



## AN ANALYSIS OF WORKING CAPITAL MANAGEMENT IN FOOD AND BEVERAGES INDUSTRY

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### **Abstract**

*This study assesses the working capital management of the Food and Beverage industry in India. The previous study advocate that there is a linear relationship between the working capital management and profitability. The efficiency of working capital management has been checked by using performance index, utilization index and efficiency index instead of using the conventional turnover ratios. It also includes the study of distribution of working capital measure such as cash conversion cycle and factors affecting viz. leverage, growth, size, age, cash flow and fixed assets to total assets ratio etc. This study suggest that the existence of concave relationship between the working capital management and profitability. The findings also show that the corporations were efficient during the study period.*

**Keywords:** Working Capital Management, Profitability, Food and Beverage Industry.

### **Introduction**

The food and beverage industry has registered growth even during the economic slowdown in comparison to other industries. And, due to large populations and rising per capita income, the industry is expected to grow in future as well. However, the industry may face problems due to price hikes of fuel and recent droughts in some countries. Therefore, efficient working capital management is crucial for the corporations in the Food and Beverage industry.

Working Capital refers to the portion of total fund which is used to finance the day – to – day working expenses of an organization. Working capital is needed to finance current assets which include stock, debtors, marketable securities, short term loans and advances, payment of advance tax and so on. The efficient working capital management is the most important factor in maintaining liquidity, profitability, survival and solvency of the organization. Smith (1980) pointed out the importance of the balance between the profitability and liquidity goals of working capital management. The decision to maximize profitability reduces adequate liquidity. On the other hand, the profitability of the firm is reduced when the focus is on liquidity. A firm's current assets may not meet its current liabilities if it does not manage its liquidity properly.

Previous research on working capital management and firm performance analyzed a linear relationship between investment in working capital and firm's profitability (Garcia-Teruel and Martinez-Solano (2007), Deloof (2003) and Wang (2002)). The studies pointed out that more profitability is achieved with lower investment in working capital. On the other hand, the study conducted by Banos-Caballero et al. (2010) pointed out that companies have an optimal working capital level which balances costs and benefits to maximize profitability. Their study suggested that there is a concave relationship between working capital level and profitability. Maximizing shareholders' wealth is the ultimate objective of any profit-firm. Along with that preserving liquidity is also an important objective. The study aims to examine how the working capital management affects the profitability of the Food and Beverage corporations. The study focuses on analyzing how working capital management affects the profitability for a sample of 30 Food and Beverage corporations from USA and Canada. Hence, it examines the effect of profitability, leverage, growth, size, age, fixed assets and cash flow on the cash conversion cycle. The study also attempts to find out the relationship between working capital management measure, the cash conversion cycle and profitability for 30 Food and Beverage Corporations in USA and Canada over a period of 10 years. And, it also examines the efficiency of working capital management of the Food and Beverage Corporations. Besides, the study investigates the presence of other unobserved factors affecting the profitability and working capital management.

### **Literature Review**

#### **Working Capital Policy and Profitability**

Working capital can have a significant impact on the profitability and risk of loss of business and interruptions in the production process. Blinder and Maccini (1991) advocated that larger inventories can prevent possible interruptions in production process and loss of business due to unavailability of products. And extending trade credit increases sales since buyers can check the product and service quality before payment (Long et al., 1993). Emery (1987) pointed out that the trade credit encourages customers to purchase at times of low demand. Besides, trade credit might also help to strengthen long-term supplier customer relations. Hence, a high investment in working capital is expected to increase the profitability. On the other hand, Deloof (2003) theorize that if firms reduce their received trade credit period then it might not verify the quality of the products. Besides Soenen (1993), pointed out that high investments in working capital might also lead firms to bankruptcy. Moreover, holding inventories is also associated with warehouse cost, insurance and security expenses. Hence, additional



investment in working capital might also negatively affect the profitability of firm. Therefore, an inverted U shaped relationship between firm's profitability and working capital level may exist (Banos-Caballero et al., 2010a).

### **Factors Affecting the Working Capital Management**

**Cash flow:** The Pecking Order Theory (Myers (1984); Myers and Majluf (1984)) postulates that firms give priority to the internally generated resources over debt and equity, due to the asymmetric information between the shareholders and outsiders i.e. debt holders and new shareholders. And therefore, the availability of internal funds affects the investments in working capital. Fazzari and Peterson (1993) found a positive relationship between working capital and cash flow which suggests that firms which are more capable to generate internal funds have more investment in current assets.

**Leverage:** Again due to asymmetric information between the insiders and outsiders of a firm, the cost of external financing is higher. And accordingly the cost of funds invested in cash conversion cycle is higher when a firm has larger leverage. Chiou et al. (2006) in their study on companies from Taiwan found a decrease in the investment in working capital with increase in leverage. Hence, a negative relationship between leverage ratio and cash conversion cycle is expected.

**Growth:** Companies with growth opportunities are expected to have lower cash conversion cycle, since according to Emery (1987), firms might give more credit to their customers to increase the sales. Cunat (2007) pointed out that firms with high growth are inclined to using more trade credit from suppliers as they have difficulty in getting other forms of finance. Furthermore, Peterson and Rajan(1997) theorized that suppliers opt to finance firms with high sales growth and offer them more credit compared to firms with declining sales.

**Size:** Chiou et al. (2006) and Keischnick (2006) discovered that size and cash conversion cycle were positively associated since larger companies are more diversified and are less likely to fail and this reason could affect the trade credit granted to the firm. Niskanen and Niskanen (2006) and Peterson and Rajan (1997) pointed out that firms with better access to capital markets offer more trade credit. Accordingly the size of the firm is expected to be positively related to the cash conversion cycle.

**Age:** A positive relationship was found between the age and cash conversion cycle by Chiou et al. (2006). Berger and Udell (1998) theorized that since older firms can get external financing easily and therefore the cost of financing it working capital is lower for older firms. Besides, Peterson and Rajan (1997) pointed out that firms with better access to capital market use less credit from their suppliers and grant more credit to their customers.

**Tangible fixed assets:** When firms observe financial constraints, then the investment in working capital competes for fund with fixed investments (Fazzari and Peterson, 1993). Banos – Caballero et al. (2010b) advocated that intangible assets generate more asymmetric information than tangible assets and therefore have lower residual value. As a result, more tangible fixed assets might give a benefit of lower cost of funds due to which cash conversion cycle and tangible fixed assets could be positively associated.

**Profit:** Shin and Soenen (1998) suggested that firms with higher returns have larger bargaining power with supplier and customers and therefore have better working capital management. According to Peterson and Rajan (1997) the firms with higher returns receive more credit from suppliers.

### **Efficiency of Working Capital Management**

Ganesan (2007) used days sales outstanding, days inventory outstanding, days payable outstanding, current ratio, cash conversion efficiency (cash flow from operations/ sales) income to total assets and income to sales ratio to study the efficiency of working capital management. Efficiency of the working capital have also been studied by Shin and Soenen (1998) using net trade cycle and Raheman et al. (2010) using cash conversion cycle as a measure of efficiency of working capital management. Both the measure uses the turnover periods for the calculation of the measures. Bhattacharya (1997) developed performance index, utilization index and efficiency index to measure the efficiency of working capital management which is used in the study.

### **Research Methodologies**

#### **Data and Variables**

The population of the present study is top 100 food and beverage companies in the US and Canada. The ranking was based on the sales during the year 2008. The sampling method used for the study is purposive. Out of the 100 companies 26 companies were excluded since they are private companies and their financial data was not available. And therefore, the remaining 74



companies become the population for the study. Out of the 74 top food and beverage corporations, 30 top companies were selected whose data were available for 10 years i.e., from 2000 to 2009. Hence, the sample represents 40.5% of the top 74 food and beverage corporations. The study used secondary data for literature review and data analysis. Various journals and internet has been used for the literature review. Besides, the analysis is based on the financial statements of the companies of 10 years' time period from 2000 to 2009. The data has been taken from OSIRIS.

Vishnani and Shah (2007) conducted a multiple regression analysis by using; current ratio, inventory holding periods, debtor's collection period and net working capital cycle as the independent variable and the return on capital employed as the dependent variable. While, Uyar (2009) examined the relationship of cash conversion cycle with size of the firm and profitability. Total assets and sales revenue were taken as measures of firm size and return on assets and return on equity as measures of profitability. Huynh and Su (2010) used number of days account receivable, number of days inventories and number of days accounts payable as proxy for collection policy, inventory policy and payment policy respectively. Cash conversion cycle was used as independent variable. The size of the firm measured by logarithm of sales, leverage measured by debt ratio and ratio of fixed financial assets to total assets were used as control variables.

On the basis of the previous studies conducted by various researchers the variables used in the study are as follows:

1. **Cash conversion cycle (CCC).** The cash conversion cycle has been used as the measure of working capital management.
2. **Cash flow (CFLOW).** In order to consider the capability to generate internal resources, the variable cash flow has been used. It is calculated as the ratio of net profit plus depreciation to total assets.
3. **Leverage (LEV).** Leverage is measured as the ratio of debt to total assets. And, a negative relationship between leverage ratio and cash conversion cycle is expected.
4. **Growth.** The variable growth is measured as the ratio of increase in sales to last year's sales.
5. **Size.** The size is measured as natural logarithm of assets. And the size of the firm is expected to be positively related to the cash conversion cycle.
6. **Age.** This variable has been used as a proxy for the time an organization may have known and build relationship with customers and suppliers. The variable is calculated as the natural logarithm of the number of years since incorporation. And a positive relationship is expected between the age and cash conversion cycle.
7. **Tangible fixed assets.** The variable is calculated as ratio of tangible fixed assets to total assets.
8. **Profit.** The variable Return on assets has been used in the analysis. It is measured by earnings before interest and tax over total assets.

### Empirical Findings

A cursory look at the descriptive statistics for the sample which is shown in Table 1 of the variables under study points out that the mean of the profitability of the sample Food and Beverage Companies was 11.3%. But the distribution was highly skewed towards the right tail and a significant positive kurtosis was also noticed. The non-normal distribution can be due to the fact that some of the corporations with very strong brand name e.g. PepsiCo, Nestle, The Coca Cola Company and Kraft Inc. are experiencing a spectacular growth in sales and hence very large profits are made by them compared to the rest in the sample.

The working capital management measure, cash conversion cycle had a mean of 52.3 days, the distribution was showing a significant positive skewness which means that the most of the data were towards the left of the mean and has an elongated right tail of the distribution curve. Besides, the kurtosis of the distribution cash conversion cycle was greater than zero, implying the curve is leptokurtic i.e. a steeper curve compared to a normal curve. Again, the possible reason for the distribution could be that some of the very large corporations with very strong brand name have very high demand of their product which sells very fast, can collect their receivables at a faster rate and get better credits from the suppliers.

The other variables under study i.e. leverage growth, size, age, cash flow and fixed assets to total assets ratio were having average value of 26.2%, 7.9%, and 15.08 %, 3.13, 0.146 and 0.2821:1 respectively.

The variable leverage was found to have normal distribution. The reason could be the industry standards due to creditor's terms and conditions or legislations imposed by the Government.

However, the variable growth, cash flow and fixed assets to total assets ratio were found to have significant positive skewness and kurtosis. The recent growth of the Food and Beverage demand due to increase in the income of people in developing countries and changing life-styles, better management of cash flows in the face of rising fuel prices and scarcity of raw



materials and increase in fixed assets investments to fulfill the growing demand can be the possible reason for the very high growth, cash flow and increase in fixed assets investments of few very large and powerful brand corporations and hence positive skewness in the data.

### **Working Capital Management Efficiency**

The correlation analysis showed that the profitability was positively associated to cash conversion cycle and size. The reason could be that as the cash conversion cycle increases implying increase in credit granted to customers, the sales will increase which ultimately increases the profitability. Also, larger inventories can prevent possible interruptions in production process and loss of business due to unavailability of products due to unavailability of products as advocated by Blinder and Maccini (1991).

The working capital management measure cash conversion cycle was showing a negative relation with leverage as pointed out by Chiouet al. (2006) in their study on companies from Taiwan. Due to asymmetric information between the creditors and insiders of a corporation, the cost of externally borrowed fund is higher and therefore firms with higher leverage are inclined to have lower investment in cash conversion cycle. Similarly, the growth was also found to be negatively related to the cash conversion cycle. The possible reason attributed could be that the firm experiencing growth asks for more credit from suppliers as they may find difficulty in getting funds to finance their growth (Cunat, 2007).

Likewise, the size of the corporation was negatively associated to cash conversion cycle. The result is opposite to the findings of previous studies conducted by Chiouet al. (2006), Keischnick (2006) and Niskanen and Niskanen (2006) and Peterson and Rajan (1997). The possible reason could be that since the Food and Beverage industry is experiencing growth, and to manage the funds for growth, the larger corporations are asking for longer payment periods from the suppliers or due to increase in demand the larger corporations are decreasing their credit granted to the customers.

Again a negative relation was found between age and cash conversion cycle. The result is opposite to the findings of previous study by Chiouet al. (2006), Berger and Udell (1998), Peterson and Rajan (1997). One possible reason could be that older corporations have better goodwill and long-term relationship with their customers than younger firm and hence can sell their inventories faster and collect their receivables faster due to higher demand of their product. Hence, the older firms have shorter cash conversion cycle.

Another negative relation was found between fixed assets to total assets ratio and cash conversion cycle. The finding supports the theory that when firms observe financial constraints, then the investment in working capital competes for fund with fixed investments (Fazzari and Peterson, 1993). Hence, cash conversion cycle is negatively associated with the fixed assets to total assets ratio. The only variable with positive relation to cash conversion cycle was cash flow which is similar to the findings of the study conducted by Fazzari and Peterson (1993) who found a positive relationship between working capital and cash flow which suggests that firms which are more capable to generate internal funds have more investment in current assets.

Similarly, the regression of the cash conversion cycle with cash flow, profitability, leverage, growth, size, age and fixed assets as independent variable was done. A positive association was established with cash flow and cash conversion cycle. On the other hand leverage, growth, size, age and fixed assets to total assets ratio. The regression results confirm the results of correlation analysis of the present study and previous studies conducted by Cunat (2007), Chiouet al. (2006) and Keischnick (2006), Niskanen and Niskanen (2006) and Peterson and Rajan (1997), Berger and Udell (1998), Fazzari and Peterson (1993), Blinder and Maccini(1991).

Further, the regression of deviations from the optimum cash conversion cycle suggested that the deviation was positively associated with that of the profitability but the association could not be accepted with 95% confidence level and therefore, further studies with larger sample could give a possible significant association between the variables. But when the regression of deviations from optimum cash conversion cycle was done with interaction variable, the above optimal deviation from cash conversion cycle was found to be negatively and significantly associated with the profitability as found in the study by Banos-Caballero et al. (2010).

### **Conclusion**

The Food and Beverage industry need to manage its fund to support its growth. In spite of, increasing price of fossil fuels and raw materials due to recent droughts in some countries makes proper management of its working capital has become a crucial area. In line, the prime objective of the study is to analyze the influence of working capital management on profitability. Besides, the study assesses the existing of a non-linear relationship of profitability with working capital management.





Furthermore, the efficiency of working capital management in the Food and Beverage industry is assessed by using index values which represents the average performance of the components of current assets, the degree of utilization of the total current assets in proportion to sales and the efficiency of working management have been calculated over the ten-year study period.

It was observed that the working capital measure, the cash conversion cycle was positively related to the profitability and cash flow. On the other the cash conversion cycle was negatively associated with leverage, growth, size, age and fixed assets to total assets ratio. The study also examined for the non-linear relationship between profitability and the cash conversion cycle. The positive and significant regression coefficient of regression of cash conversion cycle and its square could suggest the non-linear relation. Besides, the analysis in the study also pointed out that the corporations were efficient during the study period.

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