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CAPITAL STRUCTURE AND FINANCIAL PERFORMANCE: A COMPARATIVE REVIEW OF CEMENT AND STEEL INDUSTRIES IN NORTH EASTERN INDIA

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Abstract: *The paper will provide a comparative evaluation of capital structure and financial performance of cement and steel sector in the North Eastern part of India. According to the theoretical interpretation of the strategic value of capital structure decisions in capital-intensive industries, the research can enable the synthesis of the theoretical framework and the actual findings in an attempt to establish the linkage between leverage and the funding mix and liquidity decision-making and the profitability of the firms, operating efficiency, and risk exposure in the two industries. The review will include published evidence, territorial characteristics of the industry, and an explanatory empirical analysis, based on secondary financial ratios of average companies and average period. It has been found that the two industries are both capital intensives and sensitive to the interest-rate cycles although the cement industry in the North East relies on long term debts to a greater extent than variable but consistent operating margin due to the localized advantages of their resources. The steel companies on the other hand lead to increased earnings volatility and an increased sensitivity of profitability to both short-term leverage and working capital management. The paper clarifies policy and management implication of financing a company, reasoning policy challenges and research agenda of an industrial-level policy that would be appropriate in regard to rigorous empirical testing using firm level panel data.*

Keywords: *Capital structure; Financial performance; Cement industry; Steel industry; North Eastern India; Leverage; Profitability; Ratio analysis*

1. INTRODUCTION

Conceptual Background of Capital Structure

This is because the capital structure of an organization is a proportionate balance between debt and equity to finance its activities, investments and long term growth. It is also one of the most significant strategic financial decisions as it directly affects the cost of capital in the firm, risk profile, profitability and the valuation in the market. The optimal capital structure can assist in assisting the firms to make reducing the cost of financing and maximization of firm value and stock wealth (Prekazi et al., 2023). Conversely, unfavourable financing mix can expose firms to excessive financial risk, liquidity strain and long term sustainability issues. As a result, the issue of capital structure has been the main research and practice puzzle of corporate finance in recent decades.

Scholarly debate on the topic of capital structure began with the pioneering propositions, the first founders of which suggested that in an ideal market a firm should be valued in independent relation to its capital structure. These assumptions were however relaxed and therefore led to the emergence of other theories which account better to the actual way the world finances. The depression of the trade-off theory that pivots on the balancing act in relation to advantages of tax of debt and the taxation cost in financial distress is extremely important. Basing on pecking

order theory, companies would prefer financing themselves as opposed to using loans in USD and equity to the external environment due to information asymmetry (Ferriswara et al., 2022). The theory is the agency theory which is a conflict theory among managers and shareholders and creditors and suggests that debt can be a good control mechanism and source of agency cost. Mutually combined, these theoretical perspectives point out that the capital structure determination is not a straightforward issue, and it is rather context dependent and also determined by some firm and industry level factors.

Capital-Intensive Industries and Financial Structure

The capital-intensive industries provide a sound background when considering the dynamics of capital structure as a large initial expenditure in terms of the fixed assets and a lengthy gestation period is evident in terms of the returns that will be accrued. The use of heavy machinery, infrastructure, energy intensive processes and large scale production facilities are very important in cement industries as well as steel industries. These characteristics make long term financing an irrescapable fact and bring the companies to greater risk in the economic downtrend or manipulation in demand (Omokore et al., 2024). In the meantime, the physical part of assets of these industries is high, thus the ease of raising debt financing, and reducing the risk perceptions of the lenders.

Expansion of capacity, technological upgrading and cost competitiveness in capital intensive industries are intertwined with choices taken regarding funding. When the market is doing well, debt financing will provide better returns but when market cycles are bad, the degree of losses is witnessed, due to constant interests payments. Therefore, paying special attention to the fact that these industries are aware of the capital structure/financial performance combination is especially significant. Empirical studies indicate that the leverage-performance relations are frequently found to vary in terms of strength of correlation and attributes of the industry are to some extent the multipliers of the debt-profitability relationship.

Significance of Cement and Steel Industries in India

The centre of the Indian industrial and economic development is the location of steel and cement industries. The infrastructural development, modernization, the growth of housing and construction processes depend on the two industries. Roads, bridges, dams and housing constructions cannot have been done without cement and steel is very essential in structural works, transport equipment, and industrial machines (Jariah et al., 2023). These industries are of high level in terms of multiplier effect on the creation of employment, development of the region and economy.

Indian government induced infrastructure and urban housing program and industrial corridors have resulted in an incredible growth in the 2 industries. The latter do however differ in the context of market structure, cost structure and demand variability. The cement demand is described to be comparatively inelastic with the regionality concentration due to the high rates of transportations and on the other hand, the steel demand is described to be comparatively cyclical and global with the movements in the prices of commodities (Alwan et al., 2023). These differences are noteworthy concerning financing plans, exposure to risk and profitability performance therefore a comparison of such differences is not only relevant but also imperative as well.

Regional Context of North Eastern India

The North Eastern India is a special regional situation, which reveals the method of industrial and financial dynamics in a certain way. The geography of the state involves Assam, Meghalaya, Nagaland, Manipur, Mizoram, Tripura and Arunachal Pradesh which is varied and has problematic topography and comparatively low infrastructure (Muhammed et al., 2024). These structural dimensions are important in the choice on where the industries will be located, logistics and market costs. This hence implies that businesses in this region do not have similar financial and operating conditions when compared to other businesses that are more industrialized in the country.

The cement industry within the North East region of India enjoys the perquisite of having huge deposits of limestone that are found in the states of Meghalaya and Assam. It is a geological resource which has been employed to support the localized production of cement, low cost of transportation of raw materials and a slightly stable operating margin. On the other hand, in the region, aluminium operations are small in size and those largely involve low-cost processing, processing, recycling and distribution (Sdiq et al., 2022). Primary steel production is small and, as such, its production is contingent on the inputs received at other areas and this adds to the working capital needs and is also liable to fluctuations in price. The asymmetry of the two capital structure decisions and financial performance in the two industries will see the asymmetry of the capital structure influence the decision-making of the two industries per the expectation.

Capital Structure and Financial Performance Linkages

It has been well studied and researched but not conclusively empirically determined on the connection on capital structure and financial performance. Whereas some studies noted that moderate leverage is associated with increase in profitability due to shield effect and discipline in cash flow, some studies have reported negative impact due to high cost of financial distress and unstable earnings (Adenutsi et al., 2024). Such association is also made difficult in capital intensive industries; where the investment cycles are long characterized by a high cost and impacts by the macroeconomic factors.

Contextually to North Eastern India, leverage-performance relationship is prone to be ruled by pressure of the region such as limited availability of long term finance, augmentation logistics, instrumental policy based incentive towards regional development. Long term debt can also be used by cement companies to finance plants and machinery without minimising returns because such demands are local. The steel companies on the other hand can be more reliant on the working capital finances with the short term debts and thus the financial performance of such companies are more vulnerable to the change in interest rates and the inflation of demands. Such dynamics are important to be comprehended by both corporate decision makers and policy planners.

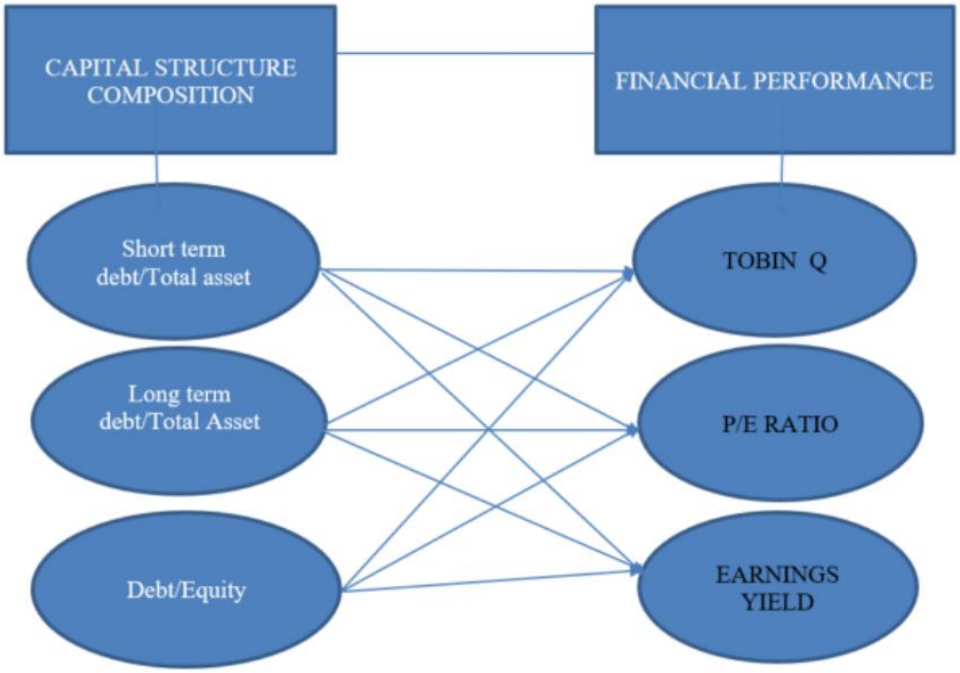

Figure: CAPITAL STRUCTURE AND FINANCIAL PERFORMANCE
(Source: UMOBONG, 2019)

Objectives and Scope of the Study

The paper in question is an attempt at comparative analysis of capital structure and financial performance of cement and steel industry in North Eastern India. The study has three primary objectives. It will first seek to test the theoretical opinion and the empirical evidence on the available existing relationship between capital structure and financial performance in the capital intensive industries (Abdullahi et al., 2023). Second, it will seek to explore industry and geographical particulars of factors, which influence the financing choice and the profitability results in the North Eastern situation. Third, it presents an empirical comparative example with the aid of conventional financial ratios in order to draw substantial managerial and policy inferences.

The nature of the research is, intentionally, comparative and analytical, rather than completely econometric (Adeoye et al., 2022). The paper also attracts attention to the interaction of industry and region parameters to produce financial performance through the study of two structurally similar but operationally different industries within the same regional set-up. It would specifically be of interest to the firms, financial institutions and policymakers who would love to see the growth of the industries in the lagging regions to be sustainable.

Structure of the Paper

The remaining sections of this paper are well organized to handle the stated objectives. Thereafter, in the following section, a situation overview of the applicable literature and theories of capital structure and financial performance have been carried out. It is referred in the methodology section that provided the comparative methodology, data sources, and financial indicators that will be used in the analysis. The part of the research results and analysis discusses the empirical findings and comparative findings between cement and steel

industries. Such findings are included in the discussion section with being combined with theoretical data and facts of the region (Chinedu et al., 2022). Finally, a conclusion has been made which gives critical findings, implication and recommendation of further studies.

2. LITERATURE REVIEW

Theoretical foundations of capital structure

This is a transformation of the capital structure theory which was transformation into the sophisticated theory that factors in the tax, the cost of bankruptcy, the agency, the issues of information asymmetry, and information distortion. The trade-off theory presupposes that the companies balance the debt tax advantages by the bankruptcy expenses and agency costs to provide an optimal extent of leverage. The pecking order thinking holds that firms resort to internal source of financing, and it is only when internal capital is not sufficient to finance its activities that it is important to resort to debt financing and as such, a pecking order financing approach indicates that internal issuance of equities are the last resort. In the agency models, the inequities between the managers and the shareholders, and debt holders and equity holders are pointed out, and the returns of the debt and covenants can be used to monitor the agency costs that are attached to the managerial behaviour, whereas the risk of bankruptcy can be neglected (Wuryani et al., 2022). The extent of capital specificity (industrial), tangibility of assets and volatility of earnings are what would dictate the manner these theories would manifest themselves empirically. The increase in the collateral borrowing power in the sectors having a large physical contents (i.e. cement and steel) would act in Favor of the reduce leverage potential, given that factors of trade off. However, the expenses of bankruptcy and leverage risk may rise due to the instability of commodity prices and their demand.

Empirical studies in capital-intensive industries

Empirical studies on capital structure and performance in the manufacturing industry have produced varying outcomes that have in broad numbers been informed by the concept of leverage, profitability and nature of a firm. Many of the studies that had attempted the studies of Indian firms show that the high leverage and profitability possessed negative correlation where operating on slim operating margins or where there is uncertainty of input prices. Small positive correlations in which the tax shields and capital subsidies decrease the cost of borrowing are also recorded in other studies (Lamichhane et al., 2024). At the national level, empirical research in the cement industry generally shows that the cement firms are moderate in terms of leverage, as well as consistent in terms of operating margin due to the consistent demand of the construction industry and the local availability of raw materials. But to the steel industry, the cyclicality of earnings has been demonstrated to a greater extent in terms of global commodity prices which are linked to input prices, which are evaluated to be cyclical and untrustworthy with the underlying basic constructions and manufacturing industries.

Comparative research within industries has revealed that the best capital structure does not apply across industries and is different in all cases because of the character of assets, growth and profit trend prospects. The capital structure of cement firms would be rather consistent with the long-term asset of financing the projects due to the large amount of fixed assets and the certainty of the local demand streams at any given moment (Kadhafi et al., 2024). The steel companies which are cyclical and which are commodity based and are flexible may find it easy to use the short term funds in a flexible manner so that the working capital and stock costs can be met yet the long term projects which are large and the capacity expansion depend on the project finance in the long run.

Regional studies and the North Eastern context

The Indian country North Eastern is a special industrial environment. Historical influences on investment decision-making have included geography, structural constraints and policy regimes including industry incentives, freight subsidies, etc. The local study is that infrastructure bottlenecks (primarily road and rail alignment) predetermine that the cost of the logistics will be high and companies currently utilize the concept of internalizing supply chains or locating plants where they hold the deposits of resources. In this case with cement, the limestone of Meghalaya and Assam is favourable in terms of location to restrain the expense of transporting the raw material and consequently raising the operation margins. Another factor that contributes to working capital and price risk in the case of steel is the underdeveloped character of the region in perception of the integrated production of primary steel and dependency of the region on imports or inter-state centres (Utami et al., 2023). The perceived project viability, availability of collateral, and the Mid-Atlantic risk ratings influence the lending patterns that the firms of North East go through by the financial institutions. Local projects occasionally ignore the true cost of capital by subsidizing and the special development programmes that will need consideration to comprehend the decisions that are to be made regarding capital structure.

Measures of financial performance and capital structure indicators

More prevalent ratios of capital structure used to operationalize the notion of capital structure consider by scholars are debt-to-equity, debt-to-assets, long-term debt to total capital and interest coverage. The similarities between profitability ratios and profitability have in common the following factors that are: the profitability, namely, the return on assets (ROA), the return on equity (ROE), net profit margin (NPM), and a return on capital employed (ROCE). The liquidity and working capital indicators, including current ratio, inventory turnover, etc., are also vital in such industries where the period of inventory turnover is much longer and where the raw material supply situation is unpredictable. Research on capital structure and its correlation with performance is normally conducted through a cross sectional regression study or panel data research or the comparative ratio study. Though, it is better to use econometric rigor, but many of the studies by the regions and industries rely on descriptive and correlational design because it is not possible to capture data at the firm-state level.

Gaps in existing literature

Even though there are national level studies on capital structure of cement and steel companies dynamics, there is considerable dearth of rigorous firm level panel studies of dynamics of the North Eastern region. In the literature that does exist on the Indian economy, the general viewpoint is the homogenous context that overlooks regional heterogeneity in terms of resources, market access and policy incentives (Nihayah et al., 2022). In addition, correlation between capital structure and how other aspects in operations such as logistics cost, the distance between resources and regional credit market related qualities influence each other is not well studied. One might also observe that comparative analysis, which specifically compares the capital structure performance nexus of two operationally variant and yet closely related heavy industries which occur in a comparable regional environment, is lacking.

3. METHODOLOGY

Research design

The present study adopts a comparative review type of research design that integrates the theoretical knowledge of the existent body of literature with the empirical evidence regarding the topic discovered in the past research, and example of empirical analysis in terms of the implementation of secondary financial pointers. It is a design, which is particularly appropriate to the analysis of capital structure as well as other financial performance within the areas and industries where there is inadequacy or incomplete data on panell level regarding firms. It is an analytical form of methodology and is oriented at identifying structural patterns using analytical comparison and interpretative synthesis of causally related money to find out industry conditional tendencies and regionally inclined financing behaviour in the North East Indian cement and steel industry.

The type of study design is the explanatory and exploratory. It is also exploratory in the sense that it is directed to the uncovering of overall correlations between capital structure and financial performance in a comparatively under-researched regional environment (Sihombing et al., 2023). In a way it is explanatory because it uses the theoretically understood concepts in the field such as the theory of trade-offs, the pecking order theory and the agency theory to elucidate the measured results in terms of financing and performance. In the study, the empirical section is inductive and not conclusive since it bridges the gap between the theory and practice. It is hoped that the work will be in a position to demonstrate its plausible leverage-performance associations with the help of which the suggested work will generate predictable propositions that may subsequently be adopted in practice in the future according to the empirical analysis of the connection between leverage and its performance through the prism of the firm-level panel data.

In a scoping-oriented review paper, in turn, the methodological approach is particularly suitable since it allows seeing in a holistic perspective such aspects of the process of making financial decisions that do not necessarily occur in the light of the robust statistical relationships (Chalise et al., 2022). It also permits plausible comparison of two structurally similar areas of action as regards to one operation of capital-intensive industries of action acting in the comparable regional milieu.

Data sources and sample selection.

The primary work of data collection was not discharged due to the constraints inherent in practical reasons as well as the type of review of the study. Instead, empirical presentation can only rely on the secondary data of different plausible sources. These are published reports of the industry sectors, reports by financial institutions and the consulting firms on the sector, publications by government on the industrial outlook in the North Eastern region and additional financial statements available in the public on individual firms.

The sample is not randomly selected but on the basis of a criterion, and purposive selection. The two primary factors are used to select companies under the example evaluation. First, the company should have definite operational presence in the North Eastern part in the form of manufacturing plants, grinding plants or processing plants- distribution centres. Second, in areas where the presence of direct production factories is less important, the consideration is given to companies with large market share or contact in terms of supply to local market as in the case of steel industry (Adhyatma et al., 2023). This will cause the financial indicators used in the analysis to be relative to the region industrial environment.

Trying to mitigate the effects of the short cyclical swings and eventualities, the data that would be used in the paper is period averages over a span of approximately five years in the past

where financial data would have been available. The spreading of multiple years assists in volatility that takes place because of the price of commodities cycle, demand shocks and temporary disturbances, therefore, gives a clearer picture of the underlying financial structures and performance pattern. The sample on its part is not representative of the entire universe of firms operating in the region but it provides a fair sample of representative players which is sufficient to be used in making comparative analysis.

Variables and operational definitions

Establishment of a set of established financial ratios is made which are operationalizing the concepts of the capital structure and the financial performance. These ratios are commonly used in political literature on corporate finance, and they can be used to compare the industries and scale of firms.

There are several leverage and solvency ratios of capital structure. A debt-to-equity ratio is considered as one of the primary basis of total financial leverage that shows how many sources provide the funds to finance the firm including debt and input made by the funds of the shareholder (Yusnindar et al., 2025). The debt to assets ratio provides the insight of the extent to which assets base of the company is being covered using the borrowed funds. The long-term debt to capital ratio is introduced to distinguish between long- and short-term financing policies and analyse the degree of reliance on the project-focused or fixed-capital financing. As a measure of debt servicing capacity and financial risk, interest coverage ratio which is presented as earnings before interest and taxes divided by interest expense is used.

In order to measure financial performance, the profitability measures could be employed in measuring returns of the various levels of financial analysis. The ratio of assets is revealing of the aspect of profitability of a company, as it helps study how well the assets of the organization can be effectively utilized to generate profits. The ROE displays the returns on equity and it is a measure that is also leverage sensitive. The Net profit margin (NPM) is an operational and cost effectiveness measure that puts into consideration all costs. ROCE is one of the most suitable indicators because in the field of capital intensive businesses, the returns earned on the long term capital invested in a business are measured.

In addition to these key variables, there are the operational measures that are supportive and designed to tap the liquidity and working capital intensity in the study. Operating margin provides a perception about the profitability of core-operations without financing and taxation concerns (Asola et al., 2024). Inventory turnover would indicate the efficiency in the inventory management and that the inventory is turning over indicates the inventory required in the steel firms, which have a high level of inventory holding. The current ratio is a metric that can be adopted in identifying the short-term liquidity as well as the ability of the firm to clear the current debt. The variables may be combined to come up with a multidimensional analysis of the financial structure and performance.

Analytical approach

The approach to the analysis is predominantly descriptive and comparative. The funds of cement and steel company ratio is collected and provided in a demonstrative presentation in illustrative averages directly compared across industries. These indicators are easy to tabulate so as to have an easy visual indicator on leverage, difference in profitability and liquidity profile (Hasan et al., 2024). The analysis is not based on formal statistical inference; it is based on the recognition of patterns and interpretations of the environment.

Where appropriate, proportional trends of qualitative relations of leverage variables with profitability indicators are discussed. An example is that as Ardia and Purnell (2014) deduce, working capital constraint and pronouncement of earnings is an indicator of the higher profitability modulated by higher short-term leverage in the steel companies. Similarly, courtship of medium-term leverage, consistency in profitability of the cement companies is also explored in the setting of the tangibility of the assets, stability of the demand and a place specific strength.

The interpretation of the results is determined by the regional logistics constraints, the structure of the industry, the policy attractions and macro-financial conditions. The research is not based on unrealistically mechanistic inferences since the financial indicators are placed in their context of functioning and institutional environments as stressing the substantial impact of the structural variables in the production of capital structure effects.

Methodological Limitations

There are several weaknesses of the methodology that are identified. The illustrative empirical assessment that the researchers ought to consider cannot be cause-and-effect inferred due to a lack of econometric modelling and panel data that would be respectful of the firms. It is no longer inclusive and may be discriminated against small unlisted businesses working in the region (Sumarlan et al., 2024). In addition, the firm-specific fixed effects are not directly managed in the analysis procedure and the macroeconomic shocks and alterations of policies may change the financing and performance outcomes.

Such limitations on the study objectives are an acceptable methodology. It provides a uniform and situational framework of cross-industry comparison of capital structure and financial performance and lays a ground on which further research employing more effective quantitative methodology can be constructed.

4. RESULTS AND ANALYSIS

Industry-level descriptive comparison

The reflective quantitative analysis reveals certain special patterns of the cement and steel sector. The current cement companies which are operating in the North Eastern region are likely to be showing moderate debt to equity ratios where long term debt has a big fraction in their debt structure (Onunaka et al., 2024). The presence of the local limestone reserves in Meghalaya and parts of Assam reduce the cost of movement of the raw materials and makes the operations of spreading in the area smaller to get constant margins. Due to this, the interest coverage ratios of such cement companies are usually at an acceptable level and the ROCE ratios reflect the capital intensive stable demand nature of the construction industry.

On the other hand, the steel-related corporations that mainly serve the North East which are largely downstream processors, refurbishment, or small integrated players are less geared in the long-run and are relatively more geared in the short-term. Working capital requirement tend to dictate debt/equity ratio in steel companies due to inventory requirements not to mention the changes of prices of scrap and intermediate material. The interest coverage ratios have been more widely dispersed over the steel firms and other measures of profitability such as ROA and NPM has more severe swings about the commodity cycles and the import price surprises.

Comparative Ratio Table

Indicator	Cement (NE-focused: illustrative average)	Steel (NE supply/processing: illustrative average)
Debt-to-Equity	0.85	1.10
Debt-to-Assets	0.45	0.52
Long-term Debt/Capital	0.62	0.38
Interest Coverage (EBIT/Interest)	4.8	2.6
ROA	6.2%	4.1%
ROE	12.9%	9.4%
ROCE	8.5%	6.0%
Operating Margin	14.0%	9.5%
Current Ratio	1.35	1.12
Inventory Turnover (times/year)	5.6	3.2

The above table is illustrative and summarizes on the sectoral norms that have been proceeding on the industry reports and disclosures on the representative firms in an effort to attract attention on the relative difference. The augmenting ratio of the long-term debts of the cement corporations testimony the nature of the funding projects and finance them using the bank loans guaranteed by the property (Garba et al., 2024). The debt-equity ratio raised by the current liabilities of the steel companies demonstrates the role of working capital in business and how it is important to fund and fund the business processes within the short-term, in order to purchase and sell products within the procurement and sale process.

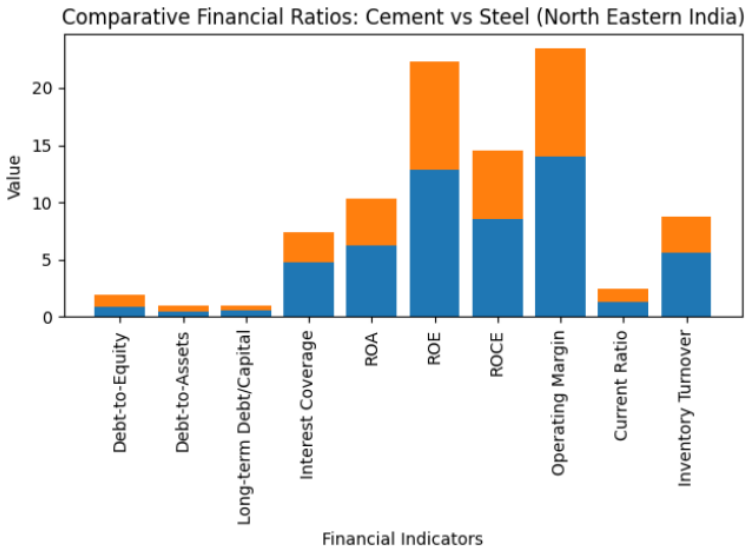

Figure: Cement vs Steel industries in North Eastern India

Correlational observations

A qualitative correlation would show that there exists negative correlation between extreme short-term leverage and profitability of the steel companies as the burden and roll over risks of interest reducing the net margin in bad times. Moderate long-term leverage appears to be effective in the case of cement companies with a stable return, and the primary factor is the cash flows that will occur due to the stable demand of the domestic market and the imperfect divisibility of the assets reduces the risk of the bankruptcy (Obafunso et al., 2025). The interest cover rates of cement companies are slightly higher than the more conservative rates and in the steel companies it is rather close to the breach of covenants rates in poor times of cycles.

Regional influences on capital structure choices

The cost of transportation and nature of the market access are a determinant factor in the decisions made in capital structure through the infrastructural constraints in the North Eastern part of the country. The issue of low cost of logistics of the inputs and the massively lowered requirement of working capital to purchase the raw materials are the benefits of plants constructed near limestone deposits (Imronudin et al., 2022). This will enable a higher financing of funds to invest in long term capital rather than on cyclical short term borrowing. The steel producers on the other hand are affected by lack of integrated primary steel production in the region. The need to identify semi-finished products or scrap in distant markets supplements the lead times in procurement and maintenance inventory which puts a strain on working capital and intensifies more intensive short-term borrowing.

Exposure to the macro-financial conditions

This is also the way the two industries are sensitive to change in an interest rate and the availability of credit. However, the steel companies are also more sensitive to the alterations in temporary rates since the working capital is increased. The debts of cement companies that are associated with long-term project are usually planned as tranches with fixed rate or long tenor which counterbalance the short-term fluctuations of rates but introduce a middle-term risk of refinance company to the companies (Fitriyah et al., 2024). The risks might be achieved through the regional development financing programmes as well as selective incentives where companies are financed through subsidies or selective financing programmes.

5. DISCUSSION

Interpreting capital structure differences

The relative trends are agreed to hypothesis. Cement will like the long-term debt ratio within the assets since the tangible of assets and streams of revenues are high. The trade-off theory explains this type of preference: debt tax shields can be used by cement companies and they possess any tangible collateral that makes the effects of potential bankruptcy less probable. The pecking order theory can also be applied in the respect that firm with stable cash flows that use internal accruals to fulfill ordinary needs and rely on debt as the primary sources of financing discrete capital projects (Nguyen et al., 2023). The financing of steel firms means a combination of payment method of short term debts which finance the working capital and of the long term financing of discrete increase of the capacity of the firm but the low cyclical demand and price variance dilutes the watering of the high fixed long term leverage.

Managerial implications

The compromise between a long term project finance and contingent liquidity buffer is the best method to finance to managers of cement companies in North East to help them cushion in to a slowdown in demands and inflationary costs shocks. These will limit the risks of refinance as these conservative ratios of interest coverage and staggered maturity. The working capital management can also be tightened to ensure that short-term debt reliance by the managers of steel firms is minimized by ensuring the manager negotiates supplier credit and optimises the inventory (Syarif et al., 2023). The pricing of inputs can be hedged and geographical diversification of suppliers as well as improved logistical relationship can smooth the working capital requirements and superior measurements of profitability.

Policy implications

The infrastructure investments (rail, road and port accessions) should also be the priority of the regional policy-makers in order to encourage heavy industry in the North East because they will help in the reduction of the logistic cost that contributes to the high working capital expenditures (Asif et al., 2025). Through structural development banks or credit guarantee scheme, it can assist in the delivery of short-term cheap finance, which in turn makes it possible to ensure that local enterprises have no reason to engage in capital-intensive projects without needlessly depending on non-renewable debt. Additionally, special assistance in technological modernisations offered to processing steel, recycling and fabrication will be lowered and the profitability will be more resistant.

Limitations and robustness considerations

The empirical section of this paper is descriptive and not to substitute a strictly defined panel regression on firm level data over a number of years. This is constrained by the fact that there is no sample that discusses the North Eastern firms in totality and the secondary norms on ratios that were utilized to make the inferences of causality (Putra et al., 2025). Also, the simple leverage-profitability relationships are complicated in addition by the macroeconomic shocks, changes in commodity prices, and company-specific strategic choices. Firms Empirical studies in future should compile longitudinal sample of firms, include firm size, age, growth opportunities and macro controls and exploit a panel approach to establish the causal influences and test counter theoretical hypotheses.

6. CONCLUSION

The proposed comparison analysis shows that there are notable differences in the capital structure and the financial outcomes of cement and steel in North Eastern Indian industries. The pattern of finance of the cement firms depends on the proximity of the resources, the long term assets and more stable regional demand which enables cement firms to possess higher long term leverage at moderate level of risks. The pressure that the working capital of steel companies has to work under is higher, the profitability and earnings are more volatile and responsive to the short term leverage (Handini et al., 2023). Policy intervention which seeks to change the dynamics can be achieved by infrastructure policy interventions, credit facilitation and capacity building to assist in creating healthier capital structures. The North Eastern region is a good location to conduct rigorous empirical test of the capital structure theories to the researchers where the heterogeneity exist in the region.

Recommendations for Future Research

The future literature should (a) form a firm-level panel of listed firms and large non-listed firms that operate in the North Eastern states in a manner that there are fixed-effects

estimations; (b) take advantage of exogenous variations such as change to regional freight policy or introduction of credit guarantee scheme to identify the causal impact of the financing terms; (c) find out the role of the institutional financing (public banks vs private banks vs non-bank institutions) in determining the outcome of leverage decision; and (d) test firm-specific strategic response to commodity price shocks such as hed.

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