



Factor Affecting Working Capital Management for Banking Sector in Pakistan: An Empirical Approach Through Regression Analysis

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Abstract

The purpose of this study was to examine the association of factor affecting working-capital-management of 27 Pakistani banks. All these banks are listed in Pakistan stock exchange (PSX) for the time period of 2006-2017. The nature of study is time series and analysis are based on secondary data. Secondary data has been accessed from the annual reports of all listed banks of Pakistan. This study applied the statistical tools of Ordinary Least Square method to analyze the impact of factors such as profitability, firm size, leverage, assets tangibility and sales growth on working-capital-management. The results indicated that profitability, size and assets tangibility have the significant relationship with working-capital-management. There is strong and positive correlation between dependent and independent variables. It shows that banking sector in Pakistan is managing their working capital more efficiently and effectively.

Key words: Working-capital-management, Return on assets, Profitability, Ordinary Least Square, Banking Sector
JEL Codes: E22, R15

1. Introduction

Financial sector is a basic economic pillar of Pakistani economy. It plays a significant role in sound and steady economic development of a country. Financial sector speaks to a well created combination of organizations included banks and different financial companies such as insurance companies, leasing companies, modaraba companies, mutual funds, housing finance and exchange companies. As per statement of Khanna & Palepu (1997) exposure and transparency of information is most critical for all partners working in financial sector. Banks are dominant segment of financial sector of Pakistan. Banking sector is a well-developed form of modern services sector in Pakistan. Its positively add in the trade and commerce of an economy. It is a sector which develops the concept of efficiency and effectiveness. Their success is dependent on continues improvement and innovation in strategic management (Bhatti and Hussain, 2010). When Pakistan liberated in 1947, there were just 5 business banks in Pakistan after mergers and acquisitions. There is urge of development for banks because of the absence of capital, financial and political precariousness. State bank of Pakistan (SBP) in collaboration with security and exchange commission of Pakistan (SECP) worked for the advancement of overall financial system of Pakistan (Alam et al., 2011). Important changes in the structure of banking sector of Pakistan occurred in the year of 1997 when Pakistani banks aligned their banking operations with the best practices of international standard. For that purpose international banks such as World bank and other international financial institutions provided the technical and financial support to Pakistani banks (Javaid et al., 2011).

After the development of state bank of Pakistan (SBP) act 1956 which clarify the duties and functioning of state bank of Pakistan also encouraged the private sector to actively participate in the development of banking sector. In 1992, when Government of Pakistan started the privatization, it also attracted the private sector as well as foreign sector for investment. This privatization process also creates the competitive environment in banking industry that leads them towards the efficiency creation in their services (Ahmad et al., 2010). Banking sector is a rewarding and productive segment of any economy. A gainful and sound business banking division is at a superior point to persevere through unfavorable bombshells and includes execution in financial sector (Athanasoglou et al., 2008).

2. Literature review

This section explored the outline of past investigations related to factors which may affect the working capital in the banking sector of Pakistan. This is very strong relationship financial sector and real sector (Ali and Naem, 2017; Ali, 2011; Ali, 2015; Ali, 2018; Ali and Bibi, 2017; Ali and Ahmad, 2014; Ali and Audi, 2016; Ali and Audi, 2018; Ali and Rehman, 2015; Ali and Senturk, 2019; Ali and Zulfiqar, 2018; Ali et al., 2016; Ali et al., 2021; Ali et al., 2021). According to the literature, very few studies investigated the internal factors and few of them considered the external factors that affect the working-capital-management of banking sector in Pakistan. According to available measures in literature, the profitability of banking sector is not the only measure that affect the working-capital-management. In literature many studies measure the working capital by return on assets, cash conversion cycle and return on equity. The financial crisis and other attributes of inclination in banking system enhanced the experience of banks. Such inclination factors have additionally attracted the scholars' interests in banking from last few years.

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Beck et al., (2006) found that the probability of budgetary emergencies is lower in additional concentrated financial system, yet higher in less aggressive and nations with less created legitimate frameworks. It has also been observed that if the banking sector follows more rules and regulations in their routine activities it will lead them towards the higher profitability. Daniel and Jones (2007) utilized the data of banking sector from 35 nations of the world. They observed that regardless well-structured banking system, speed of routine tasks and low risk attitude, these nations still have to face the danger in case of overall decline in the world economy.

Gul et al., (2011) suggested in a study related to factors that can affect the profitability of banking sector in Pakistan. They utilized the information of top fifteen commercial banks of Pakistan ranging for the period 2005-2009. That study applied the pooled Ordinary Least Square (POLS) strategy to examine the effect of assets, equity, economic growth, deposits, inflation and market exploitation for significant productivity in the markets i-e., return on assets (ROA), return on equity (ROE) and net income management (NIM). Their observational outcomes have discovered a solid proof that both micro and macro components affect the profitability of banking firms.

Ali et al., (2011) conducted the study related to banking sector of Pakistan and observed the return on equity and return on assets as measurement of profitability for this sector. They also investigated the effects of micro and macro factors on the profitability of banking sector. The study used descriptive statistics and regression analysis and found that assets management and economic growth have a positive and significant association with the profitability.

Akhtar et al., (2011) conducted a research related to liquidity risk management in Pakistan based on both Islamic and conventional banks. This study was based on secondary data where the data has been accessed for the time period of 2006-2009. They examine the liquidity management and its association with size of banks, networking capital, return on assets and return on equity. The study concluded that size of banks have significant and positive association with liquidity at the rate of 10%.

Pilloff and Rhoades (2002) investigated in their study that size of the bank is main factor that affects the routine activities of the banks. They found a positive association of bank size with its profitability by applying the regression analysis. It was further investigated that structural performance model helps the managers to examine the problems among managers for appraising purpose. They also found that deposit growth of any bank provided the information related to competition among banks.

Molyneux and Thornton (1992) conducted a study to analyze the factors that affect the banking performance in United States for the time period of 1987-1991. Applying the expense preference expenditure theory, they found that larger banks earned more profit in comparison to small banks due to their size. This is because the larger banks can gain the economies of scale. Molyneux and Seth (1998) also investigated a positive association of bank size with banking efficiency and working-capital-management.

Sufian (2011) surveyed in Korea which is based on the macroeconomic factors that can affect the banking performance and concluded that in Korea those banks that hold the lower level of liquidity attain more profit. He also observed that in the crisis of 2008 the Korean banks earn more profit as compared to other world.

Dawood (2014) conducted a study which is based on 23 commercial banks of Pakistan form 2009-2012. The analysis was for both internal and external factors using the ordinary least square method. He concluded that liquidity can be used to check the profitability of any bank. He further concluded that size of the firm and deposits have not as much impact on profitability.

Kosmidou (2008) examined that declaration and boosts in profit is overall dependent on efficiently management of routine operations. He studied the Greek banks during the time frame of 1990-2002 by taking the time series data of 23 banks and found that size and sales growth is positively and significantly associated with working-capital-management while ROA have negative but significant association.

To know the factors that can affect the working-capital-management of banking sector is important because the growth of banks is directly associated with it. Also, the main objective of working-capital-management is to increase the efficiency and effectiveness of routine activities and to increase the overall performance of an organizations. So, it is essential to determine the factors that affect the working-capital-management and to observe that how these factors affect the routine activities of the banking sector in Pakistan.

Previous studies focused only on the working-capital-management with the profitability but this study explicitly targeted the working-capital-management of banking sector with other factors like bank size, leverage, assets

tangibility and sales growth that may affect the working-capital-management of banking sector of Pakistan. This research tests the following null hypotheses

H1 = There is a positive association between Profitability and Working-capital-management.

H2 = There is a negative association between Firm Size and Working-capital-management.

H3 = There is a negative association between Leverage and Working-capital-management.

H4 = There is a negative association between Assets Tangibility and Working-capital-management.

H5 = There is a negative association between Sales Growth and Working-capital-management.

3. Research methodology

The time series data has been accessed from the time period of 2006-2011 of 27 banks which includes 14 banks from private sector, 04 banks from public sector, 07 banks from investment sectors and 02 banks from foreign sector. All those banks which are included in the study are listed in Pakistan stock exchange. The data has been collected from the annual reports of all banks as well as from the State bank of Pakistan website. This study tried to investigate the relationship between the factors such as profitability, firm size, leverage, assets tangibility and sales growth with the working-capital-management for banking sector operating in Pakistan. To fulfill the objectives and to test the hypotheses, statistical tools of descriptive statistics, Pearson correlation and analysis of regression were used. All variables of the study have been put together in single regression equation as suggested by (Wasiuzzaman, 2018).

Regression Equation:

$$WCM_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 FIRM\ SIZE_{it} + \beta_3 LEVERAGE_{it} + \beta_4 TANGIBILITY_{it} + \beta_5 SALES\ GROWTH_{it} + \varepsilon$$

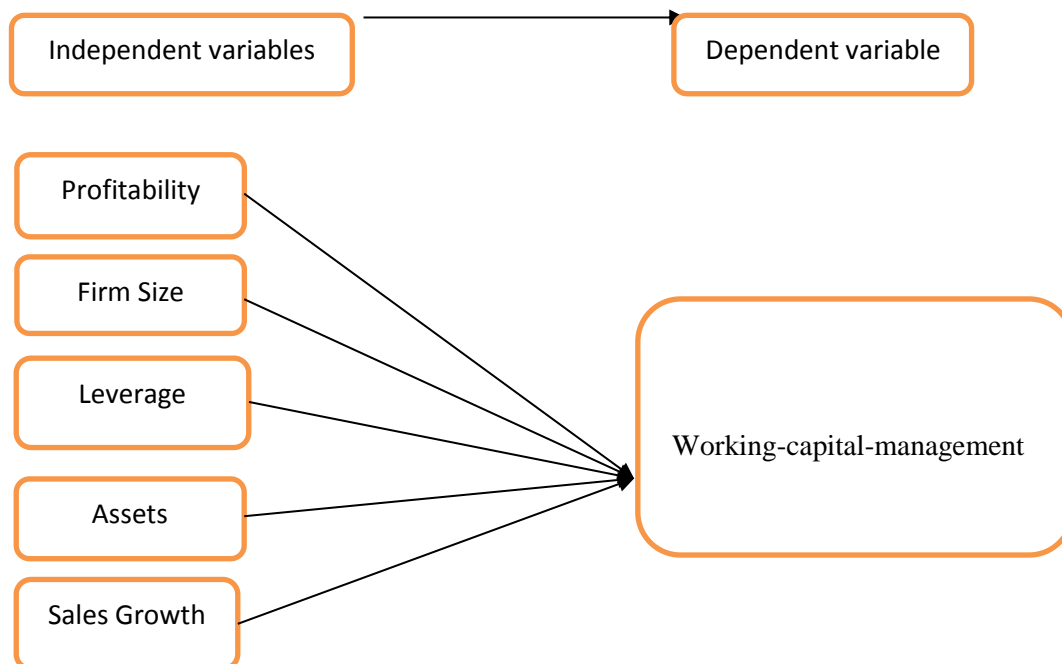
Where,

- WCM = working-capital-management
- β_0 = Intercept of the equation
- β_j (j = 1,2,...,5) coefficient of variables (independent variable)
- ROA= Profitability
- Firm Size = In of Total assets
- Leverage = Total annual debt of firm
- Tangibility = Total fixed assets
- Sales Growth = Total annual Revenue of firm
- it: Time = 6, 7... 17years
- ε = the error term

3.1. Hypothetical model

Working-capital-management may be affected by these factors

Figure 1. Research Model of the Study



4. Analysis

Table 1: Descriptive statistics

Variables	Mean	Std. Deviation	N
WCM	-6.89590	79.436340	324
ROA	-.00836	.129201	324
SIZE	17.81532	2.386864	324
LEVERAGE	.60531	.287637	324
TANGIBILITY	.03303	.050884	324
SALES GROWTH	1.05821	8.409994	324

In Table 1 above, N represent the total number of observations which have been taken in the study for observation. Here the sample size is i-e, N=324. Mean shows the average values and standard deviation shows the dispersion in the data. The average value of Profitability (ROA) is -0.008 while the standard deviation for it is 0.129. This is the minimum standard deviation which shows that there is no or very little dispersion in the values of ROA. The mean value of size is 17.815 and there is sufficient dispersion in the values of size as the standard deviation is high at 2.386. The mean value of leverage is 0.605, so there is no much dispersion in the firm values with respect to leverage as the standard deviation is only 0.287. The mean of tangibility is 0.033, so there is also no as much dispersion in the tangibility as the value of standard deviation is 0.050. Finally, the mean of sales growth is 1.058, which shows that there is dispersion in sales growth as the standard deviation is with the highest value of 8.409.

Table 2: Correlations

		WCM	ROA	SIZE	LEVERAGE	TANGIBILITY	S.G
Pearson Correlation	WCM	1.000					
	ROA	.031	1.000				
	SIZE	-.115	.308	1.000			
	LEVERAGE	-.031	.207	.834	1.000		
	TANGIBILITY	-.009	-.060	-.205	-.090	1.000	
	SALES GROWTH	-.716	-.385	-.060	-.073	.047	1.000

Table 2 above, shows the Pearson correlation matrix of all five variables. This analysis shows WCM has positive association with ROA with the value of (.031). While WCM has negative correlation with all other variables such as tangibility (-.009), size (-.115), leverage (-.031) and sales growth (-.716). For testing the hypothesis regression analysis is used to analyse the association between dependent variable of WCM and independent's variables of ROA, size, leverage, tangibility and sales growth.

Table 3 below explains the overall summary of the model. The value of regression R is .770 which shows that working capital has strong and positive correlation with independent variables. R square is 58.6% which shows that 58.6% of the total variation in WCM is due to ROA, leverage, tangibility, sales growth and size.

Table 3: Summary of the Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.770 ^a	.592	.586	51.108551

a. Predictors: (Constant), SALES GROWTH, TANGIBILITY, LEVERAGE, ROA, SIZE

Table 4 of ANOVA below indicated either model is significant or not. As a rule of thumb, If the P-value is less than .05 or .01 at 95% and 99% of confidence interval consecutively, it can be said that the model is significant. As per this analysis and from values in the table model can be said to be significant because P-value 0.000 which is less than 0.05 at the 95% of confidence interval as well as less than .01 at 99% of confidence interval.

Table 4: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	1207529.964	5	241505.993	92.457	.000
	Residual	830642.704	318	2612.084		
	Total	2038172.668	323			

a. Dependent Variable: WCM
b. Predictors: (Constant), SALES GROWTH, TANGIBILITY, LEVERAGE, ROA, SIZE

Table 5 below shows effect of each independent variable separately on dependent variable. The value of ROA in table 5 shows that one unit increase in ROA is the result of 152.769 times decrease in WCM. Similarly, one-unit change in size (6.274) of the firm decreases the WCM 6 times. On the other hand, if there is one unit increase in leverage, there will be 32.383 times increase in WCM. Tangibility (21.219) and sales growth (7.682) has also negative effect on WCM and are the cause of decrease of 21 and 07 percent respectively, if there is increase of one unit in tangibility and sales growth. Table 5 also shows that WCM has significant association with ROA (0.000), size (.007) and sales growth (0.000) and insignificant association with leverage (0.078) and tangibility (.714).

Overall the regression analysis shows that the proposed model is fit and valid for banking sector of Pakistan. VIF is used to check the validity of variables. The values of VIF lies within the range of 1.079 to 3.766 and tolerance is near to zero. It shows the absence of multicollinearity among variables as suggested by (Gujarati and Porter, 2003).

Table 5: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	92.827	33.219		2.794	.006		
ROA	-152.769	25.274	-.248	-6.045	.000**	.758	1.319
SIZE	-6.274	2.312	-.189	-2.714	.007**	.266	3.766
LEVERAGE	32.383	18.304	.117	1.769	.078	.292	3.428
TANGIBILITY	-21.219	57.860	-.014	-.367	.714	.933	1.072
SALES GROWTH	-7.682	.369	-.813	-20.821	.000**	.840	1.191

a. Dependent Variable: WCM
b. Coefficients is significant at *P< 0.05 ** P< 0.01

5. Status of Hypotheses

Results of hypotheses shows that all alternative hypotheses are accepted except leverage and tangibility

H1 is accepted and the results show a positive and significant relationship b/w Profitability and Working-capital-management.

H2 is accepted and the results show a negative and significant relationship b/w Firm Size and Working-capital-management.

H3 is rejected while the results show a negative relationship b/w Leverage and Working-capital-management.

H4 is rejected and the results show a negative relationship b/w Assets Tangibility and Working-capital-management.

H5 is accepted and the results show a negative and significant relationship b/w Sales Growth and Working-capital-management.

6. Conclusion

The basic objective of this study was to investigate the factor affecting working-capital-management for banking sector of Pakistan. These factors included profitability, firm size, leverage, assets tangibility and sales growth. The results of this study showed the significant relationship of working-capital-management with ROA, Size and sales growth with the coefficients values of .000**, .007** and .000** at the confidence interval of 95 and 99 percent. While the leverage and tangibility have insignificant relationship with WCM having coefficients values of 0.78 and .714 respectively. Table 5 shows the positive correlation only with ROA while negative correlation with Size, leverage, tangibility and sales growth. Model indicated that 0.77 value of R means a strong and positive association of dependent variable with independent variables while R square shows that 59.2% changes in dependent variable is due to these independent variables and the rest of variation i-e, 40.8% is due to unknown factors. From above it can be concluded that banking sector of Pakistan is performing their day to day activities more efficiently and effectively. This study has focused only those banks of Pakistan which are listed on Pakistan stock exchange (PSX). Other financial firms as well as non-financial firms can be investigated in future which are not listed in PSX. The study included only eleven years for analysis data because of the non-availability of data for other years. In future more, years can be included for investigation subject to the availability so that it can provide a more clear picture of this scenario.

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Appendix 1: List of Banks used in the study

List of Banks	Total no. of Banks included in this study 27				
Sr. no.	PRAIVATE SECTOR BANKS	Sr. no.	PUBLIC SECTOR BANKS	Sr. no.	FOREIGN BANKS
1	Albaraka bank (Pakistan) Ltd.	1	First women bank Ltd.	1	CITI bank N. A.
2	Allied bank Ltd.	2	National bank of Pakistan	2	Deutsche Bank
3	Askari bank Ltd.	3	The bank of khybar		
4	Dubai Islamic bank Pakistan Ltd.	4	The bank of punjab		
5	Bank al habib Ltd.	Sr. no.	INVESTMENT BANKS		
6	Bank alfalah Ltd.	1	Escorts Investment Bank		
7	Bank-islami Pakistan Ltd.	2	First Credit and Investment Bank		
8	Faysal bank limited	3	First Dawood Investment Bank		
9	Habib bank limited	4	IGI Investment Bank Ltd.		
10	Standard chartered bank (PAKISTAN) Limited	5	Invest Capital Investment Bank Ltd.		
11	Meezan bank limited	6	Security Investment Bank Ltd.		
12	Slik bank limited	7	Trust Investment Bank Ltd.		
13	Soneri bank limited				
14	United bank limited				

Appendix 2: Calculation of variables

Variables	Formulas	References
Working-capital-management-Sales	Current assets – Current liabilities / Sales	(Beaver 1968), Wasiuzzaman (2018)
Profitability	ROA= profit after taxes /Total assets	Padachi (2006) , Sharma and Kumar (2011), (Wasiuzzaman 2018)
Size	In (Total assets)	Wasiuzzaman (2018), Wasiuzzaman and Arumugam (2013)
Leverage	Long term debt /Total assets	Baños-Caballero, García-Teruel, and Martínez-Solano (2010), (Wasiuzzaman (2018)
Tangibility	Fixed assets / Total assets	(Banos-Caballero et al.2010; Wasiuzzaman and Arumugam (2013), Wasiuzzaman (2018)
Sales growth	Sales –Sales-1/Sales-1	Wasiuzzaman and Arumugam (2013), Wasiuzzaman (2018)