

THE EFFECT OF PROFITABILITY AND RISK MANAGEMENT ON WORKING CAPITAL MANAGEMENT

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Abstract

This study aims to examine the impact of working capital management on profitability and risks of business companies. Furthermore, this study also examines what are the differences of working capital management industries in the manufacturing sector. Some researchers proved that influence of working capital management on profitability (Raheman and Nasr 2007; Marc Deloof, 2003 and Hadori, 2005). In addition, Gitman (2009) also states that working capital management has an impact on firm profitability and risk. Business risk of each industry is different, thus working capital management will differ among industries. This study used data from 2001 until 2007 at the manufacturing sector firms which have coherent of annually financial statements during the study period and have been audited. In order to test the hypothesis, this study used regression analysis and analysis of variance. The research proves that working capital management affects profitability and risk of firm manufacturing sector during the period 2001-2007. Moreover, it also proves that there is a difference among working capital management industries in the manufacturing sector.

Keywords: working capital management, risk, profitability

Abstrak

Penelitian ini bertujuan untuk menguji dampak pengelolaan modal kerja terhadap profitabilitas dan risiko badan usaha. Selain itu juga menguji adanya perbedaan pengelolaan modal kerja antar industri pada sektor manufaktur. Beberapa peneliti membuktikan ada pengaruh pengelolaan modal kerja terhadap profitabilitas (Raheman dan Nasr (2007); Marc Deloof (2003) dan Hadori (2005). Selain itu Gitman (2007) juga menyatakan bahwa pengelolaan modal kerja mempunyai dampak terhadap profitabilitas dan risiko perusahaan. Risiko bisnis setiap industri yang berbeda. Dengan demikian pengelolaan modal kerja antar industri akan berbeda. Penelitian ini menggunakan data tahun 2001 sampai 2007 pada badan usaha sektor. Manufaktur yang memiliki laporan keuangan runtut setiap tahun selama periode penelitian serta telah diaudit. Untuk menguji hipotesis digunakan analisis regresi dan analisis varians. Hasil penelitian membuktikan bahwa pengelolaan modal kerja berpengaruh terhadap profitabilitas maupun risiko badan usaha sektor manufaktur selama periode 2001-2007. Selain itu juga terbukti ada perbedaan pengelolaan modal kerja antar industri pada sektor manufaktur.

Kata kunci: working capital management, risk, profitability

JEL Classification: G3, G30, G32

1. Background

Managers of a firm need to consider risk and return in every decision that will be implemented. There are three important financial decisions that need to be considered by companies such as: investment decisions, financing decisions, and managerial decisions. Managerial decisions related to working capital management and it gets attention also important as well for the firm. Working capital management is important because almost all managers devote most of their time to the internal activities. In addition to current assets is also a significant part of total assets (Weston and Brigham, 1993: 412). Chandra (1984: 259) also says

that managers spend more times on working capital management. This also provided by the Pinches (1994: 637) suggests that managers have spent some time in their daily activities to solve the problem of short-term financial management

Working capital management associated with the day by day firm operational policies. Working capital components consist of cash and marketable securities, accounts receivable, inventories and accounts payable. This location would necessarily mean a manager of the firm will focus on time and to manage accounts receivable, inventory and accounts payable. Optimal working capital management will increase the efficiency of a business entity that will impact on profitability and risk. Besides that, working capital management also requires the financial managers to monitor sales can be anticipated amount sufficient working capital to meet sales targets. The sales growth has a direct relationship with the investment in current assets (Weston and Brigham, 1993: 412). Working capital management affects profitability and corporate risk (Gitman, 2009: 629). This matching is known by Smith in the Teruel and Solan (2005) whom stated that: "working capital management is important because of its effects on the firm's profitability and risks"

Rahemanand Nasr (2007) also proved there was a significant influence between working capital management and profitability in Pakistan companies. In addition, Lazaridis and Tryfonidis (2006) also prove that there is influence between the management of working capital and return on a business entity registered in the Athens stock exchange. It also similar to Deloof Marc (2003) proved that working capital management affects profitability of the non financial firm in Belgium. Hadori Research (2005) also proves there is influence between the management of working capital management in firm and profitability Food-Beverage industry sector in Indonesia Stock Exchange

Manufacturing sector has a large proportion of current assets than the other industries, this means it is necessary of using effective working capital management in order to improve profitability and reduce risk. Any industry which does not have the same strategy in working capital management, depending on the operational activities as well as the proportion of current assets in the industry. Based on the above description, this study aims to prove whether the working capital management has an impact on the profitability and risks of a business entity registered in the Manufacturing sector in Indonesia Stock Exchange during the years 2001-2007. It also wanted to know whether there is a difference between working capital management in the industrial manufacturing sector during the period 2001-2007.

2. Literature Review and Hypotheses Development

Working capital is current assets, which illustrates the investment that always integrated from one form to another in running a normal business (Gitman, 2009: 628). Circulation period is usually no more than one year. The concept of working capital divided into two types such as: gross working capital and net working capital. Gross working capital is the sum of all current assets, while net working capital is the difference among current assets by current liabilities. This is consistent with Weston and Brigham (1993) and Damodaran (1998).

Weston and Brigham (1993) says that: "The working capital is a form's investment in short term asset-cash, marketable securities, inventory, and accounts receivables, working capital is current assets minus current liabilities while gross working capital is defined as current assets". While Damodaran (1998) explains that: "the net working capital, often simply referred to as working capital, is the difference between a firm's current assets and current liabilities. The current assets of a firm are those that either are in the form of cash or are expected to be converted into cash in the short-term"

2.1. Working Capital Management

Working capital management is an important concern for business firm (Weston and Brigham: 1993: 412), because a) The survey results show most of the time taken for operations manager from day by day, more or less can be interpreted as a capital management employment, b) more than half the property is a treasure lancer firm, is part of a huge investment, and continuously up and down, then the current property requires careful attention of financial manager, c) working capital management is very important for small firm, because firm difficult to obtain long-term funds in the capital market. Therefore, a firm is highly dependent on trade debts and short-term credit, whereby both of them affect working capital through the improvement of current liabilities, d) there is a direct relationship between sales growth and working capital. That means the firm needs to manage account receivable management, inventory, and account payable which of related with operating firm.

2.1.1. Account Receivable Management

Accounts receivable is the expansion of credit by firm to their consumers. For most of firms, the expansion of credit to their consumers is the cost of doing business, because by tying money business entity in the form of receivables, which means lost opportunity costs and increase the risk when unpaid receivables. As compensation for costs caused by the receivables, the business entity has the ability to compete, able to attract and retain customers and increase sales, and ultimately increase profit.

The purpose entity to manage accounts receivables are collected accounts receivable as soon as possible (Gitman, 2009: 641). There are three things to note included: selection and credit standards, credit terms and credit monitoring. Credit selection shows the techniques used to determine the firm that provided the consumer credit; and techniques used are usually called the "Five C's of credit", including: character, collateral, capital, capacity and conditions. The other, firm also determines the minimum amount of credit given business entity based on the results of the credit selection.

In considering the credit term, there are three things to consider, among other things: a) the cash discount, b) the cash discount period, and c) credit periods. Credit terms will determine the duration and magnitude of the investment in accounts receivable average collection period. When the firm is getting large, they need to consider re-assigned credit terms. Average collection period, the average amount of time needed to collect accounts receivable (Gitman, 2009: 60).

$$\text{Average Collection Period} = \frac{\text{Account receivable}}{\text{Average sales per day}}$$

2.1.2. Inventory Management

Inventory is an asset which is required in the production process so that firm can operate smoothly. In discussing the inventory there are two noteworthy aspects, namely types of inventory and appropriate levels of inventory. There are three types of inventory, namely raw materials, semi finished and finished goods. As for the level of supplies needed business entity there is a difference among managers. According to Brigham and Ehrhardt (2004: 756), there are two purposes why the firms manage their inventory, first is ensuring the supplies needed to sustain the operations of business firm, and the second is keeping the cost of ordering and shipping supplies at low levels.

Inventories have close links with account receivables, which means that if the finished products have been sold so there transformation of inventories of finished products into accounts receivables. The harder the final product sold, means the longer and greater the investment in inventory, and this will affect the profitability and risks of the firm. Average age of the inventory is the average time required to convert raw body into finished goods ready for sale (Brigham and Daves, 2001: 700), they can be calculated using the formula as below (Gitman, 2009: 60):

$$\text{Average Age of Inventory} = \frac{\text{Inventory}}{\text{Cost of goods sold per day}}$$

2.1.3. Account Payable Management

Account payable is a major source of safe short-term financing for firm. Account payable was obtained from the purchase, but buyers do not give guarantees to complete those obligations. Buyer or firmis tend to delay payment of its obligations in the hope that the cash available to be invested in other assets that provide the level of results, but the other firms considered incapable of fulfilling its obligations. Thus the longer the delay the payment of trade debts will affect the profitability and risks of firm. Duration required pay account payable, often called the average payment period, which is calculated using the formula as below (Gitman, 2009:61):

$$\text{Average Payment Period} = \frac{\text{Account payable}}{\text{Average purchase per day}}$$

2.2. Profitability and Risk

Any decision made by firm will have an impact on the return and risk. Likewise, in working capital management, and therefore firm must be able to balance profitability and risk. Profitability is the result of a number of decisions and corporate policies (Brigham and Gapenski, 1994: 57), thereby showing the ability of corporate profitability has been profitable.

As mentioned above, working capital management showed the management of current assets and debt in the operational day-to-day business firm. Therefore, the profitability of the relevant consideration in working capital management is an operating profit margin, because they reflect the efficiency of firm management in working capital. Operating profit margin can be calculated with the formula as below (Gitman, 2009:67):

$$\text{Operating Profit Margin} = \frac{\text{Operating profit}}{\text{Sales}}$$

Risk in working capital management "is the probability a firm will from several unable to pay its bills come due as they want; often called technically insolvency" (Gitman, 2009: 629). Ability of businesses to meet its maturing obligations can be measured by current ratio. That was calculated as below (Gitman, 2009:58).

$$\text{Current Ratio} = \frac{\text{Current asset}}{\text{Current Liabilities}}$$

2.3. Influence of Working Capital Management on Profitability and Risk

The objective of a firmis to maximize their owner wealth. Therefore, it must consider the policies determined to return and risk owners of the firm. So the firm should implement an appropriate policy of working capital because it will affect the profitability and risks of the firm, as described by Horne and Wachowics (1995:204), namely: "thus, working capital management is important, if for no other reasons than the proportion of the financial manager's time. That must be devoted to it. More fundamentally, however, that is the working capital effects decisions have on the firm's risk, return, and share price".

Deloof (2003) also says that "most of the firms have large amounts of cash Invested in working capital. Can it therefore will expected. That is the way in which working capital is managed will from have a significant impact on profitability of those firms. Raheman and Nasr (2007) also expressed the same thing that the firmthat has a large investment in working capital and manage it well to have an impact on the profitability of a business entity. However, Gitman

(2009: 640) argues that not only the working capital management affect profitability but also the risk of a firm, as shown below:

Table 1. The Impact of Ratio Change to Profitability and Risk

Ratio	Ratio Change	The impact to Profitability	The impact to Risk
Current Asset to Total Asset	Increase	Decrease	Decrease
	Decrease	Increase	Increase

Increasing current asset to total asset shows the amount of money invested in current assets both in cash and securities, accounts receivable and inventories, this means a firm will lose the opportunity cost was higher, thus affecting its profit decline. But, otherwise the investment in current assets will be the strength for the firm to meet all obligations that has matured, both financial liabilities, obligations and liabilities to customers' production, and this could reduce the risk of a firm; means there is a trade-off between profitability and risk.

The results Deloof (2003) and Raheman (2007) prove there is a significant negative effect between the average collection period and profitability. Besides, Deloof (2003) and Raheman (2007) also proves there is a negative influence between the average age of inventory and the profitability of a firm. Meanwhile, Deloof (2003) and Hadori (2005) research proved there was a negative influence between the average payments payable to the profitability of a firm. The sales growth also has positive influence with the profitability of a firms, this is evidenced by several researchers, among others Deloof (2003) and Ioannis and Dimitrios (2006)

2.4. Working Capital Management of Inter-Industry

Industry is a group of business firms that have similar operations. Firms are faced with business risk and financial risk. More financial risk associated with financing structure that is used, while the business risks associated with Firm capabilities cover operational costs (Gitman, 2009: 498). Ability of Firms to meet the operational costs would be associated with the management of working capital. Every industry has different business risks and thus working capital management will differ between industries. For example the industrial consumption, inventory turnover is quite high compared to the aerospace industry.

2.5. Hypotheses Development

H_{1a}: Working capital management affects profitability of a firm in manufacturing

H_{1b}: Working capital management affect corporate risk at manufacturing sector

H₂: There is a difference between working capital management industries in the manufacturing sector

3. Research Method

3.1. Data and Sample

This study uses data sales growth, accounts receivables period, average age of inventors, average payment period, operating profit margin and current ratio in manufacturing sector firm during the period from 2001 until 2007. Manufacturing sector firm used in this study is firm that has coherent financial statements every year during the study period and submit audited financial reports on time. The number of samples that meet as many as 73 firms with a term of seven years (2001-2007); means the number of observations for 511. The manufacturing sector comprises 13 industries, where a number of industrial firm only one or two were merged into other industries.

3.2. Variables and Measurement

Independent variables: the management of working capital which is measured from the period of account receivables, average age of inventors and the average payment period, while

the dependent variable consists of the operating profit margin or current ratio. Control variables: sales growth. While proving the second hypothesis, there is only one variable, namely the management of working capital which is measured from the average collection period, average age of inventory and average payment period.

Table 2. Variable Measurement

Research Variables	Measurement
Independent Variables	
* Average Collection Period	(AR _t X365): S _t
* Average Age of Inventory	(INV _t X 365): CGS _t
* Average Payment Period	(AP _t x 365): Purchases
Dependent Variables	
* Operating Profit Margin	OP _t : S _t .
* Current Ratio	CA _t : CL _t
Control Variables	
* Sales Growth	(S _t - S _{t-1}): S _{t-1}

3.3. Model Analysis

This study uses regression analysis to prove the first hypothesis and analysis of variance for second hypothesis, with the following models:

Regression Model I: $Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + i \text{ Dummy} + e$

Which are :

- Y : Operating profit margin
- a : Constant
- $\beta_{1,2,3,4,i}$: coefficient of regression
- X₁ : sales growth ratio
- X₂ : average collection period
- X₃ : average age of inventory
- X₄ : average payment period
- Dummy : industry
- e : error term of the model

Regression Model II: $Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + i \text{ Dummy} + e$

Which are :

- Y : Current Ratio (Gitman, 2009:58)
- a : constant
- $\beta_{1,2,3,4,i}$: coefficient regression
- X₁ : sales growth ratio
- X₂ : average collection period
- X₃ : average age of inventory
- X₄ : average payment period
- Dummy : industry
- e : error term of the model

4. Results and Discussion.

4.1. Regression Analysis

4.1.1. Data Quality Testing Results

Number of observations 511, which consists of 73 firms with a period of years from 2001 to 2007. Table 3 shows that the assumption of multicollinearity, autocorrelation and heterocedasticity no problem in regression analysis.

Table 3. Classic Assumption Test Result

	Dependent variables	
	Operating Profit Margin	Current Ratio
Multicollinearity test		
* ACP	VIF = 1.355	VIF = 1.355
* AAI	VIF = 1.169	VIF = 1.169
* APP	VIF = 1.294	VIF = 1.294
* SG	VIF = 1.019	VIF = 1.019
Autocorrelation test		
* DW	1.927	2.170
* DL	1.728	1.728
* DU	1.810	1.810
* $Du < Dw < 4-DU$	$1.728 < 1.927 < 2.272$	$1.728 < 2.170 < 2.272$
Heterocedasticity test	0.080	0.073

4.1.2. Descriptive Statistics

Descriptive statistics results showed that the profitability of firm in Manufacturing sector average of 5.5% only. But the Firm still has the ability to properly fulfill its obligation, whereby the value of current ratio is still at 1.5, means the current assets owned quite used to meet maturing obligations.

Average collection period 60 days is longer than the average payment period of 46 days, this indicates that the firm to provide the cash needed to avoid illiquid. Also when considering average age of inventory for 102 days, then the longer the cash flow cycle.

Table 4. Descriptive Statistic Result

Research Variable	Mean	Std Deviation	N
Operating Profit Margin	0.0556	0.1109	511
Current Ratio	1.8142	1.5182	511
Average Collection Period	60.1685	46.3210	511
Average of Age Inventory	102.1053	71.8114	511
Average Payable Period	46.6673	40.5301	511
Sales Growth	2.2596	14.5277	511

4.1.3. Determination Coefficient and Regression Coefficient Analysis

F test results showed sig $0.000 < 0.05$ (Table 5), this proves that the average collection period, average age of inventory, average payment period and sales growth are resulting simultaneously and significant effect on the operating profit margin, this mean that working capital management proved to have significant effect on profitability of manufacturing sector firm; mean effective working capital management will increase the profitability of a business entity. The result of this research was supported by research done by Raheman and Nasr (2007); Deloof (2003) and Hadori (2005).

Table 5. ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	0.776	12	0.065	5.860	0.000
Residual	5.497	498	0.011		
Total	6.273	510			

Dependent Variable: OPM

The coefficient of determination is 0.124 (Table 6), this means that the profitability of 12,40% variation can be explained by the variation of the average collection period, average age

of inventory, average payment period, and sales growth while the rest is explained by other variables outside of this model

Table 6. Coefficient of Determination and Regression Coefficients

	Dependent Variable OPM		Dependent Variable CR	
	Regression Coefficient	Sig. value	Regression Coefficient	Sig. value
Constant	0.032	0.030	1.506	0.000
ACP	0.005	0.920	0.160	0.001
AAI	0.100	0.028	0.110	0.013
APP	-0.231	0.000	-0.284	0.000
SG	-0.031	0.459	-0.042	0.312
Textile- Garment	0.320	0.030	0.506	0.000
Adhesive	0.095	0.049	0.177	0.000
Automobile	0.169	0.002	0.060	0.267
Ceramic	0.091	0.060	-0.068	0.152
Food and Beverage	0.071	0.18	0.138	0.008
Metal	0.078	0.133	0.074	0.143
Plastic	0.215	0.000	-0.026	0.591
Others	0.068	0.222	0.000	0.987
Determination Coefficient	0.124		0.164	

Based on Table 6, shows only the average age of inventory and the average payment period is partially significant effect on profitability. Average Age of inventory have a positive effect on profitability, this might be due to two things: first, not separated between accounts for inventory of raw materials and finished goods, so that when a firm purchases raw materials as there serves for the long term with lower prices, with hope sales will increase, thereby increasing profits. Second, the purchase of inventory by using the method with a long-term loan therefore the cost is relatively small and this will increase corporate profits.

Average payment period has the greatest impact on profitability than the average age of inventory, which is 23.10%. Average payment negatively correlated with profitability, so the sooner the firm pays to suppliers, means to take advantage of cash discounts given supplier and this will increase corporate profits. Research Raheman and Nasr (2007), Deloof (2003), Eljelly (2004) and Shin and Soenen (1998) also prove there is a negative correlation between the average payment period with profitability.

Average collection period proved no significant effect on profitability because it exists at the standard deviation is too large compared to the average value thereby indicating a fairly large fluctuation in the average collection period

Table 7. ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	192.644	12	16.054	8.134	0.000
Residual	982.880	498	1.974		
Total	1,175.524	510			

Dependent Variable: CR

Table 7 shows the results of F test produced sig 0.000, it also proves there is significant influence among the average collection period, average age of inventory, average payment period and sales growth simultaneously with a current ratio manufacturing firm sector. This means that working capital management also proved to have an impact on firm risk. The results are consistent with Gitman's statement (2009: 630). The coefficient of determination is 0.164

(Table 6), gives the meaning that it is only 16.40% of variation explained by the variation of the risk of average collection period, average age of inventory, average payment period and sales growth. Partial test results proved that the average collection period, average age of inventory and average payment period affect current ratio of firm.

Three factors of working capital management proved that the average payment period has the greatest influence (28.40%) on corporate risk than average collection period and the average age of inventory. Average payment period has a negative correlation against the firm, this means that the greater the average payment period is the smaller the risk (the greater the current ratio). Thus the longer a firm to delay payment to suppliers will be able to use these funds to increase the amount of inventory so that the firm has the ability to meet all demand for goods, according to Gitman (2009:640).

Average collection period and the average age of inventory have a positive correlation with risk, meaning that the greater the average collection period and the average age of inventory, the greater the risk (the lower the current ratio). This means that the longer the funds are embedded in the inventory and accounts receivable, the smaller the available cash funds to meet its maturing obligations.

The test results prove that the sales growth is a factor that does not affect either on the operating profit margin or current ratio of firm, according to research results Hadori (2005). Which affect the profitability of industries are textile and garment industry, adhesive industry, automobile industry, pharmaceutical industry and plastic industry. Automobile industry is more dominant among five most dominant industries. While the industry that affected the risk of a business entity is the textile industry, industrial adhesives, food and beverage industry and pharmaceutical industry, and the most dominant influence is the textile and garment industry (Table 6).

4.2. Analysis of Variance

4.2.1. Data Quality Testing Results

This research uses analysis of variance (ANOVA) and ANOVA assumptions tested using a test of homogeneity of variances. Levene test results showed that the management of working capital, which is measured based on the average age of inventory and average payment period has met the assumptions of Anova, as Sig greater 5%, this means that every industry has the same variance. While the average collection period for 0.008 have sig <0.05, this means the assumption of ANOVA are not met, but the analysis of variance can still be used because every industry has the same sample variance (Ghozali, 2001:63). Levene test results as follows:

Table 8. Levene Test Result

Measurement of Working Capital Management	Sig. value.
Average collection period	0.008
Average age of inventory	0.079
Average payment period	0.071

4.2.2. Descriptive Statistics Results

Based on the description of the analysis showed that the automobile industry has longer average collection period, than any other industry, it is for 78 days. It is because of the products sold are shopping goods and the price is relatively expensive, the automobile industry provide long term credit terms. While industry which has the longest average age of inventory is the ceramic industry, as long as 151 days, due to the relative product sales influenced by season, so many products that caught; different from a food and beverage industry which requires only 75 days of supplies for its product sales more constant every period not too long so that the product

is stored. Based on average payment period, the one which have the longest time to pay supplier account payable is textile and garment industry.

Table 9. Descriptive Statistic Result

Industry	ACP		AAI		APP		N
	Mean	SD	Mean	SD	Mean	SD	
Tex-Gar	57.22	16.75	94.15	5.32	61.38	13.58	7
Ceramic	69.86	5.82	151.82	53.62	36.87	10.61	7
F and B	59.39	2.15	75.91	22.34	35.35	11.95	7
Pharma	56.54	4.82	104.93	23.80	51.77	14.96	7
Adhesive	47.03	6.04	88.04	5.08	26.96	3.98	7
Auto	78.66	14.93	84.22	13.25	50.53	10.67	7
Metal	55.49	3.91	121.54	8.33	44.40	8.58	7
Plastic	70.30	35.68	100.33	29.61	53.73	23.97	7
Others	62.82	18.09	92.79	25.89	45.48	9.85	7

Others consist of: appraisal and textile; tobacco; wood; pulp and paper; cement; chemical and allied; photo and electronic

4.2.3. The Difference of Working Capital Management Inter-industries Analysis

To test whether there is a difference of working capital management inter-industry in manufacture is using analysis of variance (Anova). All of Anova assumption were complete and have same variance.

Table 10. ANOVA for the ACP Test

	Sum of squares	Df	Mean Square	F	Sig
Between Groups	5,143.148	8	642.894	2.610	0.017
Within Groups	13,302.728	54	246.347		
Total	18,445.877	62			

F test produced sig. for 0.017 proving that there are differences in the management of working capital, which is measured based on the average collection period between textile and garment industry, ceramic industry, food and beverage industry, pharmaceutical industry, adhesive industry, automobile industry, metal industry, plastic industry and other industries. However, based on multiple comparisons it was only automobile industry and industrial adhesive that average collection period is significantly different, with mean difference amounted to 31,627 (based on the result or multiple comparison of multiple variables ACP); this means that there are differences in the management of working capital based on the average collection period, between the automobile industry and the textile and garment industry during the 31 days.

Table 11. ANOVA for the AAI Test

	Sum of squares	Df	Mean Square	F	Sig
Between Groups	29,482.554	8	3,685.319	5.732	0.000
Within Groups	34,719.733	54	642.958		
Total	64,202.287	62			

Table 11 shows the result of significant F test of 0.000, proved there is a difference of working capital management as measured from the average age of inventory between textile and garment industry, ceramic industry, food and beverage industry, pharmaceutical industry, adhesive industry, automobile industry, metal industry, plastic industry and other industries.

Table 12. Multiple Comparison Result

AAI Inter-Industries Difference	Mean Difference	Sig. value
Ceramic – Textile and Garment	57.679	0.003
Ceramic – Food and Beverage	75.916	0.000
Ceramic – Pharma	46.890	0.027
Ceramic – Adhesive	63.788	0.001
Ceramic – Automobile	67.602	0.000
Ceramic – Plastic	51.490	0.010
Ceramic – Lain-lain	59.035	0.002
Metal – Food and Beverage	45.627	0.035

Notes: presented significantly different results

The Table 12 above shows that the ceramic industry has a working capital management, which differ significantly from the textile and garment industry, food and beverage industry, pharmaceutical industry, adhesive industry, automobile industry, metal industry, plastic industry and other industries, based on the average age of inventory. Besides the metal industry, it also proved there is a difference working capital management significantly with food and beverage industry. The difference between working capital management of the largest industries occurred between the ceramic industry and food and beverage industry, is 75 days, because there are differences in the pattern of the seller, where the pattern is more influenced by the Ceramic Industry sales season, while the sales pattern of food and beverage industry is relatively more constant. While the differences between working capital management industry and metal food and beverage industry proven smallest period, which is during 45 days.

Table 13. ANOVA for the APP Test

	Sum of squares	Df	Mean Square	F	Sig
Between Groups	6,341.469	8	792.684	4.636	0.000
Within Groups	9,232.594	54	170.974		
Total	15,574.063	62			

Working capital management based on the average payment period is also different between the textile and garment industry, ceramic industry, food and beverage industry, pharmaceutical industry, adhesive industry, automobile industry, metal industry, plastic industry and others industry, this is indicated by the F test results. The difference between the average payment period for the industry in the manufacturing sector as suppliers set different credit policies to each industry, it would affect the debt repayment period of the industrial trade.

Table 14. Multiple Comparisons

APP Inter-Industries Difference	Mean Difference	Sig
Textile and Garment – Ceramic	24.507	0.024
Textile and Garment – Food and Beverage	26.027	0.013
Textile and Garment – Adhesive	34.419	0.000
Pharma – Adhesive	24.813	0.021
Automobile – Adhesive	23.570	0.034
Plastic – Adhesive	26.773	0.009

Notes: presented significantly different results

Average payment difference that proved significant period occurred in textile and garment industry and industrial adhesives. Textile and garment industry proved to be no difference average payment period is significantly related to ceramic industry, food and beverage industries and industrial adhesives. While the adhesives industry are also shown significant differences in average payment period for the pharmaceutical industry, automobile industry and plastic industry. Average payment period is the biggest difference, it is between the textile and garment industry with industrial adhesive, is during 34 days. Based on the average payment period

averages, where the payment of trade debt of Textile and garment industry are longer than the adhesive industry for textile and garment industry defer the payment of trade debt to shorten the cash conversion cycle, for textile and garment industry tends to soften the terms of credit sales. While the average payment period is the lowest difference occurred between the automobile industry and industrial adhesive, as long as 24 days.

In conclusion, based on the F test in regression analysis, proved that the average collection period, average age of inventory, average payment period and sales growth are giving simultaneously and significant effect on the operating profit margin and current ratio of manufacturing sector firms over the period 2001-2007. This means that the first hypothesis is proved, that the working capital management affects profitability and risk of manufacturing sector firms. In addition to the partial its average age of inventory and average payment period of influencing the profitability of the firm; and average payment period is the greatest effect on the firm's profitability on the manufacturing sector.

Partially also proved that there is influence between the average collection period, average age of inventory and average payment period is against the risk of manufacturing sector firms. Addition of three variables, the average payment period is variable which gives the greatest impact on enterprise risk. Sales growth partially proved does not affect the profitability and risk of manufacturing sector firms.

Nine industries as an object of research proved there are only five industries that affect the profitability of companies in manufacturing sector, namely textile and garment industry, adhesive industry, automobile industry, pharmaceutical industry and plastic industry. Most of large pharmaceutical industries are role to profitability. While industries that affect the risk of the firm there were only four industries, namely textile and garment industry, industrial adhesives, food and beverage industry and pharmaceutical industry. Textile and garment industry of the most important role of risk

Based on ANOVA, it proved that there is a difference between working capital management industries, good working capital management is measured based on average collection period, average age of inventory and the average payment period. This means that the second hypothesis is proved, that there are differences between industry working capital management in the manufacturing sector during 2001-2007.

Management of working capital based on the average collection period, proved to be difference of working capital management significantly between the automobile industry and industrial adhesive. While the management of working capital based on the average age of inventory, it is obvious there is a difference of working capital management significantly between the ceramic industry with textile and garment industry, ceramic industry with a food and beverage industry, ceramic industry with the pharmaceutical industry, ceramic industry with industrial adhesive, industrial ceramic with automobile industry, ceramic industry with the plastic industry, ceramic industry with other industries and industrial metal with a food and beverage industry. Besides working capital management as measured from the average payment period, it is also proven there is a significantly difference of working capital management between; textile and garment industry of the ceramic industry; textile and garment industry with a food and beverage industry; textile and garment industry with adhesive industry; pharmaceutical industry with adhesives industry; automobile industry with industrial adhesives; and plastic industries with industrial adhesives.

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