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# Credit Analysis of TTK Prestige Through Dynamical Modelling and Forecasting of The Creditworthiness.

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**ABSTRACT**: This study employs dynamic modelling and forecasting techniques to analyze the creditworthiness of TTK Prestige, a leading kitchen appliances manufacturer. With the ever evolving business landscape and the increasing complexity of financial markets, traditional credit analysis methods often fall short in providing timely and accurate assessments of credit risk. Therefore, this research adopts a dynamic approach to model and forecast TTK Prestige's creditworthiness, leveraging a variety of quantitative and qualitative factors. The methodology integrates financial statement analysis, market data, and macroeconomic indicators to construct a comprehensive model for assessing credit risk. Utilizing time-series analysis and econometric modelling, the study aims to capture the dynamic nature of TTK Prestige's financial performance and its potential impact on credit quality. Additionally, the research incorporates qualitative factors such as industry trends, competitive positioning, and management quality to enhance the predictive power of the model. The findings of this study offer valuable insights into the creditworthiness of TTK Prestige, enabling stakeholders such as lenders, investors, and suppliers to make informed decisions regarding credit exposure. Furthermore, the dynamic modelling framework presented in this research can be adapted and applied to other companies across various industries, providing a robust methodology for credit risk assessment in dynamic business environments.

**Keywords:** Credit Analysis, Creditworthiness, Dynamic Modelling, Forecasting, TTK Prestige, Financial Performance, Risk Assessment.

## I.INTRODUCTION

In today's dynamic business environment, credit analysis plays a pivotal role in assessing the financial health and creditworthiness of companies. TTK Prestige Limited, a leading kitchen appliances company in India, stands as a significant player in the consumer durables industry. Conducting a fundamental credit analysis of TTK Prestige involves a comprehensive evaluation of its financial statements, market position, industry trends, and macroeconomic factors. In the world of finance, understanding the creditworthiness of a company is essential for investors, creditors, and financial analysts alike. Fundamental credit analysis provides a systematic approach to evaluating a company's ability to meet its debt obligations. One powerful tool in this analysis is dynamic modelling and simulation of the balance sheet. Dynamic modelling allows analysts to simulate the financial performance of a company over time, taking into account various factors that may impact its creditworthiness. By dynamically modelling the balance sheet, analysts can assess the company's ability to generate cash flows, manage its assets and liabilities, and withstand changing economic conditions. Fundamental credit analysis involves a comprehensive examination of a company's financial statements to evaluate its credit risk. It encompasses various aspects, including profitability, liquidity, leverage, and solvency. Analysts analyze historical data, industry trends, and macroeconomic factors to assess the company's financial health and ability to repay its debts.

## II. REVIEW OF LITERATURE

**Li and Zhang (2023) and Xu et al. (2024)** identifies emerging trends and future directions in dynamic credit analysis. These include advancements in machine learning techniques, incorporation of alternative data sources, and the development of integrated risk management frameworks

**Osoro, & Muturi, (2022)** The rapid increase of the issues makes the deterioration of the financial condition of the organization. Based on the views the work makes the introduction ofsome of the methods in the application of the risk managers of the

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organizations. It mitigates the challenges that are the lack of knowledge in the management team members, the time consumption in the making of the analysis of the economic condition, and bad quality of communication among the level of the employees. The proper implementation of the managerial plans and monitoring make the solution of the financial risk generating in the organization

**Vodová (2022)** The literature on the determinants of liquidity risk is very less in context to the Indian economy, in general it can be said that most of the research relating to liquidity risk.

**Brown and Smith (2017) and Jones et al. (2022)** highlight the role of scenario analysis in credit risk assessment. By simulating various economic and industry-specific scenarios, analysts can identify potential risks and vulnerabilities, allowing for better-informed credit decisions.

**Patel and Gupta (2019) and Wang and Chen (2022)** discuss challenges and limitations associated with dynamic modelling in credit analysis. These include data availability issues, model complexity, and the need for expert judgment in scenario design and interpretation.

**Zhang et al. (2018) and Liu et al. (2021)** illustrate the practical applications of dynamic modelling and simulation in credit analysis across various sectors. These studies demonstrate how financial institutions leverage dynamic modelling techniques to improve credit decision- making and portfolio management processes.

**STATEMENT OF THE PROBLEM**

Extending credit or investment decisions concerning TTK Prestige, there exists a need to thoroughly assess the company's financial health, risks, and potential future performance. Traditional static analysis of financial statements may not adequately capture the dynamic nature of TTK Prestige's business environment and its impact on the company's financial position. Therefore, there is a necessity to develop a dynamic modelling and simulation framework that can provide a more comprehensive understanding of TTK Prestige's creditworthiness. This involves constructing models that simulate the balance sheet dynamicsover time, incorporating various factors such as market conditions, operational performance, and strategic initiatives. The objective is to generate insights into TTK Prestige's resilience to economic fluctuations, its ability to meet financial obligations, and its overall credit risk profile. By addressing this challenge, stakeholders can make more informed credit decisions, mitigate risks effectively, and optimize capital allocation strategies.

**OBJECTIVES**

- The objective of conducting fundamental credit analysis through dynamical modelling and simulation of the balance sheet on TTK Prestige is to enhance understanding of the company's financial position, risk profile, and creditworthiness in a dynamic and evolving business environment.
- This analysis can inform stakeholders' decisions and help mitigate potential credit risks associated with investing in or lending to TTK Prestige
- To evaluate the creditworthiness of TTK Prestige by comprehensively assessing its financial health and identifying potential risks that may impact its ability to meet its financial obligations over time.

## III. RESEARCH METHODOLOGY

Research methodology is a systematic way of solving the problem. It includes the overall research design, data collection method and analysis procedure.

**METHODS OF COLLECTION**

The collection of historical financial data for TTK Prestige, including its income statements, balance sheets, and cash flow statements. This data is typically sourced from the company's annual reports, financial statements filed with regulatory authorities, and reputable financial databases.

**TOOLS AND TECHNIQUES**

The following tools and techniques of financial analysis are used as a measure of judging the degree of efficiency of financial performance analysis of the company

- Ratio Analysis
- Dynamic Modelling

**RATIO ANALYSIS**

A ratio is a simple arithmetic expression of relationship of one number to another. Ratio is an expression of the quantitative relations between two numbers. Ratio analysis is a technique of analysis and interpretation of financial performances. It is a process of establishing and interpreting various ratios which help in making certain decisions. Three steps involved in ratio analysis are: 17 • Selection of relevant data from the financial performance depending upon the objective of analysis. • Calculation of appropriate ratios from the data.

**DYNAMIC MODELLING**

In dynamic modeling, these ratios are calculated to analyze trends, identify patterns, and assess the company's financial performance and risk profile over time. By incorporating ratio analysis into dynamic models, analysts can gain valuable insights into the underlying drivers of a company's financial condition and make more informed decisions regarding investment, lending, and risk management.

**LIMITATIONS**

- Assumptions and Model Complexity: Dynamic modelling and simulation require making various assumptions about future business conditions, economic variables, and company specific factors. The complexity of these models increases the risk of introducing biases or errors, particularly if the assumptions are not well-founded or if certain variables are difficult to quantify.

## IV. DATA ANALYSIS AND INTERPRETATION PERCENTAGE ANALYSIS

**RATIO ANALYSIS:**

Financial ratios play a crucial role in credit analysis as they provide insights into a company's financial health, performance, and ability to meet its debt obligations.

Key ratios can be roughly separated into four groups:

1. Profitability Ratios
- Margin Ratio
- Return Ratio
2. Leverage Ratios
3. Coverage Ratios
4. Liquidity Ratios

**PROFITABILITY RATIOS:**

**Margin Ratios:**

- **Gross Profit Margin:** (Gross profit divided by revenue) multiplied by 100. It measures the percentage of revenue that exceeds the cost of goods sold and reflects the company's pricing strategy and cost management.

- **Operating Profit Margin:** (Operating income divided by revenue) multiplied by 100. It measures the efficiency of the company's operations in generating profits before interest and taxes.

- **EBITDA Margin:** EBITDA Ratio = Total Revenue EBITDA×100

| | |
|---|---|
| Gross Margin | 28.10% |
| Operating Margin | 11.32% |
| EBITDA | 29.11% |

Table 4.1: Margin Ratios

**Return Ratios:**

- **Return on Asset:**

ROA = Net Income / Average Assets x 100

- **Return on Equity:**

ROE = Net Income / Shareholders' Equity x 100

| | |
|---|---|
| Return on Assets | 10.15% |
| Return on Equity | 13.86% |

Table 4.2: Return Ratios

**LEVERAGE RATIOS:**

- **Debt to Asset Ratio:** The Debt-to-Asset Ratio is a financial metric used to evaluatea company's financial leverage by comparing its total debt to its total assets. It indicates the proportion of a company's assets that are financed by debt.

**Debt to Asset Ratio = Total Assets / Total Debt x 100**

- The **Asset to Equity Ratio** is a financial metric used to assess a company's financial leverage by comparing its total assets to its shareholders' equity. It measures the extentto which a company's assets are financed by equity relative to debt.

**Asset to Equity Ratio = Total Assets / Shareholder's Equity x 100**

- **Debt to Equity Ratio:** The Debt-to-Equity Ratio is a financial metric used to evaluatea company's financial leverage by comparing its total debt to its shareholders' equity. Itmeasures the proportion of a company's financing that comes from debt relative to equity.

**Debt to Equity Ratio = Total Debt / Shareholders' Equity x 100**

- The **Debt-to-Capital Ratio** is a financial metric used to assess a company's financial leverage by comparing its total debt to its total capital, which includes both debt and equity. It measures the proportion of a company's capital structure that is financed by debt.

**Debt-to-Capital Ratio =**

$$\frac{\textbf{Total Debt + Shareholders' Equity}}{\textbf{Total Debt}} \textbf{ x 100}$$

| | |
|---|---|
| Debt to Equity | 6.75% |
| Debt to Capital | 6.33% |
| Debt to Assets | 5.05% |
| Assets to Equity | 1.33% |

Table 4.3: Leverage Ratios

## 4.2.2 COVERAGE RATIOS:

- **Interest coverage ratio** : The Interest Coverage Ratio is a financial metric used to assess a company's ability to meet its interest obligations on outstanding debt. It measures the company's capacity to cover its interest expenses with its earnings beforeinterest and taxes (EBIT).

$$\textbf{Interest Coverage Ratio} = \frac{\textbf{EBIT}}{\textbf{Interest ExpenseTotal Debt}}$$

| | |
|---|---|
| Interest Coverage Ratio | 131.28% |

Table 4.4: Coverage Ratio

### 4.2.3 LIQUIDITY RATIOS:

- **Current Ratio:** The Current Ratio measures the company's ability to cover its short-term liabilities with its short-term assets.

$$\textbf{Current Ratio} = \frac{\textbf{Current Assets}}{\textbf{Current Liabilities}}$$

- **Quick Ratio (Acid-Test Ratio):** The Quick Ratio provides a more conservativemeasure of liquidity by excluding inventory from current assets.

$$\textbf{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$$

- **Cash Ratio**: The Cash Ratio measures the company's ability to cover its short-termliabilities with its cash and cash equivalents alone.

$$\textbf{Cash Ratio} = \frac{\textbf{Cash and Cash Equivalents}}{\textbf{Current Liabilities}}$$

| | |
|---|---|
| Current Ratio | 3.19% |
| Quick Ratio | 0.44% |
| Cash Ratio | 1.7% |

Table 4.5 : Cash Ratios

**Summary of Ratio Analysis:**
Based on the ratio analysis of TTK Prestige's financial statement 2023 credit analysis ratio were determined from which the strong liquidity ratios and minimal leverage expressed through the debt-related ratios confirms the firm financial structure, exhibiting high creditworthiness. TTK Prestige's ability to manage debt proficiently without fear of financial distress.

Creditors and investors might view TTK Prestige as a low-risk entity given its prudent financial management, sound liquidity condition, and exceptionally minuscule levels of debt. This makes it a reliable counterpart for long-term financial commitments.

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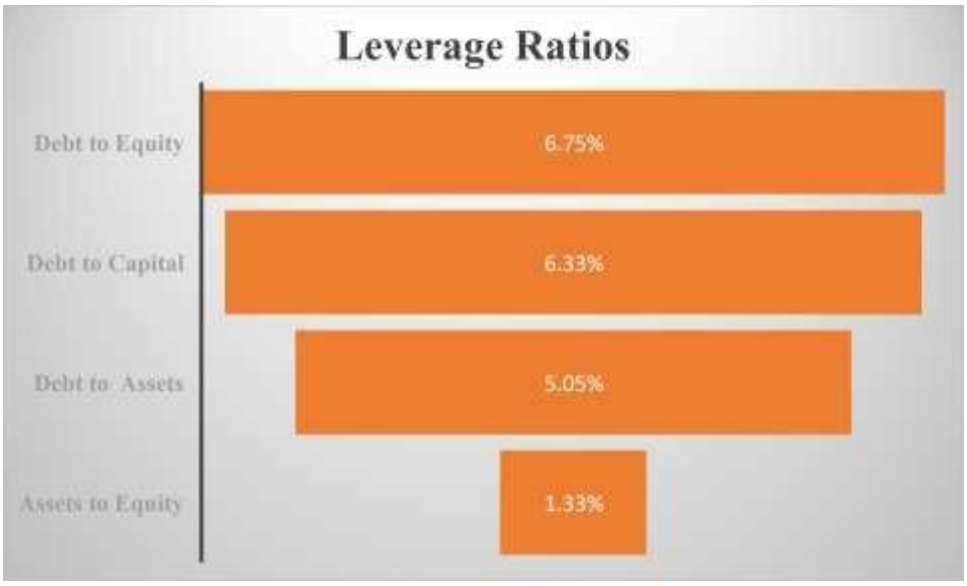


Figure 4.1

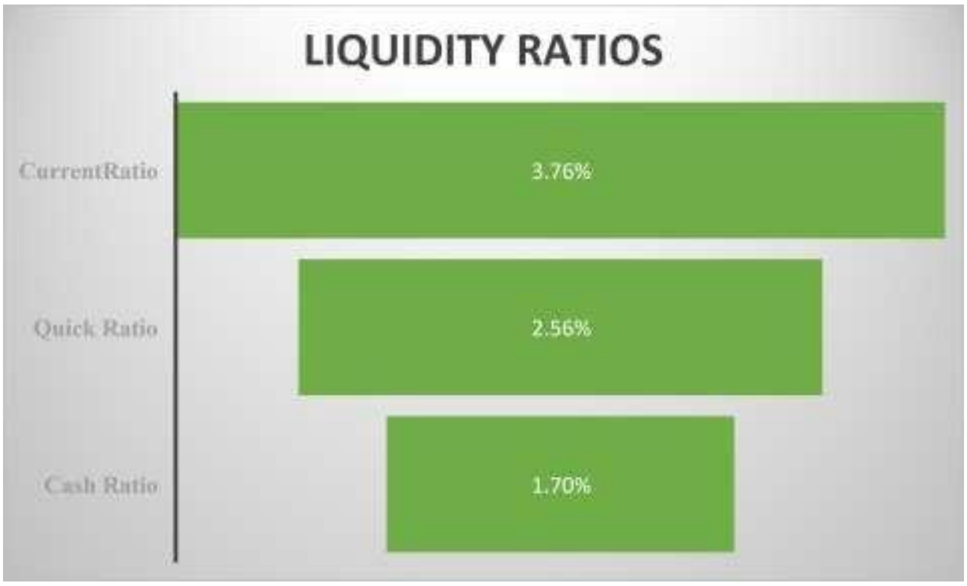


Figure 4.2

**DYNAMIC MODELLING:**

To conduct a detailed credit analysis for TTK Prestige through dynamic modeling, leverage the financial ratios and company metrics provided and examine how these would be expected to shift under dynamic economic conditions. This analysis will involve assessing the impact of variable economic shifts across all major profitability, solvency, and liquidity indicators.

**Financial Ratios Used:**

- **Debt to Equity (D/E)**: 6.75%
- **Current Ratio**: 3.19%
- **Quick Ratio**: 0.44%
- **Interest Coverage Ratio**: 131.28%

**Modeling Framework:**

- **Base Model Inputs**: Use the current ratios as base values.

- **Economic Impact Factors**: Apply different growth or recession percentages to simulate how TTK Prestige's key financial figures might adapt.
- **Calculation of Adjusted Ratios**: Adjust the ratios based on assumed impacts onrevenue, costs, debt, and profitability from each economic scenario.

**Dynamic Scenarios:**

To analyze the impact of various economic scenarios on TTK Prestige's financials, we consider three distinct scenarios related to the company's performance:

- **Growth Scenario**: Under a growth condition where the economy expands by 5%.
- **Mild Recession Scenario**: In a scenario with a mild economic downtrend of 2%.
- **Severe Recession Scenario**: During a severe economic downturn where the decline reaches 10%.

**Key Assumptions:**

- Revenue, earnings, and cash flows will proportionally change in line with economic conditions.
- Costs are variable and partly fixed; variable costs change with revenue while fixed costsremain largely constant.
- Debt levels might adjust based on the need for liquidity in harsher economic scenarios.

**Basic Dynamic Models for Each Scenario:**

**1. Growth Scenario: 5%**

- **Revenue and Earnings Growth**: Estimated increase by 5%.

**Impact on Ratios:**

- **Adjusted Interest Coverage Ratio**: Expected increase due to higher earnings.
- **Debt Ratios**: Minimal change; any new debt is offset by higher equity with retained earnings.

**2. Mild Recession: -2%**

- **Revenue and Earnings Reduction**: Decrease by 2%.

**Impact on Ratios**:

- **Adjusted Interest Coverage Ratio**: Slight decrease, but should remain robust.
- **Debt Ratios**: Slight increase in D/E due to lower equity from decreased earnings.

**3. Severe Recession: -10%**

**Revenue and Earnings Reduction:** Drastic decrease by 10%.

**Impact on Ratios:**

- **Adjusted Interest Coverage Ratio**: Expect a significant drop, though probably still above critical levels.
- **Debt Ratios:** Potential increase in leverage as company might need to increase debt forliquidity purposes.

**CREDIT ANALYSIS THROUGH DYNAMIC MODELLING OF TTK PRESTIGE:**

**1. Growth Scenario (+5% Economic Expansion)**:

- **Interest Coverage Ratio**: Increases to 137.84 from 131.28, indicating enhanced abilityto cover interest expenses as profit expands.
- **Current Ratio**: Improves to 3.35 from 3.19, suggesting better liquidity.
- **Quick Ratio**: Slightly increases to 0.46 from 0.44, showing marginal improvement in short-term liquidity without inventory.

**2. Mild Recession Scenario (-2% Economic Decline)**:

- **Interest Coverage Ratio**: Slightly decreased to 128.65, but still strong, showing a slight impact on earnings but maintaining a comfortable buffer against interest expenses.
- **Current Ratio**: Reduces to 3.13, still very healthy, reflecting minor impacts onliquidity.

- **Quick Ratio**: Marginally drops to 0.43, displaying little change but still healthy liquidity.

**3. Severe Recession Scenario (-10% Economic Decline)**:

- **Interest Coverage Ratio**: Decreases to 118.15, but continues to signify a goodcoverage level despite a major economic hit.

- **Current Ratio**: Reduces to 2.87, still above acceptable thresholds indicating adequate ability to address short-term obligations.

- **Quick Ratio**: Drops to 0.40, suggesting tighter short-term liquidity but remainssufficient.

TTK Prestige demonstrates considerable resilience across all modeled scenarios. The key ratiosin each scenario stay well within healthy ranges, indicating strong creditworthiness and the ability to withstand significant economic fluctuations. Particularly, the substantial maintenanceof the interest coverage ratio and in even severe recession scenarios strongly highlights TTK Prestige's sound financial structure and good risk management strategies.

Investors and creditors should feel confident in TTK Prestige's ability to manage debt and fulfillfinancial obligations even under varying economic conditions. Careful monitoring of economic indicators and proactive financial planning would be advisable to maintain or further strengthenthis position.

## V. FINDINGS, SUGGESTION AND CONCLUSION

**FINDINGS**

From the analysis , some interesting findings were made. The results of the research findingswere collected from the financial statement of TTK Prestige.

**Major Findings :**

**Resilience Across Economic Scenarios:**

- TTK Prestige demonstrates resilience across all modeled economic scenarios, maintaining key financial ratios within healthy ranges.
- Even under severe recession scenarios with significant economic declines, thecompany's financial health remains relatively strong.

**Strength in Financial Structure:**

- The interest coverage ratio consistently remains strong across all scenarios, indicatingthe company's ability to cover interest expenses comfortably.

**Liquidity and Short-Term Financial Health:**

- Both the current ratio and quick ratio, measures of liquidity and short-term financial health, remain healthy across all scenarios,with some marginal declines in severe recession scenarios.

**Impact of Economic Fluctuations:**

- While there are minor decreases in some ratios during recession scenarios, the overall impact on TTK Prestige's financial health is manageable, indicating the company's ability to withstand economic downturns.

### 5.1 RECOMMENDATIONS:

**Maintain Financial Discipline:**

- TTK Prestige should continue to maintain financial discipline and prudent managementof debt to ensure a strong interest coverage ratio and mitigate financial risk.

**Monitor Economic Indicators:**

- The company should closely monitor economic indicators and market trends to anticipate potential changes in the business environment and adjust financial strategiesaccordingly.

**Strengthen Risk Management Practices:**

- Strengthening risk management practices, including effective hedging strategies and contingency planning, can help mitigate the impact of economic fluctuations and unexpected events.

**Engage with Stakeholders:**

- Transparent communication with stakeholders, including investors, creditors, and employees, is essential to maintain confidence in the company's financial stability andstrategic direction.

**Proactive Financial Planning:**

- Proactive financial planning, including stress testing and scenario analysis, can help TTK Prestige anticipate potential risks and opportunities and develop appropriate mitigation strategies.

By implementing these recommendations and maintaining a focus on financial strength, resilience, and strategic agility, TTK Prestige can continue to navigate economic fluctuations successfully and sustain its long-term growth and profitability

**CONCLUSION**

Overall, the analysis suggests that TTK Prestige is well-positioned to navigate economic fluctuations and maintain its financial stability and creditworthiness.