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FACTORS INFLUENCING EFFECTIVE INVENTORY MANAGEMENT IN THE TEXTILE INDUSTRIES OF BANGLADESH

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ABSTRACT

*The aim of the study is to examine the factors that influence effective inventory management in the Textile Industries of Bangladesh. Five factors namely, planning for inventory management (PL), record keeping (RK), procurement (PR), staff characteristics (SC) and storage system (SS) have been used for justifying the effective inventory management (EIM). There are 1461 textile companies in Bangladesh, but in this study the target population area has been considered for Chittagong only; there are 152 textile companies in Chittagong area. In each company's concerned authorities, like, Head of Administration, Store Officer, Commercial Officer, Accounts Manager and Production Manager has been considered as population for this study. Therefore, with considering at least one concerned person, the target population becomes (152*5) 760. Out of these 760 populations, 120 respondents have been considered as sample for this study. 10% pilot test was done to confirm the validity and reliability of the research instrument. The collect data was analyzed with the help of Statistical Package for Social Science Version. It is found that planning for inventory management (PL), staff characteristics (SC) and storage system (SS) have positively and significantly influenced the effective inventory management (EIM).*

KEYWORDS: *Inventory Management, Textile Industry of Bangladesh*

Article History

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INTRODUCTION: BACK OF THE STUDY

Today "Made in Bangladesh" has been considered one of the top-class brands and praised by the rest of the world. It has been come true due to the Garments Industry of Bangladesh and it is evident that Garments Industry is largely dependent on Textile Industry. Textile Industry is highly manufacturing and varied items to handle. Large amounts of inventories need to keep supporting smooth production. Since, the prospect and success of any business relies deeply on the ability to effectively manage receivables, inventory, and payables. This is important from the point of view of both liquidity and profitability. When there is a poor management of working capital, specially, inventory management, funds may be unnecessarily tied up in idle assets. This will reduce liquidity of the company as well the company will lose its capability to invest in productive assets like plant and machinery. It will affect profitability of the company for the long run (Zeng & Hayya 1999).

According to Klosterhalfen et al. (2018), well and efficiently controlled inventories can contribute to the effective operation of the firm and hence the firm's overall profit. It will lose its competitiveness and suffer a lot not to comply with going concern assumption. According to Jaber, (2009) a firm, which neglects the management of inventories, will have to face serious problems relating to long-term profitability and may fail to survive. Proper management of inventory plays a big role in enabling other operations such as production, purchases, sales, marketing and financial management to be carried out smoothly. Basic challenge however is to determine the inventory level that works most effectively with the operating system or system existing within the organization (Yator, V., & Moronge, M. 2018).

Therefore, it is vital for the company to ensure whether it has managed to maintain optimum levels of investment in materials (Peter, 2000). Inventory control is a major objective of any organization for better productivity, performance of the operation of the organization and maximization of the profit (Jacobs et al. 2009). Inventories (materials) are like rivers. They must flow. The rivers are life giving and should not "dry up" but on the other hand should not flood (Schonberger & Knod, 1991).

Effective inventory management has for a long time been seen as the best strategy in achieving competitive advantage through efficient and effective manufacturing and distribution activities. Companies have equally achieved the required level of inventory management through effective supply chain management. Proper inventory management helps to reduce cost by avoiding wastage of money. The need to maintain inventory of raw materials, work in progress, loose tools and other components is to ensure that there is enough safety stock. Companies should however not keep large inventory for safety purposes to reduce the cost of operations and of maintaining inventory (Kolias et al. 2011).

Considering the importance of keeping standard amount of inventories it is important to know which factor or factors are most important and less important to influence or affect the effective inventory management. Although extensive works have been done in international area such as Ondiek (2016); Akarro et al. (2011); Eroglu & Hofer (2011); Koumanakos (2008); Rajeev (2008) and Fullerton et al. (2003) as well as some studies have been done in Bangladesh, such as Biswas S.K. et al. (2017), Solayman Hoque A.K.M. et al., (2015); Khan M. S. R., (2020); Chowdhury A.H.M. Y. & Hossain S. (2020) but so far knowledge goes, no work has been done to investigate the factors influencing the effective inventory management of Textile Companies in Bangladesh.

Textile Industry of Bangladesh

"Made in Bangladesh"-this tag has fetched glory for Bangladesh and make this glory as a prestigious brand throughout the world. For a very long-time textile sector plays an important role of Bangladesh's economy. This sector is the most growing and export earning oriented source. After China, Bangladesh now becomes the second largest ready-made garments exporter. "RMG sector which got this position and came to rescue the traditional markets and foreign earnings when jute and jute related goods were in drastic fall in traditional and foreign markets. With the help of backward and forward linkage of economic activities, RMG sector steadily imbued dynamism in the domestic economy as well as export while the traditional export sector failed to yield their expected performance" (Bhattacharya et al. 2002).

In Bangladeshi economy, Textile sector contributes more than 12% in total GDP, whereas over 81% of the export earning comes from Textiles & Textile related products. In case-of, socio-economic point of view, this sector generates employment for more than 5 million people where 80% are female as well generates huge cliental base for Banking, Insurance, Shipping, Transport, Hotel, Cosmetics, and Toiletries & related economic activities. Currently, 1461 textile mills out of which 796 fabric producing mills, 425 yarn manufacturing mills and 240 dyeing printing mills those

capitalizations is over 6 billion US dollars (BTMA, 2021).

Statement of the Problem

For every organization, particularly, manufacturing organizations, inventory is considered as the life blood. Since, the shortage of materials to meet sudden increase in customers demand, reduction in profit margin, low returns on equity, wastages of materials and pilferage arising due to excess stock, so it is vital to manage inventory. Huge funds are committed to inventories as to ensure smooth flow of production and to meet consumer demand (Ondiek, 2016; Khan M. S. R. 2020). Effective Inventory Management (EIM), therefore, plays a crucial role in balancing the benefits and disadvantages associated with holding inventory. Efficient and effective inventory management goes a long way in successful running and survival of a business firm. Inventory management is common practice in business organizations, an evolution for inventory management from JIT to lean inventory systems to supply chain management has emerged (Jacobs et al. 2009). Bangladesh Textile sector lacks in EIM practices due to unpredictability in business operations mostly. In the era of intense competition with other RMG producing nations, this sector must follow EIM practices in order to remain competitive (Khan M. S. R. 2020; Chowdhury & Hossain, 2020). Against this backdrop, thus, the purpose of this study is to examine the factors affecting or influencing the effective inventory management in the Textile Industries of Bangladesh.

Objectives of the Study

General Objective

The main objective of this study is to examine the factors affecting or influencing the effective inventory management in the Textile Industries of Bangladesh.

Specific Objectives

- To establish the effect of inventory planning on the effectiveness of inventory management in textile industries in Bangladesh.
- To find out the effect of record keeping on the effectiveness of inventory management in textile industries in Bangladesh.
- To assess the role of procurement on the effectiveness of inventory management in textile industries in Bangladesh.
- To establish how staff characteristics affect the effectiveness of inventory management in textile industries in Bangladesh.
- To determine the role of storage system on the effectiveness of inventory management in textile industries in Bangladesh.

Design of the Present Study

In the second part of this paper, an extensive literature review has been made, in the third section, research methodology has been shown, in the fourth section findings and analysis have been made and in the final part, conclusion and avenues for future research have been discussed**.**

LITERATURE REVIEW

In this section, two-way analyses have been made. In the first part, variables considering for the present study have been discussed for formulating conceptual framework as well to set hypotheses, and in the second part, extensive literature has been reviewed to find out the literature gap.

Factors Influencing Effective Inventory Management

Planning for Inventory Management

Inventory planning and control are crucial in most organizations, including manufacturing, wholesale, grocery stores, retail businesses, the auto industry, military, and government. In traditional manufacturing companies, this ratio is about 40% of capital investments. Therefore, it is not surprising that inventory planning is one of the oldest fields of study in production, manufacturing, and operation systems (Behnam M. 2014).

Inventory Record Keeping System

Inventory record system is most important part of the any kind of organizations. Also, it has been helped to reduce stock outs, inventory frauds, obsolescence etc. Thomas & Michael, (2000) said inventory should be recorded, manually or using an automated management information system. Also, accurate records are a necessity to effective inventory management. According to Burton (1989) cited by (Mwangi, 2013) inventory record inaccuracy has had a significant impact on decreasing levels of customer service, increasing costs, and decreasing productivity.

Procurement

Procurement is the process of obtaining products and services from suppliers. Procurement and inventory management are critical to production companies as well as to service companies, as spending in procurement is often one of the biggest parts of the company's budget. This means knowledge about strategies, concepts, process, methods and technical system in the areas of procurement and inventory management (*Pushpakumara, W.M.P.G.R. 2018).*

Staff Characteristics

Storehouse staff is responsible for receiving and storing inventory, recording inventory information, security system of inventory etc. Therefore, staff characteristics are most important factor of controlling store room activities. According to Thomas & Michael, (2000) people in stores are responsible for the distribution of inventory to all storage or using locations and they are also responsible for the physical security and safekeeping of inventory at all stores' places and for all storekeeping activities, including inventory receiving, put-away, and inventory picking and distribution. According to James, (2013) qualified staff that is capable and skilled will help the organization to achieve its goals and objectives by being efficient and effectively.

Storage System

Each of inventory items has been enough space in storehouse and it has handled by suitable system. Kumar & Suresh, (2006) said store management involves physical control of inventories, preservation of stores, minimization of obsolescence and damage though timely disposal and efficient handling, maintenance of stores records, proper location and stocking. According to Ogbo, Victoria, & Ukpere, (2014) inventory managers have to stock-up when required and utilize available storage space resourcefully, so that available storage space is not exceeded. Cases of stock outs of materials are

as a result of poor documentation, poor monitoring of inventory levels and lack of control of stock movement within the stores (Wauna, S. & Obwogi J., 2015).

Storage systems and organizations performance are closely related. The benefits achieved through properly established storage systems are reduced storage costs, minimum deterioration, avoid misuse of space hence enable the organization to achieve its organizations efficiency (Odhiambo, O. B. & Janet, J. 2016).

Effective Inventory Management

Waste Reduction as a Result of Effective Inventory Management

The production and management of waste is a strategic issue for all companies, since it has organizational implications, particularly on profitability of the companies. Ameer & Othman (2012) observed the relationship between waste reduction and economic-financial performance in a population of 100 companies. They identified better results for these firms (growth of sales, ROA, pre-tax profits and operational cash flows).

The efficient utilization of machines while producing in reduced WIP inventories, reduced throughput times and reduction in lead times leads to competitive manufacturing and thus it will lead to increase the organizational performance (Gupta, S.K. et at. 2012).

Timely Delivery of Products and Services as a Result of Effective Inventory Management

The dominant theme of the operations management literature over the past century has been to improve operational performance. This can be achieved by reducing the lead time from raw materials to finished goods (faster cycle times), reducing the amount of waste in the process (managing the input and output quality), and by reducing the quantity of physical units held by the firm (working with suppliers and customers) (Beshkooh, M. et at. 2013).

Ability to Meet Shareholders' Objectives as a Result of Effective Inventory Management

Inventory management plays a vital role in every organization since ineffective inventory system will result in loss of customers, sales and ultimately profits. An effective inventory management is able to create more sales for the company which directly affects the performance of the company in terms of profitability and therefore, increase shareholders wealth. (Syed, B. et at. 2016).

Incredible cost savings and possible revenue can be realized through better management of inventory (Anichebe & Agu, 2013; Kakeeto, F. et at. 2017). It is confirmed that a company could cut down on its total expenses by at least two percent through better inventory management and distribution of finished goods (Kimaiyo & Ochiri, 2014).

Huson & Nanda (1995) showed that the improvement of inventory turnover by a sample of 55 firms led to an increase in earnings per share. Deloof (2003) disclosed a significant negative relation between gross operating income and the number of inventories days for a sample of non-financial Belgian firms during the period 1992-1996, suggesting that managers can create value for their shareholders by reducing the number of inventories days to a reasonable minimum.

Empirical Literature on Factors Affecting Effective Inventory Management

Annet A. K., and Dr. Anthony O. (2020) conducted a study to establish the Determinants of Inventory Management on Service Delivery in Trans Nzoia County Level Four Hospital, Kenya. The target population was 200 respondents who comprised of employees from the following departments in Tran Nzoia Level four hospital; procurement, finance,

pharmacist and administration department resource respectively. Service delivery significantly influences effort of respondents, most notably through the JIT shortening of lead time, staff competence, record management practices and the up-take of information and communication technology in all level four hospital in Kenya.

Pushpakumara W.M.P.G.R. (2018) conducted a study to identify the factors affect to effective inventory management system in government sector organizations in Sri Lanka, as well as to identify the type of inventory control system applied by government sector organizations and to give suggestion to government sector organization to handle proper inventory management system. The study concluded that inventory record system, storage system, wastage system, procurement system, security system and investment in inventory are affected to effective inventory management system and staff characteristics and method of inventory are not affected to effective inventory management system in government sector organizations in Sri Lanka.

Okwaro et at. (2017) conducted a study to assess factors affecting the effectiveness of inventory management practices in Kenya Seed Company. The target population was 110 management staff working at the Company's procurement departments from which a sample size of 87 respondents was drawn. Staff training, level of technology, stock evaluation and procurement policies had a positive and significant association on the efficiency of inventory management at Kenya Seed Company. The results showed that most of the staff do not have necessary competency to run the procurement function, there is poor stock audit practices, outdated procurement systems and long bureaucratic procedures.

Hari B. B. (2017) conducted a study to assess the factors affecting the efficiency of inventory management of Janapriya Multiple Campus, Pokhara. Factors related with proper record keeping of inventory, financial resources, skill possessed by store staff and bureaucratic procurement procedure positively influenced to the effectiveness of inventory management.

Shiau W. C. et al. (2017) conducted a study to identify the problem of inventory management faced by the manufacturing small medium enterprise and also to determine the factors that will influence the effectiveness of inventory management. The factors, documentation/store records, planning, knowledge of employees/staff skill have shown to significantly influence the effectiveness of inventory management while the funds have shown slightly significant influence on the inventory management in manufacturing small medium enterprises.

Vibhuti T. and Priyanka K. (2016) conducted a study to identify the determinants of effective inventory management of Consumer Durable Retailers among 60 retailers from Allahabad, Lucknow, and New Delhi dealing with consumer durables. Four Factors of Retailer Size, Supplier Relationship, Service Level and Demand Uncertainty emerged as the determinants of effective inventory management. Positive relationship was found between Retailer Size, Supplier Relationship, Demand Uncertainty and Effective Inventory Management through regression analysis.

Bosek, E., et al (2016) conducted a study to establish the determinants of effective inventory management in health project in Kenya. To achieve the objective, they adopted a census survey of the 75 respondents.

Elema B. G. and Dr. Karanja N. (2014) conducted a study to Determine the factors influencing effective inventory management at Kenol Kobil Limited. The study was guided by four objectives (information technology, distribution channels, Staff Competency and material handling equipments. The target population was procurement managers, stores managers and other stores personnel in the Kenol Kobil. The study found out that information technology reduces lead times on effective inventory management. The study also found that Most employees have basic Staff competency (competencies) on inventory management at Kenol Kobil.

Kariuki J. N. (2013) conducted a study to make an assessment of the factors influencing effectiveness of inventory control; Ministry of State for Provincial Administration and Internal Security; Nairobi. The study revealed that: delays in procurement of goods, frequent stock-outs and uncertain change of prices were some of the effects of long bureaucratic procurement procedure. The study also revealed that unavailability of stationeries/stores records, lack of specific time or date for both posting stores records, lack of adequate qualified and well-trained staff hinders effective performance.

Literature Gaps to be Filled

According to the above-mentioned literature review, it is observed that there are various factors influencing the effective inventory management system. Overstocking, poor supplier relationships and poor utilization of information technology leads to poor management of inventory and influence the performance of the production function. It is also seen that, all the literature works have been done on manufacturing sectors, garments sector, private sectors, public sectors, education sectors and others in international level. But, no work, so far, our knowledge goes; has been conducted in Bangladeshi Textile Companies. Against this backdrop, the study sought to fill the present gap, as to know the factors influencing effective inventory management of the textile companies in Bangladesh.

Conceptual Framework

The conceptual framework displays connection between the independent variables to the dependent variable (Kombo et al. 2006). According to Kothari (2008) a dependent variable relies on the other variable while an independent variable is the predictor variable. The following figure (Figure-1) discloses the proposed model to describe the present study.

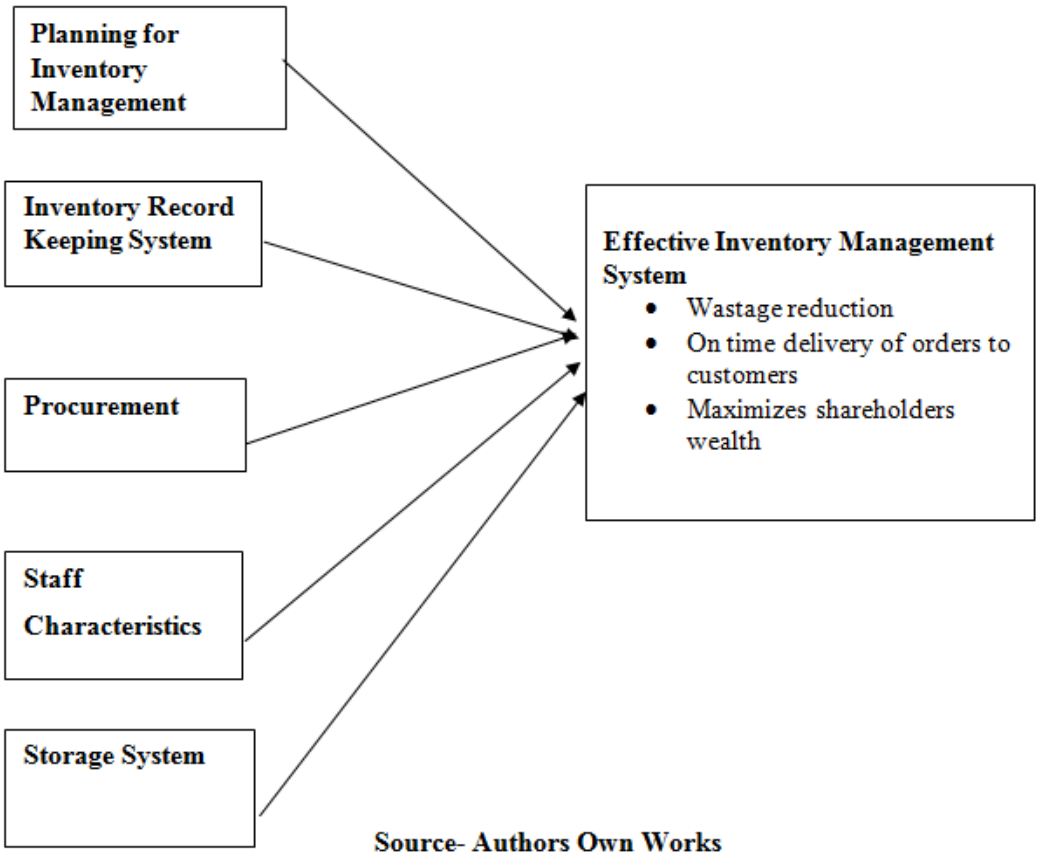

Figure 1: Hypothesized Model of the Proposed Research

Hypothesis of the Study

According to literature review that has been explained above, hypothesis that are being developed in this research are as below:

- **H1:** Planning for Inventory Management as an influencing factor that has significant effects on effective inventory management of textile companies in Bangladesh.
- **H2:** Inventory Record Keeping System as an influencing factor that has significant effects on effective inventory management of textile companies in Bangladesh.
- **H3:** Procurement as an influencing factor that has significant effects on effective inventory management of textile companies in Bangladesh.
- **H4:** Staff Characteristics as an influencing factor that has significant effects on effective inventory management of textile companies in Bangladesh.
- **H5:** Storage System as an influencing factor that has significant effects on effective inventory management of textile companies in Bangladesh.

METHODOLOGY OF THE STUDY

Area of the Study

Since this study is qualitative and primary data based, and for the convenience of data collection, it has been considered Chittagong is the suitable to the authors. So, population will ultimately be considered for Chittagong only.

Target Population and Sample

Table- 2 shows that there are 1461 textile companies in Bangladesh, but in this study the target population area has been considered for Chittagong only; there are 152 textile companies in Chittagong area.

Table 2: Number of Textile Firms in Bangladesh and Chittagong

Categories of Textile Firms	Number of Firms in Bangladesh	Number of Firms in Chittagong (Studied Population)
Yarn Manufacturing Mills	425	52
Fabric Manufacturing Mills	796	79
Dyeing-Printing-Finishing Mills	240	21
Total	1461	152

Source: BTMA (2020)

From Table-2, it is already mentioned that the total number of textile companies in Chittagong is 152. This study employed a survey of all the 152 existing firms. In each company's concerned authorities, like, Head of Administration, Store Officer, Commercial Officer, Accounts Manager and Production Manager has been considered as population for this study. Therefore, with considering at least one concerned person, the target population becomes (152*5) 760. Out of these 760 populations, 120 respondents have been considered as sample for this study. From the above calculation, it is seen that in this study it would be satisfactory amount of size of the sample is 89. Table-3 shows the sample of the respondents.

Table 3: Number of Population and Sample

Categories of Work Positions	Studied Population in Number	Studied Sample in Number	Proportion of Population
Head of Administration	152	28	18.4
Store Officer	152	16	10.5
Commercial Officer	152	15	9.86
Accounts Manager	152	32	21.05
Production Manager	152	29	19.07
Total	760	120	15.79

Source: Authors' Field Survey and Own Calculation

Data Collection Methods

A self-constructed questionnaire has been taken as data collection method for the present study. Ten (10) respondents were used to test the validity and reliability of the research instrument –the questions; they were in the textile sector. After pre-testing, it had been made a review about the questionnaire whether there were any inconsistencies in the instrument those are corrected.

Data Analysis and Presentation

Data was analyzed using descriptive statistics and multiple regression analysis with the help of SPSS 21. Regression analysis was used to examine the influence of factors affecting effective inventory management. The multiple regression model was as follows:

$$EIM=\alpha 0+ \alpha 1PL+ \alpha 2RK+ \alpha 3PR+ \alpha 4SC+ \alpha 5SS+ei$$

Where,

EIM= Effective Inventory Management

α= Constant

PL= Planning for inventory management

RK= Record Keeping

PR= Procurement

SC= Staff Characteristics

SS= Storage System

α1, α2, α3, α4 and α5 are coefficients of the determinants of the factors influencing the effective inventory management of textile companies in Bangladesh

ei= error term

FINDINGS AND ANALYSIS

In this section, an attempt has been made to uncover the research objectives. Descriptive analysis has been made to show the responses of the respondents. Pearson correlation analysis has been made to observe the relationships among the variables. And in the final part, multiple regression analysis has been made to test the hypotheses.

Descriptive Analysis of Factors Influencing Effective Inventory Management

The respondents were asked to state the factors affect or influence the effective inventory management and the responses were collected by using a five-point Likert scale as follows:

1= Not at all; 2 = Small extent: 3 = Moderate extent: 4 = Large extent: 5 = Very large extent.

The responses given by the respondents are analyzed as follows:

Table 4: Factors Influencing Effective Inventory Management

Factors Influencing Effective Inventory Management			Frequency	Percent	Mean	SD	Ranking
Planning	The organization has good plans for inventory management	Not at all	1	.8	3.81	0.89	1st
		Small extent	9	7.5			
		Moderate extent	28	23.3			
		Large extent	55	45.8			
		Very large extent	27	22.5			
		Total	120	100.0			
	All members responsible for inventory control are involved in inventory planning	Not at all	1	.8	3.61	0.87	4th
		Small extent	12	10.0			
		Moderate extent	36	30.0			
		Large extent	55	45.8			
		Very large extent	16	13.3			
		Total	120	100.0			
	Inventory suppliers are involved in inventory planning	Not at all	1	.8	3.69	0.83	2nd
		Small extent	7	5.8			
		Moderate extent	39	32.5			
		Large extent	54	45.0			
		Very large extent	19	15.8			
		Total	120	100.0			
	Inventory control plans are communicated throughout the organization	Not at all	1	.8	3.63	0.83	3rd
		Small extent	10	8.3			
		Moderate extent	36	30.0			
		Large extent	58	48.3			
		Very large extent	15	12.5			
		Total	120	100.0			
Average of averages					3.69	0.855	1st
Record Keeping	Online record keeping system is better than manual record keeping system to manage inventory	Not at all	1	.8	3.70	0.86	1st
		Small extent	7	5.8			
		Moderate extent	40	33.3			
		Large extent	50	41.7			
		Very large extent	22	18.3			
		Total	120	100.0			
	The use of online record keeping system is easily understood	Not at all			3.66	0.76	2nd
		Small extent	7	5.8			
		Moderate extent	42	35.0			
		Large extent	57	47.5			
		Very large extent	14	11.7			
		Total	120	100.0			
	Online record keeping system is more reliable	Not at all	3	2.5	3.65	0.84	3rd
		Small extent	6	5.0			
		Moderate extent	34	28.3			
		Large extent	63	52.5			
		Very large extent	14	11.7			
		Total	120	100.0			
Average of averages					3.67	0.82	
Procurement	Procurement function has a link to inventory management	Not at all			3.74	0.67	1st
		Small extent	3	2.5			
		Moderate extent	38	31.7			
		Large extent	66	55.0			

		Very large extent	13	10.8			
		Total	120	100.0			
	Procurement team plays significant role to keep effective time management	Not at all			3.65	0.76	2nd
		Small extent	6	5.0			
		Moderate extent	44	36.7			
		Large extent	55	45.8			
		Very large extent	15	12.5			
		Total	120	100.0			
	To form an efficient Procurement team needs proper training	Not at all	1	.8	3.55	0.73	3rd
		Small extent	4	3.3			
		Moderate extent	53	44.2			
		Large extent	52	43.3			
		Very large extent	10	8.3			
		Total	120	100.0			
Average of averages					3.65	0.72	
Staffs Characteristics	Staffs required to be well trained for effective inventory management	Not at all	1	.8	3.55	0.70	1st
		Small extent	4	3.3			
		Moderate extent	51	42.5			
		Large extent	56	46.7			
		Very large extent	8	6.7			
		Total	120	100.0			
	Corruption of staffs hinder to effective inventory management	Not at all	1	.8	3.30	0.74	3rd
		Small extent	13	10.8			
		Moderate extent	59	49.2			
		Large extent	43	35.8			
		Very large extent	4	3.3			
		Total	120	100.0			
	Staffs should be motivated for effective inventory management	Not at all	1	.8	3.50	0.68	2nd
		Small extent	5	4.2			
		Moderate extent	51	42.5			
		Large extent	58	48.3			
		Very large extent	5	4.2			
		Total	120	100.0			
Average of averages					3.45	0.70	
Storage System	Storage system has a significant impact on effectiveness on inventory management	Not at all			3.70	0.67	1st
		Small extent	2	1.7			
		Moderate extent	40	33.3			
		Large extent	64	53.3			
		Very large extent	14	11.7			
		Total	120	100.0			
	Effective storage facility enhances organizational productivity	Not at all			3.64	0.64	2nd
		Small extent	2	1.7			
		Moderate extent	48	40.0			
		Large extent	61	50.8			
		Very large extent	9	7.5			
		Total	120	100.0			
	Effective storage system reduces costs	Not at all			3.60	0.67	3rd
		Small extent	4	3.3			
		Moderate extent	48	40.0			
		Large extent	60	50.0			
		Very large extent	8	6.7			
		Total	120	100.0			
	Effective storage system lessens the chances of obsolescence and thus decreases the time to count inventories	Not at all			3.50	0.67	4th
		Small extent	5	4.2			
		Moderate extent	55	45.8			
		Large extent	54	45.0			
		Very large extent	6	5.0			
		Total	120	100.0			
Average of averages					3.61	0.66	

Source: Research Data (2020)

From the above table it is clear that inventory planning is the most influencing factor in case of effectiveness of inventory management with a highest average mean value of 3.69 and a standard deviation of 0.85. The organization that has good plans for inventory management is in the leading with mean value of 3.81 and all members responsible for inventory control are involved in inventory planning is in the lowest with mean value of 3.61. This is followed by record keeping system of the firm with an average mean value of 3.67 and standard deviation of 0.82. Online record keeping system is better than manual record keeping system to manage inventory shows the highest mean value of 3.70 than the remaining two factors. The third factor influencing effective inventory management is procurement procedure with an average mean value of 3.65 and standard deviation of 0.72. Here the highest influencing factor is procurement function that has a link to inventory management with mean value of 3.74. Storage system of the firm placed in the fourth position in the table with an average mean value of 3.61 and standard deviation of 0.66. In this case, storage system has a significant impact on effectiveness on inventory management shows the highest mean value of 3.70. Final factor influencing effective inventory management is the staff characteristics of firm with lowest average mean value of 3.45 and standard deviation of 0.70. The factor staffs required to be well trained for effective inventory management shows the highest mean value of 3.55.

Determinants of Effective Inventory Management

The respondents were asked to indicate which factor is responsible or considered for Effective Inventory Management. The analysis is based on a Likert scale of 1-5 where; 1 = Not at all; 2 = little extent; 3 = moderate extent; 4 = large extent; 5 = very large extent. The analysis was done using descriptive statistics as follows:

Table 5: Factor Responsible for Effective Inventory Management

Factor Responsible for Effective Inventory Management		Frequency	Percent	Mean	SD	Ranking
Through inventory management approaches the firm has experienced wastage reduction	Not at all	-	-	4.10	0.31	3rd
	Little extent	-	-			
	Moderate extent	-	-			
	Large extent	107	89.2			
	Very large extent	13	10.8			
	Total	120	100.0			
Through Effective inventory management approaches firms can facilitate on time delivery of orders to customers	Not at all	-	-	4.20	0.51	2nd
	Little extent	-	-			
	Moderate extent	6	5.0			
	Large extent	83	69.2			
	Very large extent	31	25.8			
	Total	120	100.0			
Effective Inventory management approaches have led to firm's overall objectives and thus maximizes shareholders wealth	Not at all	-	-	4.30	0.68	4th
	Little extent					
	Moderate extent	15	12.5			
	Large extent	54	45.0			
	Very large extent	51	42.5			
	Total	120	100.0			
Average of the Averages				4.20	0.50	

Source: Research Data (2020)

The above table shows the factors responsible for effective inventory management of the firm which had produced an average mean with a value of more than 4.0 which is lies between large to very large extent. The mean scores also show that effective inventory management approaches have led to firm's overall objectives and thus maximizes shareholders wealth ranks high with a mean score of 4.30. Through Inventory management approaches the firm has experienced wastage reduction ranked low with a mean score of 4.10. None of the respondents disagreed about the factor responsible for effective inventory management of the textile firms in Bangladesh. Grand mean is more than 4.00 which shows that, factor responsible for effective inventory management had large to very large extent of the firm which was analyzed through three distinct questions. Standard deviation was also within the range of 0.31 to 0.68 which indicates that high similarity in the responses.

Impact of Factors Influencing the Effective Inventory Management

To justify the impact of factors influencing the Effective Inventory Management, Pearson correlation analysis and multiple regression analysis have been conducted.

Correlation Analysis

Table 6: Correlations Analysis

		PL	RK	PR	SC	SS	EIM
PL	Pearson Correlation	1					
	Sig. (2-tailed)						
RK	Pearson Correlation	.351**	1				
	Sig. (2-tailed)	.000					
PR	Pearson Correlation	.417**	.278**	1			
	Sig. (2-tailed)	.000	.002				
SC	Pearson Correlation	.217*	.175	.261**	1		
	Sig. (2-tailed)	.017	.056	.004			
SS	Pearson Correlation	.254**	.139	.276**	.411**	1	
	Sig. (2-tailed)	.005	.130	.002	.000		
EIM	Pearson Correlation	.143	.208*	.263**	.377**	.492**	1
	Sig. (2-tailed)	.119	.022	.004	.000	.000	
	N	120	120	120	120	120	120
**. Correlation is significant at the 0.01 level (2-tailed).							

From the above table, it is observed that, planning for inventory, record keeping, procurement, staff characteristics and storage system are significantly related with effective inventory management.

Regression Analysis

A multiple linear regression analysis was conducted to investigate the impacts of factors influencing effective inventory management of the textile companies in Bangladesh.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.551	.304	.273	.390	.369	12.809	5	114	.000	1.982

Source: Authors' Own Study

From the above table it is found that, the Adjusted R Square is 0.551 which means that there was 55.1 % positive variation in effective inventory management is accounted for by the variation of the factors on the other hand, the rest 44.9% variation in effective inventory management is not accounted for by the variation of the factors or accounted by other factors that are not used in this model.

Table 8: ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.578	5	1.516	12.809	.000
	Residual	17.376	114	.152		
	Total	24.955	119			

Source: Authors' Own Study

From the ANOVA table, it is found that the significant value for the model was 0.000 which means that the overall model was statistically significant since it is lower than 0.05.

Table 9: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.991	.370		5.386	.000
	PL	.064	.068	.084	1.533	.053
	RK	.091	.064	.121	1.430	.155
	PR	.084	.069	.109	1.219	.225
	SC	.144	.068	.185	2.119	.036
	SS	.324	.073	.390	4.433	.000

From the above table, it is found that holding the independent variables constant, Effective Inventory Management (EIM) index would be 1.991. A unit increase in Planning (PL) would lead to an increase in Effective Inventory Management (EIM) by unit of 0.064 showing a positively significant impact. At the same time, a unit increase in Record Keeping (RK) would lead to an increase in EIM by 0.091 showing an insignificant impact. Again, a unit increase in Procurement (PR) would lead to an increase in EIM by 0.084 showing an insignificant impact. On the other hand, a unit increase in Staff Characteristics (SC) would lead to an increase in EIM by 0.144 showing a positively significant impact. Finally, a unit increase in Storage System (SS) would lead to an increase of 0.324 in the EIM showing a positively significant impact.

CONCLUSIONS AND AREAS FOR FUTURE RESEARCH

Conclusions

The study wanted to examine the impact of factors influencing the effective inventory management in the textile industries of Bangladesh. Five factors namely, planning for inventory management (PL), record keeping (RK), procurement (PR), staff characteristics (SC) and storage system (SS) have been used for justifying the effective inventory management. It is found that planning for inventory management (PL), staff characteristics (SC) and storage system (SS) have positively and significantly influenced the effective inventory management (EIM).

Areas for Future Research

The present study has been conducted to examine the factors influencing the effective inventory management of textile companies in Bangladesh particularly in Chittagong. The study used primary data that was gathered exclusively using a questionnaire. Future studies ought to be conducted to cover other sectors like technology, insurance and banking. Future studies should also be conducted using both primary and secondary data.

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