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The Mediating Effect of Organizational Commitment and the Moderating Effect of HR Capability on the Relationship Between High-commitment HR systems and Firm Performance

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The objectives of this study were to examine the relationships among high-commitment HR systems, organizational commitment, firm performance, and HR capability. In conducting this study, regression analysis was performed on data collected from 302 manufacturing firms. The major conclusions drawn from the findings of this study were as follows: High-commitment HR systems have a strong relationship with organizational commitment, as well as firm performance; Use of high-commitment HR systems has an indirect effect on firm performance with a partial mediation effect on organizational commitment; HR capability does not have a significant effect on the relationship between high-commitment HR systems and firm performance.

- **Key words:** High-commitment HR system, Organizational commitment, HR capability, Firm performance, HCCP

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I . Introduction

Firms have increasingly recognized the potential for their employees to be a source of competitive advantage (Pfeffer, 1998). As a result, human resource management (HRM) has become a key business process for firms to promote their effectiveness (Noe et al., 2008). Moreover, the importance of HRM has spurred an increasing body of academic research attempting to reveal a relationship between HR practices and performance.

In a similar vein, an interest in explaining how the different types of HRM system have the potential to promote firm profitability has evolved in HRM research. A number of independent studies have demonstrated the effectiveness of a variety of types of HR system. For example, Arthur (1994) stated that an HRM system could be divided into cost reduction and commitment maximization. Lado and Wilson (1994) categorized HR systems as competence-enhancing and competence-destroying. Despite the results of previous studies, high-commitment HRM has been commonly recognized as the most effective HR system for improving firm performance. However, questions still remain about specific HR practices present within a high-commitment HR system.

Since the 1990s, a number of studies have demonstrated that there is a significant relationship between high-commitment HR practices and firm profitability (Bartel, 2004; Batt, 2002; Delery & Doty, 1996). These findings support a universalistic approach which argues the existence of HR best practices which enhance firm performance (Fernando et al., 2005). However, previous studies have not truly addressed the “black box” problem, noting that the conceptual developments of the mediating mechanisms

through which HRM has an impact on profitability have thus far eluded empirical testing (Guest, 2001; Wright et al., 2003).

Regarding the “black box” problem, Wright et al. (2003) argued that the categorization of outcomes including HR-related outcomes, organizational outcomes, financial outcomes, and market-based outcomes (Dyer and Reeves, 1995) has significant importance in exploring the relationship between HRM and performance. They suggested that the impact that HR practices have on more distal outcomes are transmitted through the impacts on more proximal outcomes like employee commitment. Guest (1997) also explained that HR practices impact on HR outcomes such as employee commitment and satisfaction, which thus convert into performance outcomes. Therefore, by recognizing organizational commitment as a significant moderator, the present study needed to investigate its moderating effect on the relationship between high-commitment HR systems and firm performance.

This is in contrast to the universalistic approach which argues that a certain set of HR practices consistently leads to superior performance regardless of contingency variables. Although the significant relationship between HR practice and performance has been found by several research projects, the observed effect sizes differ among studies. This may be due to the interactive effect of HR practices and other organizational factors. Lawler (1992) suggested that organizational capability in HRM practice, identified as HR capability, is an important factor that has potential to alter the effect of high-commitment HRM on firm performance. Moreover, to overcome the limitations of the universalistic approach, Fernando et al. (2005) argued that both the universalistic perspective and the contingency perspective should be simultaneously considered in a single study. However, very few studies have applied integrative perspective in investigating the effectiveness of HR practices. Also, while previous studies based on contingency perspective have primarily focused on investigating

the moderating effect of strategies and organizational culture, the moderating effect of HR capability has barely been investigated.

In conclusion, to make meaningful empirical contributions to HRM research, it is necessary to identify a specific conceptual framework involving the relationship among high-commitment HRM systems, employees' organizational commitment, HR capability, and firm performance. Therefore, this study aims to examine the direct effect of high-commitment HR systems on both organizational commitment and firm performance, to examine the mediating effect of organizational commitment on the relationship between high-commitment HR systems and firm performance, and to examine the moderating effect of HR capability on the relationship between a high-commitment HR system and its performance.

II. Theoretical Background

1. High-commitment Human Resource(HR) System

Unlike traditional HRM based on manager control and employee conformity, a high-commitment HR system is a particular 'bundle' of HR practices that has the potential to contribute in decreasing the level of absenteeism and labor turnover, and increasing the level of productivity and customer service (Arthur, 1994; Hay Group, 2012; Pfeffer, 1998).

Even if the high-commitment HR system has been recognized as the most universal type of HR system that leads to improvement in workers' or firms' performance, it is still difficult to draw generalized conclusions on the precise components of high-commitment HR systems. For example, Pfeffer (1998) suggested seven components of high-commitment HR systems:

employment security; selective hiring and sophisticated selection; extensive training, learning and development; employee involvement, information sharing and worker voice; self-managed teams; high compensation contingent on performance; and reduction of status differentials. Huselid (1995) described eight key practices of high-commitment HR systems: training and development, selection, information sharing, participation, compensation, appraisal, job design, and reduction of status differentials. Combs et al. (2006) suggested incentive, training, employee involvement, selection, promotion from within, complaint management, information sharing, and employment security as key elements of high-commitment HR systems.

This study reviewed a wealth of existing literature exploring the components of high-commitment HR systems. As a result, the study categorized several high-commitment HR practices into three common dimensions. First is the degree of investment in HR practices intended to improve employee knowledge, skills and ability. The majority of scholars have commonly suggested that training and development programs can play a major role in driving improved employee competency as well as establishing trust between employees and employers which enhances organizational performance. The second dimension is the degree of investment in HR practices functioning to motivate employee behavior. HR practices (e.g., incentive pay plans, performance bonuses, and promotion from within) primarily aim at managing employee behavior. Because business processes require certain behaviors of key employee groups, one focus of the HR system has to be on eliciting positive behaviors and inhibiting negative ones. The last dimension is the degree of investment in HR practices functioning to support employee behaviors. Practices which promote employment security and employee involvement have the potential to integrate improved employee attitude and behavior toward organizational goals. In particular, employee involvement in substantive decision-making

regarding work and organizational outcomes encourages a sense of ownership with regards to their jobs. Moreover, employment security leads to a positive psychological contract with firm. Table 1 shows the specific high-commitment HR practices described by several previous studies.

<Table 1> The components of high-commitment HR systems

Classification	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)	15)	Sum
Training	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	15
High salary												○			○	2
Employment security		○	○					○		○	○	○	○		○	8
Selection			○				○		○	○	○					5
Compensation	○	○	○	○	○	○	○	○	○	○	○		○	○		13
Autonomy					○			○	○							3
Employee involvement	○			○	○		○	○	○	○	○		○	○	○	11
Communication	○					○			○							3
Promotion from within		○		○	○		○	○		○						6
Appraisal		○						○				○		○		4
Information sharing			○	○			○	○				○				5
Reduction of status differentials			○													1
Complaint management		○					○	○								3
Job design		○	○													2

1) Arthur (1994), 2) Delery & Doty (1996), 3) Pfeffer (1998), 4) Guthrie (2001), 5) Bae et al. (2003), 6) Bartel (2004), 7) Datta et al. (2005), 8) Combs et al. (2006), 9) Kim et al. (2008), 10) Lee (2008), 11) Lee (2009), 12) Kim (2009), 13) Mo (2010), 14) Oh (2010), 15) Nam & Chun (2011).

2. Research Model and Hypothesis

A. High-commitment HR systems and Firm performance

Analyzing the link between high-commitment HR systems and performance is now a major area of interest for research. In addressing this interest, many researchers have empirically examined the relationship between HR practices and firm performance. For example, Huselid (1995) found that the set of HR practices generally considered representative of high-commitment HRM have a significant impact on employee turnover, productivity, and return on assets. Paul and Anantharaman (2003) tested the causal model which links HRM with firm performance. They found that practices like training, job design, compensation, and incentives had a direct effect on operational performance parameters.

Such research has been conducted at corporate, business unit, and departmental level (Patrick & Rebecca, 2007). While the observed effect sizes may differ between studies, it can be concluded that in almost all cases HR practices are found to be at least weakly related to performance (Combs et al., 2006). A recent meta-analysis conducted by Combs et al. (2006) found that the mean effect size of the relationship between high-commitment HRM and performance is approximately .14 which infers that a standard deviation increase in the use of high-commitment HR system is associated with a 4.6% increase in return on assets.

As stated above, the interest in the impact of high-commitment HR systems on firm performance has become a dominant research issue in the HRM field. The results of these studies have suggested that increased firm performance depends on how effectively employees are managed. This may be applied to the situation of Korean firms in the same way. Therefore, the following hypothesis is proposed:

Hypothesis 1: Use of High-commitment HR systems will be positively related to firm performance.

B. High-commitment HR systems and organizational commitment

Although there are many studies regarding the relationship between HRM and performance, previous empirical research has primarily focused on the linkage between HR practices and its distal performance measures, without measuring more proximal outcomes (Wright & Nishii, 2006). According to the early review of literature regarding HRM and its performance, the outcomes of HR practices could be broken down into four levels: employee, organizational, financial, and market level (Dyer & Reeves, 1995). Employee outcomes consist of affective reactions such as satisfaction and commitment as well as behavioral reactions such as absenteeism and turnover. Organizational outcomes refer to operational performance measures such as quality, productivity, and customer satisfaction. Financial outcomes such as accounting profits represent the next step in their causal chain. Finally, market outcomes primarily focus on the market value of firms based on stock price. Regarding these effects of HR practices, Becker et al. (1997), and Dyer and Reeves (1995) argued that HR practice has the most direct impact on employees' affective and behavioral reactions. Thus, they suggested that it is necessary to examine employee outcomes to assess the most immediate consequences of HRM systems.

Usually, in discussions of the most proximal employee outcomes, researchers focus on the construction of organizational commitment (Patrick & Rebecca, 2007). Organizational commitment is commonly defined as the individual's psychological attachment to the organization (Mowday et al., 1979). It is an important attitudinal predictor of work variables such as turnover, organizational citizenship behavior, and job performance (Carrell & Kuzmits, 1986).

Social exchange theory provides the theoretical rationale for the relationship between HR systems and organizational commitment. Based on social exchange theory, an employee's commitment to an organization is developed as a result of an exchange relationship between employee and employer (Blau, 1964). According to Blau (1964), employees tend to commit to their organizations if they see that their efforts are acknowledged and reciprocated. In this respect, HRM practices have been suggested as influencing factors to increase organizational commitment among employees (Arthur, 1994). As stated by Ogilvie (1986), employees' perceptions of HRM practices reflect a sense of reciprocity and the level of the organization's commitment to the employees. Hence, if HRM practice and reward provided by an organization is commensurate with employees' efforts and contributions, employees become more committed to the organization.

Based on this theoretical perspective, a number of studies have empirically supported the positive influence of effective HRM on employees' commitment to the organization. For example, Buck and Watson (2002) found that HRM practices, such as welfare, employee involvement, and training and development, have a significant impact on employees' organizational commitment. Wright et al. (2003) also found a positive relationship between HRM practices and organizational commitment in a study of 50 business units from a large food service corporation. Therefore, the following hypothesis is proposed:

Hypothesis 2: Use of High-commitment HR systems will be positively related to organizational commitment.

C. Organizational commitment as a mediator

While a number of studies have supported the positive relationship between high-commitment HR systems and performance, what is lacking is

empirical research examining the mechanisms through which this relationship works (Wright et al., 2003). Authors have referred to this as the “black box” problem (Colakoglu et al., 2006; Guest, 2001).

Scholars have proposed that employee outcomes, such as employee skills, motivation, and commitment, are the meaningful intervening processes in the relationship between a high-commitment HR system and firm performance. In particular, social exchange theory (Blau, 1964; Gelade & Ivey, 2003) claims that a high-commitment HR system promotes favorable financial outcomes by improving employee commitment to the organization. That is, HR practices used as a valuable investment by the firm are likely to strengthen employees’ commitment to the organization and influence them to increase their efforts toward achieving organizational goals. The enhanced level of effort and quality of task performance resulting from the increased commitment of employees contribute to improve the firm’s performance. From this perspective, Huselid (1995) also suggested that employee outcomes such as organizational commitment have the potential to mediate the relationship between high-commitment HR systems and firm performance. Although scholars have presumed that it is this potential role of organizational commitment as a mediator that explains the linkage between high-commitment systems and firm performance (Huselid, 1995), this mediated relationship has been investigated, particularly at the organizational level (Combs et al., 2006). Thus, this study further investigates the possibility that use of a high-commitment HR system impacts indirectly on firm performance by improving employee commitment to the organization.

Hypothesis 3: The relationship between high-commitment HR systems and firm performance will be mediated by organizational commitment.

D. HR capability as a moderator

Since employees' positive attitudes and discretionary behaviors have become important factors affecting organizational performance, interest in the capabilities of HR staff associated with the effective management of employees has increased in HRM research (Lawler, 1992). That is, insuring that members of the HRM function have the appropriate capabilities or competencies has been suggested as one way to increase the likelihood of effective HRM (Lawler, 1992).

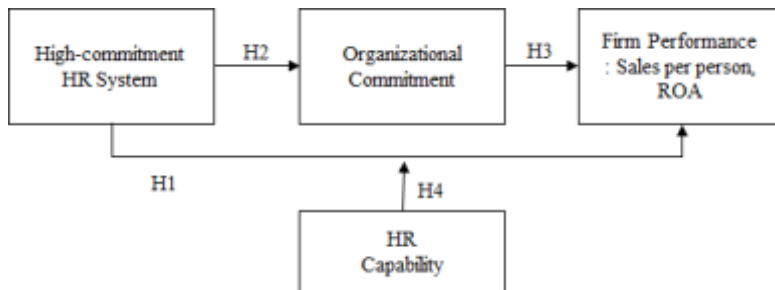
HR capability can be defined as the routines embedded in the tacit and implicit knowledge of members of department functioning to acquire, develop, nurture, deploy, and redeploy human resource in a dynamic competitive environment (Ulrich & Lake, 1990). Huselid et al. (1997) stated that two types of HR capabilities have been identified as important: professional HR capabilities and business-related capabilities. Professional HR capabilities related to the delivery of technical HR practices are fundamental to ensure the development and effective implementation of HR practices. Since the strategic HRM paradigm emerged, business-related capabilities have also been required of the members of the HR function. Business-related capabilities enable members of HR staff to understand how business considerations that are unique to a firm can create firm-specific HRM needs.

To date, prior research into HR capability has primarily focused on HR capability as determinant of firm performance (Park et al., 2004; Huselid et al., 1997). Some scholars have argued that HR capability can serve as a moderator in the relationship between the HR system and its outcomes (Lawler, 1992; Huselid & Becker, 1996). Likely effectiveness of HR capability as a moderator is based on contingent theory which explains that the relationship between HRM and performance depends on other variables, namely contingency variables (Fernando et al., 2005). Lawler (1992)

explained that a high level of HR capability is likely to strengthen the effectiveness of HRM practices. Huselid and Becker (1996) also argued that the contribution of high-commitment HR practices to firm performance directly depends on the extent of HR capabilities in executing these HR practices. Nevertheless, there is very little empirical evidence that HR capability can serve as a moderator in the relationship between a high-commitment HR system and its performance. Therefore, this study hypothesizes and empirically validates whether HR capability actually moderates the effect of a high-commitment HR system on its performance.

Hypothesis 4: The relationship between high-commitment HR systems and firm performance will be moderated by HR capability.

On the basis of the reviewed literature, the conceptual model is shown as follows:



III. Methodology

1. Sample and Data collection

To test the hypotheses, the present study used Human Capital Corporate Panel (HCCP) data collected by Korea Research Institute of Vocational Education and Training (KRIVET) in 2009 and financial performance data collected by Korea Information Service (KIS) in 2011. The population of the 2009 corporate survey consisted of firms with both 100 or more employees and KRW 300 million or more in capital stocks. A total of 473 firms, representing manufacturing, banking, and non-banking service participated in this survey. In order to control the effect of industry, the present study only targeted the manufacturing firms out of all firms which were participating in the 2009 corporate survey. After excluding unusable responses, the final sample was composed of 302 manufacturing firms, with a total of 6,578 employees. On average, there were 21.78 employees per firm.

2. Measures

Based on an extensive review of existing literature, the present study included four variables: firm performance as a dependent variable, high-commitment HR systems as an independent variable, organizational commitment as a mediator, and HR capability as a moderator. Wright et al. (2003) suggested that it is necessary to use predictive designs to enable more confident causal inferences. According to them, the temporal gap between HR practices and firm performance should be more than two years,

which is sufficient to test the long-term effect of HR practices on firm performance. In this study, therefore, high-commitment HR systems, organizational commitment, and HR capability were measured by using HCCP data collected in 2009, and firm performance was measured by using KIS financial data collected in 2011.

A. Dependent Variable: Firm Performance

Firm performance can be measured by various financial indicators such as profitability, return on assets, and return on investment. In this study, firm performance was measured by natural log value of sales per person used by Huselid (1995) and Ichniowski et al. (1997), and return on assets (ROA) used by Huselid (1995).

B. Independent Variable: High-commitment HR system

As stated above, the items for measuring the high-commitment HR system were developed based on the review of literature. As a result, the means of measuring the high-commitment HR system was comprised of five aspects: (1) how many of the 16 specific human resource development practices does your firm operate? (For each practice, 1 = Operate, 0 = Do not operate. Response range: 0~16); (2) how many of the three specific performance-based paying practices does your firm operate? (For each practice, 1 = Operate, 0 = Do not operate. Response range: 0~3); (3) does your firm have a job posting and bidding system? (1 = Yes, 0 = No. Response range: 0~1); (4) how many of the three specific employee participating practices does your firm operate? (For each practice, 1 = Operate, 0 = Do not operate. Response range: 0~3); (5) has your firm adjusted employment during the last two years? (1 = Yes, 0 = No. Response range: 0~1). To minimize variation between each item caused by

the different scales, the study attempted to standardize each item to a 100-point scale.

Some researchers have argued that individual HR practices are correlated to each other, so the bundle or system of high-commitment HR practices are more likely to trigger sustainable performance outcomes than are individual practices (Arthur, 1994; Ichniowski et al., 1997). Based on this suggestion, the present study used the system index of high-commitment HR practices to investigate the presented hypotheses. The system index was calculated by the average value of five items.

Factor loadings for each indicator of high-commitment HR systems ranged from .686 to .785 indicating acceptable validity. Cronbach's alpha was also calculated to test the reliability of the data and was found to be .565, which is relatively reasonable (Nunnally, 1978).

C. Mediator: Organizational Commitment

According to Porter et al. (1974), four items were used from the single dimension of organizational commitment. The four items were (1) I am likely to switch my job if another firm provides better conditions (reversed); (2) I feel as if our company's problems are my own; (3) If I decide to leave this company, I would lose too much in my life; (4) Our company is worthy of my loyalty. A five-point Likert-type scale was used as the response format for the variables, with assigned values ranging from 1 being "Strongly disagree" to 5 being "Strongly agree".

The items were averaged to create one index per person, then aggregated to the organizational level, as the unit of analysis for this study was the organization. This scale exhibited acceptable levels of intra-class correlations ($ICC(1) = .43$, $ICC(2) = .75$), indicating that there is substantial variation between organizations, and the organization-level aggregated score of organizational commitment is adequate to render a reliable

estimation of the construct at the organizational level (Klein et al., 2000). In addition, factor loadings for each item of organizational commitment ranging from .779 to .879; Cronbach's alpha value was found to be .751.

D. Moderator: HR Capability

The items of HR capability were developed based on a comparison between the items identified by Huselid et al. (1997) and the questionnaires of the HCCP survey. As a result, HR capability was assessed using the following four items: (1) the extent to which the HR department plays a leading role in implementing and improving HR practices; (2) the extent to which the HR department provides advice to line managers; (3) the extent to which the HR department leads to innovation and change in the firm; (4) the extent to which the HR department has the expertise to undertake their functions including HR management, training and development, and labor relations. The respondents were asked to describe on a five-point Likert scale.

Items were averaged to create one index per person, then aggregated to organizational level. Aggregating the respondents resulted in good reliability (Cronbach's alpha=.881, ICC(1)=.65, ICC(2)=.88). Furthermore, confirmatory factor analysis showed that the items of HR capability had acceptable validity (range of factor loadings: .831~.900).

E. Control Variables

Previous studies have suggested that a variety of conditions in the external and internal organizational environments influence both HR practices and firm performance. The condition factors represent the source of potential extraneous variances. To reduce the possibility of spurious results, this study controlled the effect of the following two factors: (1)

Firm size, (2) Firm age (Jackson & Schuler, 1995; Arthur, 1994; Delery & Doty, 1996). Firm size was measured by the number of employees in 2009. The present study also calculated the natural log value of the duration in years since the establishment of the firm.

IV. Results

1. Descriptive Statistics

Table 2 shows mean, standard deviation, and correlations among all study variables. The index of high-commitment HR systems has a mean of 34.95; HR Capability has a mean of 3.23; Organizational Commitment has a mean of 3.39; Log value of sales per person in 2011 has a mean of 20.08 (original value: KRW 785,580,000); ROA in 2011 has a mean of 2.15. Between 2009 and 2011, sales per person increased by 26.45% (sales per person in 2009: KRW 621,216,000). In the same period, ROA decreased by 42.6% (ROA in 2009: 3.15). As a result of Pearson correlation coefficient, there was no significant correlation between firm age, and high-commitment HR systems and firm performance (sales per person and ROA); but, other correlations among the relevant variables were positive and significant.

<Table 2> Means, Standard Deviations, and Correlations Between Study Variables

Variables	M	SD	1	2	3	4	5	6	7
1. High-commitment HR system	34.95	16.88	1						
2. HR Capability	3.23	.21	.151***	1					
3. Organizational Commitment	3.39	.35	.227***	.775***	1				
4. Log(sales per person)in 2011	20.08	.81	.179***	.182***	.218***	1			
5. ROA in 2011	2.15	7.77	.125**	.106*	.128**	.175***	1		
6. Firm Size	5.95	1.03	.347***	.215***	.347***	.265***	.195***	1	
7. Firm Age	33.82	16.91	.006	.133**	.212***	.062	-.023	.215***	1

N=302, *p<.1, **p<.05, ***p<.01.

2. Hypothesis Testing

A. Hypotheses 1, 2, and 3

The mediating effect of organizational commitment on firm performance was examined in three stages as suggested by Baron and Kenny (1986). According to them, the general test for mediation aims to examine the relationship between the independent variable and the dependent variable, the relationship between the independent variable and the mediator variable, and the relationship between the independent variable and the dependent variable after controlling the effect of the mediator variable. All of these correlations should be significant. The results of the mediating analysis are presented in Table 3 and Table 4. First, to examine the relationship between the high-commitment HR system (the independent variable) and firm performance (the dependent variable), simultaneous linear regression analysis was conducted. It was found that use of a high-commitment HR system was significantly related to firm performance (sales per person: $\beta = .179$, $p < .01$, ROA: $\beta = .125$, $p < .05$). Even though the effect of the high-commitment HR system on firm performance was relatively weak, it was considered that it could support the hypothesis.

<Table 3> Results of regression analysis: Organizational commitment

Variable		Organizational Commitment(OC)	
Variable		Model 1	
Variable		β	t
Control	Firm Size	.277	4.797***
Control	Firm Age	.156	2.841***
Independent	High-commitment HR system	.226	3.835***
R2 (Revised R2)		.152 (.143)	
F value		17.753***	
Range of VIF		1.06 - 1.17	

N=302, *p<.1, **p<.05, ***p<.01.

Second, using simultaneous linear regression analysis to examine the relationship between the high-commitment HR system (the independent variable) and organizational commitment (the mediator variable), it was found that use of a high-commitment HR system significantly predicted organizational commitment ($\beta=.226, p<.01$). Thus, hypothesis 2 was supported (refer to Table 3).

<Table 4> Results of regression analysis : Firm performance

Variable		Log (sales per person)				ROA			
Variable		Model 2		Model 3		Model 4		Model 5	
Variable		β	t	β	t	β	t	β	t
Control	Firm Size	.227	3.773***	.190	3.057***	1.88	3.022***	.167	2.607**
Control	Firm Age	.016	.282	-.005	-.085	-.064	-1.093	-.075	-1.274
Independent	High-commitment HR system	.179	3.153***	.138	2.397**	.125	2.172**	.098	1.674*
Mediator	OC	-	-	.182	3.094***			.116	1.928*
R ² (RevisedR ²)		.081 (.087)		.072 (.084)		.045 (.036)		.050 (.037)	
F value		8.779***		7.942***		4.716***		3.901***	
Range of VIF		1.06 - 1.17		1.09 - 1.27		1.05 - 1.20		1.08 - 1.29	

N=302, *p<.1, **p<.05, ***p<.01.

Third, after controlling the effect of organizational commitment (the mediator variable), the relationship between use of a high-commitment HR system and firm performance was tested (refer to Table 4). The relationship between high-commitment and sales per person was still found to be significant, but the value of its regression coefficient was reduced from $\beta=.179$ ($p<.01$) in Model 2 to $\beta=.138$ ($p<.05$) in Model 3. The relationship between high-commitment and ROA was also significant, but the value of its regression coefficient was reduced from $\beta=.125$ ($p<.05$) in Model 4 to $\beta=.098$ ($p<.1$) in Model 5. Thus, hypothesis 3, which states that organizational commitment will mediate the relationship between the high-commitment HR system and firm performance, was partially supported.

Furthermore, the direct and indirect effects of a high-commitment HR system on firm performances were examined (Baron and Kenny, 1986; Kim, 2008). As shown in Table 5, the indirect effects of high-commitment counted for 22.96% and 21.10% of its total effect.

<Table 5> Direct and indirect effects of high-commitment HR system on firm performance

Total Effect ($\beta=A+B$)		Direct Effect			Indirect Effect	Mediating Level
Total Effect ($\beta=A+B$)		A (Independent → Dependent)	① (Independent → Mediator)	② (Mediator → Dependent)	$B=① \times ②$	Mediating Level
①	.179***	.138**	.226***	.182***	.041	22.96%
②	.125**	.098*	.226***	.116*	.026	21.10%

* $p<.1$, ** $p<.05$.

※ ① : The value of sales per person.

② : Return of asset (ROA).

To validate the significance of the indirect effects of a high-commitment HR system on firm performance, a Sobel test was conducted (MacKinnon et al., 2007). Use of a high-commitment HR system was found to have significant indirect effects on both sales per person ($z=2.636$, $p<.01$) and ROA ($z=1.799$, $p<.1$) via organizational commitment.

B. Hypothesis 4

Hierarchical multiple regression with mean centering was conducted to test the moderator effect of HR capability on the relationship between high-commitment HR systems and firm performance. As shown in Table 6, the effect of high-commitment HR systems interacting with HR capability was not significant in predicting sales per person (Model 2, $\beta=.023$) and ROA (Model 4, $\beta=.038$). The insignificant coefficient for the interaction term indicates that the impact of a high-commitment HR system on firm performance is stable regardless of the level of HR capability. Therefore, hypothesis 4 was rejected.

<Table 6> Results of Hierarchical multiple regression

Variable		Firm Performance			
Variable		Sales per person		ROA	
Variable		Model 1	Model 2	Model 3	Model 4
Variable		β (t)	β (t)	β (t)	β (t)
Control	Firm Size	.208 (3.393***)	.206 (3.322***)	.176 (2.809***)	.156 (2.467**)
Control	Firm Age	.000 (-.001)	.001 (.010)	-.070 (-1.204)	-.062 (-1.064)
Independent	High-commitment HR system	.156 (2.745***)	.154 (2.711***)	.111 (1.909*)	.104 (1.806*)
Moderator	HR Capability	.153 (2.665****)	.158 (2.727****)	.109 (1.878***)	.113 (1.933*)
Interaction	HR system *HR Capability	-	.023 (.400)	-	.038 (.676)
R ² (RevisedR ²)		.093 (.081)	.094 (.078)	.050 (.037)	.064 (.048)
F value		7.652***	6.108***	3.887***	4.005***
Range of VIF		1.07 - 1.23	1.07 - 1.26	1.06 - 1.23	1.07 - 1.26

N=302, *p<.1, **p<.05, ***p<.01.

※ Regression model adopted mean-centering to avoid multicollinearity.

V. Discussion and Conclusion

Many scholars in HRM have demonstrated that HR practices are a significant source of competitive advantage in that they allow a firm to develop more competent and high-performing employees than its competitors (Barney, 1991). However, although there have been several empirical studies into the relationship between high-commitment HR systems and performance, the process through which HR practices impact on firm performance still remains ambiguous. Moreover, studies trying to identify the “black box” of the relationship between HR practices and firm performance have limitations in identifying the moderating effect of contingency variables. Therefore, this paper attempted to analyze the impact of a high-commitment HR system on performance, with both the presence of organizational commitment as mediator and the presence of HR capability as moderator, in manufacturing firms in Korea. The results of analysis are as follows:

First, a high-commitment HR system has a direct effect on organizational commitment and firm performance. This result remained consistent with studies conducted by Huselid (1995), Delery & Doty (1996), Guthrie (2001), and Wright et al. (2005) which indicated significant effects of high-commitment HR practices on firm performance. It also showed consistencies with studies conducted by Buck et al. (2002) and Huselid (1995) which found a significant relationship between high-commitment HR practices and organizational commitment. The findings suggest that firms should be more concerned with high-commitment HR systems, which could subsequently engender more commitment from employees to the firm as well

as elevate financial performance.

Second, the current data showed that the effects of high-commitment HR systems on firm performance were partially mediated by organizational commitment. The finding is consistent with social exchange theory and fundamental belief that HR practices affect financial performance by improving employees' attitude (Bae and Lawler, 2000; Gelade and Ivey, 2003; Huselid, 1995). In other words, when employees are managed with progressive HR practices, they become more committed to their organization, which consequently results in higher firm performance. Based on the results of testing hypotheses 1, 2, and 3, firms should adopt high-commitment HRM systems to foster a positive attitude in employees in respect of their organization, as well as to promote increased firm performance.

Finally, as a result of analyzing the moderating effect of HR capability, the current data did not provide any statistical evidence that HR capability moderates the relationship between high-commitment HR systems and firm performance. That is, a high-commitment HR system can significantly affect firm performance regardless of the level of expertise of the HR department. The most plausible explanation may be the weak value of the correlation between the variables and HR capability. Another explanation of this insignificant result may be the timing of measures. According to Wright et al. (2003), the data was collected at two time intervals to minimize common method bias. That is, the data for the high-commitment HR system, organizational commitment, and HR capability was collected in 2009; whereas the data for firm performance was collected in 2011. But, the two-year gap between firm performance and the other variables is sufficient in offsetting the moderating effect of HR capability on the relationship between the high-commitment HR system and firm performance. The level of HR capability could be altered bilaterally with time, which consequentially impacts on firm performance. As the present study only measured HR capability at a single point in time, the possible

change in HR capability could not be addressed in this study.

In terms of theoretical significance, this study has the potential to contribute to existing literature on the subject in the following ways: First, by recognizing high-commitment HR practice as an antecedent of organizational commitment and firm performance, this study investigated the causal linkage between them. Social exchange theory suggests that the implementation of discretionary HR practices often communicate the degree to which the organization is concerned about its employees and values their contribution to the organization (Rhoades & Eisenberger, 2002). As a result, employees develop a higher level of affective commitment to the organization, which contributes to an increase in firm performance (Eisenberger et al., 1986). Hence, showing consistency with this suggestion, this study dealt with high-commitment HR systems, organizational commitment, and firm performance as a means to explore knowledge of the social exchange process. As a result, the study provides further empirical evidence, thus validating the social exchange theory.

Second, by using the universalistic perspective and contingency perspective of strategic human resource management theory in a single study (Fernando et al., 2005; Huselid, 1995), the present study provides empirical evidence regarding the need for adopting an integrative perspective in the HRM research field to overcome the limitation of each perspective. In other words, this study shows that the best set of HR practices, namely a high-commitment HR system, not only impacts firm performance, but its effect on firm performance also differs with the influences of other factors.

Thirdly, this research provides a more rigorous design than a cross-sectional design by using multi-source longitudinal data. Much of the previous research using cross-sectional design has limitations in investigating the relationship between HR practice and its performance because of common method variance. However, using different data in time

contributes to minimizing this error-causing variance. Moreover, the longitudinal design used by this study validates the suggestion that HR practices and commitment temporally precede firm performances (Wright et al., 2003).

While this study makes a number of contributions, it also has a number of limitations. Firstly, although it identified components of high-commitment HR systems based on the review of literature, the importance of each component was not considered in measuring high-commitment HR systems. Each HR practice is regarded as more or less important depending on the extent to which it contributes to increasing performance. Therefore, to be considered a more progressive research, the weighted value of each HR practice should be decided to more exactly calculate the high-commitment HR system index.

Second, this study measured employee commitment and HR capability by aggregating the individual level of response, thereby relying on the direct consensus composition model of aggregation (Chan, 1998). This may reduce the validity of the measure in assessing employee commitment and HR capability as a collective, organization-level property (Chen et al., 2004).

Third, even though firm performance was collected over a two-year period after the corporate survey, other variables including predictor, moderator, and mediator variables were collected at the same time. For example, the HR department could continually display its capability until HR practices produced positive performance, but in this study it was only assessed at one point in time. Furthermore, although organizational commitment is one of the proximal outcomes of use of a high-commitment HR system, its improvement may require time as well as firm performance. Therefore, to conduct a more sophisticated longitudinal study, the change of variables subjected to time must be considered.

Lastly, the present study assessed firm performance by using sales per person and ROA. Because firm performance includes a variety of aspects

such as profitability, return on investment, and stock price, a single measure may not assess overall firm performance. Therefore, to scientifically assess firm performance, multiple measures should be used in future research.

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요약

고몰입형 인적자원관리시스템과 기업성과와의 관계에서 조직몰입의 매개효과와 인적자원부서역량의 조절효과

장 상 윤

이 연구의 목적은 첫째, 고몰입형 인적자원관리시스템과 조직몰입, 고몰입형 인적자원관리시스템과 기업성과 간의 직접적 관계를 규명하고, 둘째, 고몰입형 인적자원관리시스템과 기업성과와의 관계에서 조직몰입의 매개효과를 분석하며, 셋째, 고몰입형 인적자원관리시스템과 기업성과와의 관계에서 인적자원역량의 조절효과를 분석하는 데 있었다. 이 연구의 목적을 달성하기 위해 인적자본기업패널(HCCP)과 한국신용평가정보원(KIS)의 자료를 활용하여 회귀분석을 시행하였다.

이 연구의 결과는 다음과 같다. 첫째, 고몰입형 인적자원관리시스템은 조직몰입과 기업성과에 직접적인 정적 영향을 미친다. 둘째, 고몰입형 인적자원관리시스템은 조직몰입을 매개하여 기업성과에 간접적인 영향을 미친다. 셋째, 인적자원역량은 고몰입형 인적자원관리시스템과 기업성과의 관계에 대해 유의한 조절효과를 보이지 않는다.

- **주제어:** 고몰입형 인적자원관리시스템, 조직몰입, 인적자원부서역량, 기업성과, HCCP

