

**THE IMPACT OF FOREIGN CORPORATE OWNERSHIP ON
DOWNSIZING AND LABOUR COST**

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by

Dominic H. Chai
Centre for Business Research
University of Cambridge
Judge Business School Building
Cambridge CB2 1AG
and
Manchester Business School
The University of Manchester
Manchester M15 6PB
Email: dominic.chai@manchester.ac.uk

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Abstract

This study examines the impact of foreign ownership on the firm's labour cost using a panel data of 496 publicly traded Korean companies during the post Asian financial crisis period of 1998-2003. It shows that foreign ownership is positively related to labour cost but this positive effect is significantly weaker for firms with weak financial performance than those with strong financial performance. These results provide support to the view that foreign investors take both monitoring and disciplinary roles for publicly traded firms.

JEL Codes: G34, J30, L21, M52

Keywords: Corporate Governance, Restructuring, Downsizing, Labour Cost, Foreign Ownership

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The capacity of the new Employment Insurance system will be strengthened to facilitate the redeployment of labour, in parallel with further steps to improve labour market flexibility.

– “Memorandum on the Economic Program” attached to the “Letter of Intent of the government of Korea” to the IMF, December 3, 1997.

1. Introduction

The Korean labour market underwent employment restructuring following the 1997 Asian Financial Crisis and subsequent International Monetary Fund (IMF) bailout. Conditions of the \$65 billion IMF bailout were: the Korean government had to contain inflationary pressure through tight monetary and reduced fiscal policies, fundamentally reform the banking and financial sector and find a way to limit corporations’ excessive reliance on short-term financing. Acceptance of the IMF’s financial market liberalization demands led to a dramatic increase in equity ownership of publicly traded Korean firms by U.S. and U.K. institutional investors.¹

The IMF particularly emphasized that the Korean labour market was too rigid and called for reforms to improve its flexibility. However, Kim and Bae (2004) argue that even without this pressure from the IMF, Korean government officials had already come to the conclusion that securing labour market flexibility was essential to improve the competitiveness of Korean corporations. Thus the Korean government encouraged firms to implement employment restructuring programs by reforming labour laws. These reforms allowed firms to dismiss workers based on firms’ “urgent managerial need”.² Consequently, many firms adopted various and bold employment restructuring programs. As Kim and Kim (2003) document, some firms utilized the financial crisis as an opportunity to eliminate redundant labour forces encountering strong resistance.

Whether it was achieved by numerical flexibility (e.g. boosting early retirements while reducing work hours, overtime and recruitment) or by functional flexibility (e.g. salary freezes and reducing bonuses and benefits), the ultimate goal of late 1990s labour restructuring was to reduce expenditures on labour. Consequently, the unemployment rate in Korea rose sharply from 2.1 per cent in August 1997 to modern Korea’s peak at 8.6 per cent in February 1999.

Given this turbulent macro-economic environment, the purpose of this paper is to examine the explanatory factors of firm-level drivers of employment cost reduction and to shed some light on the impact of ownership structure on labour cost. Using a sample of 496 firms over the 1998-2003 period, we empirically examine the impact of the (stronger) presence of U.S. and U.K. institutional investors on total labour cost.

The remainder of the paper is arranged as follows. In Section 2, we review existing empirical results and outline possible theoretical links between foreign ownership and labour cost. Section 3 reviews the downsizing methods and reports our results. Section 4 details the data and methodology for estimating the total labour costs. Section 5 provides descriptive evidence on the development of labour flexibility during 1998-2003, and empirically tests for the impact of foreign ownership on labour cost. Section 6 provides concluding remarks.

2. Background and Literature Review

2.1. Traditional Employment Practices in Korea

Traditional Korean human resource management is characterized by the principles of seniority-based wage and long-term employment. Under the traditional long-term employment system, a recent graduate would be hired and trained internally to perform various jobs through rotations and transfers, and receive pay based on the length of service (Bae and Rowley, 2001). In this system, there are no formal layoffs for permanent employees such as those evidenced in the US or European systems (Bae and Lawler, 2000).

This concept of “permanent employment” has been widely studied in the Japanese context (Dore, 1973; Ahmadjian and Robinson, 2001). Although Korea’s human resource management has limited arrangements compared to the “Japanese sense”³ (Kim and Bae, 2004), the long-term employment system has cultivated employees’ loyalty and commitment to the firm (Rowley and Bae, 2002).

Yet, the financial crisis of 1997 led many managers to abandon their traditional employment practices including the permanent employment ideology. Faced with the urgency for corporate survival, most companies undertook bold restructuring and downsizing programs in an attempt to stay in business.

Reforms took place in every dimension of human resource management from the recruitment and selection process to the revaluation of remuneration systems. As noted by Kim and Bae (2004, p.16), “most management lost their sense of direction, but retained a change-is-good mentality.”

2.2. Downsizing Studies

As many Korean corporations abandoned their permanent employment practices, “downsizing”, a relatively new concept in the Korean labour market, became a new phenomenon. Downsizing, more common in the Anglo-Saxon business models, is regarded as a strategic choice of permanent job cuts in an effort to improve operating efficiency in competitive circumstances, but not necessarily because of declines in business (Cascio, 1993; DeWitt, 1998). Freeman and Cameron (1993:12) further define downsizing as “a set of activities, undertaken on the part of the management of an organization, designed to improve organizational efficiency, productivity, and/or competitiveness. It represents strategy implemented by managers that affects the size of the firm’s work and the work processes used.” Based on these ideas, Yoshikawa et al. (2005) argue that employment is regarded as a discretionary expense and firms are constantly looking for ways to improve their operating efficiency.

It is also assumed that downsizing will lead to reduced costs and increased flexibility and ultimately improved profitability. Evidence of the actual effects of downsizing on profitability is hard to find, as the empirical work reports mixed results (Worrell et al., 1991; Lee, 1997; Cascio et al., 1997; Wayhan and Werner, 2000; Chadwick et al, 2004).

In addition to the mixed results, many empirical downsizing studies share a critical limitation in defining what constitutes downsizing. The common indicator for downsizing is a dichotomous measure which takes a value of 1 if there is a significant workforce reduction (Cascio et al., 1997; Wayhan and Werner, 2000; Ahmadjian and Robinson, 2001; Littler and Innes, 2004; Love and Nohria, 2005; Vincente-Lorente and Suárez-Fonzález, 2007). An employee reduction of 5 percent or more is widely accepted as significant downsizing as it is “more likely to occur through concentrated efforts to reduce the workforce than through attrition” (Ahmadjian and Robinson, 2001, p.632).

2.3. Foreign Ownership and Human Capital

Research based in agency-theory has raised the role of ownership in human capital investments (Blair and Roe, 1999; Yoshikawa et al., 2005). These studies demonstrate that owners play an important role in the shaping of resource allocation decisions as recent research has emphasized that owners are heterogeneous and have different preferences (Hoskisson et. al., 2002). However, there are only a few empirical papers that directly link foreign ownership to employment practices. Ahmadjian and Robinson (2001)'s Japanese study finds a positive relationship between foreign ownership and downsizing. Buchanan, Chai and Deakin (2009) argue that foreign activists hedge fund bring the notion of "shareholder capitalism" to their investments in Japan and demand immediate attention to shareholder value. Yoshikawa et al. (2005), also using Japanese data, find a negative relationship between foreign ownership and average wage. Yoshikawa et al. assert that compared to domestic owners, foreign owners have limited interest in safeguarding long-term human capital investments and are more likely to push for a reduction in wage to cut total labour costs.

The consensus of existing empirical evidence suggests that foreign institutional investors want labour flexibility to pursue their short-term financial objectives. Our analyses challenge the existing hypothesis and findings that more foreign ownership leads to downsizing or divestment of (human capital) assets. In this paper, we contribute to the limited findings in the literature by studying the unique phenomenon that took place post 1997 financial crisis in Korea: the economic pressures to reduce labour cost and the rise in foreign ownership.

3. Downsizing

3.1. Method

The sample consisted of a pooled cross-sectional time series of data on 430 publicly traded Korean firms collected from the KISVALUE database during the period of 1999-2004. We included only firms that were publicly listed in all years of this period. We excluded financial firms, and the firms with foreign ownership restrictions in place. From this sample, 31 firms were dropped due to missing dependent variable. The sample was categorized into 16 industries by the stock sector classification provided in the database. They include construction, machinery, non-metallic mineral products, services, textile and

wearing apparel, fishery, transportation equipment, transport and storage, distribution industry, food and beverages, medical and precision machines, medical supplies, electrical and electronic equipment, paper and wood, iron and metal products, and chemical.

3.2. Dependent Variable

The dependent variable is a *downsizing* event defined as a decrease in the number of the permanent employees of 5 percent or more between year $t-1$ and year t . A dichotomous measure of downsizing has advantage over a continuous measure that captures both an increase and a decrease in employment for its easier interpretation in studying downsizing (Ahmadjian and Robinson, 2001; Cascio et al., 1997; Suarez-Gonzalez, 2002). Changes of 5 percent or more are likely to be interpreted as concentrated efforts to reduce the workforce than as attrition (Ahmadjian and Robinson, 2001).

Freeman and Cameron (1993:12) defines downsizing as “a set of activities, undertaken on the part of the management of an organization, designed to improve organizational efficiency, productivity, and/or competitiveness. It represents strategy implemented by managers that affects the size of the firm’s work and the work processes used.” Consistent with this definition, Korean firms’ downsizing in the post 1997 financial crisis was a result of strategic managerial decisions to reduce employment.

3.3. Independent Variables

Firm size is the log of total assets (Ahmadjian and Robinson, 2001; Gedajlovic and Shapiro, 2002).

Return on assets (ROA) is a performance measure computed as the ratio of net income to total assets. ROA reflects firm’s profitability in relation to the capital invested. Previous studies have found ROA to be a stable and reliable measure of firm performance (Thomsen and Pedersen, 2000; Gedajlovic and Shapiro, 2002).

Sales growth is the percentage growth in sales between year $t-1$ and t (Huselid, 1995; Ahmadjian and Robinson, 2001).

Foreign ownership is the percentage of total shares held by foreign owners. These measures have been used reliably in past studies (Kochnar and David, 1996; Gedajlovic and Shapiro, 2002).

Chaebol is a dummy variable for firms that belong to one of the top-30 *chaebol* groups (Black and et al., 2006).

3.4. Model Specification

Our data consists of a panel of 430 firms observed over 5 years. The dependent variable is a *downsizing* event defined as a decrease in the number of the permanent employees of 2, 5, or 10 percent or more between year t and year $t-1$. We followed a variation of discrete-time event history methodology (Allison, 1984; Yamaguchi, 1991). We used a panel probit model to estimate the possibility of a downsizing event in a given year in a pooled sample of each organization observed during each of the five years:

$$P(t) = \Phi [a + b_1x_{1(t-1)} + \varepsilon] \quad (1)$$

where $P(t)$ is the probability of downsizing event occurring at time t and x_1 is a set of time-varying covariates.

3.5. Panel Probit Results

Table 1 presents the panel probit analyses results. We find negative and significant relationship between downsizing and return on assets (ROA), and foreign ownership. The results are contradictory with existing literature that suggests more foreign ownership leads to downsizing. In contrary to some existing studies that raise concerns for myopic pressures from foreign investors to downsize in an effort to cut costs, our results of do not support this view.

Table 1. Panel Probit Analyses for Downsizing of 2%, 5%, and 10% or More

Independent Variables	downsizing 2% (1)	downsizing 5% (2)	downsizing 10% (3)
Intercept	-0.829 (0.770)	-0.468 (0.698)	-0.457 (0.661)
<i>Firm Size (t-1)</i>	0.026 (0.037)	-0.020 (0.033)	0.030 (0.031)
<i>Return on asset (t-1)</i>	-0.665*** (0.112)	-0.694*** (0.182)	-0.588*** (0.179)
<i>Sales growth (t-1)</i>	-0.121 (0.112)	-0.299** (0.107)	-0.343** (0.103)
<i>Foreign ownership (t-1)</i>	-0.012** (0.004)	-0.012*** (0.003)	-0.011*** (0.003)
<i>Chaebol group firms (t-1)</i>	-0.195 (0.122)	-0.168 (0.109)	-0.147 (0.100)
Industry controlled	YES	YES	YES
Year controlled	YES	YES	YES
Wald Chi2	121.23***	143.40***	120.29***
% of firms downsized	42.44%	35.84%	29.44%

Joint significance on 1 digit industry dummy: $\chi^2(14) = 74.65^{***}$

Joint significance on year dummy: $\chi^2(4) = 17.51^{**}$

Notes: N=2150 (balanced panel data on 430 firms x 5 years). Each equation contains unreported industry and year dummies. Robust standard errors are in parentheses.

- * *Significant at the 5% level*
- ** *Significant at the 1% level*
- *** *Significant at the 0.1% level*

3.6. Limitations of Downsizing Studies

The limitation of this estimation is that the results only capture the changes in permanent employees as firms are only required to report the number of permanent employees. Reduction in total employee count can come from many means: reduction in hiring, early retirements, sending employees to affiliates and outright layoffs. Since our employment data is defined as the number of company workers as reported to shareholders in annual reports, we were unable to distinguish the types of downsizing. However, we know from anecdotal evidence that during our sample period, many firms have replaced permanent employees with part-time or contingent workers.

In the absence of specific information on the type of downsizing, effects on total labour costs are ambiguous. For example, if downsizing involved low-wage employees, average wage per employee will rise. Conversely, a reduction in high-wage employees will lower the average wage per employee.⁴ Firms' total labour cost can be reduced by cutting the wages of each employee and/or by laying off employees. Therefore, the empirical studies on downsizing do not allow us to draw any conclusions regarding its effects on labour cost. This can potentially produce inconsistent results in the Korean context as many firms encouraged early (honorary) retirement programs to replace permanent employees with a temporary or contingent workforce. The net effect on the number of employees is not clear, given the availability of several actions management can take to reduce total labour costs (e.g. attrition, lay-offs, early retirements, voluntary severance programs, divestures, reduction in hiring, sending employees to affiliates or spin-offs, etc...). This indicates that the dummy variable approach to downsizing may not be the optimal way to examine corporate labour restructuring.⁵ Given these potential limitations of downsizing studies discussed, in the next section, we focus on the determinants of total labour cost, defined as the sum of all direct labour expenditures.

4. Labour Cost

4.1. Method

The relationship between foreign ownership and labour costs discussed in Section 2 are tested using firm-level panel data. Equation (2) describes the baseline model:

$$\begin{aligned} \log(\text{total labour Cost})_{i,t} = & \alpha + \beta_1 (\text{foreign ownership})_{i,t-1} \\ & + \sum \beta_k (\text{control variables})_{i,t-1} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

where α is a constant; $\varepsilon_{i,t}$ is the error term of firm i at time t ; our primary coefficient of interest is the coefficient on foreign ownership, β_1 .

We adopt a lagged specification, examining the relationship between previous year's values of independent variables, and this year's total labour cost, in an effort to mitigate concerns of reverse causality. Similar specifications have been widely used in the finance literature to help infer causality (e.g., Hartzell and Starks, 2003; Villalonga and Amit, 2006).

4.2. Data

The data comes from the Korea Investors Services (Kisvalue-2) database which reports firm profile, financial information, and ownership information. The sample consists of panel data on 520 non-financial firms⁶ listed on the Korean Stock Exchange (KSE) between 1998 and 2003. The unbalanced panel yields 2,332 firm-year observations. However, we have 24 firms with incomplete labour cost information, reducing the sample to 496 firms.

4.3. Dependent Variable

Given the potential limitations of downsizing studies discussed in the previous section, we focus on the determinants of total labour cost, defined as the sum of all direct labour expenditures. It includes all salaries and wages, bonuses, severance and retirement grants, and stock option compensations to both executives and all employees including part-time and contingent workers. It captures the total amount of resources allocated to labour. Following the labour

economics literature⁷, our dependent variable, $\log(\text{total labour cost})$, is the natural log transformation of total labour cost.

4.4. Independent Variable

The independent variable of interest in our study is foreign ownership. *Foreign ownership* is defined as the percentage of shares held by non-Korean shareholders. The majority of these foreigners are US and UK institutional investors.⁸ With the recent availability of ownership data, such measures have been widely and reliably used in past studies (e.g., Chang, 2003).

4.5. Control Variables

Control variables introduced in Eq. (2) are *firm size*, *Tobin's q*, *sales growth*, *firm age*, and *Chaebol group firm*. Previous empirical research suggests these variables as predictors for executive compensation and downsizing.

Firm size is measure by the log of the book value of total assets. *Tobin's q*, is calculated as the total market value of equity divided by book value of total assets. Using Tobin' q, we control for the presence of growth opportunities as Mehran (1995) and Hartzell and Starks (2003) have found positive significant effects of lagged Tobin's q on executive compensation. *Sales growth* is calculated as the percentage of growth in total sales. Managers pay close attention to sales growth as a key business survival indicator in an uncertain business environment (Ahmadjian and Robinson, 2001), and Huselid (1995) has found sales growth to be a significant factor influencing firms' human resource strategy. *Firm age* is measured as the number of years since the firm's establishment. However, the theoretical arguments for the role of firm age in human capital are inconclusive as there is contradictory empirical evidence.⁹

Chaebol group firm is an indicator variable which equals one if a firm belongs to the top-30 *Chaebol* business groups identified by the Korean Fair Trade Commission. Business groups are a collection of firms which are linked together by common ownership and interlocking family shareholdings. In a study of Korean *Chaebol* firms, Chang (2003) found that group companies serve as an organizational structure for appropriating quasi rents, which accrue from access to scarce and imperfectly marketed inputs such as capital and information. Groups can boost the profitability of member firms as they fill the voids left by the missing institutions that normally underpin the efficient functioning of product, capital, and labour markets (Khanna and Rivkin, 2001).

Thus, *Chaebol* group firms, compared to non-*Chaebol* firms, may have more flexible tools and resources to resist or offer alternative solutions to capital market pressure.

5. Empirical Results

5.1. Descriptive Statistics

Table 2 presents descriptive statistics. It shows the means and standard deviations of the sample firms' *log(total labour cost)* and lagged values of *Tobin's q*, *Sales growth*, *foreign ownership*, *firm age*, and *Chaebol group firms*. Our dependent variable, *log(total labour cost)*, is significantly and positively correlated with lagged values of *firm size* (0.789), *foreign ownership* (0.313), *firm age* (0.212) and *Chaebol group firms* (0.448), and negatively correlated with *Tobin's q* (-0.113). Multicollinearity should not be a problem here as the mean variance inflation factor (VIF) was below 4 for all variables in the regression model.¹⁰

Table 2. Descriptive Statistics and Correlation Matrix

Variables	Mean	SD	1	2	3	4	5	6
1 <i>log(total labour cost)</i>	2.212	1.523						
2 <i>Firm size</i> $_{(t-1)}$	5.424	1.442	0.789*					
3 <i>Tobin's q</i> $_{(t-1)}$	0.312	0.400	-0.113*	-0.130*				
4 <i>Sales growth (%)</i> $_{(t-1)}$	12.671	84.765	-0.033	-0.064*	0.089*			
5 <i>Foreign ownership (%)</i> $_{(t-1)}$	6.594	12.819	0.313*	0.359*	0.226*	-0.014		
6 <i>Firm age</i> $_{(t-1)}$	33.695	12.846	0.200*	0.212*	-0.199*	-0.040*	-0.136*	
7 <i>Chaebol group firms</i> $_{(t-1)}$	0.206	0.405	0.448*	0.538*	-0.020	-0.029	0.007	0.041*

* Significant at the 5% level

** Significant at the 1% level

*** Significant at the 0.1% level

To provide an initial assessment of the differences between *Chaebol* group firms and non-*Chaebol* firms, we compare the firm characteristics in Table 3. Columns (1) and (2) report mean and median values for the *Chaebol* group firms. The next two columns report the same summary statistics for the non-*Chaebol* group firms. Columns (5) and (6) report the univariate test results comparing *Chaebol* and non-*Chaebol* firms. The t-statistic for the mean differences and the Wilcoxon signed rank statistics for the median differences

are given. The results show significant differences between the groups in both mean and median total labour costs, firm size and foreign ownership. The average total labour cost for *Chaebol* group firms and non-*Chaebol* group firms are 115.33 billion won¹¹ and 17.18 billion won, respectively. On average, the *Chaebol* group has higher presence of foreign ownership than the non-*Chaebol* firms. No significant differences in sales growth were found and the significant difference in firm age and Tobin's q were only found in one of the tests.

Table 3. Characteristics of *Chaebol* group and non-*Chaebol* firms

Variables	Summary Statistics				Tests for Differences Between	
	<i>Chaebol</i> Groups firms		Non- <i>Chaebol</i> firms		the Groups	
	Mean (1)	Median (2)	Mean (3)	Median (4)	t-stat of Diff. (5)	Wilcoxon (6)
<i>Total labour cost (billion ₩)</i>	115.33	39.80	17.18	6.33	18.205 ***	21.993 ***
<i>Firm size</i>	6.93	7.00	5.02	4.92	35.230 ***	27.401 ***
<i>Tobin's q</i>	0.30	0.17	0.31	0.21	0.292	-4.045 **
<i>Sales growth</i>	7.83%	5.69%	13.92%	5.58%	1.462	0.521
<i>Foreign ownership</i>	11.92%	4.05%	5.03%	0.29%	12.345 ***	14.863 ***
<i>Firm age</i>	34.40	33	33.10	32	2.289 *	1.838

Notes: The first two columns report the mean and median of the characteristics for the Chaebol group firms. Columns 5 and 6 report the t-statistics for the average difference, and the Wilcoxon signed rank statistics for the median difference.

* Significant at the 5% level

** Significant at the 1% level

*** Significant at the 0.1% level

5.2. Model Selection and Baseline Results

Table 4 reports the baseline regression results for the labour cost equation using three different econometric methodologies: pooling regression, random effect model, and fixed effect model. Column 1 is estimated using pooled ordinary least squares (OLS) which assumes that the unobservable individual effect is zero. However, this assumption is too strong given the likelihood of large heterogeneity across industries and firms. To control for individual firm heterogeneity and omitted variable bias, the next two columns report the estimates using the random effect and fixed effect model (Wooldridge, 2002).

To identify which empirical methodology – pooled OLS, random effect, or fixed effect regression – is most reliable, we perform two statistical tests. The first test is the Lagrangian Multiplier (LM) test developed by Breusch and Pagan (1980). The null hypothesis is that the individual effect is zero. The chi-square statistic (36.28) reported in Table 4 rejects the null hypothesis at the 0.1% significance level. This indicates that the cohort effect is not zero and that pooled regression is not appropriate for this model. The regression coefficient on foreign ownership from the pooled regression is equal to 0.005 and is significant at the 5% level. The regression coefficients on foreign ownership from the random and fixed effect model are both 0.003, significant at the 1% and 5% level respectively. The coefficients estimated from the pooled OLS regression are much larger than those estimated from the random or the fixed effect models suggesting that ignoring individual firm effects leads to an over-estimation of the impact of foreign ownership on labour cost. The second test is the Hausman specification test (Hausman, 1978) to compare the random effect and the fixed effect models. The null hypothesis that the random effect model is more efficient (has smaller asymptotic variance) than the fixed effect model is rejected at the 0.1% level. Thus, the fixed effect model is most appropriate in estimating our labour cost model.

Model (3) shows that the level of total labour cost is significantly positively related to foreign ownership.¹² A 5% increase in foreign ownership is associated with 1.51% ($\exp^{0.003*5}$) increase in labour cost in the following year.

Table 4. Regression Models (OLS, Random Effect and Fixed Effect)

Independent Variables	Dependent Variable: $\log(\text{total labour cost})$		
	Pooled OLS	Panel random	
		effect	Panel fixed effect
	(1)	(2)	(3)
Intercept	-2.274 *** (0.085)	-1.805 *** (0.173)	-1.217 *** (0.341)
<i>Firm Size</i> $(t-1)$	0.812 *** (0.017)	0.644 *** (0.034)	0.430 *** (0.070)
<i>Tobin's q</i> $(t-1)$	0.016 (0.051)	0.077 * (0.031)	0.063 * (0.028)
<i>Sales growth</i> $(t-1)$	0.000 (0.000)	0.001 *** (0.001)	0.001 *** (0.000)
<i>Foreign ownership</i> $(t-1)$	0.005 * (0.002)	0.003 ** (0.001)	0.003 * (0.001)
<i>Firm age</i> $(t-1)$	0.002 (0.001)	0.013 *** (0.003)	0.031 *** (0.008)
<i>Chaebol group firms</i> $(t-1)$	0.084 (0.065)	0.188 ** (0.054)	0.111 + (0.059)
Observations	2332	2332	2332
(Groups)		496	496
Adjusted R2	0.625	0.612	0.503
F-statistics	683.15 ***		22.57 ***
Wald chi2		599.56 ***	
LM test	Chi2 (1) = 36.28 ***		
Hausman test	Chi2 (6) = 58.21 ***		

Notes: The Lagrangian Multiplier test (LM test) is used to test the random effect model versus the pooled OLS regression. The Hausman specification test is used to test the fixed-effect model versus the random effect model. For the pooled OLS regression, the Huber/White/Sandwich estimators of standard errors are shown in parentheses. For random and fixed effect model regressions, the heteroscedasticity consistent robust standard errors are shown in parentheses.

- + Significant at the 10% level
- * Significant at the 5% level
- ** Significant at the 1% level
- *** Significant at the 0.1% level

5.3. Financial Performance and the Role of Foreign Ownership

In the previous section, we have shown that foreign ownership has a significant positive effect on labour cost, suggesting that ownership structure plays an important role in firms' human resource management. However, this positive effect of foreign ownership is contradictory evidence to the previous empirical findings on the role of foreign ownership. Ahmadjian and Robbins (2005) argue that firms with more foreign investors are likely to have a "clash of capitalism" with Japanese managers as an ideology of U.S. investor capitalism pushes for maximizing shareholder value. Their theory suggests a negative relationship between foreign ownership and labour cost. Yoshikawa et al. (2005) show that foreign ownership is only associated with wage intensity when performance is low suggesting that the agency conflicts between Japanese managers and foreign shareholders are only present when firm performance is low.

To test for differences in the role of foreign ownership for high versus low firm performance, we modify equation (1) to the following:

$$\begin{aligned}
 \log(\text{total labour Cost})_{i,t} = & \alpha + \beta_1 (\text{low financial performance})_{i,t-1} \\
 & + \beta_2 (\text{foreign ownership})_{i,t-1} \\
 & + \beta_3 (\text{low financial performance})_{i,t-1} \\
 & \quad \times (\text{foreign ownership})_{i,t-1} \\
 & + \sum \beta_k (\text{control variables})_{i,t-1} + \varepsilon_{i,t}
 \end{aligned}
 \tag{3}$$

where *low financial performance* is a dummy variable which is equal to 1 if return on equity (ROE) is negative, and 0 otherwise. For robustness, we also use return on asset (ROA) as an alternate measure for financial performance. Both ROE and ROA are the most widely used fundamental ratios which investors use to evaluate their investments. Return on equity (ROE) measure the rate of return on the ownership interest of the common stock owners while return on asset (ROA) gives an indication of the management's effectiveness on generating return on assets.

The regression results are reported in Table 5. Model (1) reports the baseline fixed effect model result as shown in Model (3) from Table 4. Models (2) and (3) in Table 4 report the modified (Equation 3) results which includes the moderating effects of *low financial performance* dummy variable on *foreign ownership*. The estimations in model (2) use negative ROE to indicate *low financial performance* and the estimations in model (3) use negative ROA to

indicate *low financial performance*. The effects of both measures are negative and significant to total labour cost.

We find evidence supporting the theory that foreign ownership has a disciplining role in preventing overspending in labour. The estimated values of β_3 are significant and negative for both measures of low financial performance. For firms with negative ROE, the coefficient for foreign ownership is $\beta_2 + \beta_3$ and, for other firms (with $ROE \geq 0$), it is β_2 . The results imply that foreign ownership has a positive impact on labour cost for profitable firms. However, for firms with low financial performance, the foreign ownership's impact on labour cost is negative ($\beta_2 + \beta_3$ equals -0.01).

The results reported so far are robust in assumption that industry effects were subsumed under individual firm effects. However, there may be significant heterogeneity in firm characteristic across different industries. To check the robustness of our previous results, we control the industry effects by using the industry mean to adjust the variables in the model. Each variable is adjusted by deducting the mean of the industry to which the firm belongs. Models (4) - (6) present the results using the industry-adjusted variables¹³.

Again we find a significant and positive relationship between foreign ownership and labour costs, which implies that firms with more foreign ownership than the industry mean spend more on labour than those with less foreign ownership than the industry mean. The analyses yield consistent results for all estimated coefficients including control variables. We find a significant and positive relationship between labour cost and firm size, Tobin's q, and firm age. The relationship between labour cost and the *Chaebol* group firms is only significant at 10% level.

The results confirm the finding that foreign ownership has a positive impact on human capital investment and that this positive impact is only present for firms with strong financial performance.

Table 5. Low Financial Performance, Foreign Ownership, and Labour Cost

Independent Variables	Dependent Variable: log(total labour cost)					
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-1.217*** (0.341)	-1.242*** (0.341)	-1.258*** (0.345)	0.003 (0.005)	0.019* (0.008)	0.021* (0.009)
<i>Firm Size</i> $(t-1)$	0.430*** (0.070)	0.441*** (0.071)	0.449*** (0.073)	0.430*** (0.070)	0.441*** (0.071)	0.449*** (0.073)
<i>Tobin's q</i> $(t-1)$	0.063* (0.028)	0.064* (0.027)	0.062* (0.027)	0.063* (0.028)	0.064* (0.027)	0.062* (0.027)
<i>Sales growth</i> $(t-1)$	0.001*** (0.000)	0.070*** (0.013)	0.070*** (0.013)	0.001*** (0.000)	0.070*** (0.013)	0.070*** (0.013)
<i>Foreign ownership</i> $(t-1)$	0.003* (0.001)	0.003* (0.001)	0.003* (0.001)	0.003* (0.001)	0.003* (0.001)	0.003* (0.001)
<i>low financial performance (ROE)</i> $(t-1)$		-0.066* (0.027)			-0.066* (0.027)	
<i>low financial performance (ROE)</i> $(t-1)$ <i>x Foreign ownership</i> $(t-1)$		-0.004* (0.002)			-0.004* (0.002)	
<i>low financial performance (ROA)</i> $(t-1)$			-0.066* (0.030)			-0.066* (0.030)
<i>low financial performance (ROA)</i> $(t-1)$ <i>x Foreign ownership</i> $(t-1)$			-0.004* (0.002)			-0.004* (0.002)
<i>Firm age</i> $(t-1)$	0.031*** (0.008)	0.030*** (0.008)	0.029*** (0.008)	0.031*** (0.008)	0.030*** (0.008)	0.029*** (0.008)
<i>Chaebol group firms</i> $(t-1)$	0.111 ⁺ (0.059)	0.119 ⁺ (0.061)	0.118 ⁺ (0.060)	0.111 ⁺ (0.059)	0.119 ⁺ (0.060)	0.118 ⁺ (0.060)

Industry mean adjusted	NO	NO	NO	YES	YES	YES
Adjusted R2	0.503	0.515	0.522	0.539	0.553	0.563
F-statistics	22.57 ***	18.15 ***	18.13 ***	22.57 ***	18.15 ***	18.13 ***

Notes: Low financial performance (ROE) is a dummy variable which is equal to 1 if return on equity (ROE) is negative, and 0 otherwise. The heteroscedasticity consistent robust standard errors are shown in parentheses.

- + Significant at the 10% level*
- * Significant at the 5% level*
- ** Significant at the 1% level*
- *** Significant at the 0.1% level*

5.4. Changes in Foreign Ownership and Changes in Labour Cost

In the previous sections, we have shown there is a significant relationship between foreign ownership and labour cost while controlling for various firm characteristics. Although we have used lagged specifications to infer causality, one can construct an equally persuasive argument for reverse causality: foreign owners may be attracted to firms that engaged in labour restructuring, rather than causing labour reforms. One alternative approach to tackle this potential endogeneity argument is to use instrumental variables in two-stage or three-stage models. However, Himmelberg et al. (1999) expresses critical concerns about this approach as finding valid and consistent instrumental variables for firm ownership are difficult to find.

Thus, in an effort to make our argument more plausible, we present the descriptive statistics for the changes in variables in Table 6 and compare the firm characteristics between the groups of firms which had 5% or more increases in foreign ownership and the others (less than 5% increase) during our sample period of 1998-2003. Columns (1) and (2) report the mean and median values for the firms which had 5% or more increases in foreign ownership from 1998 to 2003. The next two columns report the same summary statistics for the firms which had less than 5% increases in foreign ownership. Columns (5) and (6) report the univariate test results comparing the two groups. The t-statistics for the mean differences and the Wilcoxon signed rank statistics for the median differences are given. The results show significant differences between the groups in both mean and median for the Δ (*total labour cost*) and Δ (*Tobin's q*). The average changes in total labour cost were greater for the firms which had 5% or more increase in foreign ownership.

Table 6. Characteristics of Firms with 5% or More Increases in Foreign Ownership

Variables	Summary Statistics				Tests for Differences Between the Groups	
	Δ foreign ownership $\geq 5\%$		Δ foreign ownership $< 5\%$		t-stat on Diff.	Wilcoxon
	Mean (1)	Median (2)	Mean (3)	Median (4)		
Δ Total labour cost	27.241	4.117	1.573	1.301	3.699***	5.451***
$\Delta \log(\text{total labour cost})$	0.276	0.382	0.150	0.291	1.380	2.253*
Δ Tobin's Q	0.171	0.131	-0.020	-0.008	5.403***	7.011***
Δ Sales	138.727	99.481	31.476	12.434	9.755***	7.589***

Notes: The first two columns report the mean and median of the characteristics for the group of firms which had 5% or more increases in foreign ownership from 1998 to 2003. Columns 5 and 6 report the t -statistics for the average difference, and the Wilcoxon signed rank statistics for the median difference.

- * Significant at the 5% level
- ** Significant at the 1% level
- *** Significant at the 0.1% level

We can also check whether a change in foreign ownership has a longer-run impact on change in labour cost over the entire sample. If foreign owners have a significant influence on labour cost as our results imply, then as foreign ownership increases over time, we can expect to see a corresponding change in labour costs.

By using the calculated changes (the changes in variables across our sample period, that is, 2003 values less 1998 values) reported in table 6, we regress the changes in total labour cost on changes in *foreign ownership*, controlling for potential confounding variable changes (*firm size*, *Tobin's q*, an *sales growth*) on changes in total labour cost. Table 7 reports the results of this regression. We find a strong positive relation between the long-run change in total labour cost and the long-run change in foreign ownership. The results of Table 7 further support the hypothesis that foreign investors have a significant impact on labour cost.

Table 7. OLS Regression on the Long-run Changes in Foreign Ownership and Total Labour Cost

Dependent Variable: Δ total labour cost	
Independent Variables	(1)
Intercept	1.914 *** (0.530)
Δ Firm Size	9.480 ** (2.856)
Δ Tobin's Q	-1.323 (1.322)
Δ Sales growth	0.080 ** (0.002)
Δ Foreign Ownership	0.316 ** (0.105)
Adjusted R2	0.020
F-statistics	5.90 ***

Notes: The Changes in variables are measured as the difference between the firms' total labour cost over the years 1998 to 2003. The Huber/White/Sandwich estimators of standard errors are shown in parentheses.

- * Significant at the 5% level
- ** Significant at the 1% level
- *** Significant at the 0.1% level

6. Discussion and Conclusion

Labour markets and government policies are both affected by the process of liberalization and globalization (Downes, Gomez & Gunderson, 2004). The financial crisis experienced in Korea and the consequent financial market liberalization and corporate restructuring during the late 1990s and early 2000s offer a valuable opportunity to examine organizational change. In response to the call for corporate restructuring, the Korean government relaxed its traditional labour laws and allowed firms to abandon “permanent employment” practices and pursue labour flexibility. Labour flexibility was achieved by cutting employment and substituting permanent union workers with non-regular, non-union workers in order to reduce labour costs.

The objective of this study was to examine the relationship between economic and capital market pressures to disinvest in human capital. This paper extended earlier empirical studies on the relationship between ownership structure and human capital. It examined the relationship using a unique Korean panel dataset. Since many Korean firms were going through aggressive corporate restructuring during our sample period, this study allowed us to capture the role of foreign ownership in post-crisis times. Thus, this paper empirically examined the influence of previous period’s foreign ownership and financial performance on labour costs in publicly listed Korean firms.

We found that foreign ownership is positively related to the level of labour costs, and that this positive effect is significantly weaker for firms with weak financial performance (measured as negative ROE or ROA) than those with strong financial performance. The relationship between foreign ownership and labour cost is robust to alternative econometric methodologies. These results support the hypothesis that foreign investors influence total labour cost. The results are also consistent with previous studies that suggest owner plays a monitoring role. For example, Mehran (1995) and Hartzell and Starks (2003) provide evidence of investor monitoring in executive compensation. Bushee (1998) and Kim et al. (2008) provide evidence of institutional investors monitoring R&D expenses.

The financial crisis in the late 1990s forced Korean firms to turn away from their earlier practice of “over investment” in human resources, characterized by high employment security and training commitment, and to seek a new human resource management strategy. Our results provide support for the view that foreign ownership has a disciplining role for firms with weak financial performance. Contrary to previous studies that raise concern about the myopic view of foreign investors on maximizing shareholder value by cutting cost at all

levels, our results imply that foreign owners take a monitoring role and support the investments in human capital if firms can deliver strong financial performance.

Our findings suggest a monitoring or disciplining role of capital markets. An important area for future research is which forms of labour flexibility have greater impact on labour efficiency which then may lead to firm performance. As discussed before, there are numerous ways firms can enhance labour flexibility (e.g. changes to working hours without layoffs, reduction in working hours, hiring freezes, voluntary retirement, outsourcing, base pay reduction, wage freezes, bonus and benefits reduction, dispatch to an affiliated company, redeployment to other departments after training, etc). A detailed analysis of the effects of these labour flexibility “tools” on firm performance would help us understand better how external monitoring can lead to maximizing effective use of internal resources for all stakeholders.

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Appendix 1

Table 8. Panel Fixed Effect with an Interaction Term

Independent Variables	Dependent Variable: <i>log(total labour cost)</i> (1)
Intercept	-1.104 ** (0.340)
<i>Firm Size</i> _(t-1)	0.419 *** (0.070)
<i>Tobin's q</i> _(t-1)	0.058 * (0.027)
<i>Sales growth</i> _(t-1)	0.070 *** (0.014)
<i>Foreign ownership</i> _(t-1)	0.002 * (0.001)
<i>Firm age</i> _(t-1)	0.029 ** (0.009)
<i>Chaebol group firms</i> _(t-1)	0.123 + (0.068)
<i>Firm Size * Foreign Ownership</i> _(t-1)	0.001 * (0.000)
Adjusted R2	0.524
F-statistics	19.31 ***

Notes:

- + Significant at the 10% level
- * Significant at the 5% level
- ** Significant at the 1% level
- *** Significant at the 0.1% level

Notes

¹ In terms of market value, foreign investors' share in Korean equity markets increased from 14.6% in 1997 to over 40% in 2004.

² For more, see the discussions of Crotty and Lee (2002); Lee and Lee (2003).

³ For more detail discussion of traditional Japanese permanent employment practices, see Cole (1972).

⁴ The existing efficiency wage literature (e.g. Medoff, 1979; Yellen, 1984; Milgrom, 1988) has shown that firms (employees) choose (prefer) layoffs over across the board wage reductions. However, the Korean context may differ as some firms that implemented "work-hour reduction," and/or "work share" programs to avoid employee layoffs were often praised by the media (for an example, see Cho and Chang (2007)'s case study of Yuhan-Kimberly).

⁵ However, the approach of using a dummy variable (converting a continuous variable (number of employees) to a binary variable (changes of 5% or not)) for downsizing can be more robust if "downsizing" events can be identified and confirmed by secondary sources such as newspapers or company statements (Love and Nohria, 2005).

⁶ We exclude financial firms because valuation ratios for financial firms are not comparable to those of nonfinancial firms (e.g. La Porta et al., 2002).

⁷ Many empirical labour economics studies (e.g., Nickell and Bell (1996) and Dustmann et al. (2009)) use the log transformation to make the distribution of the wage variable more symmetric.

⁸ For detailed decomposition of foreign ownership, see Chai (2006).

⁹ In downsizing study, Ahmadjian and Robinson (2001) find a negative relationship while Vicente-Lorente and Suárez-González (2007) find a positive relationship between firm age and downsizing.

¹⁰ A commonly used rule of thumb for detecting multicollinearity is VIF value of 10 or more (Baum, 2006).

¹¹ 115.33 billion won is approximately 57 million British pounds using the average exchange rate during the sample period.

¹² Here we treat the effect of foreign ownership to be the same for all size firms. Table 8 in the Appendix 1 reports the regression results where we include an interaction term, (*Firm Size * Foreign Ownership*). The interaction term is significant and positive.

¹³ Another way of controlling for industry effect is to use industry dummy variables in random effects model. However, since Hausman specification test indicated that fixed effect model is more efficient, it is more appropriate to use the industry adjustment approach.