

## The impact of working capital management on company's profitability: empirical evidence from Serbia

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### **Abstract**

Working Capital Management is one of the key issues of financial management and efficient management of business activities of the company. This paper analyzed the impact of the policy of working capital management on profitability in the food industry in the Republic of Serbia in 2014. The food industry is one of the most important economic sectors of the Western Balkans in terms of competitive advantage. The sample included 95 active companies. By applying multiple regression analysis, the influence of certain variables (CR, CATAR, CLTAR, DTAR) of working capital management was measured on profitability (ROA). The results of regression analysis showed that most of the analyzed variables significantly affect profitability. Bearing in mind the observed variables and the importance of food industry in terms of foreign exchange and investment, this paper determines the requirements for improving management of working capital in order to increase profitability and value of the company.

**Keywords:** Net Working Assets. Profitability. Food Industry

### **1. Introduction**

Working Capital Management is based on making short-term decisions regarding working capital and funding for short-term assets and sources of assets of the company. The main objective is to ensure that company can continue to operate or to have sufficient funds

for the settlement of short-term and all other operating expenses. Efficient working capital management is based on a shortening of time in which all their commitments are paid to suppliers and receivables are collected. In addition, it is necessary to shorten the time in which the inventories are associated with faster production and sales (Grubor et al., 2015). An effective policy of working capital management establishes the optimal size and structure of working capital, which leads to the growth of liquidity and financial stability of the company in long term. The optimal policy of working capital management is based on a minimizing required working capital and achieving maximum possible incomes (Grubor et al., 2015). Optimal policy of working capital increases free cash flow, which leads to increase possibilities of the company and return of profit to shareholders. In order to generate greater value for shareholders of the company, it is crucial to efficiently and effectively manage company's working capital. Successful management of working capital assumes the balance between profitability, liquidity, and risks of doing business. Siddiquee and Khan indicate that inefficient management of working capital not only reduces profitability but can lead to the financial collapse of any organization, regardless of the amount of profit, size and nature of the work (Ganesan, Vedavinayagam, 2007). Bearing in mind that working capital is a high cost of production, working capital management is an essential component of corporate finance of the company.

The main objective of working capital management is to ensure that companies have the right amount of money to continue with daily operations, so to minimize the risk of failure to meet short-term commitments (Vishnani, Shah, 2007). Managers should avoid unnecessary investments in working capital, due to the fact that excessive investment in working capital can reduce the risk of liquidity. On the other hand, the insufficient amount of working capital may disable usual operation of the company (Filbeck et al., 2007). This paper analyzed the impact of working capital management on the profitability of companies in the food industry in 2014. The sample includes 95 companies operating as active companies. The food industry of Serbia represents the sub-sector of processing industry under the Regulation on Classification of Activities (Official Gazette of RS, no. 55/05, 71 / 05- Correction, 101/07 and 65/08). The reasons why companies in the food industry were the subject of analysis reflected in the fact that in this sector exists maximum operational engagement and that realized revenues are categorized among the highest in industry. The following table shows the internal analysis (strengths and weaknesses) of food industry.

**Table 1: Food industry: Strengths and Weaknesses**

<b>Strengths</b>	<b>Weaknesses</b>
Commercial	Commercial
Raw materials securing from domestic production	Dependence of a small range of products
Traditional exports of food products in region	Lack of attention of agricultural holdings to exports
Good market connections for Serbian products to neighboring countries	Lack of investment in dynamic branch of industries (beverage, additives, prepared foods)
Membership in CEFTA	Lack of experience in working with large chains of supermarkets
Structural/Social Attitudes	Variable quality of raw materials
Strong foreign direct investment in food industry	High dependence of a large number of farmers
Regulatory/Political	Dependence on fluctuating markets of third countries
Low rate of corporate income tax	Poor field of research and development/product development in many companies
Existence of quality labels for some products	Low capacity of domestic market
	Structural/Social Attitudes
	Low level of foreign investment in some industries
	Mostly outdated technology needs to be modernized
	Insufficient volume of production compared to competitive, especially in the field of ready-made food
	Weaknesses and shortcomings in the field of management capacity
	Organizational weakness of micro, small and large companies
	Regulatory/Political
	Complex and lengthy production processes
	Limited capacity to monitor the safety of food products

Source: Author's illustration (according to Ministry of Agriculture, Forestry and Water Management, 2009)

Serbian food industry has participated in the last decade with an average of about 3.5% in the structure of GDP. The share of the food industry in the total number of employees in production sector was 17.76% in 2014, and the total investment was 16,20%. In the structure of companies in the food industry was dominated micro and small companies: 75% of all companies employed less than 10 people, while 90% of companies had fewer than 50 employees and/or less than 10 million euro turnover. The rate of utilization of installed capacity in the food industry was below 65%. Low utilization of capacity suggested low efficiency. Production of food products was increased by 4.4% in 2014 (Ministry of Agriculture, Forestry and Water Management, 2009).

The observed period was characterized by synchronizing changes in the time required for paying commitments and changes in the time needed to collect receivables. A large number of companies were characterized by significantly slowed turnover of receivables and commitments. The prolongation of time necessary to pay commitments to suppliers may lead to worse quality of service or to increase the price of their products and services. Efficient management is based on the reduction of cash cycle at acceptable low level by reducing the number of days in inventory turnover and receivables and extension of deadlines to pay commitments to suppliers. Those components of working capital management, among others, are key indicators of success from the financial perspective of the company (Dejanovic et al., 2015). Planning and controlling current assets and liabilities establish a balance between liquidity and profitability of the company.

Observed components of working capital were the subject of a study conducted in the food industry in the Republic of Serbia in 2014. The impact of the policy of working capital management based on these components on profitability was measured in this study. Working capital management has played an important role in improving corporate profitability. The companies that are characterized by higher efficiency of working capital management were able to achieve the significantly higher average rate of return in relation to a group of companies which are characterized by medium or large value indicator of management of working capital (Vukovic, 2016).

The need to analyze the impact of working capital management on profitability through four components (current liquidity, the ratio of current to total assets, ratio of current liabilities to total assets and financial leverage) was the result of very specific features of the food industry in this year. The financial structure of the company in the food industry was characterized by a relatively high rate of indebtedness (57.4%), especially when it came from short-term funding (44.1%). This structure was directly associated with financial imbalance, all of which points to problems from the point of insolvency. The companies during this period lacked about 463 million long-term funding because permanent stocks were financed from short-term funding (Vukoje, Vučićević, 2013). On this basis, it is important to examine short-term sources of financing, because in many cases we are talking about loans with extremely high-interest rates and other unfavorable conditions. High-interest expenses have a bad impact on net profit of the company. In this regard, the coefficient of financial leverage or debt is necessary to consider.

The share of current in total assets is a very important indicator, given that growth in share of current assets indicates the growth of business activity, which is particularly important for companies in the food industry. For increased volume of business activities is necessary to provide adequate structure of funding sources, primarily adequate amount of own and long-term sources, as company's liquidity would not be compromised. Bearing in mind that processes in agriculture last for a longer period of time, that we are talking about slow capital turnover, to some extent, poor capacity and higher risks of investments, it is extremely important to ensure sufficient own sources of funding.

Globalization of business and internationalization of market, as a necessary condition for competitiveness, impose profitability nowadays. Profitability is set as a key test of business performance of industry, sector, company as a whole. By focusing on meeting maximum requirements for profitable operations, the companies will provide a long-term advantage in an uncertain and changeable environment. Profitability is directly proportional to the realization of equity interest and a key basis for assessing the need for investing or disinvesting assets.

Bearing in mind the impact of the policy of working capital management on profitability, this paper analyzed the determinants of working capital management and measured their impact on profitability. It is structured as follows. The literature review examined the relationships between working capital management and profitability through various research methods. After the methodological part, where we described the conceptual data model and the methods used to assess the impact of the policy of working capital management on profitability, there was presented the results of research with the discussion. Before the conclusion, for better understanding the impact of working capital management on profitability concerned in this research and implication section, we have described several operational solutions towards improving efficiency and effectiveness of the policy of working capital management on the profitability of companies in the food industry.

## **2. Theoretical Aspect of The Impact of Working Capital Management on Profitability of Companies**

High level of investment in working capital can lead to the reduction in profitability. The increase in current assets to short-term funding increase liquidity conditions or decline in profitability of companies, on the other hand. Excessive investment in net working capital means investing in assets that do not result in a profitable business. Accordingly, effective

working capital management determines the need to accurately determine the level of net working capital, bearing in mind profitability, liquidity, and operational risk. Determining the level of working capital is influenced by changes in the activities of companies. The company can be a profitable business, but if it fails to generate cash from operations, it is necessary to increase the volume of borrowing in order to achieve an optimal level of working capital.

Christopher, Kamalavalli (2009) considered the impact of working capital management on the profitability of business, by the method of correlation and regression analysis. In the focus of research were 14 hospitals in India in 2005-2006. The components of working capital management are the ratio of current liquidity, cash turnover ratio, the ratio of current assets and operating revenue and financial leverage. The results of the research showed the existence of the negative correlation between components of working capital management and profitability (Christopher, Kamalavalli, 2009). Similarly, Haq, Sohail, Zaman, Alam (2011) examined the impact of working capital management on the profitability of companies in cement industry in Pakistan. This study examined the relationship between the variables of working capital management and profitability by analyzing financial statements of 14 companies. By applying correlation and regression analysis, the conclusions were that there existed an inverse relationship between observed variables. Likewise, the research covered by 28 companies of the cement industry in the area of Iran during the period 2004-2009 analyzed the influence of management of working capital on profitability. Working capital was observed by current liquidity, cash liquidity, inventory turnover ratio and ratio of debt. Profitability was measured by return on invested capital. The weak negative correlation was found between current profitability and liquidity and profitability and inventory turnover ratios. On the other hand, return on invested capital was positively correlated with liquidity and debt ratio (Vahide, 2013).

Bhunja, Khan (2011) discussed the relationship between working capital and profitability of Indian pharmaceutical companies, noting that there were two different schools of thought on this matter: first, working capital was not a factor to improve profitability and there could not be an inverse relationship between them. Second, investment in working capital played an important role in improving corporate profitability, or if there was a minimum level of investment in relation to working capital, production and sales could not be maintained (Bhunja, Khan, 2011). In the research about 172 companies in the area of Malaysia during the period 2003-2007, we examined the impact of working capital management on the profitability of the company. The considered components of working

capital management were cash conversion cycle, current liquidity ratio, the ratio of current to total assets, the ratio of current liabilities to total assets, the ratio of debt to assets of companies. The profitability of companies was measured by the rate of return on assets (Nor Edi, Noriza, 2010). The results of correlation and regression analysis indicated that there was the significant negative relation between working capital management and profitability. Efficient working capital management was one of the most important factors in the aspect of solvency, liquidity, profitability, survival, growth and development of companies. The choice of the approach of working capital management was one of the key factors affecting the performance of the company as a whole. Thus, observed companies were trying to keep the satisfactory level of current assets to generate a profit on the basis that optimum level of current assets could meet their obligations, otherwise profitability of the business in a serious extent, could be questioned.

Hasan, Halil, Arzu, Salih examined the operation of companies on Istanbul Stock Exchange, in order to explore the kind of relationship between the efficiency of working capital management and profitability. The study results showed that reduction in cash conversion cycle, which was a measure of working capital management, had a positive impact on return on assets (ROA) as a measure of profitability. Similar to the mentioned studies, there was analyzed the effects of management of working capital to the profitability of 75 companies operating on Istanbul Stock Exchange. The results showed that receivables and cash conversion cycle were in inverse relation to the profitability of the company (Vural et al., 2012). Companies can increase profitability, by shortening the period of collection of receivables and cash conversion cycle. In the study conducted in the area of Nigeria was analyzed financial statements of 54 companies in order to consider the impact of working capital management on the performance and market valuation of the company. The results showed the existence of significant links between company's value, profitability and working capital management (Sunday et al., 2012). Therefore, there should be determined the kind of system management of working capital which would lead to higher profitability, and thus to an increase in the value of the company as a whole, through faster inventory turnover, the collection of receivables and a decrease in paying commitments.

Profitability ratios were used to evaluate the efficiency of the management and business. It was, therefore, the ability of the company to achieve a satisfactory level of return on equity. Management should take part in capital structure in order to improve profitability. A study by Binti Mohamad and Mohd Saad was based on an analysis of financial statements

of 172 companies in Malaysia in order to analyze the influence of components of working capital management on profitability and market value of the company. Observed components of working capital management were cash conversion cycle, debt ratio, ratio of current to total assets, the ratio of current liabilities to total assets and current liquidity. Return on invested capital and return on total assets were taken as profitability variables. The results of correlation and regression analysis were carried out by the findings of the inverse relationship between observed components of working capital management and profitability (Binti, Mohd, 2010).

Chary, Kasturi, Kumar (2011) discussed the relationship between working capital management and profitability. Working capital management also affected the solvency and profitability of the company, provided that excess investment in working capital would lead to low levels of liquidity. Accordingly, management should establish a balance between liquidity and profitability in order to increase shareholder's wealth. By applying multivariate regression analysis, Tufail analyzed financial statements of 117 companies of the textile industry in the area of Pakistan in order to consider the relationship between working capital management and the profitability of the company. The results showed that liquidity and size of the company had a positive impact on profitability. Financial leverage was negatively correlated with profitability. The policy of working capital management could be determined as aggressive and conservative. The aggressive policy of working capital management assumes investing a small amount of capital in current assets, in order to achieve higher gains on fixed assets. Aggressive investment policy assumes a larger volume of financing from short-term sources to long-term sources. On the other hand, a conservative working capital management policy relies on a greater volume of long-term debt in relation to the financing from short-term sources. Investing a large amount of capital in current assets can reduce the risk of bankruptcy.

Rahman, Afza, Qayyum, Bodla (2010) were conducted the study by analyzing financial statements of 204 manufacturing companies in Pakistan. The results showed that companies usually follow a conservative policy for the management of working capital. This assumption was based on the placement of large capital in current assets in order to reduce the risk of lack of funds to finance daily operations of the company (Raheman, Nasr, 2007). As determinants of working capital management, there were observed indicators as the ratio of current liabilities to total assets (CLTAR) on one side and ratio of current to total assets (CATAR), on the other side. Return on equity and return on assets were taken as indicators of

profitability. Regression analysis also indicated that the ratio of current to total assets (CATAR) and profitability was proportional. The higher value of this indicator leads to greater profitability, which requires the use of the less aggressive policy of working capital. According to this view, if a company invests a larger amount of funds in fixed assets, it will generate more profit. In case the company uses a larger volume of their resources as current assets, there will be an outflow of funds. Accordingly, there should be applied a conservative investment and financing policy, which implies a large scale of investment funds in current assets and a higher volume of long-term borrowing sources (Tufail, 2012).

### 3. Research Methodology

Working capital management is based on decision-making process regarding current assets and funding all aspects of short-term assets and resources of the company. According to this, in the paper was observed following determinants of working capital management: current liquidity, ratio of current to total assets of companies, the ratio of current liabilities to total assets of companies and financial leverage. The current ratio was measured by the ability of the company to pay short-term liabilities with the amount of available current assets (Baker et al., 2009). The ratio of current to total assets was an indicator used for determination of investment policy for the management of working capital. The ratio of current liabilities to total assets determined financial policy for the management of working capital of the company (Tufail, 2012). Last discussed determinant was financial leverage with which we measured the share of debt in total capital of the company. The coefficient of financial leverage was an indicator of possible borrowing to measure the riskiness of investments in the company. The coefficient of financial leverage was synonymous for debt and in American literature is not known how much financial leverage is acceptable. It is known only that company should strive that leverage should be as lower as possible (Rodić et al., 2015). Thus, the debt ratio means for estimation how much of the resources of companies were funded by creditors, which means that higher value of this ratio indicates a greater financial power and lower cost of financing working capital.

The paper discussed the influence of components of working capital management on profitability. Profitability as a measure of profit allocated from total income can be measured by various indicators that could constitute a basis for assessing the performance of the company. Basically, it comes from the ability of companies to achieve financial results from

the investment. In this context, the following table provides an overview of the indicators used for working capital management and profitability of the company.

**Table 2: Indicators of Working Capital Management and Profitability of Company**

Indicators	Method of calculation	Unit and reference value
Current liquidity	Current assets/Current liabilities	the number of days (>2)
CATAR	Current assets /Total assets	depend on company's policy
CLTAR	Current liabilities/Total assets	depend on company's policy
Debt ratio	Total liabilities/Total capital	the number of days (<1)
Return on assets (ROA)	Operating result/Average total assets	% (≥10%)

Source: Author's calculation

The impact of components of working capital management on profitability was measured and analyzed on the basis of aggregate indicators of the balance sheet and income statement of the company. The sample included 95 companies operating in the food industry in the Republic of Serbia. Data were taken from the Amadeus database containing financial data and other information on the operations of public and private companies (Amadeus, 2015). In the survey was covered only active companies, which means that companies with financial difficulties or loss were not taken into account.

Statistical program IBM SPSS Statistics version 21 was used in order to analyze the effects of working capital management on the profitability of the company. The impact of working capital management on the profitability of business operations was measured by multiple regression analysis. According to this, for the dependent variable we used ROA while current liquidity, ratio of current to total assets, ratio of current liabilities to total assets and financial leverage were independent variables. According to similar research and taking into account the importance of profitability of food industry for the economy as a whole, there were set following hypotheses:

*H1: Current liquidity has significant negative impact on the profitability of the company.*

*H2: The ratio of current to total assets has significant positive impact on the profitability of the company.*

*H3: The ratio of current liabilities to total assets has significant negative impact on the profitability of the company.*

*H4: Financial leverage has significant negative impact on the profitability of the company.*

In order to test the hypotheses, following equation was determined:

$$ROA = b_0 + b_1CL + b_2CATAR + b_3CLTAR + b_4DTCR$$

where observed components were:

ROA = return on assets of company

CL = current liquidity of company

CATAR = ratio of current to total assets of company

CLTAR = ratio of current liabilities to total assets of company

DTCR = ratio of total debt to equity of company

b = error of model

#### 4. Results of the Research

Descriptive statistics for observed variables was presented in the following table.

**Table 3: Descriptive statistics**

Indicators	Average value	Standard deviation
Return on Assets	0.0456	0.10065
Current Liquidity	1.8246	1.73607
Current/Total Assets	0.5119	0.18370
Current/Total Liquidity	0.4385	0.26850
Current Liabilities/Total Assets	0.5535	0.29306

Source: Author's calculation

The average rate of profitability of food industry in Serbia was 4.6% in 2014. According to this, reference value was not satisfied ( $\geq 10\%$ ). Profitability of food industry was positive, but there was a very low level of return on assets of the company. Companies in the food industry of Serbia had a very low ability to result in an adequate profit during this period. The average value of the current ratio of observed companies was 1.8, so the reference value was not satisfied ( $> 2$ ). Available current assets of companies in the food industry were failing to pay their short-term liabilities in reporting period.

Debts participated in total capital of company 0.55, so the reference value was satisfied (financial leverage ratio  $< 1$ ). 55% percentage of debt showed that companies were financed according to requirements of the traditional theory of finance, which assumed 50%

percentage of debts and 50% percentage of the total capital of their own companies. 51% of total assets of these companies wasted in current assets. The results indicated that R Square was connected with the terms of interaction 0,282. The interaction between components of working capital management and profitability explained 28.2% (Table 4). Results of Durbin-Watson test statistic (1.967) showed that there was no auto correlation in regression analysis (Table 4). The results of variation of inflation factors ( $VIF < 10$ ) indicated that there was no problem with multicollinearity of variables (Table 5).

**Table 4: R Square and Durbin-Watson test**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			Durbin-Watson
					R Square Change	F Change	df1	
1	0.531a	0.282	0.250	0.08656	0.282	8.852	4	1.967

Source: Author's calculation

The first three observed variables of working capital management significantly affected profitability ( $p < 0.05$ ). Thereby, while current liquidity and ratio of current liabilities to total assets had the negative impact, the ratio of current to total assets positively affected profitability. These results confirmed hypothesis H1, H2, and H3. Despite the negative impact of financial leverage on profitability (i.e. higher financial leverage led to lower profitability of company), this relation wasn't significant ( $p = 0.269$ ), which disapproved hypothesis H4 (Table 5).

**Table 5: Unstandardized Coefficients and Variation inflation factor (VIF)**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
Return on Asset	0.126	0.039		3.228	0.002	
Current liquidity	-0.021	0.007	-0.367	-2.944	0.004	1.949
Current/Total Assets	0.133	0.053	0.245	2.503	0.014	1.202
Current Liability/Total Assets	-0.172	0.064	-0.462	-2.671	0.009	3.745
Total Debts/Total Assets	-0.064	0.058	-0.189	-1.112	0.269	3.623

Source: Author's calculation

## 5. Conclusions

Proper planning of working capital management is necessary for efficient operation and management of business activities of companies. A satisfactory level of profitability and liquidity is the criterion for maintaining continuous business activities of the company. The

company that does not keep the adequate policy of working capital management will be faced with bankruptcy. Balance in liquidity that is focused on working capital management and profitability relies on adoption of appropriate decisions in the long run. The policy of optimal working capital management establishes a balance between profitability and risk related to the profitable business in long run. Efficient working capital management eliminates the need for external sources of financing, which in turn affects lower borrowing costs and leads to an increase in profitability of the company.

The results showed that current liquidity and ratio of current liabilities to total assets significantly negatively affected the profitability of companies in the food industry. Accordingly, we concluded that companies were placed a greater amount of funds and had a minor amount of cash and its equivalents. The growth of liquidity risks in the food industry was the result of the large volume of investments in the period. The correlation between liquidity risk and profitability assumed that more favorable sources of funds were with shorter maturities while almost more profitable investments were with longer maturities. The ratio of current liabilities to total assets determined the financial policy of management of working capital. Businesses in food industry relied on an aggressive policy of working capital management that assumed a higher volume of financing from short-term sources than to long-term sources. It was evident that aggressive policy of working capital management was in inverse relation to profitability and that reliance on conservative policy for the management of working capital assumed a greater volume of investments in current versus fixed assets and a higher volume of long-term debt compared to borrowing from short-term debt's sources.

The larger volume of current or liquid assets leads to the growth of profitability of business. Less profitable companies are waiting longer to settle various charges. In order to increase the profitability of the company, current assets should be greater than current liabilities. Companies in food industry rely on current assets in order to create more profit and maintain optimal amounts of daily needs for current assets in order to settle the obligation at maturity, because in the opposite case, profitability will be questioned.

Although, the impact of financial leverage was not statistically significant, higher financial leverage, on the other hand, caused lower profitability of companies in the food industry. These results were consistent with the financial structure of the company, resulting in a debt rate of 57.4% in the period. The financial structure of the company could be improved through a capital increase, by current or new owner, which implied increasing sums of their own capital, i.e reduction of total indebtedness. The improving business of companies

in the food industry would, on one hand, bring to capital accumulation, innovation, and technological advancement, while on the other hand, provide a higher employment, and thus reverse positive fiscal effects on the economy and society as a whole.

The results of the research showed that optimum level of working capital assumed a balance between risk and efficiency. So, we could talk about continuous monitoring of observed components of the policy of working capital management. Sufficient working capital and achieving an optimal level of the same would increase profitability and market valuation of the company. This segment should be part of strategic and operational planning towards improving efficiency and effectiveness of companies in the food industry.

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