INTRODUCTION

The journal Sustainable Business and Society in Emerging Economies (ISSN: 2708-2504 and ISSN-E: 2708-2172) is an open access peer-reviewed research journal published bi-annually by CSRC Publishing, Center for Sustainability Research and Consultancy Pakistan. The journal seeks to bridge and strengthen the link between business activities and society development around myriad of sustainability issues with focus on emerging and developing economies. The content coverage highlights how business organizations can be responsible towards society in pursuing their value added activities. The journal also bring forward issues in social and behavioral sciences for their implications for business organization and their activities in emerging and developing economies. The journal is a platform for business people, academics, and others involved in the contemporary debate about the responsible role of business organizations and society towards each other. Coverage includes various areas of social and behavioral sciences including management sciences. The journal welcomes papers from all those working in this important area, including researchers and business professionals, members of the legal profession, government administrators and many others.

SCOPE AND MISSION

The journal strives to highlight theoretical and policy issues related to sustainable business practices and social issues faced by society in emerging and developing economies. The SBSEE seeks to integrate the actors and institutions in business and society given that sustainability issues are though found in market yet their solution requires deep and coordinated understanding of these issues from perspectives of various disciplines of social sciences, arts and humanities. With this background SBSEE aims to be a premier forum for policy and theoretical discussion of high impact research related to sustainable business and social development in emerging and developing economies.

The journal aims to cover sustainability topics and issues in various sub-areas of business, social and behavioral sciences in context of emerging and developing economies. Purpose is to highlight the theoretical and practical issues faced by businesses and society in these economies. The journal also welcomes submissions which focus the broader areas of business, management sciences and various areas of social sciences, arts and humanities.
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The Driving Force for Entrepreneurial Performance among Small, Informal Businesses

Simbarashe Muparangi, Forbes Makudza

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ABSTRACT
The purpose of the study was to assess the impact of innovation on business performance of informal small business traders in Zimbabwe. The Open Theory of Innovation informed the study whilst data for the study was gathered using structured questionnaires where 175 informal small to medium enterprises (SME) offered validated responses. A causal, quantitative approach was assumed and data was analyzed using SPSS 22 software to identify the association, strength and direction of innovation and innovation determinants on SME performance. The results revealed that innovation is determined by product, process, marketing and organisational factors. The study thus found out that product innovation, process innovation and marketing innovation have strong positive association with SME performance (P < 0.05). However, the study found an insignificant association between organisational innovation and SMEs performance. The study thus concluded that for informal SMEs to enhance their performance and graduate from being small entities to large corporates, they should embrace product innovation, process innovation and marketing innovation.

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1. Introduction
This paper investigates the role of innovation on performance of informal traders. It further presents the antecedent factors of innovation in business and assesses their effect on the performance of informal SMEs. The world has witnessed unprecedented growth in the informal sector at varying degrees depending on the level of development of a country. The phenomena cuts across regions and is also prevalent in Zimbabwe. While the informal SMEs in Zimbabwe have managed to provide 90% of the employment, the sector has failed to provide meaningful return to entrepreneurs, and various stakeholders.
At a time when 50% of the population rely on the SMEs, its performance has been a major obstacle in realizing its full potential (Manyati, & Mutsau, 2020).

The Finscope Survey (2014) discovered that 80% of informal SMEs were failing to pay living wages due to poor returns on investment. These findings were further supported by the World Bank (2016) where most SMEs were found to be earning less than US$5000 in sales per month. The situation has been exacerbated by the economy which has also affected established businesses. The World Bank (2016) discovered that most informal SMEs were failing to employ a considerable number of people and such their contribution to the economy remain minimal.

While innovative practices are at the center of any business growth and performance, it remains to be discovered if the adoption of innovative systems can also enhance performance of informal SMEs. Previous researchers have researched on the influence of innovation on formal SMEs and they have not considered informalized ones (Chan, Teoh, Yeow, & Pan, 2019; Hussein & Hassan, 2017; Mahmutaj, 2014; Rosli & Sidek, 2013; Sussanto, 2017). This leaves literature gaps within the body of knowledge which this study aims to bridge.

2. Literature Review

2.1. SMEs
Sarpong (2012) argues that the definition of small to medium enterprises (SMEs) differs from one country to another. However, Shumba et al. (2014) indicate that SMEs are defined in terms of sales revenue, employees as well as capital base. The definition of SMEs also follows the dictates of development. In the developing world SMEs are firms fewer than two hundred employees (Kanu & Sesay, 2016). The World Bank (2016) defines SMEs as those organisations with fewer than three hundred employees and $15 million assets. However, that definition in Zimbabwe will fit most of established corporates registered on stock exchange.

Ghana recognizes SMEs as firms with less than 10 employees and this actually mean that some SMEs in Zimbabwe qualify as established businesses in Ghana (Sarpong, 2012). In Zimbabwe, SMEs are those firms with 5 to 100 employees, with an annual turnover less than $240 000 and an asset base in excess of $100 000 (Shumba et al., 2014).

2.2. Performance Measurement for Informal SMEs
Performance measurement is the process of calculating the efficiency and effectiveness of previous results through acquisition, collation, sorting analysis and interpretation of appropriate data (Kanu & Sesai, 2016). It is difficult to assess the success of most informal small and medium-sized companies objectively because they do not keep detailed records of their operations. According to Sekere (2016), in the absence of objective performance metrics, the organization may calculate success using gross income, revenue and turnover. Sales are the most commonly used measurement indicators found in the literature (Randika, 2016). They help improve liquidity position of an organisation. In addition, they reflect financial performance outcome because they highlight successful achievements of all the business behaviour required to ensure effective outcome (Shumba, Manzini & Ndlovu, 2014).

The study also considered profit maximization, market share and number of employees over time as the other metric for sales performance. This was guided by previous studies (Kanu & Sesai, 2016; Randika, 2016; Sekere, 2016). In that regard, Cheng, (2017) indicates that profit maximization can also be used as a performance measurement metric as the present value of the enterprise.

2.3. Innovation
Innovation can be defined as the process of coming up with something new (Sussanto, 2017). Sitharam and Hoque (2016) define innovation as the act of coming up with a unique product. However, this definition is not complete as it only associates innovation with products yet innovation is also part and
parcel of the service industry process. This position was also noted by Godswill (2015) who argued that innovation is a concept that can be applied in diverse areas.

Therefore, innovation can be classified into various forms which are also part of the definition. There are different types of innovation from literature and these differ from one author to another. Hussein & Hassan (2017) elaborates that innovation can be categorized into 4 types namely product innovation, process innovation, marketing innovation and organizational innovation.

2.3.1 Determinants of Innovation among SMEs
Several ideas and research work were worked on to identify the key antecedents of business innovation among entrepreneurs. The search for these antecedents began way back with the Open Theory of Innovation which argues that innovation is determined by internal and external sources (Santoro, Ferraris, Giacosa, & Giovando, 2018). The theory posits that employees and owners formulate internal determinants of innovation, whilst the market was positioned as the external driver of innovation (Chesbrough, Lettl, & Ritter, 2018).

Conversely, the S-Curve theory suggest that innovation is determined by the company’s ability to address immediate problems in the market (Chen, 2017). In support of the S-Curve notion, Ntwoku, Negash and Meso (2018) originality is the key antecedent of innovation as me-too or imitator products fail to be appreciated in the market. The Innovation Diffusion theory highlights that innovation largely depends on the types of customers in the market. Presence of more experimental customers (innovators) drive a company’s innovative products through as compared to the presence of more passive customers (laggards).

More recent studies around the globe have established that innovation can be largely driven by product innovation, process innovation, marketing innovation, organisational innovation and technological innovation (Godswill et al., 2016; Mahmutaj, 2014; Makanyeza & Dzvuke, 2014; Rosli & Sidek, 2013). Mahmutaj (2014) in Kosovo established that SME innovation was largely a function of product improvement with 19.4% of new products produced innovatively by the SME sector. A related study in Malaysia by Rosli & Sidek (2013) discovered that process and product innovation have huge impact on SME performance. Godswill et al. (2016) in Nigeria discovered that all forms of innovation (organisation, marketing, process and product innovation) had statistically significant relationships with SME performance. However, the same study concluded that of the four variables, process and organisational innovation influence SME performance significantly. Conversely, Makanyeza & Dzvuke (2014) in their study in Zimbabwe found out that innovation was a positive predictor of SME performance. The determinants of innovation they considered were organizational innovation, product innovation, process innovation, and marketing innovation. However, marketing and process innovation had no statistical impact on SME’s performance.

The current study noticed that although several determinants are penned and analyzed in literature, there seem to be varying convergence on the real antecedents of innovation. It is against that background that the study posits to be guided by the Open Theory of Innovation and contemporary studies in the development of the determinants of innovation. To that end, the following determinants of business innovation were considered in this study: product, process, marketing and organization.

2.3.1.1 Product Innovation
Product innovation is related to the introduction of a new physical product (Hakannson, 2015). However, Chen (2017) argues that product innovation can also take the form of product modification whereby a few features are added or removed from a product thereby making it new. Mahmutaj (2014) notes that the main aim of product innovation is to increase usage on existing customers and also attracting customers. The net impact according to Godswill et al (2017) would be increased sales and profitability.
However, Sussanto (2017) refuted the argument that product innovation always results in improved sales and performance arguing that some of the product innovations do not add value or improve the welfare of consumers thus resulting in decreased sales. Sussanto (2017) also noted that Product innovation takes a great deal of resources through research and development activities and in most cases organisations fail to recoup costs from research and development initiatives.

According to Rosli and Sidek (2013) product innovators are prone to imitators and they fail to gain returns on their efforts, However, Chen (2017) noted that returns on innovation largely depends on a company’s strategy from the beginning to the end. In this turbulent economic environment, firms are failing to upstage their competitors due to the rising costs as well as poor outdated products (Hakansson, 2015). According to Joe and Montgomery (2003), companies that use and act on innovation are always ahead of their foes in the industry. Hakansson, (2015) notes that competitiveness is gained through low cost of operation, quality of service and these are guaranteed under the concept of product innovation.

Hakansson (2015) notes that product innovation enables firms to raise the bar in terms of quality as well as its processes and this becomes an advantage in terms of breaking international boundaries. However, Garcia and Calantone (2002) cite that it is costly for SMEs to innovate their products and as such it becomes a futile exercise for SMEs operating in a subdued economic environment. There is a direct relationship between profitability and adoption of product innovation (Stokes, 2011). Different researchers such as Chen (2017), Hussein and Hassan (2017), Sussanto (2017) have also confirmed to the relationship between product innovation and SME performance. Rosli & Sidek (2013) discovered the relationship between firm performance and product innovation due to increased demand and sales.

The current study therefore posits that process innovation is a key driver of SME performance and the following hypothesis is thus presented:

**H1:** There is a significant positive relationship between product innovation and SME performance.

### 2.3.1.2 Process Innovation

Process innovation is a means to an end. It is common in service industries whereby firms design new ways from delivering the service (Rosli & Sidek, 2013). Sussanto (2017) highlights that process innovation is also common in the product industry where manufacturing comes up with new ways of manufacturing a product. For example, computerization of the manufacturing process can be termed process innovation.

According to Godswill (2015) process innovation results in efficiency which saves costs as well as improve quality of the final product. In such a scenario it is expected that process innovation is one of the factors which improve performance. Rosli and Sidek (2013) indicate that for process innovation to add value, firms must have enough resources especially human capital to operationalize machinery and systems. However, informal SMEs face challenges such as financial exclusion due to their status. As result it may be difficult for them to adopt process innovation for improved performance.

Furthermore, there is need for replacing traditional methods with modern techniques which are part of a broader concept of process innovation. According to Schmidt and Rammer (2007) productivity is now a function of efficient processes and these can be enhanced through the adoption of technology. In most developing nations, informal SMEs are still using outdated machinery which produce low output.

In a volatile economy, it becomes difficult for firms to enhance their operational performances without the adoption of new processes. The adoption of new technology under technological innovation helps firms to
increase sales and profitability (Hill & Rothaermel, 2003). This notion was supported by Hakansson (2015) who found out a statistical significance between process innovation and productivity. Conversely, Thompson et al. (2010) concluded that SMEs which have failed to embrace process innovation struggled to remain viable as their performance kept dwindling. According to Thompson et al. (2010) quality emanating from process innovation can significantly impacts on performance.

Therefore, we have reasons to believe that process innovation is a key driver of business performance and thus we present the following hypothesis:

**H2:** There is a significant positive relationship between process innovation and SME performance.

### 2.3.1.3 Marketing Innovation

Chen (2017) argues that even if a company produces unique quality products, the product may fail due to poor marketing strategies. Marketing innovation comprises of new marketing strategies which can result in competitive advantage. Hussein and Hassan (2017) indicate that marketing innovation includes new product design, packaging as well as promotional and pricing strategies. In a nutshell, marketing innovation is associated with the marketing mix. The overall performance of an SME depends on how its products are perceived by the customers. Sussanto (2017) argues that innovative marketing helps an organization to increase sales performance through enhanced competitive advantage and brand loyalty.

Without marketing innovation, performance and survival remain a pipe dream. SMEs must be innovative in marketing if they are to entertain the hope of performance, survival and productivity (Hussein & Hassan, 2017). The corporate graveyard is full of SMEs which have failed to adopt technology in marketing. According to Bergek et al. (2008) business performance depends on its ability to meet the needs of its customers. Marketing innovation provides a business with an opportunity to meet and exceed the needs of customers (Hill & Rothaermel, 2003).

Studies have shown that there is a direct relationship between firm performance and marketing innovation (Bergek et al. 2008; Hussein & Hassan, 2017; Sussanto, 2017). It is against that background that the following proposition is made:

**H3:** There is a significant positive association between marketing innovation and SME performance.

### 2.3.1.4 Organizational Innovation

Organization innovation is associated with introduction of new ways in which a firm is managed. Most common evidence of organisational innovation can be found in human resource management where organisations invest in HR systems so as to improve efficiency (Gnyawali & Park, 2011). Godswill et al. (2017) highlight that through organisational innovation, an organization can respond quickly to changes in the environment. Godswill et al. (2017) further note that the introduction of new business practices is also part of organisational wide innovation which can be used to improve service delivery.

Mahmutaj (2014) argues that organisational innovation have the ability to reduce administrative costs which in turn improve organisational performance. While acknowledging the importance of organisation innovation, Rosli and Sidek (2013) concluded that most informal SMEs do not have formal organisational structures thus organisational innovation may not be important in as far as their performance is concerned...

According to Stokes (2011) organisational innovation brings a host of opportunities for entrepreneurs.
which include sales performance, profitability, stability among others. With increased volatility in the business environment, Gnyawali & Park (2011) encourage the usage of organisational innovation so as to enhance performance. We therefore have good reasons to suggest that if SMEs embrace organisational innovation, performance is guaranteed. The following hypothesis is therefore stated:

\[ \text{H}_4: \text{There is a significant positive relationship between organisational innovation and SME performance.} \]

2.4 Conceptual Framework
Performance of informal SMEs is driven by innovation. Innovative aspects which SMEs need to work on have been identified in literature as product, process, marketing and organisational innovation. Figure 1, conceptualizes these variables.

Figure 1: The conceptual framework

We have theorised that SME performance (SMEP) is a function product innovation (ProdI), process innovation (ProcI), marketing innovation (MI) and organisational innovation (OI). Therefore, SME performance is attributed to all four determinants of innovation.

Hence: \[ \text{SMEP} = fn \sum \left[ \text{ProdI} + \text{ProcI} + \text{MI} + \text{OI} \right] \]

Thus, the following equation was tested:

\[ \text{SME Performance} = \beta_0 + \beta_1\text{ProdI} + \beta_2\text{ProcI} + \beta_3\text{MI} + \beta_4\text{OI} + \epsilon \]

3. Research Methodology
A quantitative survey research method was used in this study. The target population was made up of informal manufacturers operating at Glenview area 8 complex in Harare, Zimbabwe. The number of furniture manufacturers in the complex according to administration data base is 301, which the study used as the numeric value of the target group. The sample size of 200 respondents was then calculated using the rule of thumb where two-thirds of the target population was used. That was supported by Gorejena (2015) who advocated for a high sample size in quantitative studies. Simple random sampling was used to gather data using a structured questionnaire. Researchers maintained high levels of good research ethics throughout the study.

4. Data Analysis and Results
4.1. Data Profiling
The response rate was 87.5% which gave rise to 175 validated responses. The reliability of the latent variables was measured using the Cronbach Alpha test and all constructs had coefficients of 0.79 and above. Males dominated the informal SMEs as 70% of the traders were male respondents while 30% were females. 40.0% of the respondents were aged between 40-50 years while 30.7% were in the 29-39 age range. Furthermore 10.7% of respondents were in the 18-28 age range, whilst 9.3 % were in the 40-50 age range.

In terms of years of operation, 46.7% of the SMEs have been operating for the past 1-5 years while 24.0% of the SMEs have been operating for the past 6-11 years. Further analysis reviewed that 29.23% of the SMEs have been operating for more than 12 years. With regards to the number of employees, 40% of informal traders were employing 1-5 people while another 40% was not employing extra employees. A paltry 4% was employing more than 23 people. 5.3% of the traders were employing 6-11 people while 6.7% was employing 12-17 people.

In terms of education, 52% of traders were secondary level education holders, while 21.3% were holders of certificates. 12% of the traders had degrees while 8% had diplomas. 6.75% of respondents had primary level education as their highest level of education. 40.0% of the respondents were aged between 40-50 years while 30.7% were in the 29-39 age range. Furthermore 10.7% of respondents were in the 18-28 age range, whilst 9.3 % were in the 40-50 age range.

4.2 SME Performance
Table 1 presents descriptive statistics of the performance of informal SMEs in terms of sales, profits, costs, market share, employment and opening of new businesses.

<table>
<thead>
<tr>
<th>SME Performance</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability</td>
<td>175</td>
<td>1.00</td>
<td>5.00</td>
<td>2.13</td>
<td>1.63</td>
</tr>
<tr>
<td>Sales</td>
<td>175</td>
<td>1.00</td>
<td>5.00</td>
<td>2.24</td>
<td>1.49</td>
</tr>
<tr>
<td>Number of employees</td>
<td>175</td>
<td>1.00</td>
<td>5.00</td>
<td>2.49</td>
<td>1.51</td>
</tr>
<tr>
<td>Decrease of costs</td>
<td>175</td>
<td>1.00</td>
<td>5.00</td>
<td>2.04</td>
<td>1.44</td>
</tr>
<tr>
<td>New shops</td>
<td>175</td>
<td>1.00</td>
<td>5.00</td>
<td>2.13</td>
<td>1.58</td>
</tr>
<tr>
<td>Market share</td>
<td>175</td>
<td>1.00</td>
<td>5.00</td>
<td>2.35</td>
<td>1.55</td>
</tr>
<tr>
<td>Production</td>
<td>175</td>
<td>1.00</td>
<td>5.00</td>
<td>2.17</td>
<td>1.42</td>
</tr>
</tbody>
</table>

Table 1 shows that the highest performance indicator was an increase in the number of employees followed by an increase in the market share. SMEs disagreed that their costs decreased with a mean score of 2.04, whilst they also disagreed that their profits were increasing and that they were opening new outlets.

On average this means that traders disagreed with the assertions that their performance improved in terms of costs, profitability, sales, employees and market share as indicated by mean values of less than 3 and standard deviations of more than 1. The mean figures are below the average performance standard. The results on performance are in congruent with Gorejena (2015) and World Bank (2016) where SMEs were discovered to be facing serious viability challenges which threatened their survival.

4.3. The relationship between innovation and informal SME performance
To analyse the relationship between innovation and SME performance, correlation and regression test statistics were used. The findings are in tables below 2, 3 and 4.

<table>
<thead>
<tr>
<th>Table 2: Correlation Analysis</th>
<th>SME Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Innovation</td>
<td>Correlation Coefficient</td>
</tr>
</tbody>
</table>
Table 3: Regression Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.641</td>
<td>.651</td>
<td>.642</td>
<td>.38743</td>
</tr>
</tbody>
</table>


Table 4: Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.924</td>
<td>.053</td>
<td>-2.335</td>
<td>.020</td>
</tr>
<tr>
<td>Product Innovation</td>
<td>.691</td>
<td>.014</td>
<td>.678</td>
<td>69.831</td>
</tr>
<tr>
<td>Process Innovation</td>
<td>.621</td>
<td>.022</td>
<td>.632</td>
<td>66.543</td>
</tr>
<tr>
<td>Marketing Innovation</td>
<td>.565</td>
<td>.034</td>
<td>.625</td>
<td>64.322</td>
</tr>
<tr>
<td>Organisational Innovation</td>
<td>.122</td>
<td>.021</td>
<td>.121</td>
<td>0.760</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Informal SME Performance

Table 3 indicates that 65% of the change in Informal SME performance is explained by product innovation, process innovation, marketing innovation and organisational innovation. Factors which are not part of this study account for the remaining 35%. Analysis of variance (ANOVA) was used to determine the fitness of the model. The ANOVA results (F = 7.304, p=.000) indicate that the model is statistically significant.

Using results from Tables 2, the correlation shows that product innovation has a significant, strong positive association with performance of informal SMEs (r = 0.885, p = 0.00). This means that if SMEs enhance innovation of products, they are more likely to perform better. The regression results show a beta score of 67.8% (p = 0.00) which indicate a high impact of product innovation on performance. Therefore, the first hypothesis (H1) is accepted. Results are in agreement with findings of Chen (2017) and Hussein and Hassan (2017) who discovered that product innovation results in increased performance due to increase in customers. However, the results refute Sussanto (2017)’s assertion that product innovation is a costly endeavour which does not add value to an organisation.

The second hypothesis sought to measure the influence of process innovation on performance of informal SMEs. The results in Table 2 point to a strong positive relationship between process innovation and performance with a correlation coefficient of 0.674 and a p-value of 0.00. This means that the more innovative the SMEs’ processes the better their performance. Table 4 results also support a high impact of process innovation on SME performance (β = 0.63, P = 0.00). Therefore, the second hypothesis (H2) is accepted. The results in terms of this hypothesis are in agreement with Godswill et al. (2015) study in Nigeria who states that process innovation reduce operating costs which then translates to improved profitability. The results also coincide with Sussanto (2017) who discovered that process innovation can improve quality of products which results in increased demand and profitability.
**The third hypothesis** meant to test the association between marketing innovation and SME performance. Tables 2 and 4 show that marketing innovation has a direct relationship with performance (r = 0.806, β = 0.625; p= 0.00). This means that SMEs need to enhance their marketing innovation so as to improve their performance by a factor of 63%. Therefore, the third hypothesis (H₃) is accepted. The results are in agreement with Hussein and Hassan (2017)’s findings where marketing innovation was chief reason for increased sales within the SME sector. Chen (2017) notes that social media is one of innovative tools available to SMEs at less cost.

**The fourth hypothesis** assessed the relationship between organisational innovation and SME performance. The study found a correlation coefficient of 0.015 and a beta value of 0.121 with an insignificant p-value (P > 0.05). This means that organisational innovation does not influence SME performance directly. Therefore, the fourth hypothesis (H₄) was rejected. The results contradict Godswill et al (2017)’s assertion that organisation innovation results in a more efficient organisation. However, this result was attributed to the fact that informal SMEs operate without proper organisational structures hence organisational innovation is not seen as an important aspect in terms of performance improvement.

**5. Conclusion**

The study concluded that innovation in business is a key driver of informal SMEs performance. If informal traders become more innovative, they are more likely to enhance performance and move from the current status quo which the study found to be stagnant in terms of sales, profitability, market share and employee recruitment.

Guided by literature, the study identified four determinants of innovation in business namely, product, process, marketing and organisational. Findings indicate that SMEs are focusing more on marketing and product innovation mostly. However, the study also concluded that process and organisational innovation were not prioritised. Hypotheses tests done to test the relationships between innovation determinants and SME performance show that product, process and marketing innovation have strong positive correlations with SME performance. However, there was no evidence of statistical association between organisational innovation and SME performance.

Though the study managed to confirm the role of innovation in small entities, it suffered some limitations. The study is limited in terms of generalisation. The findings of this study can only apply to the target group as informal SMEs vary in complexity and dynamics. Furthermore, the study adopted a quantitative study which failed to assess qualitative issues in terms of innovation. Regardless of the said limitations, the study managed to offer meaningful contributions which can enhance performance of informal SMEs. Future studies may want to retest the presented model to enhance the robustness of the model.

**References**


Ethical Behavioural Disclosure and Financial Performance of Listed Industrial Goods Firms in Nigeria

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ABSTRACT

Purpose: Interests in the nexus between ethical performance and financial performance have generated mixed results. However, despite the number and the variety of studies, the evidences available suggest not been comprehensively examined. Also, there is no sufficient effort to examine this relationship within the industrial good sector in Nigeria. This calls for further study. Design/Methodology/Approach: This study uses a functional coefficient regression technique to estimate panel-varying betas and alpha in three financial performance models. The empirical data were collected from the Nigerian Stock Exchange over a period of 2010-2019. Data were analyzed using random effects models after accounting for multicollinearity, heteroskedasticity, normality. Findings: Results show that human resource development disclosure and community service disclosure have noteworthy progressive effects on performance, environmental and product safety disclosures have significant negative effects on profit. Implications/Originality/Value: The study therefore concludes that ethical behavioural practices of listed industrial firms have significant effects on financial performance. The study recommends among others that industrial firms should redirect their ethical practices into human resource development and community services since their disclosures enhance financial performance.

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1. Introduction
Companies with a strong ethical behaviour tend to maintain a higher degree of stakeholder satisfaction, positively influencing the financial results of the company (Duggan, 2017). Corporate ethic is seen as an indicator of corporate social responsibility (Ahmed, 2016; Maisaje, 2015; Vieira, 2013). Although, the term corporate social responsibility is more encompassing, corporate ethical behaviour is attracting interests among scholars in recent time. Firm’s ethical behavioural practices are seen from the perspective
of their involvement in human resource development, environment, community service and product safety. The underlying question is whether firms that ethically behaved and disclose such behaviour in their annual reports and accounts would have better financial performance?

Firm financial performance is of interest to stakeholders, after all, the primary firm goal is to maximize shareholders’ wealth and by extension maximize the wealth of other stakeholders. Financial performance is seen within the context of return on assets, return on equity and earnings per share. Of interest in this study is whether firm disclosure of ethical behaviour could influence them? In order to achieve the objectives, the following hypotheses were developed and tested.

\[ \text{H}_\text{oa}: \text{Human resource development disclosure has no significant effect on financial performance.} \]

\[ \text{H}_\text{ob}: \text{Environmental reporting has no significant effect on financial performance of listed industrial firms in Nigeria.} \]

\[ \text{H}_\text{oc}: \text{Community service reporting has no significant effect of listed industrial firms in Nigeria.} \]

\[ \text{H}_\text{od}: \text{Product safety disclosure does not significantly effect of listed industrial companies in Nigeria.} \]

The study is limited to industrial goods and covers 2010–2019. The study is useful to a number of stakeholders such as shareholders, management, employees, governments, communities, civil societies involved in environment, Standards Organization of Nigeria. Also, the study contributes to understanding of theories, methodologies and empirics relating to the nexus between firm’s ethical behaviour and financial performance. Such linkage has important implications not only for industrial firms, investors and top executives but also for scholars. The remaining sections deals with review of literature, data and methodology, empirical results, interpretation, conclusion besides commendations.

2. Literature Review

The stakeholders’ theory was most appropriate theory to explain the nexus between ethical behavioural practices of firms and their financial performance. This is because both subjects are stakeholders-centric. Amir (2010) assesses consequence of ethical behaviour on profit in Uganda. Findings reveal that there is a significant positive relationship between ethical behaviour and financial performance. Kim (2010) examines link amongst ethical behaviour and long-term profit using archival data in South Korea. Results show ethical behaviour is related. Similarly, Joseph (2010) analyzes association between ethical behaviour and organizational result. Findings reveal moral behaviour has significant effect.

Micah et al. (2012) examine the relationship between firm’s financial performance and human resource disclosure of companies in Nigeria using fifty-two firms over 2005-2009. Results indicate significant effect. Vieira (2013) analyzes the effects of ethical behaviour on a firm’s financial profitability using Portuguese construction industry. After analyzing the financial indicators (return on assets and profit margin) the paper concludes that return on assets stands suggestively connected with ROA. The study failed to find evidence that connect profit margin to morality.

Elayan et al. (2014) examine the impact of firms acting ethically on financial performance. The study assesses the impact of quarterly changes in the Covalence Ethics Index (CEI) rankings compared to firm financial performance (FP). A significant positive stock market reaction to CEI upgrades was observed. Berrone et al. (2015) empirically assess the impact of corporate ethical behaviour (CEB) on firm’s financial performance. Drawing on normative and instrumental stakeholder theory, they argue that firms with a strong ethical behaviour achieve greater degree of financial performance. Enofe et al. (2015) examine the relationship between ethical behaviour and ROTA amongst banks in Nigeria. The empirical result indicates that ethical behaviour was significant and positive.

banks in Nigeria and the analyses confirmed that human asset accounting significantly affects the banks’ performance.

Persons (2016) investigates link amongst ethics and profitability using 94 companies from USA. Logit regression analysis indicates firm without ethical behaviour had poorer financial performance. The regression analysis suggests that not having a code of ethical behaviour.

Halamka and Teply (2017) investigate how ethics affect financial performance. They suggest that moral banks report lower dispersion in ROE. Also, Uwuigbe et al. (2017) examine the degree of influence of ethical reporting in annual reports of listed firms in Nigeria on financial performance for the period 2010-2014. Findings from the paper show there a significant relationship between ethical reporting and financial performance. Also, Ahmed et al (2017) use 35 companies in Nigeria covering 10 years (2006 – 2015). The study finds that human resource disclosure has significant and positive effect on ROTAA, ROEQ and ROCED.

3. Methodology
The firms were qualitatively and dichotomously measured (1 for item reported and 0 otherwise). This was achieved through content analysis by analyzing the four different indexes that companies show ethical commitment: human resource development, environment, community service and product safety. Data on financial performance indicators (return on assets, return on equity and earnings per share) were obtained by computing ratios from the Nigerian Stock Exchange. REM was used to analyze statistics after carrying out panel effects, normality, multicollinearity, heteroskedasticity and serial correlation tests. The study uses a longitudinal panel research design. Sample was made up of the 24 listed industrial firms in Nigeria.

\[
\begin{align*}
\text{rota}_{i,t} & = \alpha + \beta_1 \text{hrdi}_{i,t} + \beta_2 \text{envi}_{i,t} + \beta_3 \text{csi}_{i,t} + \beta_4 \text{psi}_{i,t} + \beta_5 \text{size}_{i,t} + \beta_6 \text{lev}_{i,t} + \beta_7 \text{grow}_{i,t} + \epsilon_{i,t} \ldots \ldots \ (1) \\
\text{roeq}_{i,t} & = \alpha + \beta_1 \text{hrdi}_{i,t} + \beta_2 \text{envi}_{i,t} + \beta_3 \text{csi}_{i,t} + \beta_4 \text{psi}_{i,t} + \beta_5 \text{size}_{i,t} + \beta_6 \text{lev}_{i,t} + \beta_7 \text{grow}_{i,t} + \epsilon_{i,t} \ldots \ldots \ (2) \\
\text{eps}_{i,t} & = \alpha + \beta_1 \text{hrdi}_{i,t} + \beta_2 \text{envi}_{i,t} + \beta_3 \text{csi}_{i,t} + \beta_4 \text{psi}_{i,t} + \beta_5 \text{size}_{i,t} + \beta_6 \text{lev}_{i,t} + \beta_7 \text{grow}_{i,t} + \epsilon_{i,t} \ldots \ldots \ (3)
\end{align*}
\]

Wherever:
rota = Return on total assets as profit before tax/total assets (Al-Taani, 2013; Joliet & Muller, 2013; Mitani, 2014; Visic, 2013; Yahaya, 2015).
roeq = Return on equity, as profit after tax/equity (Nirajini & Priya, 2013; Pouraghajan et al., 2012; Visic, 2013; Yahaya, 2015).
eps = Earnings per stock as profit after tax/equity shares (Yahaya, Tanko & Muhammad, 2017).
\(\alpha\) = Constant (alpha) assuming that all exploratory variables and control variables are 0.
\(\beta_1 - \beta_7\) = Beta coefficients of the exploratory and control variables.
hrdi = Human resource development index derived from indices of training programs, schemes, educational facilities, in-house training, establishment of training centres, sponsoring educational conferences and seminars (Ahmed, 2016; Maisaje, 2015).
envi = Environmental index (Vieira, 2013).
csi = Community service (Maisaje, 2015; Vieira, 2013).
psi = Product safety index derived from safety of company’s products, whether the products meet applicable standards (Ahmed, 2016).
size = Firm size as log base 10 of total asset (Smith et al., 2012; Soumadi & Hayajneh, 2012; Yahaya, 2016).
lev = Leverage, measured as total liabilities divided by equity (Yahaya & Andow, 2015).
grow = Growth, measured as change in total assets x 100 (Soumadi & Hayajneh, 2012; Voulgaris et al., 2011; Yahaya, Tanko & Muhammad, 2017).
i = Firm subscript (in this case, 24);
t = Time period covered (in this case, 10 years)
\(\varepsilon\) = Idiosyncratic (Stochastic) error term \((\lambda_i, \varepsilon_{i,t})\)
4. Data Analysis and Results

The summary statistics of the data set are reported in Table 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observ.</th>
<th>Average Mean</th>
<th>Std. Deviation</th>
<th>Mini</th>
<th>Maxi</th>
</tr>
</thead>
<tbody>
<tr>
<td>rota</td>
<td>240</td>
<td>.291</td>
<td>.162</td>
<td>.05</td>
<td>.78</td>
</tr>
<tr>
<td>roeq</td>
<td>240</td>
<td>.337</td>
<td>.160</td>
<td>0</td>
<td>.7</td>
</tr>
<tr>
<td>eps</td>
<td>240</td>
<td>.188</td>
<td>.099</td>
<td>.039</td>
<td>.512</td>
</tr>
<tr>
<td>hrdi</td>
<td>240</td>
<td>.561</td>
<td>.154</td>
<td>0</td>
<td>.82</td>
</tr>
<tr>
<td>envi</td>
<td>240</td>
<td>.394</td>
<td>.207</td>
<td>.11</td>
<td>.85</td>
</tr>
<tr>
<td>csi</td>
<td>240</td>
<td>.609</td>
<td>.139</td>
<td>.3</td>
<td>.89</td>
</tr>
<tr>
<td>psi</td>
<td>240</td>
<td>.551</td>
<td>.060</td>
<td>.45</td>
<td>.75</td>
</tr>
<tr>
<td>size</td>
<td>240</td>
<td>15.823</td>
<td>1.418</td>
<td>12.633</td>
<td>17.684</td>
</tr>
<tr>
<td>lev</td>
<td>240</td>
<td>.465</td>
<td>.205</td>
<td>.098</td>
<td>1.365</td>
</tr>
<tr>
<td>grow</td>
<td>240</td>
<td>.002</td>
<td>.058</td>
<td>-.286</td>
<td>.191</td>
</tr>
</tbody>
</table>

Source: STATA 13 Outputs

As shown in Table 1, the number of observation for all the variables are 240, suggesting that the data set are strongly balanced. Also, the mean statistic values of $roa$, $roe$ and $eps$ are 0.291, 0.337 and 0.188 respectively. These results suggest that $roe$ has the highest standard measure of the centre of the distribution among the dependent variables. However, among the independent variables, $csi$ (0.609) has the highest measure of the centre of the distribution. Similarly, $size$ (15.823) has the highest measure of the centre of the distribution among the control variables.

In this regard, $roa$ (0.162) has a greater spread among the dependent variables; $envi$ (0.207) has a greater spread among the independent variables and $size$ (1.418) has a greater spread among the control variables. Also, as Table 1 shows, $roe$ (0) has the lowest mean among the dependent variables; $hrdi$ (0) has the lowest mean among the independent variables and $grow$ (-0.286) has the lowest mean among the control variables. In the same vein, $roa$ (0.780) has the highest mean among the dependent variables; $csi$ (0.89) has the highest mean among the independent variables and $size$ (17.684) has the highest mean among the control variables. Table 2 displays the results of multicollinearity test. This test discloses whether the variances among the predicting variables are inflated or not. A VIF of 1 suggests correlation.

<table>
<thead>
<tr>
<th>Var. Inf. Factor</th>
<th>1/Var. Inf. Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>csi</td>
<td>1.95</td>
</tr>
<tr>
<td>size</td>
<td>1.79</td>
</tr>
<tr>
<td>lev</td>
<td>1.60</td>
</tr>
<tr>
<td>psi</td>
<td>1.48</td>
</tr>
<tr>
<td>envi</td>
<td>1.34</td>
</tr>
<tr>
<td>hrdi</td>
<td>1.25</td>
</tr>
<tr>
<td>grow</td>
<td>1.14</td>
</tr>
<tr>
<td>Mean VIF</td>
<td>1.51</td>
</tr>
</tbody>
</table>

Source: STATA 13 Outputs

As shown in Table 2, the VIFs of all the variables are less than 4, indicating absence of multicollinearity among the independent and control variables. These results are consistent with the advantage of using panel data, less collinearity. Three important assumptions are that (1) the variance in the residuals has to be homoskedastic, which means constant; (2) the null is no serial correlation and (3) the panel effect is random.

<table>
<thead>
<tr>
<th>Model</th>
<th>Heteroskedasticity Chi²(1)</th>
<th>Prob&gt;Chi²</th>
<th>Serial (Auto) Correlation F(1, 23)</th>
<th>Prob&gt;F</th>
<th>Hausman Specification Test Chi²(7)</th>
<th>Prob&gt;Chi²</th>
</tr>
</thead>
<tbody>
<tr>
<td>rota</td>
<td>17.54</td>
<td>0.000</td>
<td>20.349</td>
<td>0.0002</td>
<td>8.38</td>
<td>0.3000</td>
</tr>
</tbody>
</table>
2.13, P > t = 0.034), and $t = (0.379, t = 6.35, P > t = 0.000)$ and $hrd (Coef. = 0.493, t = 5.85, P > t = 0.000)$ and $eps (Coef. = 0.115, t = 2.83, P > t = 0.005)$. These results are in line with the results of Ahmed, Yahaya and Mustapha (2017). Similarly, $csi$ shows significant and positive effect on $roa (Coef. = 0.337, t = 3.61, P > t = 0.000)$, $roe (Coef. = 0.493, t = 5.85, P > t = 0.000)$ and $eps (Coef. = 0.337, t = 6.35, P > t = 0.000)$. However, $ensi$ shows significant and negative effect on $roa (Coef. = -0.230, t = -4.30, P > t = 0.000)$, $roe (Coef. = -0.180, t = -3.42, P > t = 0.001)$ and $eps (Coef. = -0.390, t = -3.38, P > t = 0.001)$. Similarly, $psi$ shows significant and negative effect on $roa (Coef. = -0.457, t = -4.99, P > t = 0.000)$ and $eps (Coef. = -0.098, t = -2.02, P > t = 0.001)$. Taking the results together, Table 5 shows that ethical

For the control variables, size shows significant and negative effect on roe (Coef = -0.0341, t = -4.99, P>t = 0.000) and insignificant and negative effects on roa (Coef = -0.0120, t = -1.69, P>t = 0.092) and eps (Coef = -0.007, t = -1.20, P>t = 0.231). Lev shows insignificant effect on roa (Coef = 0.0315, t = 0.69, P>t = 0.492), roe (Coef = -0.040, t = -0.88, P>t = 0.378) and eps (Coef = 0.020, t = 0.87, P>t = 0.385). Grow shows significant and positive effect on eps (Coef = 0.166, t = 1.97, P>t = 0.050) but insignificant effects on roa (Coef = -0.225, t = -1.34, P>t = 0.182) and roe (Coef = 0.181, t = 1.42, P>t = 0.157).

5. Conclusion
The study examined association between ethical behaviour and financial performance of listed industrial goods corporations. This paper used data set from twenty-four firms over a period of ten years (2010 – 2019) resulting in 240 observations. On the strength of the results, the study concludes that human resource development disclosure and community service disclosure have significant and positive influences on financial performance. The study also concludes that environmental disclosure and product safety disclosure have significant and negative influences on financial performance. With these conclusions, the paper commends industrial corporations strengthen disclosure of human resource development and community services and reduce disclosure of environmental and product safety measures.

References


Assessment of Sustainable Development in Apparel Value Chains

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ABSTRACT

Inspired by the United Nation’s Sustainability Development goals for responsible consumption and production, this final year two-student team thesis was conducted across six convenience sampled textiles and apparels companies in Karachi, Pakistan, as exploratory research. Interviews of purposively sampled personnel from these companies were assessed on their awareness on sustainability and the initiatives taken to develop infrastructures in alignment with green value chain standards and sustainable product. The instrument used is an unstructured questionnaire developed by the student researchers from adopted aspects of the Global Reporting Initiative standards. The use of thematic analysis and Greening Goliaths vs Emerging Davids Sustainability Matrix was further essential in this study’s potential in proposing green marketing strategy (GMS) to the Ministry of Textile Industry, and the All Pakistan Textile Mills Association. The study brought to light the detriments to market penetration of sustainable textiles and apparels in Pakistan, namely the economy, and consumer behavior. Conclusively, the student researchers found that the textiles industry in Pakistan was well developed along global sustainable goals but demand for sustainable apparel stemmed from developed nations owing to their consumer’s awareness on the implications of inorganic derived apparels on the environment

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1. Introduction

In 2015, the United Nations developed an agenda of 17 Sustainable Development Goals that outlined proactive initiatives to achieve them before the year 2030. The 12th goal is regarding sustainable production and consumption patterns. The report does not mention any county by name, rather regions are mentioned, of which South Asia is given much statistical prominence as the region most hit by non-
sustained development induced pollution in every form imaginable (The Sustainable Development Report, 2019). There is the underlying assumption that Pakistan could very well be justified having a part in these statistics as is apparent by recent news reports (Dawn, 2019) (Asia Times Staff, 2019) that puts the nation at heights of non-sustainable business trends with vast repercussions for the social and economic ecosystems.

In the Pakistan National Actional Plan Report of 2017 for Goal 12 (Sustainable Consumption and Production), there were only two mentions of ‘green supply chain’ to be considered for adoption in the industry sector, of which the sub goals stressed for companies and industries to induct sustainable reporting, (12.6) curbing their effect on the environment (12.7), and educating on sustained consumer behavior towards commodities and resources (12.8). (Pakistan National Action Plan on SDG 12, 2017). It is quite alarming that hardly any change is being observed on a significant scale owing to other socio-political detriments plaguing the nation and standing in way of progress to better goals.

A very prominent part of human production and consumption is the need for clothing, of which there are offshoots of textiles, garments, and luxury apparel. (The Sustainable Development Report, 2019) with the advent of man-made fiber and easily available faux materials, produced on a massive scale thanks to industrialization, fashion has gained a faster pace and value for the mass consumer. Textiles, apparel, clothing, and garments, have become slave to the dynamic and highly competitive fashion industry, and the innovative consumer is targeted by strategic marketing campaigns to shift to newer apparel designs in touch with current fashion standards. The fashion industry itself is a very elaborate value chain with consequences weighing more than the merits. (Yadlapalli, 2015)

Narrowed down to the scope of our research and with respect to the UN Sustainable Production and Consumption goals, in essence, we do find there is a certain degree of disregard for social and environmental responsibility demonstrated by the sourcing, manufacturing, and marketing procedures of prominent apparel businesses categorized to the textiles industry sector. Labor is abused, textile chemical waste released into the open sea, cloth dumped in landfills or discarded near habitable areas. And all in the name of capitalizing on fast fashion. Our consumer trends for apparel are so fast paced that the demand generated does not allow for sustained or responsible generation of supply in respect to the very ecosystem preservation we strive for. (PakistanToday, 2019)

The issue lies with the lack of absolute knowledge where apparel businesses stand with regards to sustainable development initiatives as contributing members to achieving SDG1. While it is true that some brand apparels are taking the green initiative to some degree in Pakistan (LAKDAWALA, 2019), there is still the fact that small and medium business enterprises sectors do not report on their sustainable practices or initiatives owing to their inability to comprehend what the concept of sustained practices are (Zeeshan Mahmood, 2017). It has been cited that when such social responsibilities are implemented for upholding pillars of sustainability in an apparel supply chain, the manufacturing chain links used devious and defensive methods to cover up their non-sustained practices (Chang, 2015).

In this regard, this study seeks to explore the current trends and developments in sustainability in textiles which would act as supplementary material for future students in business, textiles engineering.

2. Literature Review

2.1 Subsumes of Sustainability in Business

Sustainability is the philosophy to conserve usage of current resources so as not to compromise these resources for the use of the future generations (Redclift, 2006). It is a way of life, a belief to be inducted for the sake of responsibility in living. In terms of businesses, sustainability stresses on extensive foresight and accountability in the design and development of organizational goals that do not

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1 Sustainable Development Goals
compromise on environmental and societal integrity in greed for monetary gains. (KENTON., 2019) The business model in line with current sustained standards is bound to balance morals with money, which further translate into the triple bottom line model with the dimensions: people, planet, and profit. Developed by John Elkington, this concept allows companies to strive for sustainability goals through evaluation of their performance in the environment, society and their financial activities. Thought having no units of measurement, these dimensions, or pillars are quantized by currency impact or indexes, but often incidents like ecosystem damage and pollution as a result of business activities cannot be gauged for their severity and hence remain biased. (Hall., 2011).

Often sustained aim efforts have failed to allow profit capitalization owing to the fact that sustainable business models are largely situational and require specific alterations to shape a more economic, societal, and environmentally friendly approach in the long run (DAVID KIRON, 2013). This essentially means the environmental and societal contributions diminish a business’s longevity because such commitments mean compromises in profiteering. Moreover, the increasingly high consumption of products cites more lapses in sustainable business initiatives and policy adoption.

2.2 Sustainable Development and Responsibility
In recent years ‘Sustainable Development’ has emerged as a catchphrase to encompass profit and nonprofit activities that are structured to conserve and protect the integrity of the planet, especially in the light of global and environmental issues. The concept comes from a simple definition of fundamental objectives meeting current needs and sustainable requirements. (Lele, 1991). In this regard, science and technology are necessary components in promoting sustainable development. (cash, et al., 2003). Advocating a step toward sustained progress is a critical undertaking that would require extraordinary commitments from political pioneers, business people, and civil society actors working together over scales (Clark, 2016).

And speaking of development along conservative lines, the concept of CSR emerges as a further related term for a more strategic business approach to sustaining stakeholder interests (profits) in an ethical manner with minimal harm to the environment and initiatives to add more value to the society (Marina Prieto-Carrón, 2006). Sustainability and Corporate Social responsibility do go hand in hand with regards to their concern for areas that business activities might affect negatively, and they seek to neutralize and hamper these effects for business longevity, public relations, and philanthropy. However, corporate social responsibility is more dedicated to a business’s reputation, while sustainable practices extend towards a lifestyle as well.

2.3 GSC, GMS, and Resource Constraint Production
These terms are highly inter related by way of corporate and strategic environmentalism. Green supply chain management incorporates the triple bottom line (3BL) model to keep their business sustainable. The green market strategy is another emergent approach taken by organizations to induct organizational process that involves aspects of the 7 Ps of marketing, redesigned to develop products that incorporate the least damage to the 3BL model for sustainability. Largely the interests have been to minimize the impact of the human carbon footprint, conserve resources, recycle, educate the poor, and make supply ‘chains greener’. (Arun Sharma, 2012) (Hall., 2011) (Marina Prieto-Carrón, 2006)

Resource constraint production is essentially a capacity and production planning term where by demand fulfillment is dependent to the availability of inventoried raw supply (Puigjaner., 2018). Not strictly a sustainability concept since it is from a demand and supply perspective, but it does focus on the control of sourcing that affects production, which is an identifier to the main concept of sustained practice.

2.4 Detriments and Motivators
In concise words, for the apparel industry the biggest challenge to sustainability development is high

2 The 7Ps are factors considered in designing and delivering product or service in respect with demand and supply to maximize customers preference.
consumerism (fast fashion) and globalization of trade (Magnus Boström, 2016). This hints at the complexity of apparel supply chains since factors like government regulations, trade unions, policies, sourcing options, budget constraints, and resource allocation can hinder the rate at which sustainable development can occur in a nation’s domestic markets that can act detrimentally to such development.

Another detriment is the consumer’s perception of what it means to buy a sustainable apparel product, the study focused on the consumption behavior of customers who were made aware of their consumption tendencies and then evaluated for their renewed perception. The research concluded that making consumers aware of the environmental impacts of their purchase decisions made them feel responsible towards changing their consumption selections. (Nazan Okur, 2019)

2.5 Sustainable Fashion in the Apparels Industry
With respect to clothing, the recent trend has been fashion eco-awareness, ironically parallel to the growing demerits of fast fashion. Apparel businesses have been made to focus much on the ethical transparency of their operational functions, and to remodel their value chains to incorporate sustainability procedures beyond just the fabric esthetics. The true issue with sustainable apparels is their complex value chains, short product life cycle driven even shorter by the seasonal apparel range releases, which does not make the industry an easily sustainable one. Hence the conclusion is that the mix of apparel quality and sustainability is difficult to achieve simultaneously. (Yadlapalli, 2015)

The fashion industry is regarded the main trend setter because this industry encompasses designers, influencers, and brands, required to set the textiles and apparel industry in motion from the demand/supply aspects. Research suggests that sustainable efforts have been lacking in fashion apparel primarily because the trend setters and designers are either not aware or not willing to bring about change in their base materials, and the only efforts being made are mere marketing stunts in niche markets that are more of a luxury than economically beneficial (Hahn, 2014).

Apart from the fashion considerations, labor rights also form a part of sustainable apparels approach. The United Nations actually has a standard certification for ideal labor work environment (ISO 26000: Guide on Social Responsibility, 2018), but in south Asian countries the reality is labor exploitation by global apparel brands. (Hahn, 2014). In fact, substantial literature focuses on the social harms of apparel production that present a sustainability challenge. (Magnus Boström, 2016)

The aim for sustainable development is environmental integrity, business prosperity, and healthy social framework (Crofton, 2000). However, the apparel business is a significant supporter of environmental issues from clothing creation to textile landfills, with only profits in sight. (Gam, Cao, Farr, & Heine, 2009). Incorporating sustainability into the apparel supply chain is becoming a key priority for many textile and apparel companies. Sustainability issues in the textile and apparel industry have gotten incredible consideration but the efforts have yet to reach fruition. With geographically long and complex worldwide networks, just as the double weight for cost and lead time, implementing sustainability in textile and apparel supply chains is challenging. (Shen, Li, Dong, & Perry, 2017)

2.6 Sustainable Apparel Concept in Pakistan
Pakistan, despite being among the top 5 nations in raw cotton production and a robust textile industry, lacks in sustainable practices, even with governing policy outlining the need for sustained green approach to the apparel value chain. (Textile Policy (2014-19), 2015). Interestingly, a report on Pakistan’s position in the global apparel chain cites the progress deceptive because the information is only limited to a handful of apparel business with not much of a diversified portfolio in products (Stacey Frederick, 2019). The sustainability concept is present in Pakistani apparel businesses judging by the sufficient literature found that focused on textiles and clothing sustainable challenges along the CSR, GSC, and sustainability reporting perspective, but the conclusions encountered were regarding a lack of reporting on sustained practice or green supply chains, as well as misaligned CSR priorities, and dishonest reporting. (Usama
However, there are apparel brands attempting to propagate sustainability as a lifestyle through small consumer delight tactics. One brand offers custom dress designing from left over fabric parts, another is imbuing their paper bags with seeds, and one apparel business has been marketing their less water approach to preparing clothes. Unfortunately, these tactics are not documented in grounded research and have been available through media channels, which is another indicator of the infantile and premium stage of sustainable practices that does not offer economy as yet. (LAKDAWALA, 2019) (Saeed, 2019). There is evident research that outlines the socio-economic benefits by integrating CSR practice through environmental management systems in some manufacturing companies in Pakistan (M. Ikram, 2019), and another research outlines positives of green supply chain integration in textiles and clothing in terms of trade and environmental performances (Muhammad Naveed Ikram, 2019), these researches are largely quantitative but show promise.

In stark contrast, Sri Lanka and Bangladesh are progressing by bounds in sustained green practices in their apparel industries owing to the base focus on responsible fashion, employee empowerment, and job motivation factors, waste management in fabrics, as well as proactive approaches to business expansion as their industries enter the global export platform. (S. Gunapalan, 2019) (Asif, 2017).

3. Materials and Methods

3.1 Instruments
An unstructured questionnaire comprising of 16 articles was developed using the 2016 Global Reporting Indicators issued by the Global Sustainability Standards Board. These standards are available as universal best practices guide sets that prepare an organization to report their sustainable activities across the 3PL model (profit, people, planet). The researchers had deemed philanthropy and economical activities exempt from their scope unless uncovered in the contextual analysis, hence the topic-specific Environmental guide (GRI 300) and Social (GRI 400) was used along with General Disclosures (GRI 102) and Management Approach (GRI 103) to develop an unstructured questionnaire. These questions will also be acting as guide themes in the contextual analysis. (Global Sustainability Standards Board, 2019).

3.2 Sampling
Convenience sampling was used for selection of companies that dealt with both textile and apparel manufacture, dealt with local market trade and exports, and were willing to allow the student researchers on premises for conducting voice recorded interviews. Six companies responded on the ethical condition that they not be named directly. From these companies, a total of 11 respondents came forth from judgmentally sampled designations of operations, procurement, product development and CSR, to give their perspective on sustainability, its development in their company, their contribution to the integrity of the social and economic environment, and future endeavors to actualize the Sustainability Goals. In this duration, the researchers realized the personnel most aware on sustainable practices are product developers.

3.3 Tools
The audio recorded interviews lasted from 30 minutes to over an hour. They were translated from Urdu to English by the researchers and transcribed for thematic contextual analysis which assists in developing patterns and themes across qualitative data. Respondents were given the listed questions and were free to respond in what manner they wished. The Braun and Clark Six Phase Thematic Analysis Technique was used (Braun, 2006). This type of analysis requires the researcher to be intimately involved with the raw data and not to be subject to perceived bias, hence the addition of an external auditor to remove this bias (Creswell, 2014), which was maintained by supervision. The researchers felt confident in using this method because of their grasp on the linguistic intricacies in translation and interpretation.

3 Questionnaire is attached at Appendix C.
Another tool used was the Greening Goliaths vs Emerging Davids Positioning Matrix, adopted from a prior research, that used brand value against sustainable content mentions in their corporate reporting as plot coordinates (Yadlapalli, 2015). Since some of companies sampled in the current study did not have corporate reporting available to outsiders while others had no such reporting, hence, based on the responses to the questionnaire developed from the GRI standards, the researchers assigned relative scores as Sustainability Assessment Score to each company. This score was plotted against sampled companies ages to categorize them into either Ecopreneurs, Davids, Goliaths, and Sustainable Entrepreneurs on the position matrix. The purpose was an attempt to visualize with limited data, where these companies stand in terms of the sustainable developments towards their product development, waste disposal, management, sourcing, product information, effects on local communities, social responsibilities, and environmental concerns, with the passage of time.

4. Results
4.1 Thematic Content Analysis
Given below is the development of an extensive thematic map centering on assessed sustainable development in the textiles industry in Pakistan, exclusively derived from the content analysis.

4.1.1 Derived Themes

Figure 1. Thematic map laid out as a divergence tree from condensed topics to specifics.

1. Technology
It was apparent from the analysis that respondents believed that organic cotton requires much more care than conventional petroleum-based fibers, and is globally a niche product, hence the costs are higher. They also stressed that only economies of scale can balance the high technological costs of sustainable fabric with market penetration, and that is the view often reflected in organic agriculture (Scialabba, 2013). Company C had established post-consumer waste treatment of denim products, a fact that was mentioned by respondent of other companies. Interest in recycling philosophy like ‘Cradle to Cradle’ (Cradle to Cradle Products Innovation Institute, 2019), sourcing from organic dye solutions like bluesign solutions and Archroma, and ‘better cotton initiative’ for superior crop quality, along with a shift to

4 Sustainability Matrix given at Appendix A, Figure 4.
5 Assessment Score is given in Appendix B, Table 2.
investing in solar energy were explicitly stated. Having technical know-how of air jet looms, effluent treatment plants, and ‘zero water’ denim dyeing was revered, while cotton sourcing criteria, textile waste disposal, and labor safety on the factory floor were deflected with generic responses of functional harmful gas emission control systems and labor welfare programs.

On a conclusive note, it was observed that across the sampled companies, technology and business process engineering was only a successful precursor to sustainable efforts if the human capital involved was as efficient in operating the said technologies and the required equipment.

2. Awareness
Respondents across a wide designation range were aware of the meaning of the sustainability itself, but few could vocalize the concept of conserved usage of resources in the present to allow for prolonged usage for future generations to come. Respondents from Company D understood sustainability as in its financial concept, to help maintain the business as long as possible into maturity while acquiring sufficient market share.

Respondents from Companies C, E, and F were adamant that sustainability is not just a best practice to be adopted into a business, it requires a complete change in the mindset of the inhabitants of Pakistan, and stressed on the need for basic education in responsible consumption and waste management. The opinion was unanimous that fashion is a fast industry and will always need more consumption to meet the demands of the consumers.

3. Compliances
Having adequate knowledge of the certifications in textiles and apparels manufacture was a matter of pride for the respondents. The credit for achieving certifications like OekoTex and STeP was attributed to the demand from developed nations since global competition was believed to be the real motivator in staying up to date on quality and service standards.

Regarding further discussion on the nature of these compliances, it was established that certifications are designed to reengineer business practices beyond the silo mentality of profiteering and financial stability. This included elevation of employee actualization that sustainability is not just a word but rather a practice that takes on a holistic approach towards every stage in the textiles weaving and apparels manufacture. Investors conducted audits on these companies, especially on the quality of life of the labor and their welfare, right down to their sanitation. Moreover, foreign customers got a sense of involvement and responsibility from their audits and this helped attain further certifications since it allowed exposure to customer requirements and technological acquisitions in an expanding market.

4. Market Perception
According to the analysis, the general attitude maintained in the textile market in Pakistan is to source cheap material to meet consumer demand of affordable textile and apparels products. Fast fashion demands make sustainable production of textiles and apparels even more difficult as Pakistan is a low-income per capita country. Additionally, recyclable, recycled, and upcycled textiles, fabrics, or apparels products are not usually affordable by low-income families, making the market for sustainable apparels quite non-lucrative for textile companies striving for international quality product. One respondent of Company C stated, “the local brands don’t want to work with us to be honest. Like if there is a big brand in Pakistan that is willing to work with us then its Oxford, if they want to, because our prices are slightly higher.”.

Another respondent Company D said that regarding local markets, the issue is affordability of quality sustainable product. The domestic consumers demand more variations in apparels but compromise on quality because of short term use. Quality products are subject to dollar fluctuations in the exports market with makes them lucrative unlike the Pakistani market where the consumer is perceived to think that buying long lasting organic cotton products is expensive and will be out of fashion soon, here the
respondent concluded with, “what they (consumers) compare is the affordability not quality…..In short people don’t seek quality”.

It was recurrent in the contextual analysis that local market perception of sustainable apparels is in direct contrast to the fast fashion market trends, the youth are not educated enough to comprehend responsible consumption, nor is the human capital of Pakistan sufficient to generate an economy where a market for sustainable apparels could thrive and boost responsible consumption. The general notion however existed in these companies that the denim industry is the most viable for setting an example in sustainability in manufacturing, and that businesses are making sustainable denim production a marketing tactic because denim has matured as a product globally and this is the only direction left for them.

5. Philanthropy
Corporate social responsibility was a much-emphasized factor when justifying sustainable development. Labor satisfaction and enhancing of quality of life was regarded crucial to the textiles business, yet on the ground it was observed that only one company made efforts to not only publish a CSR report for foreign stake holders, but they also actively educated their labor in basic arithmetic, English, and Urdu (Company F). Out of the entire sample, Company E and F exhibited a practical concern for merging sustainable practices into philanthropy that leads to consumer education. Both companies expressed the importance of the human labor that needs to transcend humanitarian levels and think for others rather than selves.

4.2 Sustainability Positioning Matrix

Figure 2. Textile companies sampled categorized as per their sustainable scores and attributes6 on the matrix.

Company A & B are an apparel manufacture business that are related but only distinguished by the luxurious offering in Company B. Their main focus is on market penetration in global markets and financial stability. Their competitor is Company D that was established primarily as an apparel manufacture business for men’s clothing which gradually expanded to accommodate women’s fashion. They deal with stitching, printing, and designing from outsourced fabric that is incumbent of fast fashion materials. They deal with a ‘fusion’ of eastern and western wear to secure market share globally. Their stated aim was also to maintain a financial sustainability first and philanthropy was not mentioned. Their only complimentary act on the merchandising end was the offering of fabric biodegradable bags. The same marketing tactic was followed by Company E which is regarded as Pakistan’s largest dyed yarn producer. The stated using biodegradable plastic and paper bags to customers on purchases. They also

6 Attributes given in Appendix B, Table A.
expressed concern towards educating locals on sustainable practices as a lifestyle as well as collaborating with textile institutes to produce more sustained production methods that complement the UN Sustainable Development Goals. Their initiatives as a sustainability startup also includes MOUs with textile educational institutions, however contrary to their claim of being a LEEDs Certified unit, there was no proof found by the researchers during the background check. (Certification Standards Approved, 2019) (Green Building Information Gateway, 2019)

The most significant cases in terms of sustainable development were Companies C & F. Company C began as a denim apparels manufacturer that backward integrated into yarn, spinning, processing, and product innovation of denim. They have a global presence with sustainably designed manufacturing unit in Bangladesh, and a second Platinum LEEDS certified facility deployment off the N5 Highway in Karachi, and extensive supplier market share across European, North American, and Latin American fashion apparel brands. They also have established a fully functioning recycling facility that deals with Post-Consumer Waste (PCW) to regenerate fibers. Similarly, Company F boasted extensive developments to their supply chains with in-house designed inventory stocks systems, lean management, just in time layouts, minimal fabric waste, and proactive approach to sustained business strategies. This company dealt purely in exports of apparel, garments, bed linens, uniforms, and workwear. They focused on improving the quality of life of the labor as a prerequisite to higher production efficiency. Point to be noted is that Company F was a result of a diversified business strategy into fabrics production.

Conclusively, the matrix shows the companies C & F as sustainable startups because of their integration of sustainable practices in management, production, and apparels. Company E is also a relatively young sustainability startup that is adapting to their new environmental management systems. Companies A, B, & D are focused more on the apparels designing, stitching, and merchandising end which means they have yet to acquire sufficient market share and adopt significant sustainability practice.

5. Discussion Recommendation
Based on the findings of the thematic analysis and the sustainability matrix, the following chart was developed to organize detrimental factors that can be transformed to enable Green Marketing as a suitable path to instilling sustainability in Pakistani textiles.

5.1 Detriments
These factors are derived as hinderances as discussed by the 11 respondents when they all explained the lack of profitability in the organic apparels business, high quality fabrics, and sustainable fabrics, in the domestic market. After consistent data familiarization and review in the findings stage the following
factors arose that were a direct influence on the state of sustainability in the apparels industry in Pakistan.

5.1.1 Consumer Behavior
As was uncovered in the theme of awareness, it was revealed that the textiles business is a pull-based industry with many competitors in the exports business. Foreign buyers initiated purchases from textiles and apparels companies in Pakistan on basis of their own end consumers being a target segment that understood the implications of conservation, sustainability, and resource constraints in their global production and consumption of commodities. These foreign consumers knew exactly what kind of textile material they wanted. Furthermore, these consumers have set up examples in post-consumer waste recycling. Since Pakistan has been mentioned in the analysis as a major organic cotton grower, it means opportunities for foreign buyers who would like to invest in a better product. Hence textiles units in Pakistan have been upgrading their infrastructure on par with international standards to compete in the export market.

In stark contrast, there are the consumers in Pakistan’s domestic market which focus more on affordability rather than the impact of non-sustained petroleum imbued man-made fibers. There are numerous sales occurring all year round from clothing outlets whose products may cost cheap but hardly last because the consumer is influence by the domestic culture of fast fashion seasonal sales. Since these apparels are cheap to make without economies of scale, it directly means that these fabrics are made of low grade non-organic cotton mix that will not biodegrade into the environment without harming it. This is perhaps a major detriment to the transformation of the apparels industry to a sustainable one.

5.1.2 Economy
Since a lot of Pakistani textiles companies are exports based and source to foreign apparels and textiles brands, it means that the more premium product is exported to these high-income nations. Across the sample it was revealed that such buyers also belonged to the high capita economies in Europe, North, Central, and Latin America. These developed countries were in a more aware state of mind with regards to responsible use of resources in the face of non-renewable resource depletion.

In stark contrast, low capita economies such as Pakistan, find it difficult to afford quality apparels, hence this contributes to the dominant cheap demand for clothing and textiles. With the local currency devalued 7, the exchange rate only profits the exports industry in gross national product. The local economy is weak enough to attract foreign interest owing to Pakistan’s organic cotton, and this way many textile and apparels companies have expanded their operations and achieved international recognition for their quality product, while the domestic buyers either prefer to source cheaper cloth from China and remain a majority of contributors to textile and apparels pollution. The issue remains the same, locals are not wealthy enough to afford organic sustainable apparels.

5.1.3 Fast Fashion Trends
Fast fashion is a major demerit to the efforts and ideology of sustainable production and consumption. In the thematic analysis, it was discovered that the sampled companies had dealings with Zara Basic, which is Inditex’s fastest fashion supply chain in the world, but another surprising fact was that this fast fashion was also rendered sustainable, because not only Zara, but Sainsbury, Walmart, Lefties, Izot, and H&M, were sourcing custom pro-organic apparels and textiles from three of the companies sampled. These fast fashion items were designed obviously to mimic top designs in the global fashion industry, but they were designed also to biodegrade with minimal effect to the environment.

In the domestic market, fast fashion is a problem because the base materials for the apparels demanded by consumers are cheaply derived and do not biodegrade for a long while. So, the local consumers may be purchasing from sales upon sales of short life cycle materials but eventually these textiles will end up in a landfill and would not decompose for a long time, further adding to the polluted state of Pakistan.

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7 One Dollar = 154.95 Pakistani Rupee (as of 31st December 2019)
5.1.4 Profitability
Perhaps the most mentioned issue in the content study was the lack of profit in the domestic market with regards to environmentally friendly and sustainable sourced product. Since sustainable apparels involve a lot of considerations in their sourcing, processing, manufacturing, and reverse supply chain which are structured on international standards, hence the costs added are high. Naturally one would assume that sustainable apparel products ought to be cheaper in quality because no fertilizers or pesticides or harmful dyes have been used, nor has there been any cross contamination in the fabric weave mix, but the truth that emerged was by far different. It was argued that since none of the sustainable processes involved misuse of labor hence that may add to the charm of the finished product. The reality is that in keeping with international organic and sustainable standards, organic apparels are not developed on economies of scale as yet to cater to a global audience. Global consumers are becoming aware of the sustainability movement and initiatives have been developed in far developed countries to ingrain conservation in their product and services offering.

In this domestic market, the economy is already weak and the consumers are not responsibly aware of the consequences of their low-quality affordable fast fashion demands. The usual marketing tactic is cost reduction and product differentiation to penetrate the markets but since organic apparels are emerging as a premium product, one argues that it is more profitable to enter the domestically produced sustainable product into the export market for higher revenues since there is more demand for organics in the international markets than the domestic markets.

5.2 Positive Transformers
These are the factors that emerged in the analysis to act as positive mediums to shift the domestic market perception from cheap fast fashion, to the more sustainable and premium end. As consumers, our exposure begins with schooling and media, and these are the best mediums with which to influence future consumers towards ingraining sustainability into their lifestyles. This will open up an entire new pull-demand market for not just apparels but for other organic products as well. Rather than change clothes for every season and massively contribute to the environmentally harmful deposit of rotting plastics derived fabrics, opt for fabrics that will last as long but will not harm the user’s skin or the environment. Additionally, it would add to the consumer’s self-perception of having positively contributed to the environment.

5.2.1 Marketing
In the duration of the study, it became apparent that intensive marketing tactics have to be employed in the fashion, clothing, apparels and textiles industry in Pakistan. Consumer behavior should be reengineered on a massive scale to make sustainable products more attractive to consumers regardless the cost. As covered in the literature, there are small scale enterprises that use consumer delight tactics such as fabric envelopes, seed infused bags, upcycled apparels, and biodegradable bags. These are not sufficient for bringing about a change in the market perception of sustainable apparels. These activities are just complimentary premium acts of an ecopreneur scale. What is required is informative marketing to raise awareness among the general public to shift towards fabrics that have been certified organic mix apparels. This would develop a domestic market for sustainable apparels and perhaps transform the consumer perception.

5.2.2 Education
This theme emerged as a subsume of awareness in the main thematic analysis, but its implications are beneficial if used in the textiles engineering and fashion design industry. The reason this theme has been repeated again is because there was an interesting discussion put forward by two respondents of Company E that was their company’s initiative towards involving students to come up with innovative research projects to develop sustainable textiles at higher production and low costs to better cater to the domestic market. Additionally, they also seek to transform the mentality of the domestic consumers to revert to sustainable lifestyle practices by inclusion of coursework with the UN Sustainability Initiatives in mind.
The respondent themselves was the person that took up the initiative to sign up MOUs with textiles designing institutes and they invite students to use their facilities to engineer textiles and machinery. This respondent believed that since awareness was not the sole solution to creating a market for sustainable apparels, hence efforts must be made to educate the younger literate generation. Another respondent of Company C was also of the belief that globally sustainability will become a fashion itself with stake holders willing to invest heavily for stable returns in the future. However, the fate of the Pakistani apparels market will only improve if the acceptance towards organic apparels begins in the education of the public itself.

5.3 Green Marketing Promoters
These are the obscure themes that were mentioned in minority across the sample but have been considered for their implicit green marketing strategy markers. These are the themes that provide legitimacy to developing a response for the second research question. The context in which the researchers are attempting to use the GMS is to develop proactive solutions for a market transformation towards sustainable apparels in the domestic market.

5.3.1 Business Self Concept
This theme emerged from the discussions that corporations and enterprises use their self-concepts on sustainable offerings, green product, organizational efficiency, and international certifications to boost their market presence. This was argued by the sampled companies that had exports-based business at an 80-29 ratio, where the 20 marked their dealings in the domestic market, which was yet argued to be an imperfect valuation.

But potential lies in these export-based companies to start sourcing their products to local apparel outlets and then build an immersive customer management system. The sampled companies have established their reputations globally, and a few of them are considering expanding into the domestic market, one company has launched a series of studios and is making progress with creating affiliations based on their self-concept of quality with environmentally friendly apparels.

5.3.2 Product Positioning
This factor emerged multiple times as the problem of too many sales seasons each year which set competitors in a never-ending cycle of the sales trend. Anything in a sale is positioned to capture the masses in a tactic to lighten the inventory, as a respondent of Company F observed on the objective of lean supply chains. Organic products are already perceived as high end, couture brands with further value addition brought on by petroleum-based fabric additives to add the shimmer and texture, where as it was discovered during the analysis that one company offering premium couture apparel was actually environmentally compliant but non-sustainable apparel with plastic or cheap metal embellishments. Hence there is a possibility that apparel products may not be necessarily organic even if the company manufacturing them claims to be environmentally compliant.

Therefore, in light of this information, apparels products should be positioned to reflect the sustainable efforts that were put into manufacturing them and how they affect the environment. This same company uses their business ethos of charity and humanitarianism to boost their sales which is deceptive yet again because their product is not sustainably positioned. Comparatively, Companies C, E and F were completely transparent about their product positioning and how it impacts their consumer’s world.

5.3.3 Product Innovation
This green marketing promoter was apparent in some discussion, one respondent claimed they were trying for innovating fabrics that had sufficient organic content but with less carbon footprint on the local environment. In the analysis there were various forms of fabrics that played a certain role in the final finished apparel item. This tactic was discussed to be evident in foreign nations as the buyers often specified the composition of the fabric or stitched apparel they required. However, with regards to the domestic market it was discussed that often fabric and apparels were just imported from China without
even asking much questions as to the traceability of the product. Product innovation in Pakistan in terms of apparels is much promoted by the fashion industry, but fabric innovation needs more focus to be made of a mix of materials that are cheap, breathable, quality, and biodegradable with minimal carbon impact.

5.3.4 Consumer Involvement

Perhaps the most important emergent theme to occur in the sample, a respondent of Company E, reflected upon a patency launched in Spain by the company of SEAQUAL, in which they have initiated a movement to reclaim plastics from the seas. (SEAQUAL, 2019). These plastics are then used in recycling to make polyester apparels that can be recyclable again. It seeks to bring together people in large communities at coast line countries to contribute to cleaning up the oceans from plastics pollution.

Similarly, this was the consumer involvement tactic adopted by fast fashion outlets like H&M and Zara, where consumers would return their used apparels and receive a discount for next purchase. These post-consumer apparels are being shredded down at a fully functional facility at Company C into regenerated fibers that are again woven into textiles and stitched into garments. These tactics are green examples set abroad that have potential for implementation in Pakistan as well. If the consumer is made to feel like they are more than just a revenue source, and more of a sustainability advocate, then this may add further to the consumer satisfaction and retention.

Table 1. Recommended Green Marketing Promoters using the 7P framework.

<table>
<thead>
<tr>
<th>GMS Concepts</th>
<th>Tactic Deployed</th>
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<tbody>
<tr>
<td>Product Concept</td>
<td>1. Initiate Cradle-2-Cradle into not only textiles but in the apparels as well.</td>
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<td></td>
<td>2. Develop environmentally friendly design into apparel composition.</td>
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<td></td>
<td>3. Involve fashion designers in sustainable product development to innovate designs into organic materials.</td>
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<tr>
<td>Price Setting</td>
<td>1. Provide the apparel product at competitive prices.</td>
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<td></td>
<td>2. Adjust costs of production and economies of scale for future reduced prices to avail lower classes to add to the market share.</td>
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<tr>
<td>Positioning</td>
<td>1. Develop a hybrid of lean operations and sustainable supply chains to substantiate the claim of a green product.</td>
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<td></td>
<td>2. Textile companies should forward integrate and acquire apparels business aimed at sustainable apparels and textiles.</td>
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<tr>
<td>Promotional Marketing</td>
<td>1. Advertise informational advertisements focusing the negative impacts of using low organic content apparels.</td>
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<td></td>
<td>2. Develop a separation of CSR from Environmental activities to clarify the concept for public.</td>
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<td></td>
<td>3. Use product information labeling on every apparel item and textile.</td>
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<td>4. Retailers shall have an audit history for providing traceable product</td>
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<td></td>
<td>5. Initiating awareness drives at consumer touch points (retail apparels stores), handing out pamphlets in collaboration with the Sustainability Goals set by the United Nations.</td>
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<tr>
<td>Process Design</td>
<td>1. Textiles business should generate push demand dealings with local apparel businesses to start using their sustainable product.</td>
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<td></td>
<td>2. Reengineer business processes to eliminate the silo mentality and sub-optimization of departmental functions.</td>
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<td></td>
<td>3. Developing well ventilated and automated assisting machinery for stitching units.</td>
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<td></td>
<td>4. Establishing minimal waste in apparel manufacture, adopt best practices from foreign apparel manufacturers.</td>
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<tr>
<td>People Involvement</td>
<td>1. Promote modes of apparel disposal and set up collection centers for apparels to be recycled. Beginning with denim recollection would be a start because textile industry in Pakistan has the capacity for denim recycling.</td>
</tr>
</tbody>
</table>
|                    | 2. Initiate plastic recycling. Consumers availed collection spots for plastic disposables outside dedicated apparels outlets. Textile mills in Pakistan also have
the capability for generating fibers from plastics.

3. Provide retailers incentives to market products and benefits of the green products. Gradual removal of cheap and non-traceable apparel items from the retail stores.

4. Initiate merging of textile businesses and textiles institutes to enhance human capital and public awareness on their purchase of commodities.

5. Developing an industry for domestic fashion designers and boutique owners that upcycle old garments. This will also generate opportunities for rural regions on a mass scale rather than the premium products they are perceived as.

6. Initiate mandatory cross-functional training of textiles and apparel business employees on adopting to sustainable change.

**Physical Evidence of Sustainability Initiatives**

1. Develop more LEEDs certified infrastructures for the milling and weaving facilities in backward integration.

2. Textile facilities should not be hidden behind a non-aesthetic industrial façade but rather be a pride.

3. Visible practices of water recycling, waste reuse, disposal and monitored incinerators, layout, landscaping, atmosphere, labor protective clothing, treatment plants, environmental management systems in the facilities.

4. Developing alternative energy generation instead of coal powered electricity generation.

**6. Conclusion**

Textile industry in Pakistan has been marred by hinderances in revenue generation from sustainable product, and market saturation of non-sustainable textiles. It was prevalent in the study that foreign textiles manufacturers moved towards sustainable green practices owing to consumer pressure to sustaining and protecting the environment. However, in Pakistan, it was the foreign consumer’s pressure to adhere to green practices that began transforming the textiles industry to better standards and minimization of the human carbon footprint, but has generated little awareness or initiative in the Pakistani consumer to demand sustainable green product. Additionally, the costs incurred in sustainable textiles industry reflects in the high product pricing, further discouraging the local consumer that demands variety and affordability. As a result, the domestic markets deal with cheaper textiles sourced from India, China, and some premium products from Bangladesh, while the organic cotton apparels industry in Pakistan remains affordable to the upper class owing to this consumer segment’s preference of high quality at higher cost. General preference of the Pakistani public is more focused towards unsustainable fast fashion because it impacts their income to a lesser extent, while satisfying their desire to keep up with the local fashion trends. In the sample selected of 6 companies, 3 had backward integrated their operations towards sustainable textiles production, while two were well on their way to backward integrate as well. So, contextually, it was understood that these companies began indigenously, and built their credentials to broadcast their competitive position globally, and then transcended borders to market sustainable premium product to high income countries for their financial sustainability. The motivator for quality sustainable textile export was the beneficial foreign exchange rate and foreign consumer awareness, while for domestic markets lack of consumer awareness acted detrimental to a shift to sustainable textile product market.

However, the Pakistani economy remains the biggest detriment to sustainable apparels while a motivator of affordable fast fashion’s versatility. Hope for acceptance of sustainable production and consumption in textiles lies in enlightening the younger educated generation towards greener approaches to tackling the sustainability problem.

While this study concludes that there has been a lot of development in the textiles industry, it has benefited Pakistan only in terms of exports revenue, and the foreign apparels supply chains have mostly benefited from the offerings from Pakistani textiles. There is much potential if authorities like the Ministry of Textiles adopt the green marketing strategy as a statutory tool to make local apparel companies comply with sourcing of sustainable textile product, this would initiate a chain reaction from top to bottom and affect consumers at every stage of the apparel value chain to conform to a standard in
responsible production and consumption of such textiles. The strategy would best develop as a resource constrained production of apparels with pull demand for more organic clothing that, in the long term will mature as positive influence on the textile and apparel situation of the country.

**Author Contributions:** Conceptualization, Hina Maryam & Farhat Umar; Methodology, Hina Maryam & Muniza Ifran; validation, Farhat Umar; formal analysis, Hina Maryam.; investigation, Hina Maryam; resources, Muniza Ifran.; data curation, Hina Maryam; writing—original draft preparation, Hina Maryam & Muniza Ifran; writing—review and editing, Muniza Ifran; visualization, Hina Maryam.; Methodology supervision, Farhat Umar.; project administration, Farhat Umar. All authors have read and agreed to the published version of the manuscript.

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**Conflicts of Interest:** The authors declare no conflict of interest. All ethical considerations have been observed as per the respondents’ request.

**References**


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Industrial Marketing Management, 557-562.
Appendix A

Figure 4. Sustainability Positioning Matrix (Yadlapalli, 2015).

Appendix B

Table 1. Attributes for sustainable matrix.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Ecopreneurs</th>
<th>Davids</th>
<th>Goliaths</th>
<th>Sustainable Entrepreneurship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quadrant</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td>Relatively new</td>
<td>Relatively New</td>
<td>Older, Reigning</td>
<td>Older, Reigning</td>
</tr>
<tr>
<td>Size</td>
<td>Small level</td>
<td>Financial stability is dominating function, social and environmental are complimentary functions.</td>
<td>Larger Level</td>
<td>Larger Level</td>
</tr>
<tr>
<td>Objective</td>
<td>Financial stability is dominating function, social and environmental are complimentary functions.</td>
<td>Objectives support 3PL (people, planet, profit) as equally important to economic objectives.</td>
<td>Financial stability is dominating function, social and environmental are complimentary functions.</td>
<td>Objectives support 3PL (people, planet, profit) as equally important to economic objectives.</td>
</tr>
</tbody>
</table>

Table 2: Information regarding sampled companies, their ages and relative sustainable scores.

  Depending on the polarity of the responses to the questionnaires in the contextual analysis, a ‘yes’ or ‘no’ were assigned to responses and their summation averaged by the total of 16 questions and displayed as score out of 100.

<table>
<thead>
<tr>
<th>Company/Organization</th>
<th>Sustainability reporting</th>
<th>Established</th>
<th>Headquarter</th>
<th>Age</th>
<th>Relative Sustainable Score (out of 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company A</td>
<td>No</td>
<td>2002</td>
<td>Korangi, Karachi</td>
<td>17</td>
<td>31</td>
</tr>
<tr>
<td>Company B</td>
<td>No</td>
<td>2002</td>
<td>Korangi, Karachi</td>
<td>17</td>
<td>19</td>
</tr>
</tbody>
</table>


Appendix C:

Table 3: Questionnaire

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Question</th>
<th>Category</th>
<th>GRI Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What is your understanding of sustainable development, fast fashion, and sustainable apparels?</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Does your organization practice transparent reporting with respect to business activities?</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Kindly introduce the organization with respect to markets served, products offered, your occupation and layout of the business supply chain?</td>
<td>General Disclosure</td>
<td>102</td>
</tr>
<tr>
<td>4</td>
<td>What quality certifications has the organization been certified with?</td>
<td>General Disclosure</td>
<td>102</td>
</tr>
<tr>
<td>5</td>
<td>Has there been a progress in adoption of new management practices in the organization? Elaborate.</td>
<td>Management Approach</td>
<td>103</td>
</tr>
<tr>
<td>6</td>
<td>What criteria is set for sourcing of fabric from suppliers for apparel manufacture in this company? Elaborate.</td>
<td>Procurement Practices Supplier Environmental/Social Assessment</td>
<td>204/308/414</td>
</tr>
<tr>
<td>7</td>
<td>What are the materials used in apparel manufacture of this company? (fresh, recycled or reclaimed)</td>
<td>Materials</td>
<td>301</td>
</tr>
<tr>
<td>8</td>
<td>What apparel manufacture methods your organization uses to reduce energy consumption?</td>
<td>Energy</td>
<td>302</td>
</tr>
<tr>
<td>9</td>
<td>From where is water sourced for what usage in the textile/apparel manufacture process? How is the waste dealt with?</td>
<td>Water and Effluents Effluents and Waste</td>
<td>303/306</td>
</tr>
<tr>
<td>10</td>
<td>Does the manufacture process generate harmful chemical emissions that the organization monitors?</td>
<td>Emissions</td>
<td>305</td>
</tr>
<tr>
<td>12</td>
<td>What is the organization’s attitude towards environmentalism and customer involvement?</td>
<td>Environmental Compliance Local Communities</td>
<td>307/413</td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>13</td>
<td>Do you promote information regarding your apparel products to consumers?</td>
<td>Marketing and Labeling</td>
<td>417</td>
</tr>
<tr>
<td></td>
<td>a) Recycling</td>
<td>Customer Health &amp; Safety</td>
<td>416</td>
</tr>
<tr>
<td></td>
<td>b) Upcycling</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Disposal and Impact</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Does your organization finance training workshops on sustainability development in business management?</td>
<td>Training &amp; Education</td>
<td>404</td>
</tr>
<tr>
<td>15</td>
<td>How do you deal with impacts of your business activities on the local residents?</td>
<td>Local Communities</td>
<td>413</td>
</tr>
<tr>
<td>16</td>
<td>Does the organization have future plans for developing more focus on sustainability of apparel products through experimenting with consumer behavior?</td>
<td>Management Approach</td>
<td>103</td>
</tr>
</tbody>
</table>
Mediating Role of Training in Enhancing Awareness of SDGs, Economic, Environmental and Social Performance

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ABSTRACT
This paper aims to identify how awareness of SDGs affects sustainable performance and how training can assist to enhance the economic, environmental, and social performance of employees. The research study is conducted in a public sector institute with a population of 331 employees. Among 269 respondents participated in the survey. The data is analyzed using SPSS and Smart PLS. The result showed a significant relationship among the variables. The awareness of SDGs proved to be positively related to the social, economic, and environmental performance of the employees. Moreover, training also positively mediates the relationship between SDGs awareness and sustainable performance. The paper promotes public institutions to contribute their utmost efforts in achieving SDGs and create learning development experiences that assist employees to preserve cutting-edge knowledge and perform at their best.

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1. Introduction
The concept of Sustainable Development Goals (SDGs) has gained increasing support and almost 193 member states of the United Nations have adopted SDGs as the organizing framework for global cooperation of development for the period 2015 to 2030 (Cf, 2015). Countries are concern that the world economy is not on a satisfactory path and it needs greater effort to make the future more meaningful and productive not only in terms of economic boost but also in terms of technology, environment, and social factors. Globally, countries are facing environmental threats such as global warming, loss of biodiversity, deforestation, and severe climate changes (Huan et al., 2019). Similarly, widening inequalities between the rich and poor and social exclusion are noticeable. These matters are worrisome but can be tackle. SDGs are one of the steps towards shared prosperity, wellbeing, and development. Where the present and future generations can enjoy all the privileges of life without compromising (Chams & García-Blandón, 2019). In short, it is a concept of improving the well-being of today's generation and also for the
generations to come. SDGs are visualized as a path for the world in which prosperity is shared, societies are inclusive, and the environment is protected and safe, and where technologies and infrastructure is not impinging the physical earth processes but with its efficient and effective use it helps reset the direction of the world economy. Like many of the SDGs are ending deprivation, ensuring universal access to health and quality education. Almost all the goals are of profound significance that’s why it is called “Transforming the world: the 2030 Agenda for sustainable development” and it has the following statement of purpose “This agenda is a plan of action for people, planet and prosperity” i.e. people, planet, and prosperity (Oosterhof, 2018). Simply, it is the social inclusion of the planet along with environmental sustainability and prosperity that is a shared economic benefit across the globe. Agenda 2030 also seeks to strengthen the universal peace in larger freedom. It is clear that the agenda calls for change and demands deep and radical changes all over the world. It focuses on 17 specific goals, 169 targets, and 230 indicators (Barbier & Burgess, 2019). SDGs are quite complex and complicated agenda but it's quite necessary because of their profound importance for human wellbeing. These goals will possibly be not achieved until and unless work by all. Therefore, the study aims to examine the effects of awareness on the economic, social, and environmental performance of government officers. The paper throws lights on the level of awareness of government officers and his/her role in achieving SDGs. Moreover, the study examines to what extent training enhances sustainable performance.

1.1 Background of Sustainable Development Goals
The history of SDGs started approximately 45 years back, with a pivotal United Nation conference “Conference on the Human Environment”, took place in Stockholm in 1972 (UN, 2015). This was the first conference in which UN members recognize that the economy and environment are on the collision as human activities in nature are leading to environmental risks and identical scale of the economy leading to a possibility of constant geometric growth. Later, in its emergence, the most prominent step was the Brundlandt meeting in 1983 and in the continuation, a Brundlandt commission was formulated in 1987. In commencement to this, the idea of sustainable development emerged itself. It was a tremendous breakthrough in the history of sustainable development. The commission defined sustainable development as “the development that meets the needs of the current generation without compromising the ability of the future generations to meet their own needs”(Sachs, 2015). This was based on the idea of intergenerational justice and sustainability. Simply, it expresses that the current generation has a responsibility to the future and it is to manage the lives and economy in a way that doesn’t block or hinder the future generation in meeting their respective needs.

Five years later, in 1992, on the anniversary of the Stockholm Conference, the concept of Sustainable Development SD was embraced and is specifically known as Rio Earth Summit as took place in Rio de Janerio, and technically it is named the UN Conference on Environment and Development (Palmer, 2015). It was declared that SD is a shared global concept and it adopts the three major multilateral environmental agreements i.e. the UN framework convention on Climate change, the Convention on Biological Diversity for biological conversation, and the UN convention to combat desertification. In 2002, UN World Summit was organized on sustainable development in Johannesburg. Later, in 2012, once again in Rio Conference UN members came together to discuss SD and logically claimed it as the Rio + 20 Conference. It was recognized that the concept was not really taken hold and also the three multilateral environmental agreements on combating deserts, climate, and biodiversity had not functioned properly. In this scenario, the government and its officials were called by to help place sustainable development in front of the world so that people everywhere in the world can understand its urgency and implement it. Analogous to this, the goals about fighting poverty known as Millennium Development Goals -MDGs have been adopted in the year 2000 to 2015 and were operationally but unluckily failed to achieve at the end of the years (Kumar et al., 2016). Well ahead, UN members and governments all over the world took goal-based initiatives for sustainable development and develop these goals as the extension to the MDGs. These SDGs followed the baseline of MDGs and initially approximately 300 goals were proposed that were not a practical approach and after the negotiation, these goals were compressed and chosen based on priority and aggregated objectives, etc. By the middle of 2015, these goals came to be
seventeen (17), grounded on high-priority objectives apprehended based on social, economic, and environmental prospects (UN, 2015). These goals were embedded in the overall agenda and they become the “framework of cooperation for 2030” as these goals concentrate on the three Ps: i.e. People, Planet and Prosperity (Chams & García-Blandón, 2019). These goals are no adopted by acclamation by all the member states (193) and they are bound to 17 Sustainable Development Goals. Each country is to prioritize and localize the goals according to their requirements.

In Balochistan, Pakistan, this is forward under the project entitled Mainstreaming, Acceleration, and Policy (MAPS) for SDGs Balochistan. The project is made a part of the Public Sector Development Plan. The objectives of the project are to lay a foundation of goal-based planning and implementation of SDGs in Balochistan, promote stock-taking/analysis of each sector (essentially covered in SDGs) on regular basis and establish necessary systems and processes for monitoring and evaluation of wider development initiatives. SDGs agenda requires collaborative efforts involving all stakeholders including government departments, civil society, private sector, and international development partners hence to make this project successful Government of Balochistan and the UN are working in coordination. The Government professionals are the main actors who share the relevant information and knowledge on Sustainable Developmental Goals (SDGs). Currently, the Government of Balochistan certifies the position in implementing SDGs and their civil officers are acting as key players in creating awareness of the 17 goals and 169 targets within the development framework.

2. Theoretical Background and Hypotheses
2.1 Awareness of SDGs and Sustainable Performance
The sustainability literature throws light on the integrated dimensions of sustainable development (Gericke et al., 2019). Sustainable development is a comprehensive concept that emphasizes the development needs of the present and future generation (Sachs, 2012). The structure is based on the economic, social, and environmental dimensions which are coherent and holistic in a balanced way. Based on this concept, the Agenda 2030 is ought to be a challenge as the approach contributes to improve the development system pertaining to the three mentioned dimensions of sustainability. To achieve Agenda 2030, the institutions are struggling to make their employees aware and understand the significance of sustainable development goals. The study of Ando et al. (2019), reveals that consciously aware employees show proactive behavior and pay more attention to process the information more accurately as compared to a person who is unaware of his surroundings. Furthermore, it is perceived that awareness increases the knowledge and perception of employees that wide his views resulting in success to achieve the goals. Respectively, the study discusses that knowledge of sustainable goals can generate economic growth (Omisore et al., 2017). The economic theme of SDGs may assist in building a welfare system that reduces poverty, create jobs, enhance performance; thus developing a robust economy (Gericke et al., 2019). Likewise, sound perspectives towards the issues of the environment enable the institutes to create healthy societies and clean surroundings. Similarly, the attentiveness towards SDGs may help in encompassing cultural and societal values (Roscoe et al., 2019). Simply, it could be concluded that information involving SDGs may help to develop pro-sustainable actions that create a peaceful, decent and secure environment. Therefore, the study proposes that when an employee is consciously aware and understands the importance of SDGs then his performance will exceed. The employee will be in a better position to deliver his work according to the respective institutional goals and the proposed agenda.

H1: Awareness of SDGs is significantly related to economic performance.
H2: Awareness of SDGs is significantly related to environmental performance.
H3: Awareness of SDGs is significantly related to social performance.

2.2 Training as Mediator
Agenda 2030 stimulates institutions to adopt sustainable development and make it a part of their plan and policies (Sachs, 2015) and incorporate it in their routine works. To embrace this, literature suggested training to be one of the ancient, and most effective practices of human resources to enhance knowledge,
skills, and abilities (Noe & Kodwani, 2018). Training is perceived to be the finest learning process that can help to deliver programs that promotes sustainable development. Lytle et al. (1998) defined it as an “increase in employee’s knowledge and skills to adopt sustainable behavior”. Simply, along with knowledge and awareness, skills are required that will help employees to sharpen their talents and improve performance. Therefore, it is postulated that training programs related to three sustainable dimensions will improve and modify the capabilities as well help to achieve the triple bottom line with high propensity.

H4: Training mediates the relationship between awareness of SDGs to economic performance.
H5: Training mediates the relationship between awareness of SDGs and environmental performance.
H6: Training mediates the relationship between awareness of SDGs to social performance.

3. Methodology
The research is conducted in the public sector located in Balochistan. The population of the study comprises of top government officials that covered the services provided to the stakeholders including line departments, civil societies, private institutes as well as common public. The department act as a hub of SDGs activities. The total population comprises of 331 employees and out of which 269 employees responded to the questionnaires, which were distributed among the participants. The questionnaire was adopted from different studies. To measure awareness of Sustainable Development Goals the five questions with a “5 points Likert scale” ranging from “strongly agree (1) to strongly disagree (5)” were adapted from Ando et al. (2019). Similarly, training scale adopted from Lytle et al. (1998)study comprises of 3 items also composed on a “5 points Likert scale”. Lastly, the dependent variables, measures adapted from Lee and Ha-Brookshire (2018) study, based on individual perception and composed of 8 items with a “5 point Likert scale.

The data collected was primarily analyzed in Social Sciences Statistical Package (IBM-SPSS) version 23. Subsequently, structural equation modeling is applied to test the model and for analysis, Smart-PLS software is used. PLS-SEM (Partial Least Squares- Structural Equation Modeling) is extensively applied in management sciences (Hair et al., 2019). Generally, it holds a higher level of statistical power and it is most appropriate when predicting the variables.

3. Results
3.1 Demographic Characteristics
The data screened for missing values and outliers. The response rate of the study was calculated as 81%. The data on demographics characteristics showed that most of the participants were male. Likewise, 45.4% of the participant’s age lies between 28 to 37 years. Approximately, 86.2% of the employees attained a Master degree. The assumptions relating to normality were assessed. Table 1 represents the statistics. According to Hair et al. (2019), the acceptable values of skewness fall between −3 and +3, and kurtosis is appropriate from a range of −10 to +10 when utilizing SEM.

<table>
<thead>
<tr>
<th>Variable (N= 269)</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sdgs_01</td>
<td>3.860</td>
<td>0.696</td>
<td>-0.810</td>
<td>1.581</td>
</tr>
<tr>
<td>Sdgs_02</td>
<td>3.870</td>
<td>0.701</td>
<td>-0.737</td>
<td>1.788</td>
</tr>
<tr>
<td>Sdgs_03</td>
<td>4.030</td>
<td>0.660</td>
<td>-0.968</td>
<td>3.317</td>
</tr>
<tr>
<td>Sdgs_04</td>
<td>3.120</td>
<td>0.972</td>
<td>-0.380</td>
<td>-0.714</td>
</tr>
<tr>
<td>Sdgs_05</td>
<td>2.950</td>
<td>1.028</td>
<td>-0.061</td>
<td>-0.863</td>
</tr>
<tr>
<td>EcoP_01</td>
<td>3.830</td>
<td>0.763</td>
<td>-0.867</td>
<td>1.623</td>
</tr>
<tr>
<td>EcoP_02</td>
<td>3.740</td>
<td>0.739</td>
<td>-0.767</td>
<td>1.165</td>
</tr>
<tr>
<td>EcoP_03</td>
<td>3.900</td>
<td>0.829</td>
<td>-0.760</td>
<td>0.723</td>
</tr>
</tbody>
</table>
The study applied a self-reporting scale that may create uncertainty of common method bias. To test the issue, Harman’s single factor test (Podsakoff & Organ, 1986) performed that scored 34.581(%) of variance) indicating that no serious issue prevails. Further, two step-method of SEM was applied to test the model which elucidates measurement and structural assessment.

### 3.2 Structure Equation Modeling: Measurement Model Assessment

The measurement model comprises of individual item reliability, internal consistency, content, convergent and discriminant validity. The indicator reliability examines the loading of construct items that retain the value of 0.7 or greater (Hair et al., 2019). Similarly, the internal consistency, the composite reliability, rho A and Cronbach’s alpha are also examined that yield an acceptable range of values. For instance, the average variance extracted (AVE) scored at least 0.50 or/ and more(Umrani et al., 2018). Table 1 shows the values of the measures that lie in an acceptable range.

<table>
<thead>
<tr>
<th>Variables name</th>
<th>Item Label</th>
<th>Factor Loading</th>
<th>Cronbach’s Alpha</th>
<th>rho_A</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness of SDGs</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Sdgs_01</td>
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<td>0.816</td>
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<tr>
<td>Economic Performance</td>
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<td>0.779</td>
<td>0.872</td>
<td>0.694</td>
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<td>Environmental Performance</td>
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<td>0.813</td>
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<td>EnrP_02</td>
<td></td>
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<td></td>
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<tr>
<td>EnrP_03</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Performance</td>
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<td></td>
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<td>0.932</td>
<td>0.963</td>
<td>0.929</td>
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<tr>
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</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td>0.755</td>
<td>0.780</td>
<td>0.861</td>
<td>0.676</td>
</tr>
<tr>
<td>Train_01</td>
<td></td>
<td>0.706</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Train_02</td>
<td></td>
<td>0.893</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Train_03</td>
<td></td>
<td>0.855</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The discriminant validity can be measured by three criteria ascribed as Fornell and Larcker, Cross loading, and Heterotrait-monotrait (HTMT) ratio. Literature put forth that the two foremost criterions performance is poor in unfolding discriminant validity problems (Hair et al., 2012). However, HTMT claimed to be a more acceptable criterion of discriminant validity. Table 3 represents the values of HTMT that did not exceed 0.85 or 0.90 respectively.

<table>
<thead>
<tr>
<th>Awareness of SDGs</th>
<th>Economic Performance</th>
<th>Environmental Performance</th>
<th>Social Performance</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness of SDGs</td>
<td>0.578</td>
<td>0.568</td>
<td>0.390</td>
<td>0.403</td>
</tr>
<tr>
<td>Economic Performance</td>
<td>0.578</td>
<td>0.731</td>
<td>0.383</td>
<td>0.418</td>
</tr>
<tr>
<td>Environmental Performance</td>
<td>0.568</td>
<td>0.731</td>
<td>0.383</td>
<td>0.397</td>
</tr>
<tr>
<td>Social Performance</td>
<td>0.390</td>
<td>0.383</td>
<td>0.383</td>
<td>0.362</td>
</tr>
<tr>
<td>Training</td>
<td>0.403</td>
<td>0.418</td>
<td>0.397</td>
<td>0.362</td>
</tr>
</tbody>
</table>

### 3.3 Structural Model Assessment and Hypothesis Testing

The structural model is the assessment of path coefficients. The standard assessment criteria for measuring the structural model is by calculating multicollinearity, significance value (p), coefficient of determination (R²), effect size (f²), and predictive relevance (Q²) (Hair et al., 2012). The collinearity issues were addressed to ensure biasness and ideally, the VIF values examined to be close to 3 and lower. Further, the standard bootstrapping procedure with 5000 bootstrapping samples and 269 cases were run to determine the significance and relevance of the structural model relationship. The result indicated that the direct and indirect effects of all the hypothesized relationships are significant. Figure1 demonstrates a significant relationship among the constructs. The hypothesis H1 results represent a positive and significant relationship between awareness of SDGs and economic performance with (β=0.401, t=4.779, p<0.00). Similarly, hypothesis H2 is also supported, which signifies that awareness of SDGs and environmental performance are significantly related (β=0.399, t=6.625, p<0.00). Further, hypothesis H3 explains the relationship between awareness of SDGs and social performance. The results for this hypothesis also supported (β=0.267, t=4.548, p<0.00). Likewise, the hypotheses H4, H5, and H6 related to mediation are also supported i.e. training plays a significant role in mediating the relationship among awareness of SDGs, economic (β=0.062, t=2.330 p<0.02), environmental (β=0.061, t=2.196, p<0.02) and social (β=0.070, t=2.990, p<0.00) performance. Further, to measure the model proportion of variation, the level of coefficient of determination (R²) is assessed. The values of adjusted R² are sufficient according to the proposed range i.e. between 0 and 1. The variation of 24.0% is seen in economic performance, 30.0% in environmental performance. 15.0% in social performance whereas 10.2% variation is explained through training. This is an acceptable range as literature revealed that the value of R² depends on the discipline and field of study (Falk & Miller, 1992). Lastly, the predictive relevance (Q²) of exogenous constructs using the blindfolding procedure was analyzed. According to the rule of thumb, the values of 0.02, 0.15, and 0.35 indicate small, medium, and large predictive relevance respectively. The predictive relevance of the constructs of this study is demonstrated in Table 4.

| Table: 4: Construct Cross-Validated Redundancy (Q²) |
|-----------------|----------|----------|----------|
| Economic Performance | 807      | 681.829  | 0.155    |
| Environmental Performance | 807      | 676.640  | 0.162    |
| Social Performance     | 538      | 464.938  | 0.136    |
The study also assesses the effect size $f^2$ and according to the rule of thumb, if $f^2 < 0.02$; this means no effect whereas $f^2 = > 0.02$ to $< 0.15$ means weak effect. Similarly, $f^2 = > 0.15$ to $< 0.35$, then it is considered as moderate effect. Lastly, if $f^2 > 0.35$, it represents a strong effect. The results of effect size $f^2$ is satisfactory and are represented in Table 5.
Table 5: Testing Hypothesis Using Path Coefficients

<table>
<thead>
<tr>
<th>Hyp</th>
<th>Relationship</th>
<th>Std Beta</th>
<th>Std Error</th>
<th>t-value</th>
<th>p-value</th>
<th>$f^2$</th>
<th>2.5% CI</th>
<th>97.5% CI</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Awareness of SDGs -&gt; Economic Performance</td>
<td>0.401</td>
<td>0.082</td>
<td>4.779</td>
<td>0.000</td>
<td>0.181</td>
<td>0.205</td>
<td>0.527</td>
<td></td>
</tr>
<tr>
<td>H2</td>
<td>Awareness of SDGs -&gt; Environmental Performance</td>
<td>0.399</td>
<td>0.059</td>
<td>6.625</td>
<td>0.000</td>
<td>0.182</td>
<td>0.265</td>
<td>0.499</td>
<td></td>
</tr>
<tr>
<td>H3</td>
<td>Awareness of SDGs -&gt; Social Performance</td>
<td>0.267</td>
<td>0.058</td>
<td>4.548</td>
<td>0.000</td>
<td>0.074</td>
<td>0.136</td>
<td>0.370</td>
<td></td>
</tr>
<tr>
<td>H4</td>
<td>Awareness of SDGs -&gt; Training -&gt; Economic Performance</td>
<td>0.062</td>
<td>0.028</td>
<td>2.330</td>
<td>0.020</td>
<td>0.048</td>
<td>0.016</td>
<td>0.127</td>
<td></td>
</tr>
<tr>
<td>H5</td>
<td>Awareness of SDGs -&gt; Training -&gt; Environmental Performance</td>
<td>0.061</td>
<td>0.027</td>
<td>2.196</td>
<td>0.028</td>
<td>0.040</td>
<td>0.016</td>
<td>0.120</td>
<td></td>
</tr>
<tr>
<td>H6</td>
<td>Awareness of SDGs -&gt; Training -&gt; Social Performance</td>
<td>0.070</td>
<td>0.023</td>
<td>2.990</td>
<td>0.003</td>
<td>0.051</td>
<td>0.031</td>
<td>0.124</td>
<td></td>
</tr>
</tbody>
</table>

Note: ***p ≤ 0.001; **p ≤ 0.05; *p ≤ 0.01.

Figure 1
4. Discussion and Conclusion

The study exemplifies the standardized parameter estimates for the structural model and the significance levels of each relation. Nearly, all the hypotheses proved to be significantly positive. The results of the study also correspond with literature that awareness of sustainable development goals stimulates employees to engage in economic and social activities and support to sustain the resources. Participating in environmental activities also enhances the preservation qualities of employees and they perform well in sustaining their surroundings.

Simply, defining and delineating awareness of SDGs helps to leverage employee’s motivation to serve in public interests at a global scale. It inspires employees to perform towards a social cause, generate revenues, and preserve the environment. Further, the evidence of the study showed through better training programs employees perform better as they are more engaged and committed to achieve SDGs. Training boosts the performance as it is based on the combination of personality traits and organizational needs and state (Ji et al., 2012). Training awakens the sense of purpose and mission in public employees (Noe & Kodwani, 2018). Thus, learning development experiences are a way to preserve cutting-edge knowledge and keep motivation and engagement high.

The study also describes that enhancement and achievement not only depend on individual preferences, inclinations, attitudes, but it is also a product of the organizational culture and organizational settings that are conveyed through learning practices and programs. Thus, the practical implications of the study are to create a remarkable sustainable performance. Institutions needed to attract and select employees with a higher level of awareness (Omisore et al., 2017). Additionally, knowledge and technical skills are important and fundamental for serving the public and achieving goals. Therefore, public institutions ought to nurture their employees and focus to systemically build capacity, make perceptions and break down SDGs into meaningful targets to evaluate organizational and individual performance on achievable metrics.

Henceforth, recommended that researchers may focus on introducing outcome-oriented organizational performance metrics that link individual sustainable performance metrics to better communicate linkages between goal accomplishment and public value creation (Lopez-Cabrales & Valle-Cabrera, 2020). Furthermore, researchers may even design impact-oriented, interactive, and integrated professional tasks, to enable employees to serve the public and unlock bureaucracies to create a decent workplace that supports sustaining the resources and enhance performance (Deslatte & Swann, 2020). Lastly, researchers may develop models by incorporating more rigorous HR practices that help in examining the association of SDGs with other relevant institutional outcomes (Roscoe et al., 2019).

The limitation of the study is that the information is gathered from public sector institutions only, so it is not generalizable to the private sector, civil societies, and non-profit institutes. It is a cross-sectional study that means data is gathered at one point, so it is preferred for more accurate results the study must be conducted for a longer period.

References


Kumar, S., Kumar, N., & Vivekadhish, S. (2016). Millennium development goals (MDGs) to sustainable development goals (SDGS): Addressing unfinished agenda and strengthening sustainable development and partnership. *Indian Journal of Community Medicine: Official Publication of Indian Association of Preventive & Social Medicine, 41*(1), 1.


Determinants of Liquidity Considering Role of Market Competition; Evidence from Pakistan’s Banking Sector

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3Institute of Business, Management and Administrative Sciences, The Islamia University of Bahawalpur, Pakistan, kalsoom.akhtar@iub.edu.pk

ABSTRACT

Current study empirically analyzes specific macroeconomic and bank factors that determine the liquidity reserves of banks functioning in Pakistan. To highlight the association, current study performed random effects estimates on a data set of 20 banks from 2006 to 2016. Factors related to bank include capital, credit Risk and bank size. GDP and Inflation are the macroeconomic factors that were considered. Market competition has been measured through HHI. As per panel data analysis, current study suggests that bank specific factors (except capital), macroeconomic factors and market competition significantly affect liquidity reserves of banks in Pakistan. These factors include bank size, credit risk, market competition, inflation and GDP. In addition, a negative effect of bank size, credit risk, GDP and Inflation have been identified on bank liquidity. Moreover, on bank liquidity market competition positive effect has been found in this study. Further, study found insignificant effect of capital on bank liquidity.

1. Introduction

Global financial crisis unveiled liquidity importance for smooth financial markets and banks functioning (Vodova, 2013). These crises unveiled loopholes in practices to manage liquidity risk of individual bank. Bank with good quality assets, handsome earning and ample capital might collapse if it does not maintain ample liquidity reserves (Chaplin et al., 2000). Liquidity risk affect both performance and good will of bank (Jenkinson, 2008). Banks should brace themselves to tackle the changes in monetary policy that determines the overall liquidity movements, repayment of short-term borrowings and banks own transactional requirements (Akhtar, 2007). The ample level of liquidity has strong linkage with effective operation of a bank. Mismanagement of liquidity could result in insolvency (having low liquidity) and low profitability (having...
surplus liquidity). It could, in turn, have negative effect on shareholder value and might spur contagion effect (Moussa, 2015).

The Basel Committee on Banking Supervision (BCBS) (2010) stressed banks liquidity creation and their solvency by maintaining high pool of capital reserves by banks. Liquidity of banks is determined by many types of variables including Bank Specific; Macroeconomic and market competition variables. Present study combines banks specific, market competition and macroeconomic factors as dependent variable and attempts to highlight impact of these factors on liquidity of commercial banks which yield valuable insights. According to Dinger (2009) and Sing and Sharma (2016) bank size has significant negative relationship with liquidity it could be a vital determinant of its liquidity. Bhati et al. (2015) asserted that capital negatively affect liquidity of banks. Acharya et al. (2011) suggest that ultimately high capital reserves help banks to create more liquidity by granting more loans and taking higher risk. Megeid (2017) explain that expansion in assets by banks could increase credit risk which might be simultaneously increasing its liquidity risk. They further add that bank’s liquidity position could be negatively influenced by huge loan’s default. The theory of bank liquidity and financial fragility state that high GDP growth indicates an increase in business activities, which affect banks liquidity negatively as banks expand its loans and verse versa. Bhati et al. (2015) found the negative influence of inflation rate on banks liquidity. They claim that banks keep more reserves of liquid assets during economic downturn and low reserves of liquid assets during economic boom. Structural changes in banking sector have influenced competition of banking sector. Less competitive market coupled with the presence of larger banks provide higher “capital buffers” that provide shield to these systems from external macroeconomic and liquidity turmoil. Consequently, this leads towards increase in the profit margins and reduction in the financial fragility (Boyd et al., 2004). Less competitive market shows the presence of market power. Bunda and Desquilbet (2008) claimed that high level of efficiency and profitability has association with the higher degree of market power.

Many studies in Pakistan shed light on determinants of liquidity. These studies analyze the impact of bank specific and macroeconomic variables but do not highlight the impact of market competition on liquidity of banks. Structural changes in banking industry have changed the level of competition in banking industry therefore, this study considered the impact of market competition on liquidity pool of commercial banks functioning in Pakistan. Hence this study provides valuable insights by highlighting relationship between market competition and liquidity of banks. Objectives of this study are to examine the impact of bank specific factors (size, capital and credit Risk), macroeconomic variables (inflation and GDP) and market competition (HHI) on liquidity of banks in Pakistan. The paper is organized as follows. Section 2 provides critical review of literature. Section 3 describes methodology. Section 4 discusses results and discussion. Final section concludes the paper.

2. Literature Review
Extensive literature is available on liquidity of banks and its bank specific and macroeconomic determinants. In this study we estimated the relationship between bank specific factors include bank size, capital and credit Risk, macroeconomic factors GDP and Inflation and Market competition on liquidity of banks functioning in Pakistan. Literature regarding these factors is given as follow.

The Basel Committee on Banking Supervision (2008) defines liquidity as “the ability of bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses”. Dinger (2009) claimed that liquid banks are foremost important to keep the economy smoothly functioning. During recent financial turmoil, many banks scuffle to maintain ample level of liquidity. To keep financial system functioning, exceptional liquidity support was needed from central banks (Cernohorský et al., 2010).

2.1 Size and Bank Liquidity Relationship
Sing and Sharma (2016) claimed negative relationship between liquidity of bank and its size. In other words, large banks keep less resources of liquidity while small banks keep high resources of liquidity. They supported their findings by explaining that this inverse relationship is might be due to ability of large banks to access lender of last resort more easily than small banks during crisis. They further explained that small banks need to maintain high liquidity resources than big banks as they might not be able to access funds as easily as larger
banks do. Zaghdoudi and Abdilaziz (2017) also supported findings of Sing and Sharma (2016). They also claimed that there is negative relationship between size of bank and liquidity risk. In other words, small banks are more prone to liquidity risk. They explain that this negative relationship is because of lack of supervision which in turn restricts their negotiation abilities in various markets. Consequently, they turn to banking intermediation, which affect lead them to liquidity crunch. Findings of Dinger (2009), Distinguin et al. (2013), Angora and Roulet (2011) studies also unveiled that bank size has significant negative relationship with liquidity and banks size.

\[ H_1: \text{Size of bank has significant negative relationship with liquidity of bank.} \]

### 2.2 Capital and Bank Liquidity Relationship

Repullo (2005) concluded that higher capital requirement induce banks to reduce risk levels in loan portfolio which subsequently reduces its liquidity. Horvath et al. (2014) highlighted the relationship between liquidity creation and capital. They asserted that small banks having high capital resources created less liquidity while on the other hand large banks with ample capital kept on creating more liquidity. Bhati et al. (2015) suggested that ample level of capital helps banks to face losses and strengthen its solvency. Banks having ample capital resources also have easy access to financial markets and can tackle liquidity issues sparked by outflow of funds. They also claim that capital refrain them from risk taking. Studies of Acharya et al. (2011), Jokipii and Milne (2011), and Vodova (2011) also estimated similar results. But study of Berger and Bouwman (2009) gives opposite results, as they mentioned that high capital resources facilitate banks to create more liquidity. In addition, this capital also enables banks to bear risk boldly.

\[ H_2: \text{Capital has significant negative relationship with liquidity of bank.} \]

### 2.3 Credit Risk and Bank Liquidity Relationship

Brown and Moles (2012) defined credit risk as “the potential that a contractual party will fail to meet its obligations in accordance with the agreed terms”. Diamond and Rajan, (2005) argued that bank failures could diminish common liquidity reserves. Consequently, aggregate liquidity shortage arises. Zaghdoudi and Abdelaziz (2017) claimed that credit risk has significance and positive relationship with liquidity risk. They claimed this relationship with respect to depositor’s demand. They stated that bank cannot satisfy depositor’s demand if bank finance enormous distressed economic projects. They further explained that depositors commence withdrawing their deposits if these assets start declining their value. Therefore, higher credit risk give rise to higher liquidity risk via depositor’s demand. Therefore, higher liquidity risk will decrease liquid reserves of bank. Diamond and Rajan (2005), Arif and Anees, (2012), Louati et al. (2015) and Ghosh, (2016) also argue in favour of significant relationship between credit risk and liquidity.

\[ H_3: \text{Credit risk has significant negative relationship with liquidity of bank.} \]

### 2.4 Market Competition and Bank Liquidity Relationship

Over the recent decades, economic authorities across the globe have initiated structural changes in banking industry which in turn have sparked changes in the structure and level of competition in banking industry (Kouki & Al-Nasser, 2017). Boyd et al. (2004) suggested that large banks in less competitive markets provide excessive capital buffer that shields these systems from macroeconomic and liquidity blows Thus, banks hold less liquidity resources in less competitive markets. Price competition also has association with liquidity of banks. Almarzoqi et al. (2015) observed positive relationship between price competition and liquidity. They argued that price competition induce a self-discipline mechanism on the choice of bank’s funding sources which results in high liquid resources. They further added that banks reduce their profit margin in stiff competitive environment and consequently, they cannot afford expensive funding sources. Thus, they hold larger amount of liquid assets. Tan et al. (2017) suggested that competition should be control to a particular point in order to avoid liquidity risk, credit risk and capital risk. Horvath et al. (2016) shed light on effect market competition on liquidity of creation of banks. They claimed that stiff competition among banks result in less liquidity creation, because increased bank competition on the financial fragility of banks, as a result banks reduce their lending and deposit activities. They also suggested that pro-competitive policies in the banking industry can reduce liquidity provision by banks.
Market competition has significant positive relationship with liquidity of banks.

2.5 Economic Growth and Bank Liquidity Relationship

The theory of bank liquidity and financial fragility states that high GDP growth indicates an increase in business activities, which affect banks liquidity negatively as banks expand its loans. Extensive literature is available that shed light on relationship between GDP and liquidity of banks. Findings of these studies are not common as some studies show positive relationship between liquidity and GDP while other show negative relationship between GDP and liquidity of banks. Choon et al. (2013); Bunda and Desquilbet (2008) highlighted positive relationship between GDP and bank liquidity while Valla et al. (2006), Dinger (2009), Vodova (2011), and Trenca et al. (2015) estimated negative relationships. Sing and Sharma (2016) also claimed that liquidity has significant negative relationship with GDP. They explained their findings by mentioning that during economic downturn, banks keep higher resources of liquidity because of lending opportunity as they lack at such time. Zaghdoudi and Abdelaziz (2017) identified the GDP and liquidity risk relationship. They claimed that GDP affect liquidity risk significantly positively. They argued that economic growth results in higher income of households in an economy. Consequently, they go for specialized financial services like leasing, housing loans and consumer loans, which in turn decreases liquidity resources of banks. Hence, there is negative relationship between GDP and liquidity.

H5: Economic Growth has significant negative relationship with liquidity of bank.

2.6 Inflation and Bank Liquidity Relationship

In literature findings of many studies are ambiguous as some studies showed positive relationship between liquidity and inflation while other showed negative relationship between inflation and liquidity of banks. Bhati et al. (2015) in context of India also revealed negative relationship between inflation rate and liquidity reserves of banks. They supported their findings by stating that banks hold ample resources of liquid assets to maintain economic stability and flow of liquidity in the system when inflation rate falls and they keep less liquid assets when inflation is rises. Trenca et al. (2015) also studied the impact of macroeconomic factors on liquidity reserves of banks. Findings of their study revealed negative relationship between inflation and liquidity resources of banks. They argued that increase in inflation in an economy decrease purchasing power of residents of that economy. Consequently, they need more money to shop same products. This might sparks increase in lending of banks operating in that country which in turn lowers liquid assets of banks. While studies of Tseganesh, (2012), found positive impact of inflation on liquidity. Furthermore, Horváth et al. (2014) stated inflation insignificant effect on the liquid assets of bank.

H6: Inflation has significant negative relationship with liquidity of bank.

Extensive literature is available that shed light on liquidity of banks and its bank specific and macroeconomic determinants (Sing & Sharma, 2016; Zaghdoudi & Abdelaziz, 2017; Horvath et al., 2014; Berger & Bouwman, 2009 and Ghosh, 2016). However, these studies do not capture the impact of market competition on liquidity of banks. In recent past, many structural changes have been implemented in banking industry. Large banks in less competitive markets provide capital support to banks which refrain them from macroeconomic and liquidity turmoil (Boyd et al., 2004). Considering the importance of market competition, this study fills this gap and attempts to highlight impact of market competition on liquidity of banks in operating in Pakistan.

3. Data and Methodology

This study takes 20 commercial banks of Pakistan for the period of 2006-2016. Data on bank specific variables including size, capital and credit risk has been collected from Annual statements of banks, consolidated statements of financial sector whereas Macroeconomic variables like GDP and inflation has been taken from world bank and IMF sources. Macroeconomic variables included Inflation and GDP while industry competition variable: Herfindahl-Hirschman-Index on liquidity was considered. In order to attain aforementioned objective following Econometric model is proposed.
\[ LIQ_{t,t} = \beta_0 + \beta_1 \cdot SIZE_{i,t} + \beta_2 \cdot CAP_{i,t} + \beta_3 \cdot CR_{i,t} + \beta_4 \cdot HHI_{i,t} + \beta_5 \cdot EG_{i,t} + \beta_6 \cdot INF_{i,t} + e_{i,t+1} \]

Where \( \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \) and \( \beta_6 \) are the coefficients of determinant variables and \( e_{i,t+1} \) is error term, \( LIQ_{i,t} \) is liquidity, \( SIZE_{i,t} \) is size of the bank, \( CAP_{i,t} \) is capital \( CR_{i,t} \) is credit risk, \( HHI_{i,t} \) is Herfindahl-Hirschman-Index, \( EG_{i,t} \) is economic growth, and \( INF_{i,t} \) is Inflation.

Following Sing and Sharma (2016), bank liquidity will be calculated as the ratio of liquid assets to total assets. Liquidity as dependent variable and remaining all have been included as explanatory variables in current study. Credit extension is core activity of a bank; this function gives rise to credit risk because of failure of its borrowers to honor their commitments with bank. It is measured by total loans to total assets (Hakimi & Zaghdoudi, 2017). Size of the bank could possible affect liquidity risk of the bank. It is measured by natural logarithm of total assets of each bank (Melese & Laximikantham,2015). Bank capital is often defined in tiers or categories that include shareholders’ equity, retained earnings, reserves, hybrid capital instruments, and subordinated term debt. Following Bonfim and Kim (2011); Horvath et al. (2014), this study uses equity and total assets as the proxy of capital. Herfindahl-Hirschman Index (HHI) is a proxy measuring level of competition in industry/market. It is calculated by summing up the squared market shares of all commercial banks in an industry. Following Zaghdoudi and Abdelaziz (2017) this study uses total assets to calculate the market share.

Economic growth is measured by annual growth rate of GDP. GDP growth indicates an increase in business activities, which affect banks liquidity negatively as banks expand its loans and verse versa. Inflation represents increase in price of goods and services over time and consequently purchasing power of monetary unit reduces. It is measured by consumer price index (Zaghdoudi & Abdelaziz, 2017).

### 4. Results and Discussion

Table 1 provides the descriptive statistics of all the variables. The mean value of Liquidity is 8.995 and it lies between 3.91 and 26.91 with the standard deviation of 3.380. The mean value of Size is 19.169 and it is in between 15.56 and 21.64 with standard deviation of 1.30. The mean value of Credit Risk is 45.15. It has minimum value 13.49 and maximum value 70.85 and standard deviation 10.42. The mean value of Equity is 10.55 and it lies between -2.48 to 54.31 with standard deviation of 8.51. The mean value of Market Competition is 938.69 and it ranges from 907.19 to 980.3 with the standard deviation of 22.61. The mean value of Economic Growth is 3.90 and it ranges from 1.61 to 6.18 with standard deviation of 1.46. The mean value of Inflation is 9.65 with maximum value 20.29 and minimum value 2.54 and standard deviation of 4.82.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquidity</td>
<td>8.995</td>
<td>3.91</td>
<td>26.91</td>
<td>3.380</td>
</tr>
<tr>
<td>Size</td>
<td>19.17</td>
<td>15.56</td>
<td>21.64</td>
<td>1.3</td>
</tr>
<tr>
<td>Capital</td>
<td>10.55</td>
<td>-3.10</td>
<td>54.31</td>
<td>8.503</td>
</tr>
<tr>
<td>Credit risk</td>
<td>45.15</td>
<td>13.49</td>
<td>70.86</td>
<td>10.43</td>
</tr>
<tr>
<td>Market competition</td>
<td>938.7</td>
<td>907.2</td>
<td>980.30</td>
<td>22.62</td>
</tr>
<tr>
<td>Economic growth</td>
<td>3.903</td>
<td>1.61</td>
<td>6.18</td>
<td>1.47</td>
</tr>
<tr>
<td>Inflation</td>
<td>9.646</td>
<td>2.54</td>
<td>20.28</td>
<td>4.82</td>
</tr>
</tbody>
</table>

Correlation analysis highlights the relationship between dependent variable and explanatory variables. The range of correlation coefficient is always between -1 and +1. Two variables are perfectly positively related when their correlation coefficient is +1. Two variables are perfectly negatively correlated related when their correlation coefficient is -1. When correlation efficient is zero means there is no correlation between variables.
Correlation table shows that there is no multicollinearity issue among variables as correction values among the variables are low. Credit Risk has weak negative correlation with liquidity as its correlation value with liquidity is $-0.0270$. Similarly, economic growth has weak negative correlation of 0.0521 with liquidity. On the other hand, size has weak positive correlation of 0.0411 with Liquidity respectively. Capital has modest negative correlation with liquidity as its correlation value with liquidity is $-0.113$. Market competition has moderate positive correlation with liquidity as its correlation value with liquidity is 0.3240. Inflation has modest negative correlation with liquidity as its correlation value with liquidity is $-0.153$.

Following Hausman test, current study applies random effect model. Results of analysis are shown in the table below.

**Table 3: Random Effect Model**

Dependent variable: Bank Liquidity

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficients</th>
<th>Std. Error</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>-0.940251</td>
<td>0.279805</td>
<td>-3.360383</td>
<td>0.0009</td>
</tr>
<tr>
<td>Capital</td>
<td>-0.019824</td>
<td>0.023412</td>
<td>-0.846755</td>
<td>0.3981</td>
</tr>
<tr>
<td>Credit risk</td>
<td>-0.034599</td>
<td>0.019499</td>
<td>-1.774346</td>
<td>0.0774</td>
</tr>
<tr>
<td>Market competition</td>
<td>0.022360</td>
<td>0.009354</td>
<td>2.390381</td>
<td>0.0177</td>
</tr>
<tr>
<td>Economic growth</td>
<td>-0.750397</td>
<td>0.281269</td>
<td>-2.667903</td>
<td>0.0082</td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.264183</td>
<td>0.089034</td>
<td>-2.967226</td>
<td>0.0033</td>
</tr>
</tbody>
</table>

F- Statistics has significant p-value which is indicating that model is over all significant. The coefficient of Size is -0.940251 which is significant which indicates that increase in size of banks decrease its liquidity. Thus it leads towards acceptance of $H_1$ which states size has significant negative relationship with liquidity. This result is in line with Sing and Sharma (2016) who explained that small banks need to maintain high liquidity resources than big banks as they might not be able to access funds as easily as larger banks do. Capital shows insignificant result it means there is no significant relationship between capital and liquidity of banks. Thus, it leads towards rejection of $H_2$ which states capital has significant negative relationship with liquidity. Credit risk has significant relationship with liquidity thus we accept $H_3$ which states that credit risk has significant relationship with liquidity. The coefficient of credit risk is $-0.034599$ which indicates that increase in credit risk of banks decrease its liquidity. This result is consistent with Zaghdoudi and Abdelaziz (2017) who claimed that with the increase in credit risk, liquidity of bank commences to vanish which in turn could possibly result in collapse of bank. The coefficient of Market competition is 0.02236 which is significant. It means market competition significantly explains liquidity of banks and thus, it leads towards acceptance of $H_4$ which states market competition has significant positive relationship with liquidity. This finding affirms finding of Almarzoqi et al. (2015) positive relationship between price competition and liquidity They argued that price competition induce a self-discipline mechanism on the choice of bank’s funding sources which results in high liquid resources. Economic growth has also significant relationship. It means there is significant relationship between economic growth and liquidity of banks. Thus, it leads towards acceptance of $H_5$ which states Economic Growth has significant negative relationship with liquidity. The coefficient of credit risk is $-0.750397$ which indicates that increase in economic growth leads to decrease in liquidity.
growth decreases liquidity of banks. These results are consistent with Sing and Sharma (2016) who claimed that liquidity has significant negative relationship with economic growth. Coefficient of Inflation is -0.264183 which is significant. It means inflation significantly explains liquidity of banks and thus it leads towards acceptance of \( H_6 \) which states that size has significant negative relationship with liquidity. This finding of study is supporting the findings of Bhati et al. (2015) who argued that banks keep higher liquid assets as inflation rates reduces and vice versa. They hold higher liquidity during economic downturn to provide support to economy to make it stable and to ensure flow of liquidity economy. Value of R-square is 0.2748 which is significant and depict that means 27.48% changes in dependent variable (Liquidity) are because of dependent variables (Size, Capital, Credit Risk, Market Competition, Economic Growth and Inflation).

5. Conclusion
The purpose of this study is to shed light on determinants of liquidity of banks in Pakistan. The recent global recession of 2007-08 has revealed the importance liquidity management for banking industries across the globe. Consequently, it grabbed attention of researchers, policy makers and regulators around the world. In recent past, banking industry across globe has witnessed structural changes. These changes have led the change in level of competition prevailing in those industries. Consequently, these variations in level of competition change liquidity reserves of banks competing in those industries. Keeping in view the importance of market competition, the prime inspiration of this study is to highlight the relationship between market competition and liquidity of banks as this relationship has not grabbed ample attention from in previous studies. Another inspiration of conducting this study is lack of consensus in literature concerning determinants of liquidity of banks. Thus, this study attempts to highlight various flavors of determinants of liquidity of banks in Pakistan: Bank specific, macroeconomic and market competition.

The first hypothesis states that there is significant negative relationship between size of bank and liquidity of bank. Findings of study affirm this hypothesis and unveils size has significant negative relationship with liquidity of banks it means increase in size decreases liquidity. Second hypothesis is formulated to highlight the relationship between capital and liquidity of banks. This hypothesis states that there is significant negative relationship between capital and liquidity of banks. Results of study negate this hypothesis and show no significant relationship between capital and liquidity of banks. Third hypothesis is formulated to highlight the relationship between credit risk and liquidity of banks. This hypothesis states that there is significant negative relationship between credit risk and liquidity of banks. This study finds significant negative relationship between credit risk and liquidity. It means increase in credit risk decreases liquidity of banks. Fourth hypothesis states that there is significant relationship between market competition and liquidity of bank. Findings of study affirm this hypothesis and unveils that market competition has significant positive relationship with liquidity of banks. It means increase in market competition leads towards increase in liquid resources of banks. Fifth hypothesis is formed to highlight the relationship between GDP and liquidity of banks. This hypothesis states that there is significant negative relationship between GDP and liquidity of banks. Results of study accept this hypothesis and shows significant negative significant relationship between GDP and liquidity of banks. Sixth and final hypothesis is formulated to highlight the relationship between inflation and liquidity of banks. This hypothesis states that there is significant negative relationship between inflation and liquidity of banks. This study finds significant negative relationship between inflation and liquidity. It means increase in inflation decreases liquidity of banks.

The finding of present study unveils significant positive relationship between market competition and liquidity. This significant relationship of market competition with liquidity shown in this study will be valuable for researchers shedding light on this relationship. It will also provide guidelines to managers and policy makers while formulating policies and strategies regarding liquidity management. Current study shed light on relationship between liquidity and its three different sets of determinants: Bank specific variables, macroeconomic variables and market competition variable. This study calculated market competition through HHI. Future studies can use non-structural measure of competition like Lerner-Index and H-Statistics to highlight relationship between competition and liquidity. Moreover, this study calculated HHI on the basis of assets; future studies can calculate HHI on the basis of deposits and loans.
References


