A COMPARATIVE STUDY ON LIQUIDITY MANAGEMENT, OPERATING PERFORMANCE AND FIRM VALUE

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Abstract

Managing liquidity is fundamental for expanding businesses. Without it, firms will face failure/bankruptcy. This study aims to scrutinize the association of liquidity management with operating performance and firm value by comparing different Pakistani non-financial sectors and to find this impact for the firms having high and low market value. The data is collected for 10 years i.e. 2004-2013. Panel data methodology is used. The results show that liquidity management negatively and significantly impacts both variables in the non-financial sectors. Furthermore, high and low market value firms differ significantly in terms of size, cash conversion cycle, performance and market value. Hence, firms need to manage liquidity by converting inventories and receivables into cash quickly, and making late payments to improve performance and firm value.

Keywords: Liquidity Management, Working Capital Management, Operating Performance, Profitability, Firm Value, Size.

JEL Classification: G300

Introduction

Liquidity management is the capacity of a firm to meet cash demands through ongoing cash flows. If a firm is not capable to maintain liquidity, it cannot earn profits as poor liquidity management means that firm have idle cash and that cash cannot be used in profit generating activities. Moreover, the firms face difficulties to operate their daily operations effectively (Panigrahi, 2013). Operating performance is an accounting measure which tells about firm's profitability. Firm value defines the firm's market position. Traditionally firm's main focus was on capital structure and long term capital budgeting but now they shifted their focus to efficient Working Capital Management (Wang, 2002). For liquidity management, current assets should possess short life span (idle cash need to be utilized

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in money generating projects) and quick transformation into other assets forms (Barad, 2010). It is crucial to have efficient WCM in order to accomplish goal of shareholder's value creation (Johnson & Soenen, 2003).

Profitability and liquidity are the main objectives of all organizations. By dropping the investment in current assets, company's productivity can be increased but it may face bankruptcy/insolvency. Hence, firms cannot ignore liquidity to earn high profits. The trade-off between both is the best solution. Teruel and Solano (2007) argued that investment in working capital (WC) depicts that risk and return (profitability) are traded-off. WC decisions that enhance returns also possess high risk. WC decisions are negatively correlated to risk so there must be tradeoff between both.

Resource based theory explained that resources are the firm's strength or weakness. If resources are managed effectively the firm's productivity, its performance and value can be improved (Wernerfelt, 1984). Agency theory explains the conflicting behavior of principal and agent but these conflicts can be reduced if the management takes care of the firm's performance and there is well structured/formalized management system. Reduction in these problems will lead firms towards better performance (Nayak & Greenfield, 1998). Transaction theory explains the investment in the short and the long term resources. The thoery argues that firms should invest in maximum profits generating projects. These transactions should be efficiently managed to enhance the value of a firm (Main & Smith, 1992).

Liquidity management is considered vital for the business survival. It is essential for the firms to take care of their liquidity because without managing liquidity they can fail to make profits. Rehman and Anjum (2013) explored the impact of WCM on profitability and reported that WCM and liquidity are posively associated to each other but WCM negatively impacts profitability. Similar results were presented by Arshad and Gondal (2013).

Liquidity management has two dimensions i.e. time needed for converting current assets into liquid assets and certainty of price realized (Bhunia & Brahma, 2011). Liquidity management is more important for the small size firms because usually they face more liquidity problems (Abuzayed, 2012). As they have lesser finance available, they must hold liquid assets to operate their daily transactions and to save them in emergency. Comparatively, Moss and Stine (1993) argued that large firms can easily get finance from money and capital market because they enjoy financial economies, so, they can hold fewer liquid assets with them. To manage firms, we must go for a balance between profitability and liquity management (Smith, 1980; Joshi, 1995; Deloof, 2003). The firms having more liquid assets will face low risks as they will have resources available to pay short term debts in emergency situations. But the firms having no cash or liquid asset; will face more risks (Bolek, 2013). Different researchers proved that if liquidity is not managed firms will face negative profitability and firm's value. Considering CCC as a proxy for liquidity, they reported that liquidity management is

negatively and significantly associated with operating perfrmance and firm's value (Wang, 2002; Afza & Nazir, 2007; Raheman et al., 2010; Mansoori & Muhammad, 2012). Based on these researches we developed following hypothesis:

H1: Liquidity management significantly impacts firm's operating performance in the non-financial sector.

H2: Liquidity management significantly impacts firm's value in the non-financial sector.

Many researches proved that for different sectors the relationship of liquidity management with operating performance and firm value is different. Some revealed positive relationship and some proved that negative relationship exists (Raheman et al., 2010; Mansoori & Muhammad, 2012). In orde to test this contradiction, we hypohesized as:

H3: Liquidity management and its impact on firm's operating performance and value differ across industries in Pakistani non-financial sectors.

The main focus of current study is to explore that how liquidity management impacts firm's operating performance and its value in Pakistani non-financial sectors. Furthermore, to analyze the sector-wise differences in terms of aforementioned variables and also to analyze these differences between firms having high and low market value.

This study is beneficial for the management of the organizations as they are responsible for wealth maximization. They will take preventive measures to avoid liquidity risks. Policy makers will make future investment decisions by allocating sufficient budget to the current assets to avoid liquidity issues. The investors will decide whether investment in a particular company is beneficial or not. Financial analysts will confidently analyze firm's financial position and decision makers will find out the income generating opportunities for idle cash.

Research Methodology

There are 439 non-financial firms listed in Karachi Stock Exchange (KSE) of Pakistan. These firms are categorized in 26 sectors. Only the listed firms possessing complete required data were included as sample and rest of the firms were excluded resulting in 118 firms as a final sample. For analysis purpose, firms were categorized into 7 sectors on the basis of similar characteristics. The data was collected for ten years i.e. 2004-2013. The firm's financial data was collected from official websites of firms and also from annual reports. For collecting data about market prices, KSE's daily quotations were used. Mainly, financial statements were used for collecting data. The detail of firms in sectors is given in table 1.

Table 1
Number of Sample Firms in non-financial sectors

Sr. No	Sectors	No. of firms
1	Energy Sector	17
2	Chemicals and Pharmaceuticals	15
3	Engineering Sector	22
4	Electronics and General Industries	21
5	Food and Beverages	18
6	Personal goods (Textile)	17
7	Miscellaneous	08
	Total	118

Source: Website of Karachi Stock Exchange

This study contains three variables i.e. liquidity management, operating performance and firm value while firm size is taken as control variable. The proxies and measurement to calculate these variables are as follows:

Table 2

Variables	Proxies	Abbreviation	Measurement	Reference
Liquidity Management	Cash Conversion Cycle	CCC	ICP + RCP – PDP	(Wang, 2002)
CCC	Inventory Conversion Period	ICP	Inventory/ (COGS/365)	-
	Receivables Conversion Period	RCP	Account Receivables/ (Sales/365)	-
	Payable Deferral Period	PDP	Account Payable/ (Cost of Goods Sold/365)	-
Operating Performance	Returns on Assets	ROA	EBIT/Total Asset	(Wang, 2002)
Firm Value	Tobin's q	Q	(Book value of total debt + Market value of equity)/ Book value of total asset	(Nazir & Afza, 2009)
Size	Sales	Sales	Natural Log of Sales	(Wang, 2002)

Pearson Correlation alongwith Regression analysis is used for investigating the relationship of liquidity management with both variables. We have analyzed the correlation between (1) liquidity management and operating performance, and (2) liquidity management and firm value and then

applied the regression analysis. Firms are classified in two categories on the basis of market value measured by Tobin's q using the cutoff point 1, i.e. Tobin's q>1 (firms with high investment opportunities and high growth potential) and q≤1 (firms with low investment opportunities and low growth potential) and comparative analysis is made by using t-statistics. Panel data methodology is used for this purpose. The fixed effect model has been applied based on Hausman test and likelihood ratio.

Following models are used to determine the association of liquidity management with operating performance:

$$ROA=\beta_o+\beta_1 (CCC)+\mu$$
$$ROA=\beta_o+\beta_1 (CCC)+\beta_2 (Size)+\mu$$

To determine the impact of liquidity management on firm's value, following models are used:

$$\text{Tobin's } Q=\beta_o+\beta 1 (CCC)+\mu$$
$$\text{Tobin's } Q=\beta_o+\beta_1 (CCC)+\beta_2 (Size)+\mu$$

Where ROA=Return on Assets; CCC=Cash Conversion Cycle; Size=Size of the firm; Tobin's Q=Firm's Value; β_O=Intercept; β_1=Coefficient of CCC; β_2=Coefficient of Size; μ=Error term.

Results and Discussion

The descriptive analysis, correlation analysis and regression results are included in this section. The results of descriptive analysis for all variables are in Table 3.

Table 3
Descriptive Statistics for All Variables

Var.	Sectors	Total Sample	Energy	Chem. and Pharma	Engg	Electr. and Gen. Ind.	Food and Bever.	Personal goods and Textile	Misc.
CCC (in days)	Mean	16.40	-18.20	5.30	0.10	7.70	16.60	72.10	59.40
	Std. Dev	82.90	72.40	65.60	92.60	74.80	74.30	54.00	117.10
	Max.	402.20	190.40	196.30	402.20	202.80	270.80	232.10	377.70
	Min.	-376.60	-213.10	-193.50	-376.60	-208.10	-156.80	-125.60	-236.00
ROA (%age)	Mean	0.13	0.15	0.18	0.13	0.10	0.14	0.12	0.09
	Std. Dev	0.14	0.21	0.13	0.10	0.10	0.18	0.09	0.16
	Max.	1.90	1.90	0.68	0.49	0.37	0.82	0.44	0.38
	Min.	-0.88	-0.27	-0.16	-0.24	-0.17	-0.88	-0.10	-0.55

(Table Continued...)

	Mean	1.61	1.38	1.45	1.15	1.41	2.10	1.25	3.82
	Std. Dev	2.72	0.63	0.65	0.56	2.25	3.03	1.36	7.92
	Max.	43.37	3.90	3.75	3.58	25.38	34.30	10.95	43.37
Tobin's Q (ratio)	Min.	-1.29	0.53	0.49	0.00	0.33	0.19	-1.29	0.60
	Mean	0.16	0.18	0.16	0.15	0.15	0.15	0.15	0.14
	Std. Dev	0.02	0.01	0.02	0.02	0.01	0.01	0.01	0.02
	Max.	0.21	0.21	0.19	0.19	0.18	0.18	0.18	0.19
Size (natural log)	Min.	0.00	0.15	0.11	0.00	0.12	0.10	0.12	0.10

The descriptive statistics shows that the mean, standard deviation, minimum and maximum values for CCC, ROA, Tobin's Q and Size. The lowest CCC i.e. -18.2 is for the Energy Sector and the highest i.e. 72.1 is for Personal Goods and Textile Sector. Year-wise descriptive statistics are given in Appendix 1 also shows that energy sector has the lowest CCC throughout the period. It indicates that energy sector is able to convert their liquid assets into cash quickly and they delay their payments. The returns are also high for chemical and pharmaceutical sector, energy sector and food sector (0.18, 0.15 and 0.14 respectively) which shows that these sectors are also performing better. Both tables proved that lowest returns are for the miscellaneous sector and electronics and general industries (0.09 and 0.10 respectively). This shows that these sectors are unable to generate high profits. The lowest firm value is for engineering and textile sector. These results explain that delaying the cash conversion means the profits are forgone. Similarly, low CCC leads the energy sector towards high profits and for miscellaneous sector the CCC is high so profitability is low. Energy sector has the largest size so they have more opportunities to invest in profitable propjets so they are generating high profits. Moreover, these results proved that substantial differences exist among sectors in terms of liquidity management, operating performance and firm value. So, we accept our third hypothesis.

To test the co-alignment among all variables it is essential to find the association between these variables. Table 3.1 presents the correlation of CCC with ROA Tobin's Q for all sectors and on overall sample basis.

Table 3.1
Correlation coefficient of CCC, ROA and Tobin's Q

Sector's Name	CCC-ROA	P-value	CCC-Q	P-Value
Whole Sample	-0.07	0.020	-0.10	0.000
Energy	-0.17	0.030	-0.33	0.000
Chemical and Pharmaceutical	-0.01	0.890	0.06	0.450
Engineering	0.07	0.300	0.04	0.570
Electronics and Gen. Industries	-0.07	0.320	-0.15	0.030
Food and Beverages	0.09	0.230	-0.12	0.120
Personal goods and Textile	-0.24	0.000	-0.46	0.000
Miscellaneous	-0.12	0.300	-0.24	0.040

The results explain that CCC is negatively correlated to ROA for overall sample and for all sectors except Engineering and Food and Beverages Sectors. ROA is the measure of operating performance so if the CCC increases it shows that firms take more time to collect cash so they are unable to invest in other projects. Due to the discussed fact, their operating performance decreases. The relationship is also significant for overall sample and also for some sectors. Furthermore, CCC and Tobin's Q are also negatively correlated for whole sample and also for all sectors except chemical and pharmaceutical sector and Engineering sector. By completing CCC quickly firms can enhance their value. The relationship is also significant for overall sample and also for most of the sectors.

Table 3.2 presents the results for liquidity management and operating performance for the whole sample and also for high (Q>1) and low (Q<1) market value firms. The results depicts that CCC has negative relation with ROA for whole sample and for low market value. Moreover, this relationship is significant in both cases. These results are in accordance with the studies of Tufail (2007), Wang (2002) and Raheman et al. (2010). Literature also proves that positive and significant relationship exists between profitability and size for the whole sample and for the high market value firms (Raheman & Nasr, 2007; Usama, 2012). It is logical because large firms has more investment opportunities so they are able to earn high profits. The firms with low market value have insignificant positive relationship between liquidity management and profitabilty. Based on these results, we conclude that liquidity management has significant negative impact on firm's operating performance in the non-financial sector so if firms collect early payments from the customer, keep inventory for less time and delay payments to suppliers it results in better corporate performance. Hence, we prove our first hypothesis.

Table 3.3 explains the regression results for liquidity management and firm value for the whole sample and also for the high and low market value firms. These results show that in case of high market value firms, there is insignificant positive relationship between Tobin's Q and CCC as previously studied by Lyroudi and Lazaridis (2000). But, significant negative relationship exists between Tobin's Q and CCC for whole sample and also for low market value firms. The empirical evidence is provided by Nazir and Afza (2009). Moreover, the relationship between size and firm value is negative and significant for low market value firms. It seems logical because decreasing the CCC will lead a firm toward improving its value. Similar results were presented by other researchers (Eljelly, 2004; Ghosh & Maji, 2004) which clarifies that liquidity management has significant impact on firm value in the non-financial sector. Hence, we prove our second hypothesis.

Table 3.2
Regression results for liquidity management and operating performance

Dependent Variable: ROA												
	Total Sample				Tobin's Q >1				Tobin's Q <1			
Without Size												
	Coeff.	**Std. Error**	**T-Stat**	**P-Value**	**Coeff.**	**Std. Error**	**T-Stat**	**P-Value**	**Coeff.**	**Std. Error**	**T-Stat**	**P-Value**
Intercept	0.13	0.00	38.08	0.00	0.15	0.00	36.40	0.00	0.12	0.01	20.47	0.00
CCC	-0.02	0.01	-2.19	0.03	0.00	0.00	0.49	0.62	-0.04	0.01	-4.64	0.00
	R Sqr	0.45	Adj. R Sqr	0.39	R Sqr	0.55	Adj. R Sqr	0.50	R Sqr	0.24	Adj. R Sqr	0.16
F-test	7.33		0.00		10.86		0.00		2.88		0.00	
With Size												
	Coeff.	**Std. Error**	**T-Stat**	**P-Value**	**Coeff.**	**Std. Error**	**T-Stat**	**P-Value**	**Coeff.**	**Std. Error**	**T-Stat**	**P-Value**
Intercept	-0.19	0.08	-2.48	0.01	-0.15	0.09	-1.74	0.08	-0.02	0.17	-0.14	0.89
CCC	-0.02	0.01	-2.39	0.02	0.00	0.00	0.21	0.83	-0.04	0.01	-4.71	0.00
Size	2.11	0.50	4.19	0.00	1.90	0.56	3.43	0.00	0.94	1.12	0.85	0.40
	R Sqr	0.46	Adj. R Sqr	0.40	R Sqr	0.56	Adj. R Sqr	0.51	R Sqr	0.24	Adj. R Sqr	0.16
F-test	7.53		0.00		11.05		0.00		2.83		0.00	

Table 3.3
Regression results for liquidity management and firm value

Dependent Variable: Tobin's Q												
Total Sample					**Tobin's Q >1**				**Tobin's Q <1**			
Without Size												
	Coeff.	**Std. Error**	**T-Stat**	**P-Value**	**Coeff.**	**Std. Error**	**T-Stat**	**P-Value**	**Coeff.**	**Std. Error**	**T-Stat**	**P-Value**
Intercept	1.66	0.06	27.30	0.00	2.02	0.09	23.87	0.00	1.07	0.07	15.42	0.00
CCC	-0.29	0.13	-2.21	0.03	0.00	0.04	0.09	0.93	-0.29	0.10	-2.75	0.01
	R Sqr	0.54	Adj. R Sqr	0.49	R Sqr	0.56	Adj. R Sqr	0.51	R Sqr	0.26	Adj. R Sqr	0.18
F-test	10.47		0.00		11.42		0.00		3.22		0.00	
With Size												
	Coeff.	**Std. Error**	**T-Stat**	**P-Value**	**Coeff.**	**Std. Error**	**T-Statistics**	**P-Value**	**Coeff.**	**Std. Error**	**T-Stat**	**P-Value**
Intercept	3.19	1.36	2.34	0.02	0.32	1.53	0.21	0.84	12.99	1.93	6.72	0.00
CCC	-0.29	0.13	-2.16	0.03	0.00	0.04	0.01	0.99	-0.17	0.10	-1.62	0.11
Size	-9.92	8.83	-1.12	0.26	10.81	9.70	1.11	0.27	-79.56	12.89	-6.17	0.00
	R Sqr	0.54	Adj. R Sqr	0.49	R Sqr	0.56	Adj. R Sqr	0.51	R Sqr	0.32	Adj. R Sqr	0.25
F-test	10.39		0.00		11.28		0.00		4.20		0.00	

In order to compare the results, data is divided into two groups on the basis of high and low market value of the firms. For the first group Tobin's Q is greater than 1 and the second group has Tobin's Q less than 1. For both groups average ROA, CCC, Tobin's Q and size has been calculated and t-statistics results are obtained as in Table 3.4.

Table 3.4
T-statistics for High and Low Market Value Firms

Variables	Groups	Mean	Std. Deviation	P-value	T-value
	High Market Value(Q>1)	0.15	0.01		
ROA	Low Market Value (Q<1)	0.11	0.02	0.00	6.79
	High Market Value(Q>1)	5.42	4.47		
CCC	Low Market Value (Q<1)	28.80	9.04	0.00	-7.34
Tobin's	High Market Value(Q>1)	2.03	0.23		
Q	Low Market Value (Q<1)	0.99	0.14	0.00	12.25
	High Market Value(Q>1)	15.74	0.50		
Size	Low Market Value (Q<1)	15.02	0.39	0.00	3.57

The results indicate that the mean of ROA is greater for high market value firms and their standard deviation low. The P-value indicates that significant differences exist between high and low market value firms in terms of profitability. These results clarify that firms having Q>1 will have higher profits. Similarly, the mean and standard deviation of CCC for these firms is significantly lower as compared to the firms having Q≤1. It shows that high market value firms will have shorter CCC as they collect cash quickly. The mean of Tobin's Q for the firms with Q>1 is significantly higher as compare to those firms having Q≤1. The mean and standard deviation of size are higher for the firms having Q>1. It shows that the firms who have higher market value are larger as compared to the low market value firms. T-values for size also show that significant difference between two groups.

Conclusion

The results of the study found that liquidity management, operating performance and firm value differ across industries in Pakistani non-financial sectors. From descriptive statistics it is found that energy sector has low CCC, high returns and firm value as compared to other sectors.

The results also conclude that there is significant negative relationship of CCC with ROA and Tobin's Q. Therefore, firms need to manage liquidity to improve profitability and value. If firms decrease their CCC their profitability and value can be enhanced. Size has positive relationship with operating performance and firm value. Furthermore, it is also found that significant difference exists for the high and low market value firms in terms of size. Large firms have more opportunities and resources to improve profitability and value so firms must try to increase their size.

Our sample can be one of the limitations as only 118 firms are selected because of non-availability of data. The time period can be extended from ten years to get some new insights. A comparative study can be done by comparing financial and non-financial firms of different of Asian countries or non Asian countries. Different proxies can also be used in future study. Some other variables like capital structure, asset turnover and solvency ratios can be added in the model to enhance the accuracy of the relationship.

Table 3.5
Year-wise Statistics Analysis of All Variables

Var	Years	Sample	Energy	Chem and Pharm.	Engg	Elect and Gen ind	Food and Bever.	Textile	Misc.
CCC	2004	11.00	-24.30	4.00	-3.29	10.10	-1.48	61.30	62.10
	2005	16.60	-25.60	-1.98	5.40	8.01	5.60	84.60	74.40
	2006	16.50	-28.80	1.54	12.20	8.31	23.30	68.40	48.50
	2007	15.00	-21.40	4.29	1.82	13.30	11.40	70.00	44.10
	2008	22.60	-32.90	18.90	10.20	14.60	25.00	80.60	74.70
	2009	18.30	-15.00	3.96	7.51	16.90	13.30	63.30	64.20
	2010	16.20	-3.21	10.60	-3.97	-1.88	11.60	71.90	62.10
	2011	25.10	0.25	18.10	-6.38	11.10	34.70	74.80	87.40
	2012	11.50	-7.74	0.90	-16.40	-0.06	14.00	71.10	47.50
	2013	11.20	-22.80	-7.32	-6.39	-3.11	28.90	74.80	28.60
ROA	2004	0.14	0.17	0.16	0.14	0.14	0.14	0.10	0.06
	2005	0.14	0.16	0.15	0.15	0.14	0.17	0.09	0.04
	2006	0.15	0.17	0.15	0.16	0.13	0.17	0.11	0.10
	2007	0.12	0.15	0.17	0.14	0.09	0.13	0.09	0.12
	2008	0.13	0.27	0.15	0.12	0.04	0.13	0.10	0.16
	2009	0.12	0.13	0.16	0.11	0.07	0.19	0.10	0.12
	2010	0.12	0.12	0.17	0.12	0.04	0.18	0.15	0.08
	2011	0.13	0.11	0.26	0.11	0.09	0.15	0.16	0.06
	2012	0.11	0.12	0.17	0.10	0.12	0.09	0.10	0.08
	2013	0.14	0.11	0.21	0.13	0.15	0.09	0.16	0.10
Tobin Q	2004	1.44	1.44	1.42	1.06	1.45	1.70	1.24	2.36
	2005	1.49	1.47	1.48	1.28	1.39	1.72	1.29	2.34
	2006	1.58	1.55	1.63	1.24	1.35	1.89	1.61	2.23
	2007	1.60	1.51	1.67	1.39	1.32	2.10	1.33	2.40
	2008	1.62	1.38	1.62	1.42	1.19	2.15	1.49	2.94
	2009	1.39	1.19	1.31	0.98	0.94	1.68	1.00	4.51
	2010	1.53	1.25	1.23	1.05	0.91	1.50	1.06	6.69
	2011	1.97	1.28	1.25	0.94	2.02	3.50	1.04	6.04
	2012	1.62	1.30	1.24	0.97	1.52	2.03	1.10	5.20
	2013	1.85	1.47	1.67	1.18	1.98	2.75	1.37	3.48
Size	2004	0.15	0.17	0.15	0.14	0.14	0.14	0.14	0.14
	2005	0.15	0.17	0.15	0.15	0.15	0.14	0.14	0.14
	2006	0.15	0.17	0.15	0.15	0.15	0.15	0.15	0.14
	2007	0.15	0.18	0.15	0.15	0.15	0.15	0.15	0.14
	2008	0.15	0.18	0.15	0.15	0.15	0.15	0.15	0.14
	2009	0.16	0.18	0.16	0.15	0.15	0.15	0.15	0.15
	2010	0.16	0.18	0.16	0.16	0.15	0.15	0.15	0.15
	2011	0.16	0.18	0.16	0.16	0.15	0.15	0.16	0.15
	2012	0.16	0.18	0.16	0.16	0.16	0.15	0.15	0.15
	2013	0.16	0.18	0.16	0.16	0.16	0.15	0.16	0.15

References

Abuzayed, B. (2012). Working capital management and firms' performance in emerging markets: the case of Jordan. *International Journal of Managerial Finance, 8*(2), 155-179.

Afza, T., & Nazir, M. S. (2007). Is it better to be aggressive or conservative in managing working capital. *Journal of quality and technology management, 3*(2), 11-21.

Arshad, Z., & Gondal, M. Y. (2013). Impact of working capital management on profitability a case of the Pakistan cement industry. *Interdisciplinary Journal of Contemporary Research in Business, 5*(2), 384-390.

Barad, M. M. (2010). A *study of liquidity management of Indian steel industry* (Doctoral dissertation, Saurashtra University).

Bhunia, A., & Brahma, S. B. (2011). Importance of Liquidity Management on Profitability.*Asian Journal of Business Management, 3* (2), 108-117.

Bolek, M. (2013). Profitability as a Liquidity and Risk Function Basing on the New Connect Market in Poland. *European Scientific Journal, 9* (28), 1-15.

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms?. *Journal of business finance & Accounting, 30*(3-4), 573-588.

Eljelly, A. M. (2004). Liquidity-profitability tradeoff: An empirical investigation in an emerging market. *International journal of commerce and management, 14*(2), 48-61.

Ghosh, S., & Maji, S. (2004). Working capital management efficiency: a study on the Indian cement industry. *The Management Accountant, 39* (5), 363-372.

Johnson, R., & Soenen, L. (2003). Indicators of Successful Companies. *European Management Journal, 21* (3), 364–369.

Joshi, P. V. (1995). *Working Capital Management under Inflation* (1 ed.). New Delhi: Anmol Publishers.

Juan García-Teruel, P., & Martinez-Solano, P. (2007). Effects of working capital management on SME profitability. *International Journal of managerial finance, 3*(2), 164-177.

Lyroudi, K., & Lazaridis, J. (2000). The Cash Conversion Cycle and Liquidity Analysis of the Food Industry in Greece. *Social Science Research Network*, 1-32.

Main, S., & Smith, C. (1992). Accounts Receivable Management Policy: Theory and Evidence. *The Journal of Finance, 47* (1), 169-200.

Mansoori, E., & Muhammad, D. D. (2012). The Effect of Working Capital Management on Firm's Profitability: Evidence from Singapore. *Interdisciplinary Journal of Contemporary Research in Business, 4 (5), 472-486.*

Moss, J. D., & Stine, B. (1993). Cash Conversion Cycle And Firm Size: A Study of Retail Firms. *Managerial Finance, 19* (8), 25-34.

Nayak, A., & Greenfield, S. (1998). *The Use of Management Accounting Information for Managing Micro Businesses*. London: A. Hughes.

Nazir, M. S., & Afza, T. (2009). Working Capital Requirements and the Determining Factors in Pakistan. *The Icfai Journal of Applied Finance, 15* (4), 28-38.

Panigrahi, D. A. (2013). Liquidity Management of Indian Cement Companies - A Comparative Study.

IOSR *Journal of Business and Management, 14* (5), 49-61.

Raheman, A., & Nasr, M. (2007). Working Capital Management And Profitability - Case Of Pakistani Firms. *International Review of Business Research Papers, 3* (1), 279-300.

Raheman, A., Afza, T., Qayyum, A., & Bodla, M. A. (2010). Working capital management and corporate performance of manufacturing sector in Pakistan. *International Research Journal of Finance and Economics, 47*(1), 156-169.

Rehman, M. U., & Anjum, N. (2013). Determination of the Impact of Working Capital Management on profitability: An Empirical Study from the Cement Sector in Pakistan. *Asian Economic and Financial Review, 3* (3), 319-332.

Smith, K. (1980). Profitability versus liquidity tradeoffs in working capital management. *Readings on the management of working capital,* 42, 549-562.

Tufail, S. (2007). Impact of Working Capital Management on Profitability of Textile Sector of Pakistan. *3rd International Conference on Business Management,* (pp. 1-29). Lahore.

Usama, M. (2012). Working Capital Management and its affect on firm's profitability and liquidity: In Other food sector of (KSE) Karachi Stock Exchange. *Arabian Journal of Business and Management Review, 1* (12), 62-73.

Wang, Y.-J. (2002). Liquidity management, operating performance, and corporate value: evidence from Japan and Taiwan. *Journal of Multinational Financial Management,* 159–169.

Wernerfelt, B. (1984). A Resource Based View of the Firm. *Strategic Management Journal,* 5, 171-180.