

A Comparative Analysis on the Competitiveness of the Korean, Chinese and Japanese Fashion Industries: The Generalized Double Diamond Model Approach

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Abstract

This study compares and analyzes the fashion industry of Korea with that of China and Japan, the two countries geographically and culturally adjacent to Korea, by applying the generalized double diamond model to find useful measures to strengthen the global competitiveness of the Korean fashion industry. The fashion industries of Korea, China and Japan were first compared in terms of the four determinants of the double diamond model: thereafter, the double diamond model of Korea, China and Japan were compared. In this, study 31 sub-variables were extracted to measure the eight determinants and secondary data were collected from selected sources between January 2013 and May 2014. The results of comparing the domestic diamond models showed that: China is considerably better than Korea and Japan in terms of demand conditions, firm strategy, organization, and competition conditions while Japan is superior in terms of demand conditions and Korea shows better related and supporting industries conditions. When comparing and analyzing the international diamond models, Japan is superior in terms of factor conditions and China has better demand conditions, while Korea has failed to lead in any of the four determinants. When comparing and analyzing the comprehensive diamond model per country, China show superior demand conditions and firm strategy, organization, and competition conditions, Japan has better factor conditions, and Korea shows superior related and supporting industries conditions.

Key words: China fashion industry, competitiveness of fashion industry, double diamond model, Japan fashion industry, Korean fashion industry

I. Introduction

Ever since the signing of the World Trade Organization's (WTO) Agreement on Textiles and

Clothing and the Uruguay Round, textile and clothing industries of developing nations with competitiveness in price have risen, and

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accordingly, newly industrialized countries (NICs) that depend heavily on exports as well as the U.S. and western European countries with advanced fashion industries have been searching various ways for the survival of their own textiles and clothing industries. In other words, such countries have endeavored to strengthen their global competitiveness in ways such as moving overseas production bases to lower-wage countries, global outsourcing, manufacturing and sales networks, global supply chain management, efforts to create added values, etc. (Son & Rhee, 2005). Many nations that have advanced fashion industries are strengthening their efforts in fostering creative talents to obtain leadership role in the future fashion market, which will be led by creative brands, as well as working towards creating their own cultural identities (Korea Federation of Textile Industries, 2012a, 2012b, 2012c).

In particular, the global market has experienced the financial crisis in East Asia, economic recession of the U.S., soaring oil prices and commodity prices, and companies have speedily turned to globalization to overcome such economic recession. The Korean market is struggling as it tries to overturn the decreasing trend of the economic growth rate and increase rate of annual textile exports since the financial crisis in the late 1990s as well as experiencing excessively volatile foreign exchange rates. On the contrary, China's economic growth rate is still on the rise, despite slower rate of increase recently, and China's average annual growth rate of textile exports is rising exceptionally. China's textile and clothing industry ranks the top in the world in almost all areas, as it has a chain of industry where mass production, low-cost and high-efficiency is possible, and China is working hard to improve

its quality competitiveness (Yoo, 2009). China is the largest export market for Korea's textile industry as well as the largest import partner and investment recipient country. China's share in the overall Korean textile industry is quite high, which is as follows as of 2011: 18.8 percent in exports, 51.7 percent in imports, and 39.0 percent in overseas investment (Park, 2012). In the case of Japan, 15 textile industrial bases in Japan are facing difficulties today due to its bubble economy and low-cost products from China. Japan's production and sales fell 72 percent and 60 percent, respectively. However, the Japanese clothing and textile industry is introducing new products to the global market based on its global textile companies having global management system and product planning system that benefit the taste of advanced companies (Seo, 2007). In particular, the Japanese government, academia and businesses took the lead in creating high-functioning super textile technology, introducing new culture-creating engineering technology that can become the basis of the textile industry, and deploying science technology that seeks harmony between people and the natural environment, thereby creating an advanced textile and clothing industry (T. Kim & Song, 2012).

Accordingly, this study seeks to compare and analyze the Korean fashion industry with that of China and Japan, the two geographically and culturally adjacent countries of Korea, to come up with effective measures to strengthen the global competitiveness of the Korean fashion industry. The generalized double diamond model is hereby applied to compare and analyze the fashion industries in Korea, China and Japan.

II. Theoretical Background

1. Fashion Industry in Korea, China and Japan

The fashion industry of Korea has gone through export-oriented industrialization and seen large companies enter women's ready-made clothing field in the 1970s. Mass production, mass consumption through the popularization of fashion has led Korea to export basic clothing items. The overseas business of the Korean fashion industry can be divided into three periods. That is, export concentration period, market testing period and market pioneering period. During the export concentration period (1965– 1990), fashion exports were centralized on manufacturing. During this period, Korean manufacturers obtained simple manufacturing capabilities as it manufactured and exported clothes, shoes, etc. as original equipment manufacturers (OEMs). During the market testing period (1990 – 2005), the Korean fashion industry focused on pioneering overseas production bases. Korean fashion industry started to lose its production competitiveness due to rising labor costs since the Seoul Summer Olympics in 1988 and as such, it started to establish production bases in low-wage countries, which was led by the garment industry, and this laid the foundation for the Korean fashion industry to further advance into overseas market. Ever since the Korean financial crisis in 1997, there has been an increase in numbers of overseas brands introduced to Korea and this increased competition in the Korean domestic market, which naturally fostered globalization of Korean brands. In most cases, Korean brands entered Asian markets, especially China where it has

similar distribution structure as Korea. The market pioneering period (2005 –) was when indigenous, global brands were born in Korea. Since 2005, imported brands have increased up to 50 percent in Korea and as such, many brands have been created in Korea to be sold overseas from the time of their initial launch. Such brands have been launched not only in China and other Asian countries, but also in Europe and the U.S. in various forms, including retail, wholesale, license and cross-border M&As (Korea Federation of Textile Industries, 2009). However, manufacture of general items that call for low-cost labor mostly take place in low-wage countries, including China, Indonesia, India and Vietnam, and Korea still lags behind advanced nations, such as Italy, Germany and Japan in terms of high value-added and high-end products (B. Kim, 2011).

China first opened its market doors to the world in 1978, for the first time ever since the founding of the People's Republic of China, and the Chinese market went through vast changes by going through a number of milestone periods, including the preparation period, transition period and development period (Bi & Koo, 2013). The Chinese fashion industry initially focused on exports and it has currently grown into one of the mid-sized industries of China (Yue, 2011). In other words, the Chinese fashion industry acted as the backbone of China's manufacturing industry as its share in overall exports were more than 20 percent; however, with development of the heavy chemical industry since the 21st century, the share of the fashion industry in overall exports have fallen from 15.1 percent in 2005 to 13.1 percent as of 2010. The fashion industry still contributes greatly to the Chinese industrial development and it is maintaining itself as one of China's mid-sized

industries (KFTI, 2012b; Y. Moon, Park, & Park, 2009).

Japan's textile industry experienced a prolonged, sluggish domestic market, issues stemming from excessive facilities and declining corporate earnings since the 1973 oil crisis. It was able to record growth through rationalization of management, government support measures, etc.; however, it then experienced rapid deindustrialization as the textile industry, starting with the garment industry, started to move their production bases to low-wage countries, such as China and Southeast Asia. Nevertheless, Japan's synthetic fiber industry is currently leading the global polyester fiber/textile market by investing in differentiation and high value-added textile materials, and it is currently pursuing sophistication and creation of added-value in clothing materials through collaboration between textile companies and clothing companies as they focus on the development and application of cutting edge textile materials, including environmentally-friendly fiber and carbon fiber (KFTI, 2012c).

2. Diamond Theory

Porter (1990) introduced the diamond model as a new approach for the analysis of national competitiveness through a four-year study on ten countries. Porter's diamond model includes a number of important variables that are needed to explain the competitiveness of a country, and such variables include four endogenous variables and two exogenous variables. Endogenous variables include four basic variables, which are 1) factor conditions, 2) demand conditions, 3) firm strategy, structure and rivalry, and 4) related and supporting industries. Exogenous variables include factors that have indirect influence,

which are chance events and the government.

A number of studies (H. Moon, Rugman, & Verbeke, 1998; Rugman & D'Cruz, 1993) point out that Porter's model is very useful in explaining the competitiveness of a country and past developments, but not so effective in explaining the competitiveness of a certain industry and recent economic circumstances. Accordingly, modified versions of the model have been introduced. Rugman and D'Cruz (1993) introduced the double diamond model that links a certain country's domestic diamond to that country's global competitiveness. This diamond model may be effective in explaining the economy of a large-scale country, such as Canada or New Zealand, but not so effective for small-scale countries, such as Korea and Singapore. H. Moon et al. (1995, 1998) introduced the generalized double diamond model (Figure 1) that is more appropriate for a smaller-scale but open economy (country), and multinational activities are integrated under this model as a domestic diamond and international diamond. An international diamond represents a country's competitiveness that is determined by domestic and international parameters (Liu & Hsu, 2009; H. Moon et al., 1998).

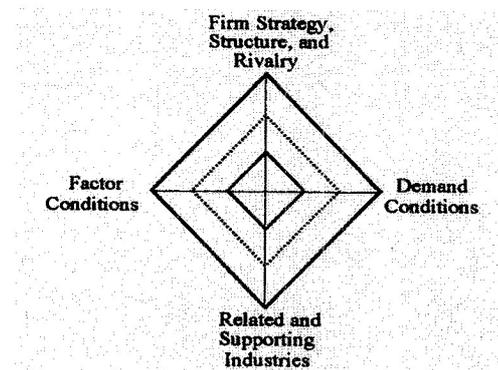


Figure 1. Generalized Diamond Diamond Model

The Double Diamond Model has proven to be more useful for making global comparisons: (1) the model clearly incorporates multinational activities; (2) the model is able to operationalize the competitiveness paradigm and a comparison of the size and shapes of the domestic and international diamonds shows major strategic differences; (3) it includes government as an important variable which influences the four determinants of the Diamond Model. In order to assess global competitiveness, both domestic and international determinants have to be taken into account (Sardy & Fetscherin, 2009).

The double diamond model or the generalized double diamond model is used to analyze the competitiveness of two countries, industries or companies. For example, Birdwell and Kuo (2006) used such model to compare the computer industry in China and Taiwan, H. Moon et al. (1998) and H. Moon and Kim (2010) used it to compare the industrial competitiveness of Singapore and Korea, Liu and Hsu (2009) used it to compare the economic competitiveness of Taiwan and Korea, M. Kim, Kwak, Cho, and Lee (2006) and Son, Kim, and Ji (2007) used it to compare the fashion industry of Korea and China, and Son and Kenji (2013) used it to compare the fashion industry of Korea and Japan. In addition, Wyk (2010) used it to investigate Botswana's national competitiveness in the global diamond industry and Lee (2004) used it to compare and analyze Samsung Electronics and Sony. The study by Yoon and Kim (2013) uses the generalized double diamond model to compare and analyze three companies, Pantos Logistics, DHL, and Nippon Express.

III. Research Method

1. Research Proposition

This study seeks to apply the variables of the double diamond model in order to compare and analyze the competitiveness of the fashion industry in Korea, China and Japan. As such, the research proposition of this study is as follows:

Research Proposition 1: Compare the domestic parameters and international parameters of each fashion industry of Korea, China and Japan regarding the four determinants (factor conditions, demand conditions, related and supporting industries conditions, and firm strategy, structure, and rivalry) of the double diamond model.

Research Proposition 2: Compare the double diamond model (domestic model, international model, comprehensive diamond model) of Korea, China and Japan.

2. Determinants and Proxy Variables, Selection of Data Sources

This study includes the four basic variables of the generalized double diamond model, which are factor conditions, demand conditions, related and supporting industries conditions, and firm strategy, structure, and rivalry, as well as the domestic and international model and the comprehensive diamond model.

This study extracted 31 sub-variables from previous studies (Jin, 2004; Jin & Moon, 2006; M. Kim et al., 2006; Liu & Hsu, 2009; H. Moon & Kim, 2010; H. Moon & Lee, 1999; Shafaei, 2009; Son et al., 2007; Son & Kenji, 2013) to measure the eight determinants of the domestic and international models. Furthermore, data sources were selected based on the above previous studies to measure the 31 sub-variables. Table 1 shows the four factor conditions, sub-variables, proxy variables, data sources, measurements, etc.

Table 1. Four Factor Conditions of Diamond Model and Proxy-Variables, Measurements

Variables	Proxy	Data Source
Factor Conditions		
<i>Domestic</i>		
Basic	Number of workers and laborers in the clothing and textile industry, 2011 (Korea and China), 2010 (Japan)	KOFOTI (http://www.kofoti.or.kr), Statistics of Textile industry 2013
	Increase in rate of production (%), 2011/2010	KOFOTI (http://www.kofoti.or.kr), Statistics of Textile industry 2013; KIET (http://www.kiet.re.kr), Kiet industrial Economic Review 2014
Advanced	Researchers in R&D (per million people), 2010 (Korea), 2009 (Japan and China)	World Bank (http://data.worldbank.org)
	Industrial Technology Competitiveness (BoP, current US \$), 2012	World Bank (http://data.worldbank.org)
	Production technology competitiveness (Value; Country's Score(Rank/148)), 2013–2014: Availability of latest technologies; Firm-level technology absorption; FDI and technology transfer; Production process sophistication	World Economic Forum (http://www.weforum.org/) The Global Competitiveness Report 2013–2014
	Talent (Value; Country's Score (Rank/148)), 2013–2014: Country capacity to retain talent; Country capacity to attract talent; Availability of scientists and engineers; HDI	World Economic Forum (http://www.weforum.org/) The Global Competitiveness Report 2013–2014; KOSIS (http://kosis.kr/nsportal/bulletin/html/NsoBoard.html#)
<i>International</i>		
Basic	Increase in rate of exports (%), 2011/2012	UNCTAD (http://unctadstat.unctad.org)
	Rate of clothing & textiles exports out of total exports (%), 2011	UNCTAD (http://unctadstat.unctad.org)
Advanced	Total amount of outgoing FDI from Korean clothing and textile enterprises (outward FDI)(millions\$), 2012	OECD (http://stats.oecd.org)
	total amount of incoming FDI to Korean clothing and textile industry (inward FDI), (millions\$), 2011	OECD (http://stats.oecd.org)

Table 1. Continued

Variables	Proxy	Data Source
Demand Conditions		
<i>Domestic</i>		
Size	Total population (thousand people), 2013	OECD (http://stats.oecd.org)
	Gross domestic product (GDP) (million\$), 2013	International Monetary Fund (http://www.imf.org)
	Employment rate (100-employment rate) (%), 2013	OECD (http://stats.oecd.org), Harmonised Unemployment Rate
Sophistication	Rate of expenditure on clothing & textiles out of gross income (%), 2013	Statistics Korea (http://kostat.go.kr); Statistics Bureau (http://www.stat.go.jp)
<i>International</i>		
Size	Oversea market share (%), 2010	KOFOTI (http://www.kofoti.or.kr)
Sophistication	Comparative index of GDP of trading partner (GDP of USA=1), 2013	KIET (http://www.kiet.re.kr)
Related and Supporting Industries Conditions		
<i>Domestic</i>		
Infrastructure	The length of railway route (km), 2011	World Bank (http://data.worldbank.org)
	The length of railway route (km per 100km ²), Korea 2009, Japan and China 2010.	World Bank (http://data.worldbank.org)
	Secure internet servers (per 1 million people), 2010	World Bank (http://data.worldbank.org)
	Fixed broadband internet subscribers (per 100 people), 2012	World Bank (http://data.worldbank.org)
Related Industry	Gross output of textiles, 2011	KOFOTI (http://www.kofoti.or.kr), Textile Industry Statistics 2013
	Educational facility related to clothing & textile, 2014	Fashion Net Korea (www.fashionnetkorea.com); china-ef (http://www.china-ef.com); Docomo (www.docomouhak.com)
<i>International</i>		
Infrastructure	Sovereign credit rating, 2012	Standard & Poor's (www.standardandpoors.com)
	Internet users (per 100 people), 2009~2013	World Bank (http://data.worldbank.org)
	Mutual direct investment (million\$), 2012	OECD (http://stats.oecd.org), Korea/Japan/China Industry (Textiles and wearing apparel) FDI outflows
Related Industry	Amount of clothing & textile exports (\$), 2012	UNdata (http://data.un.org/)
	Number of publications related to clothing and textiles among oversea journals, 2008-2013	Journal of Fashion Marketing and Management, International Journal of Clothing Science and Technology

Table 1. Continued

Variables	Proxy	Data Source
Firm strategy, Structure, and Rivalry		
<i>Domestic</i>		
Management Efficiency	Innovative capacity index	IMD (www.imd.org), World Competitiveness Yearbook 2013
	management efficiency index	IMD (www.imd.or), World Competitiveness Yearbook 2013
<i>International</i>		
Rivalry	Market share of major global markets (country/world, %), 2012	WTO (http://www.wto.org/statistics)
Global Business	The number of companies around the world Top 5 based on Industry Sales, 2010	Fortune (fortune.com)

3. Data Collection and Data Analysis

This study collected data dating from January 2013 to May 2014 to measure each of the above sub-variables from such data sources, and the following compare and analysis method was used.

In order to compare the competitiveness of the fashion industry of Korea, China and Japan, this study based the calculation method to that used in various studies (Liu & Hsu, 2009; H. Moon et al., 1998; H. Moon & Kim, 2010; H. Moon & Lee, 1999; Sardy & Fetscherin, 2009), but since the method used in the above literature are for calculations for comparisons of two countries or industries, this study, which aims to compare three countries (Korea, China and Japan), uses the calculation method used in the study Yoon and Kim (2013).

The method used to calculate the eight determinants, which are the four determinants for the domestic and international models, is as follows. First, in order to compare and analyze the 31 sub-variables of the eight determinants, a score of 100 is given to the country that records the highest value in the calculation of

sub-variables, whereas the other countries compared are given points that are calculated based on the above score of 100. Second, in order to calculate the domestic and international values of the four basic determinants, the value of the sub-variables for each basic determinant are added and divided by the number of the sub-variables to obtain the average value of the sub-variables. Third, with regard to drawing the domestic model, international model and the comprehensive diamond model into diagrams, the domestic model of each country were drawn into diagrams and compared based on the domestic value of the four basic determinants, and with regard to the international model, the international model of each country were drawn into diagrams and compared based on the international value of the four basic determinants. In the case of the comprehensive diamond model of each country, the international value and domestic value for the four basic determinants were added and drawn into diagrams and compared.

IV. Research Results

1. Comparison of Four Determinants of the Double Diamond of Korea, China and Japan

1) Comparison of Factor Conditions of the Double Diamond of Korea, China and Japan

Factor conditions refer to production factors that are needed to compete in a given industry and include basic factors that are provided in nature, such as natural resources, climate, population and specialized advanced factors, such as skilled workers, professionals, technology, and know-how (H. Moon & Kim, 2010; Porter, 1990). In particular, specialized advanced factors are essential to obtain a competitive edge in the fashion industry, and such factors can be easily found in advanced fashion industries of the U.S., Italy, France, etc. (Jin & Moon, 2006: 197). International factors can be assessed in accordance with the level of overseas export and investment (M. Kim et al., 2006; Liu & Hsu, 2009; H. Moon & Kim, 2010).

According to the result of comparison and analysis of the factor conditions (Table 2), Japan has a competitive edge in terms of domestic factor conditions, followed by Korea and China. Although China has a relatively larger number of workers in the clothing industry, it lags behind Korea or Japan when it comes to specialized advanced factors, such as R&D and technical skills. In the case of international factor conditions, Japan has the competitive edge, followed by China and Korea. China has the largest amount of exports, but the growth rate of exports or the rate of overseas investment is led by Japan, followed by China and Korea. Such results are partially consistent with that of M.

Kim et al. (2006), and consistent with the study carried out by Son and Kenji (2013).

2) Comparison of Demand Conditions of the Double Diamond of Korea, China and Japan

Demand conditions refer to the nature of the domestic market demand for goods and services of a given industry (Porter, 1990). In other words, this refers to the quantity and quality of the domestic market demand for goods and services created by such industry, and as such, market scale and consumer sophistication were calculated for the domestic value, and overseas market scale and market characteristics of trading partners were calculated for the international value. The domestic market scale is calculated in accordance with the number of population, GDP, and unemployment rate, and consumer characteristics can be calculated with the rate of clothing expenditure out of gross income. In addition, the comparative index of GDPs of trading partners indicate the market characteristics of such trading partners, as the GDP of a nation is significantly related to the development of the clothing market (Jin & Moon, 2006; M. Kim et al., 2006; Son et al., 2007; Son & Kenji, 2013). According to the results of comparing and analyzing the demand conditions (Table 3), China has the competitive edge in terms of the domestic model, followed by Korea and Japan. China records the largest domestic market demand as it has the biggest population in the world, but one can find out that Korea has the highest clothing expenditure out of gross income. In terms of international demand conditions, China is in the lead, followed by Japan and Korea. This can be estimated with international market share and comparative index of GDPs of trading partners.

Table 2. Descriptive Data and Competitiveness Index for Factor Conditions

Variables		Proxy	Korea	China	Japan	
Domestic Value			78.15	71.26	89.22	
Basic	Scale	Number of workers and laborers in the clothing and textile industry, 2011 (Korea and China), 2010(Japan)	298,060	10,180,000	349,697	
		Increase in rate of production (%), 2011/2010	10.2	-13	8	
Advanced	R&D	Researchers in R&D (per million people), 2010 (Korea), 2009 (Japan and China)	5,481	863	5,180	
		Talent(Value: Country's Score (Rank/148)), 2013-2014	Country capacity to retain talent	4.4(25)	4.3(31)	4.3(29)
			Country capacity to attract talent	4.1(31)	4.4(26)	3.3(80)
			Avaliability of scientists and engineers	4.6(33)	4.5(44)	5.5(4)
			HDI	0.909(12)	0.699(101)	0.912(10)
	Technical Power	Industrial Technology Competitiveness (BoP, current US \$), 2012	3,435,500,000	1,044,102,041	31,892,291,572	
		Production technology competitiveness (Value: Country's Score (Rank/148)), 2013-2014	Avaliability of latest technologies	5.9(27)	4.4(105)	6.3(14)
			Firm-level technology absorption	5.7(21)	4.7(71)	6.1(6)
			FDI and technology transfer	4.5(84)	4.5(78)	4.8(55)
			Production process sophistication	5.3(21)	4.0(58)	6.5(1)
International Value			58.95	74.24	100	
Basic	Overseas Sale	Increase in rate of exports (%), 2011/2012	2.2%	3.3%	3.4%	
		Rate of clothing & textiles exports out of total exports (%), 2011	3.00%	2.90%	5.64%	
Advanced	Overseas Investment	Total amount of outgoing FDI from Korean clothing and textile enterprises (outward FDI)(millions\$), 2012	19		127.8	
		Total amount of incoming FDI to Korean clothing and textile industry (inward FDI), (millions\$), 2011	443.8		656.3	

Table 3. Descriptive Data for Demand Conditions

Variables		Proxy	Korea	China	Japan
Domestic Value			54.27	79.75	53.11
Size	Market Scale	Total population (thousand people), 2013	50,220	1,359,303	127,247
		Gross domestic product (GDP)(million\$), 2013	1,197	8,939	5,720
		Employment rate (100- employment rate)(%), 2013	96.90%	95.95%	96%
Sophistication	Consumer Sophistication	Rate of expenditure on clothing & textiles out of gross income (%), 2013	5	1	2
International Value			12.41	100	47.42
Size	Oversea market Scale	Oversea market share (%), 2010	142 (2.0%)	2,725 (17.5%)	849 (5.4%)
Sophistication	Market Sophistication	Comparative index of GDP of trading partner(GDP of USA=1), 2013	0.07	0.34	0.53

The study results are consistent in part with the study results done by M. Kim et al. (2006), but the opposite compared to the study results of Son et al. (2007). This shows that the competitiveness of China’s fashion industry demand today has improved compared to ten years ago and China consumption has moved to expansive and luxurious brand name of the product (Lee, 2014; Lee & Kang, 2014). Such results are consistent in part with the study results of Son and Kenji (2013), under which they compared the fashion industry of Japan and Korea.

3) Comparison of Related and Supporting Industries Conditions of the Double Diamond of Korea, China and Japan

Related and supporting industries conditions refer to the presence or absence of competitiveness of an industry or otherwise any related industry that provides intermediary goods to a given industry (Porter, 1990). In particular, such conditions can be measured with

infrastructure, including communications and transportation/logistics (H. Moon & Kim 2010) or related industry developments, college competitiveness, sovereign credit ratings, national research performance (M. Kim et al., 2006; Son et al., 2007; Son & Kenji, 2013).

According to the results of comparing and analyzing the related and supporting industries conditions (Table 4), Korea has the competitive edge in terms of the domestic model, followed by China and Japan, as Korea has an outstanding communications-related IT infrastructure. In the case of the international model, Japan was found to have the competitive edge, followed by China and Korea. In terms of sovereign credit rating, Korea is found to have the highest rating, whereas Japan has the highest amount of outbound and inbound foreign direct investment and China has a significantly high amount of textile and clothing exports. These results are consistent in part with the results of previous studies (M. Kim et al., 2006; Son et al., 2007; Son & Kenji, 2013).

4) Comparison of Firm Strategy, Structure and Rivalry Conditions of the Double Diamond of Korea, China and Japan

Comparison and analysis of firm strategy, structure and rivalry conditions refer to factors that govern the creation, incorporation and competition of a company (Porter, 1990). As it was difficult to obtain objective data on the strategy, structure and competition conditions of fashion companies per country the comparison and analysis of these conditions were not limited to fashion companies, but rather compared and analyzed such conditions of all companies of each country. Management efficiency under the

domestic conditions was calculated with the innovativeness and efficiency of companies of each country, and the international conditions were calculated with the overseas market share and global competitiveness of companies of each country.

According to the result of comparing and analyzing firm strategy, structure and rivalry conditions (Table 5), China is found to have the competitive edge in terms of domestic conditions, followed by Korea. China is found to lead in terms of corporate innovativeness, whereas Japan has an edge in management efficiency. In the case of international conditions, China is in the lead, followed by Japan and Korea. Korea is

Table 4. Descriptive Data for Related and Supporting Industry Conditions

Variables		Proxy	Korea	China	Japan
Domestic Value			68.33	57.73	53.1
Infrastructure	Transportation	The length of railway route(km), 2011	14,202	66,239	20,035
		The length of railway route(km per 100km ²), Korea 2009, Japan and China 2010	105	42	89
	Communication	Secure internet servers (per 1 million people), 2010	2,752	3	750
		Fixed broadband internet subscribers (per 100 people), 2012	37.56	12.97	27.92
Related Industry	Related Industry	Gross output of textiles, 2011	47,129	52,865	62,831
		Educational facility related to clothing & textile, 2014	105	264	49
International Value			55.66	55.9	60.03
Infrastructure	Sovereign credit rating	Sovereign credit rating, 2012	A+	AA-	AA-
	Communication	Internet users (per 100 people), 2009~2013	84.1	42.3	79.1
	relation of cooperation	Mutual direct investment(million\$), 2012	184,473	187,000	929,673
Related Industry	Related Industry	Amount of clothing & textile exports (\$), 2012	673,770,096	24,015,853,335	255,531,006
		Number of publications related to clothing and textiles among oversea journals, 2008-2013	20	10	9

assumed to be the last in terms of international conditions as the scale of its economy is much smaller than that of China or Japan.

These results are consistent in part with the results of the study by M. Kim et al. (2006), but compared to the results of the study by Son and Kenji (2013), it can be found that China's competitiveness in the domestic market has dramatically risen.

2. Comparison of Domestic and International Diamonds, and Comprehensive Diamond Models of Korea, China and Japan

The comparison of domestic diamonds of Korea, China and Japan is as shown in Figure 2. As examined above, China has a competitive edge over Korea and Japan in terms of demand conditions, firm strategy, structure, and rival conditions; Japan has a competitive edge in terms of demand conditions; and Korea has a competitive edge in terms of related industry conditions. The results of this study differ greatly from the results of the studies by M. Kim et al. (2006) and Son et al. (2007). That is, in

such previous studies, China was far behind Korea in terms of demand conditions and firm strategy, structure and rivalry conditions, but China is currently in the lead. This is believed to have been possible due to significant developments made to China's economy and textile/fashion industry during the last decade. However, this study result is mostly consistent with the results of the study by Son and Kenji (2013), which compared the fashion industry of Japan and Korea.

Figure 3 shows the results of comparing the international diamonds of Korea, China and Japan. Japan leads in terms of factor conditions and China leads in terms of demand conditions. However, Korea fails to take the lead in any of the four determinants. This study result is similar to that of the studies by M. Kim et al. (2006) and Son et al. (2007), except in terms of related industry conditions. In other words, this means that China has an edge over Korea in terms of international conditions today just as it did ten years ago, with the exception of the related industry conditions. Moreover, this study result is similar to that of the study done by Son

Table 5. Descriptive Data for Firm Strategy, Structure, and Rivalry Conditions

Variables		Proxy	Korea	China	Japan
Domestic Value			68.43	93.75	64
Management Efficiency	innovativeness	Innovative capacity index	19	50	14
	Efficiency	management efficiency index	22	21	24
International Value			22.92	71.94	71.43
Rivalry	Market Competition	Market share of major global markets (country/world, %), 2012	1,101,356 (6%)	3,867,119 (21%)	1,684,411 (9%)
Global Business	Global Challenge	The number of companies around the world Top 5 based on Industry Sales, 2010	48	122	278

and Kenji (2013).

Figure 4 shows the results of comparing the comprehensive diamond models of Korea, China and Japan. China can be seen to have a competitive edge in terms of demand conditions, firm strategy, structure and rivalry conditions; Japan is found to have a competitive edge in terms of factor conditions; and Korea to have a competitive edge in related industry conditions. This study result shows a similar form compared to that of the study by M. Kim et al. (2006). In other words, such comparison with previous study shows that China and Japan are still in the lead in terms of demand conditions and factor conditions, respectively. In addition, this study result is consistent with that of the study done by Son and Kenji (2013), where they compared the fashion industry of Japan and Korea.

V. Conclusion

This study applied the generalized double diamond model to compare and analyze the Korean fashion industry with that of China and Japan, the two geographically and culturally adjacent countries of Korea, to come up with effective measures to strengthen the global competitiveness of the Korean fashion industry. In order to do so, 31 sub-variables have been extracted to measure the eight determinants of the domestic and international models of the generalized double diamond model, and secondary data were selected to measure the 31 sub-variables and accordingly, such data was collected from selected sources dated January 2013 to May 2014. In general, the generalized double diamond model is mostly used in comparing two countries or industries. Since this study compares three countries, that is Korea, China and Japan, it used the calculation method used in the study by Yoon and Kim (2013).

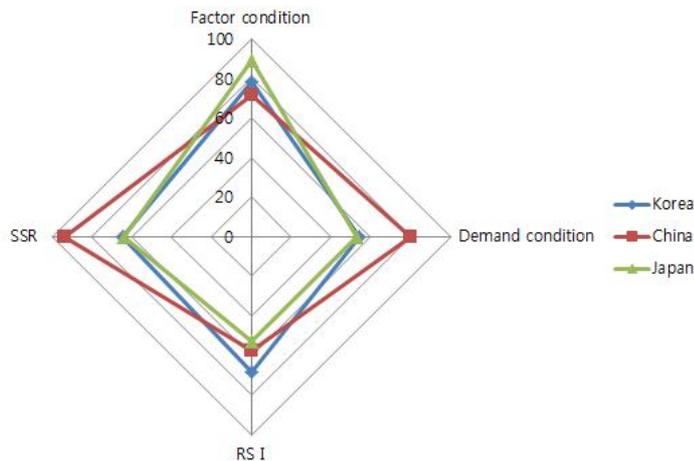


Figure 2 . Domestic Diamond of the Korean Fashion Industry and Japanese Fashion Industry

First, the Comparison results of four determinants of the double diamond model of Korea, China and Japan are as follows: First, according to the results of comparison and analysis of factor conditions, Japan is in the lead in terms of domestic conditions, followed by Korea and China. This is because, despite

China having a relatively large number of workers in the clothing industry, it still lags behind Korea or Japan in terms of advanced factors, such as R&D and technical skills. In terms of international conditions, Japan is in the lead, followed by China and Korea, because Japan has a relatively higher growth rate in

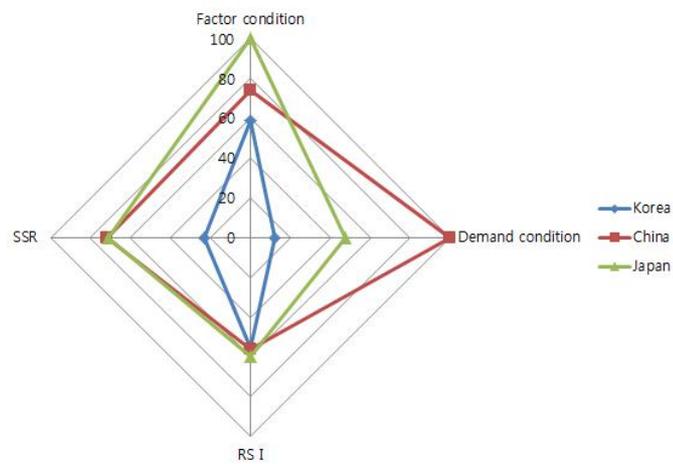


Figure 3. International Diamond of the Korean Fashion Industry and Japanese Fashion Industry

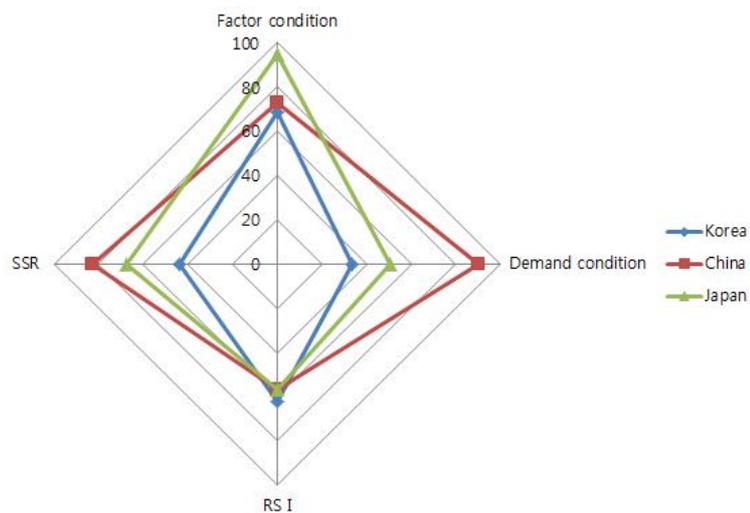


Figure 4. Global Diamond of Korea Fashion Industry and Japan Fashion Industry

exports and overseas investment, despite China recording the highest amount in exports. Second, according to the results of comparison and analysis of the demand conditions, China has the competitive edge in terms of domestic conditions, followed by Korea and Japan. This is because China has the largest scale of economy, or the largest population, and Korea records the highest clothing expenditure out of gross income. In terms of international conditions, China is in the lead, followed by Japan and Korea, which is based on the overseas market share and comparative index of GDPs of trading partners. Third, the results of comparison and analysis of related and supporting industry conditions, Korea is in the lead in terms of domestic conditions, followed by China and Japan. This is because Korea has an outstanding communications-related IT infrastructure. In terms of international conditions, Japan leads the group, followed by China and Korea, as Japan records the highest amount in outbound and inbound foreign direct investment and China records the highest amount in textile/clothing exports. Fourth, according to the results of comparison and analysis of firm strategy, structure and rivalry conditions, China is in the lead, followed by Korea and Japan in terms of domestic conditions, and China is also in the lead in terms of international conditions, followed by Japan and Korea. Korea is believed to be the last in terms of international conditions as its scale of economy is much smaller than that of China and Japan. Such results also show that the competitiveness of Chinese companies in the domestic market has improved greatly during the last decade.

Second, the comparison results of Domestic and International Models, and Comprehensive

Diamond Models of Korea, China and Japan are as follows: First, according to the results of the comparison and analysis of the domestic diamond models of the three countries, China is found to have a competitive edge over Korea and Japan in terms of demand conditions, firm strategy, structure, rivalry conditions; Japan is found to have a competitive edge in terms of demand conditions; and Korea is found to have a competitive edge in terms of related and supporting industry conditions. China used to lag far behind Korea in terms of demand conditions, firm strategy, structure, and rivalry conditions ten years back, but China currently has the highest competitive advantage in terms of such conditions. Second, according to the results of the comparison and analysis of the international diamond models of the three countries, Japan is in the lead in terms of factor conditions, China is in the lead in terms of demand conditions, but Korea fails to lead in any of the four determinants. Such result shows that China has a competitive edge over Korea in terms of international competitiveness of the fashion industry, with the exception of related industry conditions, just as it did ten years ago. Third, according to the results of comparison and analysis of the comprehensive diamond model of the three countries, China is found to have a competitive edge in terms of demand conditions and firm strategy, structure and rivalry conditions; Japan is found to have a competitive edge in terms of factor conditions; and Korea is found to have a competitive edge in terms of related industry conditions. These results show that China has a comprehensive global competitiveness in terms of factor conditions and demand conditions, just as it did ten years ago.

Third, this author would like to make the following suggestions regarding the

competitiveness of the Korean fashion industry in accordance with the results of this study. First, regarding factor conditions, the industry, academia and the government must continue to endeavor for the betterment of specialized advanced factors, including stronger competence of and education for fashion experts and increase of R&D fees for fashion goods and brands. Companies and the government must also endeavor to create an environment to attract foreign direct investments from Japanese or Chinese fashion companies. Second, regarding demand conditions, continuous efforts are needed to pursue for added value of products or brands in order to improve overseas market share and preference for domestic brands in overseas markets. In particular, Korea must come up with value-added product or brand strategies that target large-scale Asian markets, including the markets of China, Indonesia and India, where fashion demands change constantly due rapid economic growth. Third, Korea must come up with relevant measures to make use of the Chinese and Japanese fashion industries, since China is still known to be effective to serve as the global production base and since Japan is known for its competitive edge in the global textile industry. Korea's efforts in coming up with such measures should go hand in hand with such industries in China and Japan. Fourth, the strategy of the Korean fashion industry that used to focus on production and exports since the 1970s must change to strategies that focus on branding, global production and sales networks. Such efforts have been carried out by individual companies, but the industry must work together with the government to establish a global network or build a collaborative relationship with developing countries with a focus on brands and

distribution, just as global fashion brands in advanced nations.

Fourth, although this study has applied the generalized double diamond model, which is widely recognized as an effective model to analyze the competitiveness of countries or industries, the following research limitations have been found. First, this author would like to state that the generalized double diamond model, which is mainly used for comparing and analyzing the competitiveness of two countries or industries, have been applied to this study to compare three countries of different scale, based on a previous study conducted by Yoon and Y. Kim (2013). Second, since it was impossible to obtain credible indexes related to fashion companies to measure the sub-variables of the firm strategy, structure, and rivalry conditions when collecting relevant data, this study utilized the corporate index of each country under the Global Competiveness Index of International Institute for Management Development (IMD) and thereby the relevant index may show the average value of the corporate index but would be rather limited in representing the value of fashion companies. Therefore, utilizing credible index of fashion companies based on surveys thereto is believed to result in a more precise comparison and analysis of fashion companies in future studies.

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