A Comparative Analysis on the Competitiveness of Korean and Japanese Fashion Industry by Applying Generalized Double Diamond Model

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Introduction

Global Competition

Changes in consumption patterns, diverse market opportunities, globalization of production and *sales*, intensifying global competition, complex trade mechanism such as WTO, and FTAs
  → Continuous innovation and change are being encouraged.

The rise of developing countries that has been occurring since the introduction of *WTO's* Agreement on Textiles and Clothing
  → The leading fashion Countries such as the U.S., E.U. member countries, and Japan, as well as NICs are seeking various ways to foster their own fashion industry.

Since the domestic fashion market is saturated with global and domestic fashion brands, it is crucial for Korea's fashion industry to participate in the global fashion market.
  → *Korean fashion industry moved production bases overseas;* turned to global sourcing (outward processing), global manufacturing and sales networks (global SCM) and global pipelines.

The Purpose
of Study

The purpose of this paper is:

- to seek ways to improve the competitiveness of Korea's fashion industry by utilizing the source of competitiveness of the Japan's fashion industry.

- *This will be accomplished by:*

  - First, *comparing* the competitiveness of the Japanese and Korean fashion industries by utilizing the generalized double diamond model;

  - Second, *providing* an understanding of what the Japanese fashion industry can offer to Korean fashion industry and companies - that is, understand the Japanese fashion industry's competitive edge;

  - Third, *studying* the kind of global competitiveness that Korea's fashion industry must achieve.

Theoretical Background and Research Proposition

Korean Fashion Industry and Japanese Fashion Industry

The Historical Perspective of the Fashion Industry

According to many mainstream economists' views (the Flying Geese model, Akamatsu 1962; the neo-classical view, the World Bank 1993),

"the modern fashion industry is suited to early economies and plays a key role in the initial industrialization process, because it is labor intensive but requires a low level of technology "(Kelegama 2009: 580).

- In the eighteenth century, during the industrial revolution in England.
- In the beginning of the nineteenth century, the rest of Europe and North America
- in the twentieth century, East Asian countries such as Japan and the Big Three (Korea, Hong Kong, and Taiwan) (Leseure, Hurreeram, & Bennett 2009: 618).

Many East Asian countries followed in Japan's footsteps to become some of the major suppliers in today's international textile and apparel markets.

- Now, the Japanese textile industry: capital- intensive synthetic fiber;
- Korea has also tried to move into capital-intensive, high tech, and value-added industries(Dickerson 1999: 51-53).

Korean Fashion Industry and Japanese Fashion Industry

The Historical Perspective of the Fashion Industry

In the twentieth century, the development and expansion of IT and globalization
➔ led to the globalization of the long commodity chain,
- a number of economic agents which are spread all over the world.
- collaborative relationships between advanced countries and developing countries have been developed based on a vertical hierarchy (Hassler 2003: 515-517).

Korean Fashion Industry and Japanese Fashion Industry

Similarities Between Two Countries

Many scholars (Lee (a) 2003: 359-361; Lee (b) 2003: 433-435) have pointed out that the Korean fashion industry has some similarity *to* the Japanese fashion industry.

- similarity in terms of political, economic, societal and cultural background
- much in common in terms of consumers' fashion awareness, their purchase behaviors, and business practices of fashion companies, due to two countries' similarity in their acceptance process of western-style dress and geographic proximity
- similar fashion industry development process
- similarity in terms of their fashion structure

Korean Fashion Industry and Japanese Fashion Industry

Differences Between Two Countries

Korea and Japan have chosen different strategies:

- JFI was based on domestic consumption (like the USA) while KFI was export-driven.
- KFI has been strong in the technical aspects of dyeing and processing, and consumer's sensitivity aspects,
  while JFI far *exceeded* Korea in technical and design capability (Lee(b) 2003: 433-434).
- JFI has exercised great influence on the global market as a supplier of high-tech textiles, although it is highly dependent on apparel imports(Samsung design net 2011).
- There is a time gap between the two countries.
  - When the KFI was established, it was 15 years behind JFI.
  - However, as time goes on, the time gap between the two countries' fashion industries has narrowed (Lee (a) 2003: 359).

Double Diamond Theory

Porter's Diamond Model (PDM)

Porter (1990) introduced the diamond model as a new approach to the analysis of national competitiveness on the basis of a 4-year study of 10 countries.

PDM systematically incorporates many important variables into a single model.

- endogenous variables: four determinants which act as valuable terms of reference when evaluating national competitiveness
- exogenous variables: government and chance events

- factor conditions: human, capital and physical resources (basic conditions), the physical and knowledge infrastructure of a country (advanced factor conditions).
- demand conditions: structures of demand in the home market, the size and growth of home demand, the processes through which domestic demand is internationalized.
- related and supporting industries: promoting competitiveness through coordination and sharing activities in the value chain.
- firms' strategy, structure, and rivalry: the ways in which they are managed and choose to compete.

Double Diamond Theory

Porter's Diamond Model
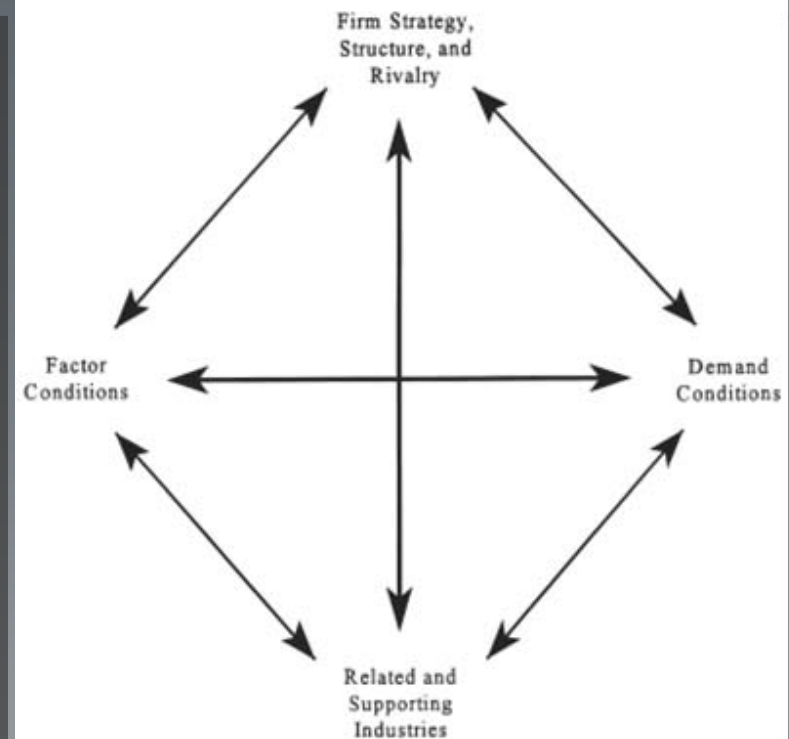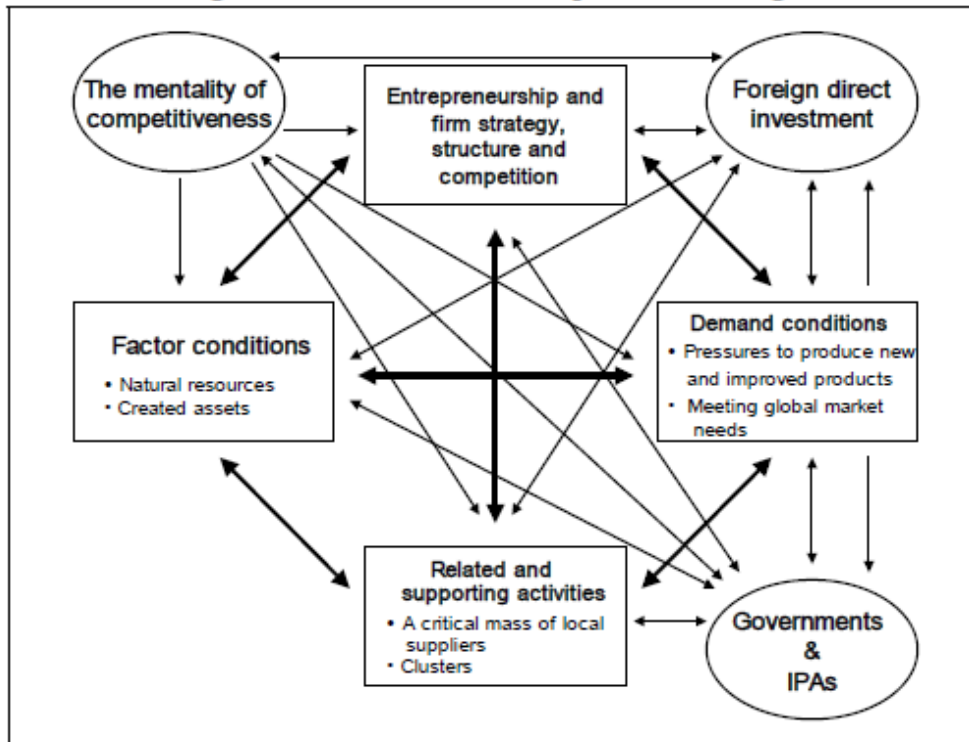

Figure 1. The Diamond of Competitive Advantage

Fig. 1. The home-based single diamond.

Double
Diamond Theory

Porter's Diamond Model

PDM had contributed to the revolutionary development of an explanation on national competitiveness and many studies have *been* conducted by applying the model

But many studies have pointed out the limitations of his model.
- exclusive focus on the construct of a "home base" which is mainly fixed on a large home-base country
    - Not sufficient explanation for the activities of multinational corporations.
    - Not fit in well with small open economies, which depend to a large extent on foreign markets and foreign policy

- In 20th century, global multinational enterprises have had an important role as an integrating force in the global economy.
    - a modification of PDM was proposed and is referred to as the double diamond model (DDM) (Moon and Kim 2010: 77; Moon, Rugman and Verbeke 1998: 148; Rugman and D'Cruz 1993: 24-26; Sardy & Fetscherin 2009: 7).

Double
Diamond Theory

Generalized Double Diamond Model

Rugman and D'Cruz(1993) introduced **the double diamond model**
- linking the domestic diamond of each country to that of a relevant 'triad', thus incorporating the international context of national competitiveness.
- fits Canada and New Zealand well, but it may not fit small nations such as Korea and Singapore.

Moon et al (1995;1998) **generalized the double diamond model** (GDDM)
- to fit all small open economies by formally integrating the multinational activities demonstrated as the difference between the domestic diamond and the international diamond.
- Firms from small countries or operations of MNEs, which are engaged in both domestic and global competition for resources and markets, are likely to be concerned more with global than domestic industrial structure.
    (Liu and Hsu 2009: 162; Moon, Rugman and Verbeke 1998: 148).

Double Diamond Theory
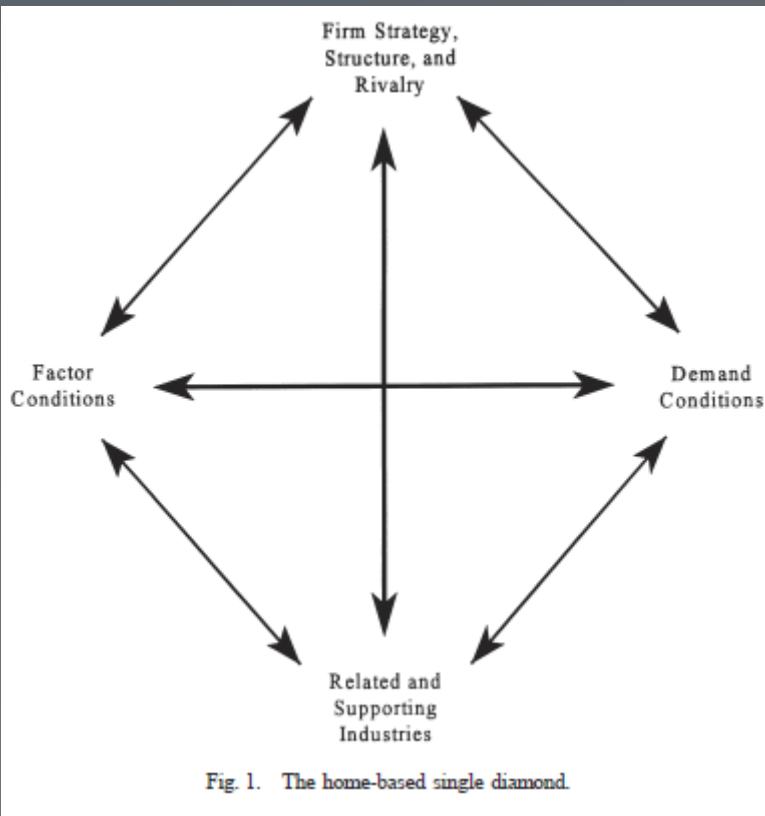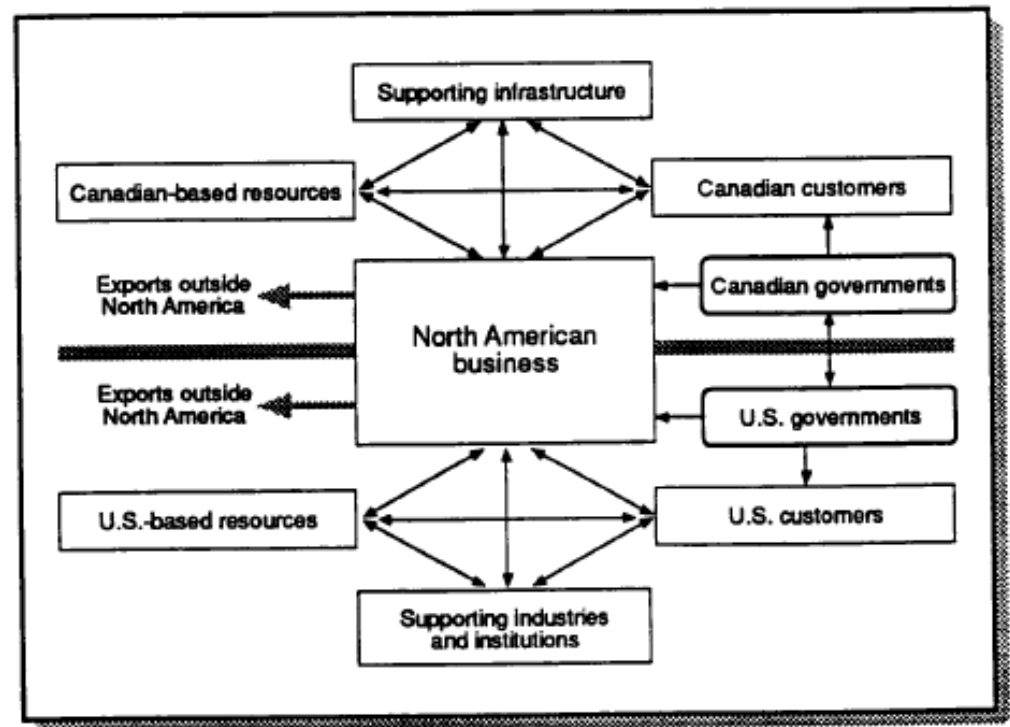
Generalized Double Diamond Model
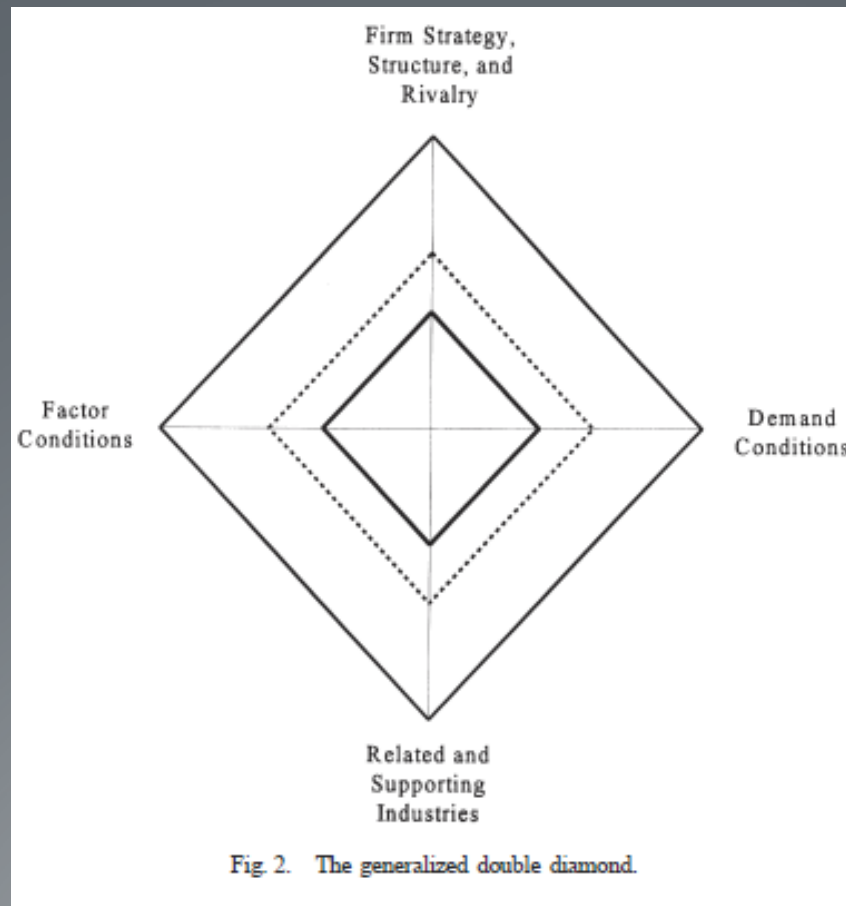

Fig. 1. The home-based single diamond.

Figure 3. The North American Diamond helps Canadian Businesses to Become Globally Competitive

Double Diamond Theory

Generalized Double Diamond Model

Fig. 2. The generalized double diamond.

Double
Diamond Theory

Generalized Double Diamond Model

In GDDM, Moon et al.(1998)

- **National competitiveness was defined as the capability of enterprises engaged in value-added activities in a specific industry in a particular country to sustain this value-added over long periods of time in spite of international competition.**
- The international diamond represents the national competitiveness determined by domestic and international parameters.
- These multinational activities are composed of outbound and inbound foreign direct investment .

The DDM 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;
- (3) it includes government as an important variable which influences the four determinants of the Diamond Model.

Double Diamond Theory

Application of Double Diamond Model

Birdwell and Kuo(2006), in discussing the computer industry in China and Taiwan

Moon et al (1998), in the empirical study of the competitiveness of Korea and Singapore

Kim and Moon (2010), in comparing and contrasting the competitiveness of Korea and Singapore over the preceding ten years

Liu and Hsu (2009), in comparing the competitiveness of the economies of Taiwan and Korea

Wyk (2010), in investigating the national competitiveness of Botswana in the global diamond industry

Moon and Lee (2004), in comparing the competitiveness of Samsung Electronics and Sony

Kim et al.(2006) and Son et al.(2007), in comparing the competitiveness of the Chinese and Korean fashion industries

Sardy and Fetscherin (2009), in comparing industry competitiveness of emerging automotive manufacturing industries in China, India, and South Korea

The Analysis of Generalized Double Diamond Theory

Determination of Variables and Descriptive Data

To adopt a generalized double diamond model to compare the competitiveness of the Korean and Japanese fashion industries,

- We selected 31 sub-variables to act as determinants of the model.
- We extracted 31 sub-variables by doing research of literature (Jin, 2004; Jin and Moon 2006; Kim et al. 2006; Liu and Hsu 2009; Moon and Kim 2010; Moon and Lee 2004; Shafaei 2009; Son et al. 2007)
- To measure these 31 sub-variables, secondary data was gathered from various sources *from* Korea and Japan.

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

Variables	Proxy	Data Source
Factor Conditions		
Domestic		
Basic	Number of workers and laborers in the clothing and textile industry, 2007	KOFOTI (http://www.kofoti.or.kr); Chemical Fibers Association (http://www.jcfa.gr.jp)
	Increase in rate of production (%), 2010/2009	KOFOTI (http://www.kofoti.or.kr); Statistics Bureau (http://www.stat.go.jp)
Advanced	Researchers in R&D (per million people), 2007	World Bank (http://data.worldbank.org)
	R&D expenditure (% of GDP), 2007	World Bank (http://data.worldbank.org)
	Royalty and license fees, receipts (Bop, current US$), 2010	World Bank (http://data.worldbank.org)
	Productivity of professionals, 2007	KIET (http://www.kiet.re.kr)
	Design power in clothing & textiles (Italy, France = 100), 2011	KIET (http://www.kiet.re.kr)
International		
Basic	Increase in rate of exports (%), 2009/2010	UNCTAD (http://unctadstat.unctad.org)
Advanced	Total amount of outgoing FDI from Korean clothing and textile enterprises (outward FDI)(millions$), 2010	OECD (http://stats.oecd.org)
	total amount of incoming FDI to Korean clothing and textile industry (inward FDI), (millions$), 2010	OECD (http://stats.oecd.org)
Demand Conditions		
Domestic		
Size	Total population (thousand people), 2010	OECD (http://stats.oecd.org)
	Gross domestic product (GDP)(million$), 2010	International Monetary Fund(http://www.imf.org)
	Employment rate (100- employment rate)(%), 2011	OECD (http://stats.oecd.org)
Sophistication	Rate of expenditure on clothing & textiles out of gross income (%), 2011	Statistics Korea(http://kostat.go.kr); Statistics Bureau (http://www.stat.go.jp)

	Demanding needs of consumers, 2007	KIET (http://www.kiet.re.kr)
International		
Size	Oversea market share (%), 2010	KOFOTI (http://www.kofoti.or.kr)
Sophistication	Preference for local brands in oversea market (Italy, France=100), 2011	KIET (http://www.kiet.re.kr)

Related and Supporting Industries Conditions

Domestic

Infrastructure	Secure internet servers (per 1 million people), 2010	World Bank (http://data.worldbank.org)
	Fixed broadband internet subscribers (per 100 people) , 2010	World Bank (http://data.worldbank.org)
	Gross output of textiles(thousand tons), 2009	Fiber organon (http://www.fibersource.com)
Related Industry	Educational facility related to clothing & textile, 2012	Ministry of Education, Science and Technology (http://std.kedi.re.kr) National specialized training center (「全国専修学校各種学校総連合会」)

International

Infrastructure	Airplane, registered carrier departures worldwide, 2009	World Bank (http://data.worldbank.org)
	Container port traffic (TEU: 20 foot equivalent units), 2009	World Bank (http://data.worldbank.org)
	Internet users (per 100 people), 2010	World Bank (http://data.worldbank.org)
	Amount of clothing & textile exports ($), 2010	UNcomtrade(http://comtrade.un.org)
Related Industry	Number of publications related to clothing and textiles among oversea journals, 2008-2011	Journal of Fashion Marketing and Management, International Journal of Clothing Science and Technology

Firm strategy, Structure, and Rivalry

Domestic

Rivalry	Competition intensity among domestic companies, 2007	KIET (http://www.kiet.re.kr)
Management Efficiency	QR system (Italy, USA=100), 2011	KIET (http://www.kiet.re.kr)
	The rate of added value in textile industry (%), 2008	KIET (http://www.kiet.re.kr)
International		
Rivalry	Market share of major global markets (country/world, %), 2010	WTO (http://www.wto.org/statistics)
Global Business	Internationalization of enterprises, 2007	KIET (http://www.kiet.re.kr)
	Global business leadership of CEOs, 2007	KIET (http://www.kiet.re.kr)

Factor Conditions

Factor conditions are classified into **basic** factors and **advanced** factors.

Basic factors: natural resources, location, unskilled labor, *and* debt capital
Advanced factors:

- the most significant factors for competitive advantage
- modern social infrastructure and highly-educated professionals ; educational programs, sophisticated human resources, technology (Porter 1990: 77), the scale and the results of R&D investment (Liu & Hsu 2009: 165)
- critical factors for competitive advantage in fashion industry (Jin and Moon 2006: 197); skilled human resources (creative designers), production/process technology, which can be observed in the most advanced fashion countries (France, Italy and the US)

international factor conditions:

- FDI inflow/outflow are important international strategies for improving national competitive advantage (Liu and Hsu 2009: 165; Moon and Kim 2010: 81).

Table 2. Descriptive Data for Factor Conditions

	Variables	Proxy	Korea	Japan
Domestic				
Basic	Scale	Number of workers and laborers in the clothing and textile industry, 2007	87,778	258,600
		Increase in rate of production (%), 2010/2009	108.9	102.4
Advanced	R&D	Researchers in R&D (per million people), 2007	4627	5573
		R&D expenditure (% of GDP), 2007	3.2	3.4
		Royalty and license fees, receipts (Bop, current US$), 2010	3,145,800,000	26,680,317,334
	Technical Power	Productivity of professionals, 2007	10.9	12.6
		Design power in clothing & textiles (Italy, France = 100), 2011	60	80
International				
Basic	Oversea Sale	Increase in rate of exports (%), 2009/2010	144	133
Advanced	Oversea Investment	Total amount of outgoing FDI from Korean clothing and textile enterprises (outward FDI) (millions$), 2010	362.8	380.6
		Total amount of incoming FDI to Korean clothing and textile industry (inward FDI), (millions$), 2010	354.9	683.9

Sources: KOFOTI (http://www.kofoti.or.kr); Japan Chemical Fibers Association (http://www.jcfa.gr.jp); Statistics Bureau (http://www.stat.go.jp); World Bank (http://data.worldbank.org); KIET (http://www.kiet.re.kr). "Globalization divers of Industry and analysis of nation's competitiveness"; KIET (http://www.kiet.re.kr). "Fundamental analysis of the textile industry"; UNCTAD (http://unctadstat.org); OECD (http://stats.oecd.org), FDI outflows/FDI inflows in textile and wearing apparel industry

Demand Conditions

Demand conditions, the nature of the home-market demand for an industry's product or service (Porter 1990: 71), distinguish **the size** and **the sophistication** of demand.

- Sophisticated, demanding buyers is more important in the fashion industry
- Consumers' sophistication and needs are related to fashion buying behavior such as expenditures and frequency of purchase
- Branding in the apparel industry is even more critical (Jin and Moon 2006: 198; Kim et al. 2006: 1357; Son et al. 2007: 512).

In small open economies, it is necessary to search for foreign markets to secure economies of scale; they must try to export their goods abroad.

- Oversea market scale, preference for local brands in overseas markets can be critical proxies for the complexity of international demand (Liu and Hsu 2009: 166).

Table 3. Descriptive Data for Demand Conditions

Variables		Proxy	Korea	Japan
Domestic				
Size	Market Scale	Total population (thousand people), 2010	50,516	127,510
		Gross domestic product (GDP)(million$), 2010	986	5,391
		Employment rate (100-employment rate)(%), 2011	96.9	95.4
Sophistication	Consumer Sophistication	Rate of expenditure on clothing & textile out of gross income (%), 2011	4	2
		Demanding needs of consumers	11.2	9.9
International				
Size	Oversea market Scale	Oversea market share (%), 2010	2	1.2
Sophistication	Consumer Sophistication	Preference for local brands in oversea market (Italy, France=100), 2011	50	90

Sources: OECD (http://stats.oecd.org); International Monetary Fund (http://www.imf.org); Statistics Korea (http://kostat.go.kr); Statistics Bureau (http://www.stat.go.jp); KIET (http://www.kiet.re.kr). "Globalization divers of Industry and analysis of nation's competitiveness"; KOFOTI (http://www.kofoti.or.kr); KIET (http://www.kiet.re.kr). "Fundamental analysis of the textile industry"

The Related and Supporting Industry

RSI refer to the presence or absence in the nation of supplier industries and related industries that are internationally competitive (Porter 1990: 71).
- upstream and downstream *firms*, related and other supporting industries,
- infrastructure such as transportation and communication (Moon & Kim 2010: 82),
- industries which help and expedite other industries within the economy, by providing benefits such as innovation, upgrading, information flow, and shared technology development (Shafaei 2009: 23; Ozgen 2011; 68).

For fashion industry,
- Global chain management and information technology (Jin and Moon, 2006)
- Industries related to fashion industries and education and knowledge industry (Kim et al. 2006; Son et al. 2007)

For small open economies,
- Expansion to international-related and supporting industries (Liu and Hsu, 2009)
- Infrastructure for international transportation and communication for international business(Moon et al. 1998:143).

Table 4. Descriptive Data for the Related and Supporting Industry Conditions

	Variables	Proxy	Korea	Japan
Domestic				
Infrastructure	Transportation	Roads, paved (% of total roads), 2007	78.3	79.6
	Communication	Secure internet servers (per 1 million people), 2010	1,140	650
		Fixed broadband internet subscribers (per 100 people) , 2010	36	27
Related Industry	Related Industry	Gross output of textiles (thousand tons), 2009	1,410	720
		Educational facilities related to clothing & textiles, 2012	83	253
International				
Infrastructure	Transportation	Airplanes, registered carrier departures worldwide, 2009	256,160	641,913
	Communication	Container port traffic (TEU: 20 foot equivalent units), 2009	16,053,629	16,285,918
		Internet users (per 100 people), 2010	83	79
Related Industry	Related Industry	Amount of clothing & textile exports ($)	13,984,209,799	9,034,793,883
		Number of publications related to clothing and textiles among oversea journals, 2008-2011	20	9

Firm Strategy, Structure, and Rivalry

Firm strategy, structure, and rivalry refer to the conditions in the nation governing how companies are created, organized, and managed, and the nature of domestic rivalry (Porter 1990: 71).

- the establishment, organization and management of firms and the condition of the competitors (Liu and Hsu 2009:167).
- for the apparel industry, managing high quality design(Jin 2004)

In context of global competition,
- 'agility' has become a means of achieving competitive advantage (Jin 2004: 240; Jin and Moon 2006: 199).
- maintaining efficient global network and continuously upgrading internal capabilities are critical to success in the global fashion industry (Jin 2004: 241; Kim et al. 2006: 1358; Shafaei 2009: 27).

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

Variables		Proxy	Korea	Japan
Domestic				
Rivalry	Market Competition	Competition intensity among domestic companies, 2007	10.5	8.7
Management Efficiency	Agility	QR system(Italy, USA=100), 2011	60	90
	High design Quality	The rate of added value in textile industry(%), 2008	24.2	36.3
International				
Rivalry	Market Competition	Market share of major global markets(country/world, %), 2010	2.1	1.3
Global Business	Global Networking	Internationalization of enterprises	10.4	12.3
	Global Challenge	Global business leadership of CEOs, 2007	10.9	12.9

Sources: KIET(http://www.kiet.re.kr). "Globalization divers of Industry and analysis of nation's competitiveness" ; KIET(http://www.kiet.re.kr). "Fundamental analysis of the textile industry" ; WTO(http://www.wto.org/statistics)

Empirical Results of the Diamond Test

Calculating Scores and Drawing the Diamond

The competitiveness was calculated by <u>three steps</u> with reference to previous studies. (Moon et al. 1998; Moon and Lee 2004; Liu and Hsu 2009; Sardy and Fetscherin 2009; Moon and Kim 2010).

First, the score of the country with the higher value is "100", and the score of the country with the lower value was calculated by dividing the lower value by the higher value.

Ex) The values of Korea and Japan are 144 and 133.

The maximum score(100) is given to Korea, Japan's score is 92.36(=133/144*100)

Second, for each domestic (or international) variable of a condition which contains more than one sub-variable, impartial weights are given to each sub-variable.

Ex) The international variable of factor conditions contains 3 sub-variables.

The Korea's score of this is 82.41(=100/3 + 95.32/3 + 51.90/3)

Third, a global diamond is constructed by adding the international competitiveness index to the domestic competitiveness index for each condition.

Ex) (69.08 + 82.41)/2 = 75.74.

Table 6. Competitiveness Index of the Diamond Model

	Korea	Japan
Factor Conditions		
Domestic Value	69.08	99.15
International Value	82.41	97.45
International Diamond(Domestic + International)	75.74	98.30
Demand Conditions		
Domestic Value	71.58	87.37
International Value	77.78	80.00
International Diamond(Domestic + International)	74.68	83.68
Related and Supporting Industries Conditions		
Domestic Value	86.23	76.41
International Value	87.70	81.17
International Diamond(Domestic + International)	86.97	78.79
Firm Strategy, Structure, and Rivalry Conditions		
Domestic Value	77.78	94.29
International Value	89.68	87.30
International Diamond(Domestic + International)	83.73	90.79

Domestic Variables
of the Diamond Model

the Japanese fashion industry surpasses the Korean fashion industry in all factors except for related and supporting industries conditions.

There are several important implications.

- Japan has a saturated fashion industry while Korea shows fashion industry characteristics displayed by NICs.
- Korea reports higher measurements relating to production and export, but Japan exceeds Korea in R&D, technology and design ability, the rate of value-added and the efficiency of companies.
- Japan's fashion industry has already changed its focus to capital-intensive and technology-intensive industry.
- Something remarkable appeared regarding Korea's information technology infrastructure.

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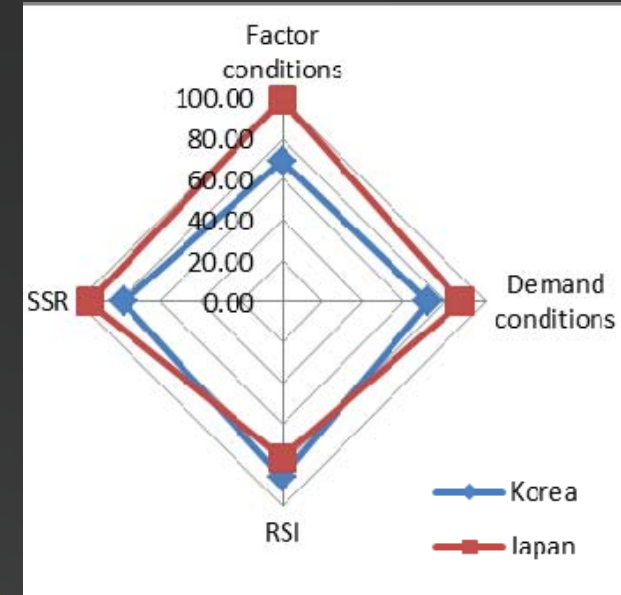
International Variables
of the Diamond Model

JFI is more competitive in all determinants of the
   international diamond except for RSI
The international diamonds are more similar than the
   domestic one.

There are several important implications
- Korea shows the fashion industry characteristics of
  NICs, so Korea reports higher measurements relating
  to production than Japan.
- Japan shows the fashion industry characteristics of
  an advanced country and reports higher
  measurements than Korea in the fields of FDI inflow
  and outflow, brand power in the foreign market,
  and corporate globalization.
- Japan shows lower measurements than Korea in the
 fields of information technology and education.

문서의 제목
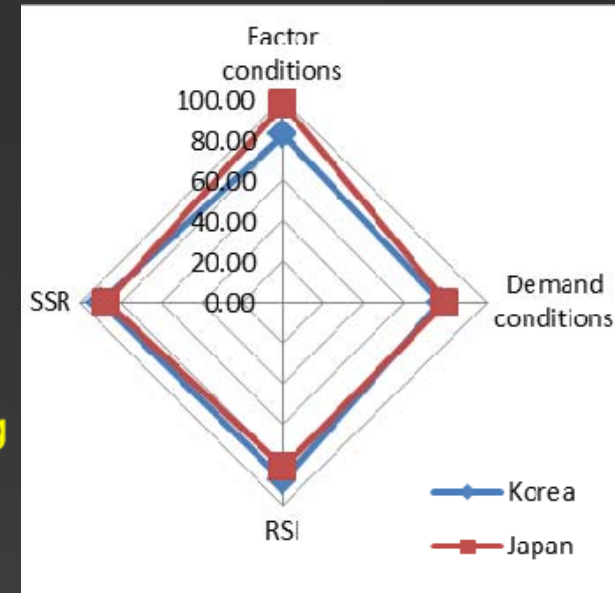
Competitiveness Index of the Diamond Model

Figure 3 shows the empirical results of the global diamond.

Competitiveness can be more clearly shown and explained through the global diamond, which synthesizes domestic and international diamonds.

The JFI is more competitive in all determinants of the global diamond except for RSI conditions, just as it was with the domestic and international diamonds.
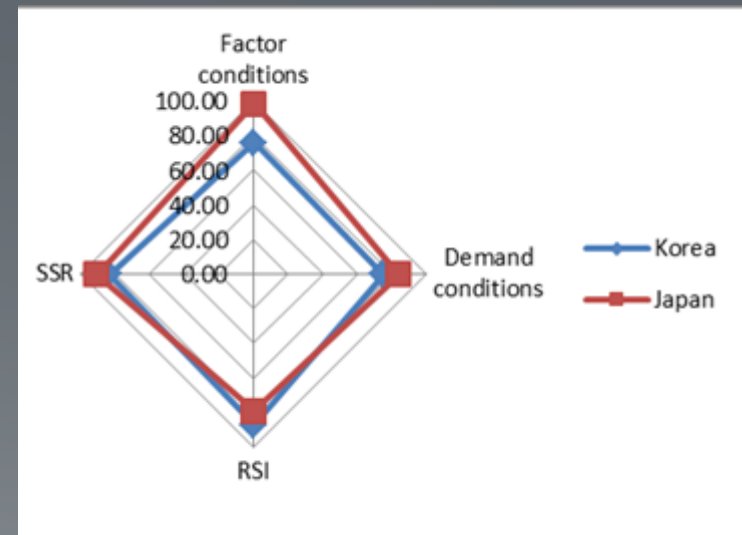
Conclusion and Limitations

Implications

The result of this study shows that Japan is an advanced country in which the fashion industry is domestic market-oriented, while Korea is a small open economy that mainly focuses on the foreign market.

KFI shows higher measurements relating to production and export than Japan, but JFI reports higher measurements than Korea in the fields of R&D, design and brand power, the rate of value-added, and the efficiency of companies and globalization.

In order for KFI to achieve competitiveness in the global market, it should pursue the following development direction:
- improve its competitiveness in terms of the domestic diamond while maintaining competitiveness in terms of the international diamond as it has been doing so far.
- improve its competitiveness in terms of R&D, design and brand power, the rate of value-added, and the efficiency of companies like the Japanese fashion industry.
- as the Korean fashion industry shows a relatively advanced level of information technology and the fashion education system, it has considerable growth potential.

Limitations of the Study
and Suggestions for Further Studies

This study is meaningful in that it uses the generalized double diamond model to visualize a comparison of the Korean fashion industry (based in small, open economy) with the Japanese fashion industry (based in an advanced, developed country).

The study can be supplemented and improved in several ways.

- It uses secondary data to obtain the measurements of variables. However, for the measurement of firm strategy, structure and rivalry conditions, obtaining in-depth data through corporate surveys is critical.
- This study uses secondary data from the years between 2007 and 2011. As the fashion industry changes faster than any other industry, the scope of secondary data should be narrowed to less than three years.
- The generalized double diamond model is a model suggested by Moon et al. (1998) to compare competitiveness of small open economies. Thus, it is necessary to develop a model to be used to compare the competitiveness of countries with different sizes and in different stages of development.

Thank you~