American Journal of Innovation in Science and Engineering (AJISE)

ISSN: 2158–7205 (ONLINE)

VOLUME 5 ISSUE 3 (2026)

PUBLISHED BY
E-PALLI PUBLISHERS, DELAWARE, USA

American Journal of Innovation in Science and Engineering (AJISE)

Volume 5 Issue 3, Year 2026
ISSN: 2158-7205 (Online)
DOI: https://doi.org/10.54536/ajise.v5i3.8184
https://journals.e-palli.com/home/index.php/ajise

Global Supply Chain Disruptions and Their Impact on Textile Industry Performance in Bangladesh

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Article Information

Received: June 27, 2026

Accepted: September 08, 2026

Published: September 28, 2026

Keywords

Bangladesh, Financial Performance, Global Supply Chain Disruption, Operational Performance, Supply Chain Resilience, Textile Industry

ABSTRACT

This paper looks at how disruptions in global supply chains have affected the performance of textile industry in Bangladesh especially focusing on the supply-side, demand-side and logistical disruptions. A quantitative, cross-sectional survey design was used to obtain the data, which was collected among 485 professionals that work in textile and ready-made garment companies, such as supply chain managers, production managers, procurement officers, logistics officers, merchandisers, and firm owners. The researchers used descriptive statistics, reliability analysis, correlation analysis, and multiple regression to assess the associations between disruption factors, operational performance, financial performance, and adaptive resilience strategies. The results also show that the world shocks have had a huge impact on the textile supply chains in Bangladesh by elevating the costs of inputs, slowing down the raw material supply, exacerbating freight and port issues, and creating uncertainty in purchasing demand. Results of the regression show that the logistical disruption predicts most the operational performance whereas supply-side disruption predicts the financial performance most. The impacts of demand side disruption on financial outcomes are also substantial with instability of the order, buyer pressure, and market uncertainty. In its study, the urgent necessity of supplier diversification, enhancement of logistics, digital surveillance, contingency planning, and enhanced buyer-supplier coordination are outlined. The findings have a place in the literature of supply chain resilience and have practical implications on the textile firms, policy makers, and stakeholders in the industry in Bangladesh.

INTRODUCTION

One of the largest industries in international commerce and the global supply chains is the textile and clothing industry and both supply chains are interdependent, geographically dispersed and complex. However, over the past decade, this industry has been exposed to a greater number of significant disruptions in the world, including COVID-19, geopolitical disputes, trade sanctions and limits, energy crises, and natural disasters. The turmoil has disrupted the normal principles of global supply chain management that was always grounded on being cost effective, lean inventories and just-in-time manufacture. Such strategies have made firms become competitive in the stable conditions, but have predisposed it to the shocks of the system.

Bangladesh being the second-largest exporter of ready-made garments (RMG) in the world has strategic location in the global textile value chain. It is one of its sectors which forms a pillar to the national economy since it contributes above 80 percent of the total export income of the country and it also provides employment to millions of residents within the country. Nevertheless, the glutaral features of the textile sector in Bangladesh, including a strong reliance on raw materials imported, export market concentration, and over-dependent on production cycles that are sensitive on time, that the sector is more vulnerable to global shocks (Islam *et al.*, 2025). Such shortcomings have been especially evident over the last few years with businesses being forced to grapple with the challenges of supply chain insufficiencies in the form of input shortages and higher prices before having to struggle with supply chain delays and fluctuating demand in the global market.

Disruption of global supply chains in the textile industry has a variety of impacts that relate to one another. The capacity of supply of vital inputs like yarn, fabric, dyes and accessories can be aborted resulting in delays in production and higher costs. Demand side disruptions may be brought about by economic uncertainty and changing consumer behavior and may be by cancelling orders, reduction in export volumes, and price pressure on international buyers. At the same time, logistical interruptions, e.g. congestion at ports, exploration of shipping, and an increase in freight costs, may substantially increase lead times, as well as interfere with the efficient movement of goods across the borders (Karim *et al.*, 2024). At the firm level, these effects of synergies are cascading based on the operational and financial performances.

Supply chain resilience is a concept that has been gaining increasing academic and practice-driven attention to overcome such challenges. The concept of resilience

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concerns the manner in which the supply chains are able to anticipate, absorb, and recuperate any disruptions in a continuity of the operations. It has proposed such strategies as supplier diversification, inventory buffering, digitalization, and a better coordination to enhance resilience (Musau, 2021). The degree to which such strategies are being embraced and their success underdeveloped country situations is however not well understood.

Despite the growing literature on the topic of disruptions in the global supply chain, there is a large gap of empirical research specifically on the textile industry in Bangladesh to analyse the industry using primary data. The majority of the studies at hand are conceptual or macro-based secondary data and, therefore, they cannot be utilized to get firm-level experiences and adaptive responses (Tusher and Tusher, 2021). Additionally, the interaction and cumulative effects of various forms of disruptions, such as supply-side, demand-side, and logistical ones, do not have much knowledge.

It is against this background that the present study aims to establish how the turmoil experienced around the world has affected supply chains of the textile industry in Bangladesh based on the empirical data obtained using surveys. In particular, the research focuses on analyzing the impact of the various dimensions of disruption on operational and financial performance and evaluating the importance of adaptive and resilience strategies in alleviating their impact (Ali *et al.*, 2021). This study potentially advances the literature on supply chain disruption and resilience by offering an in-depth and evidence-based study alongside practical implications to policymakers and stakeholders in the industry.

LITERATURE REVIEW

Global Supply Chain Disruptions

The global supply chains have evolved into highly integrated and reliant inter-connected networks that connect production, distribution and consumption in the various regions (Nayak *et al.*, 2022). This integration has facilitated companies to gain cost-efficiency, specialization as well as scalability. The same interconnectedness, however, has also facilitated vulnerability in the system, where failures started in one part of the system can easily spread in a short period to the whole network (Jana, 2022). The level and speed in which international disruptions occur have increased exponentially over the last few years, exposing structural flaws in the process of supply chain design and management.

The COVID-19 pandemic has been both one of the most significant interruptions in the history of the modern economy, in addition to disrupting supply, demand, and logistics (Finck & Tillmann, 2023). Shuttles and labor shortages, as well as mobility restrictions, impacted upstream production, whilst falling consumer demand and uncertainty, impacted downstream activity. In the meantime, the world transport systems have been put to the test as never before; the issue of port congestion, the shortage of containers and the high costs of freight (Sarker, 2019). All these interactions helped to understand that the traditional conceptions of the supply chain are more productive and less resilient to the traditional conceptions of the supply chain, where the emphasis lies on efficiency and does not take into account resilience.

Along with geopolitical tensions and trade wars, the pandemic has further complicated global supply chain operations. Sourcing trends and uncertainty in foreign trade have been changed because of trade restrictions, tariffs and sanctions (Rafique & Islam, 2025). Moreover, monetary instability due to change in the exchange rates and energy prices has affected the cost models and investment decisions. Also, it has been found that climate-related interruptions like floods, hurricanes, and extreme weather have become a major event of concern especially in industries where the production centres are located in geographically central places (Nguyen *et al.*, 2020).

The resultant processes may be termed as paradigm shift in the supply chain management where the increasing emphasis is drawn towards resilience, flexibility, and mitigation of risks (Md Shariful Islam, 2025). Companies are currently acknowledging that the efficiency focused models should be coupled up with measures that increase the capability to endure and recuperate during faults.

Structural Characteristics of Textile Supply Chains

The industry of textile and apparel is no exception having also a highly fragmented and spread across geographically dense model of supply chain (Reza and Du Plessis, 2022). The process of production is usually broken into various steps and some of these are fiber production, spinning, weaving, dyeing, finishing and garment production. These stages can be found in different countries, and their location can be determined by the comparative advantage in the cost of labor, availability of resources, and technological capabilities (Sandberg & Pal, 2024).

In the developing world, the textile value chains are closely reliant on imported raw materials and intermediate goods (Sahab & Oulfarsi, 2024). It is also vulnerable to external shocks particularly in times of hindrance in trade flows in the world. Concurrently, the sector manages within a stringent plan of progression and delivery timeframes with a bloom of the fast fashion and customer demands (Jebbor *et al.*, 2024). This type of time-consuming factor subjects it to time delay and other logistic and transport hassles.

An example of such structural features is the textile industry in Bangladesh. Even though it has also developed a large capacity in the manufacturing of garments, it heavily relies on the imports of raw materials such as cotton, yarn, and special fabrics (Grzybowska & Stachowiak, 2022). This dependence has weaknesses in the supply-side particularly at a time when the world is being rattled. Also, the industry has a high export orientation with high percentage of its production going to the foreign markets (Anderluh & Herburger, 2022). This reliance on the exogenous demand is further exposure to the demand side shocks.

Supply-Side Disruptions and Their Implications

Supply-side disruptions are the instances when the supply of inputs in the industry in terms of quantity, quality or price is disrupted (Charkha *et al.*, 2024). Such imbalances in the textile sector can take the shape of stalling of importation of raw materials, unreliability of suppliers, variation of prices and limits in production of raw materials in the upstream sectors (Badiru, 2021). These interferences directly impact on continuity of production and efficiency in the operation.

In situations where firms will also experience a lack of key inputs, they might have to stop or stall production hence they will have fewer capacities used and more lead times (Dendera-Gruszka & Kulińska, 2020). In addition, alterations in the cost of inputs may lead to an increase in the cost of production that will affect profitability and competitiveness (Khademul Islam, 2020). In Bangladesh, where the majority of business organizations use the imported resources, the supply side disruption can be very harmful.

Empirical studies have shown that one of the worst factors that affect supply chain performance in the developing economies is supply side disruption (Ahmad *et al.*, 2026). Companies that have poor access to substitute suppliers or access to finance are particularly susceptible as they can be incapable of adequately reacting to the disruptions (Rahaman & Islam, 2021). This has made the supply-side resilience an area of major study and application.

Demand-Side Disruptions and Market Uncertainty

The demand side disruption comes about change in consumer behavior, market conditions and preferences of buyer (Islam *et al.*, 2025). Such disturbances in the textile industry can manifest themselves in the form of order cancellation, demand reduction, pressure on prices and preferences change (Farrukh & Sajjad, 2025). These disruptions are usually caused by macroeconomic factors such as economic recessions, uncertainties in income and shift in consumption patterns.

The demand side shocks in production sectors like the textile industry in Bangladesh are strongly associated with the state of affairs on the global markets (Karim *et al.*, 2024). The reduction of the number of orders and suppliers due to the economic recessions in significant importing countries can also lead to an increase in competition. This may also strain the financial stability of the firms as the buyers may impose more strict price conditions or even withhold payments (Musau, 2021).

The demand-side dysfunctions have a remarkable impact on the financial performance, since they impact revenue streams and cash flows (Tusher & Tusher, 2021). However, they can also indirectly affect the performance of operations and the firms can adjust their production schedule depending on the variations in demand (Romi, 2025). The disruptions of demand-side and supply-side can result in complicated issues and require a skill to align the efforts of different functions in the organization.

Logistical Disruptions and Supply Chain Efficiency

A disruption in the transportation and provision of goods in the chain of supply is termed as logistical disruption (Ali *et al.*, 2021). These disturbances could be due to port congestions, shipping delays, customs clearance problems, infrastructure constraints and rising freight costs (Kania, 2026). The global supply chain in which products may traverse over one nation and even a trail of transport, logistical performance plays one of the predominant roles in delivering products and services on time.

Such shocks in the textile industry can have immediate and radical effects on a performance level (Jana, 2022). Raw material delays will cause delays in production times, and delays in delivery of finished goods could be a delay in deadlines and sanctions by consumers (Ahmad *et al.*, 2026). The other effect on profitability is the total costs of the supply chain as a result of increased transport costs.

The textile industry in Bangladesh has encountered numerous logistical issues which include port space, infrastructure and bureaucracy (Sarker, 2019). These challenges can compound the impacts of the disruptive processes that happen internationally and it becomes more challenging to make sure reduced supply chains operations are as reliable and efficient as possible (Dendera-Gruszka & Kulińska, 2020). This has seen it become an important area of enhancing logistical resilience by the industry.

Operational and Financial Performance Outcomes

Supply chain disruption normally has their implications on both the operational and financial performance (Rafique & Islam, 2025). Operation performance encompasses such aspects as the efficiency of production, lead time, capacity utilization/delivery reliability (Charkha *et al.*, 2024). Financial performance on the other hand comprises of cost, revenue, profitability measure and liquidity measure.

These outcomes can be affected in a variety of ways by disruptions (Sandberg & Pal, 2024). Supply-side: Supply shocks can lead to an increase in the production cost and efficiency, and demand shocks to decrease the revenue and create a cash flow problem (Anderluh and Herburger, 2022). Logistical hiccups may impact on the cost structures and operation efficiency, making performance management further tricky.

The correlation to the disruptions and performance is imperative in developing the most effective risk management strategies (Sahab & Oulfarsi, 2024). Priorities should be to identify the most critical sources of disruption to be targeted by interventions.

Adaptive and Resilience Strategies

With the rise in mixed times, companies are adding several strategies to their supply chains to become more resilient (Jebbor *et al.*, 2024). The diversification of suppliers,

inventory cushioning, investing in digital technologies, and better coordination of the supply chain partners are all these (Reza & Du Plessis, 2022). The concept is to have stronger and more adaptable systems that will be able to endure the troubles and recover quickly.

With reference to Bangladesh, there is a difference in the implementation of resilience strategies amongst firms (Grzybowska & Stachowiak, 2022). Existing financial and experience can constrain smaller companies, but larger companies can invest more (as a result of their size) in more modern technologies and diversified supply chains (Nguyen *et al.*, 2020). Nonetheless, the contribution of resilience in the industry is increasingly gaining importance.

Adaptive strategies do not reduce the bad influence of disruptions only, but also can provide some areas of competitive benefits (Finck & Tillmann, 2023). How well firms are able to respond to disruptions is the distinction between the capability to endure disruptive impact, and retain clients, remain in business, and grow in the long term (Badiru, 2021).

Research Gap and Justification

Although the amount of research on the topic of supply chain disruptions and resilience has been rising, there remain gaps (Khademul Islam, 2020). One, the majority of the available literature is about the developed economies and little is given towards the setting of the developing country at the expense of developing countries. Second, numerous studies use the secondary data, which are not necessarily firm-level experiences and responses (Nayak *et al.*, 2022). Third, it is deficient in combined analysis that would look at various kinds of disruptions at once.

This paper addresses these gaps by providing an empirical assessment of the impacts of global shocks on textile supply chain in Bangladesh, using primary survey data (Islam *et al.*, 2025). A combination of the study of supply-side, demand-side, and logistical disruptions enabled the study to provide a long-term view of the interaction between the aspects of disruption and resulting performance outcomes (Rahaman & Islam, 2021).

By doing so, this study contributes theoretical and practical information on the subject of supply chain resilience in a new economy and can be applicable to policymakers and industry players interested in the supply chain resilience of a textile industry (Karim *et al.*, 2024).

Hypotheses Development

Based on the theoretical framework of the supply chain disruption and resilience, the study assumes that the different types of disruptions across the world are of importance in the outcome of supply chain performance. Global disruption effects are general external shocks which affect supply chain dynamics (Jana, 2022). These interruptions will have a direct influence on the operating performance as it will disrupt the production processes through instability and uncertainty.

The disruptions of the supply side are expected to have a strong influence on the performance of operations since it directly impacts the availability of input and production flow. Similarly, the logistic interruptions will also have a profound effect on the operations performance as it will affect the goods flow and the time of the deliveries.

It is likely that the financial performance will be impacted more by the demand-side disruption, since they will have an effect on revenue streams, number of orders and price conditions.

According to these correlations the following hypotheses formulated:

- **H1**: Hypothesis: The effect of global disruption on operational performance is significant.
- **H2**: Supply side disruptions cause a profound effect on performance in the operational levels.
- **H3**: The effects of demand-side disruptions are very important in financial performance.
- **H4**: The effect of logistical disruptions on operational performance is quite significant.

Conceptual Framework

The theoretical framework of this research relies on the assumption that global disruptions play off supply chain performance in a number of different ways (Ali *et al.*, 2021). The model takes the effects of disruption in the globe (Global Disruption Effects (GDE)) as the independent variables and the effects of disruption on the supply-side (Supply-side disruption (SSD)) and disruption on the demand-side (Demand-side disruption (DSD)) and disruption on logistics (Logistical disruption (LD)) as the independent variables.

These variables are thought to influence to two outcome variables, which are vital and are Operational Performance (OP) and Financial Performance (FP). Operation performance encompasses aspects such as effectiveness in production, lead time and capacity utilization as compared to financial performance which encompasses aspects such as cost, profitability and financial stability.

Moreover, there are Adaptive and Resilience Strategies (ARS) as a supporting construct reflecting the reaction of firms to the disruption (Sarker, 2019). In all models, ARS provide some contextual information about the response of firms to exogenous shocks though it is not directly testable as a moderating factor.

The framework presents a logical relationship whereby the different facets of disruption influence the performance, making it clear that the supply chain risk of the textile industry is multidimensional.

MATERIALS AND METHODS

The research article will take the form of a quantitative research study revolving around a survey design to explore the impacts of global shocks on textile supply chains in Bangladesh. The design used is a cross-section design in order to obtain firm experience over a specified time frame.

The standardized questionnaire was used to collect the primary data given to the professionals that perform the

supply chain activities like managers in the procurement, production, logistics, and other related functions (Musau, 2021). This questionnaire was designed based on the literature available and specially modeled to a scenario of the textile industry in Bangladesh. It includes different components that evaluate the exposure to disruptions around the world, global supply-side disruption, global demand-side disruption and logistical disruption, operational performance, financial performance and adaptive and resilience strategies.

The responses were measured on a five-point scale Likert scale and this allowed a comparison of the perceptions of the respondents. The target population consisted of those who had relevant knowledge and experience and purposive sampling technique was used. These channels were online and the data was collected through these channels in order to make it accessible and efficient.

The data obtained was analyzed under statistical methods, which include descriptive statistics, reliability analysis, correlation analysis and multiple regression analysis (Tusher & Tusher, 2021). To determine the reliability, Cronbach Alpha, was used to measure the internal consistency of the measurement scales. Primary data that is based on the survey increases the validity of the results by incorporating real life experience of industry practitioners.

RESULTS AND DISCUSSION

Demographic Profile of Respondents

The demographic data show that most of the respondents were men (72.37) and females (25.57) were under represented in the demographics. Most of its participants (36.49%), fell between 25 34, and 35 44 (31.55%), and this indicates that they consisted of mostly professionally working industry participants (Rafique, Islam, 2025).

On the job position, Production Managers (25.36), Supply Chain Managers (20.62) and Procurement Officers (14.64) occupied the top most percentage of the respondents

Table 1: Socio-Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage
Gender	Female	124	25.57
Gender	Male	351	72.37
Gender	Prefer not to say	10	2.06
Age Group	25-34	177	36.49
Age Group	35-44	153	31.55
Age Group	45-54	85	17.53
Age Group	55 and above	30	6.19
Age Group	Below 25	40	8.25
Current Position	Logistics Officer	66	13.61
Current Position	Merchandiser	57	11.75
Current Position	Other	31	6.39
Current Position	Owner/Director	37	7.63
Current Position	Procurement Officer	71	14.64
Current Position	Production Manager	123	25.36
Current Position	Supply Chain Manager	100	20.62
Experience	2-5 years	156	32.16
Experience	6-10 years	160	32.99
Experience	Less than 2 years	54	11.13
Experience	More than 10 years	115	23.71
Type of Firm	Buying house	32	6.6
Type of Firm	Export-oriented RMG firm	183	37.73
Type of Firm	Garment manufacturing firm	156	32.16
Type of Firm	Other	26	5.36
Type of Firm	Textile mill	88	18.14
Firm Size	Large	241	49.69
Firm Size	Medium	169	34.85
Firm Size	Small	75	15.46
Market Orientation	Both domestic and export markets	131	27.01
Market Orientation	Domestic market	39	8.04
Market Orientation	Export market	315	64.95

respectively. This implies that the answers were obtained through people who have first-hand experience of the operations of the textile supply chain.

They were more experienced: most of the respondents had experience of 610 years (32.99% of the population) or experience of 25 years (32.16% of the population) which means that the data can be deemed informed professional judgment (Md Shariful Islam, 2025). The majority of firms were export types both RMG (37.73) and garment manufacturing firms (32.16). Almost half of the companies were large firms (49.69%), and 34.85% medium-sized firms. Finally, the sample was justified, with majority of the companies targeted at the export market (64.95%).

Descriptive Statistics of Measurement Items

As the descriptive statistics show, the majority of the survey statements were mostly agreed upon by the

Table 2: Descriptive Statistics of the Measurement Scales

Construct	Item	Mean	SD	Min	Max
GDE	GDE1	4.2	0.682727	2	5
GDE	GDE2	4.084536	0.691647	2	5
GDE	GDE3	3.975258	0.676804	2	5
GDE	GDE4	4.092784	0.669317	2	5
GDE	GDE5	4.202062	0.698579	2	5
GDE	GDE6	4.103093	0.705418	2	5
SSD	SSD1	4.146392	0.656509	2	5
SSD	SSD2	4.208247	0.689303	2	5
SSD	SSD3	4.28866	0.679675	2	5
SSD	SSD4	4.119588	0.708659	2	5
SSD	SSD5	4.103093	0.702483	2	5
DSD	DSD1	4.024742	0.726851	2	5
DSD	DSD2	4.061856	0.70439	2	5
DSD	DSD3	4.049485	0.714103	2	5
DSD	DSD4	3.979381	0.721273	2	5
DSD	DSD5	3.952577	0.706974	2	5
LD	LD1	4.17732	0.68144	2	5
LD	LD2	4.218557	0.653713	2	5
LD	LD3	4.352577	0.624416	2	5
LD	LD4	4.169072	0.677465	2	5
LD	LD5	4.214433	0.691894	2	5
OP	OP1	4.280412	0.642606	2	5
OP	OP2	4.105155	0.65813	3	5
OP	OP3	4.191753	0.660527	2	5
OP	OP4	4.286598	0.66052	2	5
OP	OP5	4.216495	0.668457	2	5
FP	FP1	4.334021	0.677088	2	5
FP	FP2	4.216495	0.671541	2	5
FP	FP3	4.181443	0.677308	2	5
FP	FP4	4.148454	0.68229	2	5
FP	FP5	4.206186	0.691419	2	5
ARS	ARS1	4.028866	0.743562	2	5
ARS	ARS2	4.028866	0.732363	2	5
ARS	ARS3	3.942268	0.747425	2	5
ARS	ARS4	4.150515	0.738566	2	5
ARS	ARS5	4.02268	0.750689	2	5
ARS	ARS6	4.125773	0.740404	2	5

respondents whose general mean values were rather above the mid-range of 3.00 which was the neutral value of the items. The means were ranging between 3.942 and 4.353 with the perception of the disruption impacts on the textile supply chain being high overall.

In the case of Global Disruption Effects (GDE), the average scores were between 3.975 and 4.202 meaning that participants had a strong appreciation of how global crises affected their activities in the textile supply chain (Sandberg & Pal, 2024). The SSD3 (M = 4.289) mean was greatest in the Supply-Side Disruption (SSD) construct that indicated that a major worry was the higher prices of imports of inputs.

In a scenario of Demand-Side Disruption (DSD), the average was 3.953-4.062, which implies that buyer demand instability and uncertainty about orders was also crucial. The LD (logistical Disruption) and LD3 (M = 4.353), were among the highest in the means scores, meaning that increased freight costs were a very common problem.

The Operational Performance (OP) items too reported great mean value with a range of 4.105 to 4.287 indicating that production delay, increase in the lead time as well as poor operational efficiency was a common phenomenon (Jebbor *et al.*, 2024). Financial Performance (FP) sub-points were 4.148 to 4.334 with an FP1 having the highest mean implying that cost increment was a great financial impact.

Lastly, Adaptive and Resilience Strategies (ARS) had a mean of 3.942 to 4.151, which implies that firms have implemented resilience strategies, although the mean of ARS3 is lower, implying that digital monitoring devices might be childish, in comparison with other adaptive strategies.

In general, the descriptive findings suggest that textile companies in Bangladesh suffered substantial amounts of disruption in supply, demand, logistics, operations, and finance as well as exhibited proactive though unbalanced resilience strategy implementation (Grzybowska & Stachowiak, 2022).

Reliability Analysis

Cronbach alpha was used to conduct the reliability analysis to measure internal-consistent of the measure's constructs (Badiru, 2021). Results show that constructs are all acceptable in terms of reliability as the alpha values are 0.781-0.835.

Table 3: Reliability Analysis of the Measurement Constructs

Construct	Number_of_Items	Cronbach_Alpha	Reliability_Level
Global Disruption Exposure	6	0.781	Acceptable
Supply-Side Disruption	5	0.821	Strong
Demand-Side Disruption	5	0.811	Strong
Logistical Disruption	5	0.798	Acceptable
Operational Performance	5	0.809	Strong
Financial Performance	5	0.835	Strong
Adaptive and Resilience Strategies	6	0.82	Strong
Overall Supply Chain Performance	5	0.804	Strong

Global Disruption Exposure Cronbach Alpha was 0.781 and, Logistical Disruption Cronbach Alpha was 0.798, which is satisfactory. The rest of the constructs showed good reliability: Supply-Side Disruption (a = 0.821), Demand-Side Disruption (a = 0.811), Operational Performance (a = 0.809), Financial Performance (a = 0.835) and Adaptive and Resilience Strategies (a = 0.820). Overall, the results of the reliability indicate that questionnaires items were internally consistent and can potentially undergo further statistical analysis, including correlation and regression analysis.

Correlation Analysis

The relationships between the key constructs of the study, Global Disruption Effects, (GDE), Supply-Side Disruption (SSD), Demand-Side Disruption (DSD), Logistical Disruption (LD), Operational Performance (OP), Financial Performance (FP) and Adaptive and Resilience Strategies (ARS) were analyzed by Pearson correlation analysis (Khademul Islam, 2020). The results show that all constructs have positive and significant

Table 4: Correlation Analysis of the Study Constructs

	GDE	SSD	DSD	LD	OP	FP	ARS
GDE	1	0.715769	0.705375	0.694971	0.684588	0.686473	0.695819
SSD	0.715769	1	0.68114	0.613854	0.707536	0.744679	0.630813
DSD	0.705375	0.68114	1	0.633403	0.617611	0.703442	0.629515
LD	0.694971	0.613854	0.633403	1	0.711565	0.626196	0.626724
OP	0.684588	0.707536	0.617611	0.711565	1	0.650974	0.606992
FP	0.686473	0.744679	0.703442	0.626196	0.650974	1	0.643371
ARS	0.695819	0.630813	0.629515	0.626724	0.606992	0.643371	1

relationships with each other at the 0.01 level of significance. This means that worldwide uproars are closely related to various aspects of textile supply chain performance in Bangladesh.

Global Disruption Effects (GDE) and Supply-Side Disruption (SSD) had a positive correlation with each other ($r = 0.716$, $p < 0.001$). This implies that companies that were more vulnerable to global disruption also encountered more challenges in the supply side such as unavailability of raw material or unreliability of the suppliers, and high cost of input. Similarly, GDE was also positively correlated with Demand-Side Disruption (DSD) ($r = 0.705$, $p < 0.001$), in that the world crises had an effect on buyer demand, order stability, and market predictability, as well (Rahaman and Islam, 2021). The correlation between GDE and Logistical Disruption (LD) was also significant ($r = 0.695$, $p < 0.001$), supporting the fact that disruptions on a global scale do lead to major changes in shipping time, port workloads, freight expenses, and other challenges of the customs process.

Table 5: Significance Levels of the Correlations Among Study Constructs

	GDE	SSD	DSD	LD	OP	FP	ARS
GDE	0	2.44E-77	3.34E-74	3.37E-71	2.52E-68	7.73E-69	1.94E-71
SSD	2.44E-77	0	2.13E-67	1.48E-51	7.64E-75	7.46E-87	3.5E-55
DSD	3.34E-74	2.13E-67	0	9.34E-56	2.43E-52	1.23E-73	6.75E-55
LD	3.37E-71	1.48E-51	9.34E-56	0	4.71E-76	3.58E-54	2.75E-54
OP	2.52E-68	7.64E-75	2.43E-52	4.71E-76	0	8.5E-60	3.76E-50
FP	7.73E-69	7.46E-87	1.23E-73	3.58E-54	8.5E-60	0	5.13E-58
ARS	1.94E-71	3.5E-55	6.75E-55	2.75E-54	3.76E-50	5.13E-58	0

According to the results, it is also shown that supply-side disruptions can be closely correlated with Operational Performance (OP) and Financial Performance (FP). The correlation between the SSD and OP was positive and significant ($r = 0.708$, $p < 0.001$), indicating that the problems connected with the supply side are quite interrelated with the changes of the production schedule, capacity utilization and efficiency of the operation (Farrukh and Sajjad, 2025). The correlation between SSD and FP was stronger ($r = 0.745$, $p < 0.001$) that showed the effects of the supply-side perturbation to be one of the strongest elements influencing financial performance. This implies that decline in the supply of raw materials, increase in prices and delays by the suppliers directly affect the increase in the cost of production and the decline in profitability of the textile industry.

There was a high correlation between demand-side disruption and financial performance too ($r = 0.703$, $p < 0.001$). This observation implies that order cancellation, reduction in consumer demand, and unfavorable export markets put textile producers in a tight financial situation. DSD also exhibits a moderate-to-strong correlation with OP ($r = 0.618$, $p < 0.001$), indicating unstable demand impacting production planning and capacity utilization yet its functional impact seems to be a little less than the effect of propose supply and logistical disturbances.

The operational performance was closely related to logistical disruption ($r = 0.712$, $p < 0.001$). This is among the best relationships in the correlation matrix and this implies that delays in shipment, issues of port congestion, clearance problems at the custom and increasing freight prices have significant operational implications (Marwah & Ramanayake, 2024). In the textile industry where planning production and delivery are in high demand due to the impact on the satisfaction of buyers and competitiveness in the export business, disruption by logistics can directly impact the process of planning production and performance in exports.

The positive and significant relationship between the operational performance and financial performance ($r = 0.651$, $p < 0.001$) was also positive. This fact suggests that operational inefficiencies are accompanied with financial issues. With a decrease in the production of the firms, reduced use of the capacity and the increasing lead time, the firms are likely to record increased costs, reduced revenue and profits.

There were strong positive correlations between Adaptive and Resilience Strategies (ARS) and the other constructs. ARS was strongly correlated with GDE ($r = 0.696$, $p < 0.001$), SSD ($r = 0.631$, $p < 0.001$), DSD ($r = 0.630$, $p < 0.001$), LD ($r = 0.627$, $p < 0.001$), OP ($r = 0.607$, $p < 0.001$), and FP ($r = 0.643$, $p < 0.001$). The results show that the more shaken firms are, the more common the resilience-seeking strategies (diversification of suppliers, safety inventory, improved communication, electronic monitoring, and contingency planning) get (Romi, 2025). It should not be interpreted those adaptive strategies lead to greater disruption, but rather, indicates that those businesses that contended with greater disruption are more likely to be on the offensive based on strategies to create resilience.

On the whole, the results of the correlation confirm that global disruptions have close networking links to supply-side, demand-side, logistic, operational and financial aspects of the textile supply chains in Bangladesh. The FP had the strongest correlation with SSD ($r = 0.745$), implying that the financial aspect of textile firms is vulnerable to issues related to supply aspects. An additional remarkable correlation was between LD and OP ($r = 0.712$), which points to the fact that the number of logistical disruptions has a significant effect on the operational performance (Nayak *et al.*, 2022). These findings confirm the argument that Bangladesh textile supply chain is vulnerable to the external shocks

due to its dependence on imported inputs, export-driven production, as well as buyer time-sensitive production.

Thus, the results highlight the importance of supply chain resilience, diversified sourcing, enhancements of logistics management, and proactive risk mitigation measures (Kania, 2026). The idea of resilience is not only a strategic measure that is necessary to keep the textile companies in Bangladesh in the competitive global environment that is becoming more and more unpredictable, but it is also a need in operation.

Multiple Regression Analysis

To test the hypotheses on the influence of global disruption-related aspects on Operational Performance (OP) and Financial Performance (FP) of textile companies in Bangladesh, multiple regression analysis was planned (Dendera-Gruszka & Kulińska, 2020). All of the models took four predictors: Global Disruption Effects (GDE), Supply-side Disruption (SSD), Demand-side Disruption (DSD) and Logistical Disruption (LD).

The first regression conducted research on how GDE, SSD, DSD, and LD affect operational performance. The model was also statistically significant, $F(4, 480) = 209.290$, $p < 0.001$, which means that the independent variables of disruption have a significant percentage of variance of utilization performance. The model had $R2 = 0.636$ and adjusted $R2 = 0.633$ indicating that it was able to explain 63.6% of the variance in operational performance. This is an indication of great power of explanation.

Table 6: Model 1 of Effect of Disruptions on Operational Performance

term	estimate	std.error	statistic	p.value
(Intercept)	0.495418	0.130533	3.795335	0.000166
GDE	0.160386	0.048851	3.283162	0.001101
SSD	0.32365	0.0403	8.030934	7.53E-15
DSD	0.039784	0.039151	1.016152	0.310069
LD	0.367028	0.040382	9.088804	2.64E-18

The nearest predictor with positive and significant predictive impact on the outcomes of disruption based on operational performance ($\beta = 0.367$, $p < 0.001$) was Logistical Disruption (LD). This observation means that late shipping, a port congestion, custom problems and an augmented freight risk are all factors that play a role in the concern raised about the complexities of operation in the textile supply chain operation in Bangladesh (Charkha *et al.*, 2024). The industry is very export oriented and relies on the prompt flow of raw materials and finished products hence, any disturbance in logistics has a direct impact on lead time, schedule of production and reliability of delivery.

Supply-Side Disruption (SSD) ($\beta = 0.324$, $p = 0.001$) was also found to have the strong significant effect on the operational performance. This indicates that the scarcity of materials, delays by the suppliers and change in the price of raw materials have a significant impact on production continuity and operational efficiency. This finding is aligned to the fabric of Bangladesh textile industry, whereby companies tend to rely on the imported materials, fibrils, chemicals, accessories, and machinery-based inputs.

The effects of Global Disruption Effects (GDE) had less positive effect on operational performance, which was statistically significant ($\beta = 0.160$, $p = 0.001$). This confirms that the bigger global shocks that involve pandemic, international conflicts, fluctuation of exchange rates, and increased energy prices are also among the causal factors of operational challenges (Charkha *et al.*, 2024).

However, the statistical significance of the issue of Demand-Side Disruption (DSD) was not significant in Model 1 ($\beta = 0.040$, $p = 0.310$). This means that in cases where supply-side and logistical interference is controlled, demand-side issues, such as day-to-day operational performance as a result of order cancelation or buyer uncertainty do not have a direct impact on the demand side issues. Demand-side disruption seems to be at a closer connection to monetary results than operational efficiency.

The second regression model talked about the effects of GDE, SSD, DSD, and LD on the financial performance. It was also found that the model is statistically significant, $F(4, 480) = 220.435$, $p < 0.001$, which suggests that the disruption variables alone significantly affect the financial performance (Anderluh and Herburger, 2022). The model explained 64.8 % of the variation of the financial

Table 7: Model 2 of Effect of Disruptions on Financial Performance

term	estimate	std.error	statistic	p.value
(Intercept)	0.364427	0.136675	2.666377	0.007926
GDE	0.145722	0.05115	2.848933	0.004575
SSD	0.39654	0.042197	9.39745	2.28E-19
DSD	0.255887	0.040993	6.242161	9.5E-10
LD	0.135378	0.042282	3.201766	0.001457

performance with R2 =0.648 and adjusted R2 = 0.645 indicating that it has high explanatory power.

The most predictive variable of the financial performance in this model was Supply-side Disruption (SSD) (β = 0.397, p = 0.001). The given observation is an indicator that stock-outs of raw materials, the unreliability of suppliers as well as high cost of inputs are some of the major contributors to financial pressure amongst the textile firms. Supply-side instability has a direct impact on cost of production, cost predictability and is also a factor in currency weakening of profitability.

Financial performance disruption (β = 0.256, p < 0.001) also was significantly positively influenced by Demand-Side Disruption (DSD). This observation suggests that the cancellation of orders, the reduction in the demand by the buyers, pressure on the prices by the internationally-based buyers and oscillatory export markets play a major role in the stability of revenues and cash flow (Sahab & Oulfarsi, 2024).

Global Disruption (GDE) effects were also substantial (β = 0.146, p = 0.005) and this implies that bigger crises on the global scale contribute to the instability on financial systems of textile companies. Similarly, the Logistical Disruption (LD) had significant effect on financial performance (β = 0.135, p = 0.001) indicating that augmentation of freight expenses, delays in delivery, and custom difficulties are an extra burden to the financial performance.

Overall Discussion

The results of the regression indicate that both operational and financial performance in Bangladesh textile supply chain are seriously impacted by global disruptions. According to Model 1, the operation performance is being affected by logistical and supply-side disruptions mostly (Reza & Du Plessis, 2022). This means that sourcing inputs, underutilization of capacity, and poor operational efficiency are all correlated with the problem of lack of production, insufficient level of sourcing inputs and transportation of goods at the domestic and international stages of supply.

The model 2 predictions indicate that the disruption of the financial performance is most affected by the supply side disruption, followed by demand side disruption. This means that in addition to the increased cost of inputs leading to worldwide disruptions, the economic impacts of the disruptions are also fanned by unstable purchaser demand and demand indecision in the shape of orders. As such, the operations of availability of supplies and logistics is a significant consideration to the performances of the operations, whereas financial performance is more sensitive to the advances in costs and political instabilities on the market side.

Among the key findings is that Supply-Side Disruption (SSD) applies both in models and the strongest predictor of financial performance. This underscores the strategic aspects of supplier reliability, sourcing diversification and input cost management (Nguyen *et al.*, 2020). Similarly, Logistical Disruption (LD) establishes the most predictive principles of operational performance, which gives a timely transportation, ports dynamics, freights clearance, and stability a significant factor in the maintenance of production and delivery performance.

The insignificant effect of DSD on OP suggests that demand-side instability may have a financial effect on firms and is likely to manifest itself first, before it can be considered an operational issue. In a single case, order cancellations may make an immediate decrease in revenue and cash flow, but the production systems may continue working, as long as the companies use a different set of orders, alter the schedules, or use the already existing buyer orders.

In summary, the results are solid empirical evidence that the textile companies in Bangladesh need to shift to the strategies of resilience, other than focusing on cost-oriented supply chain management (Finck & Tillmann, 2023). To mitigate the vulnerability to future global disruptions, supplier diversification, better logistics planning, digital supply chain monitoring, contingency planning, and better buyer-supplier coordination are crucial.

Hypothesis Testing Summary

The results of the hypothesis testing reveal that all the four hypotheses that were suggested were statistically supported. H1 was accepted as the effect of global

Table 8: Hypothesis Testing Summary

Hypothesis	Statement	Analysis_Method	Coefficient	P_Value	Significance	Decision
H1	Global disruption effects significantly affect operational performance.	Multiple Regression: OP ~ GDE + SSD + DSD + LD	0.160386387	0.00110141	**	Supported
H2	Supply-side disruptions significantly affect operational performance.	Multiple Regression: OP ~ GDE + SSD + DSD + LD	0.323650364	7.53437E-15	***	Supported

H3	Demand-side disruptions significantly affect financial performance.	Multiple Regression: FP ~ GDE + SSD + DSD + LD	0.255886975	9.49954E-10	***	Supported
H4	Logistical disruptions significantly affect operational performance.	Multiple Regression: OP ~ GDE + SSD + DSD + LD	0.367028176	2.63867E-18	***	Supported

disruption on the result of the performance-related disruption of operations was considerably positive ($\beta = 0.160$, $p = 0.001$). This indicates that global shocks have a great importance on operational issues in the textile supply chain in Bangladesh.

H2 was also confirmed which means that the disturbances in supply side can be very influential in state of operation ($\beta = 0.324$, $p = 0.001$). This confirms that the lack of raw materials, supplier delays and fluctuations of input prices are the best sources of operational problems.

H3 was as well supported as the financial performance was highly affected by demand side disruptions ($\beta = 0.256$, $p < 0.001$). This observation implies that cancelation of orders, uncertainty of buyers and changing demand conditions exert a great financial burden on textile firms.

Finally, H4 was supported, and the strongest effect on the performance in operation was observed to be produced by the logistical disruptions ($\beta = 0.367$, $p = 0.001$). This means that the shipping delays, port congestions, customs, and uncertainties relating to freight is one of the most sensitive risks during the operation of the industry.

Overall, hypothesis testing is a way to demonstrate that global, supply, demand-side, and logistical disturbances significantly influence the performance of textile supply chains in Bangladesh. Of the relationships that were tested, logistical disruption showed the highest level of influence in operational performance with supply side disruption coming out as a major concern in operations and financial scenarios.

CONCLUSION

The textile industry has been affected by the global disruption in their supply chain as a result of higher input costs, production delays, shortage of raw materials, and fewer firms being able to deliver on on-time promises. Opacity of the concentrated supply base, the unreliable transportation infrastructure, political uncertainty and demand volatility heighten operational vulnerability, as the findings show. These pressures impact production, business profitability, customer satisfaction and competition. However, textile companies can minimize such risks through supplier diversification, strategic inventory management, digitization of the supply chain, better collaboration and flexible sourcing arrangements. There is a need for investment in local backward-linkage industries and resilient logistics infrastructure as well, to ensure continuity in the future crises. Thus, it is necessary that managers and policy makers maintain supply chain resilience as a strategic approach not just a fly-fix and forget approach. Didactic and technology enabled practices combined with coordinated and risk sensitive strategies can boost the ability of the textile industry to absorb external shocks, maintain production, preserve jobs, and be competitive in an increasingly volatile global arena.

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