

**The relationship between sustainable and ethical supply chain disclosures and competitive advantage in the apparel manufacturing sector**

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## Table of Contents

ATTESTATION OF AUTHORSHIP .....	5
ACKNOWLEDGEMENT .....	6
ABSTRACT .....	7
CHAPTER 01 INTRODUCTION .....	8
1.1 BACKGROUND TO THE RESEARCH .....	8
1.2 TYPES OF SUPPLY CHAIN INFORMATION .....	10
1.3 ETHICAL AND SUSTAINABLE SUPPLY CHAIN DISCLOSURE .....	11
1.4 GENERALISED SYSTEMS OF PREFERENCES .....	13
1.5 RESEARCH QUESTIONS AND OBJECTIVES .....	14
CHAPTER 02 THEORETICAL BACKGROUND AND LITERATURE REVIEW .....	15
2.1 THEORETICAL BACKGROUND .....	15
2.2 SUPPLY CHAIN DISCLOSURE .....	15
2.3 SUSTAINABLE & ETHICAL SUPPLY CHAIN DISCLOSURES AND THEIR IMPACT ON FIRM VALUES. .	17
2.4 SUSTAINABLE & ETHICAL SUPPLY CHAIN DISCLOSURE AND ITS IMPACT ON COMPETITIVENESS.	20
CHAPTER 03: RESEARCH METHOD AND DATA COLLECTION .....	24
3.1 RESEARCH METHOD .....	24
3.2 DATA COLLECTION .....	26
3.2.1 Data collection for TQ calculation .....	26
3.2.2 Data collection for OC calculation .....	27
3.2.3 Computation of S&ESC disclosure scores .....	28
CHAPTER 04 DATA ANALYSIS AND RESULTS .....	31
4.1 DESCRIPTIVE / UNIVARIATE ANALYSIS .....	31
4.2 CORRELATION ANALYSES .....	32
4.3 MULTIVARIATE REGRESSION ANALYSIS .....	34
CHAPTER 05 CONCLUSIONS, LIMITATIONS AND IMPLICATIONS .....	38
5.1 OVERALL OBJECTIVE OF THE RESEARCH .....	38
5.2 SUSTAINABLE AND ETHICAL SUPPLY CHAIN DISCLOSURE AND MARKET VALUE OF THE FIRM .....	38
5.3 SUSTAINABLE AND ETHICAL SUPPLY CHAIN DISCLOSURE AND COMPETITIVENESS OF THE FIRM	39
5.4 RESEARCH LIMITATIONS AND SUGGESTIONS FOR FUTURE STUDIES .....	40
REFERENCES .....	41
APPENDIX .....	45
APPENDIX 01: DISCLOSURE CRITERIA .....	45
APPENDIX 02: LIST OF COUNTRIES OF STANDARD GSP, GSP+ AND EBA STATES AS OF 01 <sup>ST</sup> JANUARY 2019 ACCORDING TO EUROPEAN UNION .....	47
APPENDIX 03: EXAMPLES OF CATEGORIES USED TO CLASSIFY S&ESC DISCLOSURES USING NVIVO. .....	49

## List of Tables

Table 3. 1: Sample selection .....	29
Table 4. 1: Descriptive Statistics .....	31
Table 4. 2: Correlations between dependent and independent variables .....	33
Table 4. 3: Regression analysis: - Impact of S&ESCD on TQ (Model 1).....	34
Table 4. 4: Regression analysis: - impact of S&ESCD on OC.....	36
Table 4. 5: Regression analysis- the impact of S&ESCD on TQ and OC.....	37

## **List of Figures**

Figure 2. 1: Conceptual framework for S&ESC disclosures within the general classifications of disclosures.....	16
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### ATTESTATION OF AUTHORSHIP

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person, (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma at a university or other institution of higher learning.

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## ABSTRACT

**Purpose** – The objective of this research is to assess whether supply chain disclosures increase the values and competitive advantages for firms in the apparel manufacturing industry in Generalised Systems of Preferences (GSP) certified countries.

**Design/methodology/approach** – Sustainable and Ethical Supply Chain (S&ESC) disclosures by 40 apparel manufacturers from India, Pakistan, Bangladesh, and Indonesia were compared with the Global Reporting Initiative (GRI) framework to ascertain the strength of disclosures. Multivariate analysis was then employed to assess their impact on firm values, measured by Tobin's Q, and of competitive advantages, using organizational capital (OC) as the proxy.

**Findings** – This study finds that S&ESC disclosures have a positive but not significant relationship with the values of firms. However, S&ESC disclosures positively and significantly influence the competitiveness of firms, suggesting those that disclose S&ESC matters have a competitive advantage over those that do not disclose.

**Outcome** – The findings of this research will be useful for apparel manufacturers in the Generalised Systems of Preferences (GSP) certified countries, and for customers in developed countries.

**Originality/value** - There is no known study that specifically refers to S&ESC disclosures in the apparel industry in GSP certified countries. This research fills that gap.

**Keywords** - Sustainable and ethical supply chain disclosure, Generalised Systems of Preferences, Organization capital, Competitive advantage, Tobin's Q.

## CHAPTER 01

### INTRODUCTION

#### 1.1 Background to the research

A supply chain links firms and its suppliers to the ultimate buyer through proper distribution channels (Moore, 1998). It covers the flow of goods and information between organizations, suppliers and end-users (Handfield & Nichols, 2002). Ellram and Cooper (1990) identify supply chains as complex and interrelated networks built at different levels within the flow, connecting suppliers with ultimate buyers through distribution channels. Factoring in economic, managerial and strategic risks and rewards, they identify that supply chain management allows firms to meet customer requirements better than other potential approaches.

Rapid changes in customer demand, increased competition, and pressures from stakeholders force firms to incorporate sustainable practices, in order to manage their supply chains. For example, in response to continuous pressure from the public, Zara, a leading clothing retailer, publicly announced hazard-free clothing that eliminates the use of harmful chemicals from the supply chain with the aim of reducing environmental pollution (Greenpeace, 2012). They stated that they plan on making hazard-free clothes all through their manufacturing process.

The pressure on managers to be both transparent and ethical has given rise to supply chains being modified to incorporate sustainable and ethical dimensions. Seuring and Muller (2008) define a sustainable supply chain as one where the management of its flow of material, capital and information results in three dimensions of benefits: social, environmental and economic. Zailani, Jeyaraman, Vengadasan, and Premkumar (2012) confirm this view through a survey conducted in Malaysia, which concluded that sustainable supply chain management has positive effects on social, economic, operational and environmental outcomes. Wittstruck and Teuteberg (2012) also identify economic, social and environmental performances as the three strong pillars of a sustainable supply chain, and risk and compliance management as its foundations. Negligence in fostering these factors has been seen to create difficulties in sustainability achievements. Kuik, Nagalingam, and Amer (2011) define the Sustainable Supply Chain Management (SSCM) as the integration of social, economic, and environmental aspects that provide service excellence, reliable information sharing, product sustainability within

the global supply chain, and the generation of benefits for shareholders, business partners, employees, and the community.

Most companies in developed countries tend to buy products from developing countries due to their price competitiveness. However, these companies are under pressure to demonstrate that their products are manufactured and sourced from ethical and socially acceptable environments to comply with the increased requirements from governments, regulatory bodies, non-government organisations, customers and investors (Okongwu, Morimoto, & Lauras, 2013). With specific reference to the apparel industry, Niinimäki (2015) states that about 80% of clothing exports are shipped from developing countries to developed economies.

Most importing firms exercise ethical judgements in their supply chain activities. If the personnel involved in the supply chain maintain high levels of ethical judgement, this results in trust and good relationships between suppliers and buyers (Chun Ha & Nam, 2016). Wong and Taylor (2000) suggest that companies should establish ethical sourcing departments to monitor compliance with human rights and the environmental issues of their suppliers. For instance, major industries should be pursuing ways to cut carbon emissions in their supply chains to minimise the impact on the environment (Singh, Mishra, Ali, Shukla, & Shankar, 2014). Regulations have been put in place to ensure this by many countries. As an example, the Ministry for the Environment in New Zealand (2018) has set a target to reduce greenhouse gas emissions by 5% by the year 2020, another 6% by the year 2030 and a total of 50% reduction by the year 2050 to protect the environment. Sustainable and Ethical Supply Chain (S&ESC) management, therefore, plays a major role in satisfying customer demands and gaining competitive advantages. The integration and coordination of activities to conform to sustainable and ethical supply chain activities will therefore, ensure that competitive advantages are reaped through improvements in customer satisfaction and price competitiveness (Elmuti, 2002).

Disclosures of S&ESC activities, by both producing and buying companies, increase their respective reputations and brand values. Buying companies such as General Electric and Honda improved their brand values by implementing sustainable supply chain practices (Pearson, 2013), which in turn increased their reputations. Bellman (2012) highlights that the reputations of firms and future business prospects will suffer if they are known to engage in non-sustainable activities. On the other hand, producing companies use S&ESC disclosures to evidence that they 'have nothing to hide' from the public (Doorey, 2011).

This transparency allows companies to attract investors and customers, thereby gaining a competitive advantage. Kaur and Sharma (2018) highlight that organisations disclosing their sustainability-based supply chain activities achieve greater transparency and brand values. Consequently, the disclosure of S&ESC improves the reputations of companies and provides competitive advantages for these firms. Brand value creation and transparency are important for industries that are highly dependent on customers from developed countries.

## **1.2 Types of supply chain information.**

Marshall, McCarthy, McGrath, and Harrigan (2016) identify supply chain membership, provenance, environmental information and social information as the four types of supply chain information that are commonly gathered by firms for public disclosure.

**Supply chain membership** refers to the details of suppliers engaged in supply chain processes. This disclosure includes information on the degree of importance of a supplier, who can be classified as first-tier, lower-tier and further, and also gives their locations. Doorey (2008) points out that global leaders such as Nike and Levi-Strauss disclose sustainability practices by explicitly stating their suppliers' names, locations, the details of their workforce and the details of the subcontractors they engage with. The purpose of this disclosure is to be transparent and to gain public trust.

Disclosure on product materials is referred to as **Provenance**. This reveals details on the materials used, the locations of their sources, information on how they are extracted and instructions to customers on how to care for the final product. The purpose of this disclosure is to ensure that there are no harmful or dangerous components used in the finished product. This is done by attaching product and care-labels to finished products. Care labels guide consumers about the particular combination of components used, to both inform and guide effective usage. In the apparel industry, information on the type of fabric, thread decoration and the construction techniques used are provided to guide users for the best apparel care.

Most corporate responsibility reports provide a wide range of the environmental conservation measures taken by companies. These include information on items such as water usage, carbon and energy use and the levels of waste in the supply chain. These are referred to as **Environmental information**, which provides confidence to end customers that the product has had a minimum level of harm on the environment. Details about

human rights, labour practices, social impact, working conditions, and other issues such as health and safety practices within the supply chain are typically referred to as **Social information**.

The disclosure of the above categories of information allow firms to be transparent with regards to their supply chain activities. The Global Reporting Initiatives (GRI), on the other hand, suggests that companies should disclose a much wider array of information than this four-fold classification.

### **1.3 Ethical and Sustainable Supply Chain Disclosures**

Global Sustainability Standard Board (GRI, 2018, p.03) specifies sustainability reporting as “an organization’s practice of reporting publicly on its economic, environmental, and/or social impacts, and hence its contributions – positive or negative – towards the goal of sustainable development”.

The Global Reporting Initiative (GRI) specifies a set of prescriptions that companies can follow to discharge their accountability towards S&ESC practices. These specifications are the best options currently available to firms to enhance comparability, transparency, and the accountability of firms globally. As these specifications are not legally binding, a firm has the freedom to decide the contents and scope of its sustainability report. GRI (2018) prescribes certain standard disclosures, and specific disclosures for efficient reporting.

- Standard disclosures (Series number-100).

These cover details of the company’s profile, its corporate governance practices, and the strategies it has adopted to ensure ethical practices and to maintain integrity, its engagement policies with stakeholders, and general information on its reporting processes.

- Specific disclosures (Performance indicators)

These disclosures deal with the economic, environmental and social performance of companies.

- Economic performance (Series Numbers – 200 )

The purpose of this disclosure is to provide information on an organisation's contribution towards sustainable development at the local, national and global economic levels. Herein, companies are expected to provide details of the management approaches they have adopted with a view to improving economic performance, policies and other strategies.

➤ Environmental performance (Series Numbers – 300 )

This section covers the management approaches taken by firms to mitigate environmental impacts on water, energy, material waste, and emissions. It provides information on the degree to which firms comply with environmental regulations, and gives details of their overall environmental performance.

➤ Social performance (Series Numbers – 400 )

An organisation's contribution to the social dimension of sustainability, human rights, product responsibility and labour practices are covered in this section. Human rights related information includes the extent to which companies consider human rights when making supplier selections and investment decisions. Product responsibility covers the faithful representation of a company's products and services to the public, which includes advertising, promotion, product information and the health and safety of the product. Disclosures on labour practices cover details of management and labour relations, employee training and education, the occupational health and safety standards adopted, fair treatment, and equal employment opportunity policies.

Brown, Jong, and Levy (2009) believe that GRI is the best and most well-known framework available, and its global presence as a voluntary reporting indicator of an organisation's social and environmental performance is comprehensive. The authors explicate that this framework can be used as an instrument by companies to provide a bundle of information to stakeholders for informed decision making. Skouloudis, Evangelinos, and Kourmoussis (2009) support this suggestion through a study conducted in Greek companies that related to non-financial reporting, although they conclude that the practice of complying with the GRI prescriptions in Greece is still in its primary stages.

In this research, I have selected major provisions relevant to sustainable and ethical supply chain disclosures from the GRI standards, and analysed the strength of disclosures

made by the sample companies by comparing one against the other. Appendix 01 shows the GRI provisions selected for this study.

#### **1.4 Generalised Systems of Preferences**

Developed nations offer Generalised Systems of Preferences (GSP) certifications and a preferential tariff systems to developing countries to enhance their export earnings. Currently, the European Union, the United States of America, New Zealand, Australia, Belarus, Canada, Iceland, Japan, Kazakhstan, Switzerland, Norway, Russia, and Turkey grant GSP statuses to developing countries. Manufacturers in GSP certified countries need to comply with the regulations set by the customers in GSP granting countries to gain the advantages of preferential tariffs.

In this research, I have only selected countries that are regulated by the European Union, as the EU's GSP certifications cover a wide range of countries and provide greater benefits than others. Additionally, the European Union Act no. 978, (Regulation\_European\_Union, 2012), grants GSP certifications to developing countries with the proviso that these countries comply with sustainable economic, social and environmental targets. Therefore, manufacturers in beneficiary countries are expected to put into practice good governance and sustainable developments to trade internationally.

The European Commission (2019) offers three major categories of GSP certifications, namely, Standard GSP; GSP+, and EBA (Everything but Arms). Appendix 02 outlines the full list of GSP, GSP+ and EBA countries as of 1<sup>st</sup> January 2019. The Standard GSP scheme is offered to low and lower-middle-income countries such as the Congo, the Cook Islands, India, Indonesia, Kenya, Micronesia, Nauru, and Nigeria. These countries benefit by way of partial or full removal of import duties at the destination.

GSP+ is a special incentive given to countries that practice good governance and sustainable development. Armenia, Bolivia, Cape Verde, Kyrgyzstan, Mongolia, Pakistan, Philippines, and Sri Lanka are the only countries listed in this category. They receive the same concessions on tariffs as countries with standard GSP status. These countries are obliged to adopt and implement international conventions relating to the protection of environment, labour rights, human rights, and good governance to retain their status.

EBA offers special arrangements for the least developed countries such as Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, and Cambodia. These

countries benefit from quota-free and duty-free access for all products, except ammunitions and arms.

### **1.5 Research questions and objectives**

The extent to which firms in GSP certified countries disclose S&ESC related matters and the impact on competitive advantage has not been addressed in prior studies. This research, therefore, attempts to address this gap. The objective is to assess whether sustainable and ethical supply chain disclosures increase both market values and competitive advantages for firms in the apparel industry in GSP certified countries. With this objective in mind, I specify the following research questions:

RQ 01. Do sustainable and ethical supply chain disclosures increase the values of firms in the apparel industry in GSP certified countries?

RQ 02. Do sustainable and ethical supply chain disclosures increase the competitive advantages of firms in the apparel industry in GSP certified countries?

To address these research questions, I compared the S&ESC disclosures made by sample firms against the prescriptions of the GRI framework to assess the strength of a firm's disclosures and to then evaluate its impact on firm-value, using Tobin's Q and the impact on competitive advantages using the organisation capital it possesses.

The results of my analysis found that there is a positive but not significant relationship between S&ESC disclosures and the value of a firm. However, S&ESC disclosures positively and significantly influence the competitiveness of firms. The study suggests that greater competitive advantages can be reaped by firms that disclose higher levels of S&ESC disclosures.

The remainder of this report follows the following format; the second chapter discusses the theoretical framework and reviews relevant literature, while the third chapter presents the research methodology and details of data collection. Chapter four delivers the analysis of data and reports the results. Chapter five provides conclusions, limitations, and the implications of this research.

## CHAPTER 02

### THEORETICAL BACKGROUND AND LITERATURE REVIEW

#### 2.1 Theoretical background

The reduction of information asymmetry is a prime responsibility of supply chain related disclosures, since a proper flow of information between suppliers and customers is important in gaining competitive advantages. When disclosures are made by a company, the information asymmetry between the company and the receiver reduces and the level of trust between them increases.

Disclosures by companies provide a signal to stakeholders about the prospects of their business. Signalling provides both positive and negative information to the market; the theory is fundamentally concerned with the reduction of information asymmetry between two parties (Spence, 2002). According to the signalling theory, one party (the sender) chooses to communicate with the other party (the receiver) (Connelly, Certo, Ireland, & Reutzel, 2011). In the case of S&ESC disclosures, manufacturers signal their sustainable and ethical practices to customers, who in turn interpret their appropriateness in the light of the regulations that are applicable.

The ethical component considered in this research can be positioned under the theoretical lens of virtue ethics. According to Aristotle, virtue ethics refers to the moral character that a firm wishes to display. Firms tend to disclose matters relating to human rights, employee welfare, equal opportunity employment, ethical sourcing of materials, their stance on animal testing and more to evidence their ethical character and moral beliefs.

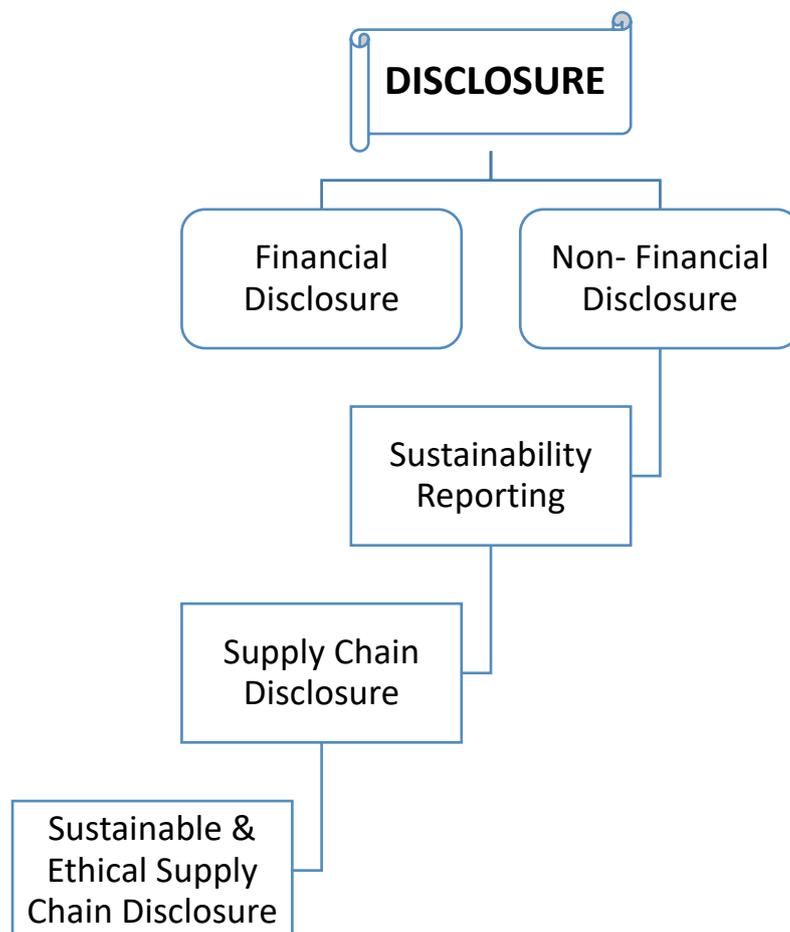
In this research, both these theories are relevant and both are incorporated in the arguments leading to hypotheses.

#### 2.2 Supply Chain Disclosure

The types of disclosures made by firms can be categorised into two major areas: financial disclosures and non-financial disclosures. As stated by Choi and Pae (2011), the main objective of financial disclosure is to deliver useful information for decision making. In

recent years, non-financial disclosures have become increasingly important, as these satisfy the varied information requirements of stakeholders (Rossi, Tudor, Nicolo, & Zanellato, 2018). Omran, Khallaf, Gleason, and Tahat (2019) agree with the above and suggest that non-financial measures are popular and act as leading indicators for the future financial performance of a firm. The results of their research indicate a positive relationship between non-financial performance disclosures and operating financial performance, measured by the return on investment. Supply chain disclosures, sustainability reporting, environmental reporting, and corporate social responsibility (CSR) disclosures are examples of non-financial disclosures. As indicated in figure 2.1 below, S&ESC disclosures are a subset of supply chain disclosures located within the realm of non-financial disclosures. Sustainability reporting, which forms a major part of non-financial disclosures, contains components of supply chain disclosures, within which the S&ESC related disclosures are positioned.

Figure 2. 1: Conceptual framework for S&ESC disclosures within the general classifications of disclosures.



### **2.3 Sustainable & ethical supply chain disclosures and their impact on a firm's value.**

This section will discuss how S&ESC disclosures impact the value of a firm. Firms are increasingly under pressure to disclose their ethical and sustainable practices to stakeholders to bring about greater awareness and to seek legitimacy (Kolk, 2003). This is evidenced by the increase in the number of firms that disclose sustainability-related information (Tschopp & Huefner, 2015). Prior literature finds sustainability disclosures improve the market values of many firms. Du, Yu, Bhattacharya, and Sen (2017) examine the reaction of stock markets to sustainability reporting and find that firms with such reports enjoy a higher market value, as these disclosures enhance information transparency for investors. Their research results also reveal a positive trend towards shareholders, investors and other key stakeholder groups using sustainability reports to influence and affect financial performance of firms in the long term as well. Sustainability disclosures are found to significantly increase both sustainability performance and market value in the long term (Du et al., 2017). It is evident from these results that firms that release sustainability reports enjoy a greater value enhancement than non-reporting firms.

Research conducted by Dhaliwal, Li, Tsang, and Yang (2011) concludes that firms providing sustainability disclosures are able to reduce capital cost, thereby reducing risk and increasing their value. Interestingly, their research finds that the cost of capital is significantly and positively associated with voluntary disclosures. According to O'Rourke (2014), sustainability-related information influences decision-makers, both inside and outside of companies, to quantify business risks and to assess stock values. Companies, therefore, are under pressure to provide sustainability disclosures that systematically report on financial and nonfinancial performance, including risks arising from the supply chain, the climate, and reputational risks (Eccles, Serafeim, & Krzus, 2011). The need is for companies to take the initiative to mitigate or reduce risk by implementing controls so lower risk companies can gain a competitive advantage.

Carter and Rogers (2008, p. 368) explain Sustainable Supply Chain Management (SSCM) as “the strategic, transparent integration and achievement of an organization's social, environmental, and economic goals in the systemic coordination of key inter-organizational business processes for improving the long-term economic performance of the individual company and its supply chains”. Carter and Rogers (2008) further describe the advantages of SSCM to a firm. These advantages include reductions in investments

in health and safety, labour turnover costs, enhancements in firm-reputations, higher economic performances, and increases in values of companies. Halldorsson, Kotzab, and Larsen (2009) point out that companies that adopt SSCM practices also comply with environmental regulations, as their customers are concerned about the environment and SSCM is a means by which companies can mitigate the negative impact they have on the environment.

Firms with higher levels of ethical practices present better financial reporting quality than those with lower levels of ethical practices and commitments (Choi & Pae, 2011). The authors believe that if companies disclose their ethical practices, it will increase their corporate reputation and in turn their market values. Black and Carnes (2000) identify corporate reputation as an internally generated goodwill that is highly correlated with market value, even after controlling for financial performance. This is evidence for the relevance of firm-specific ethics-related information. For example, Chauvin and Guthrie (1994), in their study suggest that good human resource management and a positive labour market reputation increases a firm's value. These researchers identify positive labour market reputation as an indicator of the presence of ethical practices in a firm. Chauvin and Guthrie (1994) also report that investors believe customers prefer to purchase goods and services from good employers who have ethical labour practices, rather than from employers who are perceived to be unethical. Differences in perceptions between ethical and unethical companies arise due to the information asymmetry that exists between firms and their stakeholders. To circumvent this issue, New (2010) states that communicating detailed information about supply chains via global electronic tools as essential. The social media platforms available today are capable of reducing information asymmetry swiftly, thus enhancing corporate reputations. An increase in reputation positively impacts a company's goodwill and increases its value.

Although supply chain disclosures are not regulatory requirements, firms do voluntarily disclose to appease stakeholders. They do so to ensure their stakeholders are well informed of their S&ESC practices. In April 2005, Nike voluntarily disclosed its supply chain and factory lists, which was subsequently followed by competitors such as Levi-Strauss, Adidas, Reebok, Puma and Timberland (Doorey, 2008). Doorey (2008) notes that the factories that manufacture apparel for Nike and Levi-Strauss also followed suit by disclosing their factory lists to conform to the global disclosure policies put in place by Nike and Levi-Strauss. As a result, Doorey (2008) suggests a greater collaboration within the industry, with an emphasis on shared strategies and labour management

practices. Doorey (2011) elaborates that supply chain related disclosures - how products are made and under what working conditions - give rise to greater accountability by corporations. He suggests that if manufacturing companies introduce measures for better tracking and monitoring of supply chains and of labour practices, it will enable them to address the root causes of poor labour conditions and enhance overall performance, resulting in increases in market values

The literature includes a contrary view to that laid out above. Zanden and Hansson's (2016) study of the Swedish company Nudie Jeans, finds that consumers do not influence the quality or quantum of supply chain disclosures. However, if the firm discloses its supply chain activities, this will have a bearing on the consumers' willingness to buy. This finding is in contradiction to the earlier assertion that S&ESC disclosures are made in response to stakeholder pressures. In this case, it appears that the direction of causality stems from the firm and not from the customer. The underlying argument, however, suggests that supply chain disclosures increase sales, even when they are not demanded by consumers.

Dam and Petkova (2014) conducted a study to investigate how shareholder value is influenced when firms commit to environmental supply chain sustainability. The study, which differs from others, finds that firms involved in the environmental supply chain sustainability experience negative stock price reactions. This research, however, is limited to 66 multinational companies, of which only 21 have announced their participation in environmental supply chain sustainability, – an insufficient number for generalising a result. The conclusions of this research therefore need to be taken with a degree of caution.

Creyer and Ross (1997) suggest that a firm's ethical practices are important in purchase considerations, which can be seen in a customer's willingness to pay a higher price. Zanden and Hansson (2016) corroborate this finding. This is particularly significant for those apparel manufacturers keen to obtain the widely recognised ethical and compliance

certifications like WRAP<sup>1</sup> (Worldwide Responsible Accredited Production), ISO2 (International Organisation for Standardization), and ETI3 (Ethical Trading Initiative). These certifications are issued to companies that disclose details of their ethical and compliant environments, including their manufacturing environment. Such certifications result in superior supply chain practices and increase customer willingness to purchase from these companies.

As stated by Boiral (2003), market liberalisation and internationalisation of businesses increase the need for proper standards to facilitate international trade. External certifications, such as WRAP and ISO, drawn up by independent organizations, provide the necessary verifications for international trade to flourish (Boiral, 2003). Blair, Williams, and Lin (2008) express similar views to that of Boiral (2003) and argue that third-party inspections and certifications are essential when assuring customers that a firm is complying with quality standards, ethical practices, and social and environmental norms.

From the reviews of previous academic publications above, it is evident that S&ESC disclosures contribute to increases in reputation and to reductions in the costs of capital and of risk. All these factors positively impact on a firm's value and hence, I hypothesise that,

***H1. Sustainable & ethical supply chain disclosures by apparel manufacturing companies in GSP countries positively impact firm values, ceteris paribus.***

#### **2.4 Sustainable & ethical supply chain disclosure and its impact on competitiveness.**

Competitive advantage is the value that a firm obtains strategically, through differentiation and cost leadership, over its competitors (Porter, 1985). Lev,

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<sup>1</sup> Worldwide Responsible Accredited Production (WRAP) is managed by its headquarters in the USA with its regional offices in Hong Kong and Bangladesh, India, Southeast Asia, and Latin America. WRAP as an independent, responsive and effective supply chain partner, facilitates certification programs to apparel, footwear and sewn product sectors confirming their social compliance, safe, lawful, human and ethical manufacturing facilities. See Wrap website at <http://www.wrapcompliance.org/en/home> (last visited 30 July 2019)

<sup>2</sup> ISO is an international non-government organisation which facilitates and takes care of international standards covering almost all aspect technology and manufacturing. Currently, ISO has active members in 164 countries. See ISO website at <https://www.iso.org/home.html> (last visited 30 July 2019)

<sup>3</sup> ETI is the driving force in ethical trade, tackles the complex challenges in the global supply chain and in improving the lives of workers, worldwide. See ETI website at <https://www.ethicaltrade.org/> (last visited 30 July 2019)

Radhakrishnan, and Zhang (2009) argue that some companies, such as Wall-Mart in retail and Microsoft in software, systematically out-perform their competitors and maintain leading positions in the long term, despite being in highly competitive environments. They suggest that this is due to a stealth asset they possess, known as Organisation Capital (OC). OC is created through a blend of unique corporate culture and systematic business processes that enable these firms to convert production inputs into quality outputs and value additions more efficiently than competitors. For example, Lev et al. (2009) identify that the supply chain system in Wall-Mart enables suppliers to trace inventory levels of their products immediately after sales through the barcode system. This improves the supplier response time and avoids stock-out situations, advantaging the firm over its competitors.

According to Giunipero and Brand (1996), organisations can enhance their overall customer satisfaction and profitability through SCM by improving any of the facets that give rise to competitive advantage. They identify that firms can benefit through SCM efforts by improved supply and buyer coordination, greater productivity, shorter lead times, lower inventory, and quick delivery. Giunipero and Brand (1996) expand on this point to show that such benefits provide greater competitive advantages through cost reduction and improved customer satisfaction. In a qualitative study by Brun et al. (2008) of Italian luxury fashion firms, the SCM was highlighted as one of the critical success factors needed to achieve competitive advantages from both, cost and quality perspectives. The findings of this research note that consumers of luxury goods are willing to pay premium prices if compliance with a certain set of performances is adhered to. Brun et al. (2008) also emphasises the need for studies with consolidated SCM models in the fashion industry, especially in a variety of countries, because of the rapid changes in competition and growth affecting the apparel sector globally. Further, they stress the need for carrying out investigations on the causal relationships between SCM and company performance, which this research attempts to address.

Results of the research conducted by McGinnis and Vallopra (1999) also identify that developments and improvements in production processes contribute to cost and quality advantages, which in turn lead to competitive advantages. They find that proper supplier integration through a sustainable supply chain (SSC) system contributes to the process improvement. Tracey, Vonderembse, and Lim (1999), corroborating this study, find that the quality of products, competitive pricing, product innovation, and delivery capability

as four major contributing factors that improve a firm's competitiveness. They identify SSC as an important factor in gaining a competitive advantage over competitors.

Gimenez and Ventura (2003) categorise supply chain integration into two major stages: internal integration and external integration. Internal integration includes materials, manufacturing management and the integration of the internal supply chain. Interactions with suppliers and customers are categorised as external integration. Gimenez and Ventura (2003) suggest that when firms improve their sustainable supply chains by achieving internal and external integration, they reduce costs, stock-outs and lead-time and are able to respond quickly to customers' needs and special requirements, meet quantities and delivery dates, and collaborate on new products launches better than their competitors.

Li, Nathan, Nathan, and Rao (2006) identify customer relationships, strategic partnerships with suppliers, and the quality and level of information sharing and postponement, as the five dimensions of supply chain practice. They suggest that a high level of supply chain practice improves organisational performance and enhances competitive advantages. The results of recent research conducted by Palandeng, Kindangen, Tumbel, and Massie (2018) agrees with the views of Li et al. (2006) and identifies that sustainable supply chains have a positive influence on a firm's performance and competitive advantage. The authors also find that improved relationships between company management, suppliers and customers, improve internal supply chains that produce better value-added products and results in competitive advantages.

Mentzer et al. (2001, p. 02), highlight the importance of SSC in gaining a competitive advantage in the contemporary business environment. They write that "getting a defect-free product to the customer faster and more reliably than the competition is no longer seen as a competitive advantage, but simply a requirement to be in the market. Customers are demanding products consistently delivered faster, exactly on time, and with no damage. Each of these necessitates closer coordination with suppliers and distributors". This highlights the increased demands placed on supply chains to deliver competitive advantages. In recent years, organisational and product complexities have increased the importance of supply chains, rather than diminished them.

Sustainability reporting can be considered as a way for firms to communicate their economic, environmental and social performances, with the view to gaining competitive advantages (Okongwu et al., 2013). Sustainability and transparency reporting improve

the efficiency of operational activities, attract a wider range of customers and investors, and improve brand images. Hys and Hawrysz (2012) identify an increasing trend in the number of companies producing sustainability reports with high levels of disclosure and diversity.

Toms (2002) conducted an empirical survey to identify the relationship between environmental disclosure and environmental reputation. The results of this research suggest that high-quality disclosures on environmental policies are consistently associated with high environmental reputations for corporates, leading to competitive advantages. Macchion, Fornasiero, and Vinelli (2017) conducted a study to examine the effect of suppliers' performance on the overall performance of the supply chain in the customised footwear industry in Italy. They suggest that adopting a customized supply chain is crucial for market competitiveness in the footwear sector, as it improves the service quality to end customers. Wong, Wong, and Boon-itt (2015), using resource orchestration theory, suggest improvements in environmental performance, and the implementation of sustainable supply chains as preconditions for a better reputation and improved financial performance. Further, these authors state that the reduction of energy consumption and a minimum consumption of hazardous materials are examples of sustainable practices that firms can use in their sustainable supply chains.

Modern firms have a wide range of responsibilities towards their stakeholders. Firms are required to discharge their responsibilities towards employees, suppliers, customers and the community in an ethical fashion and to be dedicated corporate citizens (Azmi, 2006). Azmi (2006) identifies business ethics as one of the invaluable intangible assets that provides a competitive advantage in a rapidly changing market. Amjad, Jamil, and Ehsan (2017) also promote the importance of ethical supply chains, together with sustainability improvements, in the social, economic and financial spheres of performance to gain competitive advantages.

Based on the facts discussed above, it is evident that S&ESC practices improve company profitability and reputation through cost reduction and a faster and more reliable delivery of products of superior quality. This in turn gives rise to a competitive advantage over others, and so I hypothesize that,

***H2. Sustainable & ethical supply chain disclosures by apparel manufacturing companies in countries with GSP status positively impact their competitive advantages, ceteris paribus.***

## CHAPTER 03

### RESEARCH METHOD AND DATA COLLECTION

#### 3.1 Research method

Multivariate regression analysis was used to examine the relationship between S&ESC disclosures, firm values, and the competitiveness of sample firms.

To test for the first hypothesis (1), i.e., whether S&ESC disclosures positively impact firm values, the following model was employed: -

#### Model 1:

$$TQ_{it} = \alpha_0 + \beta_1 SCD_{it} + \beta_2 SSCD_{it} + \beta_3 ESCD_{it} + \beta_4 Lev_{it} + \beta_5 ROA_{it} + \beta_6 Country_{it} + \beta_7 Time_{it} + \varepsilon_{it}$$

Where;

TQ (Tobin's Q) is the dependent variable used to calculate the firm value. The TQ ratio is generally calculated as the ratio of the total market value of a firm, divided by the total value of its assets, as depicted in the equations below:

$$TQ = \frac{\text{Total market value of the firm}}{\text{Total assets value of firm}} \dots \dots \dots (EQ 1)$$

Consistent with previous research conducted by Daines (2001) and Singhal and Parkash (2016), I used the equation above to calculate TQ.

$SCD_{it}$  denotes the supply chain disclosures of firm  $i$  in year  $t$ .  $SSCD_{it}$  stands for sustainable supply chain disclosures of firm  $i$  in year  $t$ , and  $ESCD_{it}$  denotes the ethical supply chain disclosures of firm  $i$  in year  $t$ .

$Lev_{it}$  stands for the level of leverage of firm  $i$  in year  $t$ . The leverage ratio is a financial measurement used to calculate a firm's indebtedness over its total assets. I have selected the following leverage ratio in my analysis to measure the relationship between a company's disclosures and leverage.

$$\text{Lev} = \frac{\text{Book value of total debt}}{\text{Book value of total assets}} \dots \dots \dots (EQ 2)$$

ROA<sub>it</sub> stands for the return on assets of firm *i* in year *t*. This is used as an indicator of the relationship between company profitability and its total assets. I have chosen this indicator to identify the relationship it has with TQ and supply chain disclosures. The equation below has been used for the computation of ROA.

$$\text{ROA} = \frac{\text{Earning before interest and tax}}{\text{Book value of total assets}} \dots \dots \dots (Eq 3)$$

Country<sub>it</sub> refers to the countries from which the sample data is collected and Time<sub>it</sub> indicates the year to which the disclosure data belongs.

To answer the second hypothesis, organisation capital measurements of firms were computed, consistent with the rate of obsolescence method introduced by Lev and Radhakrishnan (2005). The following equation was employed in the computation of OC.

$$\log \left( \frac{\text{SALE}_{it}}{\text{SALE}_{i,t-1}} \right) = b_{0t} + b_{0st} \log \left( \frac{\text{SGA}_{it}}{\text{SGA}_{i,t-1}} \right) + b_{1t} \log \left( \frac{\text{PPE\_Int}_{it}}{\text{PPE\_Int}_{i,t-1}} \right) + b_{2t} \log \left( \frac{\text{SW}_{it}}{\text{SW}_{i,t-1}} \right) + \log \left( \frac{e_{it}}{e_{i,t-1}} \right) \dots \dots \dots (EQ 4)$$

Where SALE<sub>it</sub> represents the net revenue of firm *i* in year *t*. *b*<sub>0t</sub> refers to the organisation capital available to all firms in the industry. SGA<sub>it</sub> refers to sales and general expenses incurred by a firm *i* in year *t*. PPE\_Int<sub>it</sub> stands for the total of the net value of the property, plant and equipment and the intangible assets of firm *i* in year *t*. SW<sub>it</sub> refers to salaries and wages, and *e*<sub>it</sub> stands for an error term.

Equation 5 below shows the annual change in sales **with** the effect of organisation capital, and equation 6 indicates the annual change in sales **without** the effects of organisation capital. The expected outputs of common and the firm-specific organisation capitals were arrived at by using SGA as the proxy.

$$\text{SALE}^*_{it} = \text{SALE}_{i,t-1} \exp \left[ b^*_{0t} + b^*_{0st} \log \left( \frac{\text{SGA}_{it}}{\text{SGA}_{i,t-1}} \right) + b^*_{1t} \log \left( \frac{\text{PPE\_Int}_{it}}{\text{PPE\_Int}_{i,t-1}} \right) + b^*_{2t} \log \left( \frac{\text{SW}_{it}}{\text{SW}_{i,t-1}} \right) \right] \dots \dots \dots (EQ 5)$$

$$\text{SALE}^{**}_{it} = \text{SALE}_{i,t-1} \exp \left[ b^*_{1t} \log \left( \frac{\text{PPE\_Int}_{it}}{\text{PPE\_Int}_{i,t-1}} \right) + b^*_{2t} \log \left( \frac{\text{SW}_{it}}{\text{SW}_{i,t-1}} \right) \right] \dots (EQ 6)$$

Using the output from equation 5 and 6 above, I calculated the difference between expected sales **with** and **without** organisation capital to arrive at a firm-specific measure of organisation capital. Equation 7 below shows the firm-specific measure of organisation capital.

$$OC_{it} = SALE_{it} + SALE_{i,t-1} \dots \dots \dots (EQ 7)$$

To test my second hypothesis, i.e., whether S&ESC disclosures positively impact the competitiveness of firms, the following model was formulated:

**Model 2:**

$$OC_{it} = \alpha_0 + \beta_1SCD_{it} + \beta_2SSCD_{it} + \beta_3ESCD_{it} + \beta_4Lev_{it} + \beta_5ROA_{it} + \beta_6Country_{it} + \beta_7Time_{it} + \varepsilon_{it}$$

**3.2 Data Collection**

**3.2.1 Data collection for TQ calculation**

This study focuses on apparel manufacturers in GSP certified countries. The data was collected from different sources to test the two hypotheses. The Eikon database was used to collect the financial data needed for the computation of TQ. Eikon is a set of software built for financial professionals to capture and analyse a company’s financial information. Eikon database is provided by Refinitiv and facilitates access to real-time data that captures news, analytics, trading and market data, amongst other information. I searched the financial data for the years ending 2018, 2017 and 2016 for all the companies using Eikon’s DataStream excel. A time series search engine was used to find net sales, selling and general administration expenses, property plant and equipment, intangibles, current assets, total assets, salaries and wages, long term debt, short term debt, total debt, market capitalisation, earnings before interest and tax, and the number of employees.

The market values of firms were obtained from Thomson Reuters DataStream using the search criterion ‘market capitalization’. Market capitalization numbers were calculated using year-end market prices per share, multiplied by the common shares outstanding. I collected data from 28 companies using the DataStream and manually calculated the others. For manual computations, year-end market prices were obtained from Eikon’s live database’s historical market price charts and multiplied them by the number of shares, which were obtained from the company’s annual reports. As the replacement values of

assets were unavailable, book values of total assets from the DataStream as at year's end were used. Where data was not available in the databases, the missing data were manually collected from the companies' annual reports.

S&ESG disclosures were gathered from voluntary disclosure reports published by the firms in their annual reports and included other disclosure reports such as sustainability reports, codes of conduct, CSR reports, and websites. In line with GRI guidelines, I selected six disclosure categories for SCD, 10 disclosure categories for SSCD, and another 10 for ESCD. If disclosures were found in company reports for any of the chosen categories, they were coded 1 and 0 otherwise.

To calculate leverage, the book value of total debt was used by combining the values of long-term loans and short-term loans at the year-end date. These figures were collected from DataStream and the annual reports of companies.

### ***3.2.2 Data collection for OC calculation***

The valuation model proposed by Lev and Radhakrishnan (2005) was used to calculate the organization capital of firms when evaluating their competitive advantages. "Organisational capital is a knowledge used to combine human skills and physical capital into a systems to produce and deliver want-satisfying products" (Evenson & Westphal, 1995, p. 35) "Organisation capital is the agglomeration of technologies, business process, practices and designs, and incentives and compensation systems- that together enable some firms to consistently and efficiently extract from a given level of physical and human resources a higher value of product than other firms find possible to attain" (Lev & Radhakrishnan, 2005, p. 75). Lev et al. (2009) identified organisation capital as the most important intangible asset, a unique structural and business process capable of generating sustainable competitive advantages.

To calculate organisation capital, I collected financial data for the three years ending 2018, 2017 and 2016. Eikon software was used to calculate net sales, selling, general and administrative expenses (SGA), Property Plant and Equipment (PPE), intangible assets, and salaries and wages. Net sales represent the net revenue generated from normal operations. This excludes other non-operating revenue such as interest income, rental income, dividend income, income from the disposal of assets, exchange gains etc. SGA includes all factory and operational costs, excluding the direct cost of sales, exchange losses, finance costs, exceptional items, and tax expenses. PPE represents the net value

of fixed assets after depreciation and capital works-in-progress as at balance sheet date. Intangible assets represent a company's goodwill as of the balance sheet date. Salaries and wages represent all direct and indirect labour costs, including manufacturing labour and management salaries.

I calculated the change in each of these variables by dividing the current year result by the previous year's result and then converted the resultants into log numbers. These log numbers were used as variables in the SPSS data analysis software to calculate the coefficients of the relationships between SGA, PPE, intangibles, and salaries and wages against the dependent variable of net sales. The obtained coefficients were then used to calculate the expected sales with and without SGA. The OC value was obtained by subtracting these two results using equation 7.

### ***3.2.3 Computation of S&ESC disclosure scores***

All disclosure reports were used to evaluate the extent of supply chain disclosures made by firms. As stated in appendix 02, there are 72 countries that benefit from GSP status. The sample collection procedure involved scanning the websites of 300 apparel manufacturers in those countries to capture the financial and other disclosure data. I searched these companies using keywords such as "apparel manufacturers", "garment manufacturers" and "apparel associations" to obtain a list of qualifying companies in each of these countries. Financial data were not readily available for most as these companies were not listed in any stock exchanges. I found most companies to be privately owned. They do not typically disclose their financial statements. So I narrowed my search to those countries that have stock exchange-listed companies.

Countries such as the Cook Islands, Niue, Samoa, Tonga, Burundi, Chad, Comoros, Gambia, Guinea-Bissau, Kiribati, Niger, Solomon Island, South Sudan, Timor-Leste, Tuvalu, Vanuatu, and Yemen do not have stock exchanges. Additionally, even though some countries including Sri Lanka, the Congo, Kenya, Micronesia, Syria, Tajikistan, and Uzbekistan have stock exchanges, they do not contain any listed apparel manufacturers. I eventually managed to collect data from 40 apparel manufacturers from India, Indonesia, Pakistan, and Bangladesh to represent standard GSP, GSP+ and EBA statuses. Table 3.1 shows the reconciliation of the 40 companies selected from four countries.

Table 3. 1: Sample selection

<b>Sample</b>	<b>Number of Countries</b>	<b>Number of Companies</b>
Total number of countries that have GSP status	72	300
Number of countries that do not have stock exchanges	(17)	(37)
Number of countries that do not have listed apparel manufacturing companies	(51)	(223)
Sample selection	4	40

The sample of 40 companies is made up of 16 companies from India, 6 companies from Indonesia, 6 companies from Pakistan and 12 companies from Bangladesh.

These searches captured the data denominated in each country's currency. Since the currency figures differ for each country, I converted the respective country-specific values into United States Dollars (USD), using calendar year-end or financial year-end exchange rates to facilitate comparison. Note that for all companies in India the financial year-ends on 31<sup>st</sup> March, whereas Indonesia's financial year-end corresponds to the calendar year-end, i.e. 31<sup>st</sup> December. Pakistan and Bangladesh both report their financial year on 30<sup>th</sup> June. I used the OANDA currency converter to convert these currencies into USD at the end date of each financial year. Where data was unavailable or partially available in Eikon, they were manually computed from annual reports.

A qualitative approach was used to analyse the disclosure status of selected manufacturers according to the GRI codes listed in appendix 01. Disclosures were analysed from the manufacturers' perspective and a binary coding system was used to score S&ESC disclosures. Disclosures of S&ESC were categorised based on the Global Reporting Initiative (GRI), which uses a hierarchical framework for social, economic and environmental disclosure categories. Several researchers have recommended the use of GRI specifications, as they are used worldwide for sustainability reporting (Brown, de Jong, & Levy, 2009; Manetti, 2011; Rasche, 2009; Skouloudis et al., 2009; Tsang, Welford, & Brown, 2009). I matched firm-specific disclosures against GRI specifications to ascertain the strength of the disclosures made by each of the companies in the sample.

I used NVivo software to analyse the 26 disclosure categories specified under GRI guidelines (refer to appendix 03). I subdivided the 26 GRI disclosures into 58 nodes to

maximise the collection of disclosure data from the reports. I gathered references to each of these nodes from the annual and disclosure reports of the 40 selected companies. After importing all selected reports into NVivo, a text search feature was used to match the words with the selected 58 nodes. I placed the selected words within inverted commas to get exact matches to the search criteria. Once matched, it was counted as a reference and classified into the relevant category within that node. A higher number of references meant greater disclosures are made based on these references. Companies were further categorised into those with higher disclosures and those that had lower disclosures.

## CHAPTER 04

### DATA ANALYSIS AND RESULTS

#### 4.1 Descriptive / Univariate analysis

I used SPSS (version 26) software as a tool for analysing the sample data. As a first step, I conducted a descriptive analysis to obtain meaning and a baseline for the nature of the samples. Table 4.1 below provides the descriptive statistics of minimum and maximum numbers, means, and standard deviations for each of the variables in this study.

Table 4. 1: Descriptive Statistics

Variables	Minimum	Maximum	Mean	Std. Deviation
TQ	.02	7.24	.8460	1.11
OC (\$Million)	-44.052	176.775	10.242	32.942
SCD	1.00	5.00	3.45	.71
SSCD	1.00	10.00	5.83	1.18
ESCD	2.00	8.00	4.70	1.18
Lev	.00	4.71	.51	.73
ROA	-.54	.28	.05	.12

N = 80 (40 companies @ 2 years data)

The result of this analysis shows a minimum Tobin's Q ratio of 0.02, a maximum of 7.24 and an average value of 0.846. If the TQ ratio results are above 1.0, this reflects that the market value of the company exceeds the total assets value. Although a maximum value of 7.24 was found in the sample, the average value is below 1.0. This indicates that on average, the market values of the sampled companies are lower than the book values of their assets.

The average organisation capital of firms in the sample is USD 10.24 million, with the minimum value being negative USD 44.05 million. The maximum OC value in the sample is USD 176.77 million, with a standard deviation of USD 32.94 million.

If a company discloses all supply chain related information as per the GRI guidelines, it will be able to secure a maximum score of 6 in the SCD category. From the table above, it is evident that the mean score for SCD disclosures is 3.45. This indicates that on average, only 57.5% of the prescribed disclosures, (mean value of 3.45 divided by the

number of disclosures of 6), are made by the sampled companies. Similarly, if companies disclose all the sustainable supply chain disclosures specified under GRI, the maximum score in this category will be 10. However, a mean value of 5.83 for SSCD indicates that only 58.3%, (Mean value of 5.83 divided by the number of disclosures of 10), of the disclosures are made by companies in the SSCD category. Similarly, if all disclosures prescribed by the GRI are complied with, a company should secure a maximum score of 10 in the ESCD category. However, the mean value of 4.70 indicates that only 47%, (Mean value of 4.70 divided by the number of disclosures of 10), of the required disclosures were provided by the companies sampled. When all the disclosure categories are accumulated, the average disclosure exceeds 50%. In each of these categories, some companies secured a minimum score of between 1.0 and 2.0. These minimum disclosure figures come from only a few companies and are unlikely to alter the overall character of the sample.

Leverage represents the proportion of total debt to total assets. The minimum level of this variable is zero with a maximum of 4.7, which translated to liabilities being 4.7 times greater than a firm's total assets. The average value of this variable is 0.5, which means on average, firms have two times the value of liabilities as their assets, which is in general a strong position.

ROA represents how profitable companies are relative to their total assets. A higher ROA indicates greater profitability. The results of this analysis show that the minimum level of ROA is negative 0.54, while the maximum level is 0.28. On average it is positive 0.05, which is not an impressive result in terms of a firm's profitability over its total assets.

## **4.2 Correlation analyses**

To verify the association between supply chain disclosures and other variables, correlation analyses were performed. This analysis studied how significant variables correlate with each other and how to identify the presence of multicollinearity, the presence of which may lead to underestimating coefficients in the regression model. The results of the correlation analyses give an overview as to whether sustainable and ethical supply chain disclosures are positively correlated.

Table 4. 2: Correlations between dependent and independent variables

	1	2	3	4	5	6	7
1. Tobin's Q	1.0						
2. OC	.057	1.0					
3. SCD	.186*	.279**	1.0				
4. SSCD	.234**	.399***	.323***	1.0			
5. ESCD	.194*	.404***	.178	.481***	1.0		
6. Leverage	-.246**	.028	-.047	-.066	-.005	1.0	
7. Return on assets	.392***	.163	.054	.357***	.319***	-.198*	1.0

N = 80, \*P<.10, \*\*P<.05, \*\*\*P<.01

A positive correlation indicates a parallel relationship between two variables. I.e., if one variable decreases, the other variable also will decrease, and vice versa. A negative correlation, on the other hand suggests that if one variable decreases the other would increase.

Table 4.2 shows that Tobin's Q is significantly correlated with SSCD ( $r = .234$ ,  $P < .05$ ), Lev ( $r = -.246$ ,  $P < .05$ ) and with ROA ( $r = .392$ ,  $P < .01$ ). SCD and ESCD are positively correlated with TQ, albeit at a lesser significance level of 10% [SCD ( $r = .186$ ,  $P < .10$ ) and ESCD ( $r = .194$ ,  $P < .10$ )]. TQ, however, is not significantly correlated with OC ( $r = .057$ ). These results indicate that there are positive relationships between the values of a firm and supply chain disclosure categories. The positive impacts of SCD, SSCD, and ESCD on TQ indicate that these disclosures are value relevant.

OC is significantly and positively correlated with SCD ( $r = .279$ ,  $P < .05$ ), SSCD ( $r = .399$ ,  $P < .01$ ) and with ESCD ( $r = .404$ ,  $P < .01$ ). These results show that test variables positively affect the competitiveness of firms when the latter is measured by OC. This variable, however, is not significantly correlated with either Lev ( $r = .028$ ) or ROA ( $r = .163$ ).

SCD shows significant correlation with SSCD ( $r = .323$ ,  $P < .01$ ) but not with ESCD ( $r = .178$ ). No significant correlation was found between SCD and Lev ( $r = -.047$ ), or with ROA ( $r = .054$ ). SSCD significantly correlates with ESCD ( $r = .481$ ,  $P < .01$ ) and ROA ( $r = .357$ ,  $P < .01$ ).

= .357,  $P < .01$ ), while there is a negative correlation between SSCD and Lev, which is not significant ( $r = -.066$ ). ESCD and ROA are significantly correlated, ( $r = .319$ ,  $P < .01$ ), while ESCD and leverage present a negative correlation ( $r = -.005$ ). Finally, leverage and ROA have a negative correlation ( $r = -.198$ ,  $P < .10$ ).

The results of this analysis show a few high correlation numbers between some of the variables. OC and SCD are 39% correlated, while OC and ESCD are 40% correlated, and SSCD & ESCD are 48% correlated. When correlations are too high it can lead to multicollinearity problems, resulting in biased estimates of the coefficients. Variant Inflation Factor (VIF) is a good indicator to check whether research results are affected by the multicollinearity issue. Neter, Kutner, Nachtsteim, and Wasserman (1996) identify VIF as an indicator of the severity of multicollinearity. The largest value of VIF among all the independent variables indicates the presence of multicollinearity. The regression results presented in the next section provides assurance that these research results are unaffected by the multicollinearity issue.

The results of these analyses indicate significant correlations between the dependent variables TQ and OC and the test variables of SCD, SSCD, and ESCD. This proves adequate impetus to proceed with regression analysis.

#### **4.3 Multivariate regression analysis**

Table 4.3 below presents the results of regression through an analysis conducted on dependent variable TQ, with test variables of SCD, SSCD, ESCD, and control variables of Leverage, ROA, with country and time fixed effects. This regression is done using model 01 to test for hypothesis 1, which is to evaluate whether S&ESC disclosures positively impact firm-values in the apparel manufacturing sector.

Table 4. 3: Regression analysis: - Impact of S&ESC on TQ (Model 1)

Variables	Model 01 Standard Beta	VIF
SCD	.16 (1.45)	1.18
SSCD	-.12 (-.83)	1.19
ESCD	.17 (1.36)	1.65
Lev	-.13 (-1.14)	1.22
ROA	.37*** (3.02)	1.47
Country effects	Yes	
Year effects	Yes	
Adjusted R <sup>2</sup>	.22	
F Statistic	3.424***	

\*p<.10, \*\*p<.05, \*\*\*p<.01. Standardized regression coefficients; t-values are in parenthesis

Table 4.3 shows that the highest VIF factor is 1.65; thus multicollinearity is of no concern in this research.

From this analysis, it is evident that none of the disclosure variables significantly impact a firm's value when measured by Tobin's Q. Although the coefficients of SCD and ESCD are positive, due to their non-significance, conclusions cannot be drawn. Given that, I cannot conclude that S&ESC disclosures positively impact firm values, hypothesis 1 is rejected. The results however show that only ROA can positively and significantly affect TQ ( $\beta = .37, p < .01$ ).

Although the F value indicates that the overall significance of the regression model is significant at 1% ( $R^2 = .22, F = 3.424, P = .001$ ), the adjusted R-squared, which is a modified version of R-squared, results in a value of only 0.22. This means the model accounts for only 22% of the variability. R-square takes a value between 0 and 100% and, in general, a higher R-squared represents a better model fit. A better-fitted model may have produced a different result.

I conducted another regression analysis using model 02 to answer my hypothesis 2. This evaluated whether S&ESC disclosures positively impacted the competitiveness of a firm. Table 4.4 shows the regression analysis conducted on the dependent variable OC with test variables SCD, SSCD, ESCD, and control variables Lev, ROA, with country and time fixed effects.

Table 4. 4: Regression analysis: - impact of S&ESCD on OC

Variables	Model 02 Standard Beta	VIF
SCD	.18* (1.66)	1.18
SSCD	.26** (1.93)	1.19
ESCD	.31*** (2.47)	1.65
Lev	-.55 (-.51)	1.22
ROA	-.41 (-.35)	1.47
Country effects	Yes	
Year effects	Yes	
Adjusted R <sup>2</sup>	.25	
F Statistic	3.863***	

\*p<.10, \*\*p<.05, \*\*\*p< .01. Standardized regression coefficients; t-values are in parenthesis

As shown in Table 4.4, OC is positively and significantly impacted by SSCD ( $\beta = .26$ ,  $p < .05$ ), ESCD ( $\beta = .31$ ,  $p < .01$ ), by SCD ( $\beta = .18$ ,  $p < .10$ ). Lev ( $\beta = -.55$ ), and by ROA ( $\beta = -.41$ ), which are negatively related to OC but not significantly.

The adjusted R-square resulted in a value of 0.25, meaning the model accounted for 25% of the variability. The F value indicates that the overall significance of the regression model is significant at 1% ( $R^2 = .25$ ,  $F = 3.863$ ,  $P = .001$ ). Given these results, hypothesis 2 can be accepted to conclude that supply chain related disclosures increase the competitive advantages of firms in the apparel manufacturing sector.

#### 4.4 Additional analysis on the impact of S&ESCD on TQ and OC

Since the disclosure results did not indicate any significant results for TQ, I ran another regression analysis by combining all the supply chain disclosures, (SCD + SSCD + ESCD), and combined a disclosure called Sustainable and Ethical Supply Chain Disclosure (S&ECSD), as shown in table 4.5 below.

Table 4. 5: Regression analysis- the impact of S&ESCD on TQ and OC

Variables	Model 01	Model 02
	Standard Beta	Standard Beta
S&ESCD	.11 (.894)	.56*** (4.54)
Lev	-.13 (-1.18)	-.06 (-.52)
ROA	.34*** (2.85)	-.05 (-.41)
Country effects	Yes	Yes
Year effects	Yes	Yes
Adjusted R <sup>2</sup>	.21	.26
F Statistic	3.908***	3.949***

\*p<.10, \*\*p<.05, \*\*\*p<.01. Standardized regression coefficients; t-values are in parenthesis

As shown in Table 4.5, there were no changes in significance with TQ, even when supply chain disclosures were combined. This result indicates that there is no significant relationship between market value changes and sustainable and ethical supply chain disclosures ( $\beta = .11$ ). Similarly, the combined score of supply chain related disclosures did not result in significant differences in the coefficients for Lev and ROA. The adjusted R-square accounts for the variability of 21% and the F value indicates that the overall significance of the regression model is significant at 1% ( $R^2 = .21$ ,  $F = 3.908$ ,  $P = .001$ ).

On the other hand, OC appears to be highly impacted by S&ESCD ( $\beta = .56$ ,  $p < .01$ ) where both Lev ( $\beta = -.06$ ) and ROA ( $\beta = -.05$ ) are negatively related as before, with no statistical significance. The adjusted R-square accounts for a variability of 26% and F values indicate the overall significance of the regression model at 1% ( $R^2 = .26$ ,  $F = 4.949$ ,  $P = .001$ ).

## CHAPTER 05

### CONCLUSIONS, LIMITATIONS AND IMPLICATIONS

#### 5.1 Overall objective of the research

The purpose of this research was to assess whether sustainable and ethical supply chain disclosures increase the values and competitive advantages of firms in the apparel industry in GSP certified countries. To achieve this objective I employed two models, with Tobin' Q, as the proxy for the value of a company and organisation capital as the proxy for firm-competitiveness.

#### 5.2 Sustainable ethical supply chain disclosure and the market value of a firm

The first hypothesis aimed to verify whether Sustainable & Ethical Supply Chain (S&ESC) disclosures by apparel manufacturing companies with GSP status positively impacted their firm-values, *ceteris paribus*. The results of the empirical analysis did not support the hypothesis and therefore, it was rejected.

The results of the regression analysis in table 4.3 show that S&ESC disclosures have no significant impact on TQ. However, these results show a positive relationship with each other, though not significant. This indicates that the dependent variable moves in the same direction as the test variables. S&ESC disclosures however, are significantly correlated with the TQ. Therefore, management should at least disclose their sustainable and ethical practices to appease pressure from the customers, the public, and GSP governance bodies.

Markets might not react to the disclosures for several factors. Firms are required to invest substantially to incorporate sustainable and ethical factors into their supply chain systems, which significantly increases costs, resulting in lower profitability and dividend pay-outs. This may be one reason as to why markets were found not to positively react to S&ESC disclosures.

The efficient market hypothesis can also be used to explain the non-reaction of markets to S&ESC disclosures. The efficient market hypothesis assumes that markets are highly intelligent and know the sustainable and ethical activities undertaken by firms, even if these companies do not disclose. Therefore, the information contained in these disclosures may have already been adjusted through share prices. In other words, markets do not react to these disclosures as they do not contain any new information. Shareholders

are aware that manufacturers in the GSP certified countries are obliged to disclose their sustainable and ethical practices and thus this information is not new to them. Markets, therefore, may not react, even if the firm discloses such information. Additionally, shareholders may also assume that companies that disclose S&ECS are doing so to maintain their GSP status and are acting neither sustainably nor ethically.

In general, shareholders are more concerned with a company's growth and its return on investment. Most short-term investors only look for share price increases and dividend pay-outs in the short run. As a result they are less likely to look at whether the supply chains are sustainable, or ethical. This indicates that even if firms do disclose, markets may not value them in the short term. The results of this analysis would have been different if I had considered privately-owned companies. Owners of these companies might value sustainability and ethicality as imperatives to develop long term market values and to increase their reputations.

Having considered the facts discussed above, I conclude that there is no significant relationship between S&ESC disclosures and firm values in apparel manufacturing companies, despite the positive relationship between both. Michelon (2013) supports this finding and concludes that sustainability disclosures are not associated with either company profitability, financial performance or market return.

### **5.3 Sustainable and ethical supply chain disclosure and the competitiveness of the firm**

My second research question was to evaluate whether sustainable and ethical supply chain disclosures increase the competitive advantages of firms in the apparel industry in GSP certified countries. In this hypothesis, the competitive advantages of firms was measured by the organisation capital they possess, based on the models advocated by Lev and Radhakrishnan (2005).

The results of this study greatly support my second hypothesis. Sustainable and ethical supply chain disclosures by apparel manufacturing companies were found to positively impact competitive advantages, *ceteris paribus*.

Regression analysis confirms that S&ESC disclosures significantly and positively impact the organisation capital, suggesting that these disclosures improve competitiveness.

GSP status encourages manufacturers to disclose their ethical and sustainable practices to gain competitive advantages over competitors. Duty concessions provided by these certifications encourage all manufacturers to engage with customers, and this leads to improvements in their turnover and profitability. Thus, they disclose these ethical practices and standards in their reports to improve their competitiveness.

As a concluding point, I confirm that firms make sustainable and ethical supply chain disclosures to gain competitive advantages and the overall results show a highly positive and significant relationship between these two. I, therefore, accept the second hypothesis and confirm that S&ESC disclosures have a significant and positive impact on the competitiveness of firms in the apparel manufacturing industry.

#### **5.4 Research limitations and suggestions for future studies.**

This research was conducted based on stock exchange-listed companies only. It was very difficult to find more sample companies in the GSP certified region as most of the apparel manufacturers were privately-owned companies. Future research could be conducted to include samples from privately-owned businesses to evaluate how ethically they act to improve their firm-values. In this case, researchers would need to individually approach the owners of these companies to collect unpublished financial data that is not available in the public databases.

The conclusions arrived at in this research are limited to the value of a company, based on the definition of Tobin's Q used in its computation. In theory, the replacement values of companies' total assets should be used as the denominator, rather than the book values of assets, as used in this study. This resulted in the mean value of TQ to fall below 1.0, indicating that the book values of assets were greater than the market values. Since replacement values were not readily available, I assumed that the book value of the assets would equate to replacement values. The outcome of this research could change if there are significant differences between the book value and the replacement value of assets.

This research is limited to apparel manufacturers in GSP certified countries only. Sample data is limited due to the above restrictive criteria and further research could be conducted to cover other manufacturing and non-manufacturing sectors in all the GSP certified countries.

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## Appendix

### Appendix 01: Disclosure criteria

GRI CODE
<b>SUPPLY CHAIN DISCLOSURE</b>
<b>01. GRI 102-6 Disclosure of markets served</b> <ol style="list-style-type: none"><li>1. Geographic locations where products and services are offered</li><li>2. Types of customers and location</li></ol>
<b>02. GRI 102-9 Supply chain disclosure – This sets out the overall context for understanding an organisation’s supply chain.</b> <ol style="list-style-type: none"><li>3. Types of suppliers engaged</li><li>4. Total number of suppliers engaged by an organization and the estimated number of suppliers throughout the supply chain</li><li>5. Geographic locations of suppliers</li></ol>
<b>SUSTAINABLE SUPPLY CHAIN DISCLOSURE</b>
<b>03. GRI 102-10 Disclosure of significant changes to the organisation and its supply chain. This change will focus on improved sustainability in the supply chain.</b> <ol style="list-style-type: none"><li>6. Changes in the locations or operations, including facility openings, closings and expansions</li><li>7. The structure of the supply chain, or relationships with suppliers, including selection and termination.</li></ol>
<b>04. GRI 204: Procurement practices.</b> <ol style="list-style-type: none"><li>8. Action taken to identify and adjust the organisation’s procurement practice</li><li>9. Action taken to identify suppliers payment policies and procedures</li><li>10. Policies and procedures used in supplier selection,</li><li>11. Methodology for tracing the source, origin or production condition of raw material and the production input purchase</li><li>12. Stability and/or length of the relationship with suppliers</li></ol>
<b>05. GRI 306-4: Transport of hazardous waste</b> <ol style="list-style-type: none"><li>13. Total weight for each piece of waste transported, imported, exported and treated</li></ol>

14. Percentage of hazardous waste shipped internationally
<p><b>06. GRI 308-2: Negative environmental impacts in the supply chain and actions taken</b></p> <p>15. Number of suppliers identified as having significant actual or potential negative environmental impact</p> <p>16. Significant actual and potential negative environmental impacts identified in the supply chain</p>
<b>ETHICAL SUPPLY CHAIN DISCLOSURE</b>
<p><b>07. GRI 403-1: Occupational Health and Safety management system</b></p> <p>17. A statement about whether an occupational health and safety management system has been implemented</p> <p>18. A description of the scope of workers, activities, code of conduct and workplaces covered</p>
<p><b>08. GRI 408-1: Operations and suppliers at significant risk of child labour incidents</b></p> <p>19. Employment of child labour</p> <p>20. Young workers exposed to hazardous work</p> <p>21. Type of operation (such as manufacturing plants) and suppliers.</p> <p>22. Countries or geographic areas with operations and suppliers considered to be at risk</p>
<p><b>09. GRI 414-1: New suppliers screened using social criteria</b></p> <p>23. Percentage of new suppliers that were screened using social criteria</p>
<p><b>10. GRI 414-2: Negative social impacts in the supply chain and actions taken</b></p> <p>24. Number of suppliers assessed for social impacts</p> <p>25. Number of suppliers identified as having significant active or potential negative social impact</p> <p>26. Significant actual and potential negative social impacts identified in the supply chain</p>

Source: GRI reporting 2018

**Appendix 02: List of countries of standard GSP, GSP+ and EBA states as of 01<sup>st</sup> January 2019 according to the European Union.**

<b>Standard GSP</b>	<b>GSP+</b>	<b>EBA</b>
Congo	Armenia	Afghanistan
Cook Islands	Bolivia	Angola
India	Cape Verde	Bangladesh
Indonesia	Kyrgyzstan	Benin
Kenya	Mongolia	Bhutan
Micronesia	Pakistan	Burkina Faso
Nauru	Philippines	Burundi
Nigeria	Sri Lanka	Cambodia
Niue		Central African Rep.
Samoa		Chad
Syria		Comoros
Tajikistan		Congo (DRC)
Tonga		Djibouti
Uzbekistan		Equatorial Guinea
Vietnam		Eritrea
		Ethiopia
		Gambia
		Guinea
		Guinea-Bissau
		Haiti
		Kiribati
		Lao PDR
		Lesotho
		Liberia
		Madagascar
		Malawi
		Mali
		Mauritania
		Mozambique
		Myanmar/Burma
		Nepal

		Niger Rwanda Sao Tome & Principe Senegal Sierra Leone Solomon Islands Somalia South Sudan Sudan Tanzania Timor-Leste Togo Tuvalu Uganda Vanuatu Yemen Zambia
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**Appendix 03: Examples of categories used to classify S&ESC disclosures using NVivo.**

<b>Name</b>	<b>Description</b>	<b>Files</b>	<b>References</b>
<b>01. Supply chain (SC) disclosures</b>			
01. Geographic locations where products and services are offered		0	1
01. 1 Local products		0	0
01. 2 Foreign products		0	0
01. 3 Local services		0	0
01. 4 Foreign services		0	0
01. 5 Local market		1	2
01. 6 Foreign market		1	1
02. Types of customers and location		0	1
02. 1 Types of customers		1	1
02. 2 Local customers		1	3
02. 3 Foreign customers		1	5
03. Types of suppliers engaged		0	1
03. 1 Material suppliers		1	1
03. 2 Finished goods suppliers		0	0
03. 3 Intercompany suppliers		0	0
04. Total number of suppliers engaged throughout the supply chain		0	0
05. Geographic locations of suppliers		0	1
05. 1 Local suppliers		0	0
05. 2 Foreign suppliers		1	2
06. Changes in locations or operations including facility openings, closings, and expansion		0	1

<b>Name</b>	<b>Description</b>	<b>Files</b>	<b>References</b>
06. 1 Location change		1	1
06. 2 Operations change		1	2
06. 3 Opening a new facility		1	2
06. 4 Closing existing facility		0	0
06. 5 Expansion		1	5
<b>02. Sustainable supply chain (SSC) disclosures</b>			
01. 1 Supplier location change		0	0
01. 2 Supply chain structure change		1	2
01. 3 Supplier selection		0	0
01. 4 Termination of suppliers		0	0
01. 5 Supplier relationship		1	1
02. Actions taken to identify and adjust the organisation's procurement practice		0	1
02. 1 Supplier selection		0	0
02. 2 Procurement practice		1	2
03. Actions taken to identify payment policies and procedures on suppliers		0	0
03. 1 Supplier payment terms		0	0
04. Policies and practices used to select locally based suppliers		0	1
04. 1 Policies on locally-based supplier selection		1	1
05. Methodology for tracing the source, origin or production condition of raw material and production input purchases		0	1
05. 1 Production methodology		1	2
05. 2 Production input		1	2

<b>Name</b>	<b>Description</b>	<b>Files</b>	<b>References</b>
06. Stability or length of relationship with suppliers		0	1
06. 1 Long term supplier relationship		1	2
06. 2 Short term supplier relationship		0	0
07. Total weight of all hazardous waste transported, imported, exported and treated		0	1
07. 1 Waste treatment and recycling		1	4
07. 2 Waste reduction		1	3
08. Percentage of hazardous waste shipped internationally		0	1
08.1 Hazardous waste shipped internationally		0	0
09. Number of suppliers identified as having a significant actual and potential negative environmental impact		0	1
09. 1 Environmental impact on suppliers		1	2
10. Significant actual and potential negative environmental impacts as identified in the supply chain		0	1
10. 1 Environmental impact on supply chain		1	2
<b>03. Ethical supply chain disclosures</b>			
01. A statement on whether an occupational health and safety management system has been implemented		0	1
01. 1 Proper occupational health and safety management systems		1	5
01. 2 Factory compliance		1	4

<b>Name</b>	<b>Description</b>	<b>Files</b>	<b>References</b>
02. A description of the scope of workers' activities, codes of conduct and workplaces covered		0	1
02. 1 Scope of work		1	1
02. 2 Code of conduct and business ethics		2	6
02. 3 Safe working environment		2	5
02. 4 Human rights		1	3
02. 5 Accident monitoring		0	0
02. 6 Insurance cover		0	0
02. 7 Sexual harassment		2	2
03. Employment of child labour		0	1
03. 1 Employment of child labour		1	2
04. Young workers exposed to hazardous work		0	1
04. 1 Young workers exposed to hazardous work		1	1
05. Types of operations (such as the manufacturing plant) and suppliers		0	1
05. 1 Types of operations		1	2
05. 2 Types of supplier		0	0
06. Countries or geographic areas with operations and suppliers considered a risk		0	0
06. 1 Supplier country risk		0	0
06. 2 Supplier political risk		0	0
06. 3 Risk of supplier		0	0
07. Percentage of new suppliers screened using social criteria		0	0

<b>Name</b>	<b>Description</b>	<b>Files</b>	<b>References</b>
07. 1 Social responsibilities of new suppliers		0	0
08. Number of suppliers assessed for social impact		0	0
08. 1 Social impact on suppliers		0	0
09. Number of suppliers identified as having significant actual and potential negative social impact		0	0
09. 1 Negative social impact on suppliers		0	0
10. Significant actual and potential negative social impacts identified in the supply chain		0	1
10. 1 Negative social impact on supply chain		1	1