

COMPARISON OF WORKING CAPITAL AND PROFITABILITY: BIST-100 SAMPLE**Yusuf POLAT**

Aksaray University, Aksaray/Turkey

ABSTRACT

Working capital is at the heart of key issues in the context of business cycle and in terms of profitability obtained as a result of these activities. In this direction, working capital is a critical point in order to carry out the supply-production-sales process which is vital for the enterprises, to be able to pay for outstanding debts and to be able to develop the profit making action in a positive sense which is one of businesses' main purposes. To be able to achieve an optimal working capital level by the firms is expected that profitability will be affected from this angle naturally which is the most important indicator reflected the situation of the business. Therefore, in this study, it is aimed to examine the relationship between the profitability of the enterprises and the working capital management. For this purpose, the ratios of profitability and management of working capital were subjected to regression analysis by groups. There are serious relationships between the various indicators in the partial sense, although there is no absolute and general relationship.

Keywords: Profitability, Working Capital, Economic Value Added

1. INTRODUCTION

With a traditional definition, the positive difference between current assets and current liabilities is known as net operating capital or net working capital, and in practice this difference is briefly referred to as operating capital (McMenamin, 2005: 647). This is a technical description that shows how much cash or liquid assets are available to meet the short-term cash requirement imposed by current debts.

It is seen that the normal activity cycle does not occur simultaneously considering the operating processes of the firms. So, a firm can not supply and complete production and can not sell and carry out collections at the very same time. Therefore, there is a mismatch in cash entry and exit in time context (Pamukçu, 1999: 308) which is one of the reasons for the existence of standard finance. This is also the reason why firms need working capital which is a consequence of the fact that the dates and amounts of cash inflows and outflows are not precisely known and can not be foreseen. If that was the case, i.e., firms could accurately identify cash inflows and outflows in terms of time and quantity, it might not be necessary to have working capital for the firms. But it is impossible to provide "full certainty" in real business conditions (Sayılğan, 2008: 157-158). Moreover, we can not talk about ideal markets which firms carry out their activities in real business conditions. Because, under ideal market conditions, there are no such things as transaction costs, production facilities, or financial difficulties. In such a world, the firm value will be independent from the decisions about the firm's current assets or current liabilities. And so short-term financial management would not be needed. But the markets are not perfect and transaction costs or production facilities are inevitable in the world which have imperfect markets. Naturally, the existence of such troubles makes working capital management mandatory (Pinches, 1996: 442).

Management and control of working capital both have a great importance in terms of business and require financial department of the firms' special attention and care (Akgüç, 1998, s. 201). However, working capital management is a neglected topic in institutional practice as well as in theory. Especially in recent years, the increase in the demands on the supply of capital and in the levels of competitive violence in global markets raise question marks in the minds and urge to rethink about importance of the subject. On the literature side, Anglo-American finance theory has been criticizing

for decades; and on the practice side, the pressures are increasing to focus on issues of finding ways to reduce internal costs of the firm and improving working capital performance. But to increase the value of the firm, effective working capital management is an integral part of the corporate strategy of firms (Meyer, 2007: 1).

Within a specific industry for a given period, this study aims testing the assumption of the working capital which is regarded as one of the fundamental issues in terms of firm value and therefore profitability. In this direction, the relationship between profitability of firms and working capital are examined over 10 years' data (2005-2015) of 120 companies traded in Stock Exchange Istanbul (BIST-100) representing the manufacturing industry which is one of the locomotive sectors of a developing country like Turkey.

2. RESEARCH QUESTION AND LITERATURE REVIEW

The working capital mainly consists of cash assets, trade receivables, inventories and payables. A large number of ratios are used in practice to represent these items that are very closely related to each other. General findings suggest that there is a negative and significant relationship between firm profitability and CCC which adds all the items separately to the account (Soenen & Soleno, 1993; Deloof, 2003; Lazaridis & Tryfonidis, 2006; Shah & Sana, 2006; Khan, Shah, & Hijazi, 2006; García-Teruel & Martínez-Solano, 2007; Mathuva, 2009; Gill, Bigger, & Mathur, 2010; Quayyum, 2011; Mansoori & Muhammad, 2012). Although these studies include large-scale manufacturing firms traded on the stock exchange, similar results are obtained in studies (Padachi, 2006) based on small and medium-sized companies. On the other hand, the findings obtained show this relationship varies across sectors (Filbeck & Krueger, 2005), more specifically, Uyar (2009) compared the manufacturing sector with the trade sector in Turkey and found that the firms operating in trade sector had a shorter cash conversion cycle than the manufacturing firms. In addition, findings obtained in studies involving liquidity ratios beside cash conversion cycle show CCC is meaningful in the negative direction with firm profitability and the liquidity ratios are meaningful in the positive direction with firm profitability (Raheman & Nasr, 2007).

In our study, subjected to working capital and profitability, large volume manufacturing firms traded on the stock exchange are taken as the basis. Unlike the studies in the literature, the concepts of working capital and profitability have been studied in a more comprehensive way. In this direction, the working capital ratio has been included in the analysis as representing the working capital in addition to the cash conversion period and liquidity ratios. On the other hand, 3 group ratios are used in the same way in terms of profitability of the firms. As profit margin, operating profit margin and gross profit margin are included in addition to net profit margin used frequently in the literature; as earning power, the return on investments, return on net assets and the return on invested capital's are included in addition to return on assets and return on equity; finally, economic value added method. The null hypothesis of study in this context is as follows:

H₀: There is no effect of the working capital on firm profitability.

3. APPLICATION

3.1. Scope and Method

The survey covers manufacturing firms operating in Turkey and traded on the Stock Exchange Istanbul. The dataset used in the research consists of 120 firms whose data can be accessed for the period concerned. Companies are excluded from the study whose data is not fully accessible during the base period. The total number of observations related to the survey are 1,200 (120x10). During the study, 120 manufacturing firms that are traded at BIST-100 for a period of 10 years from 2005 to 2015 are subjected to descriptive statistics and regression analysis.

Profit margins (Gross Profit Margin-GPM, Operating Profit Margin-OPM and Net Profit Margin -NPM) are used to represent performance in the study which can be traditionally considered as one of the most commonly used indicators of profitability; in addition, the expected return rates (Return on

Investment-ROI, Return on Assets-ROA, Return on Net Assets-RONA, Return on Equity-ROE and Return on Invested Capital-ROIC) and the economic value added (EVA) method. The working capital rate (WCR) are used in which the working capital is represented as a whole; and liquidity ratios (Current Ratio-CR, Quick Ratio-QR and Cash Ratio-SR) and within the scope of receivable-inventory-payables, cash conversion cycle (CCC) for cash and similar assets representing the elements of the working capital. The controls are sales amounts of beginning of period (T1) and leverage ratio (LEV).

Profit margins include gross profit margin (GPM), operating profit margin (OPM) and net profit margin (NPM). These margins are obtained by gross profit, earnings before interest and tax (EBIT) and net profit to the sales, respectively. The return on investment (ROI), also known as the primary ratio, is calculated by dividing earnings before interest and tax to fixed capital; Return of assets (ROA), return of net assets (RONA), return of equity (ROE) by dividing net profit to total assets, to fixed capital and equity respectively. The return on invested capital (ROIC) is calculated as follows:

$$ROIC = \frac{EBITDA \cdot (1 - T)}{\text{Total Assets} - \text{Cash Assets}}$$

Finally, the economic value added (EVA) is derived by deducting the multiplication firms' weighted average cost of capital (WACC) and the invested capital (IC) from net operating profit after tax (NOPAT):

$$EVA = NOPAT - (WACC \cdot IC)$$

The NOPAT values in the formula are calculated by deducting tax from earnings before interest and tax (EBIT):

$$NOPAT = EBIT \cdot (1 - T)$$

Interest rates of annual average deposits are based as firms' weighted average cost of capital. Invested capital is calculated over the sum of working capital and fixed assets:

$$IC = WC + FA$$

The natural logarithms of EVA calculated in this way are taken into the application. The ratios of the working capital are examined in two groups generally. First, the Working Capital Ratio (WCR) represents the firms' working capital as a whole, calculated by the ratio of net working capital to gross working capital. Cash and similar assets, receivables, inventories and short-term debts (payables), which are the basic elements of the working capital, are examined separately. The liquidity ratios of the companies have been determined in relation to cash and similar assets. Regarding the cash conversion cycle (CCC), which is a method of evaluating the components of the working capital excluding cash and similar assets, the following calculations are made:

$$CCC = RCP + ICP - PDP$$

CCC is calculated by deducting payables deferral period (PDP) from the sum of receivables collection period and inventory conversion period. The receivable collection period is calculated by dividing the number of days in a year to the receivable turnover rate (RTR); inventory conversion period by inventory turnover rate (ITR) with the number of days in a year; and payables deferral period by payables turnover ratio (PTR) with the number of days in a year.

3.2. Findings and Analysis

Descriptive statistics of the study are shown in Table 1. This table shows the statistical values of the variables obtained. The minimum values, the maximum values, the mean values and the standard deviation values are calculated by dependent variables (profit margins, expected returns and economic value added) and independent variables (working capital ratio, liquidity ratios and cash conversion cycle) and control variables (firm size and total debt to total resources as leverage ratio) of 120 firms' data during the 10-year period. The total number of observations are 1,200.

When we look at the table below, it can be seen that the average profit margins of the firms are about 21% of gross profit margin, 5.2% of operating profit margin and about 1.8% of net profit margin. It is seen that the return on investment is 7.4%. The return on assets is 2.2%; and 4.4% for net assets (fixed capital). The return on equity is around 5.1% on average. The average logarithmic value for EVA is 7.1327.

When looking at the data for the independent variables, working capital ratio (WCR) is about 24%. The ratio of the firms' liquidity ratios, the current ratio, the quick ratio and the cash ratios are respectively 1.73; 1.16 and 0.29. It is seen that these values are close to the desired figures for the manufacturing sector - the current ratio is 2, the quick ratio is 1 and the precision ratio is 0.2.

The logarithmic values (T1) of the sales figures of the previous year as the control variable are approximately 8.27. When the averages of the leverage ratios of sample are examined, 53.67% of the company's total assets are financed by foreign resources while the remaining 46.33% is financed by equity or other in-house resources. Therefore, it is possible to say that firms have a high leverage ratio.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
GPM	1200	-5,02	1,98	,2056	,23549
OPM	1200	-2,52	,81	,0515	,14707
NPM	1200	-3,22	,54	,0174	,19194
ROI	1200	-9,18	10,41	,0744	,57190
ROA	1200	-2,88	,60	,0218	,14702
RONA	1200	-6,16	7,72	,0443	,47365
ROE	1200	-6,56	6,30	,0510	,56315
ROIC	1200	-1,46	,44	,0331	,07428
EVA	1200	3,71	9,12	7,1327	,69315
WCR	1200	-2,76	,80	,2448	,52194
CR	1200	,06	4,89	1,7367	,82160
QR	1200	,05	4,26	1,1602	,68623
SR	1200	-,01	3,87	,2990	,42689
CCC	1200	-,66	2,78	1,9093	,40959
T1	1200	6,75	10,62	8,2745	,65798
LEV	1200	,04	8,67	,5367	,57655
Valid N (listwise)	1200				

Table1. Descriptive Statistics

A regression analysis is conducted to test the relationship between the firms' profitability and the liquidity ratios representing the working capital. The hypotheses constructed in this direction are as follows:

- H₁: There is a relationship between liquidity ratios and profitability.
- H_{1A}: There is a relationship between liquidity ratios and profit margins.
- H_{1B}: There is a relationship between liquidity ratios and return rates.
- H_{1C}: There is a relationship between liquidity ratios and economic added value.

In Table 2, where the model summary is examined, the variance associated with the intrinsic variables explained at the highest level is economic added value with about 44.1%; followed by net profit margins of 23.5% and return on assets of 22.6%. The value of economic value added is around 43.8% as adjusted values. The Durbin-Watson coefficient for all models appears to be in the normal range.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	,145 ^a	,021	,017	,23348	1,842	a. Predictors: (Constant), LEV, T1, SR, QR, CR b. Dependent Variable: GPM
2	,328 ^a	,107	,104	,13923	1,962	a. Predictors: (Constant), LEV, T1, SR, QR, CR b. Dependent Variable: OPM
3	,485 ^a	,235	,232	,16823	1,868	a. Predictors: (Constant), LEV, T1, SR, QR, CR b. Dependent Variable: NPM
4	,069 ^a	,005	,001	,57173	2,031	a. Predictors: (Constant), LEV, T1, SR, QR, CR b. Dependent Variable: ROI
5	,475 ^a	,226	,222	,12966	1,909	a. Predictors: (Constant), LEV, T1, SR, QR, CR b. Dependent Variable: ROA
6	,105 ^a	,011	,007	,47201	1,982	a. Predictors: (Constant), LEV, T1, SR, QR, CR b. Dependent Variable: RONA
7	,105 ^a	,011	,007	,56124	1,960	a. Predictors: (Constant), LEV, T1, SR, QR, CR b. Dependent Variable: ROE
8	,369 ^a	,136	,133	,06918	1,980	a. Predictors: (Constant), LEV, T1, SR, QR, CR b. Dependent Variable: ROIC
9	,664 ^a	,441	,438	,51955	1,564	a. Predictors: (Constant), LEV, T1, SR, QR, CR b. Dependent Variable: EVA

Table 2: Model Summary of Profitability-Liquidity Ratios

The F-Test is applied to test whether the model is statistically significant. The results for the F-test are given in Table 3. When the mentioned table is examined, the ANOVA chart shows Sig. are done for all but return on investment.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	1,399	5	,280	5,134	,000 ^b	a. Dependent Variable: GPM b. Predictors: (Constant), LEV, T1, SR, QR, CR
	Residual	65,091	1194	,055			
	Total	66,490	1199				
2	Regression	2,786	5	,557	28,737	,000 ^b	a. Dependent Variable: OPM b. Predictors: (Constant), LEV, T1, SR, QR, CR
	Residual	23,147	1194	,019			
	Total	25,933	1199				
3	Regression	10,382	5	2,076	73,368	,000 ^b	a. Dependent Variable: NPM b. Predictors: (Constant), LEV, T1, SR, QR, CR
	Residual	33,791	1194	,028			
	Total	44,173	1199				
4	Regression	1,870	5	,374	1,144	,335 ^b	a. Dependent Variable: ROI b. Predictors: (Constant), LEV, T1, SR, QR, CR
	Residual	390,287	1194	,327			
	Total	392,156	1199				

5	Regression	5,845	5	1,169	69,533	,000 ^b	a. Dependent Variable: ROA b. Predictors: (Constant), LEV, T1, SR, QR, CR
	Residual	20,072	1194	,017			
	Total	25,917	1199				
6	Regression	2,983	5	,597	2,678	,020 ^b	a. Dependent Variable: RONA b. Predictors: (Constant), LEV, T1, SR, QR, CR
	Residual	266,010	1194	,223			
	Total	268,994	1199				
7	Regression	4,154	5	,831	2,638	,022 ^b	a. Dependent Variable: ROE b. Predictors: (Constant), LEV, T1, SR, QR, CR
	Residual	376,097	1194	,315			
	Total	380,251	1199				
8	Regression	,902	5	,180	37,703	,000 ^b	a. Dependent Variable: ROIC b. Predictors: (Constant), LEV, T1, SR, QR, CR
	Residual	5,714	1194	,005			
	Total	6,616	1199				
9	Regression	253,766	5	50,753	188,021	,000 ^b	a. Dependent Variable: EVA b. Predictors: (Constant), LEV, T1, SR, QR, CR
	Residual	322,301	1194	,270			
	Total	576,067	1199				

Table 3: ANOVA Test Profitability - Liquidity Ratios

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	,064	,092		,688	,492		a. Dependent Variable: GPM
	CR	,030	,018	,104	1,673	,095	,212	
	QR	-,003	,021	-,010	-,155	,877	,215	
	SR	,046	,019	,084	2,416	,016	,676	
	T1	,008	,011	,023	,768	,442	,947	
	LEV	,025	,013	,060	1,857	,064	,784	
2	(Constant)	-,216	,055		-3,925	,000		a. Dependent Variable: OPM
	CR	,008	,011	,043	,717	,474	,212	
	QR	,003	,013	,014	,229	,819	,215	
	SR	,069	,011	,199	5,992	,000	,676	
	T1	,030	,006	,133	4,718	,000	,947	
	LEV	-,027	,008	-,105	-3,398	,001	,784	
3	(Constant)	-,371	,067		-5,562	,000		a. Dependent Variable: NPM
	CR	,031	,013	,134	2,432	,015	,212	
	QR	-,002	,015	-,009	-,158	,874	,215	
	SR	,070	,014	,155	5,025	,000	,676	
	T1	,044	,008	,152	5,848	,000	,947	
	LEV	-,096	,010	-,287	-10,056	,000	,784	
4	(Constant)	-,051	,226		-,227	,821		a. Dependent Variable: ROI
	CR	,006	,044	,009	,138	,890	,212	
	QR	,007	,052	,009	,137	,891	,215	
	SR	,029	,047	,022	,620	,536	,676	
	T1	,015	,026	,017	,571	,568	,947	
	LEV	-,044	,032	-,044	-1,357	,175	,784	
5	(Constant)	-,304	,051		-5,927	,000		a. Dependent Variable: ROA
	CR	,027	,010	,151	2,734	,006	,212	
	QR	-,004	,012	-,016	-,300	,765	,215	

	SR	,049	,011	,143	4,601	,000	,676	1,480	Variable:
	T1	,037	,006	,165	6,311	,000	,947	1,056	ROA
	LEV	-,069	,007	-,269	-9,350	,000	,784	1,275	
6	(Constant)	-,212	,187		-1,132	,258			a.
	CR	,030	,036	,052	,838	,402	,212	4,713	Dependen
	QR	,007	,043	,010	,164	,869	,215	4,641	t
	SR	,066	,039	,059	1,695	,090	,676	1,480	Variable:
	T1	,017	,021	,024	,809	,418	,947	1,056	RONA
	LEV	,061	,027	,075	2,300	,022	,784	1,275	
	(Constant)	-,181	,222		-,816	,415			a.
7	CR	-,010	,043	-,015	-,239	,811	,212	4,713	Dependen
	QR	,043	,051	,053	,850	,396	,215	4,641	t
	SR	,088	,046	,067	1,905	,057	,676	1,480	Variable:
	T1	,016	,025	,019	,635	,526	,947	1,056	ROE
	LEV	,076	,032	,078	2,387	,017	,784	1,275	
	(Constant)	-,170	,027		-6,190	,000			a.
8	CR	,008	,005	,091	1,552	,121	,212	4,713	Dependen
	QR	-,001	,006	-,005	-,094	,925	,215	4,641	t
	SR	,035	,006	,204	6,233	,000	,676	1,480	Variable:
	T1	,022	,003	,197	7,119	,000	,947	1,056	ROIC
	LEV	-,010	,004	-,075	-2,485	,013	,784	1,275	
	(Constant)	1,279	,206		6,215	,000			a.
9	CR	,018	,040	,021	,454	,650	,212	4,713	Dependen
	QR	,019	,047	,019	,397	,691	,215	4,641	t
	SR	,074	,043	,045	1,722	,085	,676	1,480	Variable:
	T1	,695	,023	,660	29,663	,000	,947	1,056	EVA
	LEV	,052	,029	,043	1,756	,079	,784	1,275	

Table 4: Coefficients Profitability - Liquidity Ratios

Table 4 shows that only the cash ratio is significant in terms of gross profit margin; and cash ratio with control variables in terms of operating profit margin. Regarding the net profit margin, all indicators are significant except for the quick ratio. When the return ratios are examined, it is seen that no indication about the return on investments is significant. Again except quick ratio, all variables are significant in terms of the return on assets; only the leverage ratio is significant in terms of the return on net assets and the return on equity. In terms of the return on invested capital, it is seen that the cash ratios together with the control variables are significant. As for economic value added, it is only meaningful with sales. It is seen that none of the VIF values is smaller than 10 and tolerance coefficients are all greater than 0.2. Indicators that have a partial significance for the each variable will be regarded as meaningless in terms of profit margins and return ratios, with the exception of economic value added. In general, H1 will be rejected.

H2: There is a relationship between the cash conversion cycle and profit margins.

H2A: There is a relationship between the cash conversion cycle and profit margins.

H2B: There is a relationship between cash conversion cycle and return rates.

H2C: There is a relationship between cash conversion cycle and economic added value.

When you review the model summary for H2 hypothesized regarding the relationship between cash conversion cycle and profitability, the economic added value of R-Square and corrected R-Square values is 43.6%, which is the highest expression power of model, followed by a net profit margin of 18.4% and return on assets of 17.6%. Again, looking at the Durbin-Watson values, it is understood that there is no autocorrelation problem with the model.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	,103 ^a	,011	,008	,23452	1,843	a. Predictors: (Constant), LEV, CCC, T1 b. Dependent Variable: GPM
2	,246 ^a	,061	,058	,14271	1,962	a. Predictors: (Constant), LEV, CCC, T1 b. Dependent Variable: OPM
3	,429 ^a	,184	,182	,17361	1,868	a. Predictors: (Constant), LEV, CCC, T1 b. Dependent Variable: NPM
4	,063 ^a	,004	,001	,57148	2,029	a. Predictors: (Constant), LEV, CCC, T1 b. Dependent Variable: ROI
5	,419 ^a	,176	,174	,13365	1,903	a. Predictors: (Constant), LEV, CCC, T1 b. Dependent Variable: ROA
6	,041 ^a	,002	-,001	,47384	1,991	a. Predictors: (Constant), LEV, CCC, T1 b. Dependent Variable: RONA
7	,053 ^a	,003	,000	,56307	1,952	a. Predictors: (Constant), LEV, CCC, T1 b. Dependent Variable: ROE
8	,279 ^a	,078	,075	,07142	1,991	a. Predictors: (Constant), LEV, CCC, T1 b. Dependent Variable: ROIC
9	,660 ^a	,436	,434	,52126	1,573	a. Predictors: (Constant), LEV, CCC, T1 b. Dependent Variable: EVA

Table 5: Model Summary Cash Conversion Cycle - Profitability ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	,710	3	,237	4,306	,005 ^b	a. Dependent Variable: GPM b. Predictors: (Constant), LEV, CCC, T1
	Residual	65,780	1196	,055			
	Total	66,490	1199				
2	Regression	1,574	3	,525	25,753	,000 ^b	a. Dependent Variable: OPM b. Predictors: (Constant), LEV, CCC, T1
	Residual	24,359	1196	,020			
	Total	25,933	1199				
3	Regression	8,124	3	2,708	89,840	,000 ^b	a. Dependent Variable: NPM b. Predictors: (Constant), LEV, CCC, T1
	Residual	36,050	1196	,030			
	Total	44,173	1199				
4	Regression	1,562	3	,521	1,594	,189 ^b	a. Dependent Variable: ROI b. Predictors: (Constant), LEV, CCC, T1
	Residual	390,594	1196	,327			
	Total	392,156	1199				
5	Regression	4,554	3	1,518	84,981	,000 ^b	a. Dependent Variable: ROA b. Predictors: (Constant), LEV, CCC, T1
	Residual	21,363	1196	,018			
	Total	25,917	1199				

6	Regression	,461	3	,154	,684	,562 ^b	a. Dependent Variable: RONA b. Predictors: (Constant), LEV, CCC, T1
	Residual	268,533	1196	,225			
	Total	268,994	1199				
7	Regression	1,066	3	,355	1,121	,340 ^b	a. Dependent Variable: ROE b. Predictors: (Constant), LEV, CCC, T1
	Residual	379,185	1196	,317			
	Total	380,251	1199				
8	Regression	,514	3	,171	33,606	,000 ^b	a. Dependent Variable: ROIC b. Predictors: (Constant), LEV, CCC, T1
	Residual	6,101	1196	,005			
	Total	6,616	1199				
9	Regression	251,094	3	83,698	308,034	,000 ^b	a. Dependent Variable: EVA b. Predictors: (Constant), LEV, CCC, T1
	Residual	324,973	1196	,272			
	Total	576,067	1199				

Table 6: ANOVA Cash Conversion Cycle - Profitability

Examining Table 6 the results of F-test, the findings regarding profit margins, the return on assets, and the economic value added, where P value is less than 0.05, indicate that the constructed model is statistically significant with the exception of return on investments, return on equity and return on net assets. The ANOVA test suggests that explanatory variables contribute to the association with the dependent variable. Looking at Table 7, it is seen that there is a significant contribution to only gross profit margin except for cash conversion cycle and control variables. Hence, it is necessary to state that H2 is rejected together with its sub-hypotheses.

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	-.076	,107		-.714	,476		a. Dependent Variable: GPM
	CCC	,061	,017	,106	3,508	,000	,901	
	T1	,020	,011	,055	1,810	,071	,887	
	LEV	,003	,012	,008	,262	,793	,973	
							1,028	
2	(Constant)	-.261	,065		-4,009	,000		a. Dependent Variable: OPM
	CCC	,019	,011	,054	1,832	,067	,901	
	T1	,036	,007	,162	5,429	,000	,887	
	LEV	-.043	,007	-.169	-5,950	,000	,973	
							1,028	
3	(Constant)	-.309	,079		-3,894	,000		a. Dependent Variable: NPM
	CCC	,006	,013	,012	,439	,660	,901	
	T1	,046	,008	,159	5,718	,000	,887	
	LEV	-.126	,009	-.378	-14,280	,000	,973	
							1,028	
4	(Constant)	-.104	,261		-.398	,690		a. Dependent Variable: ROI
	CCC	,022	,042	,016	,515	,607	,901	
	T1	,020	,027	,023	,752	,452	,887	
	LEV	-.054	,029	-.055	-1,870	,062	,973	
							1,028	
5	(Constant)	-.249	,061		-4,075	,000		a. Dependent Variable: ROI
	CCC	,004	,010	,011	,387	,699	,901	
	T1	,038	,006	,169	6,066	,000	,887	

	LEV	-.092	,007	-.362	-13,603	,000	,973	1,028	Variable: ROA
	(Constant)	-.067	,216		-.310	,757			a.
6	CCC	-.015	,035	-.013	-.428	,668	,901	1,109	Depende nt
	T1	,015	,022	,021	,688	,492	,887	1,127	Variable:
	LEV	,027	,024	,033	1,121	,263	,973	1,028	RONA
	(Constant)	-.167	,257		-.651	,515			a.
7	CCC	,003	,042	,002	,073	,942	,901	1,109	Depende nt
	T1	,022	,026	,026	,857	,392	,887	1,127	Variable:
	LEV	,049	,029	,050	1,711	,087	,973	1,028	ROE
	(Constant)	-.167	,033		-5,110	,000			a.
8	CCC	,005	,005	,029	,987	,324	,901	1,109	Depende nt
	T1	,024	,003	,215	7,285	,000	,887	1,127	Variable:
	LEV	-.020	,004	-.158	-5,601	,000	,973	1,028	ROIC
	(Constant)	1,420	,238		5,969	,000			a.
9	CCC	-.020	,039	-.012	-.507	,613	,901	1,109	Depende nt
	T1	,694	,024	,659	28,559	,000	,887	1,127	Variable:
	LEV	,018	,026	,015	,691	,489	,973	1,028	EVA

Table 7: Coefficients Cash Conversion Cycle - Profitability

H3: In general, there is a relationship between working capital and profitability.

H3A: In general, there is a relationship between working capital and profit margins.

H3B: In general, there is a relationship between working capital and return rates.

H3C: In general, there is a relationship between working capital and economic added value.

Finally, the relationship between WRC and profitability, in which the working capital is expressed in a general way, has been tested. When Table 8 is examined, it is seen that R coefficient has the highest explanatory power with 43.6% for the economic value added, followed by return on assets with 25.1% and net profit margin with 24.9%. It is seen that there is no multicollinearity according to VIF values which are smaller than 10 and tolerance coefficients are all greater than 0.2.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	,086 ^a	,007	,005	,23491	1,839	a. Predictors: (Constant), LEV, T1, WCR b. Dependent Variable: GPM
2	,284 ^a	,081	,078	,14120	1,977	a. Predictors: (Constant), LEV, T1, WCR b. Dependent Variable: OPM
3	,499 ^a	,249	,247	,16656	1,886	a. Predictors: (Constant), LEV, T1, WCR b. Dependent Variable: NPM
4	,075 ^a	,006	,003	,57101	2,030	a. Predictors: (Constant), LEV, T1, WCR b. Dependent Variable: ROI
5	,501 ^a	,251	,249	,12743	1,930	a. Predictors: (Constant), LEV, T1, WCR b. Dependent Variable: ROA
6	,051 ^a	,003	,000	,47363	1,986	a. Predictors: (Constant), LEV, T1, WCR b. Dependent Variable: RONA
7	,081 ^a	,007	,004	,56201	1,950	a. Predictors: (Constant), LEV, T1, WCR b. Dependent Variable: ROE

8	,350 ^a	,122	,120	,06967	2,011	a. Predictors: (Constant), LEV, T1, WCR b. Dependent Variable: ROIC
9	,660 ^a	,436	,434	,52127	1,570	a. Predictors: (Constant), LEV, T1, WCR b. Dependent Variable: EVA

Table 8: Model Summary Working Capital Ratio - Profitability ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.		
1	Regression	,493	3	,164	2,977	,031 ^b	a. Dependent Variable: GPM b. Predictors: (Constant), LEV, T1, WCR
	Residual	65,997	1196	,055			
	Total	66,490	1199				
2	Regression	2,089	3	,696	34,923	,000 ^b	a. Dependent Variable: OPM b. Predictors: (Constant), LEV, T1, WCR
	Residual	23,844	1196	,020			
	Total	25,933	1199				
3	Regression	10,994	3	3,665	132,091	,000 ^b	a. Dependent Variable: NPM b. Predictors: (Constant), LEV, T1, WCR
	Residual	33,180	1196	,028			
	Total	44,173	1199				
4	Regression	2,201	3	,734	2,250	,081 ^b	a. Dependent Variable: ROI b. Predictors: (Constant), LEV, T1, WCR
	Residual	389,955	1196	,326			
	Total	392,156	1199				
5	Regression	6,497	3	2,166	133,376	,000 ^b	a. Dependent Variable: ROA b. Predictors: (Constant), LEV, T1, WCR
	Residual	19,420	1196	,016			
	Total	25,917	1199				
6	Regression	,695	3	,232	1,033	,377 ^b	a. Dependent Variable: RONA b. Predictors: (Constant), LEV, T1, WCR
	Residual	268,299	1196	,224			
	Total	268,994	1199				
7	Regression	2,483	3	,828	2,620	,049 ^b	a. Dependent Variable: ROE b. Predictors: (Constant), LEV, T1, WCR
	Residual	377,768	1196	,316			
	Total	380,251	1199				
8	Regression	,810	3	,270	55,609	,000 ^b	a. Dependent Variable: ROIC b. Predictors: (Constant), LEV, T1, WCR
	Residual	5,806	1196	,005			
	Total	6,616	1199				
9	Regression	251,081	3	83,694	308,007	,000 ^b	a. Dependent Variable: EVA b. Predictors: (Constant), LEV, T1, WCR
	Residual	324,985	1196	,272			
	Total	576,067	1199				

Table 9: ANOVA Working Capital Ratio - Profitability

Table 9 shows ANOVA test results. When the findings of this test are examined, it is seen that the model is significant for all other values except ROI and RONA.

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics			
	B	Std. Error	Beta			Tolerance	VIF		
1	(Constant)	,146	,087		1,672	,095			a. Dependent Variable: GPM
	WCR	,050	,017	,110	2,885	,004	,573	1,746	
	T1	,004	,010	,011	,373	,709	,965	1,036	
	LEV	,027	,015	,067	1,781	,075	,583	1,716	
	(Constant)	-,186	,053		-3,536	,000			a. Dependent Variable: OPM
	WCR	,056	,010	,198	5,410	,000	,573	1,746	
	T1	,028	,006	,125	4,414	,000	,965	1,036	
	LEV	-,012	,009	-,049	-1,344	,179	,583	1,716	
	(Constant)	-,275	,062		-4,429	,000			a. Dependent Variable: NPM
	WCR	,124	,012	,337	10,181	,000	,573	1,746	
	T1	,035	,007	,121	4,733	,000	,965	1,036	
	LEV	-,055	,011	-,166	-5,063	,000	,583	1,716	
	(Constant)	-,019	,213		-,091	,928			a. Dependent Variable: ROI
	WCR	,062	,042	,057	1,492	,136	,573	1,746	
	T1	,011	,026	,012	,423	,672	,965	1,036	
	LEV	-,020	,037	-,020	-,536	,592	,583	1,716	
	(Constant)	-,224	,047		-4,713	,000			a. Dependent Variable: ROA
	WCR	,102	,009	,362	10,947	,000	,573	1,746	
	T1	,029	,006	,129	5,069	,000	,965	1,036	
	LEV	-,034	,008	-,134	-4,093	,000	,583	1,716	
	(Constant)	-,116	,176		-,660	,509			a. Dependent Variable: RONA
	WCR	,038	,035	,042	1,108	,268	,573	1,746	
	T1	,015	,021	,021	,711	,477	,965	1,036	
	LEV	,050	,031	,061	1,606	,108	,583	1,716	
	(Constant)	-,166	,209		-,793	,428			a. Dependent Variable: ROE
	WCR	-,087	,041	-,081	-2,119	,034	,573	1,746	
	T1	,029	,025	,034	1,149	,251	,965	1,036	
	LEV	-,001	,037	-,001	-,029	,976	,583	1,716	
	(Constant)	-,144	,026		-5,532	,000			a. Dependent Variable: ROIC
	WCR	,040	,005	,282	7,868	,000	,573	1,746	
	T1	,020	,003	,177	6,430	,000	,965	1,036	
	LEV	,002	,005	,018	,497	,619	,583	1,716	
	(Constant)	1,349	,194		6,947	,000			a. Dependent Variable: EVA
	WCR	-,018	,038	-,013	-,459	,646	,573	1,746	
	T1	,699	,023	,663	30,006	,000	,965	1,036	
	LEV	,010	,034	,008	,280	,779	,583	1,716	

Table 10: Coefficients Working Capital Ratio - Profitability

When the coefficient values on Table 10 are examined, it will be seen that there is a positive and significant relationship between profit margins and working capital ratio. On the contrary, it is understood that there is no significant relationship with economic added value. When the return ratios are examined, it can be seen that there is a positive and significant relation between the working capital ratio and return on assets, return on equity, and return on invested capital. Therefore, the hypothesis for H3, which has a partial meaning, is rejected.

4. CONCLUSIONS AND RECOMMENDATIONS

A significant decline is observed in the transition from gross profit to operating profit of firms operating in manufacturing industry, so it is possible to conclude that the operating costs of the firms are considerably large when this decline is taken into consideration. On the other hand, the firms have an ROA that is calculated over the total capital (total assets) and the RONA calculated on the basis of the fixed capital (net assets) approximately doubles so these values indicate that almost half of the total resources of firms are short term liabilities. When RONA and ROE values are examined, we

cannot say that there is no serious change and therefore the level of firms' long term liabilities within total resources is very low.

When the liquidity ratios are examined, it is shown that the current assets exceed the current resources for rates are greater than zero, and the current asset is financed by the fixed capital at maximum level. But, current assets are 5 times larger than net working capital, and therefore it must be added that the current resource usage of the firms is very close to the current assets'.

In our study where performance ratios are correlated with working capital, all indicators are used in general and partial significance is observed. However, the H0 hypothesis is accepted that there is no relationship between the working capital and profitability, which is the research problem and the existence of an absolute relationship has been rejected. It is therefore clear that the working capital and profitability, which are very basic and general concepts, will point to more meaningful outcomes in more specific dimensions.

REFERENCES

- Akgüç, Ö. (1998). *Finansal Yönetim, Yenilenmiş 7. Baskı*. İstanbul: Muhasebe Enstitüsü Yayın No:65, Avcıol Basım Yayın.
- Deloof, M. (2003). Does working capital management affect profitability of Belgian firms? *Journal of Business, Finance and Accounting*.
- Filbeck, G., & Krueger, T. M. (2005). An analysis of working capital management results across industries. *American Journal of Business*, 20(2), 11-20.
- García-Teruel, P. J., & Martínez-Solano, P. (2007). Effects of working capital management on SME profitability. *International Journal of Managerial Finance*.
- Gill, A., Biger, N., & Mathur, N. (2010). The Relationship Between Working Capital Management And Profitability: Evidence From The United States. *Business and Economics Journal*.
- Khan, S., Shah, A. M., & Hijazi, S. T. (2006). Impact of working capital management on the profitability of firms: Case of listed Pakistani companies. *Journal of Social Sciences*.
- Lazaridis, I., & Tryfonidis, D. (2006). Relationship Between Working Capital Management And Profitability Of Listed Companies In The Athens Stock Exchange. *Journal of Financial Management & Analysis*.
- Mansoori, E., & Muhammad, J. (2012). The Effect Of Working Capital Management On Firm's Profitability: Evidence From Singapore. *Interdisciplinary Journal Of Contemporary Research in Business*.
- Mathuva, D. (2009). The influence of working capital management components on corporate profitability: a survey on Kenyan listed firms. *Research Journal of Business Management*, 3(1), 1-11.
- McMenamin, J. (2005). *Financial Management: An Introduction-Tutor's Guide*. New York and London: Taylor & Francis e-Library.
- Meyer, C. A. (2007). *Working Capital und Unternehmenswert*. Gabler Edition Wissenschaft, Dissertation Universität Göttingen.
- Padachi, K. (2006). Trends in working capital management and its impact on firms' performance: An analysis of Mauritian small manufacturing firms. *International Review of Business Research Papers*.
- Pamukçu, A. B. (1999). *Finans Yönetimi*. İstanbul: Der Yayınları.
- Pinches, G. E. (1996, Temmuz 26). *Essentials of Financial Management*. Harper Collins College Publishers, University of Kansas. <http://www.unece.org>. adresinden alındı
- Quayyum, S. T. (2011). Effects of Working Capital Management and Liquidity: Evidence from the Cement Industry of Bangladesh. *Journal of Business and Technology*.
- Raheman, A., & Nasr, M. (2007). Working capital management and profitability—case of Pakistani firms. *International review of business research papers*, 279-300.
- Sayılgan, G. (2008). *Soru ve Yanıtlarıyla İşletme Finansmanı*. Ankara: Turhan Kitabevi.
- Shah, S., & Sana, A. (2006). Impact of Working Capital Management on the Profitability of Oil and Gas Sector of Pakistan. *European Journal of Scientific Research*.

Shin, H.-H., & Soenen, L. (1998). Efficiency of Working Capital Management and Corporate Profitability. *Financial Practice & Education*.

Soenen, & Soleno. (1993). Cash Conversion Cycle and Corporate Profitability. *Journal Of Cash Management*.

Uyar, A. (2009). The relationship of cash conversion cycle with firm size and profitability: An empirical investigation in Turkey. *International Research Journal of Finance and Economics*.