Impact of Working Capital Management Policy and Financial Leverage on Financial Performance: Empirical evidence from Amman Stock Exchange – listed companies

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Abstract
This paper aims to determine the impact of working capital management policy and financial leverage on financial performance of Jordanian companies measured in terms of net income, return on equity (ROE) and return on asset (ROA). Pearson's rank correlation test, ANOVA F- test, and multiple regression analysis were used on 45 companies included in the industrial sector in Jordan ranked in terms of gross revenues. Results of the study indicated that firm's working capital management policy, financial leverage, and firm size have significant relation to net income. However working capital management policy has no significant impact on return on equity (ROE) and return on assets (ROA).

Keywords: Working capital management, financial leverage, financial performance, Amman Stock Exchange, Return on Asset, Return on Equity.

1. INTRODUCTION

Working capital management is a very important component of corporate finance because it directly affects the liquidity and profitability of the company. It deals with current assets and current liabilities. Working capital management is important due to many reasons. For one thing, the current assets of a typical manufacturing firm accounts for over half of its total assets. For a distribution company, they account for even more. Excessive levels of current assets can easily result in a firm's realizing a substandard return on investment. However firms with too few current assets may incur shortages and difficulties in maintaining smooth operations (Horne and Wachowicz, 2000). Efficient working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short term obligations on the one hand and avoid excessive investment in these assets on the other hand (Eljelly, 2004). Many surveys have indicated that managers spend considerable time on day-to-day problems that involve working capital decisions. One reason for this is that current assets are short-lived investments that are continually being converted into other asset types (Rao, 1989). With regard to current liabilities, the firm is responsible for paying these obligations on a timely basis. Liquidity for the on going firm is not reliant on the liquidation value of its assets, but rather on the operating cash flows generated by those assets (Soenen, 1993). Taken together, decisions on the level of different working capital components become frequent, repetitive, and time consuming. Working capital management is a very sensitive area in the field of financial management. It involves the decision of the amount and composition of current assets and the financing of these assets. Current assets include all those assets that in the normal course of business return to the form of cash within a short period of time, ordinary within a year and such temporary investment as may be readily converted into cash upon need. The working capital management of a firm in part affects its profitability.

Corollary to working capital management is the financial leverage management. According to Brigham and Gapenski (1997) "The extent to which a firm uses debt financing, or financial leverage, has three important implications: (1) By raising funds through debt, stockholders can control a firm with a limited investment. (2) Creditors look to the equity or owner-supplied funds, to provide a margin of safety, so if the stockholders have provided only a small proportion of the total financing, the risks of the enterprise are borne mainly by its creditors. (3) If the firm earns more on investments financed with borrowed funds than it pays in interest, the rate of return on owners' capital is magnified, or leveraged."

Ideally, firms' fund requirements should be internally generated. The result of business operation should provide the resources it needs to continue in business. However, opportunities for growth require more resources than what a firm can currently provide. In most instances, firms resort to financial leverage. Undeniably, the extent firms make use of financial leverage is another aspect that may improve financial performance.

In this light, this research was undertaken to determine the impact of working capital management policy, and financial leverage on financial performance of Jordanian firms.

1.1. PROBLEM STATEMENT

The problem statement to be analyzed in this study is:

"Does Working Capital Management Affect Profitability of Jordanian Firms?"

To analyze this problem statement, I have developed objectives of my research, which will hopefully contribute towards a very important aspect of financial management known as working capital management. It is almost untouched in Jordan or very little research has been done in this area.

1.2. OBJECTIVES OF THE STUDY

This research is focusing on working capital management and its effects on profitability for a sample of Jordanian firms. The main objectives are:

- To find out the relationship between profitability and size of the Jordanian firms.
- To find out the relationship between debt used by the Jordanian firm and its profitability
- To draw conclusion about relationship of working capital management and profitability of the Jordanian firms.

2. LITERATURE REVIEW

Many researchers have studied working capital from different views and in different environments. The following ones were very interested and useful for this research:

Binti Mohammad and Binti Mohd Saad (2010) found that current ratio is negatively significant to financial performance of 172 listed Malaysian firms. Their study emphasized the importance of proper management of working capital as it affects firm's market value and profitability. They also suggested that working capital management should be part of the company's strategic and operational processes in order to be effective.

Afza, T. and MS Nasir (2007) found no significant relationship between working capital management policy and financial performance among the 208 public limited companies listed in the Karachi Stock Exchange. They measured aggressive working capital investment policy in terms of low level of investment in current assets as percentage of total assets. On the other side of the spectrum are companies with high investments in current assets vis-à-vis total assets, which they classified as advocating conservative working capital management policy.

Similarly, Wajahat Ali and Syed Hammad Ul Hassan (2010) study of 37 listed companies in the OMX Stockholm Stock Exchange showed no significant relationship between profitability and working capital management policy when grouped as aggressive, defensive or conservative based on cash conversion cycle. The ratio of current asset to total assets of the observations in this study was another proxy variable for working capital management, but the data failed the tests of normality. Because of this limitation, dummy variables were used instead to capture the effect of working capital management policy on profitability.

There were also studies prepared to determine effect of financial leverage on profitability. Aquino, R. (2010) studied the capital structure of listed an unlisted Philippine firms. Results indicated that higher debt is associated with high growth rates and profitability in unlisted firms. His study showed that high debt ratio is positively associated with the firm's growth rate and profitability.

Joshua Abor's (2005) research paper revealed significant relationship between financial leverage and profitability. His study demonstrated that the use of short-term debt improved the companies'

profitability. Results of the study showed a significantly positive relation between the ratio of short-term debt to total assets and return on equity (ROE), as well as a significantly positive association between the ratio of total debt to total assets and ROE.

Past studies have also shown that firm size is one of the factors to be considered when interpreting financial ratios. Wajahat Ali and Syed Hammad Ul Hassan (2010) study revealed that the size of the firm has inverse relationship with profitability. On the other hand Amarjit, G., et.al (2010) found no significant relationship between firm size and gross operating profit ratio. The study of Falope and Ajilore (2009) also found no significant variations in the effects of working capital management between large and small firms in Nigeria using a sample of 50 quoted companies. With these conflicting results on firm size and profitability, this study examined the effect of firm size on profitability of Jordanian corporations.

All the above studies provide me a solid base and give me idea regarding working capital management. They also give me the results and conclusions of those researches already conducted on the same area for different countries and environment from different aspects. On basis of these researches done in different countries, I have developed my own methodology for research.

The measure of financial performance used in the aforementioned studies varied. Garcia-Teruel and Marinez-Solano (2007), Falope and Ajilore (2009) used return on assets (ROA). Binti Mohamad and Binti Mohd Saad (2010) and Afza, T. and MS Nasir (2007) used (ROA). Wajahat Ali and Syed Hammad Ul Hassan (2010) and Amarjit, G., et.al (2010) used gross profit divided by total assets less financial assets. Aquino (2010) used the ratio of net income after taxes to stockholders' equity (ROE).

In This study financial performance was measured using the following variables: net income, ROA, and ROE. Debt ratio was used as proxy variable of financial leverage. Different data transformation techniques were performed on all variables that are not normally distribute

Below is the theoretical framework of the study.

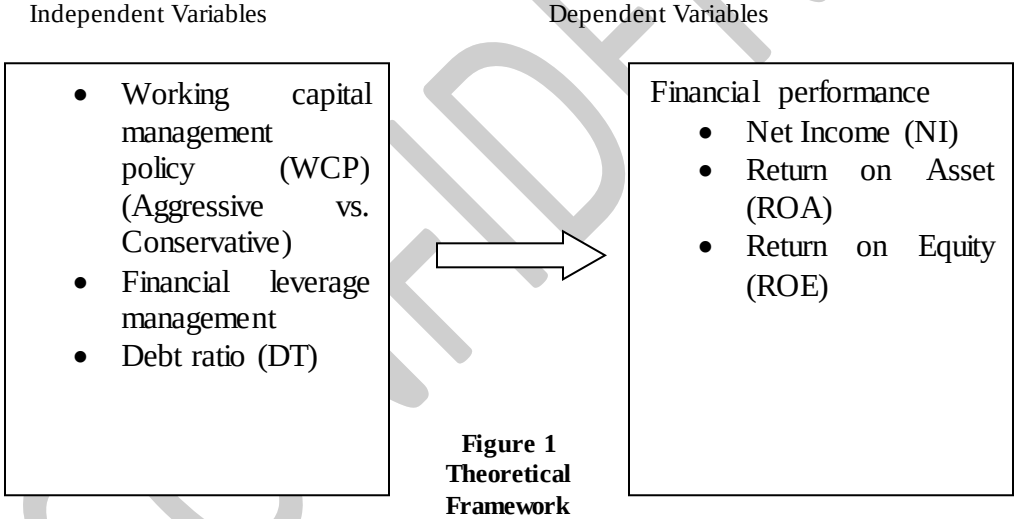

Figure 1 Theoretical Framework

3. METHODOLGY

The purpose of this research is to contribute towards a very important aspect of financial management known as working capital management with reference to Jordan. Here we will see the relationship between working capital management practices and its affects on profitability of 45 Jordanian firms listed on Amman Stock Exchange for a period of five years from 2005 – 2009. This section of the study discusses the firms and variables included in the study, the distribution patterns of data and applied statistical techniques in investigating the relationship between working capital and profitability.

3.1 Data Set

The data used in this study was acquired from Amman Stock Exchange (ASE), internet and web sites of different firms. Data of firms listed on the ASE for the most recent five years formed the basis of the calculations. The period covered by the study extends to five years starting from 2005 to 2009. The reason for restricting to this period was that the latest data for investigation was available for this period.

3.2 Sample of the Study

The sample used in this study is based on the financial statements of 45 Jordanian firms, listed on ASE including firms from industrial sector of Jordan economy. Because of the specific nature of their activities, firms in financial sector, banking and finance, and insurance are excluded from the sample.

3.3 Variables

This study undertakes the issue of identifying key variables that influence working capital management of Jordanian firms the variables is influenced by the previous studies on working capital management.

All the variables stated below have been used to test the hypotheses of the study. They include dependent and independent variables.
Net Income (NI), Return on Assets (ROA), and Return on Equity which are the measure of profitability are used as dependant variables, while working capital management policy and Debt ratio which is a proxy variable of financial leverage are used as independent variables.

3.4 Hypotheses Testing

Since the objective of this study is to exam the relationship between profitability and working capital management, the following hypotheses were set in order to achieve the study objectives:

- Null Hypothesis 1: There is no significant relationship between working capital management policy and the firms' financial performance.
- Null Hypothesis 2: There is no significant relationship between financial leverage and firms' financial performance.
- Null Hypothesis 3: There is no significant relationship between firm size and firms' financial performance and profitability.

3.5 Model Specifications:

The SPSS statistics was used to determine significant relation among the variables. Test of correlation, ANOVA, and multiple regression analysis were performed. Three regression models were estimated to test these hypotheses.

(1) $NI\ (1n) = \beta 0 + \beta 1DR + \beta 2WCP + \beta 3SIZE + \varepsilon$
(2) $ROE\ (1n) = \beta 0 + \beta 1DR + \beta 2WCP + \beta 3SIZE + \varepsilon$
(3) $ROA(In) = \beta 0 + \beta 1DR + \beta 2WCP + \beta 3SIZE + \varepsilon$

Where:

NI (IN) = natural logarithm of net income; ROE (IN) = natural logarithm of return on equity;
ROA (In) natural logarithm of return on asset; DR = debt ratio
WCP = working capital management policy; SIZE = firm size

4. FINDINGS/DISCUSSION

Table 1 presents descriptive statistics for 45 Jordanian industrial firms for a period of five years from 2005 to 2009 and for a total 225 firms year observations. Net income and ROA are positively skewed while ROE is negatively skewed. All three variables have peaked distribution. After data transformation using natural logarithm, the log-transformed data appeared normal when examined visually using histogram and normal Q-Q plots. Furthermore, the kolmogorov-Smirnov test of normality for samples affirmed normality of distribution at $p>0.05$.

Table 1: Descriptive statistics for dependent variables

	N	Mean	Median	SD	Min	Max	K-S	S-W

NI	45	472.04	76.50	1140.672	1	7504	.340
.448							
					(p=.		000)
(p=. 000)							
ROE	45	.4731	12.3663	242.58712	-2385.35	652.33	.338
.307							
ROA	45	9.3074	5.0188	11.34252	.13	61.24	.209
.701							
					(p=.000)		
(p=.000)							
NI (In)	45	4.3770	4.3356	1.95538	.00	8.92	.053
.989							
					(p=.200)*		
(p=.491)							
ROE (In)	45	2.6644	2.6345	1.09311	-.62	6.48	.060
.979							
					(p=.200)*		
(p=.091)							
ROA (In)	45	1.5829	1.6132	1.27249	-2.07	4.11	.077
.973							
					(p=.122)		
(p=.025)							

***. This is a lower bound of the true significance**

Tests of correlation using the scatter graph and Pearson's rank correlation test were performed to determine linearity of relationship among the dependent and independent variables. Table 2 presents the correlation matrix of the variables. Tests on debt ratio indicated moderate negative linear relationship to net income and ROA but a weak positive linear relationship with ROE. Working capital management policy test result indicated a moderate positive linear relationship to net income. There is a weak positive linear relationship between working capital management policy and ROA. However, it appears that there is no linear relationship between working capital management policy and ROE. Firm size showed a moderate positive linear relationship with net income but only a week positive linear relationship with ROE and ROA.

Table 2: Pearson's rank correlation coefficients between independent and dependent variables

	NI (In)	ROE (In)	ROA (In)	DR	WCP	SIZE
NI (In)	1					
ROE (In)	.473**	1				
ROA (In)	.758**	.708**	1			
DR	-.364**	.217	-.344**	1		
WCP	.425**	.002	.200*	-.313**	1	
SIZE	.531**	.271**	.279**	.014	0.127	1

****correlation is significant at the 0.01 level (2-tailed).**

***correlation is significant at the 0.05 level (2-tailed).**

Shown on table 3 is the summary of the multiple regression analysis. All VIF statistics results were less than 10 suggesting the absence of multi-co linearity among the independent variables. The Durbin-Watson test statistics yielded values not less than 1 or greater than 3 indicating that residuals are not auto-correlated. The computed r2 was highest in the model for estimating net income.

Table 3: Multiple regression analysis

Model	Durbin-Watson	R2	β0	β1DR	β2WCP	β3SIZE
(1) NI(In)	*1.944*	*.485*	*4.075*	*-.020*	*1.057*	*1.947*
(F=33.243,			*(t=9.844,*	*(t=3.887,*	*(t=3.664,*	*(t=7.104,*
P=.000)			*P= .000)*	*P= .000*	*P= .000*	*P= .000*
			VIF=1.113)		*VIF=1.131)*	*VIF= 1.020)*
(2) ROE (In)	*2.127*	*.124*	*1.747*	*.010*	*.114*	*.583*
(F= 4.780			*(t= 5.465,*	*(t= 2.409,*	*(t= .527*	*(t= 2.861*
P= .004)			*P= .000)*	*P= .018*	*P= .600*	*P= .005*
			VIF= 1.124)		*VIF= 1.136)*	*VIF= 1.012)*
(2) ROA(In)	*2.096*	*.203*	*2.054*	*-.015*	*.156*	*.700*
(F= 8.986			*t= 6.130,*	*t=3.597*	*t= .668*	*t= 3.154*
P= .000)			*P= .000)*	*P=.000*	*P= .505*	*P= .002*
			VIF= 1.113)		*VIF= 1.131)*	*VIF= 1.020)*

5. Conclusion/Limitation

Results of the study indicated that the firm's working capital management policy, financial leverage and size have significant relationship to the net income, ROE, and ROA. The ANOVA *F* test and the *t*-test statistics showed significant results ($P<.05$).

However, based on computed r2, the net income model showed the best model fit compared to the results of the ROE and ROA regression models. Both working capital management policy and firm size have positive effect on the firms' net income while financial leverage showed negative relation.

Aggressive working capital management policy reflected in low investments in current asset influences net income positively. This is consistent with the theory that "a restricted lean-and-mean current asset investment policy generally provides the highest expected return" (Brigham E. and Gapenski, L.,

1997). Likewise, this is consistent with Eljely's (2004) study that pointed out that excessive liquidity results to reduction in profitability due to lost profits and unnecessary costs. However, this finding is not consistent with studies of Afza, T. and MS Nasir (2007) and Wajahat Ali and Syed Hammad Ul Hassan (2010), which found no significant relationship between working capital management policy and profitability.

On the other hand, financial leverage has a negative effect on net income inasmuch as the cost of borrowing money decreases net income. But the effect on return on equity is positive, supporting the theory according to Brigham, E and Gapenski, L. (1997) that "if the firm earns more on investments financed with borrowed funds than it pays in interest, the rate of return on owners' capital is magnified, or leveraged." However, this finding is not consistent with the study of Joshua Abor (2005), which found significantly positive relation between the ratio of short-term debt to total assets and return on equity (ROE), as well as a significantly positive association between the ratio of total debt to total assets and ROE.

Result of the study also showed that firm size has a significant positive relationship with financial performance. This is not consistent with the study of Wajhat Ali and Syed Hammad Ul Hassan (2010), which found inverse relationship and the study of Amarjit, G., et. Al (2010), which found no significant relationship. In this study, large firms are identified with high gross revenues, which under normal circumstances would translate to higher profit.

The importance of working capital management and financial leverage on the firms' financial performance is emphasized in this study to bring attention of business leaders to the obvious but is often neglected. There is much to be done about working capital in Jordan in future. I suggest that further research be conducted on the same topic with different companies and extending the years of the sample.

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