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Management Practices and Firm Performance in Japanese and Korean Firms
－An Empirical Study Using Interview Survey－

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1. Introduction[1]

The US economy had accelerated economic growth since the late 1990s. At first, many economists and policy makers believed that the rapid growth in the IT industry and IT investment contributed to the acceleration in US economic growth and many advanced countries supported the IT industry and IT investment in their own countries. However, the gap in rates of economic or productivity growth between the US and other advanced countries has remained even in the early 2000s. Since then, many economists have paid attention to the complementary role in intangible assets in productivity growth, that is, they started to believe that without intangible assets, the IT assets does not contribute to productivity growth at the firm and aggregated level.[2]

Corrado, Hulten and Sichel (2005, 2006) (hereafter referred to as CHS) estimated the investment in intangible assets at the aggregate US economy level classifying intangible assets into three categories: computerized information, innovative property, and economic competencies. Following CHS (2006), many researchers in advanced countries tried to estimate intangible investment.[3] Comparing the estimation results in Japan with those in the US and the UK, Fukao et al (2008) found the following characteristics in Japanese intangible investment.

     (1)   Investment in computerized information measured in terms of GDP in Japan is almost the same as that in the US and the UK.

     (2)   Due to the large R&D investment in Japan, investment in innovative property in Japan is larger than that in the US and the UK.

     (3)   As for investment in economic competencies, investment/GDP ratio in Japan is much smaller than that in the US and the UK.

The third category includes investment in brand equity, firm-specific human capital, and organizational capital. Among these, the investment in firm-specific human capital and organizational capital in Japan is much smaller than those in the US and the UK. However, it is difficult to estimate these investment amounts at the aggregate level and to compare these

[2] Economic Report of the President 2007 wrote 'Only when they (businesses) made intangible investments to complement their IT investments did productivity growth really take off.' (p. 56)
[3] See Marrano, Haskel and Wallis (2007) for the UK, Hao, Manole and van Ark (2008) for Germany and France, and Fukao et al. (2008) for Japan. Productivity Commission in Melbourne is now estimating intangible investment in Australia.

among advanced countries.[4] In addition, these investments depend on management practices at the firm level. Therefore, recent studies on intangible investment focused on management practices on human resource management and organizational reform at the firm level using micro-data.

Black and Lynch (2005) categorized organizational capital into three components; accumulation in human capital, how employees' voices are reflected in the workplace, and organizational design. Bloom and Van Reenen (2007) examined the effect of management practices on firm performance based on the interview survey of plant managers. Management practices were given scores based on interview results and the score are included as independent variables when they estimated production function. According to their study, the U.S. firms got the highest score of the firms in four countries (France, Germany, the UK, the US). They thought that the low score in European firms was partly explained by weak competition and the prevalence of many family-owned firms.

In Japan, Kurokawa and Minetaki (2006), Kanamori and Motohashi (2006), and Shinozaki (2007) examined the effects of organizational reform associated with IT investment on firm performance by using the *Basic Survey on Business Enterprise Activities* and *IT Workplace Survey*. Their studies suggested that organizational reform associated with IT investment partly improved firm performance.

While our paper also focuses on the effect of organizational reform and human resource management on firm performance, there are three different features from the previous studies in Japan. First, we examine more comprehensive management practices on organizational and human resource management than the previous studies in Japan. Second, we study the effect of management practice on firm performance using not only the official survey but also the interview surveys following Bloom and Van Reenen (2007). Third, we compare the interview scores and firm performances between Japanese and Korean firms.

In the next section, we will explain our interview survey. Though our interview survey basically follows Bloom and Van Reenen (2007), we incorporated some questions which were not included in Bloom and Van Reenen (2007) to capture some unique features of Japanese and Korean firms. In the third section, we will construct a management score by quantifying the interview results of Japanese and Korean firms and compare the management practices in firms in both countries. In the fourth section, using management scores and the financial statements in Japanese and Korean firms, we estimate production function and examine the effect of

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[4] For example, CHS (2006) does not count for the investment in firm specific human capital through on-the–job training while this investment is very important in Japanese firms.

management practice on firm performance. In the last section, we summarize our studies.

2. The Interview Surveys in Japan and Korea

Why did we conduct the interview survey?

Recently, qualitative factors in management practices in firms which are not captured by official surveys have been affecting firm performance. At first, many researchers conducted their own mailed surveys to examine these qualitative factors within firms. However, the response rates to the survey were very low. For example, the response rate to the mailed survey conducted by Ichikowski (1990) -- who tried to examine the effect of human resource management on Tobin's Q or Labor productivity-- was only 10%. In the US, the researchers and statistical administrations have adopted the interview survey to improve the response rate. For example, the response rate to the interview survey in National Employers Survey conducted by National Bureau of Census was 66% in the manufacturing sector and 61% in the non-manufacturing sector. Much of the recent researches on human resource management has also adopted the interview survey. Bloom and Van Reenen (2007) conducted interview surveys by telephone to examine management practices in firm and attained the 54% response rate. Following the above experiences, we also decided to conduct an interview survey.

How did we design our interview survey?

In our research, we followed the interview survey conducted by Bloom and Van Reenen. However, we conducted the interview survey by meeting the managers in planning division of firms, while Bloom and Van Reenen (2007) conducted the survey by telephone. The reason why we conducted face-to-face interview survey is that we were concerned about low response rates. In Japan and Korea, when we want to know qualitative features in firms, face-to-face communication is a more useful tool than telephone interviews.

Bloom and Van Reenen (2007) classified their eighteen interview questions into four categories; product management, monitoring, the firm's target, and incentives for workers. While their survey was extended to only manufacturing plants, our survey covered not only manufacturing firms but also firms in the service sector. Thus, we excluded questions about product management, because only manufacturing firms can respond to them. Instead, we asked questions about organizational change and on-the-job training. As a result, we can classify our questions into two categories; organizational capital and human resource management.

The first category covers the first four questions (from Question 1 to 4). In this category,

we aim to examine the managerial vision of the firm, the organizational goal, communication within a firm, and organizational reform. In the rest of the questions (from Questions 5 to 13) which focuses on human resource management, we added a question about on-the-job training (OJT) to the questions in Bloom and Van Reenen (2007), because Japanese and Korean firms make much use of the effects of OJT on firm performance. The detailed interview questions are described in Appendix 1.

We quantify the responses of the manager to the above questions as follows. In each question, we have three sub questions. If the firm manager responds a negatively to the first sub-question, we give the response a 1 and move to the next question. If he responds positively to the first sub-question, we move to the second sub-question. If the manager responds negatively to the second sub-question, we mark a 2 and move to the next question. If he responds positively to the second sub-question, we move to the last sub-question. In the last sub-question, the positive response of the manager is given a 4, while a negative response is given a 3.

Our survey focused on four industries in the manufacturing sector (Electric machinery industry, Information and communication equipment industry, Motor vehicle industry, and Precision machinery industry) and three industries in the service sector (Internet-based services and information services, Media activities, and Retail service). In Japan, we obtained the data from 151 firms headquartered in the Tokyo area. The response rate in Japan was 54.9%. In Korea, we obtained the data of 350 firms of 591 firms, thus the response rate was 59.2%[5].

3. Management Practices in Japan and Korea

In this section, we compare management practices between Japanese and Korean firms based on the interview surveys.[6] Table 1 describes the distribution of firms in Japan and Korea by industry. While the share of firms in the manufacturing sector in Japan is 25.8%, the share of manufacturing firms in Korea is 84.9%. In particular, the number of firms in the motor vehicles industry in Korea amounts to 40% of the total number of firms. In Japan, the share of firms in the information services is 46.4%.

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[5] We have already obtained the data from 573 Japanese firms headquartered in not only Tokyo area but also the rest of Japan. However, we focus on the results in 151 firms because we have not obtained financial data of the rest of the firms in Japan. The Japanese survey was conducted from February, 2008 to March, 2008. The Korean Survey was conducted from May, 2008 to July, 2008.

[6] The results in the Japanese interview survey are based on Miyagawa et al. (2008).

Table 1. The Distribution of Firms in Japan and Korea by Industry

	Japan		Korea	
Industry	Number of Firms		Number of Firms	
Electiric machinery	9	(6.0%)	51	(14.6%)
Information and communication machinery	19	(12.6%)	96	(27.4%)
Motor vehicles	7	(4.6%)	140	(40.0%)
Precision machinery	4	(2.6%)	10	(2.9%)
Internet-based services	70	(46.4%)	15	(4.3%)
Information service			11	(3.1%)
Media activities	12	(7.9%)	9	(2.6%)
Retail	30	(19.9%)	18	(5.1%)
Total	151		350	

Table 2 shows the distribution of firms in Japan and Korea by size measured by the number of employees. In Japan, the number of firms with less than 10,000 in the survey is 144 of the total 151. Of these 66 are small and medium-sized firms (with less than 300 employees). In Korea, the number of firms with less than 10,000 is 348 out of the 350 and 260 of which are small and medium-sized firms.

Table 2. The Distribution of Firms in Japan and Korea by Employee Size

Industry	Japan						Korea					
	50-99	100-299	300-499	500-999	1000-	Total	50-99	100-299	300-499	500-999	1000-	Total
Manufacturing	3	8	4	5	19	39	42	180	31	30	14	297
Information related services	20	31	8	8	15	82	5	22	3	0	5	35
Retail	1	3	9	6	11	30	0	11	1	0	6	18
Total	24	42	21	19	45	151	47	213	35	30	25	350

As explained in the previous section, we score the management practices based on the interview survey. Figure 1-1 shows the distribution of scores in all firms in Japan and Korea. In Japan, the average score for all firms is 2.73 and the variance is 0.21. Many firms are distributed between 2.5 and 3.5. In Korea, the average score is 2.33 and the variance is 0.32. The average score in Korea is lower than that in Japan and the variance of scores in Korea is higher than that in Japan. Most of the Korean firms are in the range from 1.5 to 2.5.

Figure 1 – 1 Distribution of Management Scores (All firms)

a. Japan   b. Korea
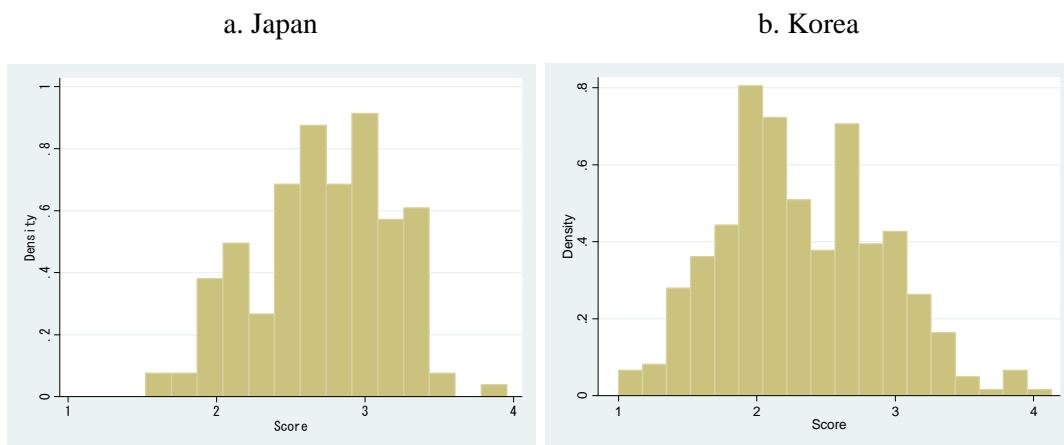
However, the difference in the distribution of scores in Japan and Korea may reflect the difference in the industry structure in the survey. Thus, we examine the distribution of scores by industry. Figure 1-2, 1-3, and 1-4 show the distribution of scores in the manufacturing sector, the information-related services sector, and the retail sector respectively.[7] In Figure 1-2, we find that the average score in the Japanese manufacturing sector is almost same as the average score in all firms. We also find that the distribution of scores in all firms in Korea is affected by the distribution of scores in the manufacturing sector. While the average scores in the Korean manufacturing and information-related services sectors are smaller than those in the corresponding sectors in Japan, the average score in the retail sector in Korea is almost same as that in Japan.

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[7] The information-related services sector consists of internet-based services and information services, and media activities.

Figure 1 – 2 Distribution of Management Scores (Manufacturing firms)
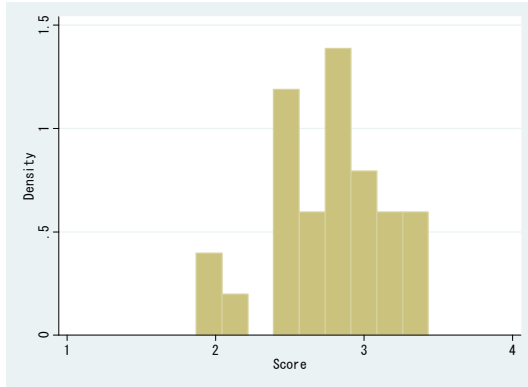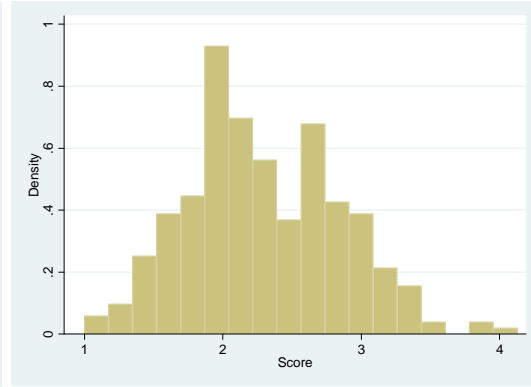
a. Japan   b. Korea

Figure 1 – 3 Distribution of Management Scores (Information-related firms)
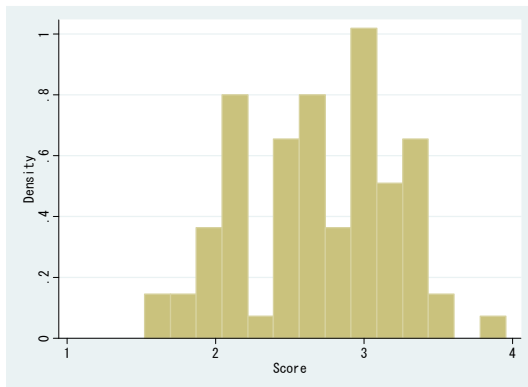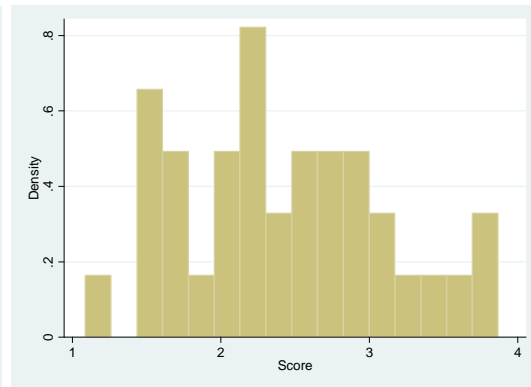
a. Japan   b. Korea

Figure 1 – 4 Distribution of Management Scores (Retail firms)
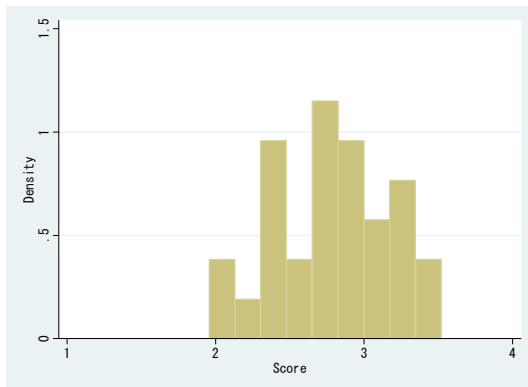
a. Japan   b. Korea
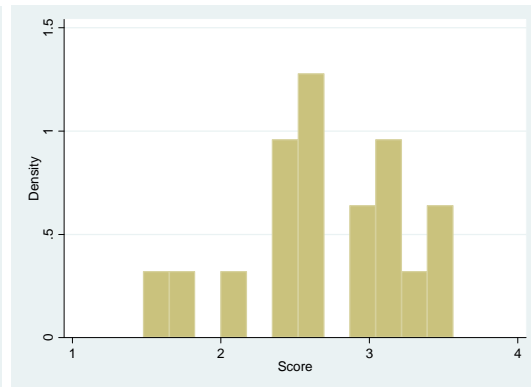
We classify our interview questions into two categories: one pertains to questions about organizational capital and the other is questions about human resource management. We describe the distribution of scores in organizational capital from Figure 2-1 to Figure 2-4. In both countries, the average score in organizational capital is higher than that of all questions together. Comparing the scores in organizational capital between Japan and Korea, Japanese scores are higher than Korean scores. These results imply that the organizational targets penetrate into all employees in Japan more than in Korea, or Japanese firms improve the organizational structure more aggressively than Korean firms, because high scores in organizational capital mean the transparency of organizational goals or aggressive organizational reform.

Figure 2 – 1 Distribution of Management Scores in Organizational Capital

(All firms)

a. Japan   b. Korea
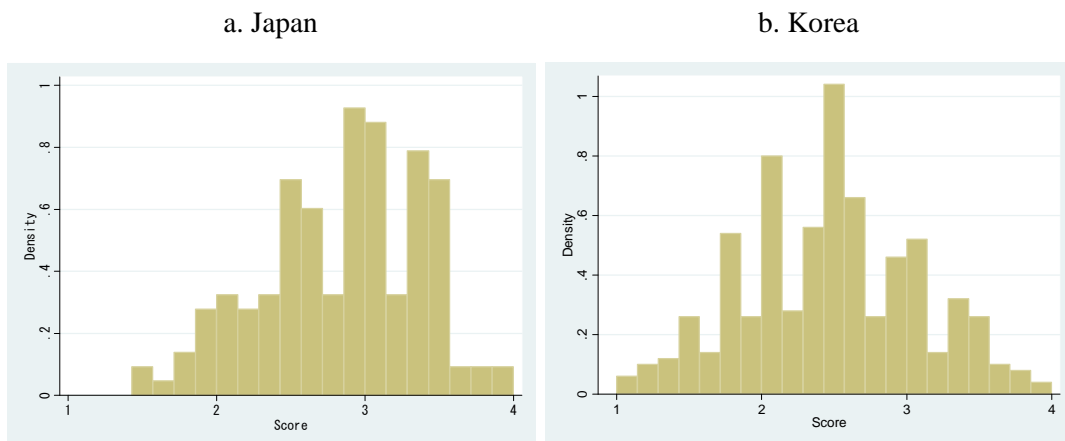
Figure 2 – 2 Distribution of Management Scores in Organizational Capital

(Manufacturing firms)

a. Japan   b. Korea
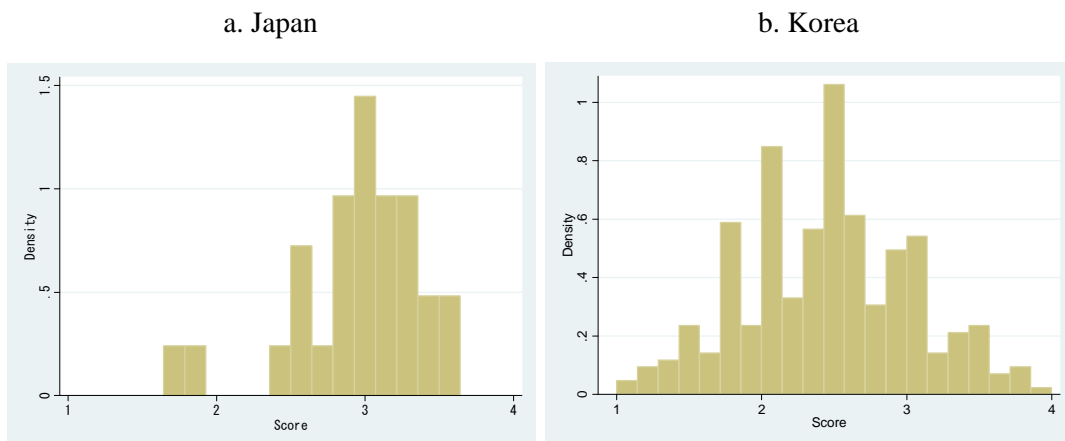
Figure 2 – 3 Distribution of Management Scores in Organizational Capital

(Information-related firms)

a. Japan   b. Korea
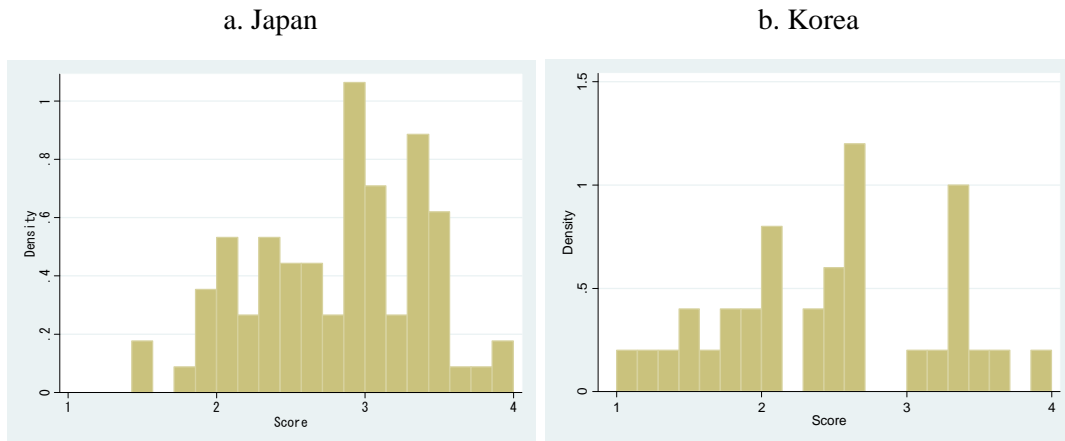
Figure 2 – 4 Distribution of Management Scores in Organizational Capital

(Retail firms)

a. Japan   b. Korea
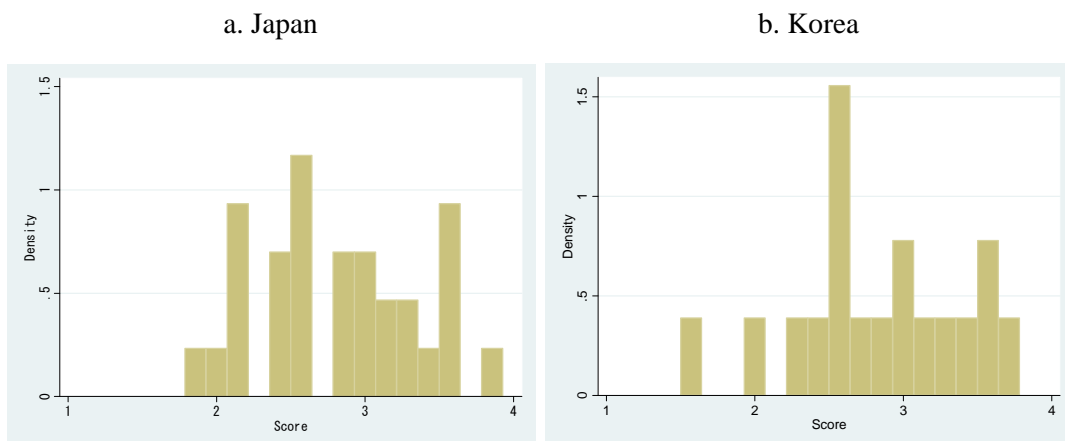
We also show the distribution of scores in human resource management from Figure 3-1 to Figure 3-4. The average scores in human resource management are lower than those in organizational capital in both countries. The average scores in Japanese firms are higher than those in Korean firms in each sector. In Korea, the low score in the manufacturing sector affects the score in all firms. As high score in this category means the flexibility of human resource management, the results imply that Japanese firms adopt more flexible management in human capital than Korean firms.

Figure 3 – 1 Distribution of Management Scores in Human Capital (All firms)
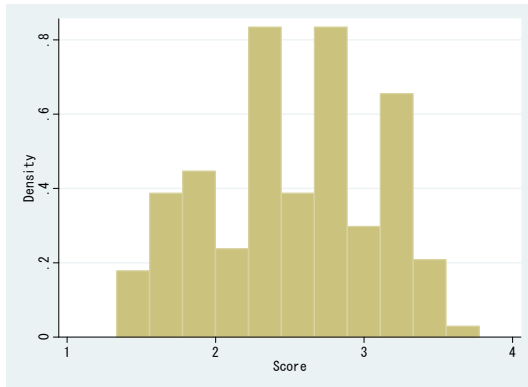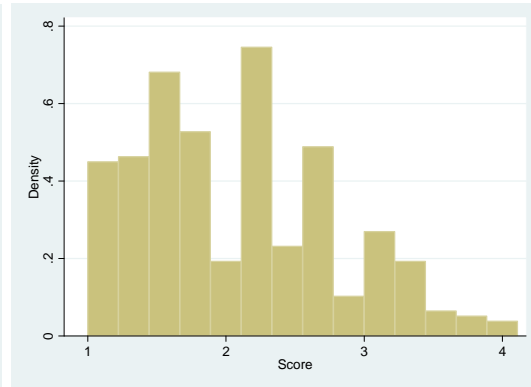
a. Japan   b. Korea

Figure 3 – 2 Distribution of Management Scores in Human Capital

(Manufacturing firms)
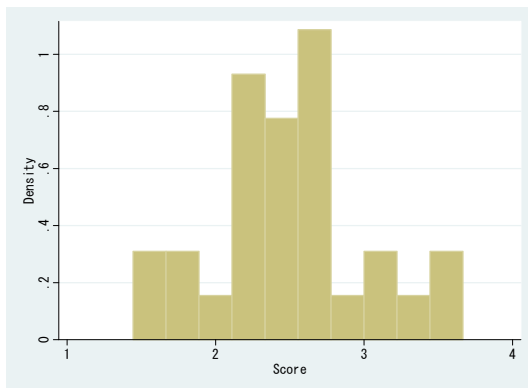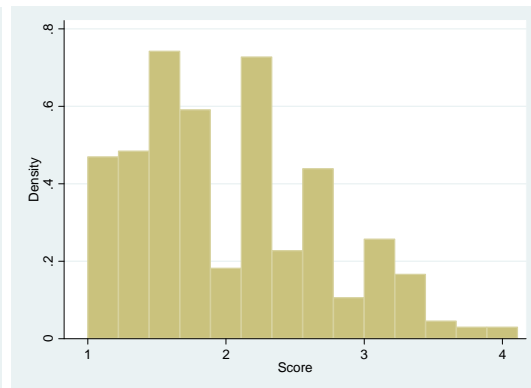
a. Japan   b. Korea

Figure 3 – 3 Distribution of Management Scores in Human Capital

(Information-related firms)
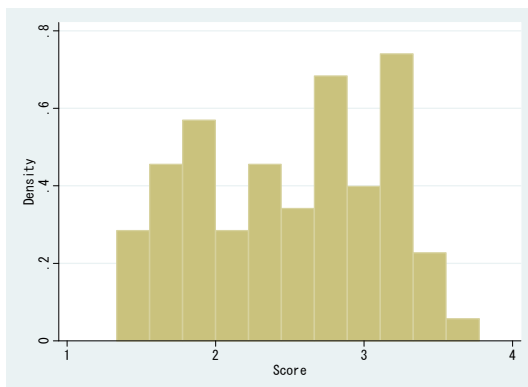
a. Japan   b. Korea
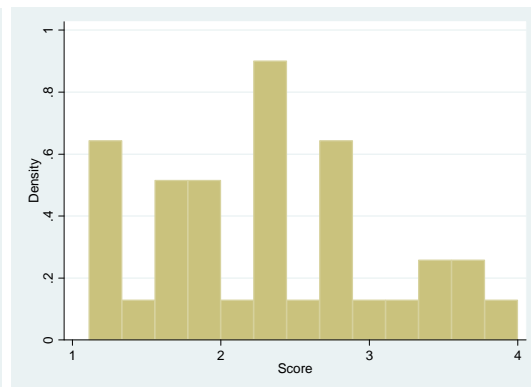
Figure 3 – 4 Distribution of Management Scores in Human Capital (Retail firms)

a. Japan   b. Korea
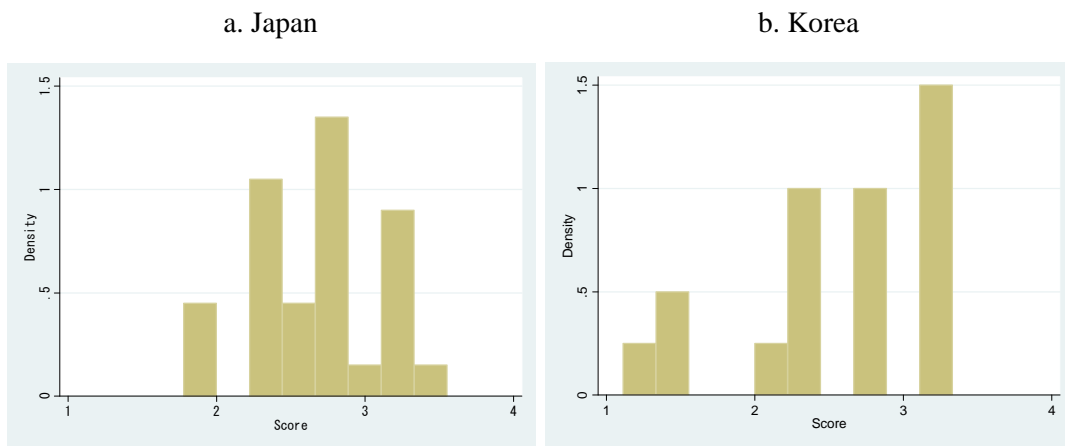
As seen in Table 2, the Korean sample holds more small and medium sized firms than the Japanese sample. Thus, we examine the distribution of average score in both countries by size in Figure 4-1 and 4-2. In Figure 4-1 where the distributions of average scores in firms with more than 300 employees are described, the distribution in Japanese firms is similar to that in Korean firms. While the mean in the distribution in Japanese firms is 2.61, that in Korean firms is 2.57. The median value and variance in Japanese firms are almost same as those in Korean firms.

Figure 4 – 1 Distribution of Total Scores of firms with 300 or more employees (All firms)

a. Japan   b. Korea
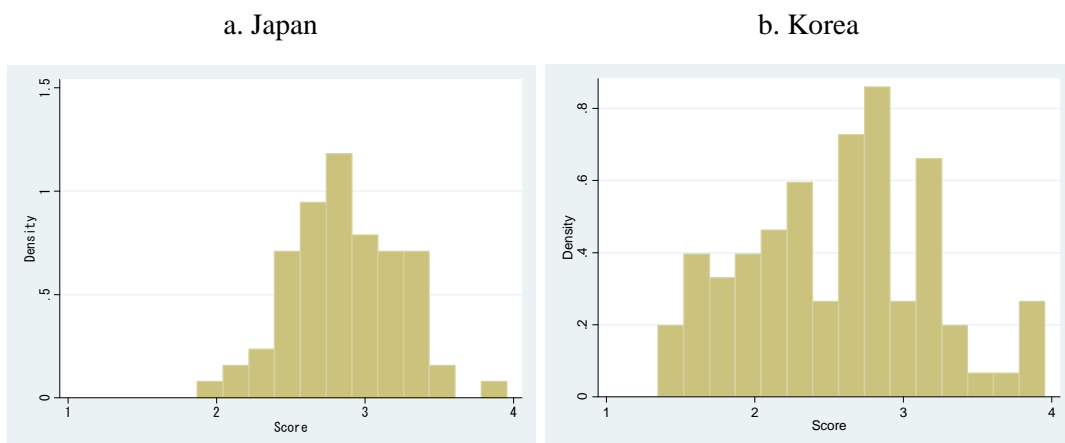
Figure 4 – 2 Distribution of Total Scores of firms with less than 300 employees (All firms)

a. Japan   b. Korea
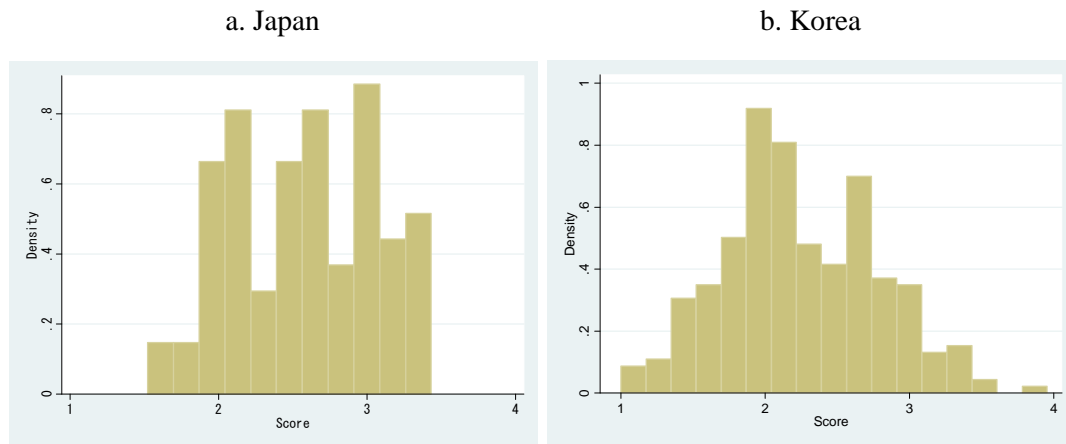
However, as for the firms with less than 300 employees, we find different distributions in average scores between Japanese firms and Korean firms. In contrast to the relatively high mean in the distribution in Japanese firms (2.88), the mean in the distribution in Korean firms is 2.25. This gap in the mean in the distribution in both countries is explained by the difference in the distribution in the average score in human capital. The mean in the average score in human capital in Korean firms is very low (2.00), while the corresponding mean in Japanese firms is 2.70. These results imply that management practices in human resource management in Korean small and medium sized firms are more conservative than that in small and medium sized Japanese firms.[8]

4. Do Management Practices Affect Firm Performance?

Using the management scores explained in the previous section, we examine the effect of management practice on firm performance. Following Bloom and Van Reenen (2007) we estimate the following equations.

(1)
$$\ln Y_i = \cos t. + \alpha_1 \ln L_i + \alpha_2 \ln K_i + \alpha_3 \ln M_i + \alpha_4 Z_i + \alpha_5 X_i$$
$$+ \sum_{k=1}^{2} \mu_k Dummyk_i + \sum_{k=1}^{2} \lambda_k Dummyk_i * Z_i + \varepsilon_i$$

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[8] However, all differences in means in distributions between Japanese firms and Korean firms are not significant.

$$FP_i = const. + \sum_{j=1}^{2} \beta_j W_{ij} + \beta_3 Z_i + \beta_4 X_i$$

(2)

$$+ \sum_{k=1}^{2} \mu_k Dummyk_i + \sum_{k=1}^{2} \lambda_k Dummyk_i * Z_i + u_i$$

Equation (1) is a standard production function with a score of management practices (*Z*). *Y* is output, *L* is labor input, *K* is capital input, and *M* is intermediate input. Because we have information about recent organizational reform from the interview survey, we make two types of dummy variables; one is a dummy where the case that organizational reform was conducted in 2005 and 2006 is 1(Dummy 1 (k=1)) and the other is a dummy where the case that organizational reform was conducted before 2004 is 1 (Dummy 2 (k=2)). Thus, the case that organizational reform has not been conducted in the recent 10 years is 0 in each case. We include a cross term between *Z* and a dummy variable in the estimation. We also include an industry dummy in the estimation. *X* is the logarithm of employees which represents a control variable.

In Equation (2), the measure of firm performance (*FP*) is a dependent variable. We take labor productivity or TFP as a measure of firm performance. Following Bloom and Van Reenen (2007), we measure TFP estimating the production function with three production factors (*L, K, M*). *W* represents capital labor ratio (*K/L*) and the intermediate input labor ratio (*M/L*).[9] We include dummy variables used in Equation (1).

As for *Z*, we use two types of variables as explanatory variables; one is an average score in each firm and the other is the first factor calculated by factor analysis. If some of the questions focus on specific management factor in our survey, an average score may exaggerate the specific management factor. Therefore, using factor analysis, we extract a neutral measure which reflects each management factor evenly and include it in the estimation. The results in factor analysis in Japan and Korea are shown in Appendix 2. Because Kaiser=Meyer= Olkin measures in Japan and Korea are 0.737 and 0.873 in Japan and Korea respectively, the application of factor analysis is appropriate in both countries.

In Table 3-1, and 3-2, we estimate Equations (1) and (2) using the average score in all questions in the interview surveys in Japan and Korea. Because we have only cross-section data, estimation method is OLS. In Table 3-1, the average score does not show an expected sign and a significant effect on firm performance. When we include organizational reform dummies (Dummy 1 and Dummy 2) the cross term between Dummy 2 and the average scores shows a

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[9] When TFP is a dependent variable, we exclude *W*.

positive sign and a significant effect on firm performance, while the coefficient in Dummy 2 is negative and significant. This result implies that only firms which mark a high score due to the organizational reform can improve their performances in Japan. According to our calculation based on the estimated coefficients, the critical score which improves firm performance after organizational reform is 3.06 In Table 3-2, we do not find any significant effect of the average score on firm performance in Korean firms. In contrast to Japanese firms, any organizational reform does not affect firm performance.

As seen in Section 3, we divide the interview scores into two categories; those in organizational capital and those in human capital. Table 4-1 and 4-2 show the estimation results using the average score in organizational capital. In Table 4-1, the average score in organizational capital shows a negative and significant sign when the dependent variable is output or labor productivity. The results imply that the manifestation of organizational goals or communication within organization does not contribute to firm performance in Japan. As in Table 3-1, the cross term between Dummy 2 and the average score has a positive sign and a significant effect on firm performance, while the coefficient in Dummy 2 is negative and significant. Organizational reform contributes to performance in a firm with relatively high score.

In Table 4-2, we find the similar results to Table 4-1. We find a negative and significant sign on the coefficients in an average score in organizational capital. As for organizational reform, the coefficient in Dummy 2 is positive and significant when labor productivity is a dependent variable.

In Table 5-1 and 5-2, we examine the effects of the average score with respect to human capital on firm performance in Japan and Korea. The results in Table 5-1 are similar to those in Table 3-1. The average score in human capital does not affect firm performance while organizational reform contributes to performance in firms with relatively high score. In Table 5-2, organizational reforms affect labor productivity. The coefficient in Dummy 2 is positive and significant when labor productivity is a dependent variable. The cross term between Dummy 1 and the average score is also positive and significant, though the coefficient in Dummy 1 is negative and significant in the case that labor productivity is a dependent variable. These results imply that organizational reform in firms may improve labor productivity.

Finally, we examine the effect of the first factor of factor analysis using all interview scores on firm performance in Table 6-1 and 6-2. While the results in Japanese firms (Table 6-1) are similar to the previous results, we find that the first factor affects firm performance significantly in all cases (Table 6-2). From the factor analysis, this measure represents human

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resource management. The results imply that the measure describing human resource management in Korean firms contributes to firm performance.

In sum, in Japanese firms, the interview score describing organizational and human resource management does not affect firm performance directly. It is likely that the manifestation of organizational goal and frequent communication within a firm show a negative contribution to firm performance. However, organizational reform contributes to the performance of firms with relatively high score. In contrast to the Japanese firms, we find the clear evidence that when we take the first factor representing human resource management from the factor analysis, the measure contributes to the improvement in Korean firm performance.

Table 3-1 Estimation results of production function (Japanese firms)

	lnY			ln(Y/L)			TFP(OLS)	
Average score (all scores)	-0.058	-0.043	-0.030	-0.058	-0.043	-0.030	-0.058	-0.012
	[-1.054]	[-0.793]	[-0.441]	[-1.054]	[-0.793]	[-0.441]	[-1.054]	[-0.199]
Average score × Dummy 1			-0.111			-0.111		
			[-1.027]			[-1.027]		
Average score × Dummy 2			0.309 **			0.309 **		
			[2.329]			[2.329]		
Dummy 1		-0.040	0.261		-0.040	0.261		-0.066
		[-0.842]	[0.952]		[-0.842]	[0.952]		[-1.218]
Dummy 2		-0.044	-0.946 **		-0.044	-0.946 **		-0.071
		[-0.684]	[-2.461]		[-0.684]	[-2.461]		[-0.986]
Retail dummy	-0.107 **	-0.115 **	-0.110 **	-0.107 **	-0.115 **	-0.110 **	-0.107 **	-0.138 ***
	[-2.179]	[-2.305]	[-2.214]	[-2.179]	[-2.305]	[-2.214]	[-2.179]	[-3.134]
lnK	-0.025	-0.025	-0.024				-0.038 **	
	[-1.614]	[-1.623]	[-1.620]				[-2.470]	
lnL	0.255 ***	0.251 ***	0.250 ***	0.031 *	0.028 *	0.027 *	0.036	-0.127 ***
	[7.249]	[7.369]	[7.391]	[1.870]	[1.787]	[1.755]	[1.013]	[-9.053]
lnM	0.800 ***	0.802 ***	0.802 ***				-0.084 ***	
	[27.289]	[28.169]	[28.460]				[-2.855]	
ln(K/L)				-0.025	-0.025	-0.024		
				[-1.614]	[-1.623]	[-1.620]		
ln(M/L)				0.800 ***	0.802 ***	0.802 ***		
				[27.289]	[28.169]	[28.460]		
Constant	0.922 ***	0.910 ***	0.884 ***	0.922 ***	0.910 ***	0.884 ***	0.922 ***	0.846 ***
	[6.232]	[6.101]	[4.602]	[6.232]	[6.101]	[4.602]	[6.232]	[5.532]
Observations	138	138	138	138	138	138	138	138
R^2	0.984	0.984	0.984	0.904	0.904	0.907	0.490	0.362
Adusted-R^2	0.983	0.983	0.983	0.900	0.899	0.901	0.471	0.338
F value	2336	1737	1473	269	198	160	37	23

Note 1. Robust t statistics in brackets.
2. * significant at 10%; ** significant at 5%; *** significant at 1%.

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Table 3-2 Estimation results of production function (Korean firms)

	lnY			ln(Y/L)			TFP(OLS)		
Average score (all scores)	0.016	0.014	0.012	0.024	0.022	0.026	0.016	0.014	0.013
	[0.99]	[0.837]	[0.68]	[1.50]	[1.343]	[1.38]	[0.95]	[0.801]	[0.67]
Average score × Dummy 1			-0.022			-0.045			-0.022
			[0.35]			[0.71]			[0.35]
Average score × Dummy 2			0.045			0.015			0.044
			[0.94]			[0.39]			[0.93]
Dummy 1		0.003	0.061		0.005	0.121		0.003	0.061
		[0.105]	[0.35]		[0.189]	[0.69]		[0.115]	[0.35]
Dummy 2		0.035	-0.080		0.021	-0.019		0.035	-0.078
		[1.077]	[0.67]		[0.689]	[0.20]		[1.096]	[0.66]
Retail dummy	-0.048	-0.048	-0.046	-0.052	-0.051	-0.051	-0.048	-0.047	-0.045
	[1.45]	[-1.413]	[1.37]	[1.52]	[-1.485]	[1.47]	[1.55]	[-1.518]	[1.45]
lnK	0.015	0.014	0.015						
	[0.98]	[0.955]	[0.96]						
lnL	0.151 ***	0.150 ***	0.149 ***	0.027 **	0.027 **	0.027 **	-0.001	-0.001	-0.002
	[6.24]	[6.218]	[6.21]	[2.11]	[2.097]	[2.06]	[0.09]	[-0.105]	[0.14]
lnM	0.861 ***	0.862 ***	0.862 ***						
	[38.32]	[37.91]	[37.91]						
ln(K/L)				0.021	0.021	0.020			
				[1.38]	[1.348]	[1.34]			
ln(M/L)				0.851 ***	0.851 ***	0.852 ***			
				[38.08]	[37.65]	[37.64]			
Constant	1.598 ***	1.598 ***	1.594 ***	1.639 ***	1.638 ***	1.625 ***	-0.028	-0.026	-0.021
	[6.87]	[6.839]	[6.79]	[7.08]	[7.043]	[6.95]	[0.36]	[-0.329]	[0.25]
Observations	342	342	342	342	342	342	342	342	342
R²	0.981	0.981	0.981	0.948	0.948	0.948	0.005	0.007	0.009
Adusted-R²	0.981	0.981	0.981	0.947	0.947	0.946	-0.004	-0.008	-0.012
F value	2565	1836	1465	486	345	271	1.12	0.95	0.79

Note 1. Robust t statistics in brackets.
  2. * significant at 10%; ** significant at 5%; *** significant at 1%.

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Table 4-1 Estimation results using average score with respect to organizational capital (Japanese firms)

	lnY		ln(Y/L)		TFP(OLS)		
Average score (organizational capital)	-0.075 *	-0.073	-0.064	-0.073	-0.075 *	-0.049	-0.062
	[-1.769]	[-1.266]	[-1.497]	[-1.266]	[-1.769]	[-0.951]	[-0.900]
Average score × Dummy 1		-0.049		-0.049			-0.044
		[-0.572]		[-0.572]			[-0.402]
Average score × Dummy 2		0.268 **		0.268 **			0.307 **
		[2.309]		[2.309]			[2.091]
Dummy 1		0.123	-0.024	0.123		-0.050	0.082
		[0.547]	[-0.507]	[0.547]		[-0.900]	[0.284]
Dummy 2		-0.856 **	-0.023	-0.856 **		-0.048	-0.999 **
		[-2.434]	[-0.340]	[-2.434]		[-0.636]	[-2.279]
Retail dummy	-0.111 **	-0.106 **	-0.115 **	-0.106 **	-0.111 **	-0.138 ***	-0.130 ***
	[-2.268]	[-2.091]	[-2.306]	[-2.091]	[-2.268]	[-3.088]	[-2.768]
lnK	-0.023	-0.021			-0.036 **		
	[-1.532]	[-1.412]			[-2.387]		
lnL	0.256 ***	0.253 ***	0.030 **	0.029 **	0.036	-0.124 ***	-0.124 ***
	[7.870]	[7.984]	[2.060]	[2.009]	[1.110]	[-9.302]	[-9.300]
lnM	0.799 ***	0.800 ***			-0.085 ***		
	[27.724]	[28.623]			[-2.943]		
ln(K/L)			-0.023	-0.021			
			[-1.551]	[-1.412]			
ln(M/L)			0.800 ***	0.797 ***			
			[28.388]	[28.623]			
Constant	0.973 ***	0.994 ***	0.961 ***	0.994 ***	0.973 ***	0.922 ***	0.954 ***
	[6.682]	[5.560]	[6.597]	[5.560]	[6.682]	[6.461]	[4.924]
Observations	138	138	138	138	138	138	138
R²	0.984	0.984	0.905	0.907	0.496	0.366	0.380
Adjusted-R²	0.983	0.983	0.900	0.901	0.477	0.342	0.346
F value	2436	1453	204	163	39	24	22

Note 1. Robust t statistics in brackets.

    2. * significant at 10%; ** significant at 5%; *** significant at 1%.

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Table 4-2 Estimation results of production function with respect to organizational capital (Korean firms)

	lnY			ln(Y/L)			TFP(OLS)		
Average score (organizational capital)	-0.028 * [1.69]	-0.028 * [-1.728]	-0.028 [1.43]	-0.034 ** [2.06]	-0.034 ** [-2.073]	-0.033 * [1.69]	-0.028 * [1.70]	-0.028 * [-1.739]	-0.028 [1.45]
Average score × Dummy 1			0.036 [0.99]			0.050 [1.38]			0.036 [1.00]
Average score × Dummy 2			-0.041 [0.91]			-0.060 [1.45]			-0.040 [0.91]
Dummy 1		0.006 [0.201]	-0.081 [0.91]		0.011 [0.383]	-0.108 [1.24]		0.006 [0.210]	-0.080 [0.90]
Dummy 2		0.042 [1.311]	0.148 [1.17]		0.031 [1.074]	0.187 * [1.67]		0.042 [1.333]	0.145 [1.16]
Retail dummy	-0.037 [1.02]	-0.036 [-1.010]	-0.036 [1.01]	-0.036 [0.98]	-0.036 [-0.967]	-0.036 [0.97]	-0.036 [1.08]	-0.035 [-1.070]	-0.035 [1.05]
lnK	0.014 [0.97]	0.014 [0.948]	0.015 [0.98]						
lnL	0.152 *** [6.33]	0.151 *** [6.308]	0.149 *** [6.23]	0.030 ** [2.33]	0.030 ** [2.301]	0.029 ** [2.23]	0.001 [0.06]	0.000 [0.0138]	0.000 [0.04]
lnM	0.862 *** [38.17]	0.863 *** [37.80]	0.863 *** [37.68]						
ln(K/L)				0.020 [1.37]	0.020 [1.331]	0.021 [1.37]			
ln(M/L)				0.853 *** [38.07]	0.853 *** [37.69]	0.854 *** [37.60]			
Constant	1.683 *** [7.69]	1.681 *** [7.662]	1.672 *** [7.65]	1.746 *** [7.96]	1.742 *** [7.913]	1.728 *** [7.87]	0.066 [1.05]	0.067 [1.059]	0.070 [1.06]
Observations	342	342	342	342	342	342	342	342	342
R²	0.981	0.981	0.981	0.948	0.948	0.948	0.011	0.015	0.018
Adjusted-R²	0.981	0.981	0.981	0.947	0.947	0.947	0.002	0.000	-0.003
F value	2824	2004	1558	504	360	286	1.89	1.39	1.19

Note 1. Robust t statistics in brackets.
2. * significant at 10%; ** significant at 5%; *** significant at 1%.

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Table 5-1 Estimation results using average score with respect to human capital (Japanese firms)

	lnY			ln(Y/L)			TFP(OLS)		
Average score (Human capital)	0.011 [0.245]	0.008 [0.190]	0.041 [0.925]	0.011 [0.245]	0.008 [0.190]	0.041 [0.925]	0.011 [0.245]	0.037 [0.786]	0.066 [1.359]
Average score × Dummy 1			-0.140 [-1.507]			-0.140 [-1.507]			-0.127 [-1.227]
Average score × Dummy 2			0.198 ** [2.229]			0.198 ** [2.229]			0.177 [1.527]
Dummy 1		-0.049 [-0.962]	0.301 [1.381]		-0.049 [-0.962]	0.301 [1.381]		-0.066 [-1.148]	0.249 [1.029]
Dummy 2		-0.057 [-0.951]	-0.564 ** [-2.370]		-0.057 [-0.951]	-0.564 ** [-2.370]		-0.072 [-1.069]	-0.522 [-1.636]
Retail dummy	-0.110 ** [-2.282]	-0.118 ** [-2.436]	-0.125 *** [-2.656]	-0.110 ** [-2.282]	-0.118 ** [-2.436]	-0.125 *** [-2.656]	-0.110 ** [-2.282]	-0.141 *** [-3.276]	-0.146 *** [-3.441]
lnK	-0.026 [-1.654]	-0.026 [-1.638]	-0.029 * [-1.813]				-0.039 ** [-2.485]		
lnL	0.244 *** [7.000]	0.241 *** [7.236]	0.239 *** [7.452]	0.024 [1.451]	0.023 [1.460]	0.022 [1.475]	0.024 [0.701]	-0.132 *** [-9.325]	-0.133 *** [-9.698]
lnM	0.806 *** [27.847]	0.807 *** [28.543]	0.812 *** [28.868]				-0.078 *** [-2.692]		
ln(K/L)				-0.026 [-1.654]	-0.026 [-1.638]	-0.029 * [-1.813]			
ln(M/L)				0.806 *** [27.847]	0.807 *** [28.543]	0.812 *** [28.868]			
Constant	0.770 *** [6.240]	0.800 *** [6.106]	0.710 *** [4.532]	0.770 *** [6.240]	0.800 *** [6.106]	0.710 *** [4.532]	0.770 *** [6.240]	0.751 *** [6.171]	0.684 *** [4.683]
Observations	138	138	138	138	138	138	138	138	138
R^2	0.984	0.984	0.984	0.903	0.904	0.907	0.486	0.365	0.380
Adusted-R^2	0.983	0.983	0.983	0.899	0.899	0.901	0.467	0.341	0.346
F value	2319	1736	1454	255	194	159	36	24	25

Note 1. Robust t statistics in brackets.

2. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 5-2 Estimation results of production function with respect to human capital (Korean firms)

	lnY			ln(Y/L)			TFP(OLS)		
Average score (Human capital)	-0.005	-0.005	-0.007	-0.004	-0.004	-0.005	-0.005	-0.005	-0.007
	[0.25]	[-0.258]	[0.30]	[0.19]	[-0.185]	[0.24]	[0.24]	[-0.248]	[0.29]
Average score × Dummy 1			0.055			0.068 *			0.055
			[1.26]			[1.72]			[1.30]
Average score × Dummy 2			-0.053			-0.074			-0.052
			[1.06]			[1.63]			[1.06]
Dummy 1		0.008	-0.105		0.013	-0.126 *		0.008	-0.104
		[0.276]	[1.33]		[0.482]	[1.77]		[0.287]	[1.34]
Dummy 2		0.039	0.152		0.027	0.186 *		0.039	0.151
		[1.176]	[1.26]		[0.877]	[1.79]		[1.194]	[1.27]
Retail dummy	-0.042	-0.042	-0.041	-0.044	-0.044	-0.043	-0.041	-0.041	-0.040
	[1.15]	[-1.140]	[1.12]	[1.18]	[-1.169]	[1.14]	[1.22]	[-1.220]	[1.19]
lnK	0.014	0.014	0.014						
	[1.00]	[0.972]	[0.96]						
lnL	0.152 ***	0.151 ***	0.150 ***	0.030 **	0.030 **	0.030 **			
	[6.28]	[6.260]	[6.28]	[2.30]	[2.276]	[2.29]			
lnM	0.862 ***	0.863 ***	0.864 ***						
	[37.79]	[37.44]	[37.39]						
ln(K/L)				0.020	0.020	0.020	0.001	0.001	0.001
				[1.39]	[1.352]	[1.34]	[0.08]	[0.0440]	[0.05]
ln(M/L)				0.852 ***	0.853 ***	0.855 ***			
				[37.64]	[37.28]	[37.30]			
Constant	1.623 ***	1.619 ***	1.608 ***	1.669 ***	1.664 ***	1.648 ***	0.007	0.006	0.009
	[7.31]	[7.255]	[7.20]	[7.49]	[7.424]	[7.35]	[0.09]	[0.0810]	[0.13]
Observations	342	342	342	342	342	342	342	342	342
R²	0.981	0.981	0.981	0.947	0.947	0.948	0.003	0.006	0.874
Adusted-R²	0.981	0.981	0.981	0.947	0.946	0.947	-0.006	-0.009	0.013
F value	2551	1822	1428	498	353	289	0.71	0.78	-0.01

Note 1. Robust t statistics in brackets.

2. * significant at 10%; ** significant at 5%; *** significant at 1%.

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Table 6-1 Estimation results using the first factor as an explanatory variable (Japanese firms)

	lnY			ln(Y/L)			TFP(OLS)		
The first factor (all scores)	-0.006	-0.007	-0.002	-0.006	-0.007	-0.002	-0.006	0.001	0.002
	[-0.393]	[-0.438]	[-0.134]	[-0.393]	[-0.438]	[-0.134]	[-0.393]	[0.065]	[0.119]
Average score × Dummy 1			-0.035			-0.035			-0.028
			[-1.202]			[-1.202]			[-0.861]
Average score × Dummy 2			0.099 ***			0.099 ***			0.112 **
			[2.934]			[2.934]			[2.606]
Dummy 1		-0.050	-0.057		-0.050	-0.057		-0.068	-0.074
		[-1.001]	[-1.103]		[-1.001]	[-1.103]		[-1.185]	[-1.257]
Dummy 2		-0.058	-0.075		-0.058	-0.075		-0.074	-0.093
		[-0.947]	[-1.474]		[-0.947]	[-1.474]		[-1.081]	[-1.606]
Retail dummy	-0.107 **	-0.116 **	-0.121 **	-0.107 **	-0.116 **	-0.121 **	-0.107 **	-0.139 ***	-0.145 ***
	[-2.173]	[-2.329]	[-2.469]	[-2.173]	[-2.329]	[-2.469]	[-2.173]	[-3.165]	[-3.282]
lnK	-0.025 *	-0.025	-0.025 *				-0.038 **		
	[-1.675]	[-1.656]	[-1.691]				[-2.535]		
lnL	0.250 ***	0.248 ***	0.247 ***	0.028	0.027	0.027	0.031	-0.129 ***	-0.128 ***
	[6.903]	[7.104]	[7.186]	[1.605]	[1.615]	[1.656]	[0.849]	[-8.924]	[-9.220]
lnM	0.803 ***	0.804 ***	0.804 ***				-0.081 ***		
	[27.607]	[28.340]	[28.925]				[-2.785]		
ln(K/L)				-0.025 *	-0.025	-0.025 *			
				[-1.675]	[-1.656]	[-1.691]			
ln(M/L)				0.803 ***	0.804 ***	0.804 ***			
				[27.607]	[28.340]	[28.925]			
Constant	0.781 ***	0.806 ***	0.805 ***	0.781 ***	0.806 ***	0.805 ***	0.781 ***	0.825 ***	0.823 ***
	[5.706]	[5.905]	[6.010]	[5.706]	[5.905]	[6.010]	[5.706]	[7.864]	[8.012]
Observations	138	138	138	138	138	138	138	138	138
R²	0.984	0.984	0.985	0.903	0.904	0.908	0.487	0.362	0.386
Adjusted-R²	0.983	0.983	0.984	0.899	0.899	0.902	0.467	0.338	0.353
F value	2294	1731	1518	261	196	162	38	23	26

Note 1. Robust t statistics in brackets.

2. * significant at 10%; ** significant at 5%; *** significant at 1%.

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Table 6-2 Estimation results using the first factor as an explanatory variable (Korean firms)

The first factor (all scores)	lnY			ln(Y/L)			TFP(OLS)		
The first factor (all scores)	0.012 ** [2.24]	0.011 ** [2.164]	0.011 * [1.88]	0.013 ** [2.58]	0.013 ** [2.491]	0.014 ** [2.31]	0.011 ** [2.06]	0.011 ** [1.979]	0.011 * [1.74]
Average score × Dummy 1			-0.004 [0.26]			-0.009 [0.56]			-0.004 [0.25]
Average score × Dummy 2			0.003 [0.22]			-0.003 [0.27]			0.003 [0.22]
Dummy 1		0.000 [0.00493]	0.002 [0.06]		0.004 [0.158]	0.008 [0.25]		0.001 [0.0251]	0.002 [0.08]
Dummy 2		0.031 [0.969]	0.029 [0.86]		0.019 [0.605]	0.020 [0.62]		0.031 [0.991]	0.029 [0.88]
Retail dummy	-0.053 [1.64]	-0.052 [-1.622]	-0.052	-0.056 * [1.69]	-0.055 * [-1.663]	-0.055 * [1.65]	-0.052 * [1.75]	-0.052 * [-1.742]	-0.051 * [1.71]
lnK	0.015 [1.04]	0.015 [1.021]	0.015 [1.03]						
lnL	0.148 *** [6.10]	0.148 *** [6.089]	0.147 *** [6.11]	0.023 * [1.81]	0.023 * [1.799]	0.023 * [1.77]	-0.005 [0.45]	-0.006 [-0.469]	-0.006 [0.49]
lnM	0.859 *** [38.76]	0.860 *** [38.36]	0.860 *** [38.27]						
ln(K/L)				0.021 [1.45]	0.021 [1.424]	0.021 [1.43]			
ln(M/L)				0.849 *** [38.58]	0.849 *** [38.17]	0.850 *** [38.09]			
Constant	1.675 *** [7.46]	1.672 *** [7.409]	1.670 *** [7.39]	1.733 *** [7.75]	1.729 *** [7.685]	1.728 *** [7.66]	0.031 [0.49]	0.030 [0.468]	0.031 [0.49]
Observations	342	342	342	342	342	342	342	342	342
R²	0.981	0.981	0.981	0.948	0.948	0.948	0.015	0.017	0.017
Adjusted-R²	0.981	0.981	0.981	0.947	0.947	0.947	0.006	0.002	-0.003
F value	2539	1814	1453	486	345	271	2.52	1.76	1.30

Note 1. Robust t statistics in brackets.
2. * significant at 10%; ** significant at 5%; *** significant at 1%.

5. Conclusions and Discussions

Intangible assets have played as a key role in the productivity growth in the information age. Among several kinds of intangibles, management skills and human capital are crucial in the improvement in firm performance. Bloom and Van Reenen (2007) examined the effects of organizational and human resource management on firm performance using the interview surveys conducted in France, Germany, the UK, the US. Following their survey, we conducted the interview survey on organizational and human resource management in Japan and Korea.

Following Bloom and Van Reenen (2007), we construct management scores on management practices in each firm based on the interview survey. For organizational management, firms which have clear organizational targets and better communication within employees, and conduct organizational reform gain high score. For human resource management, firms which evaluate human resources flexibly and try to keep high motivation of employees gain high score.

The overall average score in Japanese firms is higher than that in Korean firms. Even when we study the average score in the manufacturing firms which dominate the sample in the Korean survey, the result is similar to that in all firms. When we examine the distribution in average scores in Japanese and Korean firms by size, we find that the mean in distribution in the average score in Japanese firms with less than 300 employees is higher than that in Korean firms in the same category, while the mean in the distribution in the average score in Japanese firms with more than 300 employees is almost same as that in Korean firms. The gap in average scores between Japan and Korea is explained by the difference in the score in human capital between both countries. As a result, we conclude that Korean small medium sized firms are more conservative in human resources management than Japanese small and medium sized firms.

Using these scores, we examine the effect of management practices on firm performance in Japan and Korea. In Japanese firms, we do not find any direct evidence that management practices contribute to the improvement in firm performance. In Korean firms, the first factor representing human resource management gives a positive and significant effect on firm performance.

As for organizational reform, organizational reform before 2004 contributes to performance in firms with relatively high score in Japanese firms. In contrast, organizational reform during 2004-06 improves labor productivity in Korean firms.

Our study is still in progress, because the sample size in the Japanese survey is small. We

have already gathered the survey data in 573 Japanese firms which includes 151 firms. When we obtain financial statements of the remaining 422 firms, we will be able to conduct more elaborate analysis in management practices in Japanese and Korean firms.

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Appendix 1．Questionnaire

About the scoring
1. Permeation of management principles (vision)
2 Does your company have management principles that it has upheld for many years?

3 What kind of schemes are in place to have those management principles shared by all employees? (For example, announcing them at the morning assembly, or making them portable by writing them on cards or such like.)

4 Are the management principles also supported by parties such as external partners or the shareholders?

2. Implementation of organizational goals
2 Are there specific numerical goals on multiple levels that go beyond being just a vision or a slogan, regardless of the level of the goals (such as company-wide or divisional or sectional goals)?

3 Are the goals of each division adjusted in each division to ensure consistency between divisions?

4 Is consistency maintained between these goals and the goals of the management principles or of the long-term company-wide goals?

2-1. Implementation of organizational goals (setting target levels)
2 For example, are the settings for the divisional or sectional target levels simply given to you from the division or section above you? Or are they given to you while considering the opinions of your division or section?

3 Are the target levels appropriately set as non-binding chanllenges?

4 Are target levels checked to ensure there is fairness between divisions or sections? Please give an example of how they are checked. (　　　)

2-2. Implementation of organizational goals (permeation of goals)
2 Do all employees know about the goals?

3 If goals exist on various levels (such as company-wide, divisional and sectional goals), do all employees understand the level of priority of the goals? (　　)(　)

4 Do all employees accept the target levels? Please give an example if possible. (　)

2-3. Implementation of organizational goals (degree to which goals are achieved, checks on performance)
2 Are checks made to see how far goals have been achieved? Please give an example of how such checks are made. (　)

3 Are such checks made on a periodic basis rather than being made as necessary? And how frequently are such checks made? (　)

4 Are additional checks made that are decided by the section or department involved itself, rather than just being fixed checks?

2-3-1. Implementation of organizational goals (permeation of degree to which goals are achieved, and results of checks on performance)
2 Are the results of such checks made openly available within your division?

3 Are the results of such checks made openly available within not only your division but also between relevant divisions?

4 Are adjustments made to ensure that the degree to which goals have been achieved at different divisions is fairly compared? (for example, utilizing common scales such as overtime hours?)

2-3-2. Implementation of organizational goals (results of checks - handling when goals have not been achieved)
  2 Is a meeting consisting of managerial staff and employees promptly held as soon as it is known that the goals were not achieved?

  3 After investigations, are points to revise spread throughout the division, and are measures for handling the failure to achieve the goals promptly implemented?
    (In this case, exclude personnel matters.)

  4 Are problematic issues and countermeasures made thoroughly known throughout the relevant division, and if necessary, other divisions? Please give an example if possible.
    (   )

2-3-3. Implementation of organizational goals (results of checks - handling when goals have been achieved)
  2 When goals are achieved are investigations made so that those goals renewed on a continuous basis or so that higher goals are set?

  3 How long is it between the setting of higher goals and the operation / implementation of those goals?

  4 Are these measures institutionalized on a company-wide level?

3. Non-stylized communication within the organization
  2 Are measures and activities other than stylized meetings used to increase informal communication?
    (for example, informal meetings consisting only of key personnel)? Please give an example.
    (   )

  3 Are informal meetings held between divisions?

  4 Are informal meetings held with persons of various ranks?

4. Implementation of organizational reform
  2 Has your company undergone any organizational reforms in the last ten years?   When did it occur?   (   )

  3 Did your company use a consulting company at that time?   How much did it cost?   (   )

  4 Did you determine the results of the reform in a quantified manner?   By what percentage did profits increase or by what percentage were costs reduced?   (   )

4-1. Period of organizational reform or strategic change
  2 Did it take time to implement the organizational reform over one year? How many years were spent including preparation period?   (   )

  3 Why was the organizational reform necessary? Was is to do with the leadership of the top management?

  4 During the organizational reform, did the mid-level management also strive to achieve the reform, thereby giving a sense of unity in the company?

4-2. Scope of the effects of organizational reform
  2 Were the effects of the reform shown in the divisions or sections? If they were, please give an example of the effects.
    (Write the example here)

  3 Were the effects of the reform shown between divisions, and not just within one division? If they were shown between divisions, please give an example of the effects.
    (   )

  4 Were the effects of the reform shown between the company and the business partners, and not just within the company? If they were, please give an example of the effects.
    (   )

4-3. Details of the organizational reform (delegation of authority)
  When a company undergoes organizational reform, sometimes the employees' decision-making authority is also revised. In the case of your company,
  2 Was decision-making authority given to those in a lower position as a result of the organizational reform?

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3 Were posts simplified in conjunction with decision-making authority being given to those in a lower position?

4 As a result, was there a change in the details of the job or the way of doing the job? Please give an example.   (   )

4-4. Details of the organizational reform (IT activities)
2 Did the IT system make your company more streamlined, for example by reducing the amount of paper-based documentation ?

3 In the last decade, did your company launch organizational reform, rather than raise business efficiency, by utilizing the IT system ?

4 Did an opportunity to earn new profits arise as a result of the organizational reform by the organizational reform
baseo on the IT system? Please give an example.   (   )

5. Promotion system
2 Does your company mainly have a performance-based promotion system?

3 If the promotion system is mainly a performance-based one, does your company have a management-by-objectives system? If it does, when did that system begin?

4 Did the performance of the employees improve as a result of using the management-by-objectives system and introducing a performance-based promotion system?

6. Schemes to improve motivation
2 Are there any schemes other than promotion-related or pay-related systems to increase the motivation of the employees? Please give an example.   (   )

3 Is that scheme used on an institutional basis throughout the company?

4 Do you monitor when the employees' motivation, retention rate or job performance increases as a result of such scheme?

7. Handling employees that perform poorly
2 Are they handled in some specific way other than by giving them oral warnings?

3 Does that handling include measures that are implemented faster than the average term of office?

4 Are the measures implemented as soon as a problem is confirmed (before a routine rotation) ?

8. Handling employees that perform well
2 Is it made clear within the division that the employee's performance is good, for example by management praising employees at meetings?

3 Is there a system to connect good performance to things such as financial reward or promotion?

4 Was the motivation of the employees raised through introducing such system?

9. Securing good manpower
2 Can you identify the high performance and core employees, mentioned in the question 9, in your company? Please give an example.   (   )(   )

3 Such excellent employees are treated well comparede with ordinary employees? If so, how they are treated?

4 Could you prevent the loss of such excellent employees?

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10. Evaluating the interpersonal skills of the managers

2 Do the managers give clear criteria such as the degree to which persons of a lower position should be nurtured?

3 Is there an incentive system, such as a pay-related or promotion-related system, to reward managers that have nurtured excellent staff of a lower position?

4 Did the motivation of the managers increase as a result of introducing such system?

11. Nurturing human resources through training

2 Is there training on an occupational ability basis or an assignment basis, aiming to improve the work skills of the employees? Over the course of one year, on average how long is spent on training? ( )

(Training on an occupational ability basis means training in specialist capabilities that are required in each field, such as management, business, research and development, and manufacturing. Assignment-based training means training in areas such as languages, OA, computing, and acquisition of official certifications.)

3 Do those training activities help to improve business results? Please give an example. ( )

4 Are the effects of those training activities adaptable to other companies?

12. Nurturing human resources through OJT

2 Is OJT performed on a daily basis? What percentage of the supervisor's working time is spent on giving instructions to those in a lower position? ( ) ( )

3 Does OJT contribute to business results? Please give an example. ( ) ( )

4 Are the effects of OJT monitored? Please give an example of the methods used. ( ) ( )

13. Employees' expertise

2 Are employees rotated in a fixed schedule, such as once every two or three years?

3 To improve the expertise of the employees, are they assigned to a set position for a long time?

4 Is there a systematic program in place to ensure the employees acquire some expertise?

Appendix 2 The results of principal component
analysis

Questions	Japan		Korea	
	1st component	2nd component	1st component	2nd component
q1	0.17	0.13	-0.02	**0.31**
q2	0.25	0.04	0.07	**0.28**
q2_1	0.22	-0.06	-0.06	**0.29**
q2_2	0.22	0.20	0.04	**0.40**
q2_3	0.22	-0.04	-0.03	**0.41**
q2_3_1	0.18	0.07	-0.11	**0.44**
q2_3_2	0.23	0.23	0.06	**0.37**
q2_3_3	0.20	0.04	<u>0.15</u>	<u>0.19</u>
q3	0.16	0.03	<u>0.19</u>	<u>0.11</u>
q4	0.24	-0.38	-0.06	-0.02
q4_1	0.29	-0.37	-0.05	0.01
q4_2	0.30	-0.34	0.07	0.01
q4_3	0.21	-0.14	0.03	0.08
q4_4	0.24	-0.25	0.10	-0.03
q5	0.15	0.29	**0.40**	-0.01
q6	0.22	0.12	**0.38**	-0.08
q7	0.17	0.15	**0.29**	0.02
q8	0.20	0.35	**0.28**	0.01
q9	0.10	0.20	**0.34**	-0.07
q10	0.17	0.25	**0.38**	-0.03
q11	0.24	0.10	**0.24**	0.04
q12	0.15	-0.15	**0.24**	0.05
q13	0.14	0.17	**0.23**	0.07