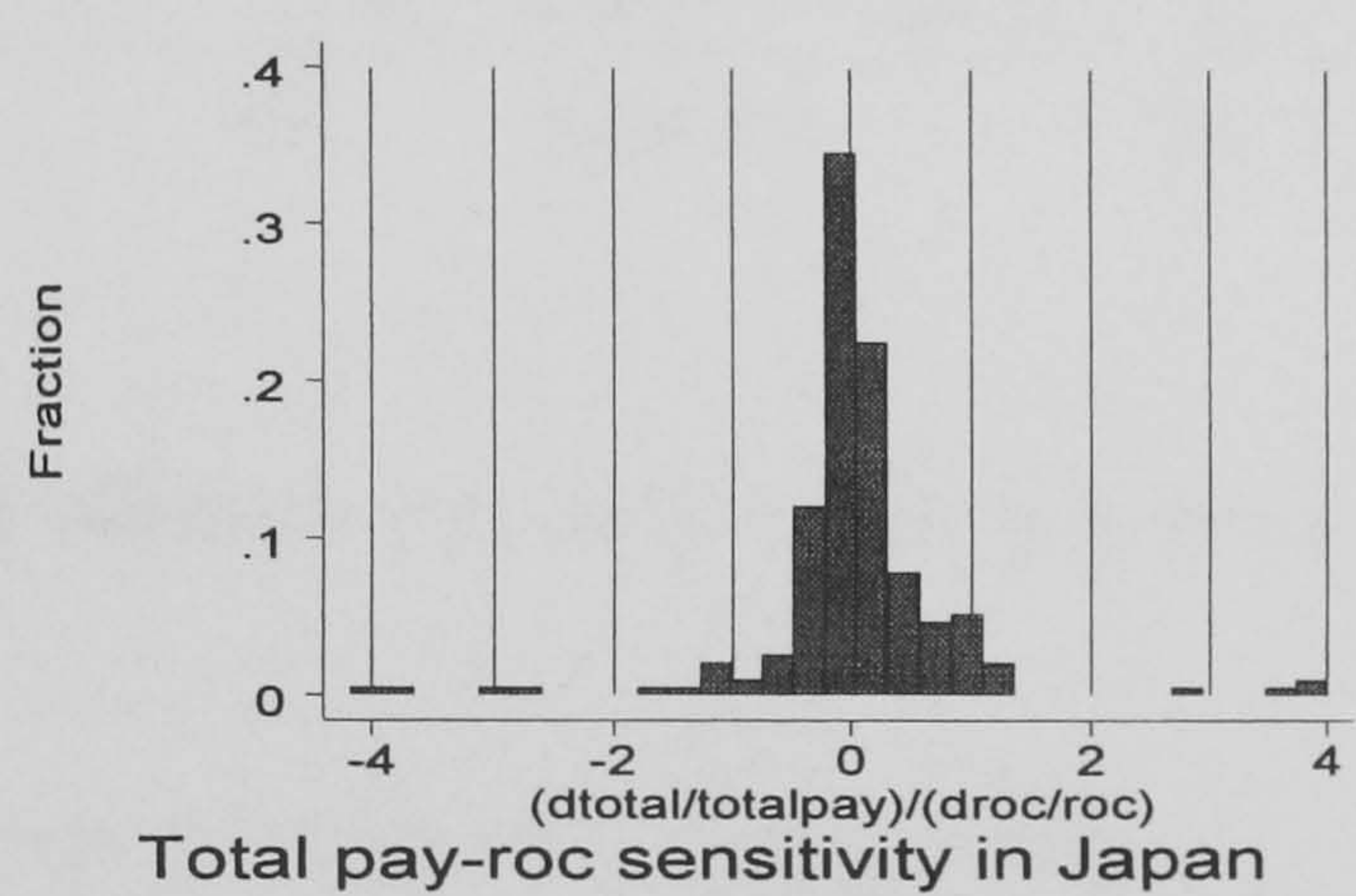
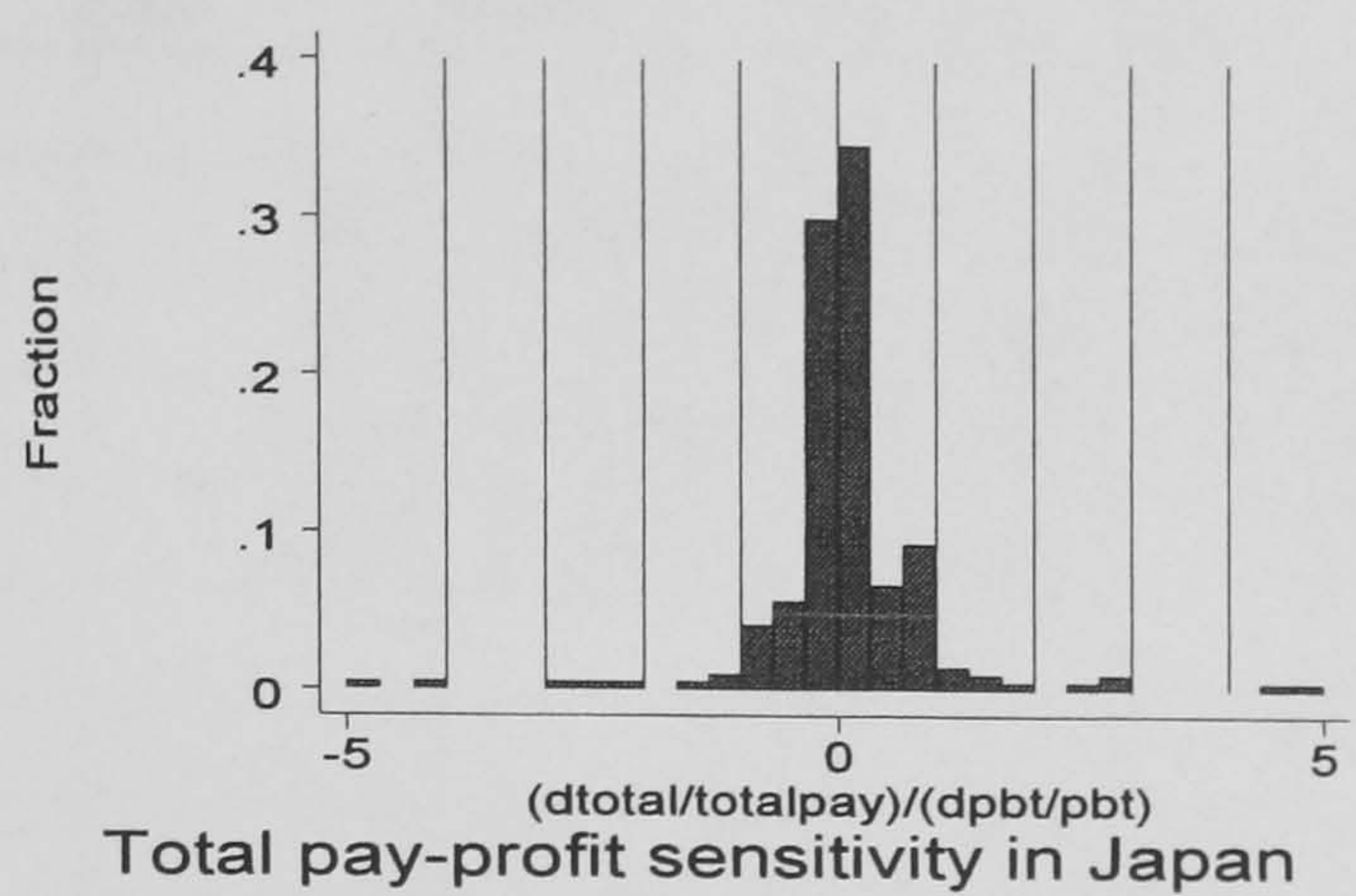


Table 8-1 Descriptive statistics: Pay-performance sensitivity in the UK

Profit-pay sensitivity	Obs	Mean	Std. Dev.	Min	Max
Profit-AI sensitivity in 94	322	1.360364	18.31556	-166.667	195.2055
Profit-AI sensitivity in 95	504	1.96345	12.20552	-55.0495	163.7931
Profit-TP sensitivity in 94	1108	0.158589	3.321202	-45.3875	25.24
Profit-TP sensitivity in 95	1333	0.197297	11.53983	-384.9	123.2111
EPS-pay sensitivity					
EPS-AI sensitivity in 94	310	0.877327	20.1442	-200	182.1086
EPS-AI sensitivity in 95	494	-0.50553	44.234	-950	145.8333
EPS-TP sensitivity in 94	1050	-0.95749	38.95515	-1250	41.4
EPS-TP sensitivity in 95	1274	0.56127	6.358237	-36.0182	138.665

AI: Annual Incentive TP: Total Pay EPS: Earnings Per Share

Table 8-2 Descriptive statistics: Pay-performance sensitivity change dummy in the UK

	0	1	Total
Profit-TP sensitivity change	701	673	1374
EPS-TP sensitivity change	725	708	1433
Profit-AI sensitivity change	383	653	1036
EPS-AI sensitivity change	382	655	1037

O: Sensitivity decreased
1: Sensitivity increased or unchanged
AI: Annual Incentive TP: Total Pay

Table 8-3 Descriptive statistics: Pay-performance sensitivity in Japan

Variable	Obs	Mean	Std. Dev.	Min	Max
Total compensation-profit sensitivity	617	-16.7156	421.2385	-10445.8	535.9844
Pay-profit sensitivity	552	0.647094	28.5179	-121.196	641.639
Bonus-profit sensitivity	440	-1.95409	45.92577	-958.334	25.30907
Total compensation-roc sensitivity	618	-0.77007	21.6317	-474.059	72.72469
pay-roc sensitivity	552	0.298217	6.349604	-43.7205	77.04689
bonus-roc sensitivity	441	0.457976	4.697933	-43.4917	48.56375
Total pay-wage sensitivity	618	1.719848	50.9495	-335.311	712.9421
Pay-wage sensitivity	552	2.320506	58.49597	-335.311	885.438
Bonus-wage sensitivity	441	1.306309	111.4027	-1946.23	1106.724

ROC: Return on Capital

Table 8-4 Descriptive statistics: Pay-performance sensitivity change dummy in Japan

	0	1	Total
Total compensation-profit sensitivity	204	205	409
pay-profit sensitivity	179	185	364
bonus-profit sensitivity	143	127	270
total compensation-roc sensitivity	205	205	410
pay-roc sensitivity	179	185	364
bonus-roc sensitivity	143	126	269
total compensation-wage	204	206	410
pay-wage sensitivity	191	174	365
bonus-wage sensitivity	136	134	270

- 0: Sensitivity decreased
1: Sensitivity increased or unchanged

Table 8-5 Logistic regression: Dependent variable: Whether or not the company increased its profit in the UK

Equation number	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5	Eq. 6	Eq. 7	Eq. 8	Eq. 9
Annual Incentive (AI)	.3142087** (0.1380967)		.2607161* (0.1493133)						
New AI		0.2629953* (0.1507894)	0.1562926 (0.16315)						
AI sensitivity				0.0153522 (0.0208039)		0.0196423 (0.215951)			
AI sensitivity change					-0.18782 (0.1830827)	-0.2295593 (0.1883448)			
Total pay sensitivity							0.5727451*** (0.2998957)		0.493148*** (0.1223137)
Total pay sensitivity change								0.8237644*** (0.1402958)	0.4218339*** (0.1512705)
Constant	0.8818508*** (0.2871129)	1.023663*** (0.2745116)	.8822288*** (.287138)	2.003384*** (0.475327)	2.166237*** (0.4816605)	2.166483*** (0.4904067)	1.166104*** (0.2998957)	0.9337717 (0.2967893)	1.01263*** (0.3038856)
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
log likelihood	-790.02818	-791.11727	-789.58065	-414.27696	-414.16663	-413.53085	-676.35938	-705.61505	-672.44071
Pseudo-R2	0.0644	0.0632	0.065	0.0669	0.0672	0.0686	0.1212	0.0832	0.1263
valid cases	1415	1415	1415	791	791	791	1358	1358	1358

Sensitivity change 1 if sensitivity intensified, 0 otherwise
Heteroscedasticity adjusted Standard Errors are in parenthesis.

***: Significant at the 1% level. **: Significant at the 5% level. * Significant at the 10% level

Table 8-6 Logistic regression: Dependent variable: Whether or not the company increased its EPS in the UK

Equation number	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5	Eq. 6	Eq. 7	Eq. 8	Eq. 9
Annual Incentive (AI)	.3539875*** (0.1341149)		0.324225** (0.145484)						
New AI		0.2180987 (0.1488575)	0.0858271 (0.1617527)						
AI sensitivity				0.013814 (0.0121101)		0.013981 (0.0126086)			
AI sensitivity change					0.0350315 (0.1740047)	-0.0121276 (0.1778396)			
Total pay sensitivity							0.7516764*** (0.1308436)		0.6591105*** (0.1278134)
Total pay sensitivity change								1.024789*** (0.1408631)	0.5286346*** (0.1567553)
Constant	0.857552*** (0.2855805)	1.032838*** (0.2748903)	.8577724*** (0.2859894)	1.790354*** (0.441083)	1.793992*** (0.4573995)	1.798855*** (0.4582304)	1.158172*** (0.2871911)	0.8072484*** (0.2875382)	0.9644715*** (0.2924509)
Industry dummy(2digit)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
log likelihood	-816.54146	-818.85804	-816.39859	-441.30655	-443.06996	-441.30422	-657.10475	-709.59344	-651.00502
Pseudo-R2	0.0777	0.0751	0.0779	0.0737	0.07	0.0737	0.1569	0.0896	0.1648
valid cases	1392	1392	1392	795	795	795	1298	1298	1298

Sensitivity change 1 if sensitivity intensified, 0 otherwise
Heteroscedasticity adjusted Standard Errors are in parenthesis.

***: Significant at the 1% level. ** Significant at the 5% level. * Significant at the 10% level

Table 8-7

Logistic regression: Dependent variable: Whether or not the company increased its profit in Japan

	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5	Eq. 6	Eq. 7
stlpbtd	-0.149547						
	(0.1285413)						
spypbtd		-0.0624996		-0.0713698			
		(0.1353013)		(0.1372835)			
snpaypbt			-0.0019241	0.0037536			
			(0.0013167)	(0.0089779)			
sbnpbtd					0.0303204		0.048885
					(0.1684597)		(0.1699672)
snbnspbt						-0.0020683	-0.0018087
						(0.0007292)***	(0.0008585)**
Constant	0.4038398	0.3323037	0.0739831	0.3387537	0.2416046	-0.0228563	0.2258173
	(0.908322)***	(0.0972638)***	(0.0520389)	(0.0985409)***	(0.1059192)**	(0.0585906)	(0.1074929)**
Chi-square	1.35	0.21	2.14	0.39	0.03	8.04	4.45
n	409	364	552	364	270	440	269

Heteroscedasticity adjusted Standard Errors are in parenthesis.

***: Significant at the 1% level. ** Significant at the 5% level. * Significant at the 10% level

stlpbtd profit-TOTALPAY sensitivity change dummy

spypbtd profit-PAY sensitivity change dummy

snpaypbt profit-PAY sensitivity change dummy

sbnpbtd profit-ANNUALBONUS sensitivity change dummy

snbnspbt profit-ANNUALBONUS sensitivity change dummy

1 if sensitivity intensified, 0 otherwise

Table 8-8 Logistic regression: Dependent variable: Whether or not the company increased its ROC in Japan

	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5	Eq. 6	Eq. 7
stlrocd	-0.0443269 (0.1270848)						
spyrocd		0.0369197 (0.1315936)		0.0486825 (0.1347939)			
Snpayroc			-0.0076261 (0.0073508)	-0.0048537 (0.011931)			
Sbnrocd					0.1010043 (0.1662911)		0.1704774 (0.1717437)
Snbsnroc						-0.0263091 (0.0108491)**	-0.0256562 (0.0132381)*
Constant	0.2693607 (0.0864492)***	0.2031546 (0.0913123)**	-0.0291495 (0.0508263)	0.1978006 (0.0928393)	0.0995345 (0.1038045)	-0.152601 (0.0571474)***	0.0738226 (0.1050304)
Chi-square	0.12	0.08	1.08	0.25	0.37	5.88	4.02
N	410	364	552	364	269	441	269

Heteroscedasticity adjusted Standard Errors are in parenthesis.

***: Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level

ROC: Return on Capital

stlrocd ROC-Total pay sensitivity change dummy

spyrocd ROC-pay sensitivity change dummy

snpayroc ROC-pay sensitivity

sbnrocd ROC-ANNUALBONUS sensitivity change dummy

snbsnroc ROC-ANNUALBONUS sensitivity

1 if sensitivity intensified, 0 otherwise

Table 8-9 Logistic regression: Dependent variable: Whether or not the company increased its wage in Japan

	Eq. 1	Eq. 2	Eq. 3	Eq. 4	Eq. 5
Stlwagd	0.1351245		0.1539746		
	(0.1417282)		(0.1448155)		
Snttlwag		-0.0008566	-0.0006669		
		(0.0010103)	(0.0009522)		
Spywagd				0.2548321	
				(0.1517213)*	
Snpaywag					-0.0001004
					(0.0008585)
Sbnwagd					
Snbnswag					
Constant	0.6750271	0.5611644	0.6672846	0.6048813	0.5169494
	(0.0924194)***	(0.0548926)***	(0.0924329)***	(0.0947205)***	(0.0580102)***
Chi-square	0.91	0.72	1.38	2.82	0.01
N	410	618	410	365	552

Heteroscedasticity adjusted Standard Errors are in parenthesis.

***: Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level

Stlwagd Wage-TOTALPAY sensitivity change dummy

1 if sensitivity intensified, 0 otherwise

snttlwag wage-TOTALPAY sensitivity

spywagd :wage-PAY sensitivity change dummy

snpaywag:

wage-PAY sensitivity

sbnwagd :wage-ANNUALBONUS sensitivity change dummy

sbnbswag wage-ANNUALBONUS sensitivity

Table 8-9 Logistic regression: Dependent variable: Whether or not the company increased its wage in Japan
(Continued)

	Eq. 6	Eq. 7	Eq. 8	Eq. 9
stlwagd				
snttlwag				
spywagd	0.2455205			
	(0.1549642)			
snpaywag	0.0004849			
	(0.0007233)			
sbnwagd		0.1539803		0.1667569
		(0.1783185)		(0.1812557)
sbnbswag			-0.0001467	-0.0001893
			(0.0003518)	(0.0003319)
Const.	0.6061998	0.767782	0.5921206	0.7587888
	(0.0952457)***	(0.1188053)***	(0.0646613)***	(0.1198275)***
Chi-square	3.64	0.75	0.17	0.98
n	364	270	441	269

Heteroscedasticity adjusted Standard Errors are in parenthesis.

***: Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level

Stlwagd

Wage-TOTALPAY sensitivity change dummy

1 if sensitivity intensified, 0 otherwise

snttlwag

wage-TOTALPAY sensitivity

spywagd : wage-PAY sensitivity change dummy

snpaywag:

wage-PAY sensitivity

sbnwagd : wage-ANNUALBONUS sensitivity change dummy

sbnbswag

wage-ANNUALBONUS sensitivity

Chapter 9. Summary and Conclusion

9.1. Summary of Our Findings

The purpose of this thesis is to analyse the directors' incentives in large companies in Japan and the UK, with particular emphasis on the relationship between corporate governance, executive compensation and firm performance. The main questions analysed are: 1) What are the main determinants of directors pay in Japan and the UK? 2) Can we observe a positive link between pay methods to directors and firm performance? The main empirical results of the analyses of these questions and their implications are summarised in this section.

9.1.1. The Determinants of Executive Compensation in Japan and in the UK

In the first place, we estimated the determinants of directors' pay and their bonus in Japan to examine our hypotheses that follow the discussion in Chapters 2 and 3. Methodology and results of this research are described in Chapters 5 and 6 and details of our data sets are described in Chapter 4.

This research examines the relationship between corporate governance and director's compensation. We can summarise the main results from Japan's data as

follows. As described in Chapter 5, the main hypothesis is that there is a positive relationship between director's pay and employees' average wage in Japan. These hypotheses are obtained by examining how directors and employees are paid.

In large companies in Japan, employees are highly motivated to monitor top managers because they are implicitly investing their money in the firm through deferred compensation. In addition, shareholders hold very limited power to control the top managers.

We estimated the determinants of directors' average pay and bonus, using micro data of 210 large listed companies from 1995 to 1996. The main results of these estimations using Japan's data can be summarised as follows:

- 1) In Japan there is a positive correlation between director's pay and employees' wage¹. In addition, the director's bonus is also correlated to employees' wage².
- 2) In Japan there is no relationship between director's pay and shareholders' return.
- 3) In Japan directors' pay does not depend on profit while there is a positive relationship between profit and directors' bonuses.
- 4) In Japan sales have a positive effect on directors' pay while numbers of employees has no effect.

¹ As described in chapter 4, employees' wage includes their bonus.

² The coefficient for employees' wage is not always significant when sales are included as an independent variable. As described in chapter 6, this may be because employees' wage is correlated with sales. Chapter 5 shows how sales affect employees' wage in large Japanese companies.

These results show that there is a positive link between director's salary and employees' wage in large companies in Japan. It is also suggested that directors' pay has no relationship with shareholders' return.

This research finds no relationship between shareholders' return and directors' pay, suggesting that directors are not motivated to pursue shareholders' interest, because they will receive little reward for doing so. In contrast, we find a positive relationship between director's pay and employee's wage³. This research also finds a strong relationship in Japan between profit and directors' bonus.

Many previous studies have found a positive link between size of the company and executive pay. This research finds a positive relationship between sales and pay in Japan, and between sales and bonus but another size variable, number of employees, fails to explain either directors' pay or their bonus. This may be because both sales and director's salary are affected by firm performance, such as profit.

Similarly, this research analyses the determinants of executive pay in the UK's large listed companies. The pay equation is estimated using around 1500 UK's listed company data from 1994-95. The methodology and results of these analyses are reported in Chapter 5 and 6. The details of our data set are described in Chapter 4. The main findings from the UK sample are as follows:

- 1) In general, in the UK all performance variables, including profit (both current and previous), stock market capitalisation, earnings per share (EPS) and

³ It is noted that employee's wage in our estimation includes their bonus. As employee's bonus depends on firm's profit (Freeman and Weitzman, 1987), the correlation between director's salary and employee's wage may indicate that both director's salary and employee's wage may depend on similar determinants.

sales, have a significant effect on the total pay and fixed pay of directors.

2) Profit and EPS have a significant effect on the annual incentive for directors.

These results suggest that directors in large companies in the UK have financial incentives to pursue the company's profit or stock market performance, as directors have the expectation of receiving higher pay when they achieve higher firm performance.

In addition, we have tested whether there is a relationship between employees' wage and directors' salary in the UK. We constructed a smaller UK data set which would match the Japanese sample in terms of size. We estimated the determinants of top directors' pay, showing that there is no such relationship.

In addition to the above estimations, we also analysed the determinants of the pay gap between directors and employees in large companies in Japan. The objective of this analysis is to examine the relationship between pay gap and 'promotion probability' of employees. It has been hypothesised that the pay gap is larger if employees are less likely to be promoted. If the pay gap between directors and employees is large, then employees are likely to work hard towards a promotion to directorship. However, if employees think that they have little possibility for promotion, they are more likely not to work hard unless the pay gap is very large. Thus, we hypothesise that there is a negative correlation between pay gap and probability of promotion.

We have estimated the determinants of pay gap between directors and employees in large companies in Japan. Independent variables include promotion

probability, which is defined as the ratio of the number of directors to that of employees⁴. We analyse this relationship using the same data set as before, which covers 210 large listed companies in Japan between 1995 and 96. The methodology and results of this analysis is reported in Chapter 6.

Our estimation shows that there is a negative correlation between pay gap and probability of promotion. In other words, pay gap will be larger in a company where employees see little probability of being promoted. This result suggests that the managerial pay systems in large Japanese companies have a rank order tournament structure, which is consistent with our discussion in Chapter 3 that ‘rank order tournament’ type pay structure is employed for managerial workers in large Japanese firms.

9.1.2. The Effect of Executive Pay on Firm Performance in Japan and the UK

In Chapter 7 and 8, we analyse in the UK and in Japan the effect of the company’s ‘ways to pay for the executive’ on its performance.

This research investigates whether the performance-pay sensitivity affects company performance, and whether the performance of those companies that intensify their performance-pay sensitivity can outpace the performance of other companies both in Japan and the UK. In addition, we also study in the UK whether those companies with an annual incentive scheme show an improved performance compared to those without AI, and whether those companies that recently introduced an annual incentive

⁴ As described in previous chapters, in Japan most directors are promoted from employees of the company.

program for their executive can improve their performance.

One of the difficulties of this study is that it is not easy to observe each company's performance-pay sensitivity for each year. In this research, we examine some possible indices that may show pay-performance sensitivity. Pay-performance sensitivity is defined as the percentage change of the company performance divided by percent change of the compensation because this sensitivity index is one of the more effective measures of company's pay policy.

We examine the basic characteristics of this pay-performance sensitivity, firstly to find out if our newly defined sensitivity variable can be used as an index for pay-performance sensitivity, and secondly, to analyse the difference in sensitivity between the two countries. We have found that many companies in the UK are trying to intensify their pay-performance sensitivity for their top directors. In particular, the number of companies that intensify their annual bonus-performance sensitivity is larger than those that do not. It is suggested that many companies are trying to strengthen the tie between pay and performance.

In contrast, in Japan, our results suggest that not many companies are trying to strengthen the link between pay and performance. The number of the companies that both strengthen and weaken their sensitivity is almost the same. In some companies in Japan, the pay-performance sensitivity is negative, showing that some companies increase directors' pay even when their performance is declining, or vice versa. Our results also show in both countries that in many companies, the pay-performance sensitivities are around 0-1/3, suggesting that a 1% increase in firm performance will lead to a 0-1/3 percent increase in directors' pay.

Logistic regression is estimated using data for more than 1000 UK listed

companies in 1994-95, in an attempt to analyse if the company's way to pay affects firm performance. This data set is the same as the one we use in previous chapters. The dependent variable is a dummy variable that shows whether the company improved its performance. Independent variables include pay-performance sensitivity and dummy variables that show if the company has some pay packages such as an annual incentive scheme.

The main findings from the UK's data can be summarised as follows. The company with annual bonus is more likely to improve its company profit and its earnings per share (EPS). The 'performance-TOTALPAY sensitivity' for executives has a positive and significant effect on both profit and EPS, though the 'sensitivity of annual bonus' does not. In other words, companies with high 'total pay-performance sensitivity' are more likely to achieve better performance. These results show that in the UK the company's pay policy, or 'the way to pay' is a very important factor affecting motivation of the company director's .

This research estimates a similar equation using Japan's data, using the same data set as in previous chapters that contains 210 companies. Our results suggest that a company's pay policy has no effect on firm performance in Japan. Our main findings are as follows. There is no relationship between the performance-pay sensitivity and company performance. Our results do not support the hypothesis that those companies that intensified performance-pay sensitivity are more likely to improve their performance compared to those that did not. These results show that the performance-pay sensitivity does not affect company performance in Japan's large companies, or the directors in those companies are not motivated by the change in performance-pay sensitivity.

There are some differences in the analysis of data from Japan and that from the UK. Firstly, the data for ‘the highest paid directors’ pay’ are used in the UK while in Japan the data are ‘directors’ average pay’. Secondly, cross-sectional data are used in the UK’s analysis while panel data are used in Japan’s. Therefore, it is inappropriate to compare the two results directly.

9.2. Implications of the Theory of Corporate Governance and Executive Compensation

In this section, we will discuss the implications of our results on the literature of the theory of corporate governance and executive compensation.

9.2.1. Contributions: The Determinants of Executive Compensation in Japan and the UK

One of the most important results of our research is that it has provided the first systematic evidence that there is a positive relationship between employee’s wage and director’s salary.

Xu (1993) in his research attempts to find a similar correlation, though to no avail. One of the main reasons why his results are different from this research is the difference in the characteristics of data sets. As described in Chapter 4, we examine various types of directors’ salary data in Japan. Director’s salary data based on income tax may be overestimated because of the inclusion of income from other sources, not

related to their employment. In addition, a sample selection bias will arise because one can only obtain the president's income data above a certain income threshold. Thus, we used the directors' salary that is based on the company's annual report, rather than income tax.

According to our results, in Japan there is a significant and positive relationship between directors' compensation and employee's wage. Employees' wages have explanatory power for both directors' pay and their bonus.

Since there is a positive relationship between director's compensation and employees' wage, it is suggested that both directors and employees are paid in similar ways in large Japanese companies. It is also suggested that both directors and employees have a similar incentive system, reflecting that both of them have a strong stake in the company through firm specific human capital.

In contrast, this research does not find any relationship between shareholders' return and directors' compensation in Japan. Thus, directors are considered to have little financial incentive to pursue shareholders' interest, because they will receive little reward for doing so. The results in this research are consistent with the argument that directors' in Japan's larger companies pay little attention to shareholders' interest. In other words, our results may provide empirical support for why large companies in Japan seem to ignore the shareholder's interest.

One of the most important implications of our results is that this research shows a positive relationship in Japan between director's salary and employee's wage, suggesting that both director's salary and employee's wage are paid in similar way, as discussed in chapter 5. In other words, director's salary and employee's wage have a similar incentive structure. In addition, our estimations on pay gap between directors

and employees indicate that director's salary may affect employee's motivation. These results indicate that both director's salary and employee's wage can be analysed from the same viewpoint.

As described in Chapter 2, British managers face more pressure from shareholders and the financial market, while their counterparts in Japan are constrained by the employment relationship rather than by the financial market and shareholders. However, few studies exist that examine whether this difference in corporate governance affect the determinants of executive compensation. This research is the first study that suggests that both directors and employees are paid in a similar way.

Some previous studies try to investigate if directors in large Japanese firms have financial incentives to work toward shareholder's wealth (Kato, 1997, Kato and Rockel, 1992a, Kaplan, 1994, Xu, 1992,1993,1996,1997). They examine whether there is a positive relationship between director's salary and shareholder's return. The majority of the studies argue that there is a positive relationship (Kaplan, 1994, Xu, 1992), however, this research shows that there is no relationship between director's salary and shareholder's interest using the new data set.

So why is our result different from those of previous research? One reason may be that our data set is taken in the recession period. It is often the case that director's salary increases over time whether or not their performance improves. On the other hand, it may be the case that stock prices of most large companies increase in a boom period. If these are the case, then one may observe a positive relationship between stock price and director's salary, which may not necessarily reflect the company's pay policy

toward directors as the conditions in the stock market greatly affect this.

As our data set is taken from the recession period, many companies' stock prices may not improve. However, the principal-agent theory suggests a positive relationship even in a recession period. As described above, this research does not observe any positive relationship between shareholder's return and director's salary, contrary to previous studies (Kaplan, 1994). Thus, it is suggested that previous research may observe a positive relationship that is not based on the company's pay policy, as both shareholder's return and director's salary may increase in a boom period, i.e. the result has been distorted by the condition of the stock market at the time.

As described in Chapter 5, our employee's wage includes their bonus. It is often argued that employee's bonus reflects the firm's performance, particularly its profit (Freeman and Weitzman, 1987). Chapter 6 also shows a positive correlation between director's salary and firm profit. Therefore, the positive relationship between directors' salary and employee's wage may show that both director's salary and employee's wage are effected by the same factor, suggesting both directors and employees have a similar incentive system. Both directors and employees are paid in similar ways in large Japanese firms because both of them can be seen as implicit investors in the company, as discussed in chapter 5.

Secondly, this is the first time research that compares the determinants of directors' compensation in Japan and UK has been carried out. Some previous studies compare the determinants of top directors' pay in the US and in Japan, giving very different results. Kaplan (1994), and Kato and Rockel (1992) compare the determinants

of top pay in the US and in Japan. Kaplan suggests that directors' pay in Japan and the US can be explained by similar factors, showing that in both countries, top directors' compensation depends on firm performance. In contrast, Kato and Rockel argue that there is a difference in the determinants of executive compensation in both countries, showing that shareholders' return has little explanatory power for top director's pay in Japan.

This research shows that there is a difference in the determinants of top directors' compensation in Japan and the UK. In Japan, there is a positive correlation between directors' compensation and employees' wage while shareholders' return cannot explain executive compensation. In contrast, in the UK, there is a positive relationship between top directors' pay and stock market value of the company.

Although the determinants of directors' compensation are generally different, there are some similarities. In both countries, the coefficients for profit are positive and significant. This suggests that directors in both countries may be motivated to pay attention to the profit of the company. In addition, the coefficients for the sales are positive and significant in both countries.

As described in Chapter 2, there is a difference in corporate governance style between in the UK and Japan. Shareholders and financial markets have considerable power over top directors in the UK, while in Japan employees have an incentive to monitor top managers as they acquire firm specific skills. Our analysis on the comparison of the determinants of executive compensation in both countries suggests that the difference in corporate governance does affect the director's salary and their incentives.

Thirdly, this research provides an analysis that is based on new data sets in

both countries. For example, our data set includes around 1500 listed companies in the UK, which is larger than most studies that estimate the determinants of executive pay in the UK. As shown in Chapter 3, most previous studies employ data sets that contain anything between 30 to 300 companies as a sample. Studies by Conyon and Leech (1994), and Gregg Machin and Szymanski, (1993) use data sets whose sample size is around 300.

The other advantage of our data set is that it shows the details of directors' pay in the UK. For example, our data show the amount of fixed pay and annual incentive for each director so it enables us to analyse the determinants of top director's fixed pay and those of annual bonus, separately. This is important because fixed pay and annual bonus may depend on different set of factors, as mentioned by McKnight (1997).

In addition, as our data for Japan are based on 1995-96 data, our results provide evidence based on recent data sets. This is considered to be important as almost all the studies of the determinants of executive compensation use data from the 1980's. For example, Kato and Rockel (1992a) use data from 1985 and Kaplan (1994) uses data from 1981-1984. As this research uses data from 1995-96, our results will provide evidence based on recent data.

Lastly, our analysis on pay gap between directors and employees shows a negative correlation between pay gap and probability of promotion. It is suggested that large companies in Japan use a 'rank order tournament type' incentive system.

As described in Chapter 3, one of the main characteristics of the employment structure of large Japanese firms is that new employees are allocated to the bottom rank of the employment hierarchy and that they are supposed to be promoted to a higher rank through competition with their colleagues. Our results are consistent with this view, as

in a rank order tournament, employees are supposed to compete with their colleagues to be promoted to higher position within the company.

9.2.2. Contributions: The Effect of Pay Policy on Firm Performance in Japan and the UK

This research also analyses the effect of pay policy on firm's performance. The major contribution of these results can be summarised as follows. Firstly, to our knowledge, this is the first research of its kind that analyses the effect of directors' pay systems on firm's performance in Japan and the UK. Only a few studies exist that attempt to analyse the effect of the company's way to pay on firm performance (Jensen and Murphy, 1990b, 1990c, Abowd, 1990). Their results suggest that those companies with higher pay-performance sensitivity are more likely to achieve a higher firm performance. Although the methodology used in their research differs from that used in this research, our results are consistent with theirs. Our estimation in the UK shows that there is a positive relationship between company's pay policy and firm's performance. For example, those companies with an annual bonus scheme are more likely to achieve an improved performance than those without. In addition, the company that intensifies the pay-performance sensitivity is more likely to improve its performance.

Secondly, this research shows that there is a significant difference between Japan and the UK in the effect of pay policy on company's performance. Our results show that the company's 'way to pay' their executive is an important incentive for them.

and thus, in the UK, it affects the company's performance in the UK whilst in Japan the pay-performance sensitivity does not seem to affect the company's performance. One reason for this difference may be the 'goal setting' effect of the director's pay scheme. In many UK companies, directors are informed of their performance target after which they can concentrate on them. In contrast, most large companies in Japan do not have an explicit executive compensation program that shows performance targets.

Thirdly, this research newly defines pay-performance sensitivity. The advantage of our sensitivity index is that we can observe the change of pay-performance sensitivity as we are able to calculate this pay-performance sensitivity for both each year and each company. Jensen and Murphy (1990b, 1990c) calculate pay-performance sensitivity for each company, however, one cannot observe the change in their pay-performance sensitivity as their sensitivity can be calculated over that length of time. Therefore, our measure of pay-performance sensitivity makes it possible for us to analyse the effect of 'change of sensitivity' on firm's performance.

In addition, our results give another example of results that test the effectiveness of performance related pay. Although some studies analyse the effect of performance related pay on performance (Marsden and Richardson, 1994, Marsden and French, 1998), little attention has been paid to the effectiveness of performance related pay for top directors. Our results also indicate the effectiveness of performance related pay for top directors, as a positive relationship between pay-performance sensitivity and firm performance is observed in the UK.

9.3. Policy Implications

In this section, the policy implication of our study will be discussed. Corporate governance has been a major public debate recently both in Japan and the UK. One of the major concerns is that many monitoring devices for managers may not be effective enough. In other words, top managers may face little pressure from stakeholders, such as shareholders of the company. Some scholars argue that the majority of monitoring devices for managers is not effective because of the moral hazard problem. As described in Chapter 2, Stiglitz (1985), and Hart (1995) suggest that even hostile take-over and monitoring by large shareholders may not be effective⁵. In response to these debates, some recommendations are presented regarding corporate governance and top director's pay in the UK. In Japan, some companies are trying to strengthen the tie between firm's performance and executive pay, though few changes have been made regarding the regulation on corporate governance.

As described in the previous section, our estimations of the determinants of executive pay in Japan suggest that directors in large Japanese firms may not have enough financial incentive to pursue the shareholder's return. In other words, directors may not be punished by shareholders even if they fail to follow shareholder's interest. Although it is not necessarily straightforward as to whether stockholders are 'owners' of

⁵ They point out that take over may not be effective as the current management team may have more information than the external investors. In other words, external investors may try to buy the company because they do not have enough information on the company. In addition, large shareholders may collude with the current management team.

the company, they are nevertheless investing large amounts of money in the company. Thus, it may be important for shareholders to be able to monitor the top management so that managers are motivated in pursuing shareholder's wealth. As suggested in much of the research, executive compensation is an important device to motivate directors. In the UK, listed companies are recommended to disclose the details of executive compensation. However, there is no such regulation or recommendation in Japan. As described in Chapter 4, most companies do not disclose the amount of executive compensation for each director. Thus, this research suggests that all the listed companies are better off disclosing the detail of executive compensation for top directors in listed companies in Japan. This will make executive pay in Japan more accountable for shareholders. Similarly, as is the case in the UK, the detail of top pay should be disclosed whereby particular emphasis should be laid on the disclosure of stock options.

9.4. Possible Limits of This Study

This research has highlighted some points that could be improved for future research. Firstly, it is not straightforward to interpret our statistical results as evidence that large companies in Japan behave like employees own them.

As we find no relationship between shareholders' return and directors' pay in Japan, the directors in large companies probably have incentive to pursue shareholders return. However, a positive relationship between directors' pay and employees' wage does not necessarily show that directors' pay depends on employees' wage. As

described above, a positive relationship between director's salary and employees' wage indicates that both directors and employees have a pay structure based on similar incentives.

This research does not clearly define who the employee in Japan's large companies is. In their annual report, every listed company discloses the number of employees working for them. It is often the case that this number does not only include the core employees, such as senior managers or full-time workers, but also part-time workers and seasonal workers. Many scholars argue that large companies in Japan are managed for the sake of 'core employees' (Komiya, 1988). Usually, only full-time workers are considered to be the 'core employees' of the company. Thus, if we use 'the average wage of core employees', rather than 'the average wage of total employees', then we would be able to obtain more accurate estimates, although this kind of data are not easy to come by⁶.

9.5. Future Project

In this section, we will discuss some possible future research projects that may extend this research. Particular emphasis is laid on the interaction between employees' wage and directors' pay in Japan, and stock options in both countries. Research on the development of the corporate governance style of large Japanese companies is also mentioned.

⁶ As each company has a different composition of workforce in terms of their age, gender, tenure, etc, their average wage may reflect the difference in the composition of the work force rather than the difference in the level of wage. Although we cannot avoid this problem completely, we try to control this effect using dummy variables and difference of variables.

Our analysis on the determinants of executive pay in Japan shows that there is a positive relationship between director's pay and employees' wage. As described in the previous chapters, we do not include employees' wage as an endogenous variable explicitly in our estimation⁷. However, as mentioned in the previous section, there is a possibility that in Japan employee's wage also reflects the change in performance in large companies. This point is considered to be important as many studies suggest that employees' annual bonus reflects change in firm's performance (Freeman and Weitzman, 1987). Typically, bonus shares are 20-30% of employee's annual income. Thus, it may be worth analysing the interaction between employee's wage and directors' pay. In other words, we may analyse the simultaneous determination of director's pay and employee's wage.

In future research, the determinants of both employee's wage and director's salary will be estimated as the endogenous variable. One of the main questions is whether in large Japanese companies the employees are paid like the directors. If employee's wage reflects a fluctuation of the firm's performance, employees are considered to take some risk of the company.

There are some advantages in this project. Firstly, we can analyse director's pay as a part of the pay structure that covers the whole company. It may be important to examine the incentive systems of the companies as a whole, because the director's salary is considered to be an incentive device for other employees to work hard. Employees in large Japanese companies are motivated to work hard to be promoted to higher positions within the company, such as directors. Our empirical analysis in

⁷ Japan's employee's wage variable may be affected by firm's profit as employee's wage includes their bonus.

Chapter 6 supports this view, as pay gap between directors and employees is larger in a company where employees face less chance of promotion. In addition, we will be able to analyse the similarity and differences between director's pay and employee's wage. This may be of interest because the distinction between directors and employees may be smaller in large companies in Japan compared to that in other countries.

In our analysis in Chapter 5 and 6, we do not analyse the determinants of employees' wage explicitly. In addition, we do not assume that there is a difference in the employees' commitment to the company, and that the difference in the commitment may effect the relationship between directors' pay and employees' wage. However, it is possible to assume that employees have a greater power in governing the company in some companies compared to others.

For example, it may be the case that employees have more power if the company is strong on essential human capital, or if employees take more risks than other stakeholders do. In other words, it may be worth measuring the employee's 'commitment' to the company, and relate this commitment to the company with other variables, such as the degree of correlation between director's pay and employee's wage. Our hypothesis predicts that the relationship between director's pay and employee's wage is larger in a company where employees have a strong commitment to the company⁸.

This employee's commitment may be seen as 'risk taking' by the employees, and their implicit investment in the company in terms of deferred compensation, or their firm specific skill that is essential to the company.

⁸ In this hypothesis, the dependent variable is the correlation between a director's pay and an employee's wage.

In this project, firstly, we will assess the 'employee's commitment to the company' index. For example, it may be possible to estimate how employee's wage is affected by firm's performance by estimating the wage function. In addition, we will estimate the correlation between director's pay and employee's wage. Then, we will test the hypothesis that correlation between director's pay and employee's wage is larger if employee's wage depends on firm's performance⁹.

In addition to the above project, which attempts to extend the research on the effect of corporate governance on top executive pay, we will analyse the effect of stock option on director's incentive in both countries. In Chapter 7 and 8, we analyse the effect of director's pay on firm performance. However, we do not mention the effect of stock option on director's incentive to firm performance, although stock option is widely used in large UK companies. Although stock option has not been used in large Japanese companies because of legal problems, some companies are introducing a stock option in order to motivate directors to pursue stock market performance of the company. So, two main questions arise: 1) Does stock option really motivate directors to focus on shareholders' interests? 2) Do those companies with a larger stock option package perform better than others do? We will examine these questions separately in both countries.

Firstly, we will examine the first question in Japan. It may be too early to examine the effect of stock option on firm's performance in Japan, as the stock option scheme has only just began. Thus, we will focus on the effect of the stock option on

⁹ Alternatively, we may be able to use the level of employee's pre-retirement bonus as a indicator of deferred compensation. An employee may have strong 'commitment' if he receives a large pre-retirement bonus, because he has invested his assets in the company implicitly.

director's motivation¹⁰. The questions we are interested in are as follows: 1) Do directors really understand the objective of the stock option and its performance target? 2) Do they think that the stock option is effective enough to motivate them? A questionnaire survey and interview will be the main method to analyse these questions.

Similarly, we will examine the same questions in the UK. In addition, we will analyse the effect of stock options on firm's performance as stock option is widely used in large UK companies. Then, the main questions to be analysed will be as follows: 1) Do those companies with stock options perform better than those without? 2) Do those companies with a larger stock option package perform better than others do? 3) Is there any condition where stock options work more effectively? These questions will be analysed using quantitative data. As there are various types of stock options, we will analyse the advantages and disadvantages of each type of stock options.

¹⁰ It may be important to analyse the relationship between the effects of stock options and the types of directors. Stock options may motivate some directors who will respond to this kind of incentive scheme, though other types of directors may not be encouraged.

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