Choice of Performance Measures and Performance of Textile Sector in Bangladesh

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ABSTRACT

This study seeks out to establish the influence of quality as well as performance-based manufacturing strategy, diverse in performance measures, firm's size, their interrelationship, and joint effects with the subjective measures on textile firm's performance. Financial, objective, subjective, and non-financial measures have been taken into consideration. Bangladesh needs competitive strategies and measures to meet the challenges & opportunities for creating a sustainable position in the global market. Performance measures have been taken by the textile industries of Bangladesh to improve the performance. The influence of those measures is not always improving the performance as found in the earlier study. Responses from mid-level managers of 30 textile industries in Bangladesh have been taken into consideration using survey method using descriptive statistics, factor analysis, regression and correlation analysis. The result shows extensive use of measures and only subjective measures do not increase the performance of the industry, but customer-oriented measures, sustainability measures, manufacturing quality strategy with firm size increase the performance of the textile sectors. The study will open the scope of further exploration in the performance of the textile sector of Bangladesh.

JEL Classification Code: G 21

Key words: Measures, performance, choices, sustainability

INTRODUCTION

RMG's with the help of the other textile industries linked back with it has already experienced over 100% growth rate from 1983-2000 and again reduced to 2.63% during 2000-2010 and again started recovering to 8.76% during the last few years (BGMEA, n.d.). RMG sectors contribute 83.49% of the total export earning with 4.0 million of workers. In Asia, Bangladesh holds the second position after China in exporting clothing by providing 45% of industrial employment and contributing 6 % of national income. The contribution of this sector makes up 80% of the export earnings and 23% of the country's domestic product (GDP) (Masum & Inaba, 2015). Since 1978 cheap workforce is the key criteria for the growth in this sector. Bangladesh is trying to develop her performance comparing with India, Pakistan, China, and Thailand that are at the higher stage of development (Habib, 2009; Chowdhury, 2011). Response to 'globalization';

'competitive markets'; 'economies of scale' and 'specialization of labor and management'; the organization may take its own agendas and performance criteria. But the size of the firms and measurements criteria that practiced in the firm is also different (Islam, 2015). These steps sometimes may be contradictory to the organizational strategic objectives (Starcher, 1992; Scholtes, 1993; Harper, 1984; Kaplan and Atkinson, 1989). In the textile industry, tragedies occur more frequently to hinder both the performance in an ethical way, and the continuous improvement lose the trends. So, a perfect blend of quality strategy response with performance measures is mandatory. It is also noted that quality strategy, factors of technological advancement, the working environment must also come up with the global challenges (Hasan et. al., 2016). Earlier, firms traditionally practice financial measures for improving performance. With the new competitive situation, financial measures are mandatory but, associated with non-financial

measures (Ittner and Larcker, 1995). It is also distinguished that sustainability term that previously not taken into consideration, in the present scenario it being a compulsory issue. The record shows that manufacturing firms, using lean techniques, have global as well as local benchmarking regarding continuous development (Farhana and Amir, 2009). Lean manufacturing techniques are now becoming key performance factors for the industry to work more efficiently. The performance sometimes faces obligations imposed by the name of compliance that catalyst the competition internally and externally in the market (Hasan, 2013). Recently, 'economic'; 'social'; 'environmental issues' (energy efficiency, conservation, and consumption measures) are taken by many industries to make the sustainability of their performance (Haque, 2015). Many try to adopt informal incentives, employee training to positively drive the performance considering operational risk (Shafiqul, 2014); Noor-E-Hasnin and Ahsan, 2016). Quality strategy, diverse in performance measures, and sustainable measures are now mandatory issues for increasing the firm's performance. This study has taken an endeavor to show the influence of quality strategy, financial, non-financial objective, and subjective and sustainability issues on the performance of the textile industry.

The significance of the study: To contribute in the economic growth of Bangladesh, the understanding of the measures for performance, strategies for achieving goals set by the firms and making it sustainable has become the most vital part for the future of the textile industry in Bangladesh. So, the significance of the study lies in exploring the strengths of a quality strategy set by the upper authority, identifying the determinants of financial performance measurements, investigating the potentiality of objective and subjective non-financial measures, firm's sustainability measures and their influence on performance. To stay competitive in present scenario quality strategy-measurement, diversified performance measures, sustainability measures should be linked up for increasing performance.

Objective of the Study

The main objectives to conduct this study are to show the influence of measurement diversity on firm's performance; identify the influence of size on firm's performance; recognize the influence of quality strategy and measurement fit on a firm's performance, and find the effect of subjective non-financial measures on a firm's performance.

LITERATURE REVIEWS

A literature review is a framework for providing a solid background to the subject matter based on past research work. As the comprehensive study and interpretation, this helps to address a specific topic (Aveyard, 2010).

Quality Strategy: Quality may define as the acceptance of goods or service. A strategy is the adoption or choosing courses of action or set of activities or stream of decisions by the allocation of resources for the long-run goals and objectives of an enterprise to bring a exclusive combination of value (Chandler, 1962; Porter, 1966; Mintzberg, 2007). The term 'Made in Bangladesh' is a sign of quality and pride for workers and consumers in the textile clothing sector (Baumann-Pauly et al., 2015). This expanding sector of Bangladesh still in need to set quality-related strategy to update their superiority and efficiency in production. A perfect blend of operational and tactical strategy will interrelate plan, ploy, pattern, position and perspective that cope up with excellence and undoubtedly no effect on firm's performance (Mintzberg, 1987; Moseley, 2009). Highly rational managers are the crucial element for the perfectness of these measures by an alignment between strategy and performance measures (Chandler, 1977). Top industries agreed-upon measures that the manager understands. They also balance those by linking and updating both strategy and trials by communicating among the employee (Lingle and Schiemann, 1996). So, the combination of 'quality strategy –measurement fit' aligned with different performance measurements reflecting the performance should be considered.

Financial Performance Measures: For private and local sectors, performance measurement is a legislative requirement. Internal and external factors determine the measures of performance in terms of the financial and non-financial perspectives. Actions related to the financial perspective should incorporate elements of both risks and return to define performance expected from the strategy. These measures vary largely focusing on manufacturing and step by step, emphasizing all business activities that ultimately results in customer-oriented satisfaction (Zairi and Letza, 1994). For financial measures, organizations willingly asked for audit instead of multiple inspections and drew the trust of the customer in business (Neely, 1999). These processes make the organization competitive and capable in a continually changing and dynamic environment. But besides audit inspection, close monitoring and update strategy is also needed as well (Taticchi et. al., 2008). Financial performance is associated with competitiveness and result orientation. So, a company must use relevant financial performance measures for achieving sustainability in success (RSA, 1994).

Objective Non-Financial and Subjective Measures: Relevant literature shows that a manager can understand the critical factors for long term success with the use of non-financial measures for performance. Without this firm cannot gain sustainability in competitive markets. Customer-oriented performance measures, internal business operation, employee-oriented measures, innovation, and learning are included in these measures

(Chow and Van der Stede, 2006). The competitive strength of the labor-intensive firm depends on the skills and knowledge of employees (Absar et. al., 2010). Innovation and learning perspectives are also associated with the encouragement of investment for future growth to ensure continuous improvement with the change of needs-perceptions and expectations such as human resources. Thus goals and goals-oriented-measures are also developed aligned with strategy (Manas, 1999; Kaplan and Norton, 1992). In customer-oriented measurement, customer satisfaction is the result of retained or repeat customer that is new buyers. Internal Business Perspective includes internal critical activities related to production, minimizing costs, and maximizing quality for improving efficiency in regards to the company's success.

Management should consider all the factors that balance between measurements and performance and integrate those factors to take further decisions (Lynch and Cross, 1991; Kaplan and Norton, 1992). For surviving in continuous improvement redesign based on holistically consideration of horizontal flows of information and materials are essential (Hammer and Champy, 1993; Slack et. al., 1995). This information and material ultimately come from customer, employee, and internal business perspective. Subjective measures are the tools that reflect one's perception of the organization. Individual measures are the criteria that uphold evaluating ones toward the decision making in the organization.

Sustainability Measures: According to IISD sustainable development means-"Adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future" (IISD, 1992). To design a competitively sustainable business model, requires creativity, insight, a good deal of customer, competitor, supplier information, intelligence, and the strategy is the prerequisite for implementing it. But to rationalize, and articulate significant tacit component in business experimentation, learning is required (Teece, 2010). On the other hand determinants of competitive success are also measured with the quality of service, flexibility, resource utilization and innovation (Fitzgerald et. al., 1992). Sustainability measures include economic, social, and environmental issues consideration while dealing with improving performance.

Competitive and corporate strategies have evolved substantially in the past to analyze the environment, firms' position, develop strategic advantages and understanding threats from competitors (Casadesus-Masanell and Ricart, 2010). For sustainability of Bangladesh textile industries challenges, opportunities, and threats are now more significant for the sustainability in the global market (Mostafa, 2006). The present study has taken sustainability measures as one of the measurement techniques of the textile industry for the growth of RMG sectors in Bangladesh.

Performance: The previous study found that firms using more extensive performance measurement systems have higher performance but partial supports to alignment or fit between the strategy-performance measures pairing with performance. The quality-based-strategy has a less direct effect on performance. But more extensive use of non-financial measures having similar or less quality-based-strategy enjoying the higher performance (Ittner, and Larcker, 1995; Chow and Van der Stede, 2006). Hence, to find out the determinants for performance measurement with the strategy set to attain the goals set by the industry, interrelation of performance measures and the performance are the main objective of this study as well as with subjectivity and sustainability.

RESEARCH METHODOLOGY

Research Design: This study is quantitative research in nature. To approach the quantitative learning the study has adopted a descriptive research design and considers survey methods to meet the respondents.

Respondents of the samples: Considering the central role in implementing the strategy, setting performance measurements tools, and evaluating performance, the study target mid-level managers of the firm who usually holds the position for responding survey.

Questionnaire design and sample collection: The questionnaire is developed in 'Google form' to collect the response from the target groups. Due to practical circumstances in this country, the replies are ensured by requesting through emails and personal contacts so that the respondents give their answers in a convenient time being. The study restricts the target samples to 100 firms through questionnaire mailing and personal interactions. But it received only 39 responses, 09 of which is unusable for a range of reasons, leaving a sample of 30. Among them, 26.6% RMG industries, 10% doing individual business through yarn and fabric (woven and knit) manufacturing, and dyeing process; and rest 63.33% is composite textile industries. 100% male respondents with, having 53% experienced between 5-10 years in this field. Here, RMG industries are trying to follow the lean manufacturing system in their industry, and others are facing challenges with adopting this method to meet the global challenges. Thanks to honorable respondents from various industries in this textile sector namely- Young One, Union Group of Company, Mohasin Knitwear, Hamim Group, SGS group, Fakir Apparels Ltd., Senma Clothing China, Knit Concern Group, Jamuna Denims Ltd., Asir Knitwear Ltd., Intimate Apparels Ltd., Base Textile Mills Ltd., Regent Textile Mills Ltd., Textiles, Apparel Division-Beximco, Noman Weaving Mills Ltd., Impress-Newtex Composite Textiles Ltd., Regency Garments Ltd., ABA Group, Asrotex Group, Cotton Zone

Ltd., GMS Composite Knitting Ind. Ltd. and so on to make this work a valuable resources for the further development in the performance measures.

Variables used: The study classified variables into two categories as dependent and independent. Here financial measures, objective non-financial measures, subjective non-financial measures, quality strategy, sustainability measures stand as independent variables, and firms performance stands for the dependent variable.

Sources of data: Both the primary and secondary data are used in this study. Secondary data and information are collected from the existing literature and different published reports in the said field, and the primary data are collected through a comprehensive questionnaire survey.

Measurement scales: A structured close-ended questionnaire with an open-ended questionnaire used for collecting primary data. Three different parts consists structured closed-ended questionnaire with a five-point scale Likert scale. In this part questionnaire regarding quality strategy was structured with 5=a large extent, 4=a moderate extent, 3= some extent, 2=a small extent, 1=not at all. Performance related questions are structured by 5=well above average, 4=above average, 3= average, 2=below average, 1=well below average. Another contains both closed and open-ended regarding financial measures, objective non-financial measures, subjective non-financial measures, and sustainability measures. In the closed-ended section, respondents are asked to **check (√)** the item among the entire relevant element which is applicable in their respective firm. It follows multiple response questionnaires, and in the open-ended section, respondents were asked to add their comments.

Table 1: Questionnaire content references

Different performance measurements tools	References
Financial Performance Measures Objective Non-financial measures Subjective non-financial measures Quality strategy Sustainability measures	Van der Stede et al., 2006, Chow and Van der Stede, 2006), Neely, 1999, Bennett and James, 1999, James, 1997, Fiksel, 1997, Fiksel et al., 1999 and Farhana, F., and Amir, A., 2009

Tools and techniques used: Descriptive statistics, Factor analysis, Regression, and Correlation analysis technique has been used to identify the influence of the different performance measurements on a firm's performance. Statistical Package for Social Science (SPSS version 23)

software has been used to calculate the above statistics and interpret the results.

Size of the firm determination: The study determines the size of the firm by considering the number of employees. The study categorizes these considering 0 as small size and 1 for large size industry having lower and higher than the average values respectively.

Framework for regression analysis: This study aimed to fit the regression model: Y = a + bX; wherein it assumes Y, as the dependent variable: Firm's Performance, and X is the independent variable (Different performance measures).

Hypothesis:

H_1: There is a significant influence on diversified performance measures on performance of the industry;

H_2: There is a significant influence of size of industry on its performance;

H_3: There is a significant impact of quality strategy and measurement fit on performance of the industry;

H_4: There is a significant influence of subjective measures on performance of the industry.

RESULTS AND ANALYSIS

Performance Measures

Performance measurement section comprises financial measures, one subsection on objective non-financial measures (customer-oriented measures, internal operating measures, employee-innovation measures, employee-learning measures, and sustainability measures), and one subsection on subjective performance measures. Table 1 reports the distributional statistics obtained from the respondents from different textile industries.

Responses from 14 among 30 took an effort to write in a total 30 of additional measures that are added to the subjective measures to increase the strength of the observation skill that they are practicing in their industry.

Table 2 shows that among the sample industries, the average performance measurement system contains 8 percent financial measures, 92 percent non-financial measures, and 42 percent subjective measures in which they suggested 5 percent key performance indicators of their industry.

For operating the number of the measures from different subsections, categorical diversity (catdiv.) is measured considering 1 for checking each of financial-measures, non-financial measures, sustainability-measures, and subjective-measures (Chow and Van der Stede, 2006).

Table 2: Performance measures compositions (n=30)

	Min	Max	Mean	Standard deviation
Number of financial measures (#fin)	0	8	2	3
Number of objective non-financial measures(#nonfin)	2	45	25	14
Number of customer-oriented measures(#cus)	0	9	3	3
Number of internal operating measures(#ino)	0	11	4	3
Number of employee innovation measures (#ein)	0	8	2	2
Number of employee learning measures (#elearn)	0	7	3	2
Number of sustainability measures(#sus)	0	5	1	2
Number of subjectivity measures(#sub)	0	26	10	7
Number of key performance indicators(#kpis)	0	5	1	2
Total number of measures(#total)	*2*	*51*	*27*	*16*
Percent of financial measures (#fin)	0.00	0.29	0.08	0.07
Percent of objective non-financial measures(#nonfin)	0.71	1.00	0.92	0.07
Percent of customer-oriented measures(#cus)	0.00	0.33	0.11	0.09
Percent of internal operating measures(#ino)	0.00	0.54	0.15	0.14
Percent of employee innovation measures (#ein)	0.00	0.20	0.06	0.06
Percent of employee learning measures (#elearn)	0.00	0.30	0.08	0.07
Percent of sustainability measures(#sus)	0.00	0.17	0.04	0.05
Percent of subjectivity measures(#sub)	0.00	1.00	0.42	0.24
Percent of key performance indicators(#kpis)	0.00	0.50	0.05	0.10
			1.00	
Categorical measures for measurement diversity(#catdiv)	1.0	4.0	2.7	0.9

Manufacturing Strategy

Quality-based manufacturing strategy measured from primarily according to the following question. This part includes 11 items which empirically load on one factor (Table 2). Q Strat, a composite variable, is measured by the average value of the industrial emphasize on quality measures for their performance where, μ 3.82, σ 0.59, Cronbach α 0.806, and Eigenvalue 3.875.

Table 3: Measures of Quality Strategy and Performance (n=30)

Quality Strategy measurement[1]:

μ 3.82, σ 0.59, Cronbach α 0.806 and Eigenvalue 3.875		Factor loading	Alpha if item deleted
1.	Are non-management employees evaluated for quality performance?	.599	.789
2.	Do non-management employees participate in quality improvement decisions?	.719	.774
3.	Is building awareness about quality among non-management employees ongoing?	.568	.791
4.	Are quality performance data displayed at employee workstations/areas?	.369	.807
5.	Are suggestion programs for quality improvement among non-management employees used?	.534	.798
6.	Are programs in place to improve cycle-times (e.g., by reducing time-delays or non-value-added activities in manufacturing)?	.566	.790
7.	Are coordination of quality improvements within the organization?	.453	.799
8.	Are key performance indicators (KPIs) measure business performance?	.714	.775
9.	Do strengths, weaknesses, opportunities, and threats (SWOT) evaluate performance?	.661	.788
10.	Do political, economic, social, technological, legal, and environmental (PESTLE) influence performance?	.777	.770
11.	Does management follow lean manufacturing techniques?	.423	.807

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[1]Anchored as (1) not at all, (2) low extent, (3) medium extent, (4) high extent, and (5) very high extent.

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Performance[2]:

Relative to the industry average μ 3.93, σ 0.60, Cronbach α 0.813 and Eigenvalue 3.553		Factor loading	Alpha if item deleted
1.	Financial performance of your department	.573	.802
2.	Customer-oriented performance of your department	.413	.821
3.	The internal operating performance of your department	.476	.807
4.	Employee-oriented Innovation performance of your department	.767	.778
5.	Employee-oriented Learning performance of your department	.687	.787
6.	Subjective performance of your department	.774	.772
7.	Sustainability performance of your department	.785	.776
8.	Key performance indicators performance	.744	.783

Performance

Performance of the manufacturing department along the eight dimensions had shown in Table 3; factor analysis holds all items together on one factor with high loadings (Table 3). Performances are measured by arithmetically averaging the individual item scores μ 3.93, σ 0.60, Cronbach α 0.813，and Eigenvalue 3.553.

Table 4: Correlation and partial correlation for the performance of the industry (n=30)

	(1)	(2)^p #QStrat	(3)^p #total	(4)^p #size
#QStrat	.662*** (30)			
#Cubs	-.433*** (30)		-.547** (27)	-.545*** (27)
#Sus		0.426** (27)	0.313* (27)	
#nonfin	-.080			
#total	-.078			
#catdiv	.105			
#Size	.637*** (30)			

Table 4 shows the correlation (1) and partial correlation coefficients (2-8) of performance concerning different significant variables. Here, the significant positive correlation found with the industries size, emphasize on quality, negatively with customer-oriented measures. But, no relationship with the sustainability measures taken by the industries. In this regard, some partial correlation considering quality, size, and total actions taken separately and in combination. Thus, a significant partial association between the performance of the industry and sustainability-measures while quality and size became control variables combinedly (p<0.01, df 26) and separately quality (p<0.05, df 27) and total measures (p<0.10, df 27).

Table 4 and Table 5 shows that the performance of the firm become higher putting emphasis on quality strategy, customer-oriented measures, sustainability measures, and firm size (adj. R^2 0.678). But the performance is not significantly influenced by the non-financial measures, total measures, and categorical diversity of measures

taken by the textile industry. **Hence, hypothesis 1 (H₁) is rejected (p<0.01).**

Table 5: Regression analysis for performance

	(1)	(2)	(3)	(4)	(5)
Constant	2.113***	1.314**	1.139*	1.150***	1.022
#QStrat	.393**	.544***	.589***	.588***	.589***
#Cus	-.070**				
#Sus	.106**				
#Sub		.01			
#nonfin			.005		
#total				.005	
#catdiv					.093
Size	.568***	.603***	.574***	.571***	.572***
Adj R^2 (F)	0.678 (16.298)	0.62 (16.765)	0.614 (16.435)	0.614 (16.347)	0.659 (16.736)

Here, Correlation is significant at the 0.01 level***, at the 0.05 level**, and at the 0.10* level (2-tailed).

On the other hand, the size of the industry significantly influences the performance of the firm table 6, (model 1-5). Hence, size considered by measuring a total number of employees has a positive influence on the performance table 5 (model 1-4). So, higher the size of the industry, higher the performance. **Hence, hypothesis 2 (H₂) is accepted (p<0.01).**

Results show from table 5 and table 6, the performance of the industry is not positively by sustainability measures only. It increases when emphasizing on quality strategy and or firm size is considered as mediating variables (model-1). Here, key performance indicators added to increase the strength of the subjectivity. But the results remain the same. That means, subjective measures have no influence on performance of the industry. **Hence; hypothesis 4 (H₄) is rejected (p<0.01).**

Quality and measurement diversity

Table 6 shows the correlation (1) and partial correlation (2-3) with respect to different significant variables (p<0.05). Here, the significant correlation found with performance, non-financial measures (customer oriented, internal

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[2]Anchored as (1) not at all, (2) low extent, (3) medium extent, (4) high extent, and (5) very high extent.

operating, employee innovation and employee learning measures as well as with the categorical diversity measures) (p<0.05). For the same performance, the industry may less non-financial measures requires more emphasis on quality strategy (p<0.05, df 27). But, by controlling total measures and same size of the fewer customer-oriented measures can positively increase the performance of the industry giving more emphasis on quality strategy (p<0.05, 26).

Table 6: Correlation and partial correlation for quality strategy (n=30)

	(1) (df=30)	(2)^p #perf (df=27)	(3)^p #total (df=27)
#perf	.662***		.702***
#fin		-.403**	
#cus	-.611***	-.480***	-.470***
#ino	-.361**	-.392**	
#ein	-.485***	-.500***	
#elearn	-.386**	-.429**	
#sus		-.404**	
#tnonfin	-.435**	-.511***	
#total	-.442**		
#catdiv	-.383**		

From table 5 and 7, Regression models show that to increase the performance as it is highly positively correlated with quality strategy more emphasize are required to the quality strategy considering fewer measures in a customer-oriented, sustainability measures, and non-financial measures (model 1, 4 and 5). Here, number of employees are insignificant for each model. Categorical diversity emphasizing on quality influences performances negatively (model 1-5).

Table 7: Regression for quality strategy emphasize by the industry

	(1)	(2)
(Constant)	1.639**	1.669***
#Perf	.675***	.664***
#tnonfin	-.016***	
#Total		-.014***
#Size	-.111	-.088
Adj R² (F)	.542 (12.428)	0.574 (12.681)

Here, Correlation is significant at the 0.01 level***, at the 0.05 level**, and at the 0.10* level (2-tailed).

From above correlation and regression analysis, quality strategy of the industry is influenced by the customer-oriented measures and sustainability measures negatively as well as with the measurement diversity occupied by the firm (model 3). But firm size has no influence significantly on quality strategy taken by the firm (model 1-5). The industry that follows more categorical diversity in measurement requires less emphasis on quality strategy for higher performance (model 3). Here, measures taken

by the industry fit with quality strategy will get higher performance.

Quality strategy highly significant for internal operational measures, customer-oriented measures, employee innovation, and learning measures. But, in terms of total measurement diversity, the influence becomes significant while the regression line is calculated for both total-measures, and categorical diversity. Here, quality strategy is influenced negatively in both cases (model 2 and 3). On the other hand, customer-oriented measures and sustainability measure alone from non-financial measures influence quality strategy. But, firm's size remains insignificant in all the cases which are same as one of the previous study but, considered here also as a mediating variable (Van der Stede et al., 2006). **Hence, hypothesis 3 is accepted (p<0.01).**

Findings of the study in brief

- Diversity in measures (sustainable, quality strategy, financial, objective, and subjective non-financial measures) have no significant influence on manufacturing quality strategy.
- The industries having large number of employees have higher performance.
- Controlling size and total measures, the customer-oriented measures and sustainability measures have a superior impact on the performance of the industry.
- The performance of the industry is increased by applying Quality fit- measurement strategy.
- In this study, subjective non-financial measures have no relationship toward the performance of the industries which result is also similar to one of the previous studies of (Van der Stede et al., 2006).

Limitation and future direction of the study

The study has accumulated responses from only 30 textile industries of Bangladesh. The study limits the scope and depth of exploration; the sample respondents also do not represent the whole population of the textile sectors. So, the results may be limited to those industries only; not the other. On the other hand, the paper reveals the result depends only on cross-sectional data rather time series data. But the study still has successfully found some new findings. Hope, these results will drive other researchers to do better in this exploration covering all aspects of this study. Further researches can be carried out to take into account a large number of respondents all over the textile sectors in the country and also comprising time-series data. The future researcher can also consider different performance measures and their impact on performance.

CONCLUSION

Bangladesh textile sector is going through a challenging period now. The high inflation rate, increased production cost, competition, labor unrest, lacking in research and development, countries situation is being the troublesome

factors. In this study, the internal measurement techniques to increase the performance of the firm have been analyzed. The respondents of this study represent a wide variety in the production of textiles and follow different measures given by the mid-level managers. Hence, the variation is expected for a limited number of sample sizes, and the result may have some limitations due to publicly unavailability of data. From literature, the questionnaire is developed to support and cover the current position of the industries in their measurement and performance. The results show very significant influences of performance measures and performance with the manufacturing quality strategy. This study is a thoughtful-contribution to diversified performance measures, its types, joint, partly effect on, and interrelation with the performance. Findings of the study states quality strategy fit with actions to be approved by the top management for higher performance. Local textile companies can ensure better performance by evaluating various performance measures.

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ACKNOWLEDGEMENT

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APPENDIX

Questionnaire on

"**Choice of Performance Measures and Performance of Textile Sector in Bangladesh**"
Survey Section on Performance Measures

With respect to the current performance measurement system in place, please check all the measures that are used by upper management to gauge your department's performance.

(*Please only check (or write in) those measures that are reported, analyzed, and discussed on a regular basis for the purpose of performance measurement and evaluation*.)

1. FINANCIAL PERFORMANCE MEASURES FOR YOUR DEPARTMENT (Check all that apply.)
    - ☐ Cash Flow
    - ☐ Working capital
    - ☐ Cost base
    - ☐ Borrowing (e.g., loans or overdrafts)
    - ☐ Financing growth with changing needs
    - ☐ Profitability ratio (fall under margins and returns)
    - ☐ Gross profit margin
    - ☐ Operating expenses margin
    - ☐ Net profit margin
    - ☐ Return on capital employed (e.g., ROI)
    - ☐ Liquidity (ability to meet short term obligations)
    - ☐ Solvency (ability to meet long-term debt against assets and equity)
    - ☐ Efficiency
    - Other (please list):……………………………

2. Objective non-financial measures:

    1. CUSTOMER-ORIENTED PERFORMANCE MEASURESFOR YOUR DEPARTMENT (Check all that apply.)
    - ☐ Assessment of Market share and position
    - ☐ Time to fill customer orders
    - ☐ Delivery performance (e.g., on-time delivery, percent of correct delivery)
    - ☐ Time to respond to customer problems
    - ☐ Flexibility /responsiveness (i.e., ability to vary product characteristics)
    - ☐ Customer satisfaction (e.g., results from customer surveys, number of customer complaints)
    - ☐ Customer acquisition (e.g., number of new customers, percent sales from new customers)
    - ☐ Customer retention/ loyalty (e.g., number of repeat customers)
    - ☐ Mystery shopping by someone pose as customer
    - Other (please list):……………………………

    2. INTERNAL OPERATING PERFORMANCE MEASURESFOR YOUR DEPARTMENT (Check all that apply.)

    - ☐ Production volume
    - ☐ Labor productivity (e.g., hours used/hours available, overtime hours)
    - ☐ Machine productivity (e.g., hours running/hours available, downtime on equipment)
    - ☐ Material usage (e.g., material usage inefficiency, material waste)
    - ☐ Setup efficiency (e.g., setup time, number of setups)
    - ☐ Manufacturing cycle time (e.g., total process time)
    - ☐ Inventory (e.g., inventory turnover)
    - ☐ Product defects (e.g., number of errors, rework, scrap)
    - ☐ New product introductions (e.g., total number, percentage of sales from new products)
    - ☐ New product-design efficiency (e.g., time to develop new products, on-time schedule)
    - ☐ Working condition/environment
    - Other (please list):……………………………

3. EMPLOYEE-ORIENTED PERFORMANCE MEASURESFOR YOUR DEPARTMENT (Check all that apply.)
   A. Innovation Performance Measures For your department (Check all that apply.)
   - Employee empowerment (e.g., number of suggestions submitted, % of employees on improvement teams)
   - Modernization with the new skills or technology
   - Problem solving
   - Ability in making comparisons (individual or group)
   - The power of information technology
   - National and international awards;
   - Specific improvement initiatives
   - The changing nature of work

   Other (please list):………………………

   B. LEARNING PERFORMANCE MEASURESFOR YOUR DEPARTMENT (Check all that apply.)
   - Employee training/education (e.g., number of hours or % of employees' time allocated for training)
   - Employee loyalty/turnover (e.g., years in job, years with firm, absenteeism)
   - Efficiency
   - Time of employee devotes
   - Safety (e.g., number of accidents, number of injuries)
   - Employee satisfaction (e.g., results of employee surveys, number of grievances filed)
   - Employee skills (e.g., level of education, level of experience)

   Other (please list):………………………

3. SUSTAINABILITY RELATED MEASURES FOR YOUR DEPARTMENT (Check all that apply.)
   - Address perspectives of resources consumption (e.g., energy, material, water, land, waste, cost, human capital, invest capital)
   - Concentrate on perceptions of value creation (e.g., performance, satisfaction, human health, information content, Business competency)
   - Economic, environment and social aspects included in evaluation of performance (triple bottom line considered)
   - Evaluation considering each stage of product life cycle (e.g., supply, manufacturing, use, disposition, recycle or reuse)
   - Leading indicators (e.g., process or material efficiency improvement)
   - Lagging indicators (e.g., measure of outcome or result)

   Other (please list):…………………………

4. SUBJECTIVE PERFORMANCE MEASURES FOR YOUR DEPARTMENT (Check all that apply.)
   The above categories dealt with the performance measures that are quantified and reported on a regular basis. However, performance evaluations by upper management also may include subjective assessments of various, not always clearly specified, aspects of performance. Which of the following factors do you believe upper management makes an assessment of when evaluating your performance? (Check all that apply.)
   - My long-term perspective on the business
   - My ability to effectively acquire new skills /knowledge
   - My willingness to share knowledge within the organization
   - My cooperation with other departments within the organization
   - My managerial skills
   - My loyalty toward the firm
   - Employee spirit /morale in my department
   - My ability to compare with other organizations in the same sector
   - My ability to focus on areas that drive business success.
   - My understanding over research competitors and market trends

   Other (please list):………………………………

5. PLEASE LIST KEY PERFORMANCE INDICATORS (KPIs) YOU FOLLOW TO UNDERSTAND THE OVERALL PERFORMANCE OF YOUR INDUSTRY (In chronological order)

   a) _____
   b) _____
   c) _____
   d) _____
   e) _____

The above measures can be classified into three categories: (1) financial performance measures (from Section 1 above); (2) objective nonfinancial performance measures (Sections 1, 2, 3); (3) sustainability performance measures (Section 4); (4) subjective performance measures (Section 5), and 5. Key performance indicators used which are the terminologies we use in the questions that follow.

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