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Comparison of Human Resource Management between the Pharmaceutical and Electrical Industries in Japan

Toshiko Suda*

This research compares human resource management (HRM) in the pharmaceutical and electrical industries in Japan and finds differences between the two industries. In the pharmaceutical industry, both Japanese-owned and foreign-owned firms are moving toward a western type of HRM. In the electrical industry, foreign-owned firms apply a western type of HRM, but Japanese-owned firms continue to use a Japanese type of HRM. The research then analyzed these differences based on institutional entrepreneurship. In the pharmaceutical industry, western-owned large pharmaceutical firms, as the main actors in the global market, act as institutional entrepreneurs. In the electrical industry, whereas western-owned firms introduced a western type of HRM, Japanese-owned firms maintain a Japanese type of HRM; both western- and Japanese-owned firms are the main actors in this global market. These different HRM approaches reflect the competitive power balance in the global market of the two industries.

Field of Research: Human Resource Management

1. Introduction

Human Resource Management (HRM) is one of the most significant characteristics of Japanese management. The main characteristics of Japanese HRM include organization-based, person-based and seniority-based systems. These characteristics complement one another and constitute the strengths of Japanese HRM (Suda, 2004, 2007, 2010, 2015; Hirano, 2006; JILPT, 2004, 2010). However, with the decline of the Japanese economy, Japanese HRM has been changing since the mid-1990s. Concerning employee grade and pay systems, although job-based grade and pay systems were introduced in Japan beginning in the late 1990s, person-based grade and pay systems in Japanese firms remain common for non-managers in particular (ILA, 2010; JPC, 2013). Individual pay levels are almost exclusively determined based on evaluation within the organization. That is, non-use of market-pay is a common practice in Japan. In summary, although the direction of change in Japanese HRM is toward a western type of HRM, Japanese HRM has not completely evolved into the western type. Japanese HRM is currently a combination of the Japanese type and the western type of HRM (JILPT, 2004, 2010; Hirano, 2006; Suda, 2004, 2007, 2010, 2015).

Although investigation of the general trends of Japanese HRM is important, other environments influence HRM in addition to the national context. One of the most important external environments is industrial sectors, because many aspects such as market situation, technology used, regulation and business customs are different between

*Toshiko Suda, Professor, Graduate School of Management, Aoyama Gakuin University, JAPAN. Email: tsuda@gsim.aoyama.ac.jp

Industrial sectors (Datta et al., 2005; Quack & Morgan, 1999). Consequently, the extent of the change in Japanese HRM can differ between industrial sectors. The concrete reasons for and processes of the change can also differ according to the industrial sector. Many studies targeting particular industrial sectors have already been conducted, but most of these studies focus on a single industrial sector. Conversely, this research compares HRM systems between the pharmaceutical and electrical industries. These two industries have many differences, such as strength of regulation and position of Japanese firms in the global market. Accordingly, how a different industrial context and shared national context influence HRM systems can be revealed more precisely. As a result, the research can capture many aspects such as the extent to which, reasons why and how Japanese HRM changes more concretely and precisely. It can be expected that a fuller picture relating changes in Japanese HRM systems can be captured through an industrial comparative study. In other words, internal validity, particularly ecological validity, can be high in an industrial comparative study (Gill & Jonson, 1997).

The theoretical framework of the research is new institutionalism. There are various reasons that this research applies new institutionalism; two of the main reasons are as follows. First, complicated mechanisms underlying changes of social institutions including both stability and change have been well studied in the area of new institutionalism. Therefore, complicated mechanisms inherent in changes of Japanese HRM, which is a main social institution, can be revealed by analysis based on new institutionalism. Second, social legitimacy strongly influences decisions in management functions such as HRM, in which it is difficult to examine direct linkage between selection of policies and organizational performance such as turnover and profit. Therefore, HRM systems tend to be institutionally elaborated (Meyer & Rowan, 1977). How social legitimacy influences organizational decisions is well studied in new institutionalism (Greenwood et al, 2002; Greenwood & Suddaby, 2006; Sherer & Lee 2002). Thus, new institutionalism is particularly suited to HRM research as a theoretical framework. There are various concrete theories in the area of new institutionalism. In terms of changing aspects, this research focused on institutional entrepreneurship proposed by DiMaggio (1988) as one of the main approaches focusing on changing aspects of social institutions. In particular, this research focuses on two areas, field conditions and what types of firms act as institutional entrepreneurs, from among the main questions that studies have examined concerning institutional entrepreneurs.

The main contributions of this research for the study of Japanese HRM are two. First, whereas many studies have been conducted on changes in Japanese HRM, most of these studies are concerned with overall trends of HRM in Japanese firms. Furthermore, although there are studies that target particular industrial sectors, most of these studies focus on a single industrial sector. Therefore, this research can find aspects unrevealed by existing studies with a comparative study between the pharmaceutical and electrical industries, whose industrial characteristics are very different from each other. Second, few studies exist on Japanese HRM based on new institutionalism. Furthermore, because this research focuses on research questions investigated in institutional entrepreneurship, this study might be the first to analyze Japanese HRM based on institutional entrepreneurship. This very new approach can bring new insights to the study of Japanese HRM.

Structure of this paper is as follows. In the second section, literatures regarding Japanese HRM and new institutionalism are reviewed. In the part of new institutionalism, institutional entrepreneurship is focused as the main theoretical framework for analyzing change in this research. The research questions are also mentioned in the second section. In the third section, research design and concrete methods applied to this research are discussed. In

the fourth section, research findings captured through this research are presented. Then, the research findings are analyzed based on institutional entrepreneurship in the fifth section. In the final section, conclusion and implications are stated.

2. Literature Review

2.1 Literature Review for Japanese HRM

This paper reviews the literature on Japanese HRM and new institutionalism. Japanese HRM systems are characterized as organization-based, person-based, and seniority-based (Suda, 2004, 2007, 2010, 2015; Hirano, 2006; JILPT; 2004, 2010). This type of HRM system was developed in the period of high economic growth and established in the 1980s. These three characteristics complement each other, and they contributed to the strength of Japanese economy until the 1980s. However, these characteristics have caused problems since the 1990s. Because the seniority-based system was mostly criticized starting in the 1990s, of the three characteristics, this paper initially describes the seniority-based system. *Seika shugi jinji* (performance-based HRM) was emphasized to overcome problems caused by the seniority-based system (JMA, 2004; JILPT, 2004, 2010). MBO (Management by Objectives) was focused on as a concrete method to realize performance-based HRM. MBO was developed by Drucker (1954) and introduced to Japan in the middle of the 1960s. The introduction rate of MBO schemes was 24% in 1965 and increased to 45% in 1970 according to the surveys by the Japan Productivity Center (JPC). The introduction rate reached 50% in the 1980s according to the surveys of the Sanno Institute of Management (SIM). Since the early 1990s, the introduction rate of the MBO schemes increased to 64.8% in 1991 and reached 82.6% in 1995 (SIM, 1991; SIM, 1995). Furthermore, the purpose of the MBO schemes changed from development purposes toward measurement of individual performance in the 1990s (SIM, 1995). In the 1980s, the highest rate for the primary purpose of the MBO schemes was “motivation by participation” (50.0%) (SIM, 1985), and the highest rate for the primary purpose was replaced with “method of performance measurement” (32.9%) in 1991 (SIM, 1991). Furthermore, the rate of the term being considered a “method of performance measurement” increased to 60.3% in 1995 (SIM, 1995).

Next, we address the second of the three characteristics. Many MBO schemes were introduced under a person-based grade and pay system in the 1990s, causing problems in many cases because performance-based HRM is not compatible with person-based systems (Hirano, 2006; Suda, 2004, 2007, 2010, 2015). The main reasons for the problems are difficulties in choosing objectives that provide the base of performance measurement, because person-based grade and pay systems are not directly linked to job levels but rather are loosely related (Suda, 2004, 2007, 2010, 2015). A solution of this problem is the introduction of a job-based grade and pay system. The introduction rate of job-based grade and pay systems increased. According to a series of surveys by the JPC, the introduction rates of person-based pay systems were 87.0 % in 2000, 70.1% in 2005, and 77.2% in 2013 for non-managers and 82.4% in 2000, 57.5% in 2005, and 69.2% in 2013 for managers. The introduction rates of job-based pay systems were 24.9% in 2000, 40.9% in 2005, and 58.0% in 2013 for non-managers, and 43.9% in 2000, 61.0% in 2005, and 76.3% in 2013 for managers. (The reason that the total percentage of the person-based and job-based pay systems exceeds one hundred percent is that many firms used *heizongata chingin*, which is base-pay comprising more than two forms of types of pay.) As described, person-based systems have been decreasing and job-based systems have been increasing. In the latest survey in 2013 in the JPC survey series, the rate at which

job-based pay systems have been introduced is higher than the rate of introduction of person-based pay systems, particularly for managers; conversely, the rate of person-based pay systems is higher than the rate of job-based system for non-managers. As indicated, although job-based systems have been increasing, person-based systems remain. The current position is a middle position between person-based and job-based systems.

The third point is the organization-based system. The organization-based system is often viewed as based on characteristics of employment and pay determination. In terms of employment, the organization-based system means long-term employment. The employment system situation in Japan is analyzed by international comparison with other advanced countries. Comparing male workers, the average years of service is 13.3 years in Japan, 9.2 years in the UK, 11.9 years in Germany and 11.9 years in France (JILPT 2016). As indicated, the average for years of service in Japan is longer than in the other three countries. Concerning pay determination as an organization-based system, pay levels are determined based only on an internal assessment within the given organization, and market pay for a job is not considered. This type of pay system is widespread in Japan under the organization-based employment system. In fact, market salary surveys are not widespread, and few market pay data are available for many jobs in Japan (ILA, 2015). Market salary surveys are conducted only by foreign-owned consulting and recruiting firms, and the main survey participants are foreign-owned firms.

Summarizing changes in Japanese HRM, although all three characteristics of Japanese HRM have been changing toward a western type of HRM, the Japanese HRM has not completely changed, and Japanese HRM is now in the middle position between the typical Japanese type and the western type (Hirano, 2006; JILPT, 2004, 2010; Suda, 2004, 2007, 2010, 2015). However, these aggregate trends do not necessarily apply to all industrial sectors. Industries can change more than aggregate trends due to particular industrial situations. This research examines the extent to which Japanese HRM changes in the pharmaceutical and electrical industries. This research particularly focuses on two issues: change from person-based grade and pay systems toward job-based grade and pay systems and change from organization-based pay systems toward market-based pay systems. The market-based pay system indicates that individual pay is determined based on internal assessment and market pay for each job. That is, this research investigates the extent to which job-based grade and pay systems and market-based pay systems have spread in the two industries.

2.2 Literature Review for New Institutionalism

Institutional theory is widely studied in social science areas such as economics, sociology and politics. The theoretical background of this research is that new institutionalism developed based on institutional sociology (DiMaggio & Powell, 1991; Greenwood et. al., 2008). There are two types of institutions. One consists of formal institutions such as laws, whereas the other consists of informal institutions that are not formally determined but influence actors' decisions and behaviors, such as customs and values spread in a society (Scott, 1995, 2013; DiMaggio & Powell, 1991). The main research theme in institutional theory is investigation of the processes that formal and informal institutions have spread and established in a particular social unit. This process is called "institutionalization", and the particular social unit in which institutionalization occurs is often referred to as the "organizational field" (Scott, 1995, 2013; Wooten & Hoffman, 2008). This research applied the concept of organizational field to the pharmaceutical and electrical industrial sectors in Japan.

New institutionalism has developed since the late 1970s. Papers such as Meyer and Rowan (1977) and Zucker (1977) are considered seminal papers for new institutionalism (DiMaggio & Powell, 1991) because they brought a new concept to organization analysis by focusing on cognitive limitation. Since then, this type of approach has been evolved, and this approach has been gradually referred to as new institutionalism. New institutionalism has strength for analyzing why organizations often fail to change, although organizations are required to change. In other words, new institutionalism brought new insights to organizational analysis; new institutionalism is now one of the main approaches in organizational theory (Greenwood et al., 2008).

Although new institutionalism is strong for analyzing stabilities, it is weak for analyzing changes. This weakness has been criticized more since the mid-1980s, and there are various discussions about changing mechanism for established social institutions (DiMaggio, 1988; Oliver, 1991, 1997; Greenwood & Hinings, 1996). As a result, new institutionalism now has strength for both aspects (analyzing stabilities and changes), and it can address the complicated mechanisms involved in changes in social institutions. One of the main approaches for analyzing change is institutional entrepreneurship as proposed by DiMaggio (1988). The concept of institutional entrepreneurship is that “new institutions arise when organized actors with sufficient resources (institutional entrepreneurs) see in them an opportunity to realize interests that they value highly" (DiMaggio, 1988: 4). Since DiMaggio’s conceptualization, many studies have been conducted on what conditions are suitable for institutional entrepreneurs. Two of these main conditions are; what types of organizational fields are best suited to institutional entrepreneurs, and what types of firms can act as institutional entrepreneurs.

The first condition examined is what types of organizational fields are best suited to institutional entrepreneurs. The main conditions examined include whether they are emerging or mature fields and whether stable fields or fields in crisis are better suited to institutional entrepreneurs (Greenwood & Hingings, 1996; Hardy & Maguire, 2008). Empirical research found that emerging fields are suited to institutional entrepreneurs because the environments of emerging fields are less likely to be institutionalized than are those of mature fields (Maguiere et al., 2004; Hardy & Maguire, 2008). Empirical research also found that even in mature fields, fields in crisis in which disruptive events such as technological, market and regulatory changes occur often facilitate institutional entrepreneurs (Hoffman, 1999; Hardy & Maguire, 2008). This research targets the pharmaceutical and electrical industries, and both industries are mature industries. Although there are many emerging fields in the electrical industry in the ICT business, the electrical industry as a whole can be considered a mature industry. Accordingly, this research investigates whether disruptive events occurred that led to changes in HRM systems in the two industries and whether there have been major changes in the HRM systems in pharmaceutical and/or electrical industries.

The second condition examined is what types of firms can act as institutional entrepreneurs. The main condition examined is whether the main actors in the current institutional environment are suited to be entrepreneurs (Hardy & Maguire, 2008). Because the main actors are resource rich and have strong and influential positions, as DiMaggio (1988) proposed, these actors can change their institutional environment as institutional entrepreneurs. However, these same actors are hindered by the very fact that they are embedded in their institutional environments. Therefore, such actors might not be able to imagine new practices. Moreover, because these main actors can enjoy a privileged status in their current institutional environments, changes in those environments might be contrary

to their interests, and they might resist change as a result (Hardy & Maguire, 2008; Greenwood & Suddaby, 2006). In contrast, peripheral actors are able to imagine and execute new practices because they are less likely to be embedded in their current institutional environments. Thus, such actors have an opportunity to act as entrepreneurs, but they might not have sufficient power to change their institutional environments (Maguire et al., 2004).

According to empirical studies, both main and peripheral actors can act as entrepreneurs (Hardy & Maguire, 2008). The international experience of main actors is one of the primary reasons that they can act as entrepreneurs. Because they tend to do business internationally, main actors are likely to have overseas experience; as a result, they are likely to be familiar with practices in other organizational fields. Consequently, they can introduce new practices to a given country and generate changes in that country (Greenwood et al., 2002; Greenwood & Suddaby, 2006). Because it is difficult to establish a direct relationship between management functions such as HRM and accounting, and financial performance, it is difficult to explain what systems are appropriate for these indirect management functions. As a result, management functions such as HRM tend to be institutionally elaborated; thus, social legitimacy is critical in these areas (Mewer & Rowan, 1977; DiMaggio & Powell, 1983). Because the main actors tend to have more social legitimacy than peripheral actors, it can be expected that the main actors are more likely to act as institutional entrepreneurs than peripheral actors (Meyer & Rowan, 1977; DiMaggio & Powell, 1983). In fact, Sheree and Lee (2002) found that large prestigious law firms were more likely to initiate change in their HRM systems than small and median law firms. This difference existed because such prestigious firms had social legitimacy and their initiatives were more accepted by society.

2.3 Research Question

This study addresses three main research questions. The first research question is whether two main characteristics of Japanese HRM, person-based grade and pay systems, and organization-based pay systems, have changed in the pharmaceutical and/or electrical industries. The second and third research questions are related to institutional entrepreneurs. The second question is whether disruptive events that lead changes in Japanese HRM occur in areas such as technology, regulation and markets in pharmaceutical and/or electrical industries. The third is what type of firms act as institutional entrepreneurs that lead changes in Japanese HRM in pharmaceutical and/or electrical industries. This study might be the first to analyze Japanese HRM based on institutional entrepreneurs. Therefore, this research should introduce a very new perspective for the study of Japanese HRM. This new perspective is one of the contributions of this study.

3. Research Design

3.1 Comparative Study between Pharmaceutical and Electrical Industries

The main design applied in this research is a comparative study between different industrial sectors. The pharmaceutical and electrical industries were selected as targets of the comparative study. The primary reason for selection of the two industries is that there are many differences between the two industries such as the influence of the regulatory framework and the position of Japanese firms in the global market.

In terms of business areas for the pharmaceutical industry, this research focuses on the

new medical drug business in three business areas: new medical drugs, generic medical drugs and OTC (Over the Counter) drugs. The main reasons for this focus are as follows. Because business models in the three areas are very different, covering all three areas can reduce focal points, and new medical drugs can represent the pharmaceutical business as the largest business among the three areas in terms of sales turnover and profits. Conversely, the electrical industry includes several business areas, including ICT (Information and communication technology), electrical devices, heavy electronics and consumer electronics. This research covers a wide area of the electrical industry. Two main reasons are mentioned here. First, there are various main business areas in the electrical industry, but there are no representative businesses in the electrical industry, unlike in the pharmaceutical industry. Second, the major firms that represent Japanese electrical firms tend to have wide business areas including ICT, electrical devices, heavy electronics and consumer electronics. Although business areas covered by this research are diverse across the pharmaceutical and electrical industries, the criterion applied to the selection of business areas is consistent for the two industries. That is, the main actors representing each industry, which tend to act as institutional entrepreneurs, should be included in this research.

This paper briefly summarizes the situations of the pharmaceutical and electrical industries in Japan. The pharmaceutical industry is described first. In the pharmaceutical industry, European and U.S firms are the main actors; Japanese firms are smaller and weaker. However, Japanese pharmaceuticals were protected by regulatory frameworks in the past. Because there are many barriers to entering overseas markets in the pharmaceutical industry, such as different regulatory frameworks and different types of negotiation for regulatory bodies, foreign-owned pharmaceuticals tend to make relationships with domestic pharmaceuticals by means such as establishing joint ventures and consignment sales. In terms of joint ventures, the western-owned large pharmaceuticals such as Pfizer and Merck have established joint ventures with Japanese pharmaceuticals. However, many changes have occurred. For example, until the mid-1980s, approvals to sell medical drugs were required on a country-by-country basis. However, in 1988, the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH) stipulated that once a medical drug was approved by one country (such as Europe, the US, or Japan), it could be sold in other countries (after adding data to examine ethnic differences). Additionally, the Japanese government has changed policies, for example, placing priority for approval on medical drugs that have already been approved in western countries. These regulatory changes have facilitated investment by the large western-owned pharmaceuticals. Moreover, sales turnover of foreign pharmaceuticals in the Japanese market has increased by three times between 1990 and 2010, and the market share of foreign pharmaceuticals increased from 18.6% in 1991 to 36.7% in 2010 (MHLW, 2013). The increased sales turnover of the major western-owned pharmaceuticals has further facilitated investment in the Japanese market. For example, large western-owned pharmaceuticals changed their sales policies from consignment sales to direct sales. This is because, while amounts of sales are relatively small, consignment sales are more cost efficient than are direct sales, but if sales volumes increase, direct sales become more cost efficient than consignment sales. Many large western-owned pharmaceuticals have reached sales volumes sufficiently large to justify direct sales. This changing situation causes large western-owned pharmaceuticals to increase their investment in the Japanese market. For example, the Japanese subsidiary of Pfizer reached the second-largest sales turnover in the Japanese drug market in 2014 and employs the largest number of MRs (Medical Representatives) among pharmaceuticals operating in Japan (Yano Research Institute, 2012).

The manufacturing sector, including the electrical industry, has been a representative industry in Japan, and it has been a main actor in the global market for a long time. In particular, the electrical and automobile industries have been two of the leading and most influential industries in the manufacturing sector. Because transporting outputs is relatively easy, globalization should be relatively easy in the electrical industry (Ghoshal, 1987). Speed of technological change is high in the electrical industry, and technologies are often outdated quickly. Furthermore, legal protections for new products and new technologies are weak, unlike in the pharmaceutical industry (Mansfield, 1985). Under these conditions, the competitive power balance among the electrical firms tends to be more changeable than it is in other industries. Since the 2000s, electrical firms in newly developed countries have rapidly strengthened their competitive powers; as a result, electrical firms in advanced countries have experienced difficulties. Although the western electrical firms had the same difficulties as the Japanese electrical firms, the western electrical firms have largely succeeded more in restructuring their business portfolios than have the Japanese electrical firms, and they have tended to regain their competitive power (Welch & Byrne, 2003). Conversely, Japanese electrical firms have had difficulty in changing their business portfolios. The largest reason for the difficulty is long-term employment policies, which is a key characteristic of Japanese HRM (Morikawa, 2012).

3.2 Research Methods

The research method used by this research is case studies in Japan because this method is arguably the best method of gaining a holistic picture (Yin 1994; Bryman 1988, 1989). This research sets three criteria for selecting case study firms. The first is that the case study firms should be large firms that are the main actors in the pharmaceutical and electrical industries. HRM systems tend to be institutionally elaborated, and social legitimacy is very important in decisions for HRM systems (Meyer & Rowan, 1977). Therefore, because large firms are more likely to have social legitimacy than small and median enterprises (SMEs), large firms are more suited as change makers in the HRM area (Sherer & Lee, 2002). Because the possibility that SMEs act as institutional entrepreneurs should not be omitted, including SMEs as case study firms is desirable. However, considering the intensive nature of case studies, including SMEs is not a realistic option. Therefore, this study selects large firms as the main actors in the two industries.

The second criterion is that the case study firms must include both Japanese-owned and foreign-owned firms in each industry to compare the differences and similarities of the HRM systems according to the nationalities of the firms. The home country effect is one of the important factors that affect HRM systems in overseas subsidiaries (Ferner, 1994; Taylor, et.al, 1996), and international experience is one of the key reasons that the main actors act as institutional entrepreneurs (Greenwoods, et. al, 2002; Greenwood & Suddaby, 2006). Therefore, firms' nationalities are influential factors for decisions concerning their HRM systems.

The third criterion relates to generalizability (external validity). Case studies tend to have low generalizability due to their extensive nature. This research applies sampling logic proposed by Yin (1994) to establish generalizability theoretically. Yin (1994) argued for "replication logic" in which generalization of research findings is achieved by replication of the results from literal replication cases, which predict similar results, and from theoretical replication cases, which produce constricting results but for predictable reasons. The replication logic developed by Yin is applied to this research to establish generalizability. The criterion applied to the replication logic (including literal and theoretical replications)

involves executing more than two case studies for each Japanese-owned firm and foreign-owned firm in both industries. Furthermore, because the business area for the electrical industry includes wide areas, another criterion is needed for establishing the replication logic. This research selected “time span of business cycle” as the criterion for the replication logic. Thus, this research includes both types of firms as case study firms—one type whose business cycle is a relatively short span, such as ICT businesses, and another type whose business cycle is a relatively long span, such as heavy electronics. Therefore, at least two firms are selected as case study firms for each type of business cycle to establish the replication logic.

The case study firms were selected according to the above three criteria. In the pharmaceutical industry, case studies were conducted for seven firms. Because the case study firms include both foreign-owned and Japanese-owned firms and all seven case study firms are large firms that represent the pharmaceutical industry, the first and second conditions are achieved. Furthermore, because there are more than two case study firms for both foreign-owned and Japanese-owned firms, both literal replication and theoretical replication is achieved by multiple case studies for both foreign-owned and Japanese-owned firms (table 1). Profiles of the case study firms are provided in table 2.

Table 1: Number of case study firms for pharmaceutical industry in this research decided based on replication logic

Firm’s nationality	
Japanese-owned firm	Foreign-owned firm
4 Firms	3 Firms

Table 2: Profiles of the case study firms for the pharmaceutical industry

	Home country	Sales turnover in 2014 (International market)	Sales turnover in 2014 (Japanese market)
A Pharm	U.S.	2nd	2nd
B Pharm	Switzerland	1st	8th
C Pharm	France	4th	10th
D Pharm	Japan	18th	4th
E Pharm	Japan	20th	2nd
F Pharm	Japan	16th	1st
G Pharm	Japan	29th	9th

Source: Cigedim. Strategic Data 2014. *Sekai no Iyakuhin Maker Uriagedaka* Ranking (Rankings of Sales Turnover of Pharmaceutical Firms in the Global Market)**.** Tokyo: Cigedim. Strategic Data.

In the electrical industry, case studies were conducted for eight electrical firms. Because the case study firms include both foreign-owned and Japanese-owned firms and all eight case study firms are large firms, the first and second criteria are achieved. Next, the third criterion as replication logic is examined. Two criteria are set; the first is multiple case studies for both foreign-owned and Japanese-owned firms, and the second is multiple case studies for both types of firms. One type is firms whose business cycles are relatively long spans, and the other type is firms whose business cycles are relatively short spans. Because there are more than two case study firms for both relatively short span of business cycle such as the ICT business and relatively long span of business cycle such as the heavy electronics business,

the replication logic is achieved (table 3). Profiles of the case study firms are presented in table 4.

Table 3: Number of case study firms for electrical industry in this research decided based on replication logic

Firm's nationality		Time span of business [1)]	
Japanese-owned firm	Foreign-owned firm	Relatively short span (ICT)	Relatively long span (heavy electronics)
4 Firms	4 Firms	7 Firms	4 Firms

1) Three case study firms have wide areas of electrical business. They include both types of business cycle span; one type has a relatively short business cycle time span, such ICT, whereas the other type has a relatively long business cycle time span, such as heavy electronics.

Table 4: Profiles of the case study firms for the electrical industry

	Home country	Profiles
A Elec	Japan	The largest electrical firm in Japan; it covers many areas such as heavy electronics, electrical devices and ICT businesses
B Elec	Japan	The 3rd largest electrical firm in Japan; it covers many business areas such as consumer electronics, electrical devices and ICT businesses
C Elec	Japan	The 4th largest electrical firm in Japan; it covers many business areas such as heavy electronics, electrical devices and ITC businesses
D Elec	Japan	The 9th largest electrical firm in Japan; it covers many areas of the ITC business
E Elec	US	The largest firm for personal computers in the global market; it covers many areas of the ITC business
F Elec	US	The 2nd largest firm in the software industry in the global market; it covers many areas of the ITC business
G Elec	Germany	The fourth largest firm in the software industry in the global market
H Elec	Switzerland	The 9th largest firm in Switzerland; it covers many areas of the heavy electronics business

※Firm size is based on sales turnover

4. Research Findings

This study gathered data on various aspects of HRM including recruitment, employee grade and pay systems, performance reviews, and development for case study firms in both the pharmaceutical and electrical industries. However, this paper focuses on grade and pay systems to answer the research questions—whether the two main characteristics of Japanese HRM, person-based grade and pay systems and organization-based pay systems, have changed in the pharmaceutical and/or electrical industries.

4.1 Research Findings in the Pharmaceutical Industry

HRM systems of case study firms

The case studies were conducted for seven large pharmaceutical firms; three were

foreign-owned and four were Japanese-owned. The first question is concerned with whether person-based grade and pay systems have changed. Concerning the employee grade system, six out of the seven firms in the case study used a job-based grade system to evaluate their managers, which was based on job analysis and a point-factor job evaluation. That is, grade systems for managers in the six firms are very similar. These six firms also implemented job-based grade systems for non-managers. To some degree, there were variations among the six firms in the grade systems used for non-managerial employees. One Japanese-owned case study firm (E Pharm) implemented job analyses and a point-factor job evaluation (as they did for managers). The same grade system is shared by managers and non-managers in E Pharm. Conversely, in the other five firms (three are foreign-owned and two are Japanese-owned), loosely defined “jobs” are considered competencies in determining individual grades. Thus, each of these six firms implemented the grade system related to jobs to some degree, although the extent of rigor that went into defining each job differed among these firms. Five firms (A, B, C, D and F Pharms) among the six firms implemented job-family grade structure for non-managers. The number of job families is four in A, B and C pharms, and seven in D pharm. F Pharm is largely divided into two types (type I and type II), and each type is further divided into ten in type I and into twelve in Type II. In summary, for both managerial and non-managerial employees, the grade systems at these six firms were essentially similar, because these firms implemented job-based grade systems rather than person-based grade systems. The six firms had two main objectives in using job-based grades. One objective was to implement performance-based HRM, and the other was the use of market pay. For both purposes, it was necessary to define jobs because the jobs provided the underlying bases to evaluate individual performances and to gather market pay data.

Concerning the pay system, the six firms that utilized a job-based grade system implemented job-based pay based on their grade structures. Therefore, the pay systems in the six firms were essentially identical, although the details of the pay systems differed. These six firms considered market pay for individual pay determination. This research collected information about market pay from the six firms that used job-based grade and pay systems. The main method used in these case study firms is participation in a market salary survey. Additionally, they exchange their pay data with other large pharmaceutical firms. As described, these firms implemented market-based pay systems that consider both internal assessment and market values rather than organization-based pay systems. The primary reason that these firms considered market pay was to cope with increased labor mobility in the pharmaceutical industry. Because labor mobility has increased, market pay for each job family has gradually been established in the pharmaceutical industry, and firms must set pay levels based on market pay. In other words, these firms believed that they had to offer competitive levels of pay for job families with high market pay, but they were not required to be as competitive for job families with low market pay.

In contrast, the seventh (G pharm) utilized a person-based grade and pay system and an organization-based pay system. G pharm recognized well that its grade and pay systems were quite behind those of other large pharmaceuticals. The head of HR in G pharm referred to the company’s HRM system as “one round behind” in the pharmaceutical industry. According to G pharm, the reason the firm continuously used person-based grade and pay systems, and an organization-based pay system was based on their employment policy of long-term employment. Job-based grade and pay systems, and market-based pay systems are compatible with a “hiring and firing employment policy” but are not compatible with long-term employment. The CEO of G pharm believed that long-term employment must support their competitive power. Therefore, he strongly supports maintaining

person-based grade and pay systems and organization-based pay systems that are compatible with long-term employment. That is the main reason why G pharm maintained its HRM system, although it recognized that other main pharmaceutical firms changed their HRM systems toward job-based and market-based systems.

As described, the majority of case study firms changed their HRM systems toward job-based grade and pay systems, and market-based pay systems. These changes have proceeded regardless of the firm's nationality. This situation in the pharmaceutical industry is different from the general trend in Japanese firms.

4.2 Research Findings in the Electrical Industry

HRM systems of case study firms

The case studies were conducted for eight large electrical firms; four were foreign-owned and four were Japanese-owned. The first question is concerned with whether person-based grade and pay systems have changed. Concerning employee grade systems, all four foreign-owned case study firms used a job-based grade system for both their managers and non-managers. The job-grade system in three firms (E, G and H Elecs) out of the four firms was based on job analysis and a point-factor job evaluation. One firm (F Elec) implemented job analysis for each job in the firm, but point-factor evaluation was not implemented in the case study firms (Japanese subsidiary of F Elec). The head office of F Elec in the US sets the global employee grades, and every job in the case study firm (Japanese subsidiary of F Elec) is allocated to corresponding grades in the global grades set by the head office. Therefore, as seen, F Elec also used the job-based system based on job analysis and point-factor job evaluation. That is, all foreign-owned case study firms used the same type of employee grade system regardless of their business areas. The main purpose for implementation of the job-grade system is to execute performance-based HRM and use of market pay, and these purposes are the same as for the case study firms in pharmaceutical industry. Concerning Japanese-owned case study firms, three out of four firms used person-grade systems for their managers and non-managers. One firm (D Elec) used a job-based system for managers and a person-based system for non-managers, and "jobs" in the job-grade system for managers were loosely defined. Therefore, the job-grade system in D Elec is qualitatively different from the job-grade systems in the four foreign-owned case study firms.

Being concerned with the pay system, the four foreign-owned case study firms that utilized a job-based grade system implemented job-based pay systems for their managers and non-managers. Therefore, the pay systems in the four firms were essentially identical, although the details of the pay systems differed. These four considered market pay for individual pay determination. The main method was participation in a market salary survey. These firms implemented market-based pay systems, which consider both internal assessment and market values, rather than organization-based pay systems. The main reason for this choice by the three case study firms (E, F and G Elecs), whose business area is ITC business, was coping with a high rate of labor mobility. Market value is critical for their employee recruitment and retention. Implementation of performance-based HRM is also important for them. Performance-based HRM is also important for the other foreign-owned case study firm (H Elec). However, labor mobility is not so high in the heavy electronics business, which is the business area of H Elec. In fact, according to the head of HR at H Elec, because turnover rate is very low, the priority for recruitment and retention is not so high, and the main goal is to adapt to the global pay policy set by the head office in

Switzerland. Although the main goal was different by business areas in the four case study firms, the same type of the pay system was shared by the foreign-owned case study firms.

The three Japanese-owned case study firms used person-based grade systems for managers but implemented person-based pay systems for non-managers. In the other firm (D Elec), which used a person-based grade system for non-managers and a job-based grade system for managers, the person-based pay system was implemented for non-managers, and the job-based pay system was implemented for managers. However, the job-based pay system is different from the job-based pay systems in the four foreign-owned case study firms, because “jobs” were not rigorously defined at D Elec, unlike at the four foreign-owned firms. No Japanese-owned case study firms used market pay for individual pay determination.

As described, both employee grade and pay systems were very different between the foreign-owned and Japanese-owned case study firms. On the one hand, the foreign-owned case study firms implemented job-based grade and pay systems and market-based pay systems; on the other hand, most Japanese-owned case-study firms implemented person-based grade and pay systems, and none used market-based pay. These situations are very different from those in the Pharmaceutical case study firms.

As described, this research found that the Japanese-owned case study firms continued to use the Japanese-type of grade and pay systems in the electrical industry. At the same time, the research also found that major changes from a Japanese type of HRM toward a western type of HRM have been proceeding in the two Japanese-owned case study firms. Because these case study firms are large firms that represent Japanese industry, their changes can be very influential for other Japanese firms. Thus, the paper presents the significant common content of the changes in the two case study firms. First, a change of business portfolio is mentioned. In the consumer production business, which was the main business area of the two case study firms, cost competition has intensified and the business area has been rapidly commoditized. In these circumstances, both firms have been shifting their business areas from the production business toward the system/solution business. Concerning customers, both firms focus on B-to-B business. Both firms believe that, because a high level of technological skill is required for the system/solution business to business users, these businesses are suited to the two firms. Because they have accumulated a high level of technological skill over time, they can utilize their high level of technological skill to shift their business areas. These changes in their business portfolio require changes in their decision-making systems toward systems suited to transnational corporations (Bartlett & Ghoshal 1992). In other words, localization should be facilitated. Furthermore, changing to become transnational corporations requires changes in their HRM systems.

As a result, each firm introduced a global HRM system that covers the head office and the major subsidiaries on a global scale. Common grade structures for the managerial grades in the global HRM schemes were introduced. Then, the job-based grade and pay systems based on a job analysis and a point-factor job evaluation were planned to introduce for managers in the global HRM schemes at the time of the interviews in this research. Common grade systems in the global HRM schemes were implemented in the two firms in the mid-2000s. However, pay levels for managers in Japan were not linked to the global grade because person-based grade and pay systems were operated in Japan; such grade and pay systems were not compatible with the global grade and pay systems characterized by the job-based systems. In this situation, the two case study firms decided to change the

grade and pay systems for the managers to the job-based system in accordance with the global grade. As a result, managers in Japan and managers in overseas subsidiaries use identical grade and pay systems. In fact, the new job-based grade and pay systems started after approximately six months from the interviews by the authors. Furthermore, the two case study firms planned to introduce market-pay for individual pay determinations in the future; because the job-based grade and pay systems provide the bases for gathering market-pay data for jobs, the two firms consider that they have prepared conditions for introducing market-pay. As described, the two case study firms have been changing from the Japanese type of HRM, characterized as person-based grade and pay systems and organization-based pay systems, toward the western type of HRM, characterized as job-based and market-based.

4.3 Comparison of the Research Findings between Pharmaceutical and Electrical Industries

As described, this research found that the extent of the changes in Japanese HRM between pharmaceutical and electrical industries differs. On the one hand, HRM systems in the pharmaceutical industry are changing toward the western type of HRM, which is characterized as job-based and market-based in both the foreign-owned and Japanese-owned case study firms. On the other hand, HRM systems in the electrical industry are very different between foreign-owned and Japanese-owned case study firms; whereas the western type of HRM was implemented in the foreign-owned case study firms, the Japanese type of HRM was maintained in the Japanese case study firms. This result answers the first research question set in the “2.3 Research Question”, that is, whether two main characteristics of Japanese HRM, person-based grade and pay systems, and organization-based pay systems, have changed in the pharmaceutical and/or electrical industries. This research found that the extent of changes in Japanese HRM differs according to industrial sectors.

5. Analysis Based on Institutional Entrepreneurship

This section analyzes the second and third research questions set in the “2.3 Research Question” based on institutional entrepreneurship. The second research question is whether disruptive events leading the changes in Japanese HRM occur in areas such as technology, regulation and the market in the pharmaceutical and/or electrical industries.

First, the pharmaceutical industry in Japan is examined. With respect to technological changes, the development of new drugs has become more difficult and requires greater amounts of money than in the past. Under these circumstances, Japanese pharmaceuticals have had more difficulty competing against large western pharmaceuticals. In terms of regulatory changes, there are significant changes in the regulations, such as the ICH agreement, and changes in Japanese government policies. These regulatory changes have facilitated investment by large western pharmaceuticals in the Japanese market. As a result, the market changed toward a more competitive situation in Japan. Japanese-owned pharmaceuticals have had more difficulty coping with market competition. As discussed, disruptive events in all three areas, technology, market competition and regulation, have occurred in the pharmaceutical industry in Japan. Therefore, the situation of the pharmaceutical industry in Japan is suited to institutional entrepreneurship. This situation of the pharmaceutical industry supports the results of this research, that is, that HRM systems in pharmaceutical firms including both Japanese-owned and western-owned firms are proceeding toward the western type of HRM.

Second, the electrical industry is examined. When disruptive events occur in technology, regulatory and market changes are examined for the electrical industry in Japan. Many disruptions have occurred since the 1990s. The electrical industry has the following characteristics: (1) global competition tends to be intensified because geographical segmentation is unlikely to occur (Ghoshal, 1987). (2) Few legal protections exist for new products and technologies (Porter, 1980). (3) Early innovators easily lose their competitive power, and late adopters often assume the market position of early innovators because technological changes characterized by “breaking competence” often occur (Tushman & Anderson, 1986). In these situations, the competitive power balance tends to be changeable. Although the influence of regulatory changes is small because few legal protections exist, the influence of technological and market changes can encourage the appearance of institutional entrepreneurs. Accordingly, the electrical industry is also suited to institutional entrepreneurs.

However, this research found that the extent of the change in Japanese-owned electrical firms is smaller than that in Japanese-owned pharmaceutical firms. That is, Japanese-owned pharmaceuticals have changed their HRM systems toward the western type of HRM more than Japanese-owned electrical firms have. The question then arises, why situations are different between pharmaceutical firms and electrical firms, although disruptive events have occurred that are suited to institutional entrepreneurs in both the pharmaceutical and electrical industries. This question can be answered by analysis for the third research question—what types of firms are institutional entrepreneurs.

Existing studies have indicated that the main actors are suited to being institutional entrepreneurs in the HRM area because social legitimacy is important for institutional entrepreneurs in the HRM area; main actors tend to have more social legitimacy than peripheral actors (Sherer & Lee, 2002). With respect to this condition, the western-owned large pharmaceuticals are more likely to be main actors than are Japanese-owned pharmaceuticals in the global market. Thus, the western-owned large pharmaceuticals can act as institutional entrepreneurs at this point. This current research indicates that the HRM systems in the pharmaceutical industry have been evolving toward the western type of HRM. One of the main reasons for these changes is the increased labor mobility in the pharmaceutical industry. Large, western-owned pharmaceutical firms are the main actors that facilitate the increase in labor mobility; thus, they appear to be the main actors that changed the labor market in the Japanese pharmaceutical industry. The Japanese pharmaceutical market has become increasingly attractive to large western pharmaceutical firms, which have increased their investment in the Japanese market by changing their sales policies, for example, from consignment to Japanese-owned pharmaceutical firms to direct sales. Because they were the main actors in the global pharmaceutical market, the large western pharmaceuticals had sufficient power to change. This situation in the Japanese pharmaceutical market is the very situation in which the institutional changes proposed by DiMaggio (1988) occur. Furthermore, because the western-owned pharmaceuticals have direct experience with other types of HRM and labor markets in their home countries, they can introduce their overseas experience to Japanese HRM. They are also likely to act as institutional entrepreneurs in this respect.

Conversely, in the electrical industry, although the foreign-owned case study firms introduced their HRM systems to Japanese subsidiaries, Japanese-owned case study firms have maintained their HRM systems. As a result, two types of HRM systems coexist in the electrical industry. This paper analyzes the reason for the coexistence of the dual types,

because both western-owned firms and Japanese-owned firms have been main actors in the global market for a long time; although western-owned firms introduced their HRM systems, the Japanese-owned firms have maintained their own HRM systems. Furthermore, providing a high level of job security has been institutionalized, and normative pressure has operated on Japanese firms. The normative pressure might be particularly strong for the large Japanese-owned electrical firms because they have been the main actors leading the Japanese industry for a long time. This high level of normative pressure for large Japanese-owned electrical firms can interfere with their changing of their HRM systems. However, this research also found recent changes in the large electrical case study firms toward the western type of HRM. They have at last started to change their HRM according to the changes in their business portfolio. Thus, the large Japanese-owned electrical firms have been changing their HRM systems based on their own needs rather than based on other firms' influence. This situation also supports institutional entrepreneurs as proposed by DiMaggio (1988). Moreover, we should recognize gradual changes in the institutional environment concerning long-term employment and high job security in Japan. These changes might allow the large Japanese-owned electrical firms to change their HRM systems.

6. Conclusion and Implications

As discussed, this research compared HRM systems between the pharmaceutical and electrical industries and found large differences between the two industries. Then, the author analyzed these differences based on institutional entrepreneurship and concluded that positions in the global market differentiated the situations of the two industries. In the pharmaceutical industry, in which the western-owned firms are the main actors and the Japanese-owned firms are relatively small and weak, large western-owned pharmaceuticals have led the changes. At the same time, we should recognize that other factors also facilitate the changes in the pharmaceutical industry. For example, because type of skills is categorized as industry-specific skills rather than firm-specific skills in many job families such as researcher, CRs (Clinical Researchers) and MRs (Medical Representatives), labor mobility tends to be high within the pharmaceutical industry (Suda 2015).

Conversely, in the electrical industry, in which both Japanese-owned and foreign-owned (for the most part western-owned) firms have been the main actors in the global market for a long time, although the foreign-owned case study firms introduced their own HRM systems operated in their home countries, the Japanese-owned case study firms have maintained their HRM systems. As a result, two types of HRM system coexist in the electrical industry. This research also found recent changes in large, Japanese-owned case study firms toward the western type of HRM, primarily due to changes in their business portfolios. That is, the firms changed their HRM systems for internal reasons. The situations in both the pharmaceutical and electrical industries support the institutional entrepreneurs proposed by DiMaggio (1988).

The current research found differences in HRM systems based on industrial sectors. These findings suggest that there are various HRM systems in the same country and that we should be careful with international comparisons because many contexts other than the national context surround firms and HRM systems.

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