

The Financial Healthiness of Working Capital Management and Profitability Analysis of Select Steel Companies in India

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Abstract

The intention of this paper was to study the relationship between working capital management strategy of a firm and its profitability analysis. The fixed effects estimation on select steel companies of India. Financial healthiness has been utilize as a determine of the working capital management, while gross operating profit is used as a substitute for a firm's profitability analysis. The results reveal that cash conversion cycle of a company has a negative correlation with its profitability. The results also suggest that managers can improve the performance by diminishing the number of day's receivables and increasing the number of day's payables. Besides, the outcomes demonstrate that the working capital strategies ought to be formulated taking worldwide macroeconomic circumstances into concern. The findings emphasize the significance of efficient working capital management practices to improve the profitability of steel companies.

Key Words: *Healthiness, Working Capital, Regression Analysis, Current Assets, Liabilities.*

Introduction

The financial healthiness involves investment decisions, financing decision and working capital management decisions while investment and financing decisions are concerned with long term aspect working capital decisions are short term oriented. Research in corporate finance has concentrated more on long term financial decisions rather than working capital management aspects. Further in the light of

claims by corporate sector there is liquidity crunch in the recent years. A study on working capital management in companies assumes significant studies in industrial sickness and has pointed out that business failures were due to the results of shortage of working capital, efficient working capital management and had significantly affected the firm's rise return and share price. There is a greater need so working capital management in companies

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viewed in this perspective this study would provide useful insight into management of working capital in corporate sector. Working capital management refers to the management of current asset and current liabilities and the interrelationship that exists between these accounts and non current accounts. The objective of working capital management is to ensure liquidity and enhance profitability.

Industry profile

Steel has been the key material with which the world has reached to a developed position. All the engineering machines, mechanical tools and most importantly building and construction structures like bars, rods, channels, wires, angles etc are made of steel for its feature being hard and adaptable. Earlier when the alloy of steel was not discovered, iron was used for the said purposes but iron is usually prone to rust and is not so strong. Steel is a highly wanted alloy over the world. All the countries need steel for the infrastructural development and overall growth. Steel has a variety of grades i.e. above 2000 but is mainly categorized in divisions – steel flat and steel long, depending on the shape of steel manufactured.

Steel flat includes steel products in flat, plate, sheet or strip shapes. The plate shaped steel products are usually 10 to 200 mm and thin rolled strip products are of 1 to 10 mm in dimension. Steel flat is mostly used in construction, shipbuilding, pipes and boiler applications. Steel long Category includes steel products in long, bar or rod shape like reinforced rods made of sponge iron. The steel long products are required to produce concrete, blocks, bars, tools, gears and engineering products. After independence,

successive governments placed great emphasis on the development of an Indian steel industry. In Financial Year 1991, the six major plants, of which five were in the public sector, produced 10 million tons.

Statement of the Problem

The steel companies India inappropriate of size and nature of company requires essential amount of working capital management. The Working capital is the most essential issue for maintaining liquidity, continued existence, and solvency and profitability of steel sectors. The brunt of working capital management on profitability is massively significant, as, firm required a balance between risk and competency to recognize an optimal level of working capital.

Objective of the Study

The objectives of the study are

1. To analyze diverse measure of working capital of the select steel companies India.
2. To analyses the effectiveness of working capital management of the select steel companies in India.
3. To evaluate overall profitability performance of select steel companies in India.
4. To explore the financial healthiness of the potential area of investments.

Methodology of the Study

Nature of Data

This study is mainly based on secondary data; secondary data are collected from PROWESS, which is the most dependable and empowered company database of CIME. It contains a

extremely normalized. Database built on a sound understanding of disclosure in India on several companies, the data base provides financial statements, ratio analysis, fund flows product profiles, returns and risks on the stock market, etc.

Sample of the Study

The following is the sample used for the study.

Steel – Large Size

1. Tata Steel Limited
2. Steel Authority of India Limited (SAIL)
3. JSW Steel Limited
4. Visa Steel Limited

Steel –Medium Size

1. Bhushan Limited
2. Jindal Steel Limited
3. Kalyani Limited

Frame Work Analysis

Appropriate statistical tools have been used to analyze the data. Statistical techniques such as tools are used to analyses the working capital management and profitability analysis of select steel companies in India, by sorting out and bringing together, the theoretical and practical principles. Mean, standard deviation, co-efficient of variation, annual growth rate (AGR), compounded annual growth rate (CAGR), linear growth rate (LGR), analysis of variation (ANOVA), correlation, regression, multiple regression, discriminates function and analysis of several of the financial parameters of the data.

Scope of the Study

This study aims at formulate an analysis of working capital and profitability analysis of the select steel companies in India. The Stock

exchange listed companies taken in select steel companies have measured for the study. The scope of the working capital and profitability is very large and extensive based. Therefore, the study has analyzed only the accounting of working capital.

Limitation of the Study

1. This study is based on secondary data taken from CIME Prowess as such its findings depend entirely on the accuracy of such data.
2. The companies' overall inefficiency cannot be evaluated just by working capital and profitability analysis unaccompanied.

Review of Literature

The studies on working capital are larger in number and most of them are found to be case studies and firm specific however, an attempt has been made to provide a summary of the exiting studies.

1. Gopal Sinha, and Chandrasekaran, (1995) in their study Tata Steel has been striving to optimize its operations amidst scarce resources and capacity imbalances. The study analyzed for decision support, are developed a mathematical model based on mixed-integer linear-programming (MILP) and hierarchical optimization between 1983 and 1986. It has been considers marketing constraints, capacities, yields, profitability, routes, energy, and oxygen balances. Its use just for optimal distribution of power has provided a benefit of US \$73 million in the first year of implementation.
2. Hamsalaksmi (2012) In their study it is concluded that the performance of price earnings ratio from all the selected companies are highly satisfactory that the investors expect a high growth of earnings and the

industry is having a strong growth prospects. It has been analyzed equity it is clear that the giant and large groups secured a remarkable growth rate it is highly suggested that the companies can maximize their return on investment by leveraging their initial investments in hard ware; software training and processes to accommodate business growth other than the companies should concentrate research and innovative areas to capture global market by taking the initiative of rethinking their delivery models.

Data Analysis of Interpretation

Pattern of Financial Healthiness of Working Capital Turnover Ratio (%)

The financial indicators of Working Capital Turnover Ratio (%) of large scale companies of TATA, SAIL, JSW & VISA for the period 2005 to 2014 is observed and shown in table The growth rate in terms of percentage is also shown in the table.

Table shows that the Working Capital Turnover Ratio (%) of TATA Company during the year 2005 was Rs.-17.74crores. It

increased to Rs.520.93crores in 2009 leading to a more than threefold increase with a fall in 2005, 2006, 2007, 2008, 2010, 2011, 2012 and 2014. The average amount stood at Rs.59.5crores. The co-efficient of variation in Working Capital Turnover Ratio (%) is 298.37 percent.

The Working Capital Turnover Ratio (%) of SAIL during the year 2005 was Rs.73.77crores. It increased to Rs.181.95crores in 2007 leading to a more than threefold increases with a fall in 2005, 2006, 2008, 2009, 2010, 2011, 2012 and 2014. The average amount stood at Rs.87.87crores. The co-efficient of variation in Working Capital Turnover Ratio (%) is 68.21 percent.

The Working Capital Turnover Ratio (%) of JSW Company during the year 2005 was Rs.-8.82crores. It increased to Rs.44.04crores in 2013 leading to a more than threefold increases with a fall in 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012. The average amount stood at Rs.-35.96crores. The co-efficient of variation in Working Capital Turnover Ratio (%) is -123.15 percent.

Table: Growth Rates of Working Capital Turnover Ratio (%)

| Growth Rates | Large scale companies | | | |
|--------------|-----------------------|--------|---------|-------|
| | TATA | SAIL | JSW | VISA |
| AAGR | -1468.63 | -18.42 | -432.98 | 36.83 |
| LGR | -0.97 | -2.17 | 5.43 | 1.34 |
| CGR | 1.63 | 9.31 | 7.59 | 100 |

The average annual growth rate, linear growth rate and compound growth rate of TATA Company are -1468.63 percent, -0.97 percent and 1.63 percent respectively. The annual growth rate was a maximum of -60.21 percent

at the end of the year 2014 and minimum during the year 2009.

The average annual growth rate, linear growth rate and compound growth rate of SAIL Company are -18.42 percent, -2.17 percent

and 9.31 percent respectively. The annual growth rate was a maximum of 106.94 percent at the end of the year 2006 and minimum during the year 2014.

The average annual growth rate, linear growth rate and compound growth rate of JSW Company are -432.98 percent, 5.43 percent and 7.59 percent respectively. The annual growth rate was a maximum of 394.90 percent at the end of the year 2005 and minimum during the year 2014.

The average annual growth rate, linear growth rate and compound growth rate of VISA Company are 36.83 percent, 1.34 percent, 100 percent respectively. The annual growth rate was a maximum of 459.44 percent at the end of

the year 2010 and minimum during the year 2009.

Model fitting of performance of selected financial parameters

Eleven basic mathematical models were used to fit these data. The best fitting model is identified by the highest R2 value, since R2 describes them the goodness of fit of the model. Once the best fit model is identified then the forecast for the next few years were estimated using the model. It is seen from the analysis that the cubic model has highest R2 value and hence considered as the best fitting model when comparing with all other models. The model equations for the Working Capital

Table 1.1: Working Capital Turnover Ratio (%)

| Year | Large Scale Companies | | | | | | | |
|------|-----------------------|-----------|--------|-----------|---------|-----------|---------|-----------|
| | TATA | % Inc/Dec | SAIL | % Inc/Dec | JSW | % Inc/Dec | VISA | % Inc/Dec |
| 2005 | -17.74 | | 73.77 | | -8.82 | | -244.59 | |
| 2006 | -10.22 | -42.39 | 78.7 | 6.68 | -43.65 | 394.90 | -310.65 | 27.01 |
| 2007 | 123.01 | -1303.62 | 162.86 | 106.94 | -34.18 | -21.70 | -127.88 | -58.83 |
| 2008 | 20.53 | -83.31 | 181.95 | 11.72 | -79.8 | 133.47 | -58.73 | -54.07 |
| 2009 | -4.56 | -122.21 | 131.98 | -27.46 | -111.72 | 40.00 | -62.79 | 6.91 |
| 2010 | 520.93 | -11523.90 | 104.06 | -21.15 | -71.67 | -35.85 | 21.97 | -134.99 |
| 2011 | 131.85 | -74.69 | 84.07 | -19.21 | -34.04 | -52.50 | 122.91 | 459.44 |
| 2012 | -45.6 | -134.58 | 44.31 | -47.29 | -18.72 | -45.01 | 203 | 65.16 |
| 2013 | -48.7 | 6.80 | 29.13 | -34.26 | -1.07 | -94.28 | 75.97 | -62.58 |
| 2014 | -78.02 | 60.21 | -12.15 | -141.71 | 44.04 | -4215.89 | 139.36 | 83.44 |
| Mean | 59.15 | | 87.87 | | -35.96 | | -24.14 | |
| SD | 176.48 | | 59.94 | | 44.29 | | 168.73 | |
| CV | 298.37 | | 68.21 | | -123.15 | | -698.89 | |

Turnover Ratio for the large scale companies are

$$YTATA = -91.230 + 45.9085 t + 6.2738 t^2 - 1.1361 t^3$$

$$YSAIL = -34.712 + 112.560 t - 19.923 t^2 + 0.8943 t^3$$

$$YJSW = 47.5153 - 57.911 t + 7.3505 t^2 - 0.1586 t^3$$

$$YVISA = -280.84 - 9.6970 t + 19.5234 t^2 - 1.4599 t^3$$

Using the coefficient values of these models the forecast was done for next few years ie for 2014, 2015 and 2016. Observing the estimates of these models it can be predicted that the Working Capital Turnover Ratio for TATA is expected to be -339.21, -600.03 and -930.09 for the years 2014-16 respectively.

Table 1.2: Forecasted values of Working Capital Turnover Ratio

| | Large scale companies | | | |
|------|-----------------------|--------|--------|---------|
| Year | TATA | SAIL | JSW | VISA |
| 2014 | -339.21 | -16.89 | 88.87 | 31.7 |
| 2015 | -600.03 | -7.51 | 137.07 | -108.53 |
| 2016 | -930.09 | 26.41 | 188.56 | -314.84 |

The predicted Working Capital Turnover Ratio for SAIL is expected to be -16.89, -7.51 and 26.41 for the years 2014-16 respectively, for JSW is expected to be 88.87, 137.07 and 188.56 for the years 2014-16 respectively and for VISA is expected to be 31.7, -108.53 and -314.84 for the years 2014-16 respectively

Hypotheses testing -'f' test analysis (ANOVA):

For the purpose of analyzing the equality of means for different ratios 'ANOVA' test is used. The following hypotheses are framed and tested by using 'F' test to test the validity of the hypothesis.

Working Capital Turnover Ratio: -'F' test:

Based on the data, the researcher has formulated the following hypothesis:

Hypothesis H01: There is no significant difference in the mean Working Capital Turnover Ratio among the large scale companies

The following table shows the mean and standard deviation of Working Capital Turnover Ratio of large scale companies of TATA, SAIL, JSW & VISA and summarizes the output of analysis.

Table 1.3: Inferential Statistics Working Capital Turnover Ratio - Large scale companies

| Company | Mean | SD | SE | F | p | Decision |
|---------|--------|--------|-------|------|-------|-----------|
| TATA | 87.87 | 59.94 | 18.95 | 2.29 | 0.095 | Accept H0 |
| SAIL | 59.15 | 176.48 | 55.81 | | | |
| JSW | -35.96 | 44.29 | 14.01 | | | |
| VISA | -24.14 | 168.73 | 53.36 | | | |
| Overall | 21.73 | 133.84 | 21.16 | | | |

*** Significant at 1%*

From the above table, it is observed that the p value (<0.001) is less than 0.01, null hypothesis is rejected at 1% level of significance. I.e. Working Capital Turnover Ratio differs significantly between Large scale companies. Once we have determined that differences exist among the means, post hoc range tests can determine which means differ. Tucky's tests identified the homogeneous subsets of means that are significant different from each other and the results were also given in the table by showing the homogeneity subsets within which the groups fall in. The homogeneity subsets are shown by the letters a, b and c in the affix of the mean values.

The Working Capital Turnover Ratio (%) of JINDAL during the year 2005 was Rs.133.85 crores. It continuously decreases in 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012 and 2014. The average amount stood at Rs.56.59 crores. The co-efficient of variation in Working

Capital Turnover Ratio (%) is 66.70 percent.

The Working Capital Turnover Ratio (%) of KALYANI Company during the year 2005 was Rs.68.6 crores. It increased to Rs.87.28 crores in 2011 leading to a more than threefold increases with a fall in 2005, 2006, 2007, 2008, 2009, 2010, 2012 and 2014. The average amount stood at Rs.63.36 crores. The coefficient of variation in Working Capital Turnover Ratio (%) is 23.99 percent.

By comparing the coefficient of variation more variation in the Working Capital Turnover Ratio is observed in JINDAL and consistency was observed in KALYANI Company.

The important growth rates of average annual growth rate, linear growth rate and compound growth rate of Working Capital Turnover Ratio (%) for the medium scale companies of BUSHAN, JINDAL and KALYANI are calculated and the results are given in Table 1.4

Table 1.4: Growth Rates of Working Capital Turnover Ratio (%)

| | Medium scale companies | | |
|--------------|------------------------|--------|---------|
| Growth Rates | BHUSHAN | JINDAL | KALYANI |
| AAGR | -3.51 | 71.14 | 5.08 |
| LGR | 1.94 | -2.24 | -1.41 |
| CGR | -9.59 | 3.68 | 8.14 |

The average annual growth rate, linear growth rate and compound growth rate of BUSHAN Company are -3.51 percent, 1.94 percent and -9.59 percent respectively. The annual growth rate was a maximum of 30.85 percent at the end of the year 2006 and minimum during the year 2005.

Annual Growth rates of Working Capital Turnover Ratio (%) of Medium scale

Companies

The average annual growth rate, linear growth rate and compound growth rate of JINDAL Company are 71.14 percent, -2.24 percent and 3.68 percent respectively. The annual growth rate was a maximum of 694.50 percent at the end of the year 2008 and minimum during the year 2007.

The average annual growth rate, linear growth

rate and compound growth rate of KALYANI Company are 5.08 percent, -1.41 percent and 8.14 percent respectively. The annual growth rate was a maximum of 89.20 percent at the end of the year 2011 and minimum during the year 2010.

Regression Analysis

In this section multiple regression analysis is used to explain the variation in the Current Ratio, Quick Ratio, Cash Ratio, Debt Equity Ratio, Long Term Debt Equity Ratio, Interest Coverage Ratio, Financial Charges Coverage Ratio (dependent variables) based on the variation over the variables (independent variable) Operating Profit Margin(%), Operating Profit Per Share, Gross Profit Margin(%), Net Profit Margin(%), Net Operating Profit Per Share, Return On Capital Employed(%), Return On Net Worth(%), Return on Assets (%), Return on Long Term Funds(%), Return on Net Sales ratio, Return on Fixed Assets ratio, Inventory Turnover Ratio, Debtors Turnover Ratio, Investments Turnover Ratio, Fixed Assets Turnover Ratio, Total Assets Turnover Ratio, Working capital Turnover Ratio, Creditors Turnover Ratio.

Therefore the multiple regression equation becomes.

Current Ratio

The significance value of the F statistic is less than 0.01, which means that the variation explained by the model is not due to chance. Looking at the significance values we see that Fixed Assets Turnover Ratio, Net Profit Margin(%), Return On Net Worth(%) & Operating Profit Margin(%) are significant (P < 0.01) in predicting the Current Ratio.

Table 1.6 shows the coefficients of the regression line. It states that the expected Current Ratio is equal to

$$Y = 0.757 + 0.225 \text{ Fixed Assets Turnover Ratio} + 0.081 \text{ Net Profit Margin(\%)} - 0.014 \text{ Return On Net Worth(\%)} - 0.032 \text{ Operating Profit Margin(\%)}$$

Further no financial parameters Operating Profit Margin(%), Operating Profit Per Share, Gross Profit Margin(%), Net Profit Margin(%), Net Operating Profit Per Share, Return On Capital Employed(%), Return On Net Worth(%), Return on Assets (%), Return on Long Term Funds(%), Return on Net Sales

Table 1.6: Regression Coefficients- Current Ratio

| | B | Std. Error | Beta | t | p |
|------------------------------------|---------|------------|--------|--------|-------|
| (Constant) | 0.757 | 0.199 | | 3.803 | 0.000 |
| Fixed Assets Turnover Ratio | 0.225 | 0.045 | 0.534 | 5.004 | 0.000 |
| Net Profit Margin(%) | 0.081 | 0.022 | 1.188 | 3.667 | 0.000 |
| Return On Net Worth(%) | -0.014 | 0.005 | -0.390 | -2.658 | 0.010 |
| Operating Profit Margin(%) | -0.032 | 0.014 | -0.665 | -2.279 | 0.026 |
| R2 | 0.448** | | | | |
| F | 15.47** | | | | |

a Dependent Variable: Current Ratio

Table 1.7: Regression Coefficients- Cash Ratio

| | B | Std. Error | Beta | t | p |
|------------------------------|---------|------------|--------|--------|-------|
| (Constant) | -7.888 | 5.457 | | -1.445 | 0.153 |
| Return on Fixed Assets ratio | 0.682 | 0.077 | 0.658 | 8.848 | 0.000 |
| Debtors Turnover Ratio | 0.605 | 0.125 | 0.336 | 4.838 | 0.000 |
| Net Profit Margin(%) | -0.251 | 0.532 | -0.089 | -0.473 | 0.638 |
| Return on Net Sales ratio | 1.094 | 0.310 | 0.468 | 3.523 | 0.001 |
| Operating Profit Margin(%) | -1.005 | 0.444 | -0.506 | -2.264 | 0.027 |
| R2 | 0.704** | | | | |
| F | 38.72** | | | | |

a Dependent Variable: Cash Ratio

Table 1.8: Regression Coefficients- Debt Equity Ratio

| | B | Std. Error | Beta | t | p |
|--------------------------------|---------|------------|--------|--------|-------|
| (Constant) | 1.170 | 0.460 | | 2.545 | 0.013 |
| Return On Capital Employed(%) | -0.055 | 0.013 | -0.565 | -4.228 | 0.000 |
| Inventory Turnover Ratio | -0.067 | 0.040 | -0.157 | -1.662 | 0.102 |
| Working capital Turnover Ratio | 0.002 | 0.001 | 0.191 | 2.460 | 0.017 |
| Net Profit Margin(%) | -0.269 | 0.040 | -1.943 | -6.783 | 0.000 |
| Operating Profit Margin(%) | 0.142 | 0.024 | 1.458 | 6.021 | 0.000 |
| Return On Net Worth(%) | 0.047 | 0.012 | 0.653 | 4.040 | 0.000 |
| Return on Fixed Assets ratio | 0.012 | 0.005 | 0.239 | 2.448 | 0.017 |
| R2 | 0.641** | | | | |
| F | 15.79** | | | | |

a Dependent Variable: Debt Equity Ratio

ratio, Return on Fixed Assets ratio, Inventory Turnover Ratio, Debtors Turnover Ratio, Investments Turnover Ratio, Fixed Assets Turnover Ratio, Total Assets Turnover Ratio, Working capital Turnover Ratio, Creditors Turnover Ratio are significant in predicting

the Quick Ratio.

Cash Ratio

The significance value of the F statistic is less than 0.01, which means that the variation

explained by the model is not due to chance. Looking at the significance values we see that Return on Fixed Assets ratio, Debtors Turnover Ratio, Net Profit Margin(%), Return on Net Sales ratio, Operating Profit Margin(%) are significant ($P < 0.01$) in predicting the Cash Ratio.

Table 1.7 shows the coefficients of the regression line. It states that the expected Cash Ratio is equal to

$$Y = -7.89 + 0.682 \text{ Return on Fixed Assets ratio} + 0.605 \text{ Debtors Turnover Ratio} - 0.251 \text{ Net Profit Margin(\%)} + 1.094 \text{ Return on Net Sales ratio} - 1.005 \text{ Operating Profit Margin(\%)}$$

Debt Equity Ratio

The significance value of the F statistic is less than 0.01, which means that the variation explained by the model is not due to chance. Looking at the significance values we see that Return On Capital Employed (%), Inventory Turnover Ratio, Working capital Turnover Ratio, Net Profit Margin(%), Operating Profit Margin(%), Return On Net Worth (%), Return on Fixed Assets ratio are significant ($P < 0.01$) in predicting the Debt Equity Ratio.

Table 1.8 shows the coefficients of the regression line. It states that the expected Debt Equity Ratio is equal to

$$Y = 1.17 - 0.055 \text{ Return On Capital Employed(\%)} - 0.067 \text{ Inventory Turnover Ratio} + 0.002 \text{ Working capital Turnover Ratio} - 0.269 \text{ Net Profit Margin(\%)} + 0.142 \text{ Operating Profit Margin(\%)} + 0.047 \text{ Return On Net Worth(\%)} + 0.012 \text{ Return on Fixed Assets ratio}$$

Findings

It is clear from the analysis that the higher the Working capital turnover ratio, the more efficient is the management and utilization of

the assets while low turnover ratios are indicative of under utilization of available resources and presence of idle capacity. In operations terms, it implies that the firm can expand its activity level in terms of production and sales without requiring additional capital investments. In the case of high ratios, the firm would normally be required, the other things being equal, to make additional capital investments to operate at higher level of activity. To determine the efficiency of the ratio, it should be compared across time as well as with the industry average.

Suggestion

The working capital turnover ratio indicates the number of times the working capital is turned over in the course year. It procedures the competence with the working capital is used by the compact. It helps in establish the profitability of the firm in much as it gives the rate at which inventories are improved to sales and then to cash. The high turnover ratio indicates the well-organized utilization of working capital and low ratio indicates or else. But a very high ratio is not good for the unyielding.

Conclusion

The financial healthiness of working capital management is only part, but for many firms a very important component of financial analysis. The working capital offers an easy and useful way to check the efficiency of managing the firm's working capital. The financial healthiness of operating cycle typically consists purchasing resources, producing the product, and distributing selling the product. These activities create funds flows that are both unsynchronized and uncertain. Usually take place before cash

receipts they are uncertain because future sales and costs, which generate the respective receipts and disbursements, cannot be forecasted with complete accuracy. It has to invest funds in various short-term assets working capital during cycle. It has to maintain a cash balance to pay the bills as they come due. The company must invest in inventories to fill customer orders promptly. And finally the company invests in accounts receivable to extend credit to its customers.

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