NOWELL, CANDACE HOPE M.S. Market Competitiveness in the Global Textile Supply Chain: Examination of Supply Chain Configurations. (2005)
Directed by Drs. Nancy Cassill and George Hodge. 145pp.

This research study is one portion of a three-part study on economic competitiveness in the global textile and apparel industries. The purpose of this research was to determine why U.S. manufacturers are losing market share in the areas being sourced by U.S. retailers, and to determine the supply chain structures and performance measures being used by U.S. manufacturers, global manufacturers, U.S. retailers, and sourcing agents in the bottom weight and bed-bath markets. The study's results were intended to provide the U.S. with a benchmark of how their supply chain should be configured, as well as the metrics to be used along the chain in order to be more competitive in a global environment. Stock, Greis, and Kasarda's (1999) conceptual model from their "Logistics, Strategy, and Structure" study was used as a framework for this study.

The sample consisted of 18 companies with the participation of 33 respondents from manufacturers and retailers of both markets, as well as sourcing agents and auxiliary companies. A survey questionnaire was used to interview company representatives via face-to-face interviews or phone conferences. Results were separated into eight groups depending on the company business sector and market. The responses pertaining to each research objective were compared among each group and analyzed. Results identified they key areas that U.S. textile manufacturers need to improve in order to gain market share. The results also identified the measures to be used to measure the performance of a supply chain and the dominant supply chain structures being used among each business sector. Finally, a benchmark supply chain model was designed from how research suggested that U.S. textile manufacturers could compete in the global market.

MARKET COMPETITIVENESS IN THE GLOBAL TEXTILE SUPPLY CHAIN: EXAMINATION OF SUPPLY CHAIN CONFIGURATIONS

by

HOPE NOWELL

A thesis submitted to the Graduate Faculty of
North Carolina State University
in partial fulfillment of the
requirements for the Degree of
Master of Science

TEXTILE MANAGEMENT AND TECHNOLOGY

Raleigh

2005

APPROVED BY:

_____

Dr. Nancy Cassill, Co-Chair

_____

Dr. George Hodge, Co-Chair

_____

Dr. Robert Barnhardt

BIOGRAPHY

The author, C. Hope Nowell, was born in Raleigh, NC on June 21, 1980. She is the daughter of Margaret Brown and the late Kirby Nowell. Hope grew up in Wendell, NC and later moved to Clayton, NC in 1992. She graduated from Clayton High School in 1998 and went on to study at North Carolina State University. She achieved a Bachelor of Science in Textile and Apparel Management from the College of Textiles in 2002. Upon graduation Hope worked for American Eagle Outfitters in Durham, NC as an Assistant Manager. In the fall of 2003, Hope returned to North Carolina State University to pursue a Master of Science degree in the Institute of Textile Technology program. She is currently completing the requirements for her graduate degree in Textile Management and Technology. Hope has accepted a job offer with Sara Lee Branded Apparel in Winston-Salem, NC where she will pursue a career in lean process engineering.

ACKNOWLEDGEMENTS

I would like to extend my gratitude to Dr. Nancy Cassill and Dr. George Hodge for their continuing guidance and support through this research process. I am truly honored to have worked with such superior mentors on this project from whom I have learned so much. I would especially like to thank the staff, membership, and alumni of the Institute of Textile Technology for funding my graduate research and fellowship, as well as assistance in this project. I would also like to express my appreciation to Dr. Robert Barnhardt for participating as a committee member who provided both an ITT and NC State perspective. His insight into this research has enabled me to see the importance and the impact it could have on the textile industry and ITT membership.

I would also like to thank the additional two researchers working on this collaborative research project: Lynsey Cesca and Michael Jones. I would like to express my gratitude for their hard work and for being such great team players. However, most of all I would like to thank them for their friendship and support. It was a long journey, and the experience would not have been as rewarding without them.

Finally, I would like to thank my mom for her support, love, and encouragement through every challenge I have faced. And, lastly I would like to express my gratitude to the love in my life, Jarrett Grant, for his constant love, motivation, and belief in me.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER I

INTRODUCTION

The U.S. textile and apparel industries generate more than $360 billion each year, and the current market situation is characterized by volatile demand, multiple trading partners, short product lifestyle, increased impulse purchases, unpredictable customers, and offshore sourcing strategies (Singhal, 2003). The U.S. textile and apparel industries are “large, mature, and highly fragmented” (Apparel and Footwear Industry Survey, 2004, pg1), and the goods consumed in the U.S. are made both domestically and globally.

The industry has been plagued with manufacturing job losses for the past three decades, for there were 43,800 jobs lost in 2003 alone. Reduced tariffs, new free-trade agreements, and increased quotas contributed to the increase in job losses. These factors have pushed U.S. manufacturing into low-cost countries such as Mexico, the Caribbean, Sub-Saharan Africa, China, and Latin America (Apparel and Footwear Industry Survey, 2004).

The apparel and home furnishings industries are the top two sectors that have had decreases in exports and increases in imports. From 2002 to 2003, apparel exports decreased 9.6%, and imports increased 6.8%. Home furnishing exports decreased 6.6%, while imports increased 18.8% (www.usitc.gov).

United States apparel production was approximately 3.5 billion pounds in 2003, a decrease of 11% from the previous year and a decrease of 47% since 1994. U.S. apparel shipment values were $23.9 billion in 2003, a decline of 11% as well

from 2002 and a decline of 48% since 1994 (Current Industrial Reports-Apparel, 1997-2003). In the bed and bath furnishings sector of the home textiles market, U.S. production has decreased 30% since 1990 and 40% since a 1995 peak. United States bed and bath sales have declined only 10% since 1990, but they have declined 32% since a peak in 1997 (Current Industrial Reports: Bed and Bath Furnishings, 1997-2003).

The increase in U.S. imports and decrease in exports clearly illustrates the trend of U.S. retailers sourcing with low-wage offshore vendors. However, low cost labor is not the only reason that offshore sourcing has increased. Many retailers will say that, "Labor costs are not the biggest factor in retailing decisions. Innovation, product development, execution, delivery time, fashion focus, and speed are as important, if not more so" (Neuman, 2004, p.8). So, why are U.S. manufacturers losing market share in the areas being sourced by U.S. retailers?

When analyzing any sector of the U.S. textile and apparel industry, it is important to look at the supply chain, the logistics measures being used, and the overall structure. Since U.S. retailers are sourcing more and more with offshore vendors, benchmarking against successful global supply chains is also important. Stock, Greis, and Kasarda's (1999) model from their study *Logistics, Strategy and Structure: A Conceptual Framework*, which was used as a framework for this study, recognizes the role of logistics that has evolved due to global competition and is a necessity today to remain competitive. The model is based on the premise that "market forces shape the formulation and implementation of a firm's strategy and its organizational structure" (Stock, Greis, & Kasarda, 1999, p. 37). The framework is

used to show how supply chain structures, both globally and in the U.S., are influenced by a competitive environment. The competitive environment includes the demands made by the market, which may include characteristics and features of the product, location of customers, the time requirements of customers, and the change in demand. A company's strategy may often be illustrated by the supply chain structure, which will then influence the overall performance in the end (Stock, Greis, & Kasarda, 1999).

Despite the importance of the textile and apparel industries to the United States' economy, little research has been conducted on the supply chain structures and the performance measures being used globally. Modeling global supply chain structures are difficult due to the long lengths caused by globalization. Lengthy, fragmented supply chains increase the need of superior supplier/customer relationships. Measuring the same performance measures across the entire supply chain is imperative in today's environment. Therefore, an opportunity existed to perform an analysis of the market competitiveness in the global textile and apparel supply chains and to examine supply chain configurations in terms of their structure and performance measures.

Purpose of this Study

The purposes of this study were to:

1. Determine why U.S. manufacturers are losing market share in the areas being sourced by U.S. retailers.
2. Determine the supply chain structure that is most successful in the bottom weight and bed-bath sectors of the global supply chain.
3. Provide insight into the performance measures that U.S. retailers use when choosing a supplier.

The primary objectives were to collect data from a sample of major U.S. textile and apparel retailers, U.S. textile and apparel manufacturers, global[1] textile and apparel manufacturers, and sourcing agents with market share in the bottom weights and bed-bath sectors to:

RO1 Determine why U.S. manufacturers are losing market share in the areas being sourced by U.S. retailers.

RO2. Determine the supply chain structures that are being used by:
1. U.S. retailers
2. U.S. manufacturers
3. Global manufacturers
4. Sourcing agents

RO3. Determine the performance measures that are being used by:
A) U.S. retailers
B) U.S. manufacturers
C) Global manufacturers
D) Sourcing agents

[1] Global Manufacturers are those with over 50% of production performed off-shore.

Significance of this Study

This research will provide insight into the growing importance of supply chain management in terms of supply chain structure and performance metrics used. Currently, there are several misperceptions of how U.S. manufacturers can gain market share in the areas that are being sourced by U.S. retailers. Many U.S. manufacturers believe that they are losing market share because they cannot compete on cost, but U.S. retailers are saying that speed and innovation are just as important. This study will provide insight into the U.S. retail industry and the factors that are used when making sourcing decisions.

The study will also provide the dominant supply chain structures and performance measures used in today's global textile supply chains for two product categories: bottom weights and bed-bath. The study's results are intended to provide the U.S. with a benchmark of how their supply chain should be configured, as well as the metrics to be used along the chain in order to be more competitive in a global environment.

Limitations of this Study

1. The study only focuses on two product categories: bottom weights and bed-bath. Even though these two categories represent a stable business for U.S. companies, results cannot be generalized to other product categories.
2. The sample size only consists of a representative sample from the two product categories due to inability to include the entire population; The sample is a non-probability convenience sample.
3. Depending on the position of the respondent, there may be potential inability error in that they may not have access to the complete data needed to answer certain questions.
4. There is potential for respondent bias depending of the willingness of respondents to disclose actual and accurate numerical data.

Definitions of Nominal Terms

Benchmarking: The process of identifying, understanding, and adapting outstanding practices from within the same organization or from other businesses to help improve performance (Cook, 1995)

Competitive Advantage : A position of superiority a firm may establish over its competitors in the marketplace. The four P's of marketing are all possible avenues to a firm's finding itself in a favorable marketing situation (Ostrow, 1988).

Economic Competitiveness: The ability to sustain and grow a business within the global textile and apparel environment, through optimization of products, processes, and strategies to gain a competitive advantage (Cesca, Jones, & Nowell, 2005).

Global Supply Chain : A network of factories and material sourcing on a worldwide basis (Klassen, 1994).

Lead time : The time elapsed in between the receipt of customer order until the delivery of finished goods to the customer (Gunasedaran, 2004).

Logistics:- The part of the supply chain process that plans, implements, and controls the efficient flow and storage of goods, services, and related information from the point of origin to the point of consumption in order to meet customers' requirements (Council of Logistics Management, 1998).

Market:- The aggregate demand for certain products or services, i.e., all the actual or potential customers who have the means to purchase the product or

service and who actually have access to it should they make a decision to buy (Ostrow, 1988).

Market Competitiveness : Having a position of superiority over competitors in satisfying the aggregate demand for certain products or services (Nowell, 2004).

Supply Chain : A term increasingly used by logistics professionals – encompasses every effort involved in producing and delivering a final product, from the supplier's supplier to the customer's customer (Supply Chain Council, 1997).

Performance Measures : Metrics that show not only how well you are providing for your customers (service metrics) but also how you are handling your business (speed, asset/inventory, and financial metrics) (Supply Chain Council, 2004).

Supply Chain Management : Every effort involved in producing and delivering a final product, from the supplier's supplier to the customer's customer (Supply Chain Council 1997).

Sourcing : The process of determining how and where manufactured goods or components will be obtained (Dickerson, 1999).

CHAPTER II

REVIEW OF LITERATURE

Conceptual Framework

The conceptual model used by Stock, Greis, and Kasarda (1999) is based on the premise that "market forces shape the formulation and implementation of a firm's strategy and its organizational structure" (p.37).

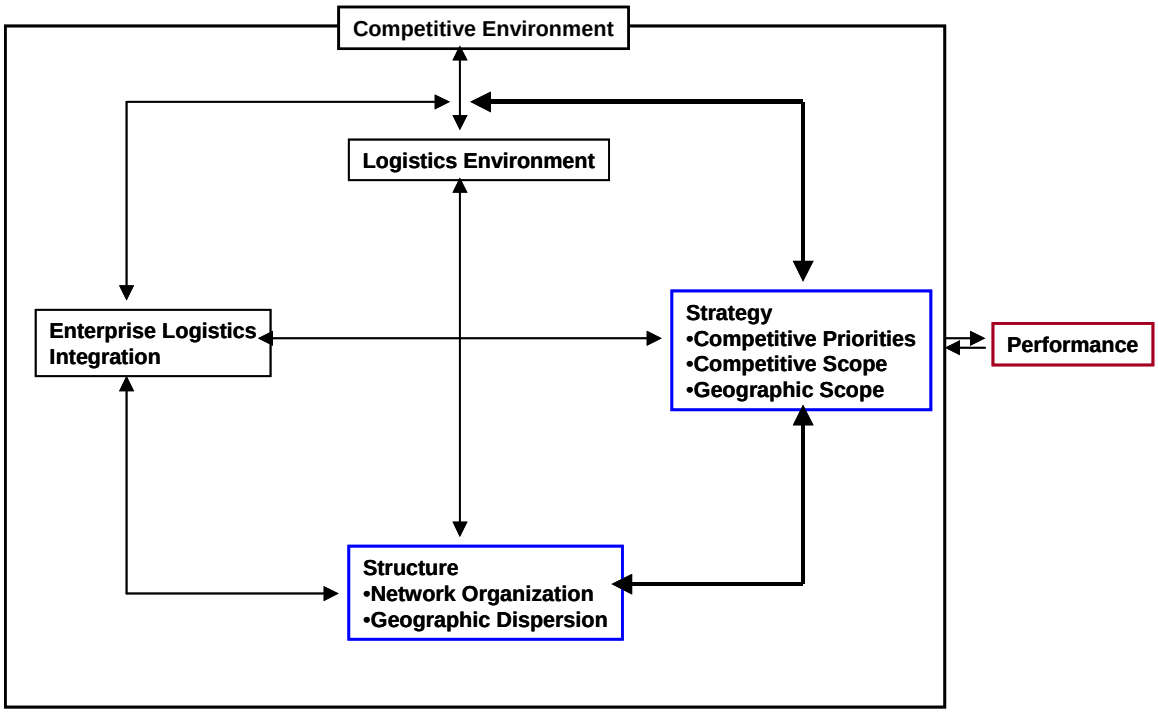


Figure 1. Conceptual Framework

Source: Stock, G., Greis, N., & Kasarda, J. (1999). Logistics, Strategy and Structure: A Conceptual Framework. *International Journal of Physical Distribution and Logistics*, 29(4), 224-239.

The model recognizes the role of logistics, which has evolved due to global competition and is a necessity today to remain competitive. The model is made up of three elements: competitive environment, strategy, and structure. For the purpose of this research, the focus was on the competitive environment with a

concentration on structure, strategy, and performance. The research focused on how supply chain structures, both globally and in the U.S., are influenced by a competitive environment. The competitive environment includes the demands made by the market, which may include characteristics and features of the product, location of customers, the time requirements of customers, and the change in demand. The model is mainly concerned with how structure is related to manufacturing and the whole supply chain. The model looks at organizational structure and network structure. There are three dimensions that differentiate networks: vertical integration, flexibility, and cooperation. A company's strategy may often be illustrated by the supply chain structure, which will then influence the overall performance in the end (Stock et al., 1999).

Market Competitiveness

When taking into consideration Onslow's (1988) definitions of market and competitive advantage, one could define market competitiveness as having a position of superiority over competitors in satisfying the demand for certain products or services. As globalization has increased, competition in the textile and apparel markets has also increased. Several research studies have been conducted that have discussed factors that are important to gain market competitiveness.

Chin (2004) identified five strategic success factors and their corresponding key issues as: building customer-supplier relationships, implementing information and communication technology, re-engineering material flows, creating corporate culture, and identifying performance measures. However, other major studies

identified the top three major reasons for global sourcing as cost reduction, quality, and availability. Therefore, improvements in these areas are a must to be competitive in a global market.

The main reason for the surge of apparel imports is due to the cost advantage of foreign manufacturers (Wayne, 1998). The apparel industry especially is very labor intensive and wages make up a large portion of production costs, which has led to a decrease in domestic apparel production (Barbee, 1998). Customers today are more quality conscious and are willing to pay higher prices for it. However, to be competitive a firm must offer high quality products at competitive prices, for many foreign manufacturers that used to compete on price alone are now producing better quality goods (Carter & Narasimhan, 1990). The availability of goods is a major motivator of offshore sourcing because many desired products are not available in the United States. The trend of offshore sourcing has led to a decrease in domestic suppliers, which has led to a decrease in domestic supply. In order to compete, suppliers must not only be able to have high quality goods available at competitive prices, but also be able to deliver those goods to the customer on time (Cho, 2001).

As globalization has increased another factor recognized is logistic support. According to Birou and Fawcett (1992), logistic problems are the number-one challenge that domestic buyers face in global sourcing. International logistics support is needed to achieve maximum cost-effectiveness while maintaining service requirements. With the trend of global sourcing, companies must be able to manage international logistics, which covers longer distances than domestic logistics. Longer

distances create longer lead times, which lead to more opportunities for operations to go wrong (Cho, 2001).

Singhal (2003) suggested that textile and apparel firms could be more competitive and gain market share by improving products or by reducing costs. He suggested that improved productivity would lower costs, and improved products would increase demand and add value. He also suggested that increased collaboration and the benefits of technology across the supply chain can lead to higher utilization, optimized logistics, lower product development expenses, and lower inventories (Singhal, 2003).

Prasad and Sounderpandian (2003) suggested factors to gain competitive advantage with a global supply chain. The global supply chain is a new structure that enables companies to gain the competitive advantages of different countries. Value-added services can now be dispersed among multiple countries to produce a competitive advantage. Prasad and Sounderpandian's (2003) study suggested that in order to gain a competitive advantage in a global supply chain a company must carefully manage lead times, quality, costs, inbound and outbound logistics, and the supporting technical service. Companies involved in a global supply can normally compete with low cost or product differentiation. However, the costs and complexity of coordinating global supply chains can sometimes wear down the competitive advantage. Therefore, it is essential for companies to invest in information systems to organize the entire supply chain. Overall, a company involved in a global supply chain must have flexible and responsive networks, which can only be obtained if all

viable information is made available to all supply chain locations (Prasad and Sounderpandian, 2003).

Yusauf (2004) presented a paper that discussed supply chain integration patterns and the relationship between the patterns and the achievement of competitive objectives. The paper also discusses the nature, attributes, and capabilities of agile supply chains. The drivers of supply chain integration that lead to competitiveness with an agile supply chain are the integration of upstream and downstream operations, seamless flow of assets, advanced information technology, and supplier-customer contact. A study was performed to find the impact that certain supply chain structures had on a firm's ability to compete. The three structures studied were traditional, lean, and agile. The study showed that most companies had adopted the lean, rather than agile, approach to embrace long-term collaborations with suppliers and customers. The traditional approach was not significant, for it had no influence on the study. A lean supply chain influences a company's ability to compete on the basis of flexibility and time-based technology leadership, whereas agile supply chain structures allow companies to compete more on the basis of cost. Therefore, Yusauf suggested that in order to compete in the areas of timely deliveries and supply chain flexibility, companies should adopt the lean supply chain approach (Yusauf, 2004).

Trends Affecting the U.S. Textile and Apparel Industries

Structure

The U.S. apparel industry is "large, mature, and highly fragmented" (Apparel and Footwear Industry Survey, 2004, p.1). Apparel consumed in the U.S. is made both

domestically and globally. Domestic apparel companies are emphasizing market research and re-evaluating their manufacturing strategies. The most successful U.S. textile and apparel companies have moved a large portion of their manufacturing offshore, but they have had to keep some operations domestically in order to satisfy small and seasonal orders (Apparel and Footwear Industry Survey, 2004). Singhal (2003) explained the textile and apparel supply chains as typical buyer-driven value chains in that they are highly unpredictable and are characterized by short lifecycles, many trading partners, cross-border trade difficulties, and dormant economies. The textile and apparel supply chains are "buyer-driven" in that large retailers, marketers, and branded manufacturers are key players in setting up decentralized production facilities in many exporting countries. Buyer-driven supply chains are labor-intensive, global, highly competitive, have low entry barriers, and are led primarily by the marketers and merchandisers of large retailers. Profits in a buyer-driven supply chain come from value-added activities that result from high level research (Singhal, 2003).

Employment

The industry has lost manufacturing jobs for the past three decades, and there were 43,800 jobs lost in 2003 alone. The increase in job losses is contributed by reduced tariffs, new free-trade agreements, and increased quotas. These factors have pushed U.S. manufacturing into low-wage countries and those with free trade agreements such as Mexico, the Caribbean, Sub-Saharan Africa, China, and Latin America (Apparel and Footwear Industry Survey, 2004). As seen in Figure 2,

domestic apparel production alone declined 11% to 3.5 billion units from 2002 to 20003 (Census Bureau, 1997-2004).

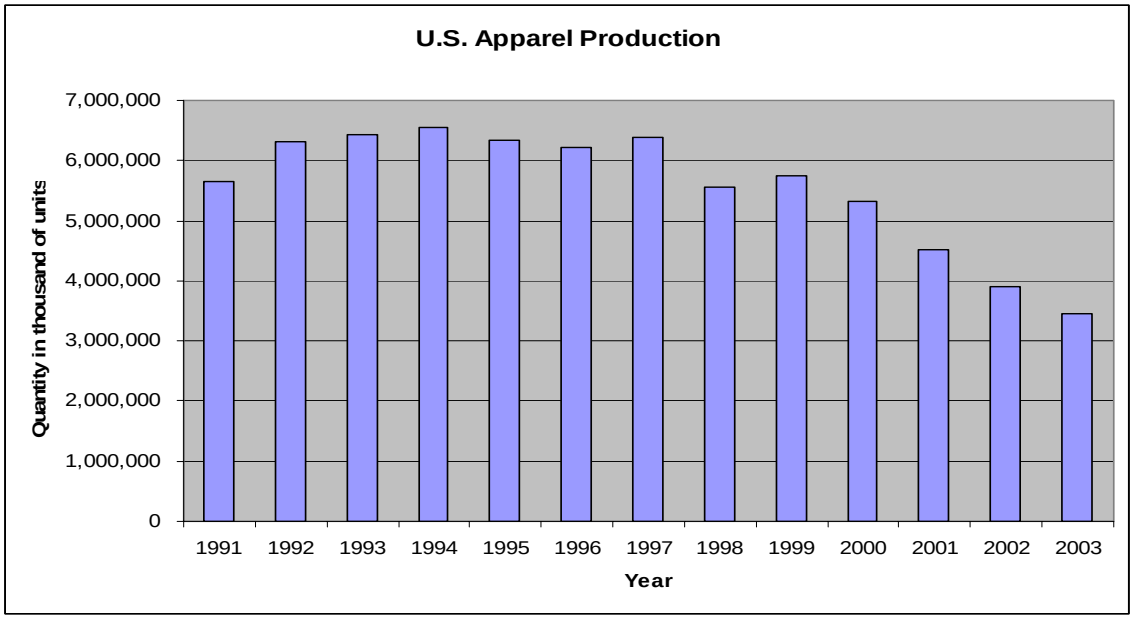


Figure 2. U.S. Apparel Production

Source: 1997-2003. Current Industrial Reports: Apparel. (Online), September 20, 2004. U.S. Census Bureau. http://www.census.gov/cir/www/.

Trade

U.S. textile and apparel imports have continuously increased since 1999, reflecting the sourcing trend of U.S. retailers to source from low-cost offshore suppliers. Exports have remained fairly steady since 1999, but imports are so high that the trade deficit was $70.2 billion in 2003 – a $5.9 million increase from the previous year. Imports increased to $87.2 billion in 2003, a 7% increase from 2002. Exports declined 1% from 2002 to $17 billion. Figure 3 graphically shows how imports have impacted the trade deficit since 1999. Quotas were removed for certain goods in 2002, which is a main cause of the increase in imports in 2003. A

2% increase in consumer spending also increased the demand for imports in 2003 (United States International Trading Corporation, 2004).

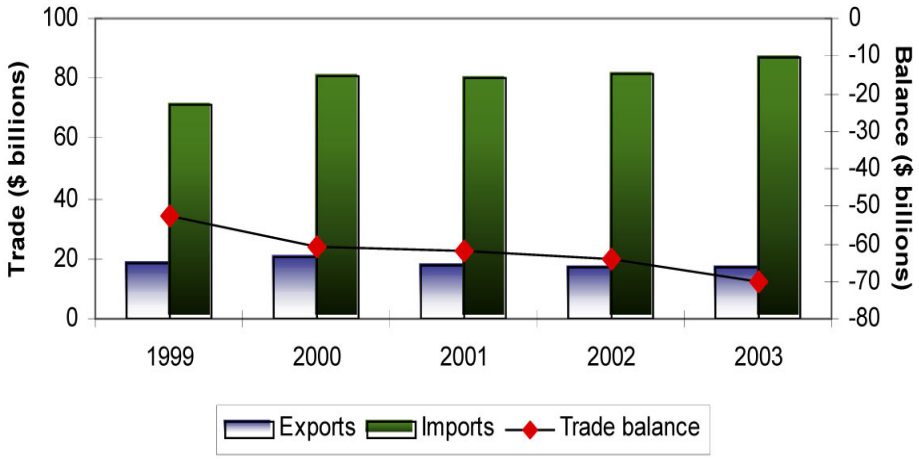


Figure 3. U.S. Imports, Exports, and Trade Balance 1999-2003

Source: Shifts in U.S. Merchandise Trade: Exports, Imports, and Trade Balance. (Online), August 26, 2004. http://www.usitc.gov/tradeshifts/textiles.html

The apparel and home furnishings industries are the top two sectors that have had decreases in exports and increases in imports. From 2002 to 2003, apparel exports decreased 9.6%, and imports increased 6.8%. Home furnishing exports decreased 6.6%, while imports increased 18.8% (United States International Trading Corporation, 2004).

The increase in apparel imports, retail promotions, and market share by discounters have caused a downward trend in average selling prices even though sales have risen. The trend in offshore sourcing will continue due to legislation and the elimination of quotas. In July 2002, the Trade Act of 2002 was approved, which gives the President the right to negotiate trade agreements while Congress has the final authority to approve or disapprove an agreement. This legislation also

contained the Andean Trade Preference Act, which provided duty-free access to most apparel from the Andean region. The new trade act also modified the Caribbean Basin Trade Partnership Act and the African Growth and Opportunity Act. Most analysts believe that these trade agreements have increased sourcing to these areas, but the trend is only temporary (Apparel and Footwear Industry Survey, 2004).

Imports from Asia, mainly China and Vietnam, also increased in 2003. United States imports from Asia were over $80 billion in 2003, increasing the trade deficit with Asia to $47.4 billion. Imports from China alone increased 22% in 2003 to $15.4 billion. China is by far the largest supplier of textiles and apparel to the United States (United States International Trading Corporation, 2004). China is able to produce goods at a significantly lower cost, and their factories employ highly skilled workers that can produce complex garments unlike those employed in such areas as Sub-Saharan Africa (Apparel and Footwear Industry Survey, 2004). Neuman (2004) contributes China's success to their "can-do" attitude especially towards on-time performance. Manufacturers in China will lose money to get goods to a customer on-time because they do not want to lose their integrity and they know the customer is more likely to come back (Neuman, 2004).

United States trade with the NAFTA countries, as well as those involved with the Caribbean Basin Economic Recovery Act (CBERA), declined in 2003. United States manufacturers decreased the amount of sourcing done with Mexico, which led to a decline in the amount of U.S. exports of textile goods for production in Mexico to be re-imported by the United States. A decline in the amount of trade with

the NAFTA countries is due to the restrictions on the use of duty drawbacks and greater competition from China, the CBERA countries, as well as sub-Saharan African countries involved in the African Growth and Opportunity Act (AGOA). The trade deficit with the CBERA countries rose 5% to $47,408 million in 2003, and the deficit with AGOA countries rose 41% to $1,421 million (United States International Trade Commission, 2004).

Retailing Decisions

Other major trends impacting the textile and apparel supply chains are retail consolidation, deflationary price trends, and the elimination of quotas. Global retailers are dominated by large organizations that differentiate themselves by price. In order to remain competitive, the large retailers must source from low-wage countries and develop strong relationships with offshore suppliers. In a Kurt Salmon Associates (KSA) analysis, it was predicted that the top ten retailers will control 25-30% of trade by 2010. The trend of decreasing retail prices has also increased competition among retailers to offer the lowest prices (Singhal, 2003).

Quotas

Over the past 20 years, the cost of quotas has influenced the sourcing strategies of U.S. apparel companies and retailers, and quotas are the main reason why apparel is imported from over 50 countries (Apparel Export Promotion Council, 2004). After January 1, 2005, more key players are predicted to enter the market, which is expected to put more pressure on prices. The quota elimination is also predicted to free 49% of trade. In order to compete, suppliers will have to invest

collaboratively with customers for product development and forecasting (Singhal, 2003). However, after the quota elimination apparel firms are expected to concentrate their sourcing strategies in fewer countries to reduce the time it takes to get new products into stores and to increase supply chain flexibility.

The U.S. International Trade Commission performed a study that predicted that China would be the "supplier of choice," but U.S. importers would also form close relationships with suppliers in other low cost countries, especially India, to reduce the risk of sourcing from only one country. India will flourish due to its low cost labor, large supply of fabrics, and its ability to produce a wide range of products. Bangladesh and Pakistan are also expected to emerge as major suppliers to U.S. importers. Many countries are predicted to become 2nd tier suppliers for niche goods, who will be responsible for goods not supplied by 1st tier suppliers. Companies capable of quick response for replenishment purposes include Mexico, the CBERA region, Turkey, and Colombia. China's textile and apparel imports to the U.S. have increased 340% since they entered the World Trade Organization at the beginning of 2002. Imports are predicted to increase even more after quota removal (Apparel Export Promotion Council, 2004).

Supply Chain Management

Supply Chain is a term increasingly used by logistics professionals that encompasses every effort involved in producing and delivering a final product, from the supplier's supplier to the customer's customer (Supply Chain Council 1997). Lummus (1999) combined several definitions to define supply chain as: all the

activities involved in delivering a product from raw material through to the customer including sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, delivery to the customer, and the information systems necessary to monitor all of these activities (Lummas, 1999). Supply chain management has evolved over the years taking on several different terms such as interorganizational relationships, supplier management, logistics management, transaction cost economics, and corporate strategy (Choi *et al.,* 2002).

Supply chain management has become a growing interest in the industry due to that fact that it looks beyond each entity to the linkages between each entity (Choi *et al.,* 2002). Supply chain management has become increasingly crucial due to fewer companies being vertically integrated, increased competition, the increased realization of the effect that one entity has on the entire supply chain, greater emphasis on flexibility, and the need to produce new products more quickly (Lummas, 1999).

Companies are beginning to realize that they must be able to compete on the basis of time. Cost, quality, delivery, and technology are still major factors to consider, but a company must be competitive in these areas so that they can get the product to the customer faster than their competitors. This has led to an increase in the need for superior supply chain management (Handfield, 1999). However, the integration of supply chain management has been slow due to failure to develop measures, lack of guidelines to form alliances with partners, lack of trust amongst

suppliers and customers, lack of trust within a company, organizational resistance, and lack of integrated technology (Lummas, 1999).

Performance Measurement

In order to access the overall performance of a supply chain, performance measurement is needed. Companies are not only competing product to product anymore. They too are competing in the area of logistics processes to achieve maximum asset utilization and operational efficiency (Durtsche, 1999).

As more products are becoming a commodity, companies also have to compete on the service with which a product is delivered. Companies have to use logistics to differentiate themselves. As more and more retailers expand globally in their sourcing strategies, many U.S. manufacturers must also go global. Globalization has led to very long supply chains, which must be flexible, lean, and agile with minimum inventory levels. As the market becomes more complex, performance measures will have to be a priority in order to meet customer demands. Every company that is involved in the supply chain must work together to generate the most savings. Every entity of the supply chain should be working towards the same goals (Durtsche, 1999).

The information needed includes: products and services offered, sales, market share, cost, quality, delivery, cycle times, assets utilized, responsiveness, and customer service (Handfield, 1999). In order to be successful in performance measurements one must make sure that the performance measures are in synch with the company strategy, and one must also understand customer expectations

and the cost of providing logistics services. Logistics measures must be defined at the business level first, and only key process measures should be the focus in order to eliminate any ineffective measuring (Durtsche, 1999).

Cooke (2001) described a study that was performed that surveyed 350 companies in which the majority surveyed said that they had metrics in place to measure performance, but few were measuring performance with both suppliers and customers. The study also found that when on-time delivery was measured, the supplier and customer rarely defined the term jointly. Satisfying customer expectations can be very difficult when performance metric terms have not been defined and agreed upon by all parties involved. By measuring performance a company can prove to customers that they are meeting goals, and they may prove that suppliers are not meeting goals. Either way, areas for improvement are identified (Cooke, 2001).

Durtsche (1999) conducted a survey with 355 responses from U.S. retailers, manufacturers, and transportation providers. The results showed that U.S. companies are having a hard times making improvements in their logistics operations. The major driver in superior logistics performance was the existence of a structured measurement program. Measuring and quantitatively analyzing logistics factors help companies to understand how they are performing compared to their competitors (Durtsche, 1999).

Durtsche's (1999) study also showed that performance measuring also helps a company to better understand how well they are meeting the expectations of their customers and how to correct problems before they occur. The research found that

a company can benefit from a structured measurement program in three areas: reducing operating costs, improved customer service, and new growth opportunities. Performance measures that over 50% of customers of the surveyed companies measure to evaluate performance include: on-time delivery, order fill rate, invoice accuracy, performance to request date, order cycle time, customer service, stock-outs/back orders, over/short/damaged, performance to commit date, and line item fill. Effective performance measures can help to understand which suppliers offer the lowest costs, what customers are the most profitable, and which services are adding the most value (Durtsche, 1999).

Durtsche's (1999) study showed how customer-value measurements were replacing utilization and productivity measures as the key drivers in decision making. Handfield (1999) recognized the main integrated supply chain performance measures as time and customer satisfaction. He found that customer satisfaction could be found by measuring perfect order fulfillment, product quality, delivery-to-commit date, warranty costs, returns, and customer-inquiry response time. Time can be measured through order fulfillment lead time, source/make cycle time, supply chain response time, and production plan achievement (Handfield, 1999).

Beamon (1999) presented an evaluation of performance measures used in supply chain models and supplied a framework for performance measurement selection. She suggested that the performance measures chosen must be inclusive, universal, measurable, and consistent. The performance measures used in supply chain models to date are cost, customer responsiveness, activity time, flexibility, and combinations of these Beamon (1999). Other measures that have been used

include: customer satisfaction, information flow, supplier performance, and risk management. Performance measures can be used singly or jointly. Using a single measure exhibits simplicity, but it must describe all aspects of the supply chain in order to be accurate (Beamon, 1999).

Beamon's (1999) framework suggests that a measurement system should include one measurement from three identified types: resources, output, and flexibility. Resources are meant to measure efficiency, output measures customer service, and flexibility measures a company's ability to respond to a changing environment (Beamon, 1999).

Gunasekaran (2004) suggested that process control along a supply chain is imperative to improving performance and can be achieved through measurement. Individual companies will succeed faster at maximizing their supply chain potential by developing the performance measures and metrics needed to fully integrate the entire chain. The measurements used should be understood by all members of the supply chain, and all members should be performing to achieve the same organizational goals. Gunasekaran (2004) discussed supply chain metrics and measures in the context of the activities: plan, source, make/assemble, and delivery/customer.

The most important metrics for order planning are the order entry method, order lead time, and the customer order path. The order entry method illustrates how customer requirements are converted into information that is distributed along the supply chain. Measuring order lead time is important because a reduction in lead time leads to a reduction in response time. The customer order path is an

important measure in that the time spent in different channels can be determined and non-value adding processes can be acknowledged (Gunasekaran, 2004).

Measuring a supplier's performance performs measuring sourced goods. Measuring a supplier's performance is important to ensure that they are performing up to customer expectations and to ensure that they are working towards the same goals as the rest of the supply chain. Gunasekaran (2004) discussed that supplier performance measurements include lead time, quality, cost savings initiatives, pricing against the market, purchase order cycle time, capacity flexibility, technical expertise, customer service, and defect rate. The measurements chosen should be those that strengthen the supplier-customer relationship (Gunasekaran, 2004).

Production is one of the most important entities of the supply chain and should therefore be measured for improvement purposes. Production measurements include product range, capacity utilization, and scheduling techniques. Product range affects supply chain performance in that companies with a wide range of products usually add less value per employee and lack in speed and delivery reliability. Capacity utilization is important because it directly affects the response time to satisfy the customer demand. Scheduling determines how goods will flow in operation, which directly impacts production and performance (Gunasekaran, 2004).

Delivery is the link in the supply chain that directly affects the customer. Important delivery measures include on-time delivery, faultless invoices, flexibility, and total distribution costs. On-time delivery measures the percentage of perfect deliveries and is an appropriate measure of customer service as well. Perfect

deliveries can also be measured by comparing invoices to a previously made agreement. Flexibility is an important measure in that in it measures a firm's ability to provide a product that meets customers' demands when needed. Total distribution costs should be measured to encourage appropriate trade-offs that will lead to a more effective system (Gunasekaran, 2004).

The results of Gunasekaran's (2004) survey provided the measures that are deemed as the most beneficial in the four concentrated areas. The performance metric rated as "highly important" for planning was customer query time, while the most important for supplier metrics was supplier delivery performance. The defect percentage, cost per operation hour, and capacity utilization were rated as highly important for production metrics, and quality, on-time delivery, and flexibility were the most important for delivery metrics (Gunasekaran, 2004).

Global Supply Chain Structures

Textile and apparel manufacturers occupy very different economic environments. Textile manufacturers are typically large, capital intensive firms that have integrated spinning and weaving/knitting facilities. Some are in the business of finishing the fabrics into an end product, while others partner with cheaper off-shore finishers. The apparel industry is more fragmented in that it is comprised of many small, labor intensive firms. The search for low-wage labor and the desire for flexibility are the two primary reasons that explain the shift of geographical locations of apparel firms. Because the retail sector is more fashion-oriented they are more

involved in global sourcing, which is growing more and more every year (Gereffi, 1994).

Globalization has been the leading cause of the change in supply chain structures in the global textile and apparel industries. Competition in the market today is no longer between companies but instead is between supply chains (Christopher, 1992). Trends affecting supply chain structures include the change from pull to push strategies, global sourcing to multiple low-wage countries, free trade agreements, sourcing agents, and full package "sourcing cities" (Kahn, 2004).

Global Sourcing

Sourcing refers to the process of determining how and where manufactured goods or components will be obtained (Dickerson, 1999). Mark Neuman (2004) from the Limited Brands explains that labor costs are not the biggest factor in retailing sourcing decisions. From a retail perspective the most important factors are innovation, product development, execution, delivery time, fashion focus, and speed. Customers want fashion, value, product assortment, and innovations that cannot be bought from someone else. If one retailer does not carry what they are looking for, going next door to a competitor is very simple. Retailers want to spend the least amount of money on a higher quality product and receive it as fast as possible. The entire supply chain should be flexible and provide speed (Neuman, 2004).

Within the last decade, retailers have become the competitors of apparel manufacturers as they have progressively turned to imports. Brand marketers are shrinking their supply chains by decreasing their number of suppliers, they are

reducing their purchasing activities, and they are decreasing their support functions (Gereffi, 1994).

Harris (2001) agreed with Neuman (2004) in saying that the two main factors of outsourcing production, reducing costs and quick response, are actually contradicting the success factors in today's retail environment. "Cost reduction is no longer necessarily the end game strategy" (Harris, 2001, p.6). There are currently three trends that are changing the retail environment: shrinking lead times, suppliers are in charge of inventory management, and there are increasing consequences for non-compliances. While speed and getting the product to the customer on time are important, they often cancel each other out (Harris, 2001).

Harris (2001) also suggested that excellent customer service and quality products are just as important as costs and quick response. With new issues arising, the sourcing process has become more complex with many alternatives. The companies that are successful are those that can compete on costs, quick response, quality, and customer service. Successful manufacturers are those that can integrate design, fabric production, cut and sew operations, as well as logistics. The key is to become a partner with the retailer or the customer in general, and to offer a totally integrated operation. The key factors to successful sourcing are to make it part of your competitive strategy, control your internal quality, maintain an effective merchandising calendar, have sophisticated communication capabilities, and adopt a code of ethics (Harris, 2001).

Cho and Kang (2001) investigated the benefits and challenges of global sourcing as perceived by 148 retailers that were involved in global sourcing. The

benefits identified as the reasons that U.S. retailers participate in global sourcing are quality, cost reduction, availability, improving international competitiveness, and shortening of product development time. The major disadvantages to global sourcing include: quotas, tariffs, trade restriction bills, border-crossing procedures, inventory management, and transportation delays. The major benefits were found to differ in terms of the firm size, product type, and import volume. The challenges to sourcing were found to differ in terms of firm size, product type, import percentage, experience, and region (Cho & Kang, 2001).

Lowson (2003) implied that when quantified, the disadvantages often outweigh the benefits of low cost foreign supply. Therefore, he developed a framework to show the full implications of foreign vs. offshore purchasing. The study hoped to see how factors such as lead-time, inventory, supplier performance, and customer service could be used to develop a sourcing strategy (Lowson, 2003).

A European-based textile and apparel retailer agreed to take part in Lowson's (2003) study. The retailer supplied high quality, fashionable clothing for men and women ages 20-30. They had outlets in Europe and North America supplying basic, seasonal, and short-season goods. An example from each category was taken: summer shirts, denim jeans, and underwear. A number of senior managers were asked to rank and score the chosen variables for each of the 3 product groups using 2 sourcing strategies: Domestic and Off-shore. Relationships considered for the product groups were: lead-time vs. customer service and inventory, supplier service vs. customer service and inventory, and supplier process time vs. customer service and inventory (Lowson, 2003).

The results of Lowson's (2003) study illustrate the areas that U.S. manufacturers may be able to compete. The results showed that domestic sourcing was more appropriate for short season and seasonal goods, and the costs associated with off-shore sourcing strategies could be classified as hidden and inflexibility costs (Lowson, 2003).

Supply Chain Structures

A supply chain encompasses every effort involved in producing and delivering a final product, from the supplier's supplier to the customer's customer (Supply Chain Council, 1997).

According to Gereffi (1994), global supply chains have three main dimensions: an input-output structure, a territoriality, and a governance structure. The input-output structure consists of a set of products or services that are linked together in a sequence of value-adding activities. A territoriality structure consists of dispersed or centralized distribution networks that are made up of different types of entities. The governance structure consists of the financial, material, and human resources that are assigned and flow along a supply chain (Gereffi, 1994).

Spens (2002) identified the aspects to consider concerning supply chain structure as: 1. the members of the supply chain; 2. the structural network dimensions; 3. the process links. There are three structural dimensions identified to describe, analyze, and manage a supply chain: horizontal structure, vertical structure, and horizontal position. A horizontal structure shows the number of tiers across the supply chain, while a vertical structure illustrates the number of suppliers

or customers within each tier. Horizontal positioning refers to the location of a company between the beginning and end-user of a supply chain (Spens, 2002).

Figure 4 illustrates a traditional textile supply chain, for the fiber and textile industries are invoking the remainder of the supply chain activities as indicated by the arrows. This model shows the flow of goods in one direction, and the downstream activities are not shown to have any influence on upstream activities.

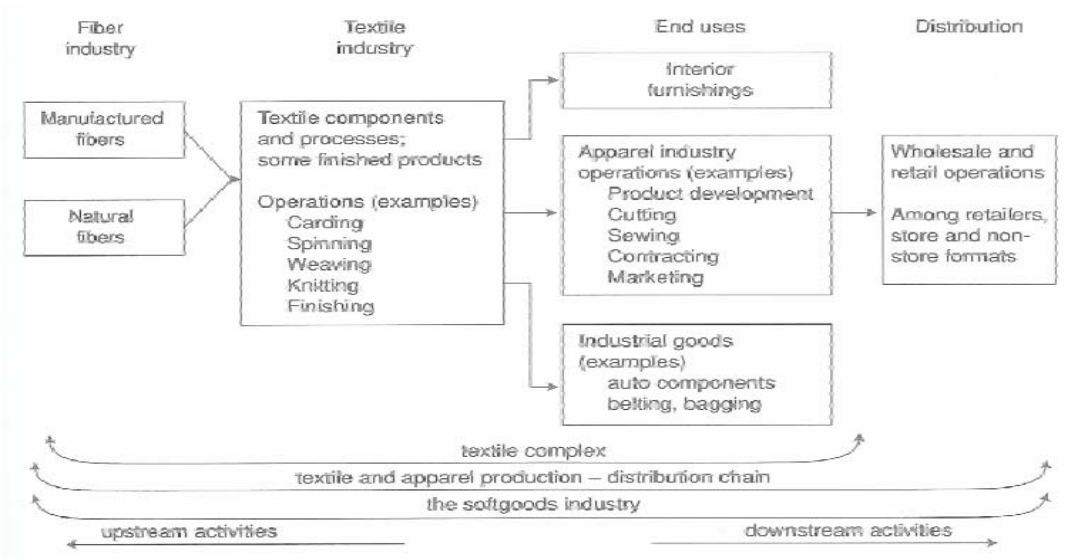


Figure 4: Dickerson's Textile Supply Chain

Source: Dickerson, K. G. (1999). *Textiles and apparel in the global community (3rd ed.).* Upper Saddle River, NJ: Merrill.

The U.S. textile and apparel industries are described as a "buyer-driven" supply chain (Singhal, 2003). Buyer-driven chains are those in which large retailers, brand-name merchandisers, and trading companies play a vital role in setting up decentralized production in a variety of exporting countries, especially third world countries. The international contractors typically make the finished goods, and the specifications are given to them by the branded companies that design the product

(Gereffi, 1994). Figure 5 illustrates a typical buyer-driven supply chain. The solid arrows represent primary relationships, while the dashed arrows represent secondary relationships.

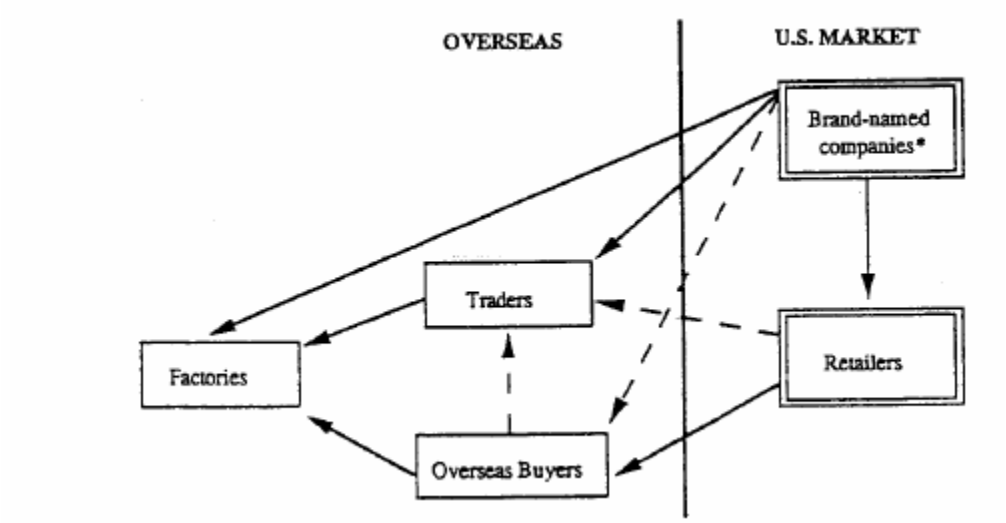


Figure 5. Buyer-driven Commodity Chains

Source: Gereffi, G. (1994). The Organization of Buyer-Driven Global Commodity Chains: How U.S. Retailers Shape Overseas Production Networks. *Commodity Chains and Global Capitalism*. Westport, CN: Praeger, 1994, 95-122.

The Demand Activated Manufacturing Architecture (DAMA) was a project performed at TC2 that defined the soft goods supply chain and produced supply chain analysis tools. Figure 6 illustrates a typical supply chain for a textile enterprise from a fiber company to the retailer. The model shows the types of information that flows from one entity of the supply to another (TC2).

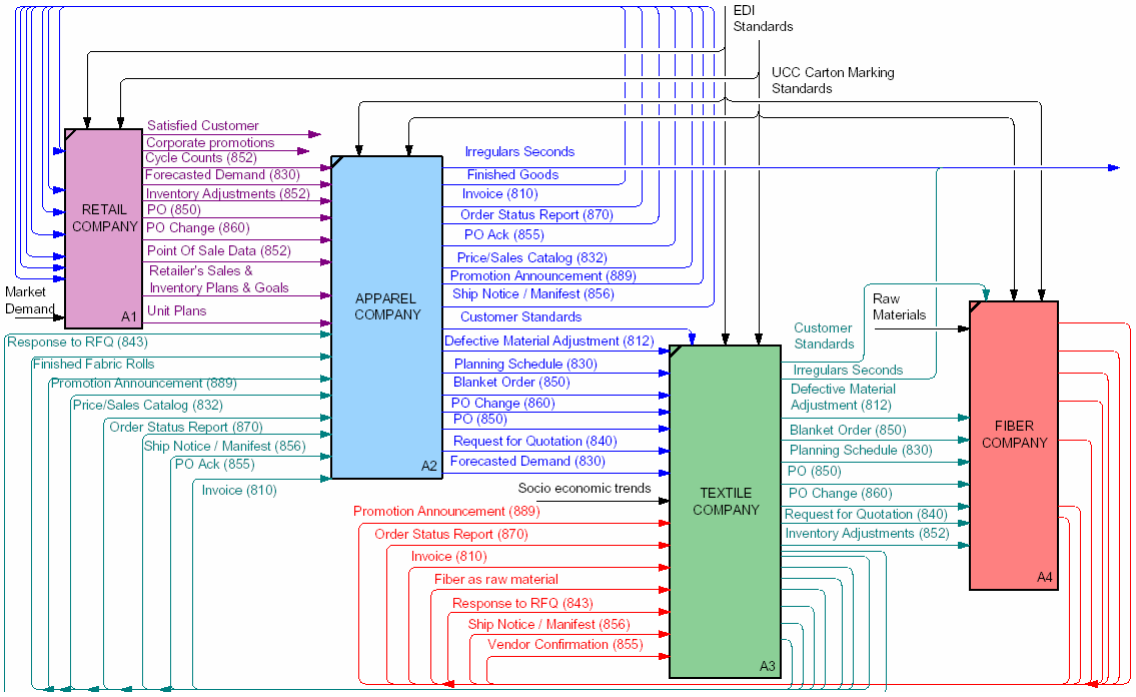


Figure 6. DAMA Textile Enterprise Model (TC2)

Source: TC2, 2004.

Bruce and Daly (2004) provided characteristics of the textile and apparel supply chains while looking at the perspectives of lean, agile, and leagility. The textile and apparel supply chains are often long and complex with many parties involved. Commonly retailers will deal with manufacturers on the basis of buying, price negotiations, quality, and delivery times. However, it is very common today for retailers to deal with an intermediary, such as an import or export agent, especially for global sourcing purposes. Textile and apparel retailers must get the right product on the shelves at the right time, for the fashion industry is characterized by a short product life cycle, low predictability, high volatility, and impulse purchases (Bruce & Daly, 2004).

Bruce and Daly (2004) performed case studies of companies at different levels of the supply chain, from fiber producer to retailer in order to determine the perspective of lean, agile, and leagility amongst the supply chains. In order to do this, the supply chain structures of the companies were mapped out. Company 1 manufactured high street fashion, and their products were sourced directly and through agents mainly from the Far East and some from the UK. Problems with this supply chain structure were increased lead times, communicating changes, and poor quality production. The supply chain for company one is shown below in Figure 7, and is an example of a supply chain structure of a company that sources directly from an overseas fabric manufacturer or through a sourcing agent.

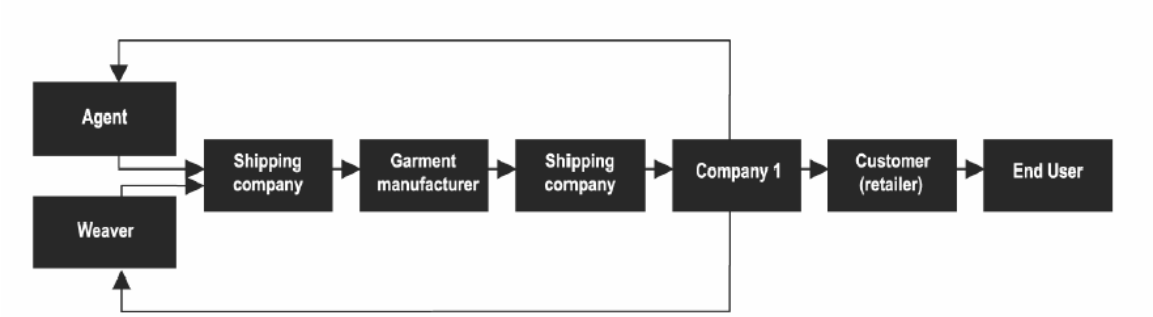


Figure 7. Global Supply Chain Structure – Sourcing Directly with Offshore Manufacturer or Sourcing Agent

Source: Bruce, M., Daly, L., & Towers, N. (2004). Lean or Agile: A Solution for Supply Chain Management in the Textiles and Clothing Industry? International Journal of Operations and Production Management, 24(2), 151-170.

Company two was a fiber producer that focused production in Germany, The Netherlands, UK, USA, Brazil, Italy, and Poland. This company informed end users about new products in order to speed up market awareness. They also worked directly with the end customer to apply its research and development to the market

needs. The supply chain structure of company two is below. This is a good example of a company forming key partnerships with their customers.

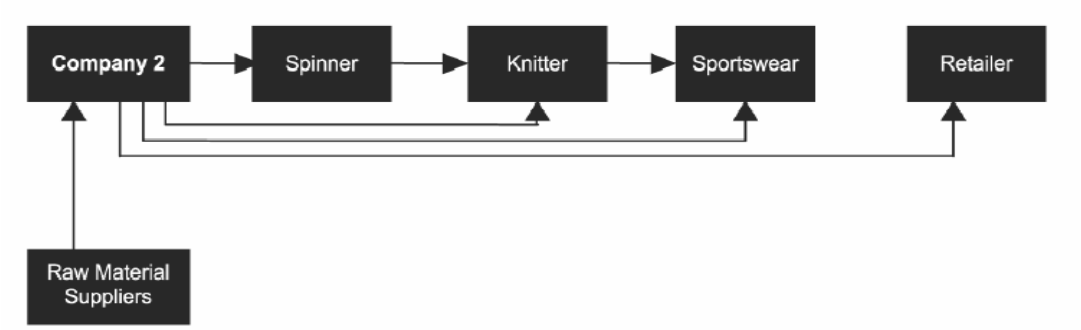


Figure 8. Global Supply Chain Structure – Customer/Supplier Partnership

Source: Bruce, M., Daly, L., & Towers, N. (2004). Lean or Agile: A Solution for Supply Chain Management in the Textiles and Clothing Industry? *International Journal of Operations and Production Management*, 24(2), 151-170.

Company three was a small company that designed and sourced the manufacturing of headwear and accessories for the sportswear market in the UK and the Far East. This is an example of a supply chain for a company that sources manufacturing domestically and globally. The mixed supply base enabled this company to optimize its situation in the sportswear market.

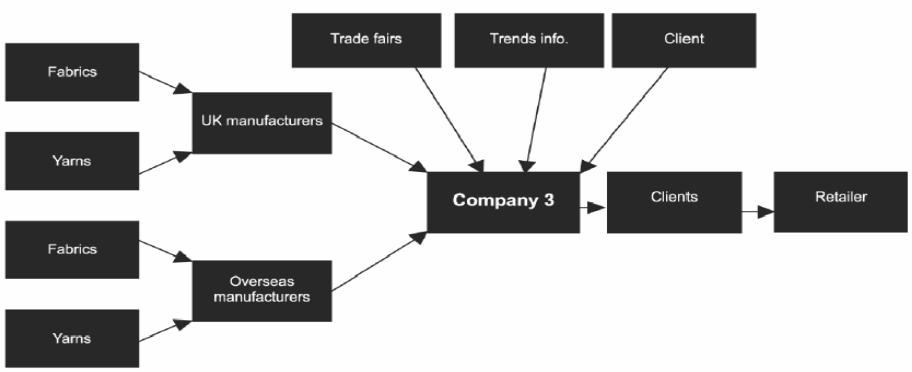


Figure 9: Global Supply Chain Structure: Domestic and Global Sourcing

Source: Bruce, M., Daly, L., & Towers, N. (2004). Lean or Agile: A Solution for Supply Chain Management in the Textiles and Clothing Industry? *International Journal of Operations and Production Management*, 24(2), 151-170.

Company four was a premium brand manufacturer and retailer with over 220 shops world-wide. This company tried not to work through agents, but rather invested in relationships at all levels. They had close relationships with 10 mills and used 20-30 other suppliers on occasion. Building close relationships allowed company four to overcome problems with volume and lead times. This is an example of a company's supply chain that is involved in high fashion goods with small batch quantities.

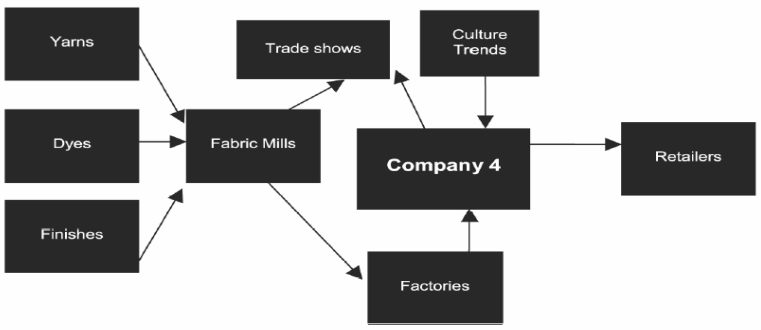


Figure 10: Global Supply Chain Structure: Push Strategy

Source: Bruce, M., Daly, L., & Towers, N. (2004). Lean or Agile: A Solution for Supply Chain Management in the Textiles and Clothing Industry? *International Journal of Operations and Production Management*, 24(2), 151-170.

The case study results showed that textile and apparel companies utilize both agile and lean perspectives. Companies 1, 3, and 4 took a leagile approach, while company 2 took a lean approach. The results proved that the textile and apparel markets are characterized by volatile markets with short product life cycles and high product variety. The two sectors have low profit margins so holding stock is not a good option (Bruce & Daly, 2004).

According to Gunneson (1997) there are three dominant supply chain patterns. The traditional pattern is the dominant structure of companies seeking globalization to enter into new markets. This structure is known for difficult contribution, sharing,

and responsibilities. The traditional alliance focuses on outsourcing instead of knowledge sharing. The second pattern is known as the lean supply chain, which is known for long-term collaboration with certain suppliers and customers. Companies with a lean supply chain strive to secure cost, quality, and smooth operations. The lean supply chain model has limited impact on market competitiveness. The third pattern is the agile supply chain, which is known for global exchange of manufacturing components. The agile supply chain has a stronger influence on market competitiveness because it enables tracking of technology changes and material development. Agile supply chains focus on co-operation with other facilities, which increase the potential for lower costs, quality, flexibility, speed, and product innovation (Gunneson, 1997).

Flexibility of a supply chain is constrained due to little information sharing and demand fluctuation. Each entity of a supply chain forecasts a demand for what will be needed from their direct customer. However, exact forecasts are nearly impossible and accurate information is rarely shared with textile suppliers. Incomplete information is mainly due to the “pre-positioned” amounts of fabric that is based on the seasonal forecast. Many companies, such as Li & Fung, work this way in that they have certain orders that are “in the dark” so that certain types of fabrics may become less available. The distorted information leads to demand amplification which in turn affects the fabric supply (Leung, 2000).

Leung (2000) explained the trend of sourcing agents with a focus on Hong Kong and proposed a new sourcing-enterprise model. Hong Kong plays a major role in that the city holds several sourcing activities and offices for U.S. retailers.

The trend of using sourcing agents and buying offices has introduced a new supply chain structure that is being used more and more by U.S. retailers. Hong Kong has taken the role as a sourcing enterprise as global sourcing has increased. Many U.S. retailers have partnered with firms in Hong Kong that handle all aspects of production and supply (Leung, 2000).

Retailers normally send a concept to a sourcing agent who in return will send a prototype to allow the U.S. importer to make timely purchasing decisions. Figure 11 below models the typical role of a global sourcing agent and what a typical supply chain structure may look like. The figure shows the role of Hong Kong in organizing the activities by supplying information to move physical goods. The major functions of sourcing enterprises include product development, order placement, order follow-up, and order shipments (Leung, 2000).

"The primary reason for using sourcing enterprises is that they provide a service to their customers" (Leung, 2000). Sourcing agents assume most of the risks involved with manufacturing, eliminating problems to be dealt with by the retailer. Hong Kong's strengths in providing full package include production flexibility, understanding customers, managing networks, and one-stop shopping. The world-class sourcing-enterprise model proposed by Leung (2000) suggested that agents must retain existing strengths, endless improvement, customer-based management, flexible organization, human resources management, and ethics to continue to compete (Leung, 2000).

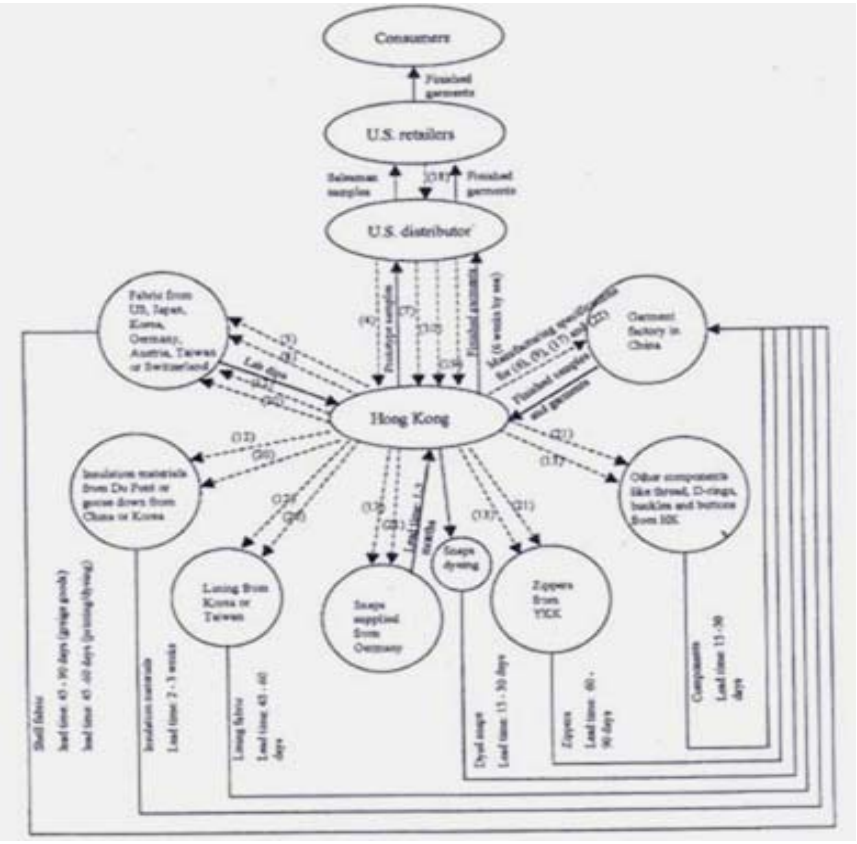


Figure 11. Supply Chain Structure Using a Sourcing Agent

Source: Leung, S.Y.S. (2000). World-Class Apparel-Sourcing Enterprises and the Restructuring of Existing Global Supply Chains. *The Journal of the Textile Institute*, 91(2), 73-93.

A company by the name of Luen Thai Holdings Ltd. in Dongguan, China created a possibly new sourcing model. Luen Thai created a "supply chain city," which consists of an industrial campus where designers from U.S. companies can sit down with engineers and technicians to work together to create a garment from design to production in record time. Kahn (2004) predicted that many retailers will consolidate their sourcing into only a few countries after the elimination of quotas. Companies are also predicted to consolidate their operations to cut down on the time and money it takes to produce goods in many parts of the world. The creation of a "supply chain city" enables companies to reduce their staff and concentrate all

their operations closer to the production floor. Luen Thai predicted that they could take weeks off of production times and streamline the supply chain. The new model also solves a huge problem for retailers: “getting new styles into stores faster.” The downfall to the new model is that if there is a malfunction in any area, an entire season’s line could be ruined (Kahn, 2004).

Market Analysis

Bottom Weights

Consumers in the U.S. spent over $310 billion on clothing and footwear in 2003. However, employment in the U.S. apparel industry has fallen approximately 65% over the past 30 years with 43,800 lost in 2003 alone (Apparel and Footwear Industry Survey, 2004). The trend by U.S. retailers to source with low-wage offshore vendors is illustrated by the $4.3 billion increase in apparel imports in 2003 to $68.3 billion. Consumer spending rose in 2003 due to a rebound in the stock market, economic growth, and a trend in dressier fashions. This in turn caused an increase in demand for imports (United States International Trading Corporation, 2004).

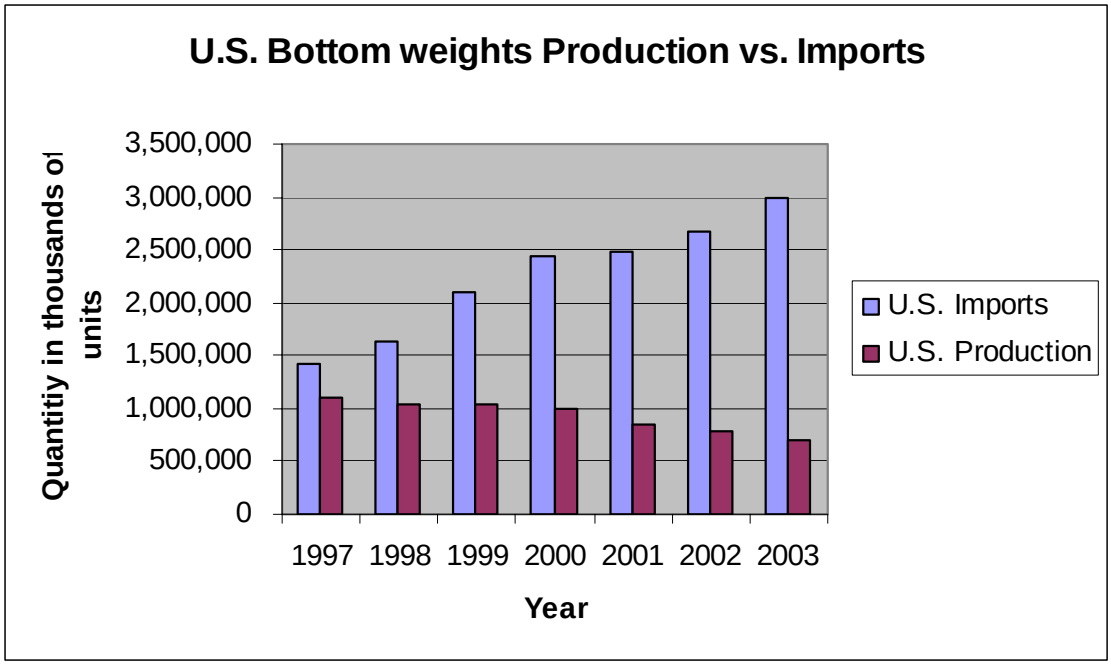


Figure 12: U.S. Bottom Weights Production vs. Imports

Source: 1997-2003. Current Industrial Reports: Apparel. (Online), September 20, 2004. U.S. Census Bureau. http://www.census.gov/cir/www/

Figure 12 proves that U.S. companies have lost market share in the bottom weights market, for it shows a comparison of production and imports from 1997 to 2003. Imports have risen over 52% since 1997 and over 10% since 2002. On the contrary, production declined over 36% from 1997 and over 11% from 2002. Imports were 82.4% of men's consumption in 2002 and 84.6% of women's. Bottomweights for men include dress and sport trousers, jeans, jean-cut casual slacks, shorts, and workpants. Women bottom weights consist of jeans, slacks, shorts, and skirts (Current Industrial Reports: Apparel, 2003).

Over the past decade there has been a shift in standardized apparel production, including jeans and other bottom weight articles, mainly to Mexico and the Caribbean. Standardized apparel consists of basic clothing articles that can be

bought all year long. Since there is always a need for replenishment, retailers and apparel manufacturers would rather source from a region with shorter lead times (Gereffi, 1994). Table 1 shows the top ten countries and their production of cotton bottom weights. Mexico is the top producer with 26.5% market share, and the Dominican Republic is the second largest producer (Cotton, Inc., 2004). The production in these two areas has especially increased since the creation of NAFTA in 1994 and the 807 initiative (Gereffi, 1994).

Table 1. Top 10 Cotton Bottom Weight Producing Countries by SME

		% Share of
Country	**SME**	**World Production**
World	**9,813,584,541**	**1**
Mexico	2,599,693,264	26.49%
Dominican Republic	653,556,910	6.66%
Hong Kong	495,451,148	5.05%
Honduras	393,047,441	4.01%
Guatemala	309,389,679	3.15%
Turkey	305,143,178	3.11%
Egypt	273,278,203	2.78%
Cambodia	271,792,956	2.77%
Bangladesh	266,801,755	2.72%
El Salvador	247,338,301	2.52%

Source: Cotton, Inc., 2004

Figure 13 shows the top ten countries that are exporting cotton trousers to the United States. In 2002 the top three U.S. cotton trouser imports came from Mexico, Dominican Republic, and Hong Kong, but all three countries had negative growth in 2003. However, in 2003 Vietnam had a growth rate of over 200% to take the third spot, while the rest of the top ten also had small, positive growth rates (OTEXA, 2004).

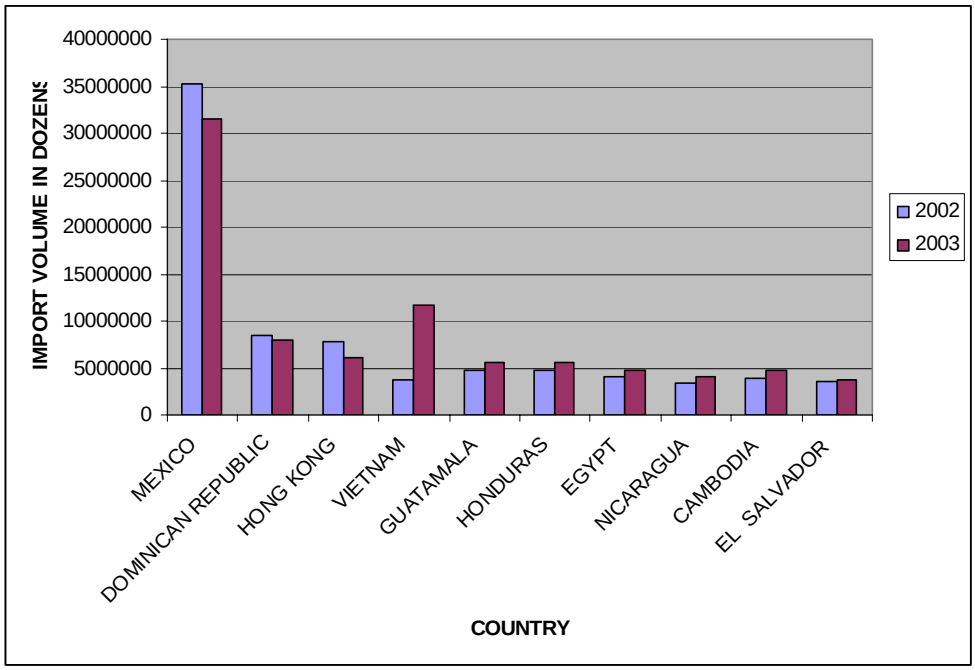


Figure 13 . Top 10 U.S. Cotton Trouser Imports by Country

Source: Office of Textile and Apparel: Major Shippers Report, 2004

Figure 14 shows the top ten countries that are exporting man-made fiber trousers to the United States. Mexico is also the leading exporter of man-made fiber trousers to the United States. However, from 2002 to 2003 Mexico's growth rate declined almost 15%, while Honduras, a smaller country, had a positive growth rate of 13.4% (OTEXA, 2004).

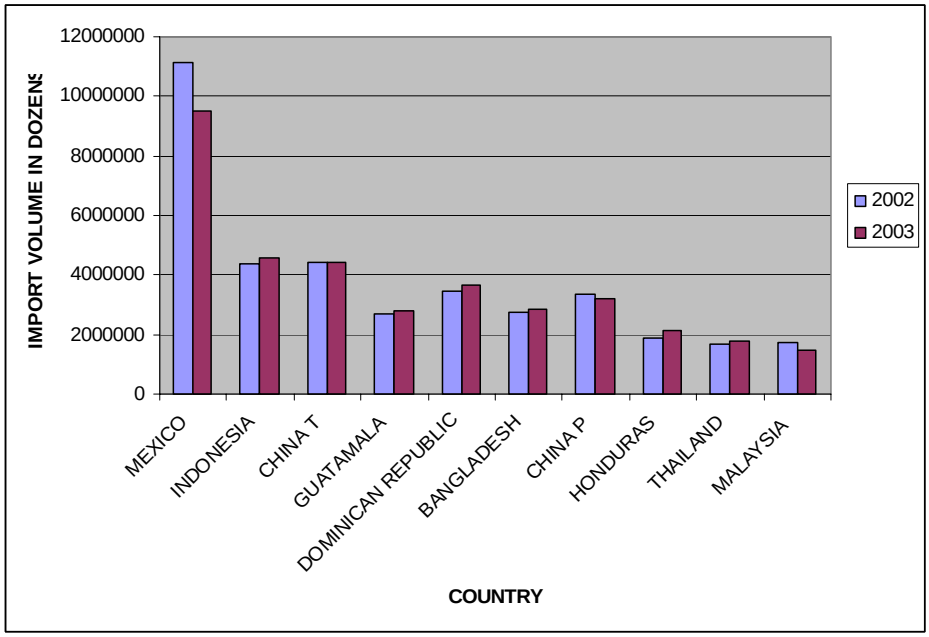


Figure 14. Top 10 U.S. Man-made Fiber Trouser Imports by Country

Source: Office of Textile and Apparel: Major Shippers Report, 2004

Tables 2 and 3 refer to the imports and exports of broadwoven fabric, which is the fabric that is used to construct bottom weight garments. Table 2 illustrates the top five countries that the U.S. exported broadwoven fabric to in 2004. The top five countries are all in the Western hemisphere. These, with the exception of Canada, are large garment manufacturing countries. The U.S. exports fabric to these lower wage countries for garments to be assembled, and then the U.S. will re-import the garments back into the U.S. to be sold. The interesting factor to look at is that the top five producers of cotton bottomweights are not the same as the countries that are receiving U.S. broadwoven fabric. While Mexico, Dominican Republic, and Guatemala are still in the top five producers of cotton bottom weights, so are Hong Kong and Vietnam. However, Hong Kong and Vietnam are not getting their

broadwoven fabric from the United States. Their fabric is probably coming from China due to their large fabric supply or another country in the Far East.

Table 2. U.S. Exports of Broadwoven Fabric in 2004

Numbers in thousands of dollars

Country	Amount Imported
Mexico	1,236,362
Canada	453,048
Dominican Republic	359,767
Guatemala	166,454
Honduras	132,865

Source: www.census.gov, 2004

Table 3 illustrates the top five countries that the U.S. is imported broadwoven fabric from in 2004. The most fabric came from China, followed by Italy, Canada, Pakistan, and South Korea. This illustrates the effect of import penetration and the fact that many mills in the U.S. have closed. Therefore, the U.S. is having to import fabric from countries in Asia and Europe to satisfy product needs because the fabric is no longer available in the United States.

Table 3. U.S. Imports of Broadwoven Fabric in 2004

numbers in thousands of dollars

Country	Amount Exported
China	382,313
Italy	362,875
Canada	350,149
Pakistan	343,672
South Korea	270,663

Source: www.census.gov, 2004

Bed – Bath

Products in the bed-bath market are classified by the North American Industry Classification System as “Other Household Textile Products” (U.S. Census Bureau, 2002). The bed-bath market is a sector of the home furnishing industry, and the main products include bedding, sheets, comforters, blankets, pillowcases, and towels.

Standard and Poor’s (2004) is uncertain about the strength, in terms of economic recovery, of the U.S. Home Furnishings industry. The industry is fueled by the housing market, which in turn is influenced by interest rates. Due to the recent state of the economy consumer confidence has been down, which is also a major driver in home furnishing sales. However, the recent decrease in interest rates has resulted in strong housing sales. Standard and Poor’s (2004) predict that home furnishing sales will benefit from the increase in housing sales.

The home furnishings industry has also been affected by low-cost, offshore competition. They have seen minimal pricing power and low net margins. Domestic companies have invested in new machinery, new information systems, and updated equipment to remain competitive. Standard and Poor’s (2004) predict that domestic companies will benefit from increased efficiency to help consolidate production in to only a few domestic manufacturing facilities. The U.S. companies that have the money are expected to reduce debt, make acquisitions, and repurchase shares (Standard and Poor’s, 2004).

The bath market has been spurred by the addition of more bathrooms in new homes, as well as people redecorating to incorporate their bathroom with the

bedroom. Discount retailers have taken market share from specialty retailers to become the leaders in the bath market. Discount stores have begun to offer better quality and more variety than department or specialty stores. They are providing towels with heavier piles and construction, as well as rug with finer yarns. With discounters leading the bath retail market importing has become more and more important. They can provide quality bath products at affordable prices (Home Textiles Today, 2001). Table 4 shows the percentage of home textiles divided up among retail distribution channels. Even though discount department stores hold 36% of home textile sales, the top five retailers in terms of percent growth are mid-price chains, off-price chains, or home textile specialty stores (Home Textiles Today, 2004).

TABLE 4: % OF HOME TEXTILE SALES PER DISTRIBUTION CHANNEL

Distribution Channels	
Type of Store	**%**
Discount department stores	36%
Mid-price chains	22%
Home textiles specialty stores	16%
Department stores	12%
Off-price chains	5%
Other	3%
Variety/closeout	2%
Direct-to-consumer	2%
Single unit specialty stores	1%
Warehouse clubs	1%

Source: Bedding Report: 2004 Home Textiles Today, May 2004

Importing and exporting home furnishings to the U.S. is an accelerating trend. The market saw the greatest shift in players in 2003 in the towel sector due to the loss of Pillowtex and decrease in capacity. Many U.S. manufacturers have increased their amount of imports by gross amounts: West Point Stevens increased towel imports by 220% and greige goods by 125.3%, Croscill increased window

treatments by 125%, and CHF Industries increased their bed in a bag imports by 100% (*Home Textiles Today*, 2004). Figure 15 shows the production versus import trends from 1997 to 2003.

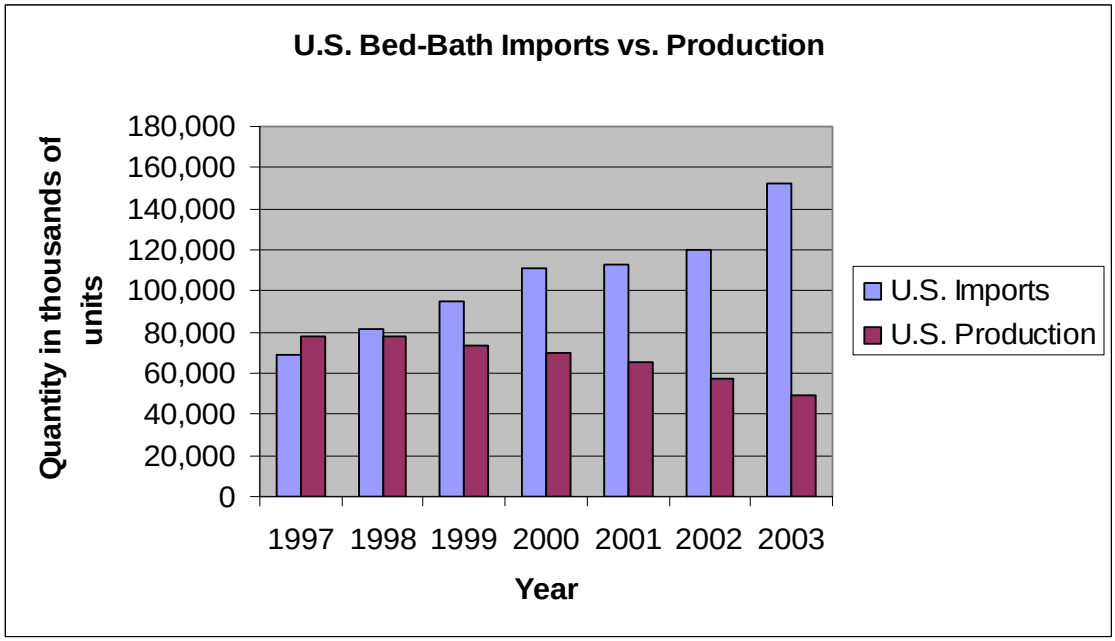


Figure 15: U.S. Bed-Bath Imports vs. Production

Source: 1997-2003. Current Industrial Reports: Bed and Bath Furnishings. (Online), September 20, 2004. U.S. Census Bureau. http://www.census.gov/cir/www/

Imports of U.S. Bed-Bath products were up 55% from 1997 and up 22% from 2002. However, production declined 30% from 1997 and 14% from 2002. Imports made up over 49% of U.S. consumption of bed and bath products in 2002. United States imports of home furnishings increased $795 million in 2003 to $5 billion (U.S. Census Bureau, 1997-2003). The imports were concentrated in categories that were eliminated from quota in 2002, which included bedspreads, bath linens, and towels (United States International Trading Corporation , 2004).

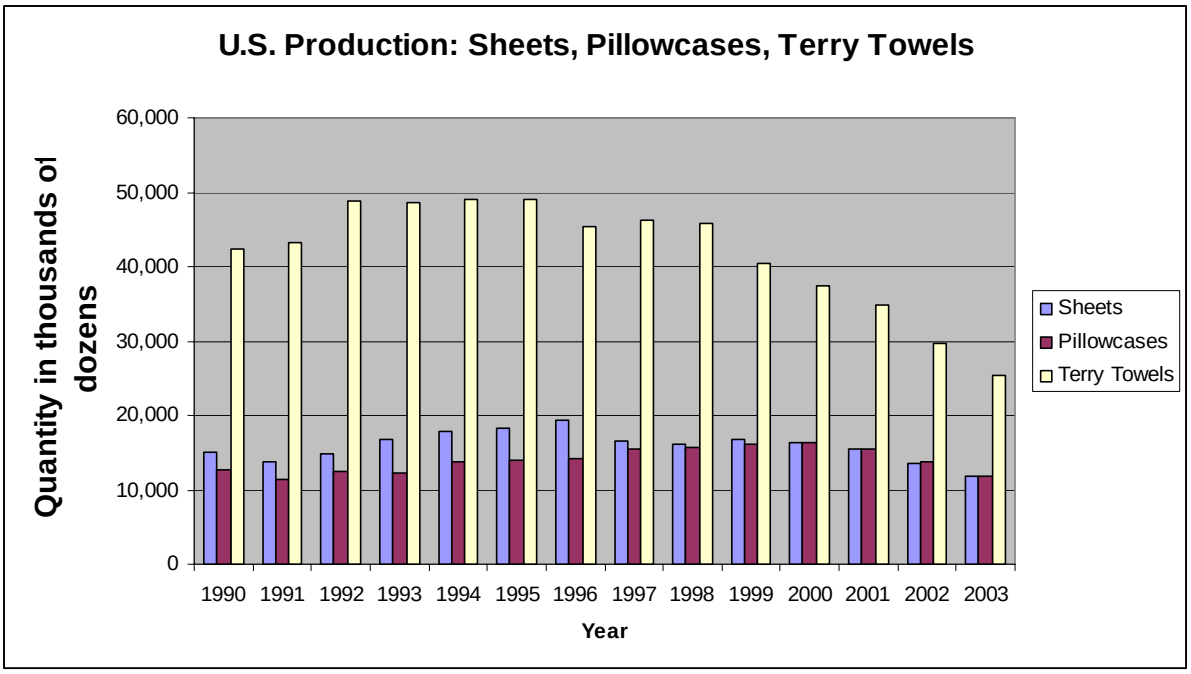


Figure 16: U.S. Production: Sheets, Pillowcases, & Terry Towels

Source: 1997-2003. Current Industrial Reports: Bed and Bath Furnishings. (Online), September 20, 2004. U.S. Census Bureau. http://www.census.gov/cir/www/

The top three products in the bed-bath sector are sheets (fitted and flat), pillowcases, and terry towels (U.S. Census Bureau). Since 1990 U.S. production of sheets has decreased around 21%, but has decreased about 38% since 1996. Sheet sales in the U.S. peaked in 1999, the highest since 1990. Sales in 2003 were $914,510 thousand, which was 37% down from $1,447,403 thousand in 1999.

The U.S. production of pillowcases decreased only 7% since 1990, but has decreased approximately 29% since 2000. Since 1990, pillowcase sales have actually increased, but sales declined 17% from 2002 to 2003.

Terry towel production in the U.S. has declined around 40% since 1990, and has declined around 48% since 1995. Even though production of terry towels were 53% higher in 2003 compared to sheets, the sales value of terry towels are much

less. Terry towel sales in the U.S. dropped 37% from $1,313,403 thousand in 1998 to $822,099 thousand in 2003 (U.S. Census Bureau, 1997-2003).

Figure 17 illustrates the trend of increasing home textile imports by U.S. manufacturers. The top two companies in sales, Springs and Westpoint Stevens, were also the top two companies to import goods in 2003 and 2004. This shows that more and more U.S. manufacturers are outsourcing production or components in the areas that are more economical to source (Home Textiles Today, 2004).

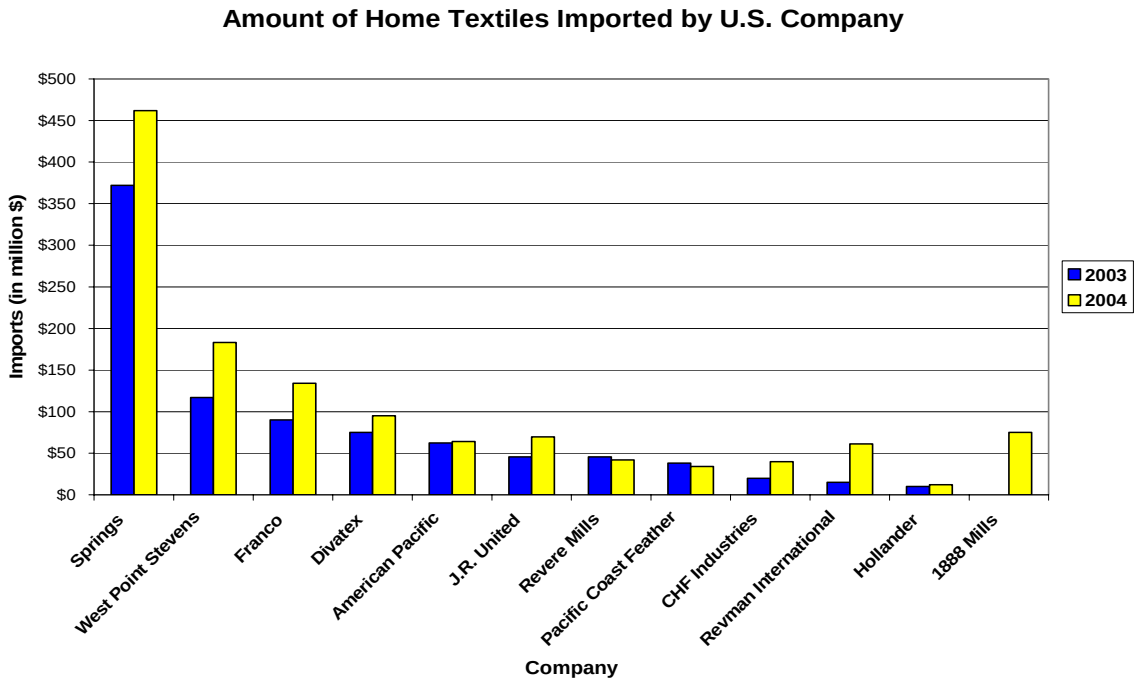


Figure 17: U.S. imports by U.S. Home Textile Manufacturers

Source: February 17, 2004. Top 15 Vendors – 2003. (Online), August 30, 2004. Home Textiles Today. http://hometextilestoday.com

U.S. retailers and manufacturers are sourcing home textile products from various countries, with the top five being India, Pakistan, Brazil, Turkey, and China (as seen in figure 15). Although China is the 5th most sourced from country in terms of home textiles, they had a 77% growth from 2003 to 2004. With the elimination of quota, this trend is predicted to continue. Figure 18 illustrates the top countries from which home textiles are being imported. While Pakistan is the second largest exporter of home textiles to the U.S., they are the overall largest global producer of bed-bath products as seen in Table 5.

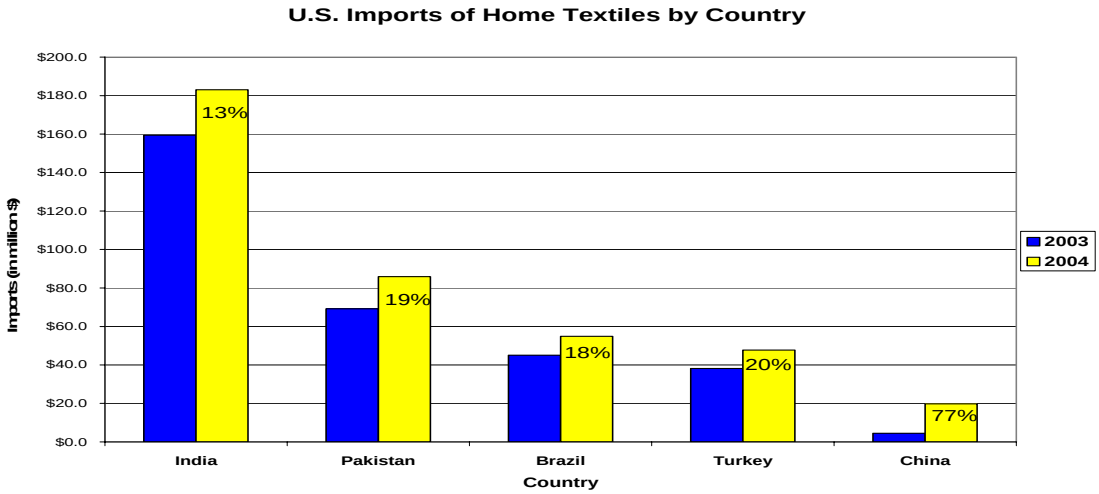


Figure 18: U.S. Home Textile Imports by Country

Source: February 17, 2004. Top 15 Vendors – 2003. (Online), August 30, 2004. *Home Textiles Today.* http://hometextilestoday.com

Table 5. Top 10 Cotton Bed-bath Producing Countries by SME

Country	SME	% of World Production
World	**3,877,301,263**	
Pakistan	1,082,074,553	27.91%
Portugal	427,304,905	11.02%
China	413,664,258	10.67%
Turkey	372,615,243	9.61%
India	366,396,720	9.45%
Philippines	132,342,750	3.41%
Mexico	120,540,377	3.11%
Bangladesh	116,518,718	3.01%
Israel	95,883,083	2.47%
Brazil	94,686,317	2.44%

Source: Cotton, Inc., 2004

Figure 19 shows the leading foreign home textiles producers that are exporting to the United States.

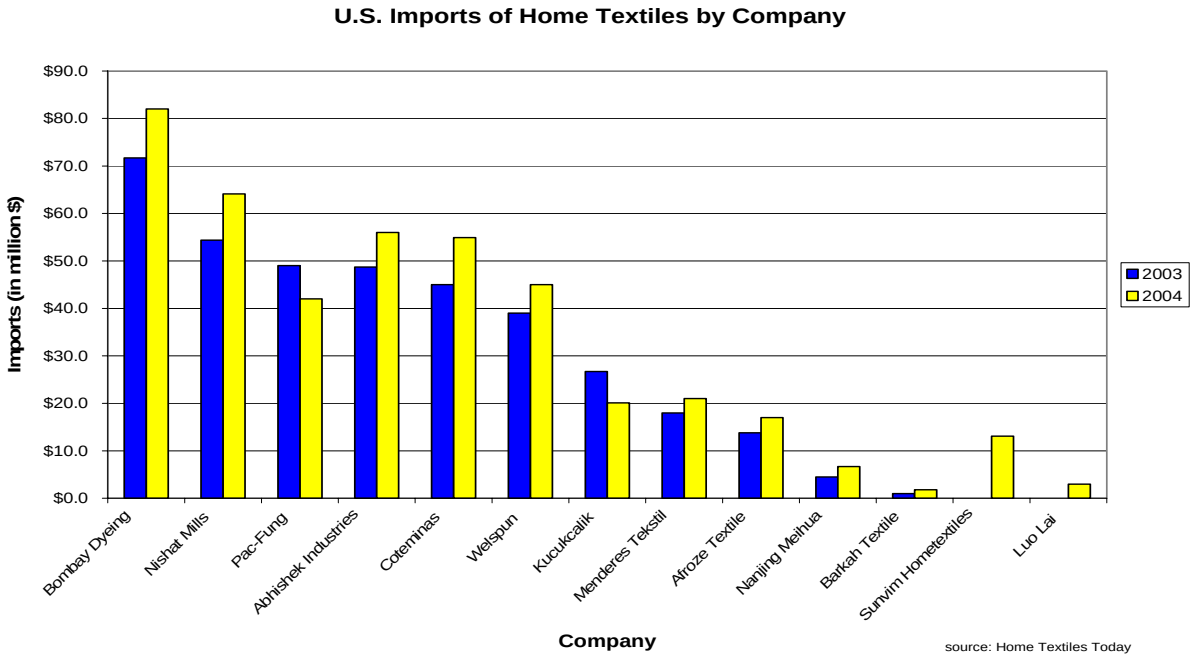


Figure 19: U.S. Home Textile Imports by Company

Source: February 17, 2004. Top 15 Vendors – 2003. (Online), August 30, 2004. *Home Textiles Today.* http://hometextilestoday.com

CHAPTER III

RESEARCH METHODOLOGY

Research Statements

The purposes of this research study were to:

1. Determine why U.S. manufacturers are losing market share in the areas being sourced by U.S. retailers.
2. Determine the supply chain structure that is most successful in the bottom weight and bed-bath sectors of the global supply chain.
3. Provide insight into the performance measures that U.S. retailers use when choosing a vendor.

The primary objectives were to collect data from a sample of major U.S. textile and apparel retailers, U.S. textile and apparel manufacturers, global textile and apparel manufacturers, and sourcing agents with market share in the bottom weights and bed-bath sectors to:

RO1 Determine why U.S. manufacturers are losing market share in the areas being sourced by U.S. retailers.

RO2. Determine the supply chain structures that are being used by:
- A) U.S. retailers
- B) U.S. manufacturers
- C) Global manufacturers[1]
- D) Sourcing agents

RO3. Determine the performance measures that are being used by:
- A) U.S. retailers
- B) U.S. manufacturers
- C) Global manufacturers
- D) Sourcing agents

[1] For the purpose of this study, global manufacturers are those with over 50% of their production performed off-shore.

Research Design

Strategy

Mixed Methods

This research used a mixed methods approach in that the primary and secondary data collection will consist of both qualitative and quantitative approaches. The concept of the mixed methods approach began in 1959 when Fiske and Campbell used the approach to study the validity of psychological traits (Creswell, 2003). A study conducted by Mangan (2004) highlighted the benefits of using a mixed methods, or methodological triangulation, approach in logistics research. He said that by using both quantitative and qualitative methods, researchers could increasingly provide multidimensional insight into management problems, because “triangulation” provides a middle ground between the two extremes (Mangan, 2004). Mixed method approaches are used to eliminate any bias from using one single method, for the results from one method can influence the other method. A mixed methods approach consists of both predetermined and emerging methods, open-end and close-ended questions, multiple forms of data collection, and statistical and text analysis (Creswell, 2003).

Figure 20 illustrates the criteria used to determine the mixed methods strategy to be used for data collection. The implementation of the quantitative and qualitative data research was performed concurrently with an equal priority, and the two types of data are integrated in the collection of both secondary and primary data. Therefore, the theoretical perspective is explicit in that the theory was used as a guiding framework for the study (Creswell, 2003).

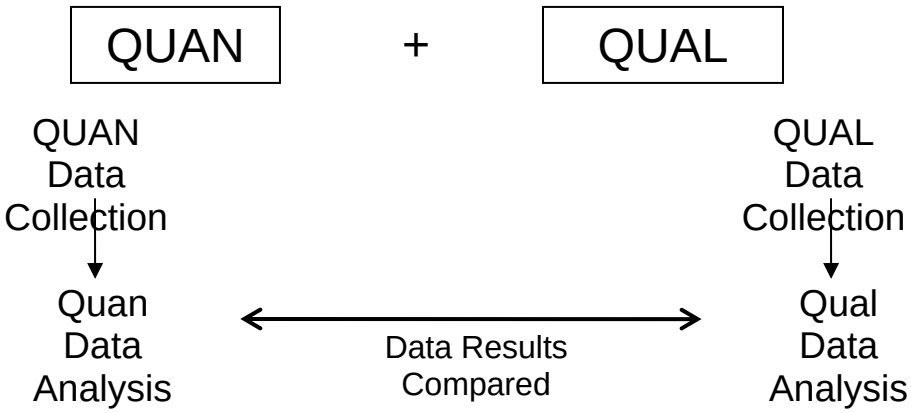
<table>
<tr><th>Implementation</th><th>Priority</th><th>Integration</th><th>Theoretical Perspective</th></tr>
<tr><td>No sequence Concurrent</td><td>Equal</td><td>At Data Collection</td><td rowspan="2">Explicit</td></tr>
<tr><td rowspan="2">Sequential-Qualitative First</td><td rowspan="2">Qualitative</td><td>At Data Analysis</td></tr>
<tr><td rowspan="2">At Data Interpretation</td><td rowspan="3">Implicit</td></tr>
<tr><td rowspan="2">Sequential-Qualitative First</td><td rowspan="2">Quantitative</td></tr>
<tr><td>With Some Combination</td></tr>
</table>

Figure 20. Mixed Methods Strategy

Source: Creswell, J. (2003). *Research Design: Qualitative, Quantitative, and Mixed Method Approaches, 2nd ed*. Thousand Oaks, CA: Sage Publications.

Concurrent Triagulation

The strategy used was a concurrent triangulation strategy, which is illustrated in Figure 21. The visual model depicts that the quantitative and qualitative data were collected at the same time, while the data were compared at the data analysis stage. This model strategy was chosen because it allows the findings to be confirmed, cross-validated, and corroborated within a single study that results in a shorter collection time (Creswell, 2003).



.

Figure 21. Concurrent Triangulation Strategy

Source: Creswell, J. (2003). *Research Design: Qualitative, Quantitative, and Mixed Method Approaches, 2nd ed*. Thousand Oaks, CA: Sage Publications

Inductive and Deductive

The study consisted of two phases of research: inductive and deductive. The inductive phase, modeled in Figure 22, was aimed to gain more insight into the subject. Once there was a better understanding of the subject at hand, the deductive phase, illustrated in Figure 23, was used to clarify the subject in terms of global supply chain structures and performance measures.

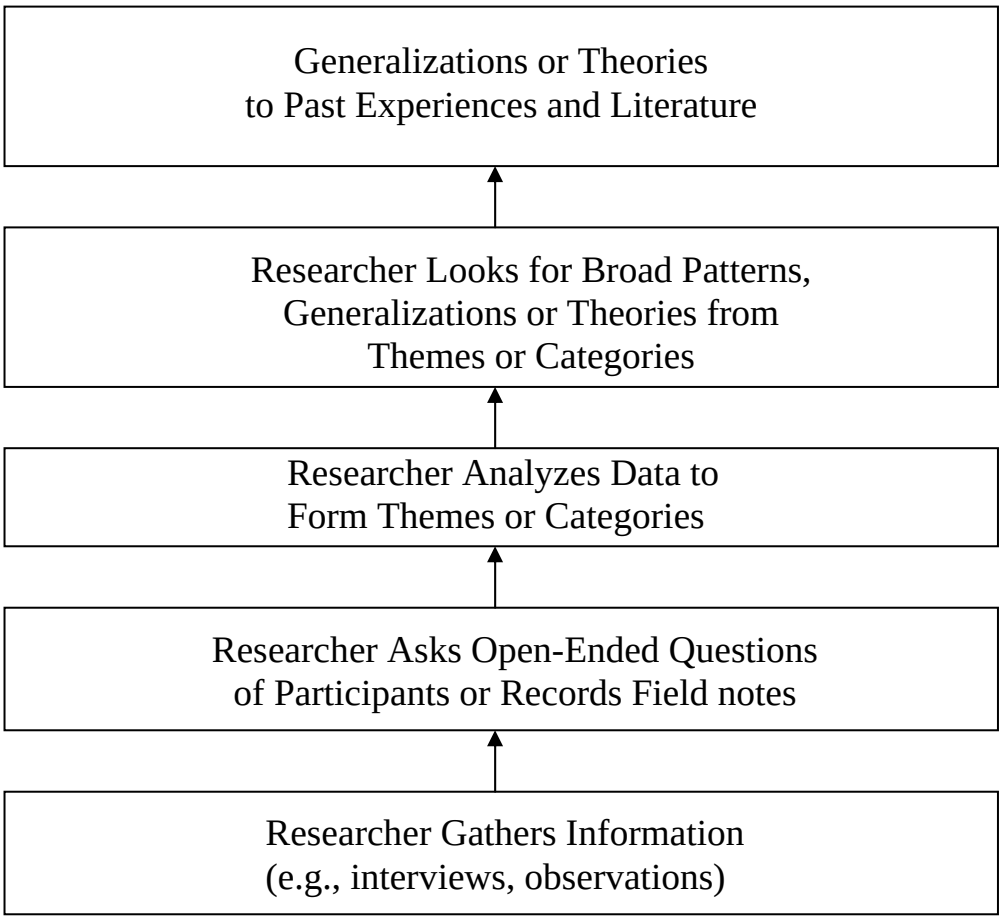


Figure 22. Inductive Model of Research

Source: Creswell, J. (2003). *Research Design: Qualitative, Quantitative, and Mixed Method Approaches, 2nd ed*. Thousand Oaks, CA: Sage Publications.

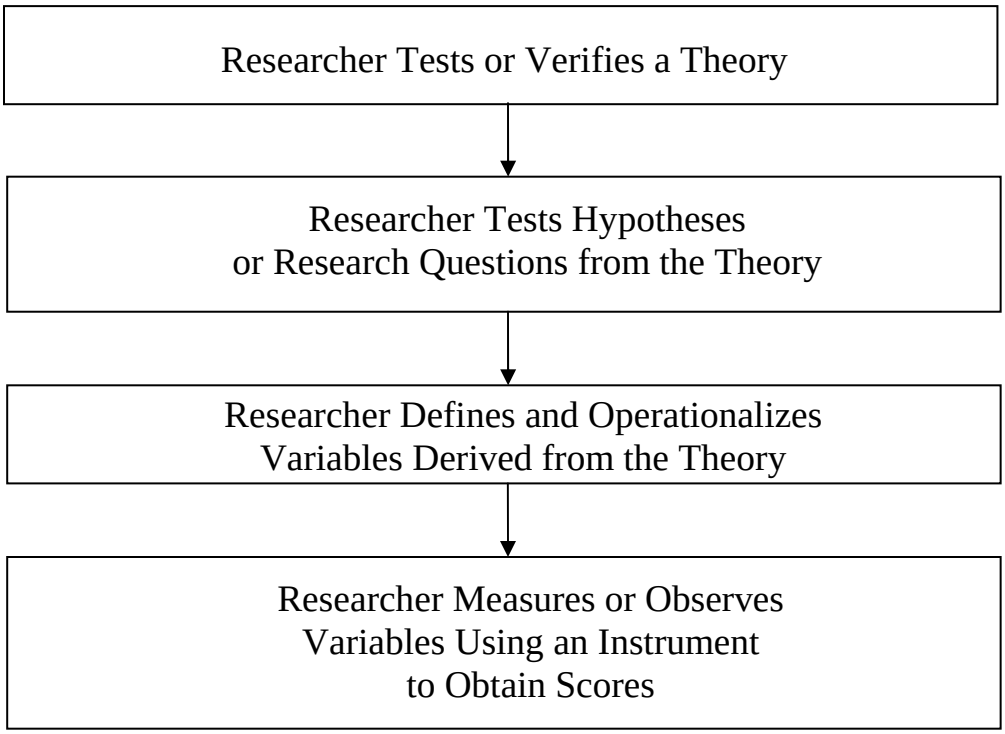


Figure 23. Deductive Model of Research

Source: Creswell, J. (2003). *Research Design: Qualitative, Quantitative, and Mixed Method Approaches, 2nd ed*. Thousand Oaks, CA: Sage Publications.

Phase I: Inductive

For Phase I of the study, secondary qualitative and quantitative research was conducted concurrently. Secondary data are data collected for some other purpose other than the problem at hand. Secondary data research is an essential step that helps to: identify the problem, define the problem, develop an approach, answer certain research questions, and to interpret primary data (Malhotra, 2004). The information gathered from the secondary data was used to clarify the research objectives and to define preliminary supply chain structures and performance measures to be found during Phase II.

Data Collection: Phase I

External secondary sources were used to gather information to provide depth into the subject and to provide data that could be used to contribute to the development of the Phase II data instrument. External sources include data in the form of published materials, online databases, and syndicated services. The secondary data for Phase I was collected from Spring to early Fall of 2004, as well as January of 2005.

Table 6 outlines the steps taken in the secondary data collection process, the sources used, and the data's contribution to the study and the Phase II instrument development.

TABLE 6: PHASE I INSTRUMENT: SECONDARY DATA COLLECTION

Step	Process	Sources Used	**Contribution** (Research Objective is specified in parentheses)
Step 1	• Define market competitiveness	• Marketing textbooks • Marketing journals	• Clarified the type of study to be conducted (1) • Identified the factors to consider in order to gain a competitive advantage (1)
Step 2	• Locate U.S. production, sales, import/export, and shipment data for bottom weights and bed-bath markets.	• 1999-2003 U.S. Census Data • Trade Literature • International Trade Commission data • S&P Industry Surveys	• Provided industry trends (1,2,3) • Proved that U.S. manufactures are actually losing market share in the bottom weights and bed-bath categories (1)
Step 3	• Survey the current competitive environment and market trends in the textile and apparel industries	• Internet research • S&P Industry Surveys • Industry related journals - marketing - supply chain management - logistics - textile and apparel - management • Industry literature/textbooks - international trade - supply chain management	• Explained the market characteristics(1,2,3) • Identified the sourcing trends and strategies used by U.S. retailers and the reasons behind those trends (2) • Identified the performance measures often used to measure the performance along supply chains (3) • Identified examples of global supply chain structures and how they have evolved (2) • Identified the evolution and importance of supply chain management (3) • Identified the top countries trading with the U.S. (2)
Step 4	• Perform a market analysis of the bottom weight and bed-bath industries	• U.S. Census Data • S&P Industry Surveys - apparel and footwear - bed and bath furnishings • Internet research • Trade periodicals - Home Textiles Today • Trade Associations - National Retail Federation - American Apparel and Footwear Association • U.S. Securities and Exchange Commission • Harris Textile Manufacturing • Harris Apparel Manufacturing	• Identified the NAICS and SIC codes needed to define the bottom weights and bed-bath product categories (2) • Identified market characteristics specific to the two categories (1) • Identified the major companies involved in the bottom weights and bed-bath industries with the corresponding NAICS and SIC codes in order to identify the sample size in Phase II (2,3) • Identified the market share held by companies in the two markets (2,3) • Identified sales data from 1999-2003, as well as other company Information (2,3) - location - manufacturing locations - product mix - percent growth over the past five years • Identified the top countries, other than the U.S., producing bottoms and bed-bath products (1,2,3)
Step 5	• Analyze Steps 1-4	• Excel • Discussion	• Assisted in sample selection for Phase II • Assisted in the Phase II development of a questionnaire instrument - company information - potential performance measures - potential supply chain structures

Source: Nowell, H. (2004)

Phase II: Deductive

A questionnaire in interview form was used to gather primary data in Phase II of the study. A mixed methods approach is appropriate in that both structured, close-ended and non-structured, open-ended questions were used. However, the information to be obtained from the questionnaire was strictly qualitative data, for there was no data gathered that could be used for statistical analysis. A questionnaire was chosen because it translates the needed information into specific questions that can be answered, it encourages respondents to become involved in an interview, and questionnaires minimize response error (Malhotra, 2004).

Instrument Development: Phase II

This research study was part of a collective research study conducted by three researchers. The researchers collected information simultaneously on economic competitiveness issues of the global textile and apparel industries: supply chain, logistics cost structures, and international trade disparities. The questionnaire developed consisted of three separate sections focusing on each researcher's area of concentration. The questionnaire contained questions related to each of the economic competitiveness issues as indicated in the trade and research literature.

This study's questionnaire was part one which focused on supply chain structures and the performance measures used along the supply chain. Due to the fact that the sample consisted of different entities of the supply chain, separate questionnaires were developed to target the individual respondent: U.S. manufacturer, global manufacturer, U.S. retailer, and auxiliary companies. The

questionnaires consisted of open and close-ended questions that were intended to gather qualitative data needed to determine the research objectives and their related research questions. Table 7 illustrates how the instrument questions correlate with the research objectives, as well as the structure of the question. The actual questionnaires can be found in Appendix A.

TABLE 7: CORRELATION OF INSTRUMENT QUESTIONS TO RESEARCH OBJECTIVES

	INSTRUMENT QUESTION RELATED TO RESEARCH OBJECTIVES		
Questionnaire	**RO1**	**RO2**	**RO3**
U.S. Retailer	#8	#6,7	#1-5
U.S. Manufacturer	#1-10	#7-10	#1-6
Global Manufacturer	#1-10	#7-10	#1-6
Generic	#1-4,6	#7	#5

Source: Nowell, H. (2005)

Sample Selection

The sample selection process for the six groups began by identifying the key industry leaders involved according to the corresponding NAICS and SIC codes found during secondary data: bed-bath retailers, bed-bath U.S. manufacturers, bed-bath global manufacturers, bottom weights retailers, bottom weights U.S. manufacturers, and bottom weights global manufactures. Once the companies involved in the given NAICS and SIC descriptions were identified, information was gathered and tabulated. The information gathered included: location, sales from 1999-2003, growth rates from 1999-2003, and the market share that the company had for either bottom weights or bed-bath if available. The product mix and manufacturing locations were also found for the U.S. and global manufacturers, and

the distribution channel was found for the U.S. retailers. The methods for narrowing down the sample size for the six categories differed due to the information available for each category.

Once the population was narrowed down and the sample for each market was chosen, the sample was validated with leaders of major companies involved in both markets. The chosen sample was put into three tiers with tier one being the chosen sample. Tier one was chosen first and the other remaining companies were narrowed down into two additional tiers using the same process. The additional tiers were created in the instance that a tier one company would not agree to participate or could not be contacted. The criteria used to narrow down the sample as well as the validation process are explained below.

U.S. Bed-Bath Manufacturers

1. The top twenty-one U.S. bed-bath manufacturers that were classified under the chosen NAICS and SIC codes were identified. However, there were two manufacturers with no manufacturing in the U.S., so they were automatically shifted to the global manufacturing sample. The remaining 19 manufacturers were ranked based on their 2003 sales.
2. The top 15 companies based on their 2003 sales were chosen and then ranked based on their average sales growth from 1999 to 2003.
3. To ensure a representative sample two companies with an above average percent growth were chosen, along with two companies with a below average percent growth and two companies with above average overall sales.

Therefore, the sample size for U.S. bed-bath manufacturers was six. Figure 24 is a model that illustrates the sample selection process.

4. There were two exceptions: 1. A company with above average percent growth was a leading manufacturer but produced a small amount of bedding and bath products. Therefore, two other companies were chosen that also had, though not as high, above average percent growth; 2. The home furnishing sales of a company with below average percent growth was only 8%. Therefore, another company with below average percent growth was chosen.
5. Of the companies selected, those who have over 50% of their manufacturing off-shore were considered global manufacturers, and those with over 50% of their manufacturing in the U.S. were considered U.S. manufacturers.

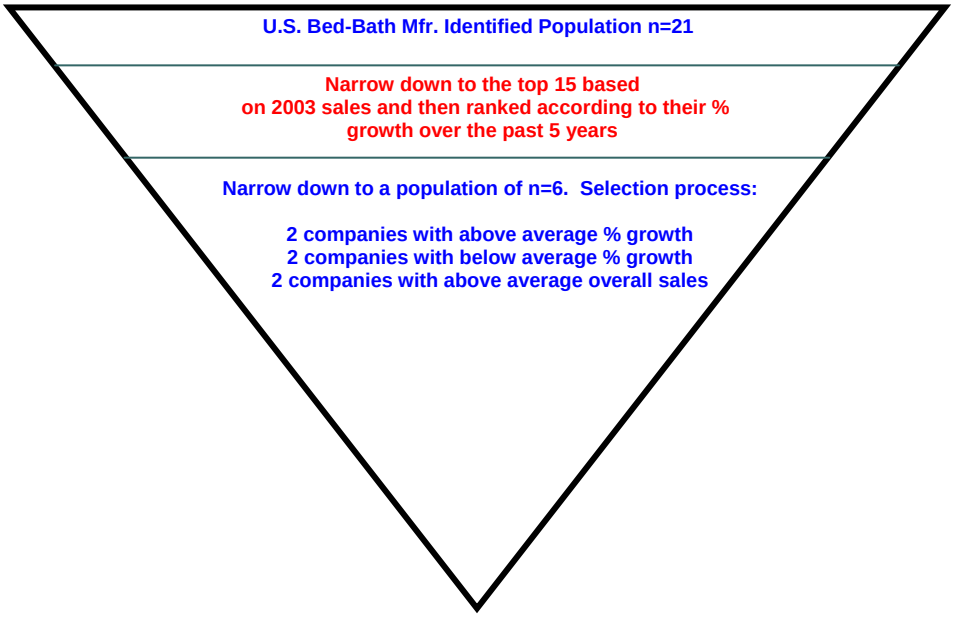


Figure 24. Sample Selection Process: U.S. Bed-Bath Manufacturers

Source: Nowell, H. (2004)

U.S. Bed-Bath Retailers

1. The top 50 retailers based on their average home textile sales over the past five years, 1999-2003, were identified.
2. The top 50 retailers were then divided into groups based on their distribution channel: mass, specialty, chain, department store, off-price, direct mail, and other.
3. From each distribution channel a company with above average sales and a company with above average percent growth were chosen. Two bed-bath retailers, according to above average sales, were specialty stores. Therefore, three companies were chosen from the specialty retailers.
4. If negative growth or growth less than 1%, the retailer was not considered. The direct mail and other channels' market share in bed-bath were not very significant. Therefore, representatives from those two channels were not chosen. Figure 25 is a model that illustrates the sample selection process.

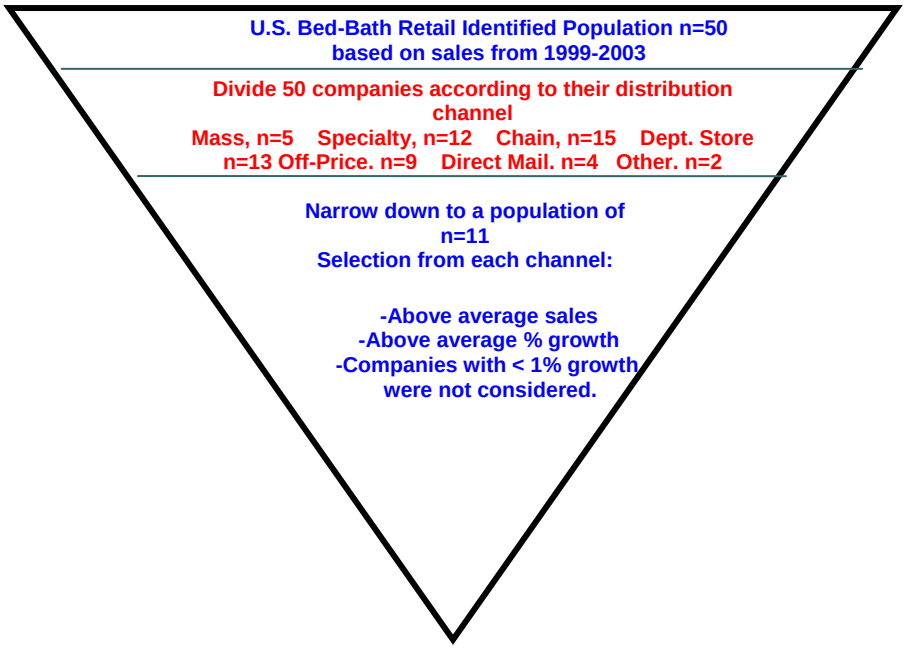


Figure 25. Sample Selection Process: U.S. Bed-Bath Retailers

Source: Nowell, H. (2004)

U.S. Bottom Weight Manufacturers

1. United States bottom weight manufacturers classified under the chosen NAICS and SIC codes were identified. The identified population of U.S. bottom weight manufacturers was 19. These companies were ranked based on their 2003 sales.
2. The companies were then divided into three groups based on their manufacturing locations and sourcing strategies: A) manufacture only in the U.S., B) mixture of both domestic and offshore manufacturing. There were two companies with no manufacturing in the United States. Therefore, they were automatically eliminated and were considered a global manufacturer.
3. The companies were then ranked based on their average percent growth from 1999-2003.
4. To ensure a representative sample two companies with above average percent growth were chosen, along with two companies with below average percent growth and two companies with above average overall sales. The tier one sample size for U.S. bottom weight manufacturers was seven. Two additional tiers were chosen in the instance that a tier one company does not comply with the study. Figure 26 is a model that illustrates the sample selection process.
5. There were a few exceptions: 1. The companies for which no financial information could be found were eliminated from being a possible tier one company. They were automatically put into tier three; 2. Two additional companies with below average percent growth were chosen due to their reputation and market share in the bottom weights business.

6. Of the companies selected, those who have the majority of their manufacturing off-shore were considered global manufacturers, and those with the majority of their manufacturing in the U.S. were considered U.S. manufacturers.

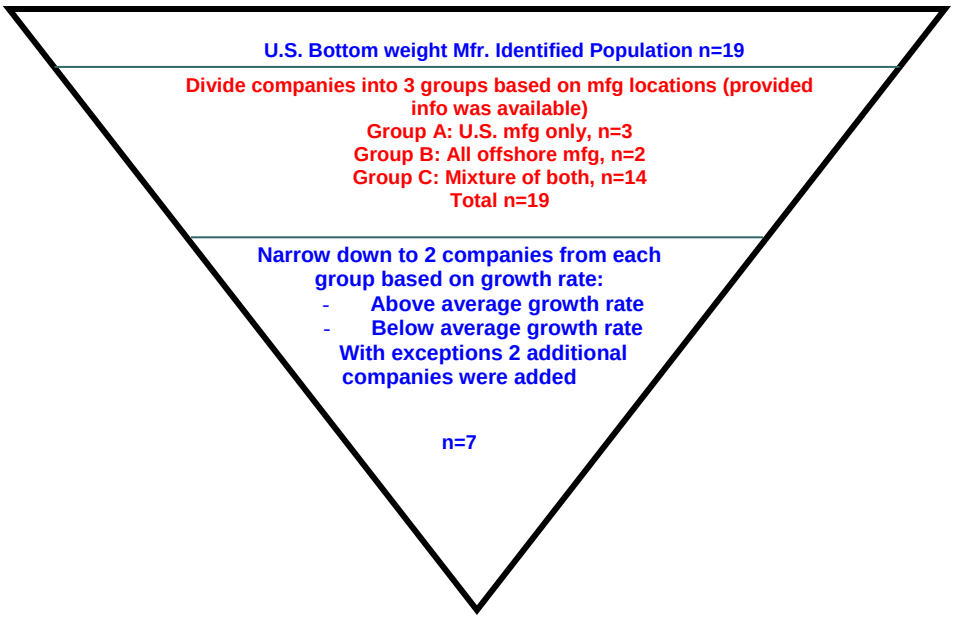


Figure 26. Sample Selection Process: U.S. Bottom Weight Manufacturers

Source: Nowell, H. (2004)

U.S. Bottom Weight Retailers

1. A listing of U.S. bottom weight retailers was obtained by a compilation of three sources: Standard & Poor's Retailer Company Analysis Report (2004), *Apparel*'s annual Top 50 report (2004), and *Stores*' (July 2004) Top 100 Retailers. This resulted in a population of 45 retailers that are involved bottom weight sales.

2. The 45 retailers were then divided into groups based on their distribution channel: mass, specialty, chain, department store, off-price, direct mail, and other.
3. From each distribution channel a company with above average sales and above average percent growth were chosen with the exception of the direct mail and other channels whose market share was insignificant. Companies with growth less than 1% were not considered.
4. Exception: For the specialty retail channel, an additional company with above average growth rate was chosen because their product mix was geared more towards denim and bottom weights more so than a few others.

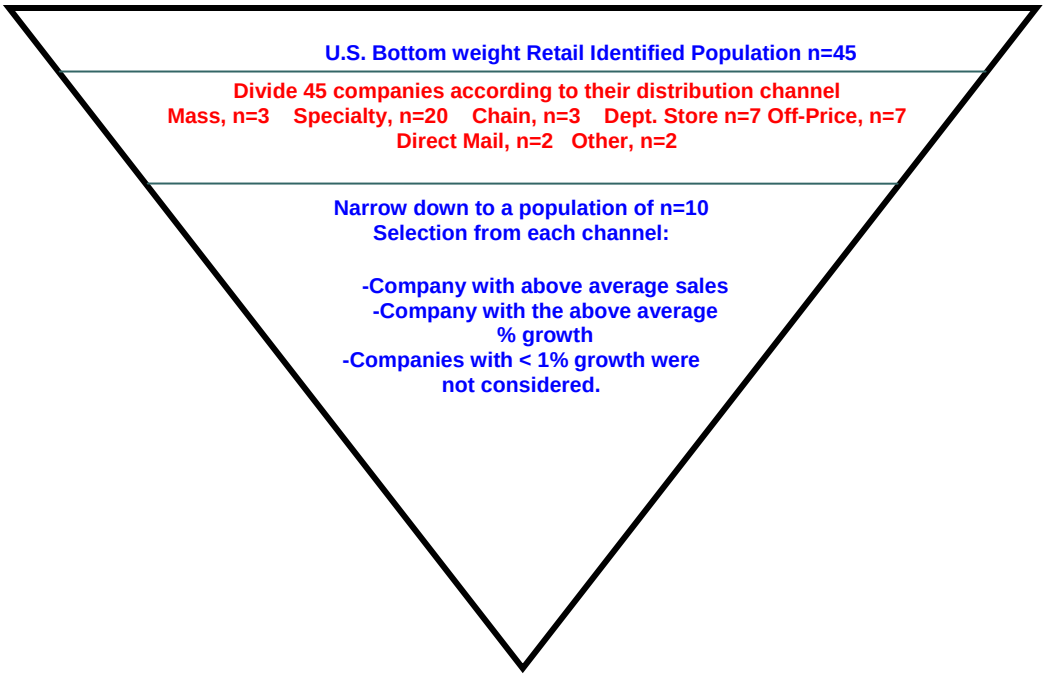


Figure 27. Sample Selection Process: U.S. Bottom Weight Retailers

Source: Nowell, H. (2004)

Sample Validation

Once the proposed sample for each market was selected, a group of leaders from major companies involved in each market was chosen to validate the sample. Two industry representatives from the bed-bath market were used, and three representatives from the bottom weights market were used to validate the sample. Each representative was given a copy of the chosen sample and was asked to give their opinion as to whether each company would be a significant contribution to the study. The validators were also asked to validate the selection of countries to evaluate in Phase I of the study. They were also asked if there were any other companies or countries that have been left out that should not be over looked. The additional companies proposed by the industry executives were added to the sample. Based on the results companies were contacted to participate in the study. Table 8 illustrates the title of each individual that validated the sample.

Table 8. Market Leaders Used to Validate Sample

Bottom Weights	**Position**
Executive 1	Division Director of New Product Development, Fashion Apparel & Specialty Products
Executive 2	VP, Product Development
Executive 3	VP, Merchandising
Bed-Bath	**Position**
Executive 1	President, CEO
Executive 2	President, Creative Products

Data Collection: Phase II

Bruce and Daly's (2004) methodology used in their "Lean or Agile" study was used as a framework for the data collection in Phase II. In Bruce and Daly's study key stakeholders from the chosen companies were contacted by letter, which explained the purpose of the research and asked for their participation. The companies were later contacted by phone to provide further details and to arrange face-to-face interviews. Once confirmed, semi-structured interviews were conducted at the arranged times using an *aide-memoire*. An *aide-memoire* was used to verify the interview structure, to add response flexibility, and to enable comparisons to be made.

For the purpose of this study, companies were first contacted by either letter or by email depending on the type of contact information that was available for each company. However, the same letter was sent by each mode of communication. The letter, which can be found in Appendix B, explained the study at hand and asked for the company's participation. Each company was then sent a follow-up email or phone call in attempt to set up a meeting to conduct the questionnaire in a face-to-face interview or via phone conference.

Due the location of the companies that responded, four trips were designed for data collection. During the trips additional companies not involved in bottom weights or bed-bath were met with to discuss the topic of economic competitiveness in the global textile and apparel industry. These companies were added as part of the study's sample and were given the umbrella term "auxiliary" due to the array of different markets involved.

The data collected in the information interviews were recorded into a spreadsheet instrument, and responses were divided separately into those referring to performance measures and those referring to supply chain structures. Each company's response relating to each research objective was then grouped together for comparisons.

Data Analysis

Data analysis was conducted in three stages.

1. The interviews were transcribed by typing each answer after each question on the questionnaire form, and were then entered into the questionnaire response instruments.
2. The data were organized according to the six categories: Bottom weight retailers, U.S. manufacturers, global manufacturers; Bed-bath retailers, U.S. manufacturers, global manufacturers.
3. The three categories from each product sector were compared according to their responses directly dealing with the three research objectives.

Operational Definitions

Bed-bath: Textiles in the bed-bath sector of the home furnishings industry: sheets, towels, pillowcases, and washcloths. (RO1-3)

Bottom weights: Woven bottoms made of cotton dominant fabric: ex. Denim and khaki. (RO1-3)

Economic Competitiveness: A function of a successful supply chain structure and the metrics used to measure the performance of a supply chain in order to sustain a growing business in a global economy by retaining profitability. (RO2,3)

Full Package: A sourcing strategy used in which one entity of the supply chain takes full responsibility of managing the entire supply chain. That company is responsible for sourcing and/or manufacturing every aspect of a product, as well as getting that product to the customer. (RO2)

Global Manufacturer: Global manufacturers include 2 sub-categories (RO2,3)

1. U.S. manufacturers that produce over 50% of their goods (in volume) off-shore.
2. Sourcing agents

Population: The total number of leading companies found for each market from which the sample was chosen. The population for this study does not include all existing manufacturers and retailers involved in both markets. (RO1-3)

Pull marketing: Taking new product and design ideas that are presented by potential vendors or customers. (RO2)

Push marketing: Developing and/or designing a new product and presenting it to a potential customer or vendor. (RO2)

Performance measures: Metrics that show not only how well you are providing for your customers (service metrics) but also how you are handling your business (speed, asset/inventory, and financial metrics) (Supply Chain Council, 2004). (RO3)

Sourcing Agent : Someone who uses global resources to manage the flow of physical goods and coordinate production. Key functions performed include: product development, sourcing, order placement, order follow-up, and order shipment (Leung, 2000). (RO2)

Supply chain structure: What the supply chain looks like from raw material to consumer. This will include the flow of materials, the flow of information, as well as the geographical locations involved. (RO2)

U.S. Manufacturer: U.S. based manufacturer that produces over 50% of their goods (in volume) in the United States. These manufactures may also own facilities off-shore or source other components to make-up a finish product. (RO2,3)

U.S. Retailer: U.S. Based retailers that purchase goods from both U.S. and global manufacturers. (RO2,3)

Vendor: Supplier (RO2,3)

Western Hemisphere: United States, Mexico, Canada, the Caribbean, Central America, Latin America, and South America. (RO2)

CHAPTER IV

RESULTS

The results of the Phase I secondary data collection was analyzed in relation to each step outlined in Table 6. All secondary sources used in the analysis were those discussed in detail in the review of literature (Chapter II). The sample description, which was part of Step 5 in the table, is illustrated directly below. Following the sample description are detailed results from secondary data in regards to steps 1-4 in Table 6.

Phase I Results

Sample Description

Based on the results of Phase I, the research sample consisted of 18 companies involved in either the manufacturing or retailing of bottom weights or bed-bath products. The sample was chosen based on the population of manufacturers and retailers described by the NAICS and SIC codes found during Phase I secondary research (Step 4). Tables 9 and 10 show the NAICS and SIC codes that were used to define the bottom weights and bed-bath categories for this study.

TABLE 9. NAICS/SIC CODES: BOTTOMWEIGHTS

Bottomweights	
SIC code	**Description**
2211	Cotton, Woven Fabric
2221	Man-made fiber
2325	Men's & Boys' Separate Trousers & Casual Slacks
2326	Men's & Boys' Work Clothing
2339	Women's and Misses' Outerwear, NEC
2369	Girls' & Infants' Outerwear, NEC
5136	Men's & Boys' Clothing
5137	Women's and Children's Clothing
NAICS code	**Description**
313210	Broadwoven Fabric Mills
313311	Broadwoven Fabric Finishing
Product code	**Description**
224590	Fabrics: Broadwoven, Cotton
224580	Fabrics: Broadwoven, Synthetic

Source: Table adapted by H. Nowell,(2004) from Harris InfoSource: “Apparel-Clothing Manufacturing Industry Report,” (2004)

TABLE 10. NAICS/SIC CODES: BED-BATH

Bed-Bath	
SIC code	**Description**
2211	Cotton, Woven Fabric
2392	Housefurnishings: Textile
5023	Home Furnishings
NAICS code	**Description**
313210	Broadwoven Fabric Mills
31331	Textile and Fabric Finishing Mills
313312	Textile and Fabric Finishing (except broadwoven) Mills
314129	Other Household Textile Product Mills
Product code	**Description**
49950	Bedding, Bedspreads, Blankets, & Sheets
576995	Towels

Source: Table adapted by H. Nowell, (2004) from Harris InfoSource: “Textile Manufacturing Industry Report,” (2004)

Table 11 summarizes the sample for both the bottom weights and bed-bath markets that was used for the collective study. Overall, there were 34 executives that were interviewed from the 18 companies. Their titles ranged from Chief Executive Officer, President, VP of Product Development, VP of Merchandising, VP of Supply Chain, Director of Logistics, Director of Operations, to Merchandise Manager. The average number of years in the respondents' current positions was three years, and the average number of years spent in the industry was 25 years.

Table 11. Sample Description

Market	Company Category	Company Name	Location	Reason Chosen
Bed-bath	U.S. Manufacturer	J	Southeast U.S.	High Sales
Bed-bath	Global Manufacturer	K	Northeast U.S.	Low Growth Rate
Bed-bath	U.S. Retailer	L	Northeast U.S.	High Sales & High Growth Rate
Bed-bath	U.S. Retailer	M	Southeast U.S.	Market Share
Bed-bath	U.S. Retailer	O	Southwest U.S.	High Sales
Bed-bath	U.S. Retailer	N	Mid-west U.S.	High Growth Rate
Bottom weights	U.S. Manufacturer	C	Southeast U.S.	Market Leadership
Bottom weights	U.S. Manufacturer	E	Southeast U.S.	Market Leadership
Bottom weights	U.S. Manufacturer	A	Southeast U.S.	High Sales & Low Growth Rate
Bottom weights	Global Manufacturer	B	Southeast U.S.	Low Growth Rate
Bottom weights	Global Manufacturer	D	Southwest U.S.	High Growth Rate
Bottom weights	Global Manufacturer	F	Southeast U.S.	Market Share
Bottom weights	Global Manufacturer	G	Southeast U.S.	High Sales
Bottom weights	U.S. Retailer	I	Pacific U.S.	High Sales
Bottom weights	U.S. Retailer	H	East Central U.S.	High Sales
Both	Sourcing Agent	P	Hong Kong	High Sales
Auxillary	Global Manufacturer	R	Hong Kong	Market Share
Auxillary	Printing Suppliers	Q	Northeast U.S.	Market Share

Market competitiveness (Step 1)

After analyzing the definitions of the terms market and competitive advantage, the term market competitiveness can be defined as: *Having a position of superiority over competitors in satisfying the aggregate demand for certain products or services* (Nowell, 2004). In the textile and apparel industries, being competitive in the market mean that you must also be competitive economically. Economic competitiveness in the textile and apparel industries means that one must sustain and grow a business within the global environment, through optimization of products, processes, and strategies to gain a competitive advantage. In regards to this study, secondary research discussed in Chapter II showed that in order to be competitive in the market you must also be economically competitive through successful supply chain structures, streamlined performance measurements, partnerships, and communication along the entire supply chain. Other factors to consider in order to gain a competitive advantage include:

- Customer-supplier relationships
- Quality driven
- Cost competitive
- Product availability
- Service/Delivery
- Logistics
- Innovative products
- Value-added services
- Flexible supply chain

Industry Trends (Step 2)

Trends in the Bottom Weights Market

Secondary data examination indicated that there were five key trends impacting the bottom weights market.

1. U.S. manufacturers are losing market share.

Imports increased over 52% from 1997 to 2003, and production of bottom weights decreased over 36% from 1997 to 2003. These numbers are based on the production of the finished product meaning garment manufacturing. The U.S. is still involved to a large extent in the production of broadwoven fabrics used to make bottom weight garments.

2. U.S. imports of broadwoven fabric are exceeding U.S. exports.

In 2004 U.S. imports of broadwoven fabric, NAICS 313210, were $3.2 billion dollars, and U.S. exports of broadwoven fabric were $2.9 billion. The top two countries receiving U.S. broadwoven fabric in 2004 were Mexico who imported $1.2 million dollars worth of U.S. broadwoven fabric, and Canada who imported $453 million dollars worth. This shows that manufacturers in the U.S., Mexico, and Canada are still taking advantage of NAFTA.

However, the largest country exporting broadwoven fabric to the U.S. in 2004 was China with $382 million worth of fabric. China was followed by Italy, Canada, Pakistan, and South Korea respectively. With many U.S. manufacturers shutting down, an abundant fabric supply is just not in the U.S. anymore. China now has the

largest fabric supply base in the world explaining why the U.S. must now import large amounts of fabric from that region.

3. The growth of garment manufacturing in Mexico is decreasing.

Labor prices in Mexico are increasing and production is therefore moving south into South/Central America, especially for the production of bottomweights. After Mexico and Canada, the top countries that received U.S. fabric in 2004 were the Dominican Republic, Guatemala, and Honduras respectively. From 2003 to 2004, Mexico had an increase of 9.6% in U.S. broadwoven fabric imports while Canada saw a decrease of 5%. The Dominican Republic had a 6% increase in U.S. imports, Guatemala had a 22% increase, and Honduras had a 26% increase.

4. Hong Kong – Third largest producer of bottom weights?

Although numbers show that Hong Kong is the third largest producer of bottom weight garments, secondary research showed that this is not usually the case. Secondary research sources showed that goods are being exported out of Hong Kong, but they are actually being manufactured in mainland China and other smaller countries along the Pacific Rim. Like in Central and Latin America, smaller countries in Asia are starting to increase their production and overall core competencies. Smaller Asian countries competing with China include Vietnam, Cambodia, Indonesia, and Thailand. Fabric is still dominantly coming from China and is then cut and sewn in one of the smaller countries due to lower wages. Since the countries are relatively close, lead times are still competitive.

5. U.S. retailers are using a full package sourcing strategy to produce their bottom weight goods.

Secondary research showed that the dominant strategy used to produce their bottom weight goods was full package sourcing. The retailer or apparel brand marketer typically goes to the garment manufacturer, gives them the specs for their garment, and the garment manufacturer will then be in charge of the supply chain. The garment manufacturer is in charge of sourcing the fabric, trims, labels, etc as well as taking care of the logistics of getting the goods to the customer. In many cases the retailer will also source the fabric that is needed and will then specify to the garment manufacturer who to buy the fabric from.

Trends in the Bed-Bath Market

1. Trouble for many U.S. manufacturers

Many U.S. bed-bath manufacturers went global too late or have yet to do so at all. These companies are suffering, for many are in the process of trying to get out of Chapter 11 bankruptcy. The main trend that is hurting U.S. manufacturers is that they are not moving with their customers. Those that are surviving have a mixed strategy in that they own U.S. facilities and they either own facilities off-shore or source with other factories off-shore. The percentage produced in the U.S. is said to decrease more and more over the next few years with the removal of quota.

2. Discount retailers are gaining market share.

Many discount retailers are starting to create sourcing operations off-shore. They can now produce quality plain bedding and towels at very low prices.

3. U.S. manufacturers are losing market share in the bed-bath market.

United States imports rose 55% and production decreased 30% from 1997-2003. Imports were concentrated in the areas that were eliminated from quota in 2002. Therefore, with all quotas removed in 2005 bed-bath imports are expected to rise even more.

4. China

The top 5 countries exporting bed-bath products to the U.S. are India, Pakistan, Brazil, Turkey, and China. However, China had 77% growth from 2003-2004 in produced home textiles. China has focused on finished bedding products but will continue to expand their product offerings.

5. Brazil gaining market share

Secondary research said that Brazil was the country to watch in the bed-bath market. Brazil can manufacture goods and ship to the U.S. three weeks faster than China. They also have a good cotton supply, cheap electricity, and lower duties.

Market Characteristics (Step 3)

Key Sourcing Strategies

1. Cost is not the number one factor in sourcing decisions.

Secondary research showed that more and more retailers are looking at the importance of on-time delivery. If you cannot get the product on the shelf on-time then you will never make any money.

2. Full Package sourcing

Retailers want to communicate with as few people as possible. They are moving more and more towards full package sourcing in which they go to one person, usually the garment manufacturer, who takes full responsibility of the entire supply chain. This takes the responsibility off of the retailer and makes business a lot easier.

3. Condensing supplier base due to quota removal

Secondary research was performed in the latter part of 2004 before the removal of quotas. Therefore secondary research showed a strong prediction that many retailers and manufacturers would decrease their number of suppliers. Without quotas they would not have to worry about spreading their sourcing amongst many countries.

4. Minimal Inventory

Secondary research showed that many retailers want to source from companies that are willing to keep their inventory for them so that they do not have to acquire those costs. The retailer wants to simply call out goods as they need them without actually keeping a large amount of inventory themselves.

5. China

There has been a huge shift in sourcing production to China. They not only have low labor costs, but they also have a huge fabric supply that allows them to have vertical manufacturing capabilities.

Supply Chain Structures

From secondary data research, the population of U.S. manufacturers and U.S. retailers for each market was identified to assist in the sample selection process. Once the sample was identified and validated, further secondary research was conducted for each company. Through this research several preliminary supply chain structures were identified. The information gathered from industry representatives during the sample validation process was also used to draw together preliminary supply chain structures. The companies' supply chain configurations differed based on their business sector and geographical location.

U.S. Manufacturers

Secondary research presented that there are very few U.S. manufacturers in the bottom weight market that are involved in vertical manufacturing today. However, while these products may not be manufactured this way, there are a few

existing companies that have vertical capabilities. Figure 28 illustrates a model of a vertically integrated supply chain used in the United States. To be vertically integrated means that a company has the manufacturing capabilities to make a complete product; they own the entire manufacturing portion of the supply chain. The dotted lines show that the fibers are bought from outside suppliers, and the solid lines show all possibilities of internal flow. While most vertically integrated companies will operate all their facilities in the U.S., some companies own facilities outside the U.S. and will transport goods back and forth.

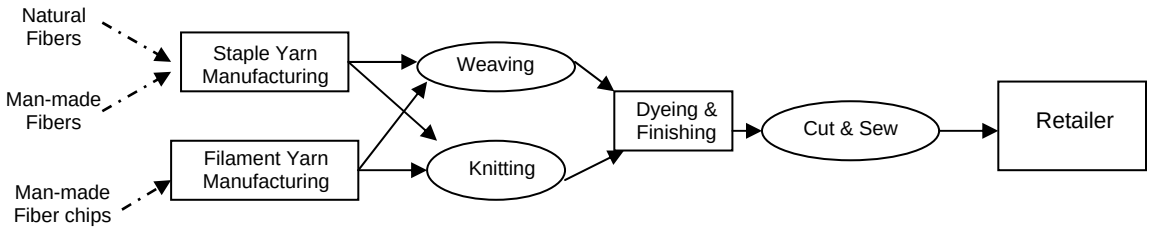


Figure 28. Vertical Supply Chain Structure

Source: Nowell, H., (2004)

Research did reveal examples of U.S. manufacturers that are involved in all U.S. manufacturing, but not vertically integrated completely. This means that a company owned and operated at least one facility that was used to manufacture a portion of a product. The supply chain will typically look the same as in Figure 28, but one manufacturer did not own all entities of the chain. The operations that were not owned by a company were contracted out to another U.S. supplier. For example, many bottom weight manufacturers in the U.S. are in the business of fabric formation and finishing. Therefore, they will buy yarn from another U.S. supplier that

will go into their woven fabric. The finished fabric is then sent to a cut and sew manufacturer and then sent to the customer.

Figure 29 illustrates an example of a supply chain structure of U.S. manufacturers that have a blended strategy. The solid lines indicate the flow of materials, and the dashed line indicates the flow of communication. Secondary research showed that this is more common in the apparel industry rather than textiles. A blended strategy means that they own at least one manufacturing facility in the U.S., and they outsource all other production in the U.S. or off-shore. For example, in the bottom weights market a leading U.S. apparel manufacturer owns a few facilities in the U.S. that are used to make their basic products. However, they source the rest of their manufacturing from off-shore manufacturers that can produce more labor intensive goods for less money. Other U.S. manufacturers may source their fabric from an off-shore supplier and then have it sent to their own cut and sew operation in the United States. Many U.S. manufacturers have also put offices off-shore so that they can better manage their supply chain, as well as communicate with their customers. While there a several possibilities, secondary research shows that those manufactures with a global component in their supply chain are seeing more growth.

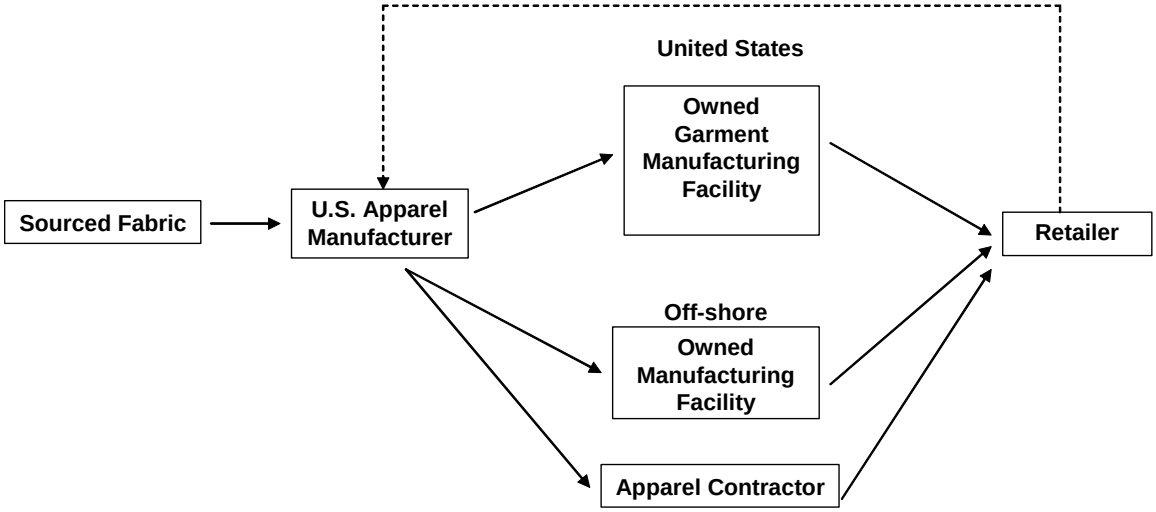


Figure 29. U.S. Manufacturer Supply Chain with a Blended Strategy

Source: Nowell, H.,(2004)

U.S. Retailers

While some U.S. bottom weight and bed-bath retailers are still sourcing small amounts from U.S. manufacturers, secondary research showed that the full-package sourcing model is the most popular strategy used. Retailers find the full package option more convenient and cost effective, for they can contact one person off-shore and the manufacturer will take full responsibility for the entire supply chain. The off-shore manufacturer with full package capabilities will find suppliers of yarn, fabric, dyeing and finishing, and cut and sew operations. The manufacturer will take full responsibility of making sure that all facilities are compliant in terms of quality assurance and working conditions, and they will make sure that the order is delivered when it is needed. Though there are some U.S. based manufacturers that offer full-package sourcing, these manufacturers own and source off-shore. However, the manufacturers providing full-package were found to be either apparel

manufacturers or textile manufacturers in the bed-bath market. Secondary research showed no full-package options offered by U.S. textile manufactures involved in the apparel industry.

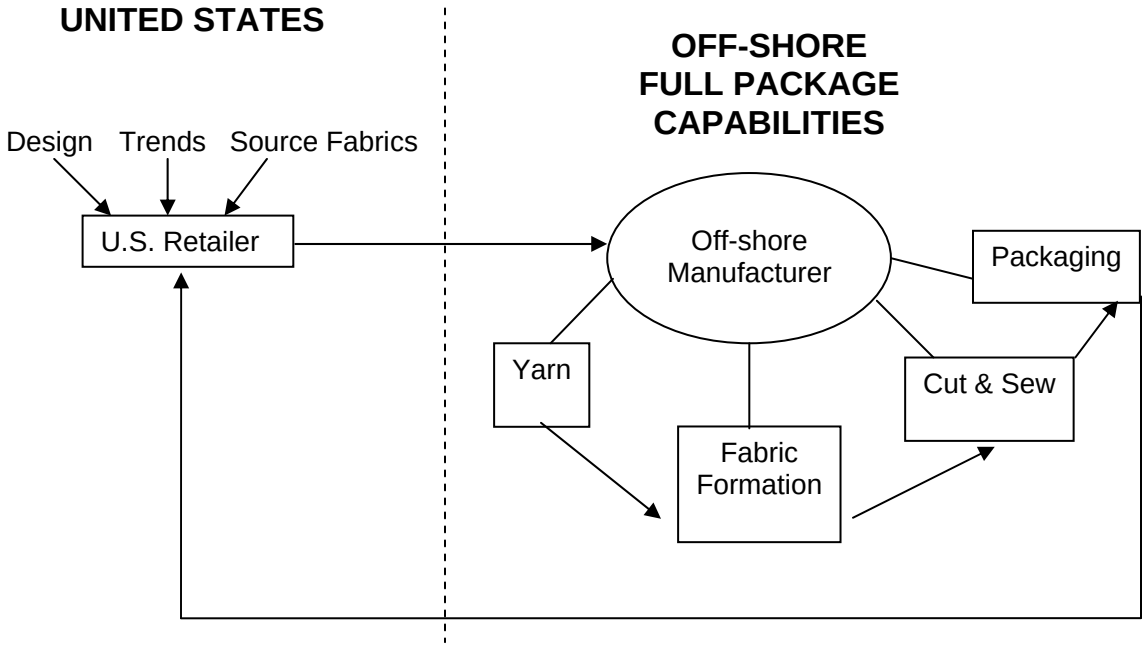


Figure 30. Full Package Sourcing Model

Source: Nowell, H., (2004)

Global Manufacturers

Global manufacturers consist of manufacturers with all non-U.S. manufacturing as well as sourcing agents. Those U.S. companies that are considered global manufacturers will have a supply chain structure similar to that in Figure 29, but over 50% of their volume produced will be manufactured off-shore. They will own at least one facility in the U.S. as well as facilities off-shore for minimal production. The majority of their production is sourced off-shore. The majority of off-shore manufacturers found through secondary research has vertical capabilities and would therefore have a supply chain structure similar to that in Figure 28.

Sourcing agents were also found to be used by U.S. retailers and even some U.S. manufactures to provide off-shore sourcing options. Sourcing agents provide intense trend research, and they will help locate manufacturers that will provide all manufacturing needs, but they do not take full responsibility. Secondary research showed that many retailers are moving away from using sourcing agents because most have their own internal sourcing team that takes care of their needs. Sourcing agents are typically used if there are not enough internal sourcing personnel, or they may also be used if there are specific trends that must be identified.

Performance Measures

Through secondary research, studies were found that identified several metrics used to measure the performance of vendors as well as an entire supply chain. The performance measures identified through secondary sources include:

Cost	Order Accuracy
Quality	Stock Outs
On-time delivery	Damages
Lead time	Flexibility
Responsiveness	Technical Expertise
Customer service	Product Range
Order fill rate	Capacity

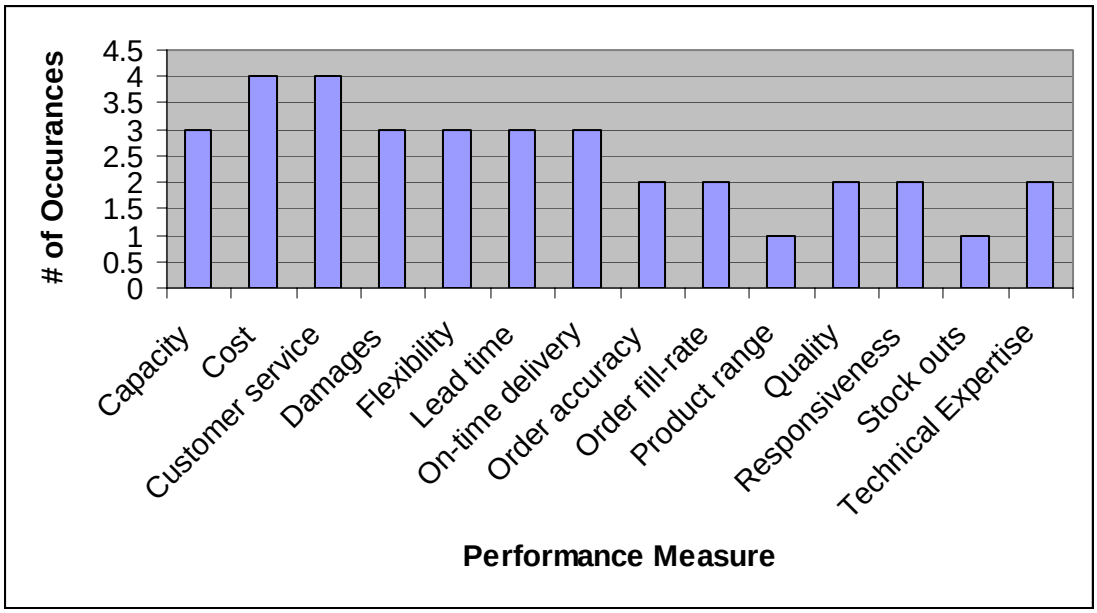


Figure 31: Performance Measure Frequency

Source: Adapted by Nowell, H. (2004) from secondary data resources.

Figure 31 illustrates the frequency of each performance measure noted in the identified secondary data sources. The secondary data showed that the most important metrics used to measure the performance of a vendor or supply chain are cost and customer service. However, on-time delivery, lead time, damages, flexibility, and capacity are becoming increasing important to measure especially as supply chain structures are becoming longer due to global sourcing.

Market Analysis (Step 4)

The complete list of companies from both markets found in secondary data, which was the basis for the Phase I market analysis (Step 4), can be found in Appendix C. The table includes the company's sales data from the past year, location, and product description.

Phase II Interview Results

Data collection in Phase II consisted of information interviews with 34 executives from 18 companies. The questionnaire used in the interviews consisted up of questions based on the information gained from Phase I. For each interview conducted, the results were compiled into a survey instrument as seen in Tables 12 and 13. The topic headings in the tables relate to the questions making up the survey questionnaire. The information was separated based on the comments regarding to supply chain performance measures and supply chain structure. A supply chain diagram was also developed for each company from the data collected during the interviews.

Table 12. Survey Instrument for Comments Pertaining to Performance Measures

Topic	Executive's Comments Regarding Performance Measures
Customers	
Vendor Selection Criteria	What the respondent thinks is important to the U.S. Retailer or U.S. Manufacturer: Company's used performance measures:
Metrics to measure performance	Own performance: Vendor performance:
Communication	
Partnerships	Importance of partnerships with your vendors and customers 1=not important 2=somewhat important 3=neutral 4=important 5=very important

Table 13. Survey Instrument for Comments Pertaining to Supply Chain Structure

Topic	Executive's Comments Regarding Supply Chain Structure
Manufacturing Facilities	
Sourcing Strategies	
Push vs. Pull Marketing	
Domestic vs. Off-shore Sourcing	
Supply Chains Post Quota	

Phase II Summary of Results Regarding Each Topic

Customers

The types of customers found during primary research were different depending on a company's position in the supply chain. There was not a different customer base for U.S. and global manufactures within the same market, but the customer base between the bed-bath and bottom weight markets was slightly different.

The textile manufacturers in the bottom weight market will directly work with retailers on occasion to develop a new fabric. However, their main point of contact in typically the garment manufacturer. A retailer will simply demand that the garment manufacturer use a certain fabric. Therefore, the main point of contact for the apparel manufacturer is the retailer.

In the bed-bath market, manufacturers are considered textile manufacturers but they are slightly different from those working with an apparel end product. Bed-

bath manufacturers will typically manufacturer fabric to finished product, but the finished product does not typically have to be assembled in the way that apparel does. Therefore, the bed-bath manufacturers' main point of contact was the retailer. A retailer will come to a bed-bath manufacturer with a new design for them to manufacturer, or a manufacturer may present new designs for the retailer to carry in their stores.

Vendor Selection Criteria and Metrics

The top three criteria found to be used when selecting a vendor was quality, on-time delivery, and cost. Primary research supported Neuman (2004) in that all U.S. retailers feel that on-time delivery is more important than costs. Retailers feel that if the product is not on their shelf when it is supposed to be, no money will be made and costs will no longer matter.

With U.S. and global manufacturers, quality, on-time delivery, and cost were the most frequently used when selecting a vendor. When looking beyond the top three criteria, the global manufacturers were found to be using more common criteria with the U.S. retailers than the U.S. manufacturers. However, data was not significant enough to prove that global manufacturers are performing better than U.S. manufacturers due to the criteria used.

The major metrics used by U.S. retailers to measure the performance of their vendors was again on-time delivery, quality, and costs. The costs measured may be first costs, distribution costs, or the margins that they receive from a certain vendor's product. The U.S. and global manufacturers from both markets were also measuring their own on-time delivery and quality. However, only the global

manufacturers were found to be using metrics to measure their costs. United States retailers were also using flexibility as a metric to measure the performance of their vendors. However as Leung (2004) suggested, neither the U.S. nor global manufacturers were measuring their companies' flexibility.

Communication

Primary research found that the retailer made manufacturers aware as to what criteria were being used when selecting a vendor. Research also showed that both parties agreed upon the definitions of the performance measures being used as selection criteria and metrics. The majority of the manufacturers in the sample also said that they incorporate their customer's requirements into what is required by their own vendors.

Partnerships

All respondents in the study were asked to rank the importance of partnerships with their customers and vendors on a scale from one to five with one meaning not important and five meaning very important. All retailers in the sample responded with a four or five rating, meaning that they feel that partnerships with their vendors are important to very important. All manufacturers except one rated vendor partnerships as very important. Overall, 78% of respondents said that a partnership with their vendors was very important.

Manufacturing Facilities

Table 14 illustrates where the sample owned manufacturing facilities. Every company in the sample that was involved in manufacturing owned some type of facility in the United States. The textile manufacturers owned facilities manufacturing yarn, greige, and finished fabric. All U.S. manufacturers were textile manufacturers who had vertical capabilities. All facilities owned by an apparel manufacturer were cut and sew facilities.

With the exception of the three U.S. bottom weight manufacturers, all other companies in the sample had a mixed strategy in that production was performed in their own facilities and sourced offshore. The key sourcing locations found during primary data were Asia (mainly China), Mexico (bottom weights), the Caribbean, and Central America. Europe and Africa were never mentioned by any part of the sample as a location for sourcing bottom weights or bed-bath products.

Table 14. Sample Facility Locations

Market	Business	Quantity in Sample	Manufacturing Locations							
			United States	Mexico	Caribbean	Central America	Asia	Europe	Africa	None
Bottom Weight	U.S. Manufacturer	3	3							
Bottom Weight	Global Manufacturer	4	4	3	1	3	2			
Bottom Weight	U.S. Retailer	2								2
Bed-Bath	U.S. Manufacturer	1	1							
Bed-Bath	Global Manufacturer	1	1				1			
Bed-Bath	U.S. Retailer	4								4
Both	Sourcing Agent	1								1
Auxiliary	Global Manufacturer	2	2	1	1	1	2	1	1	

Sourcing Strategies

The sourcing strategies found during primary research differed among textile and apparel manufacturers due to the fact that all of the apparel manufacturers in the sample were considered global. Primary research also showed that while the apparel industry began the globalization process over ten years ago, the bed-bath market started to follow the same model about two years ago. Therefore, the strategies did not differ between the two different markets.

There were six textile manufacturers in the sample, and two out of the six were considered global manufacturers because over 50% of their production was performed offshore. Three of the four U.S. manufacturers had no offshore production, while one of the U.S. manufacturers has almost 50/50, U.S. and off-shore production. The U.S. manufacturer with the mixed sourcing had very similar strategies to the two global textile manufacturers. Among the textile manufacturers with a mixed sourcing strategy, they all owned facilities in the U.S. and off-shore. The owned off-shore facilities were located in Asia, Mexico, the Caribbean, and Central America. The sourcing and manufacturing decisions were based on the product to be produced. If the end-product was to be a fashion good, then the sourcing and/or manufacturing was predominately done in Asia. However, if the end-product was to be a basic item, the sourcing and/or manufacturing would be performed in the Western Hemisphere. The three textile manufacturers with all U.S. manufacturing performed all manufacturing in their own facilities. The only sourcing involved was also done in the U.S. and this was only done if the company did not have certain capabilities in their own facilities.

The study's sample consisted of three apparel manufacturers, which were all considered global companies. All three companies owned at least one facility in the U.S., but only a very small percentage of their sourcing mix was using the U.S. facilities. Each apparel manufacturer owns or has formed a joint venture with manufacturers in Asia, Mexico, the Caribbean, and Central America. Their basic sourcing strategy is to source fashion goods in Asia and basic goods in the Western Hemisphere. If they own facilities in these regions they will usually use them if they have the capabilities and if it is most economical. Otherwise, they will source full-package with a third party contractor. All three companies in the sample offer full-package sourcing for their customers. Typically, the sourcing of all sub-components will be done in the same region as the garment manufacturing so that there is minimal logistics involved.

The major theme seen amongst all retailers in the sample was the use of full-package sourcing. The retailer typically approaches a garment manufacturer with product specifications, and they will rely on that manufacturer to take full responsibility of the supply chain. The retailer will sometimes specify certain sub-components to use, but they will typically leave it up to the garment manufacturer to source. Opposing the study performed by Lowson (2003), the trend of sourcing fashion goods in Asia and basic goods in the Western Hemisphere was also seen among retailers in the sample.

Push vs. Pull Marketing

Primary research showed that most companies are involved in both push and pull marketing in terms of product development. However, the type of business a company is involved in depends on whether they are involved in one type of marketing more so than they are another.

The bottom weight and bed-bath textile manufacturer results showed that they typically rely equally on both push and pull marketing depending on the retail distribution channel that their product is going into. They may develop a new fabric, wash, or design and present it to a customer. Or, a customer may come to them with a new design and ask them to produce it.

The bottom weight apparel manufacturer results varied depending on the largest part of their business: brands or private label. For those companies in the sample that are primarily devoted to producing their own brands, they are doing more push marketing. And, those companies who are producing more private label merchandise for retailers are relying more on pull marketing.

The distribution channel that the retailer was involved in depended on their push and pull strategies. There were representatives in the specialty and department store categories for the bottom weights sample. The specialty retailer relied almost 100% on push marketing, and the department store retailer relied on push for their private label business and pull for everything else. The bed-bath retail sample also had a representative in the specialty channel, and there were also representatives in the mass and discount categories. In the mass channel the type of marketing that is relied on depends on a company's store image and how they

want to differentiate themselves. The companies representing the mass channel typically relied on both, but there was one company who was increasing their amount of push marketing. Their goal was to increase store brands so that the brands that were carried in their stores were not carried in any of their competitors' stores. The bed-bath specialty retailer in the sample was different from the bottom weights retailer in that they rely mainly on pull marketing. They buy from bed-bath manufacturers who provide and produce brands for their stores. They are relying on the designs from the manufacturer side rather than pushing out their own designs. The discount store in the sample was involved in both push and pull marketing.

The survey results involving a sourcing agent suggests that they rely mainly on pull marketing. Research showed that retailers typically approach a sourcing agent with their own designs and rely on the sourcing agent to source all components and manufacturing. However, the sourcing agent in the sample plans to increase their amount of push marketing in the next few years in order to remain competitive.

Domestic vs. Off-shore sourcing

Primary research showed commonalities amongst all business segments concerning the advantages and disadvantages to sourcing domestically and off-shore.

United States

Primary research showed that U.S. retailers and brand marketers will usually only source with a U.S. manufacturer for their brand equity. However, even those companies who own the brands are typically manufacturing the goods off-shore in

order to be more cost competitive. The manufacturers in the U.S. who proved to be the most successful in terms of profitability were the apparel manufacturers who have a mixed strategy and source the majority of their production off-shore.

Many respondents said that the U.S. should have an advantage when it comes to time and speed. However, many respondents went on to explain that timing was a major reason that they will not work with U.S. manufacturers. Research showed that the U.S. textile industry was too slow to change and have been hurting because they did not follow their customer globally as did the apparel industry. The U.S. textile industry was found to be too manufacturing and utilization driven rather than on speed to market and service.

Research showed that the only avenues for the U.S. to compete are in innovative/niche products and basic goods for replenishment. And, in order for the U.S. to compete in a replenishment model they must partner with apparel manufacturers in the Western Hemisphere in order to provide retailers with a full-package option.

Off-shore: Asia

Primary research showed that the respondents in the study use Asia mainly for fashion goods. Fashion goods are those that typically last about one season, and Asian manufacturers offer retailers a full-package sourcing option at lower costs. Fashion goods will not have the replenishment needs that basic goods do, so retailers can afford to have a longer transportation time.

The overall cost structure in Asia is much cheaper than in the United States, for the profit needed at each part of the supply chain is much smaller. Costs are not

the only reason why textile and apparel production have largely moved to Asia. The survey respondents said that they use Asia because long term partnerships are more important, the labor supply is steady, there is plenty of capital, the people are easy to do business with, the infrastructure is good, and the logistics is good due to their large ports in Hong Kong and Shanghai. The main two reasons that were found during primary research to source in Asia were the fabric supply and mentality. The respondents agreed with Cho (2001) in that Asia, particularly China, has the largest fabric supply in the world, and they are on-time delivery driven more so than domestic producers.

Off-shore: Central America

There were mixed responses from primary research in terms of sourcing with Central America. Some respondents said that they use Central America for their shorter lead times for basic and replenishment goods. However, some respondents said that shipping from Central America is not that much faster than shipping from Shanghai. Other disadvantages to sourcing in Central America are the lack of fabric supply and the fact that there are very few full-package providers. One respondent from a major U.S. apparel manufacturer suggested that U.S. textile manufacturers should make Central America their apparel manufacturing hub. However, most respondents mentioned that trade regulations will be a deciding factor as to whether or not they stay or enter into Central America.

Supply Chains Post Quota

Only 50% of respondents made comments concerning supply chains in a post quota environment, but the responses received were very similar. Each respondent

agreed that production in China would increase, but there were differing views as to how much their market share would increase. Overall, the respondents felt that China could eventually have anywhere from 50-75% market share in apparel production. A respondent also predicted that there would be a vendor change in Asia. Because of quotas China has not had things set up to run very long runs, and they actually prefer things that way. However, now that quotas have been removed Asia is predicted to be able to run longer runs within the next three years that are very consistent.

The most frequent comment made during primary research was that retailers would consolidate the number of countries that they source from. The number of countries that are producing apparel could fall from 50 to half that in the next ten years. One of the major shifts will be a “non-China” shift, which involves the countries that were once restrained by quotas. The countries predicted to be the big beneficiaries are India, Pakistan, and Indonesia.

Phase II Comparison of Company Comments Pertaining to Each Research Objective

RO1 Determine why U.S. manufacturers are losing market share in the areas being sourced by U.S. retailers.

Table 15 compares the responses regarding research objective one from U.S. manufacturers, global manufacturers, U.S. retailers, sourcing agents, and auxiliary companies in both markets. The common responses found amongst each group were listed in the similarities column. If there was an outlier, the response was listed under differences with a footnote as to who made the comment.

Table 15. Comments Regarding Research Objective One

Market	Business	Comments Pertaining to Research Objective One	
		Similarities	**Differences**
Bottom Weights	**U.S. Manufacturer**	1. Cannot compete on price.	None
Bottom Weights	**Global Manufacturer**	1. U.S. didn't change fast enough and follow customers globally. 2. Flexibility 3. There is not a sufficient fabric supply in the U.S. anymore. 4. Lead times are just as good, if not better, in Mexico and South America as they are in the U.S.	None
Bottom Weights	**U.S. Retailer**	1. Timing – Delivery 2. Flexibility 3. Cost 4. Work Ethic	1. Too focused on efficiency 2. Don't see their true market opportunities
Bed-Bath	**U.S. Manufacturer**	1. Cost 2. Insufficient fabric supply	None (only one bed-bath U.S. manufacturer in sample)
Bed-Bath	**Global Manufacturer**	1. Insufficient fabric supply 2. Cost 3. Partnerships are becoming less important to U.S. manufacturers.	None (only one bed-bath global manufacturer in sample)
Bed-Bath	**U.S. Retailer**	1. Cost	1. Flexibility
Both	**Sourcing Agent**	1. U.S. manufacturers didn't change fast enough by going global. 2. U.S. manufacturers are stuck in their business model. 3. Delivery	None (only one sourcing agent in sample)
Auxiliary	**Global Manufacturer**	1. Insufficient fabric supply 2. Delivery	1. U.S. manufacturers are not willing to initiate supply chain management practices. 2. Measurement is not there

RO2. Determine the supply chain structures that are being used by U.S. manufacturers, global manufacturers, U.S. retailers, and sourcing agents.

U.S. Manufacturers

There were four companies in the sample to be considered U.S. manufacturers in that at least 50% of their manufacturing is performed in the United States. One company out of the four had almost 50% of their production being performed off-shore, but the manufacturing was not being performed in one of their own facilities. The model in Figure 32 illustrates the common supply chain structure being used by U.S. textile and apparel manufacturers.

Of the supply chain model's found from the study's sample, all companies had vertical capabilities. Three out of the four companies had vertical capabilities from yarn to finished fabric, while one company had vertical capabilities from yarn through greige fabric. They may also source some yarn and greige fabric, usually from the U.S., but only if they do not have the capabilities to manufacturer those goods in their own facilities. The U.S. manufacturers in the sample usually work some with the U.S. retailer in terms of product development, but the U.S. manufacturers' main point of contact is usually an off-shore garment manufacturer. The goods typically being manufactured in the U.S. are finished fabrics that are being sold to a garment manufacturer in the Western hemisphere: Mexico, Caribbean, or Central America. The products being made are basic goods or goods being manufactured for replenishment reasons.

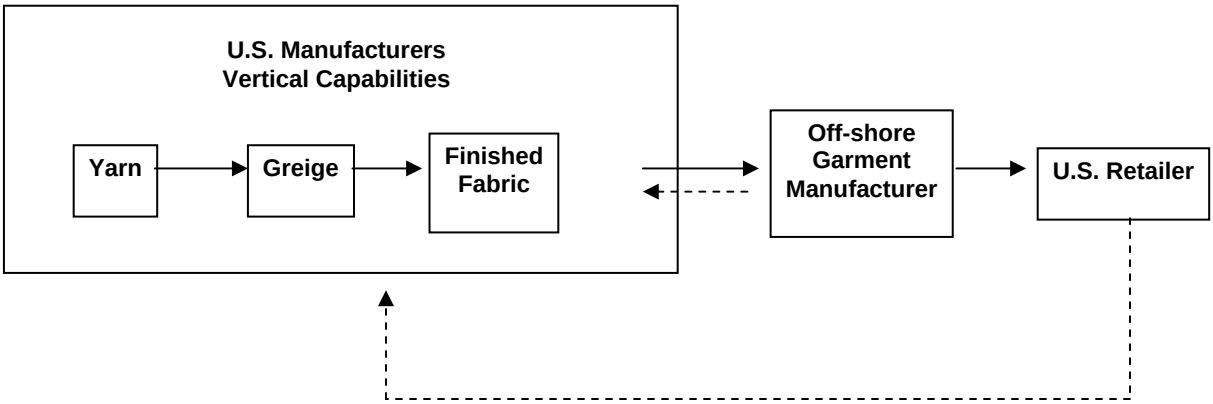


Figure 32. U.S. Manufacturer Supply Chain Model

Source: Nowell, H. (2005)

Global Manufacturers

There were seven companies in the study to be considered global manufacturers in that at least 50% of their production is performed off-shore. Of the seven companies, two were textile manufacturers, three were apparel manufacturers, and two were auxiliary companies. Common supply chain models were seen amongst the textile manufacturers and the apparel manufacturers. The models being used by the auxiliary companies are different due to the type of business they are involved with.

Both global textile and apparel manufacturers seem to being using a mixed strategy and have at least two supply chain models. Figure 33 illustrates the supply chain models being used by global textile manufacturers. The global textile manufacturers in the sample had one supply chain model for the U.S. and the Western Hemisphere, and they also had a supply chain model for Asia. When producing in the Western Hemisphere, they are manufacturing in their own facilities. The global textile manufacturing companies were from different markets, so the type

of manufacturing may be somewhat different but the overall model applies to both companies. The global textile manufacturer typically manufacturers finished fabric and will sell the fabric to a garment manufacturer in Mexico or Central America. However in the bed-bath market, the global manufacturer may actually finish the product themselves and send it directly to the retailer.

The second supply chain model for global textile manufacturers is an Asia model. The textile manufacturer may be hired by the U.S. retailer or by a garment manufacturer or finisher in Asia. For the bottom weights industry, the global textile manufacturer in the sample would source finished fabric from a mill that was in their network of partnerships. For the bed-bath industry, the company in the sample would either manufacturer the finished product in their own facility or they would contract out the fabric or finishing of the product from a third party vendor.

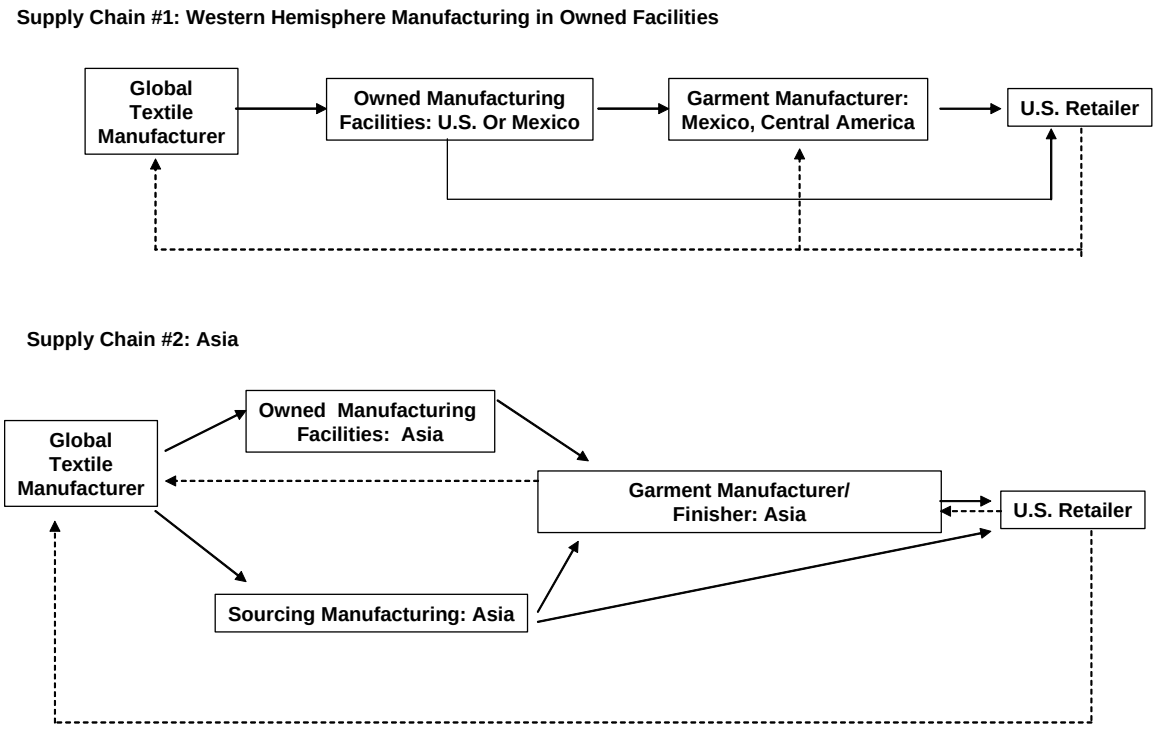


Figure 33. Global Textile Manufacturer Supply Chain Model

Source: Nowell, H. (2005)

Figure 34 illustrates the models being used by global apparel manufacturers. Supply chain model one depicts the model used by global apparel manufacturers for their basic goods. Primary research showed that basic goods are usually manufactured in the Western Hemisphere: U.S., Mexico, Caribbean, and Central America. All four of the global apparel manufacturers in the sample own garment manufacturing facilities in the Western Hemisphere, including at least one in the United States. A global apparel manufacturer will source the finished fabric from somewhere in the Western Hemisphere and either manufacture the product in one of their own facilities or source the apparel manufacturing from an outside vendor in the same hemisphere. The apparel manufacturer will often source their own fabric

and findings for basic goods, but if it is more economical they may source with a full-package provider and allow them to source the fabric. However, primary research proved that there are few full-package providers within the Western Hemisphere.

The second model being used by global apparel manufacturer is a Asia model for fashion goods. In this model, the global apparel manufacturer typically sources with a full-package provider who will take full responsibility of managing the supply chain. The full-package garment manufacturer will source all fabric, findings, and trim, and they will take responsibility of the logistics of getting the product to the customer.

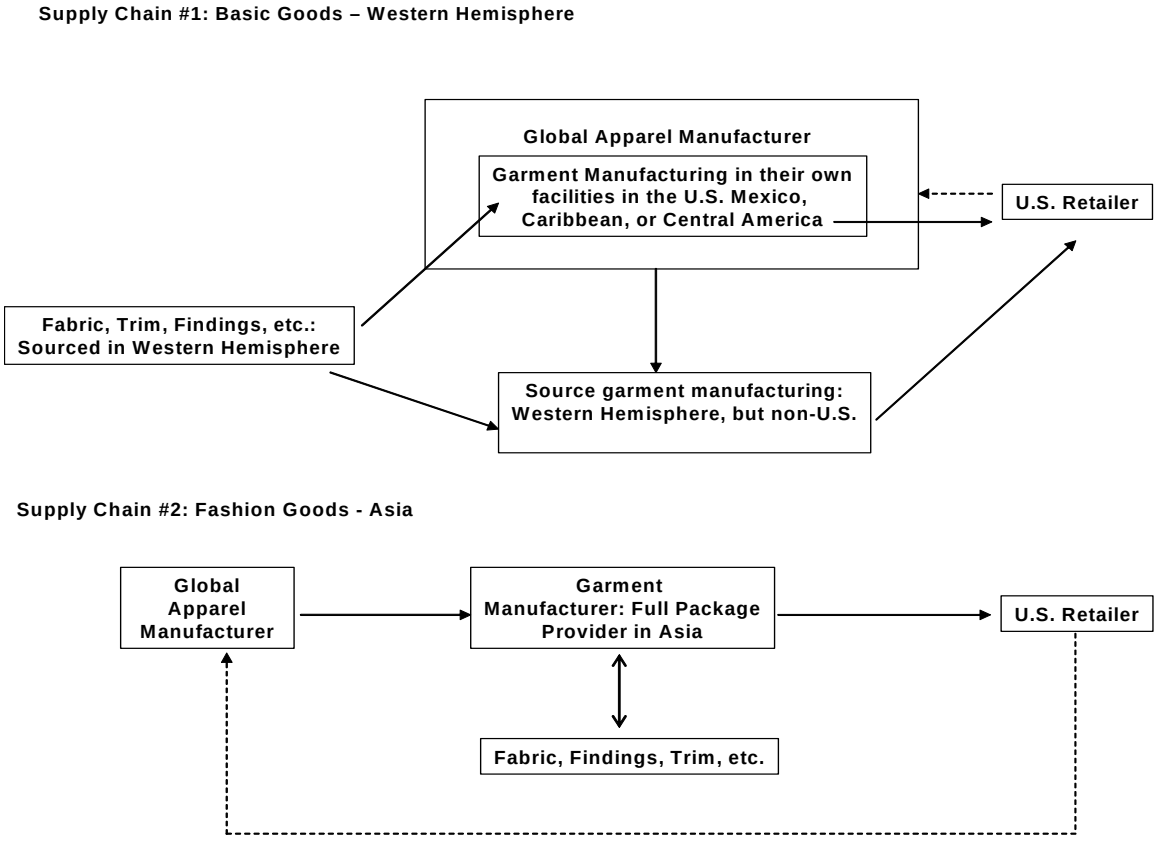


Figure 34. Global Apparel Manufacturer Supply Chain Models

Source: Nowell, H. (2005)

U.S. Retailers

The major theme seen from the supply chains of U.S. retailers is their use of full-package sourcing. The preferred sourcing strategy of all U.S. retailers in the sample from both markets was full-package. The U.S. retailers' main point of contact is typically the apparel manufacturer who offers full-package sourcing in that they will take full responsibility of managing the supply chain. The retailer wants to communicate with as few people as possible and wants to take on less responsibility. They want to go to an apparel manufacturer with product specifications and have the manufacturer produce or source any components and manufacturing needed. The retailer typically leaves the sourcing and manufacturing location decisions up to the manufacturer. There were several retailers from the sample who would also source their own fabric at times. However, the retailer will specify to the apparel manufacturer what fabric to use. The retailer does not typically order directly from a fabric manufacturer.

Figure 35 shows the typical full-package supply chain being used by U.S. retailers. The majority of the U.S. retailers in the sample used both the Western Hemisphere and Asia for sourcing. The Western Hemisphere - including the U.S., the Caribbean, Mexico, and Central America – was typically used for basic and replenishment goods. However, the majority of the apparel manufacturers are no longer in the United States. Asia was used more by U.S. retailers for their fashion goods. Fashion goods can be produced with shorter runs and will not have the replenishment programs needed like basic goods.

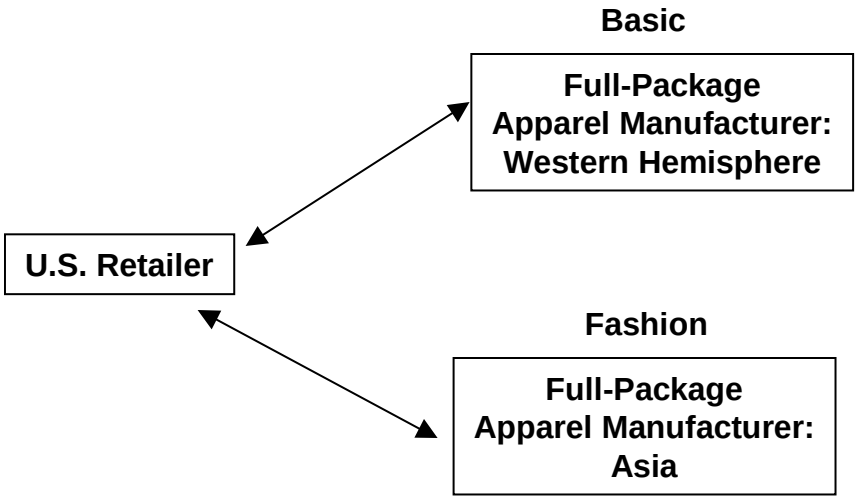


Figure 35. U.S. Retailer Supply Chain Structure

Source: Nowell, H. (2005)

Sourcing Agents

Comparisons amongst sourcing agents could not be made because there was only one in the sample. However, the sourcing agent in the sample is a leader in the field in that they source from all over the world, have formed partnerships with manufacturers all over the world, their average sales over the past five years was $4 billion, and 75% of their business comes from U.S. retailers.

Figure 36 illustrates the supply chain structure of a typical sourcing agent as found through this study. The sourcing agent acts as a supply chain manager for a retailer, and they will source every aspect of a product including sub-components and garment manufacturing. Once in awhile they may source with a full-package garment manufacturer and allow the garment manufacturer to also source the fabric,

trim, findings, etc. However, in order to manage the supply chain better the sourcing agent typically prefers to take full responsibility for all sourcing. The sourcing decisions made will depend on what the customer is trying to accomplish.

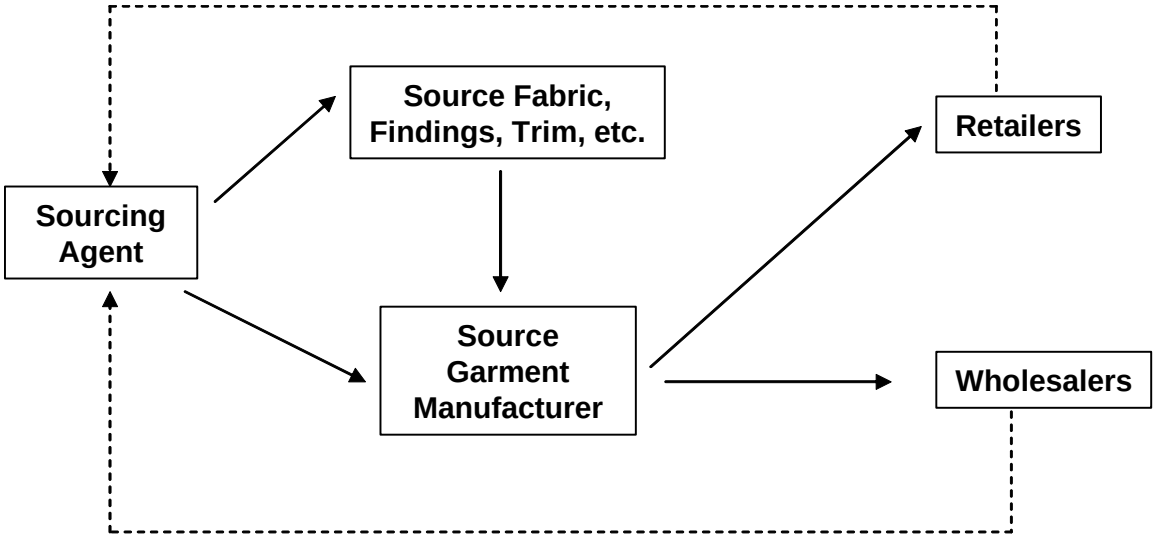


Figure 36. Sourcing Agent Supply Chain Structure

Source: Nowell, H. (2005)

RO3. Determine the performance measures that are being used by U.S. manufacturers, global manufacturers, U.S. retailers, and sourcing agents.

Table 16. Comments Regarding Research Objective Three

Market	Business	Quantity in Sample	Comments Pertaining to Research Objective Three	
			Vendor Selection Criteria	Metrics to Measure Company Performance
Bottom Weights	U.S. Manufacturer	3	1.Grade of Cotton 2.Quality 3. Cost 4.Availability 5.Financial health 6.Reliability1	1.Quality 2.Product specifications 3.Fall out 4.Inventory turns 5.On-time delivery
Bottom Weights	Global Manufacturer	4	1.Mentality 2.Cost 3.Speed2 4.Quality 5.Compliance 6.Dependability 7.Reliability 8.Flexibility 9.Product Innovation 10.Profittability	1.On-time delivery 2.Charge backs 3.Gross margin 4.Costs 5.Brand portfolio 6.Balance sheet 7.Growth 8.Quality
Bottom Weights	U.S. Retailer	2	1.On-time delivery 2.Quality 3.Cost 4.Government issues 5.Currency exchange rates 6.Speed 7.Flexibility 8.Product Innovation 9.Compliance 10.Financial Health	1.Quality 2.On-time delivery 3.Flexibility 4.Cost
Bed-Bath	U.S. Manufacturer	1	1.Quality 2.Technical Capabilities 3.Compliance 4.Reliability 5.Cost	1.Quality 2.On-time delivery 3.Sales
Bed-Bath	Global Manufacturer	1	1.Service 2.Cost 3.Quality	1.On-time delivery 2.Order fill rate 3.Violations 4.Customer service
Bed-Bath	U.S. Retailer	4	1.Quality 2.Service 3.Cost 4.Technical Support 5.Speed 6.EDI accuracy 7.In-stock rates 8. Financial health 9. Product development	1.On-time delivery 2.Quality 3.Margins 4.Sell-through of goods 5. In-stock percentages
Both	Sourcing Agent	1	1.Consistency 2.Quality 3.On-time Delivery 4.Compliance 5.Cost	No comments

[1] Reliability, service, and on-time delivery were used interchangeably among all respondents.
[2] Speed, lead-time, and response time were used interchangeably among all respondents.

Figure 37 illustrates the frequency that each performance measure was heard during the interviews with the study's sample. The only three performance measures that were seen among all sectors were quality, cost, and on-time delivery, and these performance measures were the ones with the highest frequency. Although there were several additional performance measures used when selecting a vendor, the global manufacturers had more measures in common with the U.S. retailers. The additional common performance measures used when selecting a vendor include speed, compliance, flexibility, and product innovation.

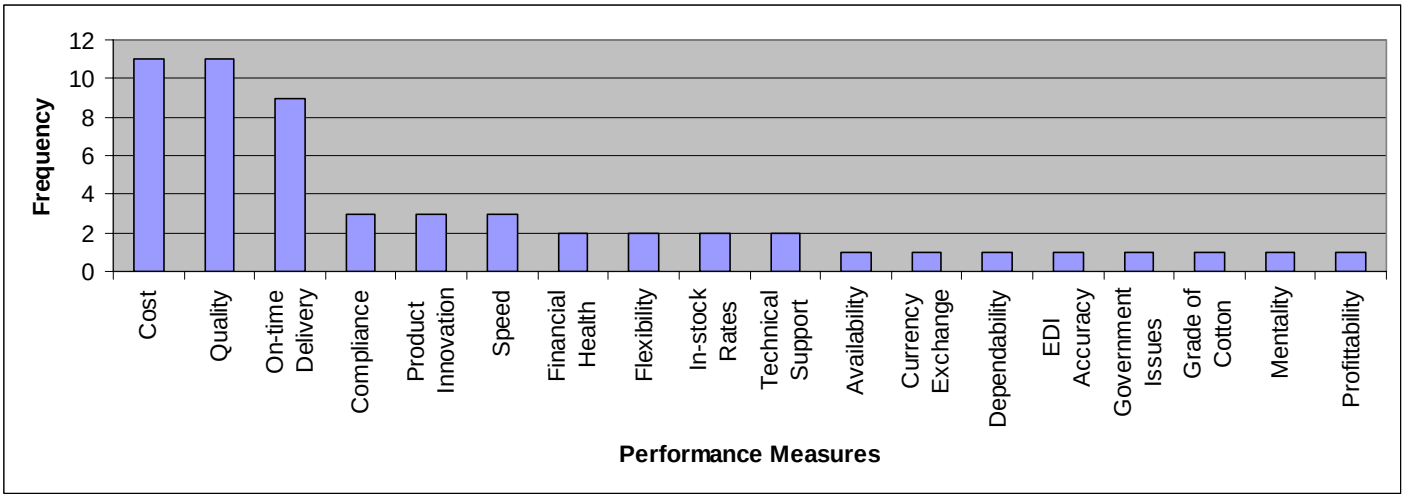


Figure 37. Performance Measure Frequency

R*esults in Relation to Conceptual Framework*

Figure 38 re-illustrates the conceptual framework used in this study. The research focused on how supply chain structures and the strategies used, both globally and in the U.S., are affected by a competitive environment. And as the figure shows, strategy and structure will as a result affect a company's performance.

The structure and strategy portions of the framework were redefined in relation to the results that were received through primary research. The definitions of strategy and structure in relation to the results illustrate how a company can increase performance and gain economic competitiveness in a competitive environment.

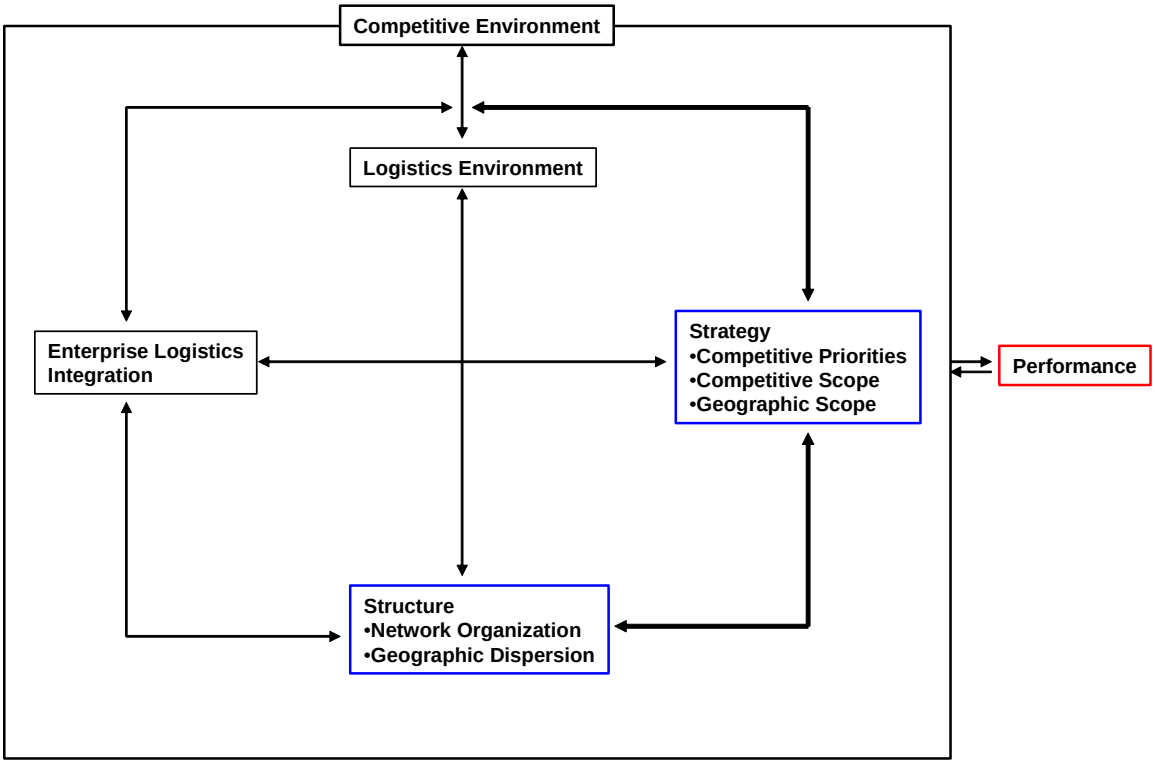


Table 38. Conceptual Framework

Source: Stock, G., Greis, N., & Kasarda, J. (1999). Logistics, Strategy and Structure: A Conceptual Framework. *International Journal of Physical Distribution and Logistics*, 29(4), 224-239.

Structure

Network Organization

Stock, Greis, and Kasarda (1999) defined a network organization as having three dimensions: vertical integration, flexibility, and cooperation. Primary research affirmed the three dimensions outlined, but now each dimension can be adapted to relate directly with the global textile and apparel supply chain.

Primary research showed that in order to be competitive you must be manufacturing or sourcing in a part of the world that provides vertical manufacturing. One company does not have to be vertically integrated in itself, but they must form partnerships or joint ventures so that they are part of a vertically integrated network.

Having flexibility in your internal supply chain was also an important aspect found during primary research. A company must have flexibility to change its operations to run a short or long run at a moment's notice in order to meet customer demands. Survey respondents said that this was an area where U.S. textile manufacturers were lacking. If one company is not flexible enough to make changes to their operations very quickly, there are plenty more companies, especially off-shore, that are willing to be flexible. Having flexibility simply means doing whatever it takes to meet customer demands and expectations in a timely manner.

The third dimension outlined concerns the cooperation of relationships between companies. Primary research showed that forming partnerships with your customers and vendors was very important. Firms must also communicate frequently and understand one another's business. Most retailers in the U.S. have specific vendor selection criteria, and it is very important that manufacturers know what criteria is being used and the definitions of those criteria. Retailers also use certain metrics to measure the performance of their vendors, and the results often influence which vendor gets more business. Therefore, research showed that manufactures should be measuring themselves according to the same metrics that their customers are using. Manufacturers should also use those same metrics to

measure the performance of their own vendor. In return there will be more cooperation along the entire supply chain.

Geographic Dispersion

Primary research supported Stock, Greis, and Kasarda (1999) in that geographic dispersion reflected a trend toward the location of manufacturing facilities in several regions of the world. Research showed that the companies remaining competitive had a global strategy, which usually involved two supply chain models. The first model was for fashion goods, and the key area to include in the supply chain was China. The second model was for basic goods, and the key area to include in the supply was Central America and any domestic owned facilities. Research also showed that these areas must not only have vertical capabilities, but they must also offer full-package sourcing options and a large fabric supply.

Strategy

Competitive Priorities and Competitive Scope

According to Stock, Greis, and Kasarda (1999), competitive priorities define a company's strategic manufacturing capabilities and the areas that a company chooses to compete. Primary research showed that in order to gain competitiveness in the global textile and apparel industries, companies must be competitive in cost, quality, delivery, brands, or product/design innovation. A company's competitive scope relates to the breadth of their strategy. Research suggested that quality and delivery are given to be competitive, and that companies must be able to compete in at least one of the other three areas. Research also suggested that in a few years,

companies must be able to compete in at least two of the other three areas: design, cost, or brands.

Geographical Scope

The conceptual framework used considers a firm's geographical scope to be the extent to which their market is dispersed geographically. Primary research supported all secondary sources in that the textile and apparel industries have seen an increase in foreign competition. Research showed that the production of textiles and apparel has seen a huge shift to Asia – particularly to China, India, and the smaller countries along the Pacific Rim. The production of basic and replenishment goods was seen to be mainly in Central America, Mexico, and the Caribbean. Research suggested that in order for U.S. manufacturers to remain competitive they must have a global strategy and follow where there customer is going. They could either invest in their own facilities or partner with other manufacturers in these regions. Research also suggested that U.S. textile manufacturers should partner with apparel manufacturers in Central America as their hub in order to offer U.S. retailers a full-package sourcing option in the Western Hemisphere for basic and replenishment goods.

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Summary

The purpose of this research was to analyze the supply chain structures and performance measures being used by U.S. manufacturers, global manufacturers, and U.S. retailers in the bed-bath and bottom weight markets. For this research, an information interview questionnaire composed of three sections was developed by three researchers working on a collective study concerning global economic competitiveness. Section one of the questionnaire was directed toward the subject of this study (Appendix A). The questions were developed from secondary research and were designed to not only discover the supply chain structures and performance measures being used, but it was also designed to get the respondent's insight into the industry and to find out why U.S. manufacturers are losing market share in the areas being sourced by U.S. retailers.

With regards to supply chain structures, this study examined the sample companies and their primary business operations. The study examined their manufacturing capabilities, their facility locations, the type of sourced goods, and the locations from where goods are sourced. The customer base and point of contact for each company was also found in order to get a good visual depiction of each company's supply chain model.

With regards to performance measures, this study examined the vendor selection criteria being used by U.S. retailers when choosing a supplier, as well as

the metrics being used by U.S. retailers to measure the performance of their suppliers. The study also examined the performance measures that U.S. and global manufacturers in both markets are using when choosing their own vendors, as well as the metrics they are using to measure their own performance and the performance of their vendors. The information was used to determine if manufacturers were using the same performance measures and metrics being used by U.S. retailers and to determine the communication level of each company's supply chain.

Companies in the sample were chosen based on their sales from 1999-2003, their growth rate from 1999-2003, market share, and product mix. Sourcing strategies and retail distribution channels were also used when narrowing down the sample. Respondents from each company were interviewed via face to face or by phone.

Summary of Results

The success of this study was due to the strength of the sample. The strength of the sample came from:

1. The methodology used to identify and select the sample
2. The representation of the sample consisted of leaders from diversified product categories.
3. The openness of the executives to share information on the topic at hand
4. The representation of positions of expertise that were related to the study

RO1 Determine why U.S. manufacturers are losing market share in the areas being sourced by U.S. retailers.

Primary and secondary research presented five main reasons as to why U.S. manufacturers are losing market share:

Cost

Manufacturers in the U.S. cannot compete against low-wage countries on the basis of first cost. Consumers want quality goods at competitive prices, and cheap labor is a way to achieve a low first cost product.

Mentality

Off-shore manufacturers in Asia are on-time delivery driven, whereas U.S. manufacturers are not. The mentality of workers in Asia is to do whatever it takes to meet customer demands. Research showed that U.S. manufacturers are resistant to change, and they are more focused on efficiency rather than delivery and service.

Flexibility

The supply chains, especially internally, of U.S. manufacturers are not flexible to produce short runs as in Asia. United States manufacturers have their facilities set up to run long runs and are often resistant to changing the set up of their facilities to service the customers. Manufacturers in the United States are also lacking flexibility in their supply chains in that they were often too slow to move off-shore to follow their customers. Without facilities or partnerships with manufacturers off-shore, the supply chain is lacking full-package sourcing options and flexibility.

Availability of Goods

With the closing of so many textile facilities in the U.S., there has been a drastic decrease in domestic textile suppliers. Therefore, U.S. retailers often have no choice but to source off-shore. The availability of needed fabric and other sub-components can no longer be found in the United States. Currently, Asia has the largest fabric and sub-component supply.

Government Legislation

Free trade agreements have allowed the U.S. to trade duty free with other countries within the agreement. This has caused the majority of apparel production to move off-shore, and a large portion of textile production has followed in order to be in close proximity to the apparel manufacturing. The elimination of quotas in 2005 was predicted to increase the amount of imports from China. China was predicted to increase their market share in apparel production to 50 -75%.

RO2. Determine the supply chain structures that are being used by:

U.S. Manufacturers

Textile manufacturers in the United States typically possess vertical manufacturing capabilities. Only one out of four U.S. textile manufacturers in the sample also owned facilities off-shore. Their main point of contact for bottom weight textile manufacturers is the apparel manufacturer, which is typically off-shore but still in the Western Hemisphere. There were no apparel manufacturers in the sample that were defined as a U.S. manufacturer.

Global manufacturers

Research showed that global manufacturers have a blended strategy with two supply chain structures: Western Hemisphere and Asia. The global manufacturers in the sample had at least one facility in the U.S., as well as other owned facilities off-shore: Mexico, the Caribbean, Central America, and Asia. The production of basic goods was typically performed in their own facilities or sourced from other manufacturers in the Western Hemisphere. The production of fashion and more labor-intensive goods were produced in Asia. Four out of the five global manufacturers in the sample were apparel manufacturers, and they all provided full-package sourcing options for the U.S. retailer.

U.S. Retailers

United States retailers want to deal directly with as few people as possible and they will typically always source full-package. The retailers' main point of contact is with the finished goods producer, and they will rely on the manufacturer to manage the entire supply chain. The retailer will leave all sourcing decisions up to the manufacturer. Research showed that U.S. retailers are mainly sourcing fashion goods in Asia and basic goods in the Western Hemisphere due to proximity.

Sourcing Agents

A sourcing agent will manage every aspect of a supply chain. Their main point of contact is with the retailer who will provide them with product specifications. A sourcing agent will source every component of a product.

An agent will typically source each component separately in order to maintain control over the supply chain, but they will source full-package depending on what the customer is trying to accomplish.

RO3. Determine the performance measures that are being used by U.S. manufacturers, global manufacturers, U.S. retailers, and sourcing agents.

Overall, secondary and primary research showed that the main performance measures used when choosing a supplier are those associated with quality, costs, and delivery. Specific performance measures that may also be associated with quality, costs, and delivery are compliance, service, and reliability. Quality, costs, and delivery were also the most frequently seen metrics used by all sectors to measure the performance of their suppliers. However, research also showed that retailers will often measure flexibility. Global manufacturers were found to measure flexibility more so than U.S. manufacturers. No matter what performance measures were used, all definitions were known and agreed upon by customers and suppliers. In regards to partnerships, on average all sectors in the study thought that partnerships were very important with their vendors.

Conclusions

1. The conceptual framework by Stock, Greis, and Kasarda was proven to be beneficial to the study.
    a. The study proved that a competitive environment influences a firm's strategy and structure, which will affect their performance in the end.
    b. The study also supported the framework in that in order to improve performance, a firm must be flexible, cooperative, geographically dispersed, and be able to compete in more than one area.
2. United States manufacturers are losing market share in the bed-bath and bottom weight markets.
3. United States manufacturers cannot compete on cost alone; they must compete on cost, quality, delivery, product innovation, and flexibility.
4. United States retailers source from U.S. textile manufacturers in the bed-bath market more so than those in the bottom weight market. There are more U.S. manufacturers in the bed-bath market that offer full-package sourcing for their customer. However, the goods are typically being manufactured off-shore.
5. The bed-bath market started following the apparel industry a few years ago in terms of globalization. The apparel industry started seeing the globalization trend about ten years ago.
6. Performance Measures
    a. Partnerships with vendors are very important to U.S. manufacturers, global manufacturer, and U.S. retailers.
    b. On-time delivery and service are as important as cost to U.S. retailers.

c. Quality, on-time delivery, and cost are the three most frequently used criteria for vendor selection and performance measurement.
d. Communication seems to be streamlined across the supply chain in that manufacturers are incorporating their customer's vendor selection criteria into their own.

7. Supply Chain Structure
    a. The main point of contact for textile manufacturers is the garment/apparel manufacturer.
    b. The main point of contact for an apparel manufacturer (or textile manufacturer in the bed-bath market) is the retailer.
    c. A product's sub-components are typically manufactured where the product will be assembled to reduce the movement of goods.
    d. Retailers and global apparel manufacturers typically have two supply chain models: Asia and Western Hemisphere.
8. Sourcing
    a. The main sourcing strategy for U.S. retailers in all distribution channels is full-package.
    b. Fashion goods are typically being manufactured in Asia.
    c. Basic and replenishment goods are typically being manufactured in the Western Hemisphere.
    d. Global manufacturers are manufacturing only 5-15% in the United States; 90-95% of production is off-shore; 50-99% of their production is sourced from outside vendors, which are typically off-shore.

9. Asia
    a. Manufacturers in Asia are more on-time delivery driven than U.S. manufacturers.
    b. There are more full-package providers in Asia than anywhere else.
    c. Retailers and global manufacturers source in Asia due to cost, work ethic, infrastructure, good ports, and fabric supply.
    d. China is set-up to run very short runs (i.e. fashion goods) but this is expected to change in the next few years.
10. Central America
    a. Central America is used predominantly for proximity and speed to market.
    b. Central America's apparel production has increased as Mexico's has decreased due to higher labor costs.
11. Post Quota
    a. Retailers and manufacturers involved in sourcing will consolidate the number of countries that is sourced from.

12. Benchmark Supply Chain Model

a. Results showed a possible solution for U.S. textile manufacturers to compete is by partnering with apparel manufacturers, particularly in Central/South America, in order to provide full-package sourcing options in the Western Hemisphere. However, in order for the model to offer flexibility there should be a partnership among all three parties: textile manufacturer, apparel manufacturer, and retailer.

b. The supply chain model, including material flow and performance measures, to be used as a benchmark for U.S. manufacturers can be seen in Figure 39. The solid arrows indicate material flow and the dashed line indicates point of contact/partnership.

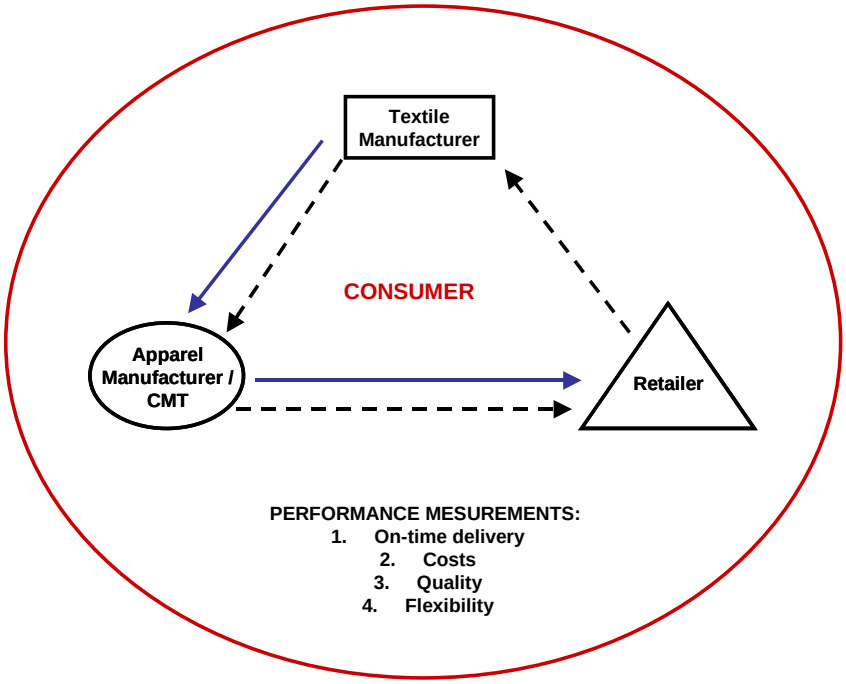


Figure 39. Benchmark Supply Chain Model for U.S. Textile Industry

Source: Nowell, H. (2005)

Limitations

1. While results showed several similarities among the bottom weight and bed-bath markets, caution should be taken in the interpretation of the bed-bath results since there were only one representative in the U.S. and global manufacturer sample.
2. Though the study's sample possessed great strength, the results received were limited due to the sample size. Therefore, results may not be able to be generalized to the entire U.S. textile and apparel industries.

Recommendations for Future Research

1. Future research could include a more in-depth study into the bed-bath or bottom weight markets. This would provide insight into niche market opportunities and strategies to help U.S. manufacturers compete.
2. Future research could examine the different strategies used by major U.S. retailers in each distribution channel. This study could possibly help U.S. manufacturers know which retail channel that their capabilities could best serve so that they may target a specific customer base.
3. Research showed that on-time delivery is just as important as cost to retailers. Research also showed that fashion goods are typically made in Asia. Future research could do a time study of how long it would take order to ship to make an order of fashion bottom weights in the Western Hemisphere versus Asia. Since retailers prefer full-package sourcing, the

study should examine the times of full-package manufacturers in Asia and in the Western Hemisphere.

4. Future research could provide an in-depth study of current global full-package sourcing providers in order to develop a supply chain model for U.S. manufacturers.
5. Research showed that there are few full-package options in the Western Hemisphere. Therefore, additional research is needed to perform a market feasibility study for full-package sourcing options in the Western Hemisphere. This is needed for U.S. textile manufacturers to remain competitive in the global market.
6. Research suggested that U.S. manufacturers do not understand their opportunities in the market. A study is needed to discover the real cost of markdowns as well as how to eliminate the need for markdowns for U.S. retailers.

REFERENCES

Apparel and Footwear Industry Survey. (2004). Retrieved, September 20, 2004 from Standard *and Poors* website *www.netadvantage.standardandpoors.com*

Barbee, G. (1998). Product Costing to Win Profit Margin. *Bobbin*, 39(12), 26-28.

Bath Product Sales Near $3 Billion. (2001). Retrieved, September 20, 2004 from *Home Textiles Today* website *http://hometextilestoday.com*

Beamon, Benita. (1999). Measuring Supply Chain Performance. *International Journal of Operations and Production Management*, 19(3), 275-292.

Bedding: Total Category Sales - $6.7 billion. (2001). Retrieved, August 30, 2004 from *Home Textiles Today* website http://hometextilestoday.com

Birou,L.M. & Fawcett, S.E. (1992). International Purchasing: Benefits, Requirements, and Challenges. *International Journal of Purchasing and Materials Management*, 28(3), 28-37.

Bruce, M., Daly, L., & Towers, N. (2004). Lean or Agile: A Solution for Supply Chain Management in the Textiles and Clothing Industry? *International Journal of Operations and Production Management*, 24(2), 151-170.

Carter, J.R. & Narasimhan, R. (1990). Purchasing in the International Marketplace: Implications for Operation. *Journal of Purchasing and Materials Management*, 1(2), 2-11.

Chin, K., Tummala, V., Leung, J., & Tang, X. (2004). A Study on Supply Chain Management Practices: The Hong Kong Manufacturing Perspective. *International Journal of Physical Distribution and Logistics Management*, 34(6), 505-524.

Cho, J., & Kang, J. (2001). Benefits and Challenges of Global Sourcing: Perceptions of U.S. Apparel Retail Firms. *International Marketing Review*, 18(5), 542-561.

Christopher, M. (1992). *Logistics and Supply Chain Management: Strategies for Reducing Cost and Improving Service.* Pittman: London.

Cochran, Craig. (2004). Lean Supplier Management. Retrieved, June 14, 2004 from *Inside Quality* website *www.insidequality.com*

Comments by Mark Neuman. Southern Textile News. February 16, 2004.

Cooke, James. (2001). Who Should Measure Your Performance? Retrieved, July 20, 2004 from *Logistics Management* website www.manufacturing.net.

Current Industrial Reports: Bed and Bath Furnishings, 1997-2003. Retrieved, September 20, 2004 from U.S. Census Bureau website http://www.census.gov/cir/www/

Czinkota, M.R. & Ronkainen, I.A. (1993). *International Marketing*, 3rd Edition. Orlando, FL: The Dryden Press.

Durtsche, D., Ledyard, D., Keebler, J., & Manrodt, K. (1999). *Keeping Score: Measuring the Business Value of Logistics in the Supply Chain*. Oak Brook, IL: Council of Logistics Management.

Gereffi, Gary. (2001). Global Sourcing in the U.S. Apparel Industry. *Journal of Textile and Apparel, Technology and Management*, 2(1), 1-5.

Gereffi, G. (1994). The Organization of Buyer-Driven Global Commodity Chains: How U.S. Retailers Shape Overseas Production Networks. *Commodity Chains and Global Capitalism*. Westport, CT: Praeger, 1994, 95-122.

Gunasedaran, A., Patel, C., & McGaughey, R. (2004). A Framework for Supply Chain Performance Measurement. *International Journal of Production Economics*, 87, 333-347.

Handfield, R., & Nichols, E. (1999) *Introduction to Supply Chain Mangement*. Upper Saddle River, NJ: Prentice Hall.

Harris, Charles. (2001). Cost is No Longer the End-Game Strategy. *Canadian Apparel Magazine*, January-February, 6-7.

Imports, Exports Continue to Improve. (2004). Retrieved, August 30, 2004 from *Home Textiles Today* website www.hometextilestoday.com

Kahn, G. (2004, August 13). Making Labels for Less. *Wall Street Journal*, B1.

Leung, S.Y.S. (2000). World-Class Apparel-Sourcing Enterprises and the Restructuring of Existing Global Supply Chains. *The Journal of the Textile Institute*, 91(2), 73-93.

Lowson, Robert. (2003). Apparel Sourcing: Assessing the True Operational Cost. *International Journal of Clothing Science and Technology*, 15(5), 335-345.

Lummus, R., Vokurka, R. (1999). Defining Supply Chain Management: A Historical Perspective and Practical Guidelines. *Industrial Management and Data Systems*, 99(1), 11-17.

Ostrow, R, & Smith, S. (1988). *The Dictionary of Marketing*. New York, NY: Fairchild.

Prasad, S., & Sounderpandian, J. (2003). Factors Influencing Global Supply Chain Efficiency: Implications for Information Systems. *Supply Chain Management: An International Journal*, 8(3), 241-250.

Shifts in U.S. Merchandise Trade: Exports, Imports, and Trade Balance. Retrieved, August 26, 2004 from United States International Trade Commission website http://www.usitc.gov/tradeshifts/textiles.htm

Singhal, Arvind. Re-inventing the Supply Chain. Paper presented to Annual Conference of the International Textiles Manufacturers' Federation. 2003.

Spens,K., & Bask, A. (2002). Developing a Framework for Supply Chain Management. *International Journal of Logistics Management*, 13(1). 73-88.

Stock, G., Greis, N., & Kasarda, J. (1999). Logistics, Strategy and Structure: A Conceptual Framework. *International Journal of Physical Distribution and Logistics*, 29(4), 224-239.

Sub-Industry Review: Home Furnishings. Retrieved, September 20, 2004 from *Standard and Poor's* website www.netadvantage.standardandpoors.com

Top 15 Vendors – 2003. (2004). Retrieved, August 30, 2004 from *Home Textiles Today* website http://hometextilestoday.com

Top 100 Retailers. (2004). Retrieved, April 24, 2004 from *Stores Magazine* website www.stores.org

US Sourcing Matrix: India amongst Preferred Sourcing Destinations. Retrieved, August 30, 2004 from Apparel Export Promotion Council website *www.aepcindia.com/industryreports/usa.asp*

Wayne, L. (1998). With Prices Low, Companies and Labor Unite in a Campaign to Limit Imports. *New York Times*, 10 December, p.1.

APPENDIX A: INTERVIEW QUESTIONNAIRES

U.S. Retailer Questionnaire

1. What criteria are used when selecting a vendor?

2. What metrics are used to measure the performance of your vendor?

3. Have the definitions of the performance measures used been agreed upon by your vendors?

4. What performance measures do you think are most important to U.S. manufacturers?

5. On a scale of 1 to 5, describe the importance of partnerships with your vendors.

1=not important 2=somewhat important 3=neutral 4=important 5=very important

6. What different sourcing strategies do you use?

7. What is the preferred sourcing strategy for your bottom weight/bed-bath products?

8. What are the advantages/disadvantages to sourcing offshore?

U.S. / Global Manufacturer Questionnaire

1. Who are your customers?

2. What criteria do you believe is most important to U.S. retailers when choosing a vendor – both manufacturing and component?

3. What criteria do you use when choosing a vendor?

4. What metrics do you use to measure your own performance? The performance of your vendors?

5. Have the definitions of the used performance measures been agreed upon by your customers and vendors? Are customer requirements incorporated into what is required by your vendors?

6. On a scale of 1 to 5, describe the importance of partnerships with your vendors and customers.

1=not important 2=somewhat important 3=neutral 4=important 5=very important

7. Do you own manufacturing locations off-shore?

8. Is your company involved in any sourcing? If so, do you source within the U.S., off-shore, or both?

9. What components do you manufacture and/or source in the U.S.? Offshore?

10. Does your company rely on push or pull marketing?

Generic Questionnaire – Auxiliary Companies

1. Where do you see global textile supply chains going? Why?

2. What are the drivers of the global textile supply chain today? The future?

3. What are the advantages of doing business with China rather than other countries in this hemisphere?

4. What advantages do manufacturers in Asia have over U.S. manufacturers besides costs?

5. In your experience working with U.S. retailers, what criteria do you believe is most important to them when choosing a vendor?

6. How important are partnerships with the retailers to the manufacturers in Asia? Where do you see this going in the future?

7. From your experience, what sourcing strategies are preferred today U.S. retailers and brand marketers?

APPENDIX B: INITIAL CONTACT LETTER

Date

Contact Name
Company
Address
City, State Zip

Dear Contact Name:

<Reference name, company>, suggested that we contact you regarding our research study. Our study focuses on the textile supply chain and examines the issues of global trade, supply chain structures, performance measures, and logistics cost structures. Your company has been selected to participate in this study, and your confidentiality will be secured.

We will be conducting information interviews in your area the week __. We would like to set up a time to meet with members of your company in the given areas during this week if possible. If an on-site visit is not possible during this week we would like to arrange a conference call when convenient. The questionnaire to be administered during the information interview is attached for your review. We will follow-up with you via email or by phone to discuss a possible meeting time. Please let us know when you will be available during this time or if there is someone else that we should contact.

Your cooperation is greatly appreciated. If you have any questions concerning the studies, please contact us via email at one of the addresses below.

Sincerely,

Hope Nowell Graduate Student NCSU/ITT chnowell@unity.ncsu.edu	Lynsey Cesca Graduate Student NCSU/ITT lacesca@unity.ncsu.edu	Michael Jones Graduate Student NCSU/ITT majones6@unity.ncsu.edu
Nancy L. Cassill, Ph.D. Professor – NCSU Nancy_Cassill@ncsu.edu	George Hodge, Ph.D. Professor-NCSU George_Hodge@ncsu.edu	Michelle Jones, Ph.D. Professor-NCSU Michelle_Jones@ncsu.edu

APPENDIX C: MARKET POPULATION

Table C1. Bottom Weights Manufacturer Population

Company	Description	Avg. sales last 5 years	Avg. growth rate last 5 years	Product mix
Kellwood	St. Louis, MO	$2,145	12.70%	Produces womenswear, menswear, lingerie, and childrenswear
Cintas Corp.	Cincinatti, OH	$2,255	12.34%	Uniform manufacturer
Tropical Sportswear Int'l.	Tampa, FL	$436	-1.41%	Men's and women's casual and dress clothes that are sold under company-owned and licensed brands (including John Henry and Bill Blass) and private labels
VF Jeanswear	Greensboro, NC	$5,422	-1.48%	#1 jeans maker's bevy of brands includes its Lee, Rustler, Brittania, Chic, H.I.S., Wrangler, Gitano, Earl Jeans, and Riders jeans brand
Hartmarx Corporation	Chicago, IL	$628	-6.16%	Best known for tailored clothing under its Hart Schaffner & Marx and Hickey-Freeman labels, the company also produces golf wear, slacks, and women's suits and separates
Galey & Lord	New York, NY	$668	-13.89%	Woven cotton fabrics, blended cotton fabrics, and corduroy. Through the company's Swift Denim unit, Galey & Lord is also one of the US's largest producers of denim.
Burlington	Greensboro, NC	$1,417	-16.10%	It makes wool worsted and worsted-blend fabrics, denim, cotton and cotton-blend fabrics, and waterproof synthetics for the apparel market
Cone	Greensboro, NC	$500	-9.30%	World's #1 maker of denim
Avondale Mills	Monroe, GA	$675	-12.54%	Makes apparel fabrics (cotton and cotton-blend piece-dyed fabrics, indigo-dyed denim), greige fabrics (undyed, unfinished cotton and cotton blends), specialty fabrics (such as coated materials for awnings, boat covers, and tents), and yarns
Delta Woodside	Greenville, SC	$226	-13.03%	Produces woven textile fabrics in its Delta Mills unit, which makes cotton, wool, and synthetic finished fabrics for use in the production of apparel
Milliken & Co.	Spartanburg, SC			Produces finished fabrics for rugs and carpets, as well as other synthetic fabrics used in such goods as apparel, automobiles, tennis balls, and specialty textiles
Mount Vernon Mills	Greenville, SC			Denim producer
Greenwood Mills	Greenwood, SC			Manufactures broadwoven fabrics
Carhartt, Inc.	Dearborn, MI			Rugged overalls, flame-resistant work wear, outerwear, sweatshirts, sportswear, and work pants
Williamson-Dickie Mfg	Fort Worth, TX			Dickies-brand khaki pants, bib overalls, jeans, women's and children's apparel, and Workrite safety uniforms
Koos Manufacturing	South Gate, CA			Koos Manufacturing is engaged in the manufacturing and distribution of denim outerwear
Inman Mills	Inman, SC			Manufacturers cotton and polyester fabrics
Levi Strauss & Co.	San Francisco, CA	$4,462	-5.51%	Sells jeans and sportswear under the Levi's, Dockers, and Levi Strauss Signature names
Oxford Industries	Atlanta, GA	$803	-2.02%	Men's, women's, and children's clothing: dresses, golfwear, shirts, slacks, and suits

Table C2. Bottom Weights Retailer Population

Company	Description	Store Category	Avg. sales last 5 years ($Mill)	Avg. growth rate last 5 years
Wal-Mart	Bentonville, AR	Mass merchant	$191,260	15.49%
Target	Minneapolis, MN	Mass merchant	$37,062	9.14%
Sears	Hoffman Estates, IL	National Chain	$41,115	0.03%
JCPenney	Plano, TX	National Chain	$32,172	1.05%
Kmart	Troy, MI	Mass merchant	$34,708	-1.88%
Federated	Cincinnati, OH	Dept.	$16,909	-0.19%
Gap, Inc	San Francisco, CA	Specialty	$12,533	12.92%
May	St. Louis, MO	Dept.	$14,163	0.41%
TJX	Framingham, MA	Off Price	$9,803	10.81%
Kohl's	Menomonee Falls, WI	National Chain	$6,200	25.57%
Limited	Columbus, OH	Specialty	$9,397	-2.30%
Dillard's	Little Rock, AR	Dept.	$8,033	-2.98%
Nordstrom	Seattle, WA	Dept.	$5,458	4.44%
Saks	Birmingham, AL	Dept.	$6,301	-1.10%
QVC	West Chester, PA	Other	$4,900	NA
Ross	Newark, CA	Off Price	$2,776	12.84%
Neiman Marcus Group	Dallas, TX	Dept.	$3,023	5.08%
Burlington Coat Factory	Burlington, NJ	Off Price	$2,372	7.98%
Retail Ventures	Columbus, OH	Off-price	$1,996	7.31%
Belk	Charlotte, NC	Dept.	$2,242	-0.07%
Home Shopping Network		Other	$2,002	NA
Abercrombie & Fitch	New Albany, OH	Specialty	$1,211	18.43%
American Eagle Outfitters	Warrendale, PA	Specialty	$1,069	26.28%
Chico's	Fort Myers, FL	Specialty	$286	49.71%
Urban Outfitters	Philadelphia, PA	Specialty	$310	19.60%
Ann Taylor	New York, NY	Specialty	$1,187	11.10%
Men's Wearhouse	Houston, TX	Off Price	$1,171	16.02%
Talbot's	Hingham, MA	Specialty	$1,447	9.15%
LL Bean	Freeport, ME	Direct Mail	$1,070	NA
Land's End	Dodgeville, WI	Direct Mail	$1,544	4.64%
J. Crew	New York, NY	Specialty	$790	-3.65%
CATO	Charlotte, NC	Specialty	$654	8.34%
Dress Barn	Suffern, NY	Off Price	$678	3.56%
Goody's	Knoxville, TN	Specialty	$1,182	2.39%
J. Jill	Quincy, MA	Specialty	$302	11.12%
Steinmart	Jacksonville, FL	Off Price	$1,272	3.19%
Christopher & Banks	Plymouth, MN	Specialty	$215	32.70%
Gymboree	Burlingame, CA	Specialty	$479	4.77%
Hot Topic	City of Industry, CA	Specialty	$262	44.55%
Pacific Sunwear Calif	Anaheim, CA	Specialty	$576	27.69%
Too, Inc	New Albany, OH	Specialty	$525	14.63%
Wet Seal	Foothill Ranch, CA	Specialty	$560	5.88%
Charming Shoppes	Bensalem, PA	Specialty	$1,649	23.74%
Aeropostale	New York, NY	Specialty	$380	43.58%

TableC3. Bed-Bath Manufacturer Population

Company	Description	Avg. sales last 5 years	Avg. growth rate last 5 years	Product mix
CHF Industries	New York, NY	$147.3	19.23%	Fashion bedding and accessories, decorative bathroom items, and window coverings
Franco Mfg.	Metuchen, New Jersey	$185.0	13.18%	Engaged in the manufacturing, importing and marketing of decorative home furnishing products including kitchen, bath, beach, bedding products and decorative pillows
Pacific Coast Feather	Seatle, WA	$307.8	11.63%	Basic bedding including pillows, comforters, sheets, and feather beds
Maples Rugs	Scottsboro, AL	$189.6	9.60%	Manufactures accent, bath, and kitchen rugs
Mohawk Home	Calhoun, GA	$582.8	7.10%	Commercial and residential carpets and rugs; other products include bath rugs, blankets, decorative throws and pillows, doormats, printed and woven nylon rugs, wall hangings, woven and tufted rugs, and woven bedspreads
Springs Industries	Fort Mill, SC	$1,958.4	6.73%	Home Furnishings (rugs, ceramic bath accessories, comforters, infant bedding, sheets, shower curtains, and towels)
Hollander Home Fashions	Boca Raton, FL	$210.8	3.30%	Produces about 30 million pillows a year; In addition, they make bedspreads, blankets, comforters, mattress pads, pillows, sheets, and shams
Croscill	New York, NY	$300.4	0.98%	Coordinated home furnishings, including linens for bedrooms, bathrooms, and windows
WestPoint Stevens	West Point, GA	$1,787.2	-3.08%	Bed pillows, Bedskirts, Bedspreads, Blankets, Comforters, Designer sheets and accessories, Drapes, Duvet covers, Mattress pads, Private-label sheets and towels, Sheets and towels for institutions, Shower curtains, Table covers, Throw pillows, Valances;
Dan River	Danville, VA	$437.0	-3.63%	Apparel fabrics, including material for men's shirts, and home fashion items such as comforters, draperies, pillowcases, and sheets
Glenoit	New York, NY	$215	-9.13%	Designs and manufactures decorative home furnishings through its subsidiary, Ex-Cell Home Fashions, and manufactures rugs and welcome mats through its Glenoit Consumer Products division
Crown Crafts	Gonzales, LA	$229	-26.51%	Products include bathing accessories, bibs, blankets, burp clothes, comforters, crib bedding, diaper stachers, hooded towels, mobiles, pillowcases, receiving blankets, sheets, throws, and washclothes.
Sure Fit	Allentown, PA	$154	19.65%	Slipcover manufacturer; In addition to its chair, futon, ottoman, and sofa slipcovers, the company also offers bedding and window treatment collections; bedding products include duvet covers and shams
Louisville Bedding	Louisville, Kentucky	$175	4.03%	Manufactures textiles for bedrooms and dining rooms including mattress pads, pillows, bedskirts, table linens, and more
Brentwood Originals	Carson, CA	$156	9.65%	Producer of decorative pillows
Fab Industries	New York, NY	$88	-20.18%	The Home Fashions and Accessories segment uses its own textile fabrics internally to produce flannel and satin sheets, blanket products, comforters, and other bedding products.
Burlington Industries	Greensboro, NC	$281	-8.65%	Burlington's interior furnishing fabrics unit makes woven jacquard mattress ticking and jacquard used in residential bedding, office, hospitality, and health care goods
Woolrich	Woolrich, PA			Men and women's wear, home furnishings, and accessories; home furnishings include beddings, throw blankets, throw pillows, rugs, and table linens
Thomaston Mills	Wyncote, PA			
Keeco, LLC	South San Francisco, CA	$169	33.10%	Textiles for the bedroom, bathroom, living and dining areas, and kitchen
Revman Industries	Greenville, SC			Manufactures and distributes fine bed and bath products for Laura Ashley, Tommy Hilfiger, Di Lewis, Echo, and Revman Studio Collections

TableC4. Bed-Bath Retailer Population

Company	Description	Company Category	Avg. sales last 5 years	Avg. growth rate last 5 years	Home Textiles as a % of Retail Sales 2002	Home Textiles as a % of Retail Sales 2003
Wal-Mart	Bentonville, AR	Mass	$2,642	7.65%	1.90%	1.80%
JC Penney	Plano, TX	Chain	$2,461	1.60%	13.30%	14.00%
Target Stores	Minneapolis, MN	Mass	$1,973	11.58%	5.90%	5.90%
Bed Bath & Beyond	Union, NJ	Specialty	$1,643	22.43%	57.80%	51.00%
Kmart	Troy, MI	Mass	$1,645	-8.15%	5.10%	5.30%
Linens 'n Things	Clifton, NJ	Specialty	$1,028	12.75%	54.80%	53.60%
Kohl's	Menomonee Falls, WI	Chain	$525	19.05%	7.00%	7.10%
Sears	Hoffman Estates, IL	Chain	$781	-4.90%	3.30%	2.90%
TJX	Framingham, MA	Off-Price	$483	6.35%	5.50%	5.50%
Mervyn's	Hayward, CA	Stores	$378	-3.90%	9.60%	9.60%
Big Lots	Columbus, OH	Off-Price	$298	9.23%	8.10%	8.20%
Family Dollar	Matthews, NC	Off-Price	$279	9.63%	6.70%	6.50%
Luxury Linens	Burlington, NJ	Specialty	$266	8.50%	11.00%	10.40%
(Williams-Sonoma)	San Francisco, CA	Specialty	$274	29.90%	NA	NA
Macy's East	New York, NY	Stores	$237	-1.35%	4.90%	4.80%
The Company Store	Edgewater, NJ	Direct Mail	$198	7.23%	82.00%	83.10%
Pier 1 Imports	Fort Worth, TX	Specialty	$192	14.03%	14.20%	14.60%
Macy's West	San Francisco, CA	Stores	$211	0.33%	4.90%	5.00%
Brylane Home	New York, NY	Direct Mail	$168	7.37%	11.60%	11.70%
Ross	Newark, CA	Off-Price	$160	17.23%	5.20%	5.50%
Meijer	Grand Rapids, MI	Chain	$163	7.33%	1.60%	NA
Eddie Bauer	Redmond, WA	Specialty	$159	0.83%	11.60%	11.80%
Costco	Issaquah, WA	Mass	$154	10.02%	0.04%	0.04%
IKEA	Plymouth Meeting, PA	Specialty	$144	13.63%	11.90%	12.00%
Spiegel	Downers Grove, IL	Direct Mail	$205	-8.33%	29.20%	NA
Lowe's	Morrisville, NC	Specialty	$131	40.90%	46.50%	0.05%
Strouds	City of Industry, CA	Specialty	$178	-6.50%	63.80%	NA
Stein Mart	Jacksonville, FI	Off-Price	$124	7.68%	10.00%	9.50%
Value City	Columbus, OH	Stores	$139	3.95%	8.30%	8.00%
Bloomingdale's	New York, NY	Stores	$146	-0.65%	7.80%	7.70%
Fred Meyer	Portland, OR	Chain	$133	0.20%	NA	NA
Dollar General	Goodlettsville, TN	Off-Price	$112	3.63%	1.90%	1.70%
Hecht's	Arlington, VA	Stores	$109	0.73%	4.60%	4.50%
Carson Pirie Scott	Milwaukee, WI	Stores	$90	30.25%	NA	NA
smith's	Atlanta, GA	Stores	$104	-1.05%	5.10%	5.00%
Foley's	Houston, TX	Stores	$92	-1.05%	4.60%	4.40%
Service	Chicago, IL	Direct Mail	$94	7.93%	53.60%	NA
Burdines	Miami, FL	Stores	$84	4.68%	6.20%	7.10%
Exchange Svc.	Dallas, TX	Other	$76	-0.07%	1.20%	NA
Linen Source	Tampa, FL	Specialty	$81	11.80%	95.00%	94.40%
Hardware	Corte Madera, CA	Specialty	$60	49.65%	16.50%	20.10%
HomeGoods	Framingham, MA	Off-Price	$134	5.50%	NA	17.30%
Anna's Linens	Costa Mesa, CA	Specialty	$107	36.36%	NA	98.20%
QVC	Westchester, PA	Other	$150	NA	NA	3.10%
Sam's Club	Bentonville, AR	Mass	$122	8.06%	NA	0.04%
Tuesday Morning	Addison, TX	Off-Price	$114	11.01%	NA	16.30%
Dillard's	Little Rock, AR	Stores	$137	-4.65%	NA	1.60%
ShopKo	Green Bay, WI	Off-Price	$123	-3.82%	NA	3.50%
Marshall Field's	Minneapolis, MN	Stores	$133	-3.69%	NA	4.60%
Robinson's-May	North Hollywood, CA	Stores	$98	9.06%	NA	4.70%
: **Home Textiles only, NOT TOTAL SALES**						