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Article *in* Journal of Distribution Science · August 2018

DOI: 10.15722/jds.16.8.201808.15

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http://dx.doi.org/10.15722/jds.16.8.201808.15

Assortment Planning for Retail Buying, Retail Store Operations, and Firm Performance

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Received: July 15, 2018. Revised: August 6, 2018. Accepted: August 15, 2018.

Abstract

Purpose – The purpose of the study is to examine the relationships among the following retail operations variables: retail store operations (i.e., store management, sales personnel, promotion of merchandise), success of assortment planning, firm performance (i.e., market share, overall competitive position, profitability, product quality, consumer satisfaction), and retail buyer's demographics and firm's characteristics.

Research design, data, and methodology – After conducting a pilot test, the survey was conducted in Seoul, South Korea. With using the listwise deletion method, 378 usable data sets were analyzed. For data analysis, descriptive statistics, factor analysis, and Structural Equation Modeling (SEM) methods were employed.

Results – As evidenced from the path diagram, the relationship between retail store operations and the success of assortment planning is strong and significant. Retail store operations affect firm performance, though at a weaker significance than it affects the success of assortment planning. The relationship between the success of assortment planning and firm performance, is the strongest relationship observed by this research.

Conclusions – The findings of this empirical study contribute to the retail/fashion buying/management field by confirming (a) the importance of assortment planning for retail firm performance and (b) the role of store operations for successful assortment planning and firm performance for fashion retailers.

Keywords: Assortment Planning, Retail Buying, Store Operations, Firm Performance, Fashion Retailers.

JEL Classifications: L81, L20, M31.

1. Introduction

In the operations management field, firm performance is measured by evaluating a firm's market share, return on assets, overall quality, overall competitive position, and overall customer service levels (Kannan & Tan, 2006). In general, the retail literature supports the proposition that buying decisions, including assortment planning, significantly impact the profitability of retailers (e.g., Kincade & Gibson, 2010).

A few more narrowly focused studies have been conducted to examine firm performance and assortment planning for retail. For example, a retailer that fails to provide assortments, which customers want, incurs losses in current and potential sales by not being able to induce the customers to return (Mantrala et al., 2009). Owners of small retailers generally consider assortment factors more carefully than retail buyers working in large or mid-sized retailers because retailers in larger firms maybe paid regularly regardless of the outcomes of their assortment planning (Bahng & Kincade, 2014).

In addition to the general variables affecting firm performance, several variables at the store operation level (i.e., store management, sales personnel, promotion of merchandise) may affect the desired outcome (i.e., sales – current and future) of assortment planning. Kincade and Gibson (2010) indicated that retail buyers or merchandisers are engaged in tasks for promoting merchandise, and these

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tasks influence the sale of merchandise. In addition, buyers must work with store management because the store personnel's customer-oriented behavior has an influence on customers' buying behavior (Williams & Attaway, 1996).

The purpose of the study is to examine the relationships among the following retail operations variables: retail store operations (i.e., store management, sales personnel, promotion of merchandise), success of assortment planning, firm performance (i.e., market share, overall competitive position, profitability, product quality, consumer satisfaction), and retail buyers' demographics and firm's characteristics. Relevant sections of merchandising model of Kincade and Gibson (2010) and Mantrala et al.'s PAP model (2009) were used as a framework of this study (see <Figure 1>).

Based on the purpose, five hypotheses were tested:

<H1> Retail store operations influence success of assortment planning.

<H2> Retail store operations directly influence firm performance (i.e., market share, overall competitive position, profitability, product quality, consumer satisfaction).

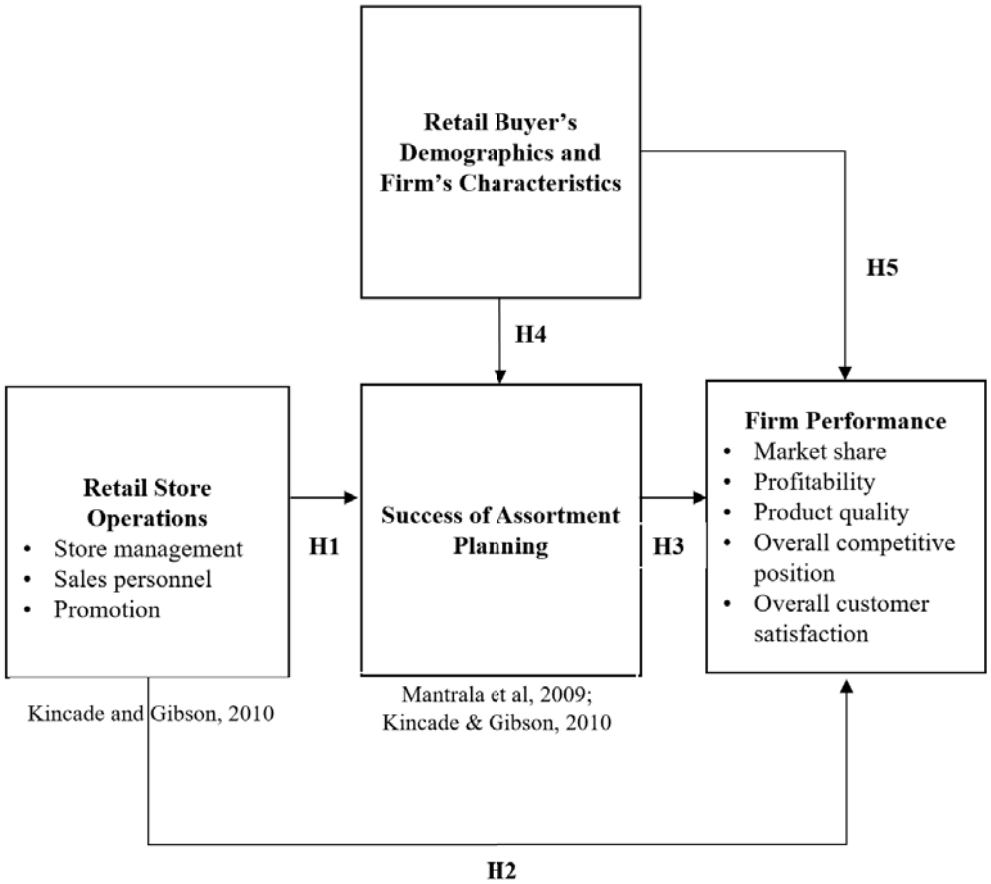
<H3> Success of assortment planning influences firm performance.

<H4> Retail buyers' demographics (i.e., age, gender, education, experience, employment) and firm's characteristics (i.e., type of products purchased and carried, type of store, size of the firm) influence success of assortment planning.

<H5> Retail buyers' demographics and firm's characteristics influence firm performance.

2. Literature Review

Successful retail buying plays a key role in meeting customers' expectations and reaching a retailer's sales and profit goals. In the retail fashion industry, the process of retail buying planning is generally composed of the following three tasks: merchandise planning, assortment planning, and inventory management. The two tasks of merchandise planning, assortment planning are not identical. These two preliminary tasks require careful and realistic preparations and are necessary before actual buying.



<Figure 1> Framework and hypotheses

2.1. Merchandise Planning and Assortment Planning

According to Kunz (2005), the general merchandise plan can be defined as a review of historical company data, fashion forecasts and the retailer's goals for future seasons. For many fashion retailers, merchandise planning has traditionally been a top priority and has long been considered to be more important than any other merchandising strategies (e.g., contracting to offshore suppliers, opening online channels, special promotion; Mazur, 1927). Merchandise plans involve financial plans, which include establishing budgets and allocating specific amounts of that budget to each category for the purchase of an assortment of each style selected (Clodfelter, 2008; Frings, 2005). Besides financial plans, merchandise planning consists of forecasting consumers' demands for colors, fabrications and other style features (Kincade & Gibson, 2010).

Assortment planning is a specific quantitative decision-making process for retail buying to meet customers' needs (Bahng & Kincade, 2014). The assortment a retailer carries has a great impact on sales and profits and is considered as a high priority for their retail business (Kok et al., 2006). The assortment plan is established and revised based on the classification system used by each retailer (Kincade et al., 2004). Most retailers build or organize assortment plans by segmenting the stock keeping units (SKU) they carry into groups, called categories (or classes; Kok et al., 2006). Within categories, subcategories (or subclasses) are defined. Some marketing researchers have assumed that the fundamental unit of analysis for choice marketing models is the brand (Fader & Hardie, 1996). However, Fader and Hardie (1996) reported that consumers, manufacturers, and retailers make decisions more at the level of the stock-keeping unit (SKU), which reflects style, color, size, and fabric, as compared with using the brand.

In general, successful assortment planning includes a balance among (a) how many categories (variety), (b) how many stock-keeping units (SKUs) in each category (depth), and (c) amount of inventory to allocate to SKU (Mantrala et al., 2009). In the fashion industry, the level of inventory for each SKU may directly influence a firm's financial performance because it generally takes a few weeks to a month to source materials, manufacture, and receive ordered products. For this reason, reordering is rarely possible to contribute to current sales. Moreover, with demand at point of sale and replenishment time too long, substitutions for a stock-out does not commonly occur when consumers shop for clothing. Sales and profits from a specific SKU must be made only with the stock-on-hand as selected via the assortment plan.

2.2. Success of Assortment Planning

The ultimate goal of successful assortment planning is to provide products so that consumers can find and buy what they want (Mantrala et al., 2009). Successful assortment planning provides the right products at the right price and time to the right customers and does not lead to losses in current or potential sales (Arbuthnot, 1997). In addition, to meet the heterogeneous nature of customers' demands, many large retailers may differentiate their assortments to satisfy local demands (Choi, Kim, & Lee, 2011; Kang, Hwang, & Lee, 2014). Therefore, the success of assortment planning can be measured using the level of customer satisfaction with the retailers' product assortments and the buyer's evaluation of the quantitative decisions they made. Findings from these previous studies imply that the success of assortment planning is influenced by the use of related merchandising and other factors.

2.3. Firm Performance

In business, a firm's performance can be measured in a variety ways including the continuation of profit for the firm. In general, a firm's financial performance can be measured with variables such as new product sales, profit, capital used, and return on assets (ROA; Hsu, Lin, Lawler, & Wu, 2007). Firms also use measurements such as return on investment (ROI), earnings per share (EPS), and net income after tax (NIAT) (Grossman, 2000). In the operations management field, firm's performance is measured by evaluating the firm's market share, overall quality, competitive position, and customer service levels (Kannan & Tan, 2006).

The retail literature supports the proposition that buying decisions significantly impact the profitability of retailers (e.g., Kincade & Gibson, 2010). A few studies have been conducted to examine firm performance and assortment planning. For example, if a retail store fails to offer customers merchandise that they want, this failure may cause sales loss (Mantrala et al., 2009). Krishnan and Kothari (2009) indicated that, although saleable new products might be introduced by manufacturers, their success can depend on how well the products are carried by retailers finding space in their stores. In addition, decisions retail buyers make about merchandise requirements and supplier selection ultimately contribute to the financial performance and success of the retail business (Fiorito, 1990). Findings from these previous research studies implies that the success of assortment planning impacts firm performance.

2.4. Retail Store Operations (i.e., store management, sales personnel, promotion of merchandise)

Besides the success of assortment planning, retail store operation variables (i.e., store management, sales personnel, promotion of merchandise) may affect firm performance. As retail buyers or merchandisers are also engaged in tasks for selling promoting merchandise, Kincade and Gibson (2010) indicated that merchandising tasks (e.g., promotions, personal selling) may also influence sales. According to

Amirani and Gates (1993), store image is one of the most important determinants of a successful retail business. In addition, research studies (e.g., Berry, Seiders, & Grewal, 2002) show that store convenience influences consumers' repurchase likelihood. Sales managers and sales personnel have an almost immediate impact on customers and sales (Williams & Attaway, 1996), and customer satisfaction and retention is a critical determinant of retail success (Pettijohn, Pettijohn, & Taylor, 2007). Findings from these research studies imply that variables within retail store operations (i.e., store management, sales personnel, promotion of merchandise) influence firm performance.

2.5. Retail Buyers' Characteristics and Company Profile

Da Silva et al. (2002) found linkages between retail buyer characteristics and the important criteria used in their decision-making processes. Davies (1994) reported that younger but better qualified buyers with less experience tend to consider net profit margin rather than potential sales volume when they make sourcing decisions. Davies (1994) also concluded that personal factors (e.g., age, experience) can define the retail buying of each buyer. Neu et al. (1988) indicated that a gender difference influenced negotiation performance and retail buying behavior, although the influence was weak. Other researchers (Francis & Brown, 1985; Hirschman, 1981; Stone, 1987) indicated that the important merchandise selection criteria, vendor selection criteria, and information sources differ depending on the company characteristics (e.g., store type, merchandise classification). Findings from these research studies imply that the retail buyers segments, characterized by buyer's demographics (i.e., age, gender, education, experience, employment) and firm's demographics (i.e., types of products purchased and carried, type of store, size of the firm) can influence firm performance.

The influence of buyer's demographics and firm's characteristics on assortment planning is also supported in the literature (e.g., Bahng, 2018; Bahng & Kincade, 2014; Da Silva et al., 2002; Kang & Kincade, 2004; Kline & Wagner, 1994). Bahng and Kincade (2014) segmented retail buyers into four clusters on the basis of their use of assortment decision factors. In the study, the findings showed that younger buyers tend to consider assortment factors more important than older buyers. The study included the finding that most female retail buyers and small retail storeowners belonged to "most factor use cluster," which means that female retail buyers and small retail storeowners are more likely to consider assortment factors to be more important than their counter parts do (i.e., male retail buyers and retail buyers who work for large retailers). Silver et al. (2002) reported that clear correlations exist between buyer characteristics and use of criteria for buying decision making. In addition, Wagner et al. (1989) found that various uses of vendor selection criteria exist among divisions, within the same department store (e.g., ready-to-wear, home fashion, accessories). In addition, Bahng (2018) found that differences exist between the assortment criteria used by retail buyers who buy men's wear and buyers who purchase women's wear. In the study, the research also reported significant differences of assortment criteria use between male and female fashion retail buyers. The findings of these research studies imply that the buyer demographics and firm's characteristics influence the success of assortment planning and further firm performance.

2.6. Comparison of Previous Literature for the Variables in the Current Study and Sample Information

Several strengths of the current study exist in comparison with previous literature in the use of variables and sample selections. In previous studies, retailers and buyer samples were rarely fashion related although fashion is a major product category for many retailers (see <Table 1>). In addition, some previous work is conceptual, based on surveys of students, consumer panels, or not retail. The current research is more comprehensive in inclusion of variables than any previous study and includes a combination of variables shown as important to other aspects of retail. This table provides a conceptual foundation as well as support for the statistical justification to include all of the variables that are in the model (see <Table 1>).

<Table1> Comparison of Previous Literature for the Variables in the Current Study with Sample Information

Studies	Examination of the Following Variables:				Type of Business Examined	Study Sample (n=)
	Assortment Planning Process and/or Success	Store Operations	Firm Performance	Buyers' Demographics (BD) or Company Characteristics (CC)		
Amirani & Gates (1993)		✓	✓	BD related to decision making	Three large retail stores	Undergrad students (160)
Arbuthnot (1997)	✓				Small retail	Owner/buyers (106)
Bahng (2018)	✓			BD and CC	Fashion retail	Fashion buyers (237)
Bahng & Kincade (2014)	✓			BD and CC	Fashion retail	Fashion buyers (378)
Berry, Seiders, & Grewal (2002)		✓	✓		Retail	N/A: Conceptual
Da Silva et al. (2002)	✓			BD	Retail	Buyers (100)

Davies (1994)	✓		✓	BD	Large and small retail	Buyers (125)
Fader & Hardie (1996)	✓				Fabric softener – consumer purchases	Scanner panel data (594)
Fiorito & Fairhurst (1993)	✓			CC	Large and small retail (fashion)	Buyers (large retailers = 100) (small stores = 153)
Francis & Brown (1985)	✓			CC	Fashion and appliance retail	Buyers (fashion = 120) (appliance = 126)
Grewal & Slotegraaf (2007)			✓		Retail	Managers (105)
Hsu, Lin, Lawler, & Wu (2007)			✓		Information Technology	Human Resource Managers (62) and Engineers (206)
Kang & Kincade (2004)	✓			BD and CC	Fashion retail	Dress buyers (10)
Kannan & Tan (2006)			✓		Operations management	Purchasing and supply managers (527)
Kline & Wagner (1994)	✓				Fashion retail	Buyer (60)
Kok & Fisher (2007)	✓		✓		One retail store	N/A Modeling based on sales data
Krishnan & Kothari (2009)	✓		✓		Medium side retail	Buyer (46)
Mantrala et al. (2009)	✓		✓		Retail	N/A Conceptual
Neu et al. (1988)	✓		✓	BD	General business	Business people (100)
Pettijohn, Pettijohn, & Taylor (2007)		✓	✓		Retail	Sales-persons (141)
Sharma & Stafford (2000)		✓			Retail	Undergrad students (80)
Sirgy, Grewal, & Mangleburg (2000)		✓			Retail	N/A Conceptual
Wagner et al.(1989)	✓			CC	One retail store	Buyers (62)
Williams & Attaway (1996)		✓	✓		Retail	Business-to-business buyers (153)

Note: ✓ = variable covered in the study

3. Method

3.1. Sample and Sample Selection

The population of interest for the study is fashion retail buyers or merchandisers who work for either large retailers (e.g., specialty store chains, department stores, discount stores) or small retailers (e.g., a boutique) in Seoul, South Korea. The participants in the study were inclusive of a wide range for ages, genders, and years of experience. Buyer's demographics were used for testing <Hypothesis 4> and <Hypothesis 5>, and the sample sizes of respondents in each bracket of buyers' demographic items were not assigned when the survey was conducted. Instead, the standard deviation and sample size of each bracket of demographics were examined after data collection. In addition, non-proportional quota sampling was used for company size by specifying the minimum number of respondents for buyers from large retailers and small retailers. The minimum sample size for each category was 150. These buyers and merchandisers worked for various retailers including buyers of a mass merchandise store located in South Korea.

This study used snowball sampling for surveying retail buyers and merchandisers of women's, men's, children's wear and other fashion (clothing-related) products. RDS generates results comparable to probability sampling (Heckathorn, 1997). This type of sampling is especially useful when researchers need a sample from the populations that are hard to get (Trochim, 2005). Retail buyers and merchandisers for fashion products are qualified as a hard-to-get sample because these are very busy employees who are generally proprietary about their work.

3.2. Data Collection

After IRB approval, the researcher visited Seoul, South Korea using face-to-face meetings with former colleagues (i.e., fashion retail buyers) and distributed finalized hard copies of the questionnaire. If the initial participants were able to complete the questionnaire immediately, the researcher waited and collected them. If the respondents

were not able to complete the questionnaire immediately due to their job tasks, the questionnaires were sent to the researcher by using delivery companies within a few days.

To conduct the survey among small retailers (i.e., independent retail fashion stores), questionnaires were distributed to 200 small fashion retail stores. Only one copy of the questionnaire was distributed to one store because in general practice the owner of a small retail store is involved in both assortment planning and retail buying (Kincade & Gibson, 2010). For both retail situations, only those who met the sample requirements (i.e., fashion retail personnel involved in both assortment planning and buying assortments) were included in data analysis. Data was collected until 400 participants completed the entire survey questionnaire. After employing the listwise deletion method, 378 usable data sets were analyzed. Finally, for data analysis, descriptive statistics, factor analysis, and Structural Equation Modeling (SEM) were used with employing several kinds of software: SPSS, AMOS, and R version 3.4.2 with the Lavaan package version 0.5-23.1097.

3.3. Instrument

The instrument consisted of a two-section questionnaire: (a) activities in the retail buying process and influences on the process (i.e., success of assortment planning, firm performance, and retail store operations); and (b) buyer demographics and firm's characteristics. The questions were adapted or modified from items used in previous research studies (e.g., Arbuthnot, 1997; Grewal & Slotegraaf, 2007; Kannan & Tan, 2006; Vorhies & Morgan, 2005; Zou & Cavusgil, 2002). Several Likert-scales were used for the questions in the two sections. The questionnaire was pilot tested on five retail buyers. Minor changes in wording were made based on respondent feedback.

3.3.1. Success of Assortment Planning

This measure includes a total of seven items: (a) Getting the right merchandise at the right price (Grewal & Slotegraaf, 2007), (b) Getting the right merchandise at the right delivery time (Grewal & Slotegraaf, 2007), (c) Balancing assortment variety (number of categories), depth (number of styles, colors, sizes), and amount of inventory for each style (Mantrala et al., 2009), (d) Tailoring merchandise assortments to individual markets (Grewal & Slotegraaf, 2007), (e) Offering the right merchandise at the right time and place for overall customer satisfaction (modified from Vorhies & Morgan, 2005), (f) Delivering what the customers want (Vorhies & Morgan, 2005), and (g) Retaining valued customers (Vorhies & Morgan, 2005).

3.3.2. Firm Performance.

The measure for firm performance (i.e., market share, return on assets, overall quality, overall competitive position, and overall customer service levels) is drawn from the study by Kannan and Tan (2006). Through the first pilot test, the respondents reported that the item of return on assets did not match with the characteristics of fashion retailers. Therefore, the item of overall profitability was replaced in the final measure for firm performance for the study instead of return on assets. The wording of the two questions are as follows: (a) Compared to your plan, what is the level of your firm's performance for last year in terms of [Performance]?, and (b) Compared to your major competitors, what is the level of your firm's performance for last year in terms of [Performance]? The final performance items for firm performance are as follows: (a) Market share, (b) Overall profitability, (c) Overall product quality, (d) Overall competitive position, (e) Overall customer service levels. The four questions in this measure were restricted, as per pilot participants' suggestions, to an evaluation of last year performance to help respondents understand what the questions intend to ask. These items were rated using the following Likert scale: 1. Much lower, 2. Lower, 3. About the same, 4. Higher, and 5. Much higher.

3.3.3. Retail Store Operations

Buyers, through retail store operations, manipulate a variety of information cues that affect consumers' buying behavior, which include store atmosphere, promotional directives, and sales personnel (Kincade & Gibson, 2010; Sirgy, Grewal, & Mangleburg, 2000). In addition, Sharma and Stafford (2000) found that retail spaces with nicer merchandising lead to higher expectations for the perceived level of credibility for retail sales persons. The questions for this measure are posed as the following: To what extent do you agree or disagree with the following opinions?

Through merchandising, the buyer must work with various store functions to have a successful assortment plan. For this reason, the retail merchandising variable is measured on three dimensions (i.e., store management, store personnel, and promotion). The exact statements are drawn from previous studies. The three Store management items are: (a) My company is very dedicated to managing our stores' atmospherics (i.e., environments; Grewal & Slotegraaf, 2007), (b) We have excellent processes in place for in-store space planning (Grewal & Slotegraaf, 2007), and (c) We often review the design of our stores to determine whether changes are needed (Grewal & Slotegraaf, 2007). The three Sales Personnel items are: (a) We have a very intensive program for recruiting and training store employees (Grewal & Slotegraaf, 2007), (b) We are satisfied with our efforts at managing our store employees (Grewal & Slotegraaf, 2007), and (c) The knowledge and skills of store employees deliver superior quality work and service (Modified from Grewal & Slotegraaf, 2007). The three Promotion items are: (a) Execution of our advertising differs and outperforms our competitors (modified from Zou & Cavusgil, 2002), (b) We

use very different techniques for sales promotion from our competitors (Modified from Zou & Cavusgil, 2002), and (c) We are satisfied with our efforts for advertising and promoting merchandise (modified from Grewal & Slotegraaf, 2007). The Likert type scale for questions in this section is as follows: 1.Strongly disagree, 2. Somewhat disagree, 3. Neutral, 4. Somewhat agree, and 5. Strongly agree.

3.3.4. Retail Buyers' Demographics and Firm's Characteristics

The demographic questions were selected from the demographic and store characteristic questions from a retail study by Arbuthnot (1997). In addition, questions regarding types of fashion products and the type of retail store were added to this study. These questions were based on categories and types listed in Kincade and Gibson (2010). The background questions included multiple choice questions about the buyer's demographics as follows: (a) Age, (b) Gender, (c) Education, (d) Years of experience, and (e) Years of employment at current firm. Finally, firm's characteristics include (a) Types of products purchased and carried(women's, men's, children's wear, fashion related products, other), (b) Type of store, and (c) Size of the firm.

4. Results

4.1. Retail Buyers' Demographic Information

Results showed that the percentage of female respondents (52.7%) in the study was slightly more than that of male respondents (47.3%; see <Table 2>). The age category is close to a normal distribution. The largest age bracket was from 30~34 years old (32.8%) and the second largest bracket was from 35~39 years old (28.3%).

In the study, most respondents had a bachelor's degree (69.8%), and two-year college graduates (14.6%) were the second highest bracket. In the category of experience, the percentage for 2 years and less was similar to the percentage for 8-10 years. The experience groups of 8-10 years (22.5%) and 2 years and less (20.4%) were the highest percentages of respondents in the study.

Respondents in the study had a short time of employment with the current firm compared to their entire years of experience in the industry. Most respondents were employed by the current firm for 2 years or less (47.6%) while only 20.4% had less than 2 years of experience in the fashion industry. A total of 24.9% of respondents had experience of 11 years or longer in the industry, but only 6.6% of maintained their career in the firm where they started their career. This result supports the high turn-over rate in the fashion industry (see <Table 2>).

<Table 2> Retail buyers' demographic information

Demographic Variable	Category	Frequency	Percent
Gender	Male	178	47.1%
	Female	200	52.9%
	Total	378	100.0%
Age	24 years and younger	7	1.9%
	25 – 29 years old	71	18.8%
	30 – 34 years old	124	32.8%
	35 – 39 years old	107	28.3%
	40 – 44 years old	51	13.5%
	45 – 49 years old	13	3.4%
	50 years and older	5	1.3%
	Total	378	100.0%
Education Level	Middle School	2	0.5%
	High School	43	11.4%
	Some College	55	14.6%
	Bachelor's Degree	264	69.8%
	Baccalaureate	14	3.7%
	Total	378	100.0%
Years of Experience	2 years and less	77	20.4%
	3 – 5 years	60	15.9%
	6 – 7 years	62	16.4%
	8 – 10 years	85	22.5%
	11 – 13 years	51	13.5%
	14 – 17 years	31	8.2%
	18 years and more	12	3.2%
	Total	378	100.0%
Years of Employment with the Current Firm	2 years and less	180	47.6%
	3 – 5 years	78	20.6%
	6 – 7 years	54	14.3%
	8 – 10 years	41	10.8%
	11 – 13 years	16	4.2%
	14 – 17 years	4	1.1%
	18 years and more	5	1.3%
	Total	378	100.0%

4.2. Firm's Characteristics

Regarding the types of products, the company carries, Women's products (42.6%) were the highest bracket, and Women's and Men's products (24.3%) were the second highest bracket (see <Table 3>). The most commonly reported types of stores were the store within the department store (lease department; 38.6%) and the mass merchandise store (23.0%). The store within the department store (lease department) is run by fashion retail companies collaborating with the department store managers. The fashion retail companies pay a fixed portion of total sales (e.g., 38% of sales) every month to the department store.

The company size category was divided into three

brackets: (a) large retailer, (b) mid-sized retailer, and (c) small retailer. The large retailer is defined as a retail firm with annual sales of $1 billion or more that employs 100 or more buyers or merchandisers. The mid-sized retailers manage multiple stores with private label brands. The annual sales of the mid-sized retailers range from $10 to $800 million with 2 to 80 buyers or merchandisers. The small retailer can be defined as a firm or store which owns one or several independent stores. Usually the small retailers were owner-managed with 1 to 5 employees, and the owner did the buying. The annual sales of the small retailers varied depending on the size of the store or the price zone of the merchandise they carry. Sales figures of the small retailers were not presented in the study because the small retailers were privately owned and were not willing to reveal their financial information. In the study, the majority of the respondents worked for mid-sized retailers (57.6%) as a buyer or merchandiser (see <Table 3>).

<Table 3> Firms' characteristics

Characteristics	Category	Frequency	Percent
Types of Products Purchased and Carried	Women's	161	42.6%
	Men's	25	6.6%
	Children's	13	3.4%
	Women's and Men's	92	24.3%
	Women's, Men's and Children's	60	15.9%
	Other	27	7.1%
	Total	378	100.0%
Type of Store	Mass Merchandise Store	87	23.0%
	Stores (lease) in Department Store	146	38.6%
	Specialty Store (Chain)	50	13.2%
	Specialty Store (Independent)	53	14.0%
	Outlet Chain store	17	4.5%
	Other	25	6.6%
	Total	378	100.0%
Size of a Firm or Store	Small Retailer (Independent Store)	113	29.9%
	Mid-sized Retailer	153	40.5%
	Large Retailer	112	29.6%
	Total	378	100.0%

4.3. Factor Analysis and Reliability

An exploratory factor analysis is performed first to determine the suitability of the items for representing the variables in this study (see <Table 4>). To ensure that factor analysis was an appropriate test for the variables, Bartlett's test of sphericity and the Kaiser-Meyer-Olkin's test were examined, as suggested by Malhotra (2009). The test statistic results show a high statistic for Bartlett's test of sphericity (7823.574, $p < 0.001$), which supports the use of factor analysis for the variables. The Kaiser-Meyeer-Olkin's (KMO) test showed some values of the buyer demographics variables just below 0.5. Gender, type of products purchased and carried, and type of retail firm had KMO scores of 0.46, 0.47, 0.48, and 0.49. Normally items with such KMO scores are dropped from analysis. However, as far as the purposes of the SEM analysis is concerned, these scores should not make much of a difference since these variables are converted to indicator variables to suit the requirements of R's Lavaan SEM package, which requires such transformations of endogenous ordinal categorical variables.

In total, the six factor groups used in this analysis account for 88% of the total variance (see <Table 4>). The percentage of variance explained by each factor ranged from 22.04% to 24.21%, with the exception of Firm Performance as Compared to Competitors (8.05%) and Buyer Demographics and Firm's Characteristics (0.03%). This total variance surpassed the 60% level suggested by Malhotra (2009) for the cumulative percentage of variance of factorial items. The internal reliability among the items within these factors was evaluated and Cronbach's Alpha values were again consistently high with values above 0.6, ranging from 0.81 to 0.91 and deserve to be retained for use, as is mentioned in the literature (Song, 2010). The exception to this again is the buyer demographic variables, which exhibit a Cronbach's Alpha of 0.4. However, the items of this variable vary widely in item structure, do not adhere to the seven-level likert scale structure of the other items and this is to be expected. Therefore, as with the KMO scores for the items within the buyer demographics factor, the Cronbach's Alpha for the items representing that variable is low.

As a final note on that issue, factor analysis is used to find correlations within the factor and diversity between factors, and to search for underlying dimensions (Malhotra, 2009). The low KMO and Cronbach's Alpha scores for the items in the buyer demographics variables indicate a lack of variation between the items, most likely because some of them share the same answers and may have been answered in the same way by survey respondents because of this. Transformation of the items in question to indicator variables partitions this poor variance over a larger number of variables, mitigating this problem. Once the Lavaan package is notified of the presence of such indicator variables, it switches to a diagonally weighted least squares estimator for SEM regressions. Removing items may be one possible response to the results of the factor analysis. However, in this case, removing items causes poorer SEM results, indicating that the model requires all of the items used in the analysis. For this reason, this is not an issue for SEM and the results of that analysis support this assertion.

<Table 4> Factors and reliability for items.

Factor Group	Item	Factor Loading	Cronbach -α	Eigen Value	% of variance
1. Success of Assortment Planning Compared to Sales Plan	Getting the right merchandise at the right price	0.53	0.81	3.24	22.41%
	Getting the right merchandise at the right time	0.73			
	Balancing categories for each style	0.58			
	Offering the right merchandise in time to satisfy customers	0.78			
	Delivering what customers want	0.64			
	Retaining valued customers	0.61			
2. Success of Assortment Planning Compared to Competitors	Getting the right merchandise at the right price	0.72	0.83	1.00	23.27%
	Getting the right merchandise at the right time	0.64			
	Balancing categories for each style	0.84			
	Offering the right merchandise in time to satisfy customers	0.72			
	Delivering what customers want	0.60			
	Retaining valued customers	0.48			
3. Firm Performance Compared to Plan	Market share	0.76	0.77	0.73	24.21%
	Overall profitability	0.72			
	Overall product quality	0.53			
	Overall competitive position	0.73			
	Overall customer service levels	0.41			
4. Firm Performance Compared to Competitors	Market share	0.73	0.78	0.61	22.04%
	Overall profitability	0.70			
	Overall product quality	0.58			
	Overall competitive position	0.77			
	Overall customer service levels	0.43			
5. Retail Store Operations	Dedication to managing store atmosphere	0.65	0.91	0.23	8.05%
	Processes in place for in-store space planning	0.73			
	Store design review frequency	0.72			
	Employee recruitment and training program intensity	0.77			
	Employee management satisfaction	0.74			
	Employee work and service quality	0.58			
	Advertising execution compared to competitors	0.75			
	Promotion difference compared to competitors	0.78			
	Advertising and promotion satisfaction	0.79			
6. Buyer Demographics and Firm's Characteristics	Age	.8	.4	.182	0.03%
	Gender	.8			
	Education	.8			
	Years of experience	.8			
	Years of employment at current firm	.8			
	Types of products purchased and carried	.98			
	Size of retail firm	.98			
	Type of retail firm	.98			

4.4. Hypotheses and Structural Equation Model

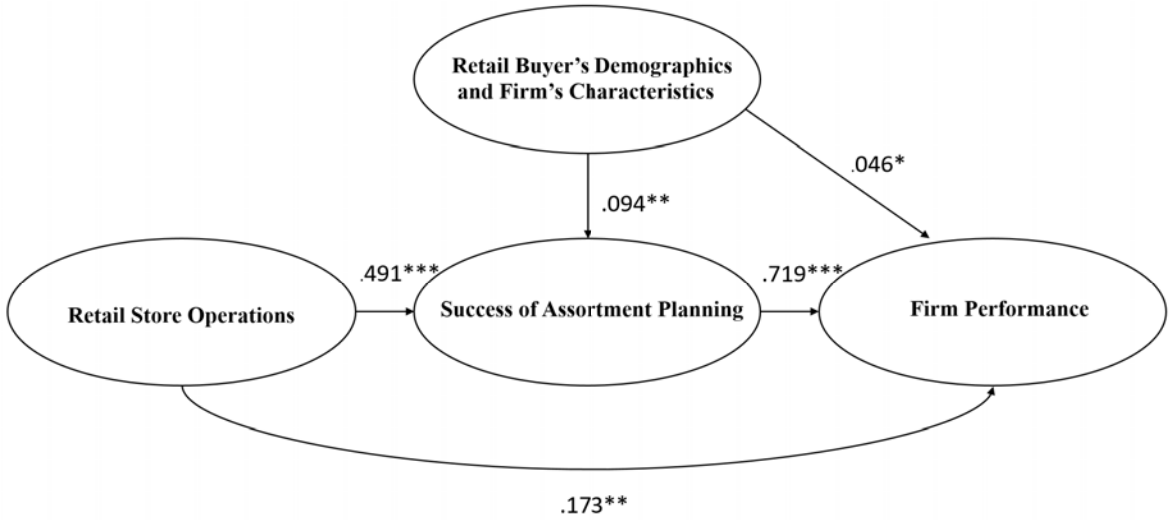
Using the Lavaan package, version 0.5-23.097, a structural equation model (SEM) was developed to test the hypotheses (see <Figure 2>). Several benchmarks were used to evaluate the model. Normally, the chi-square value is initially used to evaluate the quality of an SEM analysis, along with degrees of freedom. However, because this analysis initially had 40 items and subsequently 70 items after several of the buyer demographic and firm characteristics items were transformed to indicator variables, these measures of goodness-of-fit do not yield accurate estimates of model quality. Instead, the robust test-statistic values of the comparative-fit-index (CFI), the Tucker-Lewis

Index, and the root mean square error of approximation (RMSEA) are reported. The CFI and TLI are both above the acceptable value of 0.90 and are closer to 0.95, indicating a good fit (Song, 2010; Hu & Bentler, 1995; see <Figure 2>). The root mean square error of approximation (RMSEA) is less than 0.08 and also indicates an acceptable fit, as suggested by Browne and Cudeck (1993) and Song (2010).

In terms of the hypotheses, as evidenced from the path diagram, the relationship between retail store operations and the success of assortment planning is strong and significant (0.49, p<0.001; see <Figure 2>). Following the results of the testing of <Hypothesis 1>, <Hypothesis 2> is supported by this analysis as well. Retail store operations affect firm performance, though at a weaker significance than it affects the success of assortment planning (0.173, p<0.01). The myriad of other details related to the success of firm performance besides those measured here can be attributed to that trend. <Hypothesis 3>, the relationship between the success of assortment planning and firm performance, is perhaps the strongest relationship observed by this research (0.72, p<0.001; see <Figure 2>). <Hypothesis 4> and <Hypothesis 5> related to buyer demographics are supported, although the relationships are weaker than <Hypothesis 1>, <Hypothesis 2>, and <Hypothesis 3> in magnitude and significance (see <Figure 2>). Retail buyer's demographics and firm's characteristics do appear to influence assortment planning success to a degree (0.094, p<0.01; see <Figure 2>). Although <Hypothesis 5> which is supported by the SEM, is the weakest of the five hypotheses tested in this study, reporting the results of <Hypothesis 5> as well as <Hypothesis 4> will steer future researchers in the proper direction should they decide to continue studying the effects of buyer demographics in retail merchandising. Therefore, despite this, the demographics of retail buyers and firm characteristics do appear to influence the performance of firms (0.046, p<0.1; see <Figure 2>).

5. Conclusion and Implications

This study investigated relationships among the following variables: success of assortment planning for retail buying, retail store operations (i.e., store management, sales personnel, merchandise promotion), retail buyers' demographics and firm's characteristics, and firm performance. Although a number of previous research studies stressed the importance of assortment planning with store level factors for retail business management, no empirical study was found that examined these relationships by conducting surveys with fashion retail buyers who are actually making the assortment plan decisions. The findings



Structural Equation Model Fit

Index	CFI	TLI	RMSEA
Value	0.978	0.977	0.072**

Chi-Square = 6906.756 (p = 0.000), df = 2339, ** p < 0.5

<Figure 2> Structural equation model result

of the current, fashion, retail-buying study support what previous scholars have claimed - success of assortment planning for retail buying has a major and direct impact on firm performance (e.g., overall profitability, customer service); the ultimate goal of assortment planning (Mantrala et al., 2009). Fashion retailers are told that decisions about selection of product and level of inventory must be accurate from the initial buy because fashion consumers will rarely wait a few weeks to a month while a sold-out clothing product is reordered (Clodfelter, 2008). Instead, they can easily find similar styles of the product at other stores, either on-line or off-line. In addition, replenishment by reordering as contribution to current sales is almost impossible due to the long wait-time for manufacturing and the fiercely competitive, multi-channel, retail environment (Kincade & Gibson, 2010).

In addition to the direct influence of assortment planning success on firm performance, the findings showed that retail store operations (i.e., store management, sales personnel, promotion of merchandise) significantly influenced success of assortment planning and firm performance. Because retail buyers or merchandisers are involved in tasks for promoting merchandise and managing stores, these tasks were expected to influence the purchase and sale of merchandise (Sirgy, Grewal, & Mangleburg, 2000). As predicted by previous researchers in non-fashion studies (e.g., Grewal & Slotegraaf, 2007), feedback about merchandise from store level workers and cooperation with those workers are critical to evaluating previous season/year retail buying and to improve next season/year assortment planning. By working collaboratively with store management personnel, retail buyers may be able to refine their assortment plans and retail buys for improved customer satisfaction because feedback from store personnel is originally from customers' thoughts and opinions (Williams & Attaway, 1996). This includes meeting multiple consumers' demands by being able to differentiate assortments for each local store (Kincade & Gibson, 2010). These findings support the management strategy that direct cooperation between retail buyers/merchandisers and store management help retailers meet their profitability and other firm performance targets, the ultimate goal of successful assortment planning.

In this study, retail store operations not only influenced success of assortment planning but also directly impacted firm performance. Various store environments such as store image, store convenience and space, sales manager and sales personnel's service were viewed by the fashion retail buyers as important to firm performance. Lastly, the findings indicated that retail buyer's demographics (i.e., age, gender, education, experience, employment) and firm's characteristics (i.e., types of products purchased and carried, type of store, size of store) also influenced success of assortment planning and firm performance. Although not as statistically strong, the buyer and store variables, along with the other store factors (see <Table 3>), created a statistically significant equation model.

The findings of this empirical study contribute to the retail/fashion buying/management field by confirming (a) the importance of assortment planning for retail firm performance and (b) the role of store operations for successful assortment planning and firm performance for fashion retailers. The study results may help college students majoring in retailing, fashion, general business, and entrepreneurship to learn how retail buyers/owners need to work cooperatively with store management and other retail functions. For improved assortment planning performance, retail buyers/merchandisers must work closely with store managers and store personnel to produce targeted outcomes and ultimately to enhance firm performance. The findings also provide information to practitioners who are involved in fashion retail buying/merchandising by reminding them of the gravity of initial assortment planning and the importance of close collaboration with store management to yield the desired financial performance for fashion retailers.

6. Limitations

Common variance in methods may exist with data where respondents' perceptions of variables were used to form variables of retail store operations, success of assortment planning, and firm performance. Data gathered pertain to respondents' perceptions of variables (e.g., overall quality, level of success in assortment planning). The data were collected in Seoul, South Korea, but the questionnaire was developed using research studies from Western countries (e.g., United States). Although a pilot test was conducted with Korean retail buyers, the questionnaire for future studies, in South Korea or in other countries, may be refined employing previous research studies, if any are available, from the target country for data collection. This study used Structural Equation Modeling method to see influences and develop a path diagram. Future studies may be able to use other statistical methods such as Hierarchical Leaner Modeling (HLM) or multiple regression to see more detailed relationships of each demographic variable with other dependent variables.

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