

Problems Associated with Productivity and Profitability: A Study of The Listed Cement Companies in Bangladesh

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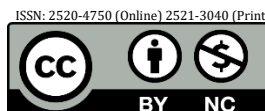
Abstract

The main objective of the study is to find out the key problems associated with the productivity and profitability of cement industry in Bangladesh. The respondents include 100 executives and officers of different levels selected randomly from different listed cement manufacturing firms of Bangladesh. Finally, the data have been tested with 20 variables collected from literature review and discussion with expert people. Reducing a large number of variables into fewer factors was achieved through the use of factor analysis. The study identified five factors i.e., Planning and Controlling Factor, Utility Factor, Financial Factor, Opportunity cost factor and Market factor are significantly influencing the productivity and profitability of cement industry in Bangladesh. The study suggests to focus on the identified factors in order to achieving greater productivity and profitability as well as maximizing the market value of the cement manufacturing firms in Bangladesh.



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Introduction

Cement, a remarkable product of contemporary scientific advancements, is the indispensable component in all forms of construction endeavors. Undoubtedly, the cement sector plays a key part in the development of a country's infrastructure. Because of the extensive land area and large population of Bangladesh, numerous building projects are carried out by local governments, public sector entities, and other organizations, including the private sector (Hossain & Moudud-Ul-Huq, 2014). The Bangladesh Cement Industry has had consistent expansion in recent years, mostly due to the steady progress of urbanization and the construction of major infrastructural projects.

The cement industry in Bangladesh is making a substantial contribution to the country's economic growth. The Export Promotion Bureau (EPB) has set an export target of USD 15 million for the FY 2023-24, as per the data from Bangladesh Export Promotion Bureau. In the first nine months of FY 2023-24, the cement industry generated export revenue of \$14.39 million. Over the past few years, there has been a significant surge in the demand for cement, mostly driven by the need to sustain large-scale construction projects. Bangladesh has initiated several major infrastructure projects to maintain its substantial economic growth. In FY2019, a total of 7 major infrastructure projects, consisting of bridges, rail lines, power plants, and a metro rail, were allocated around USD 3.5 billion (Cement in Bangladesh: Building a Concrete Future – Light Castle Partners, 2020). In recent years, the government's development projects have significantly increased the budget allocation for transportation and communication systems. As a result, the demand for cement has been primarily driven by these projects, surpassing the contribution of individual home-builders (Rezina, 2020).

Productivity is the quantification of output in relation to input. The statement describes the correlation between the amount of goods and services produced (output) and the amount of labor, capital, land, energy, and other resources required to produce them (input) (Zandin, 2001). Productivity is the sole significant indicator of industrial competitiveness (Khurana & Talbot, 1998). Therefore, this subject is extensively debated, particularly in the manufacturing industry, since it directly affects the profitability of organizations. Profitability is a measure of how much money a company is making. It is determined by factors such as earnings per share (EPS), return on investment (ROI), return on assets (ROA), and utilization. This is closely related to productivity. The increase in profitability is heavily reliant on the efficiency of productivity.

The study by Pramongkit et al. (2002) explores the use of total factor productivity (TFP) and learning potentials as tools to examine and comprehend the mechanisms that can enhance productivity through advances in learning inside organizations. Widespread indications of subpar productivity are apparent throughout the majority of the region. The study conducted by Margo and Sharma (2006) revealed that the productivity growth rates in the food, textile, and metal production sectors were decreasing by 2.7%, 0.3%, and 1.6% correspondingly. However, the chemical industry in Indonesia only had a little rise of 0.5%. The current investigation could be justified by examining existing literature.

The aims of this study are: (i) to identify the issues related to the productivity and profitability of the cement industry in Bangladesh, and (ii) to assess the problems associated with the productivity and profitability of the cement industry in Bangladesh. This study aimed to identify the primary challenges related to the productivity and profitability of the cement sector in Bangladesh, given its growing contribution to the country's GDP. The conclusions of

this paper will serve as a suitable guide for stakeholders, policy makers, and business leaders, enabling them to take necessary initiatives to develop this industry and enter global markets.

Review of the Related Literature

Extensive literature was reviewed to understand the theoretical concept of Productivity and Profitability, to identify the problems associated with the Productivity and Profitability of cement companies and to examine the impact of these factors on Productivity and Profitability of cement companies in Bangladesh.

Using the Altman Z-Score model, Hoque, Hossain, and Saha (2022) investigated the cement companies listed in Bangladesh. Between 2018 and 2021, seven cement businesses traded on the Dhaka Stock Exchange (DSE) were the primary subjects of their investigation. Heidelberg Cement Limited and Lafarge Holcim Bangladesh Limited were found to be in a secure financial position, according to the study. Confidence Cement Limited, Meghna Cement Limited, and Crown Cement Limited were in a grey zone, suggesting potential risk. Aramit Cement Limited, Crown Cement Limited, and Premier Cement Mills Limited were identified as being at risk of bankruptcy. Findings underscore the requirement of increased revenue and improved operational efficiency for financially troubled businesses to stave off bankruptcy. Dhar (2018) investigated how cement businesses listed on the DSE handled their working capital and how it correlated with their profitability. The study uncovered that profitability was negatively affected by the cash conversion cycle, accounts receivable period, and inventory conversion period using panel data regression methodologies and data from 2007 to 2015. To the contrary, the payables deferral period yielded beneficial results. This indicates that enhancing profitability in the cement sector is dependent on effective management of working capital components. Stock prices of Bangladeshi cement manufacturers listed on stock exchanges were assessed by Chowdhury and Saima (2023) using the relative valuation method. Most of the companies were undervalued according to price-to-sales, price-to-earnings, and price-to-book ratios, according to their assessment that was based on fiscal year 2020–2021. There may be investment opportunities in this sector if this discovery is correct and the companies' market valuations are not reflecting their great financial performance. Profitability in Bangladesh's cement business was studied by Rezina, Ashraf, and Khan (2020), who looked at firm-specific and macroeconomic factors. The study found that leverage, GDP growth rate, and real interest rate had a substantial effect on profitability from 2000 to 2018. The expenses-to-revenue ratio, debt, and inflation had negative effects on profitability, whereas firm age and size had beneficial effects. The various factors that affect industry profitability are brought to light in this exhaustive examination. Cement businesses registered on the Indonesia Stock Exchange were studied by Dasinapa (2023) to determine the effect of long-term financing on profitability. Using data from 2018 through 2022, the analysis determined that long-term debt had a negligible negative impact on profitability, whereas equity had a negligible beneficial impact. These results highlight the importance of a balanced approach to financial structuring and imply that long-term financing structures may not be major factors determining profitability in the cement industry. Mochi and Dani (2023) looked into how leverage affected the profits of a few Indian cement companies. Their investigation indicated a complicated relationship between profitability and leverage, as defined by the debt-to-equity ratio, using data from 2018 to 2022. In times of prosperity, higher leverage could boost profits; in times of recession, it could raise dangers. In order to weigh possible profits against financial dangers, the study stressed the significance of managing leverage.

In addition, Kabir & Hossain (2016) conducted a study on the efficiency and profitability of cement companies that are listed on the Chittagong Stock Exchange. The study's findings

revealed that organizations exhibited different degrees of productivity and profitability, with performance being influenced by factors such as technological efficiency and market placement. In their study, Sarker & Hossain (2018) pinpointed many significant obstacles encountered by the cement sector in Bangladesh. These include inefficiencies in the supply chain, limitations in infrastructure, and compliance with environmental standards. The findings emphasized the necessity of implementing strategic interventions to tackle these difficulties and improve the competitiveness of the industry. Hossain & Rahman (2020) conducted a comprehensive review of the current research on the difficulties and potential advantages in the cement sector of Bangladesh. The findings revealed ongoing difficulties associated with ineffective manufacturing procedures, insufficient infrastructure, and regulatory limitations, while also emphasizing possibilities for technological advancement and market growth. Khan & Hossain (2019) evaluated the difficulties and potential of the cement industry in Bangladesh, taking into account aspects such as technological progress, market dynamics, and regulatory frameworks. The findings emphasized potential for industrial expansion through infrastructure development initiatives and strategies to diversify exports. Ahmed & Uddin (2018) performed a comparative examination of the financial performance of prominent cement corporations in Bangladesh. The findings indicated that industry profitability is affected by different levels, with growing production costs and shifting demand being regarded as important challenges. Islam and Khan (2017) conducted a comprehensive analysis of the difficulties encountered by the cement sector in Bangladesh, which encompassed issues such as inadequate energy supply, insufficient infrastructure, and regulatory obstacles. The findings underscored the necessity for collaborative endeavors among industry participants and policymakers to tackle these obstacles and foster sustainable expansion. In their study, Rahman & Islam (2019) investigated the influence of variables such as production capacity, energy prices, and market rivalry on the profitability of cement companies in Bangladesh. The findings emphasized the substantial impact of energy expenses and market rivalry on the profitability of the industry. Alam & Hassan (2017) assessed the financial performance of cement firms in Bangladesh. The results showed a decrease in profitability ratios due to reasons such as increasing production costs, pricing pressures, and restricted export prospects. Kumar (1991) authored a book titled "Analysis of Financial Statements of Indian Industries." The study encompassed a total of 23 enterprises, including 17 privately owned, 5 state-owned, and 1 centrally owned public sector companies. He conducted a comprehensive analysis of activities, assessed profitability, evaluated return on capital investment, analyzed the financial structure, and examined fixed assets and working capital. In this study, the researcher identified multiple issues related to productivity and profitability in cement industry and proposed solutions to address these difficulties. In addition, he specifically recommended enhancing profitability and using effective cost control methods. In his study on the productivity of the Japanese Iron and Steel industry, Tomiura (1997) emphasized the significance of both advanced large-scale high-speed facilities and the operators' tacit knowledge and teamwork activities in continually enhancing manufacturing technologies for achieving high productivity. In 1998, Parmar conducted a research titled "Profitability Analysis of the Cement Industry in Gujarat state" covering the period from 1989 to 1995. He endeavored to assess the financial robustness, liquidity, profitability, cost, sales trend, and social welfare trend by employing a range of analytical techniques such as ratio analysis, common size analysis, and value-added analysis. He proposed multiple recommendations to enhance the industry's profitability. Within his investigation, he identifies multiple factors contributing to increased expenses, reduced profitability, and ineffective utilization of internal resources. According to Hasan's (2002) study on the Indian manufacturing industry, it is found that imported technology and new indigenous capital goods have a notable positive effect on productivity. However, the study also highlights that the

contribution to productivity is stronger from the latter. "Practical Financial Statement Analysis" was published in 2003 by Sanjay Bhayani. The research included sixteen private, publicly listed cement companies. He dug deep into the Indian cement industry's operations, working capital, capital structure, and profitability. As a result of his research, he identified several problems affecting the cement business and offered workable remedies. Furthermore, he suggested methods for controlling costs and increasing profits. Madras Cement Limited's production performance was examined by Raja Mohan and Vijayaragavan (2008). The study compared the production efficiency of cement companies in India and found that Madras cement was the most efficient. The Mann-Whitney U-test was employed as a statistical tool. Based on the data, it seems that the chosen unit was producing at the same level as any other cement plant in India. Using data collected between 2004 and 2009, Ajan Ghosh et al. (2010) calculated the CAGR. The findings show that between 2004 and 2009, the cement capacity increase had a CAGR of 5.6% and the overall compound annual growth rate (CAGR) was 9.35%. Cement demand was 8.4% higher in 2008–09 than in 2007–08, a year when the economy was in a deep depression. Government programs like the Indira Aawas Yojana, cheap housing projects, and the National Rural Employment Guarantee (NREG) program were responsible for this. Chandrakumarmangalam and Govindasamy (2010) look at the relationship between EPS and several forms of leverage, including financial, operating, and combined leverage. The research delves into the relationship between debt equity ratios and earnings per share, as well as how well companies use debt financing. The results show that growth, profitability, and leverage are all related, with leverage significantly impacting the profitability of the organization. The profitability of India's cement industry was examined by Chakraborty (2010). Cash flows as a percentage of total assets and profit before interest, taxes, and depreciation as a percentage of total assets were the two main performance measures used in the study. Furthermore, two metrics for gauging leverage were utilized: the ratio of total borrowings to assets and the ratio of debt to equity. There was an inverse relationship between these variables, according to the research. In a case study of Pakistan's cement industry, Haq et al. (2011) looked at how working capital management correlated with profitability. Profitability as it relates to working capital management was the focus of this research. In Pakistan's Khyber Pakhtonkhuwa Province (KPK), the researcher selected 14 cement-related businesses. All of the information used in the research came from publicly available sources, including the audited financial statements of Karachi Stock Exchange companies from 2004 to 2009. Statistical methods such as multiple regression analysis and correlation coefficient were used to examine the data. In the Indian cement industry, a study by Mistry Dharmendra S (2011) found that liquidity, when compared to total assets, inventory turnover ratio, debt-equity ratio, and operating expenses ratio, strongly correlates with profitability. The results of Haji Hassani's (2012) study, "A Comparison of Financial Performance in the Cement Sector in Iran," were published thereafter. Using financial measures and data, this study compares the performance of the company from 2006 to 2009. Two variables were used to classify the financial ratios into three main categories. This research demonstrates that the liquidity ratio and profitability ratio impact cement company performance in different ways. Another factor that influences their performance is the financial leverage ratio. Using value stream mapping, Saifuddin et al. (2013) investigated the cement industry's supply chain in Bangladesh. They discovered that cement processing productivity can be significantly enhanced by eliminating wasteful and non-value adding procedures. In a similar vein, Hossain and Moudud-Ul-Huq (2014) used the Altman Z Score Model to assess the financial health of Bangladeshi cement companies. Their research shows that businesses in the cement industry that are more productive also tend to be more financially successful. The productivity of Bangladesh's cement sector was examined by Hoque et al. (2015), who looked into the relationship between working capital management and productivity. One of the most important factors influencing

productivity in this sector, they discovered, was working capital management. Working Capital Management's impact on Pakistan's cement industry performance was the subject of research by Awan et al. (2014). The research spanned the years 2009 through 2013. All of the information used in the research came from publicly available sources, including the audited financial accounts of Karachi Stock Exchange companies. The purpose of this research was to use Return on Equity as a dependent variable to look at how Working Capital Management affects a company's bottom line. Gross working capital, average payment, number of days to turn over inventory, cash conversion cycle (CCC), current ratio (CR), quick ratio (QR), business size, and public sector development program funding were all considered independent factors. The impact of Working Capital Management on the profitability of Pakistan's cement company was examined in this study using the Panel Data technique. Cash conversion cycle, inventory turnover in days, and average payment period were determined to have a negative correlation with corporate performance, according to the study. A statistically substantial likelihood exists for this connection. Although it had a negative effect on ROE, the study indicated that the Current Ratio was not statistically significant. Problems with the effectiveness and profitability of Bangladesh's cement industry have received little academic attention. This points to a lack of research in this area, which is why this study is important and warranted.

These prior studies collectively highlight the diverse factors influencing productivity and profitability in the cement industry across different regions. Key themes include the critical role of financial health indicators, efficient working capital management, accurate stock valuation, and the impact of macroeconomic variables. These insights provide a comprehensive foundation for further exploration into the productivity and profitability challenges faced by listed cement companies in Bangladesh.

Materials and Methods

The study's approach relies on both primary and secondary data. The study utilized a non-probability purposive sampling strategy to gather primary data. This was done through a carefully designed and organized questionnaire, which aimed to obtain thoughtful opinions from the participants. Through a comprehensive examination of existing literature and engaging in focused group discussions with experts in the cement industry, a total of 20 variables have been identified as the primary challenges affecting the productivity and profitability of the cement sector in Bangladesh. The researcher has selected all the cement companies listed on the CSE and DSE as the sample for the study. One hundred questionnaires have been delivered to various officials of the selected cement company. The questionnaire consists of 20 questions, and respondents were required to indicate their level of agreement using a 5-point Likert scale, which includes options such as strongly agree, agree, neutral, disagree, and strongly disagree.

Reliability Analysis

This study assessed the reliability of the 20 variables by using Cronbach's alpha, which quantifies the internal consistency of replies. The observed items have a reliability coefficient of 0.72, indicating that the variables exhibit a relatively good level of internal consistency.

Analysis and Interpretation

Factor analysis was employed to condense a substantial quantity of variables into a smaller set of factors. Factor analysis identified the highest amount of shared variance from all variables and combined them into a single score. This score served as an index for all factors and was utilized for subsequent analysis.

Principal component analysis (PCA): Several academics rely on principal component analysis (PCA). As a first step in principal component analysis, finding the primary factor that contains the most variability is the first order of business. It then goes on to extract the maximum variance for the second element after removing the variance that the initial factors accounted for. This procedure gets to the last part. Factor segmentation is now complete, and the correlation values from the communalities table shed light on it.

Results and Discussion
Analysis of Zero Order Correlation Matrixes

Table-1: Correlation Matrix

	VAR0 0001	VAR0 0002	VAR0 0003	VAR0 0004	VAR0 0005	VAR0 0006	VAR0 0007	VAR0 0008	VAR0 0009	VAR0 0010	VAR0 0011	VAR0 0012	VAR0 0013	VAR0 0014	VAR0 0015	VAR0 0016	VAR0 0017	VAR0 0018	VAR0 0019	VAR0 0020
Correlation VAR0 0001	1.000																			
VAR0 0002	.026	1.000																		
VAR0 0003	-.227	.164	1.000																	
VAR0 0004	-.397	.164	.619	1.000																
VAR0 0005	-.248	-.028	.444	.444	1.000															
VAR0 0006	-.229	.010	.459	.337	.681	1.000														
VAR0 0007	-.050	.142	.181	.032	-.024	.009	1.000													
VAR0 0008	-.114	-.048	.475	.094	.517	.663	.107	1.000												
VAR0 0009	-.202	-.103	.361	.494	.434	.520	.198	.228	1.000											
VAR0 0010	-.348	.202	.038	.260	.190	.181	-.111	-.017	.338	1.000										
VAR0 0011	.311	-.107	-.380	-.231	.018	-.246	-.519	-.231	-.302	.141	1.000									
VAR0 0012	-.244	.000	.206	.103	.196	.176	-.081	.000	-.096	.359	.107	1.000								
VAR0 0013	-.440	.155	.685	.685	.473	.398	.161	.300	.478	.158	-.439	.155	1.000							
VAR0 0014	-.277	.075	.552	.428	.386	.633	.249	.510	.511	.133	-.504	-.134	.621	1.000						
VAR0 0015	-.321	.201	.346	.346	.062	.383	.127	.251	.378	.284	-.548	.000	.499	.600	1.000					
VAR0 0016	-.267	.446	.211	.386	-.054	.058	.107	-.139	.238	.463	-.322	.236	.420	.116	.510	1.000				
VAR0 0017	-.585	.108	.623	.489	.390	.325	.339	.221	.427	.123	-.480	.096	.698	.530	.381	.232	1.000			
VAR0 0018	-.194	.401	-.007	.150	-.407	-.317	.158	-.399	-.005	.188	-.370	.000	.219	.070	.341	.574	.134	1.000		
VAR0 0019	-.377	.131	.583	.773	.315	.383	.276	.061	.731	.394	-.401	.205	.642	.477	.385	.466	.515	.223	1.000	
VAR0 0020	.045	.120	-.239	-.017	.106	.039	-.025	-.017	.132	.228	.313	.000	-.065	-.059	-.213	.057	-.292	-.040	.118	1.000

In order to analyze the issues related to productivity and profitability in the cement industry in Bangladesh, a comprehensive study was conducted. One aspect of this study involved calculating the coefficient of correlation between the variables being examined. This was done to determine the relationship between these variables at various levels of significance. The study has calculated the zero-order connection of all 20 variables that contribute to the decreased production and profitability of the cement sector. The Zero-Order Correlation matrix indicates that the variables being studied have created many groupings based on the underlying relationships between them. It is observed that variable X₄ is found correlated with X₁, X₃; Variable X₅ is correlated with X₃, X₄; Variable X₆ is correlated with X₃, X₅; Variable X₈ is correlated with X₃, X₅ and X₆; Variable X₉ is correlated with X₄, X₅, and X₆; Variable X₁₀ is

correlated with X₉. Variable X₁₁ is correlated with X₃, and X₇; Variable X₁₂ is correlated with X₁₀; Variable X₁₃ is correlated with X₃, X₄, X₅, X₆ and X₉; Variable X₁₄ is correlated with X₃, X₄, X₅, X₆ and X₈ and so on.

Table-2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.681
Bartlett's Test of Sphericity	Approx. Chi-Square	403.441
	df	190
	Sig.	.000

Table-2 shows the KMO value is 0.681, which indicates that the variables in the dataset have a moderate level of correlation, suggesting that they are suitable for factor analysis. Again, the Bartlett's Test resulted in an approximate chi-square value of 403.441 with 190 degrees of freedom and a significance level (Sig.) of .000 (or $p < 0.001$). This indicates that the correlation matrix is significantly different from an identity matrix which supporting the use of factor analysis.

Factor Analysis

Principal component analysis was used to do factor analysis. Five dominant components were selected based on the eigenvalues that exceeded one. The cumulative variance of the 20 items is determined to be 69.81%, which is much higher than the benchmark variance value of 60%. The factor segmentation is evident from the correlation values presented in the subsequent table. Variables with a correlation coefficient of less than 0.50 with the retrieved factors are disregarded.

Table-3: Rotated Component Matrix

	Component				
	1	2	3	4	5
VAR00019	.860				
VAR00004	.817				
VAR00013	.706				
VAR00017	.664				
VAR00003	.595				
VAR00009	.587				
VAR00001		.891			
VAR00008		.739			
VAR00006		.667			
VAR00005		.614			
VAR00014		.563			
VAR00015			.795		
VAR00016			.689		
VAR00018			.595		
VAR00011			.567		
VAR00012				.692	
VAR00007				.650	
VAR00010				.576	
VAR00020					.764
VAR00002					.615

Table-3 represents the results of a rotated component matrix, which are the key output of factor analysis. This analysis identifies the underlying factors or components that explain the patterns of correlations among observed variables. Each component represents a set of variables that are highly correlated with each other.

Table-4: List of Factors

Factor name (Eigen values)	Variables	Factor loading	% of variance explained (Cumulative)
Planning and Controlling Factor (8.82)	Underutilization of capacity	.860	19.983 (19.983)
	Lack of proper supervision	.817	
	Shortage of working capital	.706	
	Lack of proper planning	.664	
	Lack of motivation	.595	
	Machine problem	.587	
Utility Factor (5.86)	Currency fluctuation loss	.891	16.290 (36.273)
	Gas line trouble	.739	
	Frequent power failure	.667	
	Insufficient controlling	.614	
	High cost of production	.563	
Financial Factor (4.78)	Excessive investment in fixed assets	.795	13.967 (50.24)
	High rate of interest	.689	
	Unfavorable market position	.595	
	Inflation	.567	
Opportunity Cost Factor (3.39)	Over investment in working capital	.692	11.257 (61.497)
	Poor financial policy	.650	
	High operating cost	.576	
Market Factor (1.85)	Price increase of raw materials	.764	8.315 (69.812)
	Lack of trained personnel	.615	

According to the data in table-4, the factor of Planning and Controlling accounts for 19.983% of the overall variation in the variable set. This factor exhibits substantial factor loadings, ranging from .587 to .860, on the variables that constitute a prominent cluster. This component consists of the underutilization of capacity, inadequate supervision, shortage of working capital, lack of good planning, lack of motivation, and machine problems. The Utility Factor accounts for 16.290% of the overall variation in the variable set. This factor exhibits substantial factor loadings, ranging from .563 to .891, on the variables that constitute a prominent cluster. This component consists of Currency fluctuation loss, Gas line trouble, Frequent power failure, Insufficient controlling, and High cost of production. Furthermore, the financial factor accounts for 13.967% of the overall variation in the variable set. This factor exhibits substantial factor loadings, ranging from .567 to .795, on the variables that constitute a prominent cluster. This element consists of excessive investment in fixed assets, a high rate of interest, an unfavorable market position, and inflation. The element of opportunity cost accounts for 11.257% of the total variation in the collection of variables. This factor exhibits substantial factor loadings, ranging from .576 to .692, on the variables that constitute a prominent cluster. This issue consists of excessive investment in working capital, inadequate financial policy, and elevated operating costs. The fifth element, known as the Market element, accounts for 8.315% of the overall variation in the variable set. This factor exhibits substantial factor loadings, ranging from .615 to .764, on these variables, which collectively constitute a prominent cluster. This component consists of an escalation in the cost of raw materials and a shortage of skilled labor.

Conclusion

The study identified five factors i.e., Planning and Controlling factor, Utility Factor, Financial factor, Opportunity cost factor and Market Factor are significantly influence the productivity and profitability of cement industry in Bangladesh. The findings of the study can serve as a basis for developing comprehensive strategic plans and initiatives tailored to overcome the challenges as well as devising the strategies to improve operational efficiency, enhance market competitiveness, and mitigate financial risks. With insights gained from the study, cement industry stakeholders can prioritize resource optimization efforts, streamline production processes, and adopt best practices to maximize productivity and profitability as well as to gain a competitive advantage in both domestic and international markets.

Applications

The findings from this study on the productivity and profitability of listed cement companies in Bangladesh have significant applications for various stakeholders within the industry. Firstly, government and regulatory bodies can utilize these insights to formulate policies that address key issues such as improving infrastructure, streamlining regulations, and fostering a favorable business environment for cement companies. By understanding the factors affecting productivity and profitability, policymakers can develop targeted interventions to support the industry's growth. Secondly, corporate management can leverage the findings to refine their strategic planning processes. Focusing on the identified factors will help companies optimize their operations, enhance resource utilization, and improve financial performance, including better planning and controlling mechanisms, effective utility management, and strategic financial planning to manage opportunity costs and market dynamics. Thirdly, production and operations managers can implement best practices and focus on key utility and planning factors to increase production efficiency, reduce wastage, and lower costs, thereby boosting overall productivity. Additionally, financial officers and analysts can use the findings as a framework for financial analysis and management, making informed decisions regarding investments, cost control, and financial risk management to ensure better financial health and sustainability of cement companies. Furthermore, insights into market factors can help marketing and sales teams develop competitive strategies, better position their products, identify new market opportunities, and enhance market share. Moreover, the study contributes to the existing body of knowledge on industrial productivity and profitability, providing a basis for further research on the cement industry in Bangladesh and similar emerging markets. Future studies can build on these findings to explore new dimensions and validate the results across different contexts. Investors and financial institutions also benefit from the research by gaining valuable insights for assessing potential risks and returns, enabling more informed investment decisions. Lastly, trade and industry associations can use the findings to advocate for industry-wide improvements and policy changes, promoting best practices and helping elevate the overall standard and competitiveness of the cement industry in Bangladesh. By focusing on these applications, stakeholders can work collaboratively to overcome the identified challenges, leading to enhanced productivity, increased profitability, and sustained growth in the Bangladeshi cement industry.

Limitations and Future Research Directions

The cement sector is a vast area, so it is difficult to come to a conclusion from only analyzing the data of listed companies. If the sample size is small or not sufficiently diverse, the results of the study may not accurately reflect the broader population of cement industry stakeholders in Bangladesh. Also scope and depth of analysis may be constrained by time, resources, and methodological limitations. Certain aspects of the productivity and profitability challenges within the cement industry may not have been thoroughly explored or adequately addressed due to these constraints. Further research may be directed to identify problems associated with the productivity and profitability of cement industry in Bangladesh with more relevant variables and bigger sample size. As the cement industry of Bangladesh has become one of the fastest growing as well as an emerging sector of the country, the government and all stakeholders should pay their kind concentration to take essential actions regarding the enhancement of financial performance of this industry.

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