COST BENEFIT PERSPECTIVES OF BACKWARD VERTICAL INTEGRATION: AN EMPIRICAL STUDY ON THE TEXTILE AND APPAREL INDUSTRY IN SRI LANKA

MMLC Gunathilake[#1] & WDH De Mel[2]

[1,2]*Department of Management and Finance*
General Sir John Kotelawala Defence University

[#]lahirupera@gmail.com

Abstract— *Textile and apparel industry occupies a prominent position in the industrial sector of Sri Lanka generating the largest export income. Sri Lankan apparel sector positions via ethical manufacturing and sound labour practices, connecting with various renowned global super brands. The industry as a whole has to face immense competition from other global giants from textile and apparel importers in order to retain its position and enhance the market share. Improved quality as well as reduced cost are main considerations in this regard for the Sri Lankan apparel sector emphasizing the need for strategic expansion. Greater export revenue along with considerable import expenditure pertaining to importation of raw materials such as yarn, fabric etc. for apparel manufacturing is a common phenomenon in Sri Lankan apparel sector leading to less value creation in economic terms. Accordingly, this paper would focus on the Cost Benefit Perspectives associated with backward vertical integration in the apparel industry. This study was conducted adopting a qualitative embedded secondary data review at initial stage and later carried out several interviews with the Industry Experts via semi-structured interviews using open ended questionnaires in order to gather primary data. The findings reveal that the Sri Lankan giant apparel manufacturers have stepped towards backward vertical integration via fabric manufacturing and establishing joint ventures for the purpose of cost minimization.*

Key Words: ***Backward Vertical Integration, Cost Benefit, Apparel Industry, Lead-time***

I. INTRODUCTION

1.1 Apparel sector in Sri Lanka

The textile and apparel industry occupies a prominent position in the industrial sector of Sri Lankan economy. In fact, it is the strongest manufacturing sub-sector in terms of its contribution to industrial production, foreign exchange earnings and employment generation. Sri Lanka has carved a niche as an international center for clothing manufacturing nevertheless tough regional competition.

However, withdrawal of Generalized System of Preferences Plus (GSP+) concessions granted by European Union in August 2010, brought ample of implications on Sri Lanka's apparel industry, which is heavily dependent European market for exports. Sri Lankan apparel industry had to face immense competition from global apparel exporters to retain its position. As a result, it is required to look into the ways in which apparel industry can reduce its cost while enhancing quality of the output.

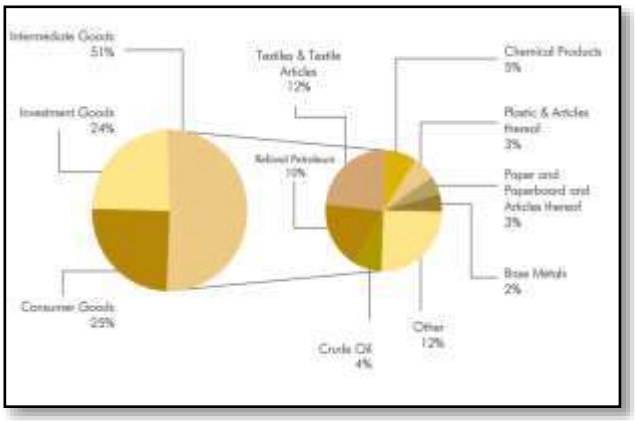
Sri Lankan apparel industry strives to position via ethical business and manufacturing practices. Moreover, Sri Lanka clothes the world, redefines industry frontiers, and connects global super brands such as Victoria's Secret, GAP, Liz Claiborne, Next, Jones New York, Nike, Tommy Hilfiger, Pink, Triumph, Ann Taylor, Speedo, Abercrombie & Fitch, Land's End and Marks & Spencer.

Apparel sector of Sri Lanka has been recognized for its excellence in speedy delivery and reliability while maintaining quality and reliability to meet with global standards. Further, good industrial practices in labour management and environmental conservation has made Sri Lanka an attractive destination for apparels made under ethical labour an environmental condition under the slogan "Garments without guilt". (Central Bank Annual report, 2015).

Major proportion of Sri Lankan exports is from industrial sector which is dominated by textiles and garments further establishing the vitality of the sector to the economy. On

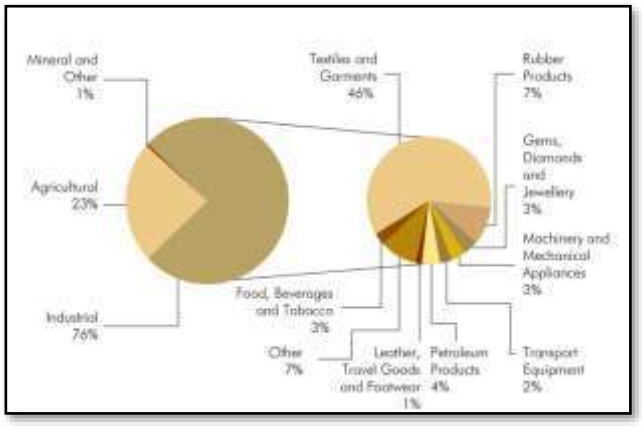
contrary, significant amount of import expenditure also being allocated to importation of textile and textile articles signifying the less value addition within the country.

Figure 1- Exports by commodities – 2015



Source: Central Bank Annual Report 2015

Figure 2-Imports by Commodities-2015



Source: Central Bank Annual Report 2015

Along with the competitive global market for apparel, Sri Lanka should enter into new avenues in order to enhance the efficiency of the industry. However, the integration of clothing and textile sector within the country is at a lower level. Major proportion of inputs pertaining to apparel industry are being imported resulting in long lead times. This would cause adverse impact on the competitive edge of the industry as whole and as well as economic implications due to less value addition, which can be highlighted via statistics. As depicted in Figure 1, 51 percent of Sri Lankan exports constitute of intermediate goods out of which, textile amounts to 12 percent. On contrary, as shown in Figure 2, 76 percent of Sri Lankan exports are industrial goods, out of which importation of textile and garments include 46 percent.

1.2 Backward integration

In the recent past, there have been drastic changes stemming up from globalization, backed by profound advances in the fields of communication, transportation, coordination process management and technologies. This phenomenon could have led to consumer fickle demands and more customized market requirements. On these grounds, it is widely believed that, supply chain management can effectively provide better value to end customers in terms of enhanced quality or less cost products which would intern boost the supply chain profitability to the organization (Chopra and Meindl, 2003). Development of the integrated supply chain is the most significant contribution to the delivery of goods and services in the past decade. The integrated supply chain management allows organizations the ability to alter the resources and value throughout the entire supply chain.

Vertical integration, the precursor of supply chain integration, is a long held and precept of management theory. Corporations in numerous environments including the transportation, energy and communication industries have benefitted from vertical integration (Stonebraker and Liao, 2006). Vertical integration strategy is adopted by the organizations to gain control over its suppliers or distributors in order to increase the firm's power in the marketplace, reduce transaction costs and secure supplies or distribution channels. The greater the number of stages in the value chain, the more vertically integrated a firm is. Whenever the firm increases the number of value chain stages it is engaged in, and these new stages bring it closer to direct interaction with the product's or service's ultimate customer, it is said to be in a forward vertical integration. On contrary, if the same manufacturing company starts makes intermediate goods for itself or takes over its previous suppliers, it pursues a backward integration strategy.

Firms implement backward integration strategy in order to secure stable input of resources and become more efficient. This certain strategy of backward vertical integration is using for achieving two major objectives, namely increasing the control of the business and to gain cost related advantages. Through the process of integrating backward, companies

can control their value chain in a more efficient manner. Also, costs can be considerably controlled all along the supply chain. Therefore, the main objective of this study is to identify the magnitude of cost benefits through backward vertical integration pertaining to the apparel industry of Sri Lanka.

II. REVIEW OF LITERATURE

Supply chain is a process for building improved and stronger upstream and downstream business linkages (Cooper and Ellram, 1993). The goal of supply chain is typically to achieve lower costs and /or better services (Troyer and Russell, 1995). Integration in the context of supply chain integration can be categorized considering its individual extensions to customer and supplier integration, horizontal and vertical integration, forward or backward integration to downstream or upstream integration (Vickery et al, 2003; Prajogo and Olhager, 2012). Supply chain integration has been viewed as an essential component for enhancing firm competitiveness and performance by exploring and using market knowledge to exploit cost-effective prospects in a volatile environment. External integration involves coordinating and integrating the forward physical flow of deliveries to customers and the backward flow of material and information from manufacturers to suppliers. (Martin, 1992).

Vertical integration is defined as, a variety of decisions concerning whether corporations through their business units, should provide certain goods or services in-house or purchase them from outside instead (Harrigon, 1985). He further states that vertical integration is a pattern of diversification that combines lines of business in a way that allows a company to use the outputs of one line of business as inputs of another line of business. Vertical integration can also be described as, the overall scope of different business activities in a supply chain brought under the management of a single company. (Majumdar and Ramaswamy, 1994).

According to Barney (2002), there are at least three reasons why a firm should vertically integrate into business functions where it currently enjoys a competitive advantage. First, hierarchical governance can increase the possibilities to be able to keep the sources of its competitive advantage proprietary. Second the reason is that vertical integration would enhance the firm´s chance to be able to appropriate the economic rents that a source of competitive advantage may generate. Thirdly, a source of competitive advantage can be considered sustained if it is valuable, rare and costly to imitate; the resources and capabilities involved in this particular function have been built up over long periods of time and are socially complex.

A response to relatively high cost of market exchange is the most cited reason for vertical integration (McDonald, 1985). Simatupand et al. (2002), suggests that supply chain integration is the key to obtaining necessary flexibility so that firms can progressively improve logistics process in response to rapidly changing market conditions. According to Harrigan (1985), the motives for vertical integration can be classified into four major categories.

1. Transaction cost considerations
2. Strategic considerations
3. Output and/or input price advantages
4. Uncertainties in cost and/or prices.

According to Klein (1988), by shifting the ownership of an organizational asset, vertical integration can imply an increased ability to direct cooperating inputs compared to a long-term contractual arrangement. Economic theory suggests that a firm will expand vertically as long as internal production Is more cost beneficial than purchasing the resource from an external source. During the early years of industrial revolution, vertical integration was undertaken by firms, to avoid variability in input and output markets, to avoid paying a premium for inputs and where bilateral trade was not beneficial (Lieberman, 1991).

Vertical integration can be upstream or downstream integration. Upstream competitors are closed to the material end of an industry's supply chain, and thus value is added by transferring raw materials into standardized commodities. Competitive advantages likely involve process and cost-oriented mechanisms that facilitate the achievement of low-cost position (Nicovich and Dibrel, 2007). In contrast, downstream players are closer to the final consumption of products and services, and value is added through advertising, product positioning and marketing channels. Downstream integration gives manufacturers the control over how products are marketed. However, manufacturers might take the risk of bearing distribution and selling expenses (McGuire and Staelin, 2008).

Based on the case study of Swedish firm, S Timber, which is one of the largest sawmill companies in Europe, including sawmills, wood processing units, distribution and wholesale

operations, Rehme (2012), states that vertical integration has improved company's supply chain efficiency in several ways in terms of, more cost-efficient logistics, maximize its production capacity in production sites a wide product assortment has increased the volume of goods for each delivery, which has reduced the numbers of order pick-ups in the warehouse. He further found that supplier's vertical integration is no longer limited to governance efficiency Instead, vertical integration of distribution is driven primarily by the external factors including customer demands and the potential benefits involving differentiation, increased information about customers, and supply chain efficiency improvement.

For efficiency and success, Stonebraker and Liao (2006), have pursued the notion that, for efficiency and success, a strategic fit must exist between operations, integration, and environmental variables. Further, they argued that stage of the product life cycle determines a firm's vertical integration strategy, and that impacts are moderated by an environmental complexity and munificence.
Moreover, Cao et al. (2008), states that, in textile and apparel industry, the brand owners generally coordinate the supply chain. From the perspective of the product type, the coordination practice in vertical integration chain is better configured for high fashion. On the contrary, the coordination practice in efficiency-oriented chain is better configured for mass fashion. Powerful enough, the third party can coordinate the whole supply chain to provide both mass fashion product and high fashion product.

Nordas (2005), reveals that the import value of textiles in Bangladesh was about 60% of the export value of clothing in 1991 but had declined to about 40% by 2001 indicating that backward linkages have developed over time. Moreover, in Pakistan a broad policy framework 'Textile Vision 2005' aims to make the textile industry more competitive with additional investment downstream in order to increase the overall textile exports of the country. Increasing the share of manmade fiber based products is also being stressed. Pakistan is in the process of expanding the raw material base by encouraging the production of polyester staple fiber and other manmade fibers within the country (UNCTAD 2005a).

Reliance Industries Limited in India is said to be a virtuous example for backward integration strategy. Reliance textile was a manufacturer of polyester textile of which primary raw material was polyester fiber. The company integrated backward by making a foray into polyester filament yarn business. Moreover, fiber and yarn come from petrochemicals accordingly the company moved further backward and entered into petrochemical business and later into plastics. Reliance backward integration did not stop at the petrochemicals rather it moved back into petroleum refining. The raw material for the petroleum refining is crude oil which is to be explored. To complete the entire chain, Reliance's backward integration did not stop here rather it went on to integrate backward by moving into oil and gas exploration. Among the factors guiding such a move include greater control, efficiency and quality to develop competitive advantage. On the flip side integration can reduce flexibility and raise exit barriers.

III. METHODOLOGY

This study was conducted in Sri Lanka during the months from January to May 2016. The researchers used realism research philosophy to understand the nature of study by its reality. The researchers have used inductive research apporoach and adopted a qualitative embedded secondary data review at initial stage and later carried out several interviews with the Industry Experts (Supply Chain Managers, Operations Managers, Head of Merchandisers and Government officials) through semi-structured interviews using open ended questionnaires in order to gather primary data. Under inductive approach , thematic analysis was used to analyse qualitative data.

As the focal point 'Cost' is a highly confidential in most organizations the researchers have used some analytical techniques such as analyzing trends in imports (Row Materials for Apparel Industry) during last ten years. With this trend analysis, researchers tried to generate a holistic picture about the industry. Secondary data was necessary to verify the accuracy of the primary data specially provided by the operations managers of different apparel manufacturers.

Data analysis consisted of using documentary analysis and synthesizes the findings in a cross-respondent synthesis. The cross-respondent synthesis focused on questioning what kind of similarities exist in terms of cost reduction and minimizing the lead time.

IV. DISCUSSION

Face to face semi structured interviews carried out with the industry experts revealed some significant findings. Initially, It has been identified the "Competition" that occurs locally

and internationally lead the companies to move towards backward vertical integration. On January 1, 2005, the worldwide system of textile and apparel quotas was discontinued leading to a major shift in global trade production trends. Industries in the textiles and clothing sector, which provide the backbone to many developing economies, were faced with many challenges afterwards as they had to operate in a quota free environment amidst intense competition and increasing cost of production. In context of Sri Lanka, the absence of vertical integration (associated with the lack of a fabric and accessory base) means that the turnaround time of Sri Lanka's garment industry remains close to 90-150 days compared with an international benchmark lead time of around 60 days. The long turnaround time was an issue in the context of international competitiveness before few years back.

Having recognized the importance of backward integration, the industry is taking continuous efforts to reduce the import dependency ratio, thereby increasing the value addition of the industry through local production of raw materials. Sri Lanka's first privately managed industrial zone dedicated to producing apparel and fabric was initiated by MAS in 2006 and it was identified as a 'Supply Chain City'. With that change of management Thulhiriya renamed the Asian Apparel and Fabric Technology Park (AAFTP) and be developed to operate as a dedicated fabric and apparel industrial zone. Afterwards, Brandix and OMEGA Line adhere to the Backward Vertical challenge accepting it as an industry norm. The main cost related advantage that these companies are experiencing is that they have minimized the lead time and now they have achieved the industry benchmark of 60 days in certain categories of production.

Operations Manager, MAS Holdings (Pvt) Ltd stated:

> '*We think that we have initiated a wise decision in introducing a local supply chain facilities which enabled the speed and flexibility to experiment with samples and designs, in addition to reducing cost and lead time. We achieved the fundamental objective to facilitate raw-material manufacturers to "plug and play" with regard to resources and services at the Thulhiriya zone, and enable them to focus on their core manufacturing specialization'*

However, as according to the interview carried out with a member organization of Joint Apparel Association Forum Sri Lanka (JAAFSL) exposed that still there is an underutilized space available for further development.

Since the country does not have an extensive and efficient industrial base of producing textiles material and clothing accessories, the industry depends heavily on the import of materials. Of the total material imports of US dollars 2,046 million in 2013, nearly 94 per cent was imports of fabric and yarn. Major source countries for these products were China (33.7 per cent), India (18.9 per cent), Hong Kong (11.2 per cent), Taiwan (9.1 per cent) and Italy (5.7 per cent). The other major material import was staple fiber which accounted for about 1.3 per cent of total textile material imports in 2013 (Annual Report – Central Bank of Sri Lanka, 2014).

The major limitation of practicing backward vertical integration is the specification requirements given by the customers (World Reputed Brands) and that has limited domestic sourcing of fabrics and other accessories. Accordingly, when selecting fabric and accessories companies have to adhere the customer requirements and buy only from listed/approved suppliers which has been resulted the extended lead time. Besides, the "Quality" related problems also concerned as barrier to implement backward vertical integration. As the quality of raw materials affect to the quality of final product, still apparel manufacturers depend upon imported quality materials.

Secondary data review with special reference to Central Bank Reports, Sri Lanka provided a significant finding regarding import of inputs into the apparel industry over time. It is observed that yarn imports have increased and fabric imports have decreased during the period of 2005-2015, which indicate the impact of backward vertical integration.

Joint Apparel Association Forum(JAAF) Secretary General, stated that,

> *'value addition is not so much at the assembly stage but at the front end and the back end and their objective is to integrate the front end, where they provide the design and the sample and the buyer decides. With this the industry as a whole create 60% of value addition as the private sector has invested heavily in producing accessories such as thread, buttons, collar stays, and in services such as printing, packaging and bar coding.'*

The interviews also revealed that at the moment much of the focus of backward integration is on "fabric". Fabric alone

accounts for around 60 percent of the total cost of a garment while accessories, like buttons and zips, make up 5 percent to 10 percent of the value.'

An official from Star Garments Group stated:

'In 2012 the industry imported 289million dollars worth of accessories and trims but this fell to 264 million dollars in 2013 despite exports going up because of local production and value addition. More fabric mills are also being set up in the island and existing ones expanded to support the apparel exporters and shorten lead time'

Director (Operations) at Sri Lanka Institute of Textile & Apparel Stated:

'100% backward integration is not feasible. But backward integration in fabric, particularly in the area of knit fabrics, dyeing, and finishing and domestic production of accessories, should be encouraged.'

Also, it has been identified that most companies practices backward integration through joint ventures rather than having their own facility. The major limitation is that textile industry is capital intensive and require heavy investments and accordingly the best business model is for garment factories and fabric manufacturers to form "Joint Ventures". This move will share the risk and increase profits.

Operations Manager, MAS Holdings (Pvt) Ltd stated:

'MAS has experienced very successful joint ventures during last two decades with Mast Industries and Courtaulds Clothing (UK), Mast Industries and Charnwood Elastics (UK), Noyon Dentelles (France), Prym Intimates (Germany) and Dogi International Fabric and Textprint SA (Spain). These valuable not only strengthen our value chain, also added a lot to our profitability'

When considering embroidery and washing services, there are number of quality service suppliers such as Dee Dee Combine (Pvt) Ltd, Winworld Washing Plant (Pvt) Ltd, Brandix Finishing Ltd, Melbourne Textile Washing Plant (Pvt) Ltd, Opel Embroidery Services (Pvt) Ltd, Knitfin (Pvt) Ltd and Hayleys MGT Knitting Mills PLC.

Joint Apparel Association Forum(JAAF) Secretary General, stated:

'When considering woven fabrics, we import half finished products and we do the rest here. We have the best embroidery and washing services in this part of the world. Though we are one of the highest cost producers in the region we continue to grow because of the strengths of the industry.'

The supply of accessories such as thread, buttons, zips, poly bags, cartons, labels, tags and hangers are manufactured by Joint Ventures with 5%-10% local value addition. More recently international exclusive suppliers to some of the major retailers in the EU and USA, such as YKK zips, Maintech hangers and Paxar for labels, tags and stickers have established production units in Sri Lanka, along with strong integrations with leading apparel manufacturers.

While experiencing favorable results of backward integration in apparel industry, now there is way forward from textile industry to capture the row material production and few companies have started producing fibers such as Sankom Enterprises Pvt Ltd which extract fibers from banana in the regions of Ambilipitiya and Jaffna. This has been observed as a good trend by which Sri Lankan apparel can provide greater value addition.

V. CONCLUSION

Since garments industry has become a hi-tech industry worldwide, Sri Lanka needs to concentrate on moving into higher value added products in order to be competitive in the international markets. For this purpose, Sri Lanka needs to produce specialized, high quality up-market garments with high local value addition. However as the Textile Industry is highly capital intensive, it is necessary to invest in advanced technology. Most large companies today understand that price offering to the customers can be controlled better by vertically integrated operations than being standalone apparel manufacturers. With the maturity of the industry, import dependency for raw materials could be reduced through backward integration where inputs are produced domestically. It helps them control the costs at various points of the supply chain and maintain a reasonable level of profits while meeting price expectations of the customers. Accordingly, Industry as a whole understood that having the Joint ventures is the most suitable strategy in mitigating risk and maximizing profit. This allow Apparel Manufacturers to go along with global affiliations while

keeping their focus on core activity of producing quality, ethical garments. However as these Joint Ventures have the capacity to supply only a small percentage of the total raw material required by the industry, yet there is a room for improvement.

References

Anon., 2012. [Online]
Available at:
https://marketingcrow.wordpress.com/2012/07/19/only-vimal-backward-integration-and-business-strategy/

Chopra, S. & Meindl, P., 2003. *Supply Chain Management: Strategy, Planning and Operations.* 2nd ed. Upper Saddle River, NJ: Prentice Hall.

Cooper, M. & Ellram, L., 1993. Characteristics of Supply Chain Management and the Implications for Purchasing and Logistics Strategy. *International Journal of Logistics Management,* 4(2), pp. 13-24.

Fernando, L., 2002. *Backward Linkages In The Textile And Clothing Sector - Sri Lanka.*

Lieberman, M., 1991. Determination of Vertical Integration and Empirical Test. *Journal of Industrial Economies,* 39(5), pp. 451-66.

Majumdar, S. K. & Ramaswamy, V., 1994. Explaining Downstreaming Integration. *Managerial and Decision Economics,* 15(2), pp. 119-29.

Martin, C., 1992. Logistics and Supply Chain Management.
McDonald, J. M., 1985. Market Exchange or Vertical Integration: An empirical analysis review of economics and statistics. 67(2), pp. 327-32.

McGuire, T. & Staelin, R., 2008. An industry equilibrium analysis of downstream vertical integration. *Marketing Science,* 27(1), pp. 115-3.

Nicovich, S. & Dibrell, C. C., 2007. Integration of Value Chain and Porter's (1980) Competitive Strategies into Market Orientation Conversation: An Examination of Upstream and Downstream activities. *Journal of Business and Economic Studies ,* 113(2), pp. 91-106.

Nordahs, H., 2005. Labour Implications of the Textiles and Clothing Quota. *Phase-Out, Sectoral Activities Working Paper, WP224.*

Prajogo, D. & Olhager, J., 2012. Supply Chain Integration and Performance: The Effects of Long Term Relationships, Information Technology and Sharing, and Logistics Integration. *International Journal of Production Economics,* 135(1), pp. 514-522.

Rehme, W., 2012. Vertical integration in supply chains: driving forces and consequences for a manufacturer's downstream integration. *Supply Chain Management: An International Journal,* 17(2), pp. 187-201.

Simatupang, T., Wright, A. & Sridharan, R., 2002. The Knowledge of Coordination for Supply Chain Integration. *Business Process Managerial Journal,* 8(3), pp. 289-308.

Stonebraker, P. W. & Liao, J., 2006. Supply Chain Integration: Exploring Product and Environmental Contingencies. *Supply Chain Management: An International Journal,* 11(1), pp. 34-43.

Troyer, C. & Russell, C., 1995. Smart Moves in Supply Chain Integration. *Transportation and Distribution,* 36(9), pp. 55-8.

UNCTAD, 2005a. TNCs and the Removal of Texties and Clothing Quotas, United Nations Conference on Trade and Development: New York and Geneva..

Vickery, S. K., Jayaram, J., Droge, C. & Calantone, R., 2003. The Effects of an Integrated Supply Chain Strategy on Customer Service and Financial Performace: An Analysis of Direct Versus Indirect Relationships. *Journal of Operations Management,* 21(5), pp. 523-539.

Zhang, N., To, K. & Keng, P., 2008. How are supply chains coordinated? An empirical observation in textile apparel business. *Journal of Fashion, Marketing and Management,* 12(3), pp. 384-397.