Regional Differences in the Wholesale Pharmaceutical Industry: An International Comparative Study among Japan, the US, and Europe

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Regional Differences in the Wholesale Pharmaceutical Industry:  
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Tsutomu NAKAMURA*

Abstract  This research illustrates regional differences in the business development practices of pharmaceutical wholesalers among Japan, the US, and Europe. Specifically, it examines factors that result from regional differences in power relationships among healthcare providers. Market characteristics of each country affect delivery frequency, trade volume per order, and the size and the density of wholesalers’ distribution centers. As it is becoming increasingly difficult for the pharmaceutical industry in the US and Europe to profit from wholesaling, these businesses are diversifying into either pharmacy operations or manufacturing. These structural changes have become an important factor in determining regional differences in wholesalers’ business models and business development. Regional differences in pharmaceutical wholesaling result from wholesalers’ corporate strategies corresponding to each country’s market characteristics. Wholesalers’ expected function differs from country to country. As a result, there are many differences in their relative risk. American and European wholesalers carry less risk in debt collecting than do manufacturers or users (purchasers). In contrast, in Japan, risk is higher among pharmaceutical wholesalers compared to manufacturers and medical institutions or pharmacies.

Key words: pharmaceutical distribution, pharmaceutical wholesaler, Japan, the US, Europe

1. Introduction

Pharmaceutical manufacturers develop their products for the global market. In contrast, pharmaceutical wholesalers must adapt to the local market characteristics of their customers. This is because pharmaceutical market characteristics are affected by each country’s healthcare system, which includes its drug pricing. These market characteristics define the power relationships among healthcare providers in terms of price determination. Pharmaceutical prices in the US are based on the free market, while prices in most European countries and in Japan are based on pharmaceutical pricing policies. European wholesalers are at the mercy of government-imposed margins and/or price cuts. Japanese wholesalers, however, must negotiate prices with both manufacturers and customers. This has an impact on the business model of

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pharmaceutical wholesalers, which are located at the intermediate step of the distribution process.

In Japan, many geographers have focused on the distributors’ function in the adjustment of the flow of both physical goods and information. These geographers have demonstrated ways to exploit information and communication technology (ICT) for both its competitive advantage and the spatial impact it brings (Aoyama, 2001; Arai, 1989; Iida, 1993; Kawabata, 1990, 1995; Tsuchiya, 1998; Nakamura, 2003, 2005; Hashimoto, 2001, 2002, 2003a, 2003b). Hashimoto (2000) examined the process of formation in the vertical collaborative relationship. He related these distribution channels to information systems, and pointed out that progress in ICT will result in a wholesale industry that will decrease in size and whose market will become monopolized by a few leading companies. This will be especially so for Japan’s pharmaceutical distribution system, wherein pharmaceutical wholesalers have reorganized the existing distribution system through ICT, in the face of the National Health Insurance (NHI)’s price revision and the deregulation of their distribution. Kawabata (1990, 1995) and Nakamura (2003) examined the ways in which pharmaceutical wholesalers have adapted to this ICT progress; they analyzed the consequent functional division and locational change among such pharmaceutical establishments as branch offices and distribution centers.

Kawabata (1990, 1995) pointed out that spatial proximity based on face-to-face contact has ceased to be an absolute requirement for sharing information. This is due to progress in the information and communications network, which have led to a decrease in the number of branch offices and distribution centers and the spatial separation of the industry’s operational and distribution functions. Nakamura (2003) illustrated that, for locational change of Japanese pharmaceutical wholesalers caused by improvements in the information network, the separation of trade information flow and goods delivery has shifted the latter function from the core of urban centers to their suburbs. Moreover, the intra-firm separation of the over-the-counter (OTC) drug and prescription drug segment has led to a locational reorganization of branch offices. There are two reasons for this: First, the online ordering system, in the OTC segment where price has been deregulated, has permitted delivery centers and branch offices to become centralized, usually in prefecture centers. Second, the prescription drugs segment requires the advanced communicative functions of product information and quick delivery. In this way, the distribution system has been reconstructed to suit each product.

Spatial formation of pharmaceutical wholesalers varies by region, among Japan, the US, and Europe. These market characteristics are largely shaped by the institutional, social, and cultural aspects of specific regions, which account for regional differences in the development of the wholesale pharmaceutical business. Nonetheless, these regional differences and the factors that influence them are not completely understood from an institutional context. This research illustrates regional differences in the business development of pharmaceutical wholesalers among Japan, the US, and Europe. It also examines the factors that lead to regional differences in power relationships among healthcare providers.
2. Healthcare’s institutional environment and pharmaceutical distribution

When considering a health care system from the point of view of financial resources (Table 1), we might define three types in developed countries. The first type is established within the government’s general budget. A noteworthy example is the UK’s National Health Service (NHS). The second is the social insurance system, adopted by countries such as Germany, France, and Japan. The third is the system provided mainly by private health insurance adopted by the US. In addition, the US healthcare system includes Medicare and Medicaid. On the one hand, Medicare provides health insurance coverage to people who are aged 65 and over, or who meet other special criteria. On the other, Medicaid provides coverage to eligible individuals and families with low incomes and few resources.

As the drug pricing system varies among regions, the competitive position among wholesalers also has differing regional characteristics. In the UK, the NHS presents the list price, which is determined through negotiations between it and the pharmaceutical manufacturers, and sets the wholesale margin at 12.5%. Also, pharmacies are offered an approximate 10% discount, according to their purchase volume. In Germany and France, the government sets the mark-up and offers pharmacies a several percentage discount. In most European countries, the drug pricing scheme is one wherein the official margin is determined according to the drug price, and pharmaceutical wholesalers compete with each other.

In contrast, in the US, drug prices are set based on market principles through negotiations between pharmaceutical manufacturers and private health insurance companies. Since the 1990s, on the contrary, pharmacy benefit managers (PBMs) emerged as drug benefit contractors and price negotiations are becoming increasingly severe for the manufacturers. The US pharmaceutical wholesalers get paid for providing manufacturers with their inventory or customer information on a fee-for-service basis. Also during this period, the US wholesalers’ distribution centers’ gross margins rapidly decreased from 7% to around 4%, but over the past ten years the ratio has remained roughly flat. In 2008, however, the gross margin decreased to

<table>
<thead>
<tr>
<th>Healthcare system</th>
<th>Europe</th>
<th>US</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UK</td>
<td>Germany</td>
<td>France</td>
</tr>
<tr>
<td>Healthcare system</td>
<td>National health service (NHS)</td>
<td>Social insurance</td>
<td>Social insurance</td>
</tr>
<tr>
<td>Drug pricing system</td>
<td>List price of NHS</td>
<td>Free pricing</td>
<td>Reference price system</td>
</tr>
<tr>
<td>Wholesale margin</td>
<td>12.5%</td>
<td>Government-imposed mark-up</td>
<td>Government-imposed mark-up</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Free competition</td>
<td>Free competition</td>
</tr>
</tbody>
</table>

Table 1  Healthcare systems and drug price systems in Europe, the US, and Japan
Figure 1 shows pharmaceutical market size and market share for each region. The size of the North American pharmaceutical market is US$346 billion. In 2011, the US market share reached 40%, but recently, the annual market growth dramatically decreased. Europe is the second largest pharmaceutical market. The total market size of France, Germany and the UK combined accounts for about half the total European market. In the early 1990s, the Japanese market occupied a 30% share of the world market. The current Japanese market share, however, is approximately 11%.

In Japan, the government sets the NHI drug price, but since World War II, prescription drugs have been distributed based on market principles. Within this structure, price negotiations take place among pharmaceutical manufacturers, drug wholesalers and such suppliers as medical institutions and pharmacies under the auspices of the NHI drug price scheme. In the 1990s, after supposed standard prices were reduced and the pricing system was improved to include a new invoice pricing system, medical institutions could no longer depend on drug price margins. Since the late 1990s, the separation of the dispensary and prescription functions placed pharmacies together with existing medical institutions as customers of drug wholesalers. In consideration of the dispersion of their customer base, these changes required that wholesalers control their prices, increase their ability to negotiate prices with customers, and deliver pharmaceuticals more efficiently. All these environmental changes brought about the need to invest in ICT and to expand in scale; accordingly, since the 1990s, Japanese pharmaceutical wholesalers experienced repeated mergers and selective reorganization.

The ratio of wholesalers in the overall pharmaceutical supply industry also varies by region.

Figure 1  Market size (in constant US$B) and market share
Regional Differences in the Wholesale Pharmaceutical Industry

In Europe, it accounts for 50 to 60%, and this relatively small ratio comes from the fact that specialty drugs for hospitals are delivered directly through pre-wholesalers and not through wholesalers. In the 1970s, in the US, wholesalers accounted for 50% of the overall pharmaceutical supply industry. Since then, the ratio has risen to as high as the 80% it is at present. The remaining 20% is accounts for direct delivery from pharmaceutical manufacturers through mail order or through drugstore chains. As for Japan, with the exception of some generics, most pharmaceutical drugs are delivered by wholesalers.

In Europe, more than 90% of sales through wholesalers are delivered directly to pharmacies. Here, there is an apparent differentiation in the distribution channel, as manufacturers deliver pharmaceuticals for pharmacies and hospitals directly through wholesalers. In the US, wholesalers deliver to various customers such as pharmacies, hospitals, and HMOs. Their main customers are pharmacy chains. Wholesalers deliver 25% of their products to pharmacy chain warehouses and 18% to pharmacy chain stores. Deliveries to warehouses and mail order firms are a growing share of wholesalers’ sales. In these deliveries, the product can be delivered in bulk so that delivery is more efficient, although gross margins are reduced. In 2009, for Japanese wholesalers, as the separation of the dispensary and prescription functions steadily progressed, the share of wholesalers’ deliveries to pharmacies accounted for 50% and the remaining 50% went to medical institutions. This constituted a change from the previous five years, where 40% of deliveries went to pharmacies and 60% to medical institutions.
3. The pharmaceutical wholesaler’s business development

3.1 Key differences among pharmaceutical wholesalers’ business operations

This section begins with an overview of the financial data for each region’s wholesalers (Table 2). In each pharmaceutical market, the top three wholesalers own 50% of the total European market share, 96% of the US market share, and 74% of Japanese market share respectively. The consolidated operating expense ratios and operating profit margins are high in Europe and low in the US. Japan occupies an intermediate position between Europe and the US. For each wholesaler, however, the business content segment differs, resulting in varying operating expense ratios and profit margins.

Table 2 shows that, for Japan’s wholesalers on average, the gross profit margin, the wholesalers’ core competence measure, is as high as 6%. But for Celesio, one of Europe’s main pharmaceutical wholesalers, it is as low as 6.3%, and for US wholesalers on average, it is about 4%. The operating expense ratio is also as high as approximately 6% for Japan’s wholesalers, but is as low as 4% for Celesio, and approximately 2% for McKesson. These numbers reflect differences in content and function of the pharmaceutical wholesaling business.

<table>
<thead>
<tr>
<th></th>
<th>Europe</th>
<th>US</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Celesio</td>
<td>Phoenix</td>
<td>McKesson</td>
</tr>
<tr>
<td>Sales ($ mil)</td>
<td>30,702</td>
<td>28,881</td>
<td>122,734</td>
</tr>
<tr>
<td>Gross profit margin</td>
<td>11.9%</td>
<td>9.2%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Operating expense ratio</td>
<td>9.7%</td>
<td>6.8%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Operating profit margin</td>
<td>2.2%</td>
<td>2.5%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Sales ($ mil)</td>
<td>25,092</td>
<td>NA</td>
<td>119,424</td>
</tr>
<tr>
<td>Gross profit margin</td>
<td>6.3%</td>
<td>NA</td>
<td>4.2%</td>
</tr>
<tr>
<td>Operating expense ratio</td>
<td>4.1%</td>
<td>NA</td>
<td>2.4%</td>
</tr>
<tr>
<td>Operating profit margin</td>
<td>2.3%</td>
<td>NA</td>
<td>2.5%</td>
</tr>
<tr>
<td>Sales ($ mil)</td>
<td>4,760</td>
<td>NA</td>
<td>12,373</td>
</tr>
<tr>
<td>Gross profit margin</td>
<td>32.9%</td>
<td>NA</td>
<td>0.0%</td>
</tr>
<tr>
<td>Operating expense ratio</td>
<td>27.8%</td>
<td>NA</td>
<td>0.0%</td>
</tr>
<tr>
<td>Operating profit margin</td>
<td>5.1%</td>
<td>NA</td>
<td>10.6%</td>
</tr>
<tr>
<td>Sales ($ mil)</td>
<td>511</td>
<td>NA</td>
<td>411</td>
</tr>
<tr>
<td>Gross profit margin</td>
<td>NA</td>
<td>NA</td>
<td>45.6%</td>
</tr>
<tr>
<td>Operating expense ratio</td>
<td>NA</td>
<td>NA</td>
<td>34.8%</td>
</tr>
<tr>
<td>Operating profit margin</td>
<td>NA</td>
<td>NA</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

Note1: Exchange rate is 0.62 pounds, 0.75 euros and 82.8 yen to the dollar, respectively.
Note2: The franchise pharmacy McKesson Health Mart is included in the wholesaling segment.
Note3: The franchise pharmacy Cardinal Health, Medicine Shoppe International, is included in the wholesaling segment.
Source: Annual report of each pharmaceutical wholesaler
The differences in wholesaling business functions by region are summarized as follows. European wholesalers distribute pharmaceuticals several times a day through the 20 to 30 medium-sized distribution centers they have established in each county (Figure 3). The US wholesalers perform an efficient, once-a-day pharmaceutical distribution to the approximately 30 large distribution centers they maintain across the country. They deliver in bulk and give large discounts to the distribution centers of drugstore chains. This leads to a reduction in delivery frequency and the density of wholesalers’ distribution centers, but an increase in both trade volume per order and size of distribution center.

Japanese wholesalers distribute pharmaceuticals through their approximately 20 centers to their about 200 branch offices throughout the country (e.g., 17 distribution centers and 238
Japanese wholesalers must deliver pharmaceuticals to 220,000 customers, including pharmacies and medical institutions. Going through multiple branch offices allows wholesalers to maintain a balance between inventory reduction and the shortening of lead time due to the increasing number of generics and shipping points (Nakamura, 2013). Each depot covers a small delivery area with small trade volume per order and a high delivery frequency. This requires that the structure of Japanese wholesalers’ distribution space is multilayered. Japanese and European wholesalers share a similar feature, but the former encompasses factors that increase the operating expense ratio, including inadequate distribution centers, many medical institutions, and a high number of sales staff.

Pharmaceutical wholesalers in Europe, the US and Japan have been diversifying their pharmacy operations or manufacturing businesses because profits from wholesaling are low. This factor has contributed to regional differences in both wholesalers’ business models and their business development strategies. The result has been a process of market consolidation, regional expansion, and vertical integration.

3.2 Horizontal integration

The wholesalers integration process in the US is already complete, while in Europe and Japan it is not. In Europe, the increase in merger and acquisition activity has formed an oligopolistic market. As a result, Celesio, Alliance Boots, and Phoenix account about a half of the European pharmaceutical wholesale market share. The competition among these three wholesalers in the European market is severe. Although Alliance Boots has fought for first place in the UK and France, Celesio maintains its lead there, and ranks second in Germany. Phoenix is the leading pharmaceutical company in Germany, and ranks third in the UK. The European market is increasingly more competitive especially in the UK pre-wholesale market, where major UK pharmaceutical manufacturers distribute their products directly to pharmacies, and in developing countries such as those in Eastern Europe.

On the other hand, due to a reorganization in 2001, America’s top five wholesalers were consolidated into three larger companies. In 2008, they monopolized the market, holding 96% of the industry market share. McKesson, Cardinal Health, and AmerisourceBergen held 35%, 33%, and 28% market share respectively. While these wholesalers continue to tolerate low profits, direct shipping to pharmacy chain distribution centers has increased.

Japan’s wholesalers are consolidated into four large companies: Medipal Holdings (HD); Alfresa HD; Suzuken; and Toho HD. Together, they hold 76% of the Japanese market. Each wholesaler’s products are sold nationwide. Each wholesaler’s survival depends on cutting sales staff and expanding scale against a long-term downturn in profitability.

3.3 Regional expansion

Currently, pharmaceutical wholesaling is predominantly a national business, since a single market for pharmaceuticals is far from being achieved. Nonetheless, regional expansion into
promising growth markets is the strategic cornerstone in each corporation’s realignment process. European wholesalers have focused on emerging economies, which present opportunities for strong, high-margin growth.

Celesio has entered the US, Australia and Brazil as well as East Europe. Phoenix has also entered the Scandinavian countries, the three Baltic States, Russia, and East Europe. Alliance Boots has stepped into Turkey, the Middle East, China, and areas of Africa, including Egypt and Algeria.

Each US wholesaler has expanded its business operations in Canada. Cardinal Health’s manufactured products are sold directly or through third-party distributors in the US, Canada, Europe, South America, and the Asia/Pacific Region. AmerisourceBergen has five business units and more than 13,000 associates in the US, Puerto Rico, Canada, and the United Kingdom.

The top four Japanese wholesalers each created a joint venture with Chinese pharmaceutical companies in order to break into the Chinese market. Service levels differ by region. This is due to regional economic disparities between Japan and China, and also due to the considerable differences in the concept of a health care system and its historical process between these two countries. Attention will focus on whether the function of the Japanese wholesaler can be fulfilled in China.

3.4 Vertical integration

Although it is bound by regulations in different countries, integration between wholesalers and pharmacies is a key trend (Kanavos et al., 2011). The pharmacy operations that resulted from pharmaceutical wholesalers’ business diversifications are outlined as follows: Alliance Boots reported revenue of £7.7 billion (US$12 billion) in the health and beauty sector, and Celesio reported revenue of €3.6 billion (US$4.8 billion) in the patient and consumer solutions division. Their pharmacy business constitutes 33.5% and 15.7% respectively. Phoenix does not disclose the segment information on its pharmacy business, but it is estimated that the it accounts for a large percentage of its total sales.

The UK is one of the largest markets in the European retail pharmacy sector. According to the Office of Fair Trading (OFT) report, Alliance Boots holds the largest share of the UK retail pharmacy market at 18.3% (Office of Fair Trading, 2010). Lloyds Pharmacy, owned by Celesio, holds the second largest market share at 12.9%. Rowlands Pharmacy, owned by Phoenix, is the UK pharmacy sector’s fourth largest chain at 3.8% of market share. The pharmacy chains owned by the top three European wholesalers are ranked strongly and maintain a solid presence in the UK retail pharmacy market.

Celesio, with its 2,281 retail pharmacies, is currently represented in seven countries. Alliance Boots runs more than 3,300 health and beauty retail stores in 11 countries, and the Phoenix group operates around 1,550 of its own pharmacies in 12 countries. In 1997, Celesio acquired Lloyds Chemists. In 2007, it also acquired DocMorris, Germany’s best-known pharmacy brand and Europe’s largest mail-order pharmacy. Alliance Boots has
expanded its pharmacy business. In 2006, for example, former drugstores Boots Group and Alliance UniChem merged in order to more effectively compete with the supermarket chains. In Europe, however, the regulations on pharmacy operations differ by country. Each country-specific barrier still remains. For example, in Germany, ownership of a pharmacy is restricted to registered pharmacists and only self-employed pharmacists are permitted to individually operate a maximum of four outlets.

In the US, large pharmacy chains have increased their share of the pharmacy market and, as a result, American pharmaceutical wholesalers have little market share. US wholesalers have integrated retailing through franchising. McKesson has developed Health Mart, which has one of the industry’s most comprehensive pharmacy franchise programs and consists of a network of 2,800 independently owned pharmacies with annual sales of US$6,920 million. Health Mart stores are distributed in proportion to the population, but have also developed in relatively low population areas where few chain stores are found, including Alabama and Michigan (Figure 4). Cardinal Health also owns the Medicine Shoppe International (MSI) franchise chain. This company has 658 franchises and is the largest franchisor of independent community pharmacies in the US with annual sales of US$1,320 million. Moreover, Cardinal Health serves the Leader program, which is a national network of independent pharmacies that combines the resources and purchasing power necessary to generate chain-like benefits. The Leader network owns the name Leader Pharmacies, and has more than 3,300 independent community pharmacies throughout the US. AmerisourceBergen has a business affiliation with Good Neighbor Pharmacy, which is a retailer’s cooperative network of 4,300 independent pharmacies with annual sales of US$11,300 million.

Because dispensing by doctors has continued in Japan, pharmacy chains have not yet achieved to their full potential growth. Nevertheless, Japan’s wholesalers have been expand-
ing their pharmacy businesses in recent years. In fiscal 2011, Suzuken and Toho HD recorded annual sales of ¥76.7 billion (US$926 million) and ¥75.7 billion (US$914 million) respectively for their dispensing pharmacy business. PharmaCluster, a subsidiary of Toho HD, manages group pharmacies, which operated a total of 393 stores for the 2011 fiscal year. On the other hand, as of January 2013, Pfercos, one of Suzuken’s subsidiaries, operates 182 stores. Each wholesaler’s pharmacy business shows high operating profits of between 5% and 6%. These percentages are higher than those of wholesaling businesses alone and have contributed to the improvement of consolidated operating profits.

Wholesalers’ business divisions other than their wholesaling or pharmacy businesses include business solutions and pharmaceuticals manufacturing. In the 2011 fiscal year, Cele-sio’s manufacturing solutions division generated gross profits of €383 million (US$511 million). The solutions division consists of business logistics solutions, marketing solutions, and the specialty pharmaceuticals business. The same fiscal year, the McKesson technology solutions division generated sales of US$3.3 billion. This division provides a comprehensive portfolio of software, automation, support and services to help healthcare organizations improve quality and patient safety, reduce the cost and variability of care and better manage their resources and revenue stream. This division also includes clinical criteria solution, medical management tools, claims payment solutions, network performance tools, and care management programs. Since 2009, Phoenix has been supporting its pharmacies by continually introducing a specific software solution for category management in the various countries in which it operates. In the 2012 fiscal year, AmerisourceBergen’s business division, which generates revenues of US$1.3 billion, provided commercialization support services including reimbursement support programs, outcomes research, contract field staffing, patient assistance and copay assistance programs, adherence programs, risk mitigation services, and other market access programs to pharmaceutical and biotechnology manufacturers. This division also provides global specialty transportation and logistics to the biopharmaceutical industry.

As a manufacturing business, Alliance Boots manufactures consumer health and beauty products for internal supply and third party brands. It also produces special prescription medicines for individual use. This division’s total revenue is £0.3 billion (US$411 million). Cardinal Health’s medical division also manufactures, sources, and develops its own line of private brand medical and surgical products. This division’s total revenue is US$9.6 billion. In Japan, Suzuken sold ¥66.2 billion (US$799 million) and Alfresa HD sold ¥26.8 billion (US$323 million) in their manufacturing businesses.

For some companies, making a profit from some of these business activities has proven to be difficult, others have been forced to close up operations. Nevertheless, other aspects of this business have become a stable source of income and have generated a synergistic effect.
4. Factors of regional differences in the wholesale pharmaceutical industry

4.1 Regional differences in the function of pharmaceutical wholesalers

Japanese wholesalers perform the following five main functions: a) delivery and inventory management, b) bill collection and credit management, c) collection and the provision of information, d) price determination, e) product promotion to prescribing physicians. Wholesalers in the US and Europe, on the other hand, perform only the first two functions. In terms of the delivery function, US wholesalers deliver pharmaceuticals in bulk, with large discounts, to drugstore chains’ distribution centers. This leads to a reduction in delivery frequency, the density of wholesalers’ distribution centers, but an increase in trade volume per order and an increase in the size of their distribution centers. As a result, each country’s market characteristics affect delivery frequency, trade volume per order, and the size and density of wholesalers’ distribution centers. Because they cannot make a good profit from wholesaling, US and European wholesalers are presently diversifying into such areas as pharmacy operations or manufacturing. This diversification becomes a factor that contributes to regional differences in both the business model and business development of wholesalers. In this way, regional differences in pharmaceutical wholesaling result from wholesalers’ corporate strategies, which place value on each country’s specific market characteristics, especially the drug pricing system and the power relationships among healthcare providers in price determination.

4.2 Regional differences in pharmaceutical wholesalers’ risk

Wholesalers expected function differs from country to country. As a result, there are many differences in wholesalers’ relative risk (Figure 5). American and European wholesalers carry less risk in debt collection than do manufacturers or users (purchasers). As the US and European pharmaceutical supply chains are based on regular delivery and a short receivables turnover period, wholesalers have a low risk of failing to collect a receivable. Medical repre-

![Figure 5 Differences in wholesalers’ relative risk](image)
sentatives (MRs) of manufacturers give drug information to customers. Reimbursement prices in the US are determined through negotiations between pharmaceutical manufacturers and private insurance companies, with wholesaler and pharmacy margins open to free competition based on service level. In the US, the UK, and Germany, prices of new drugs are freely determined by pharmaceutical manufacturers. Many European countries rely on a system wherein wholesaler and pharmacy margins are controlled on an official basis. Support to manufacturers’ MRs is not a major part of wholesalers’ operations. As a result, American and European wholesalers play only a limited role in the wholesaling business and, consequently, in order to increase their profitability, they do not have much choice but to expand regionally or to integrate vertically. These business environments have become incentives for the pursuit of efficiency and added value.

In Japan, by contrast, risk is higher among pharmaceutical wholesalers compared to manufacturers and medical institutions or pharmacies. The functions of Japanese wholesalers include irregular deliveries in emergencies, a long receivables turnover period, complex inventory management, the provision of information, the performance of necessary recalls, price negotiations, and product promotion to prescribing physicians. In the US and Europe, many of these functions are the responsibility of each manufacturer and retailer. Before the change in regulation, pharmaceutical manufacturers had taken most of the risk. The manufacturers believed in wholesalers’ high performance in price negotiation, product promotion, and the provision of information. While the wholesalers had acted as selling agents for the manufacturers, the manufacturers ensured profits to wholesalers by covering deficits. This means that the manufacturers had taken the risk on behalf of the wholesalers and wielded de facto control over the prices actually paid to them by users. Nevertheless, continuing biennial NHI price cuts and an invoice price system in effect since 1992 that squeezed the distribution margin forced manufacturers to shift the risk onto wholesalers. And despite the increased relative risk that the wholesalers take, risk taking is not reflected in their profits.

While health care systems or power relationships among health-care providers are significantly different by country, one thing the existing wholesaling businesses all have in common is a decline in profits. The relative high risk interferes with further efficiency, especially in the Japanese pharmaceutical wholesaling industry. It requires an inefficient supply chain based on decentralized locations of wholesalers’ distribution centers.

5. Conclusions

Japanese, the US, and European pharmaceutical wholesalers have been expanding their businesses to developing countries such as China with little prospect for expanding to developed countries. The market environment, including that of the health care system, varies greatly between the existing major markets and new markets. As a result, it can be said that there are many ways to serve local market needs. The questions that must be addressed, in
this case, are: How does global inter-firm competition and restructuring service the local demand for pharmaceuticals? How does it affect the power relationships among stakeholders in the supply chain? And how did changes in the pharmaceutical supply chain affect access to pharmaceuticals?

In order to achieve fiscal soundness and affordable health care insurance systems in developed countries, further reductions in pharmaceutical supply costs will be required. Pharmaceutical wholesalers will need to make more efforts to maintain a stable and efficient pharmaceutical supply system. At the same time, in order to survive, pharmaceutical wholesalers will need to act as health care service providers and also provide business solutions in addition to their wholesaling function. Pharmaceutical wholesaling is also expected to restructure geographically, reflecting various local needs. The interregional comparative analysis adopted in this article is an effective way to illustrate the global wholesale space that could result from increased inter-firm competition. This is a subject that should be pursued in order to clarify the mechanism of global restructuring of the pharmaceutical supply chain.

Acknowledgment

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References (*in Japanese, ** in Japanese with English abstract)