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Idiosyncratic Effect of Liquidity Management Strategies on Corporate Performance Valuation-A Study of Chemical Industry

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Abstract: The study intends to identify and evaluate the association among corporate financial strategies related to liquidity management and the corporate performance valuation measured by market to book value. The population of the study is Chemical industry of Pakistan. The study uses purposive sampling or judgmental sampling for selecting sample companies. The study took 10 years data from the financial statements of the selected 30 companies; covering years 2002 to 2011. Balanced panel data is taken for the purpose of study. Levin, Lin and Chu test is used to check the stationarity of data whereas White Test is used to check the heteroskedasticity of data. Panel Least square technique with fixed effects is used to generalize the relationship between studied variables. The study observed that the performance of the chemical sector in terms of market to book value is affected by firm and industry specific factors related to liquidity management. Hence the sector needs to perceive clearly about how their liquidity management strategies would affect their performance and the valuation.

Key words: Corporate Performance · Corporate Strategy · Liquidity · Market Value · Book Value

INTRODUCTION

It has been a great challenge for every corporate sector organization to generate, sustain and enhance the value of business in terms of increased market value. In this regard the inter linkages between the corporate financial strategies representing the firm specific factors and the outcomes of those in terms of market value have to be understood and accordingly optimally utilized for the increased market value of the firms. Therefore every corporate organization is assumed to develop and implement such financial strategies which could actually help in maximizing the value for shareholders. In this context some applied and operational techniques and methods are required to be adopted by the industry, finance and economy experts to quickly and timely respond to the changes and challenges raised in different corporate sectors and the economy. The primary objective of the study is to identify and evaluate the association among corporate financial strategies related to liquidity management and the corporate performance valuation. The study intends to contribute to the construct validity of liquidity indicators and their impact on corporate performance. The study will check and evaluate the susceptibility of corporate sector's performance in response to liquidity management strategies. This will be of great use to finance, economics and industry experts.

Literature Review

Corporate Finance Strategy and Corporate Performance Valuation: Corporate strategic decisions are not taken exclusively, these decisions have to be well integrated and synchronized with corporate financial decisions in relation to the firms' financial strategy, so as to avoid any possible financial distress and probable bankruptcy [23]. This study discusses the corporate financial strategies regarding liquidity management decisions that are considered detrimental for adding value to the business in terms of stockholders' wealth maximization [3, 17, 31]. The strategic management literature has always been keen in exploring the determinants of firms' performance and the differences in these determinants across the firms and also across the industry [14]. The competitive advantage and the financial performance of a firm depend on how corporate financial strategies are devised about holding the strategic assets and the way they are financed [18].

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The resource based view supports that the firm specific capabilities along with the available resources are equally significant for creating value through the idiosyncratic resources and thus the firm specific factors are considered key determinants of firms' performance [11, 12, 20, 21, 27].

Liquidity Management and Corporate Performance: Working capital management has been the most imperative area of financial management [5, 15], since the liquidity has direct impact on profitability of the firms [10] and the effective working capital management leads to attain competitive edge [24]. Firms have been adopting different working capital management strategies as per their circumstances; generally classified as aggressive, moderate and conservative strategies [22]. Empirical literature suggests that aggressive working capital management strategies enhance the performance of firms in terms of profitability [5, 15, 33]. Contrary to this approach if a firm invests extensively in working capital i.e. the conservative policy, it may also lead to higher profits due to high level of inventory that minimizes the cost of stock outs, production stoppages, supply costs and price variations [19]. To better understand the implications of working capital management and to plan the current financial resources accordingly, it is highly needed to fully recognize the operating roots of all short term financial decisions [26]. It will help in better working capital management and as a result will lead to better firm performance. The empirical literature recorded that industry standards must be followed while setting working capital management policies to get the desired results in terms of better operating performance [11]. The size of firm must also be considered for developing and implementing certain working capital management policies [4, 7, 25, 29]. The studies comparing working capital management practices differences across countries [2, 16] used survey method to derive that working capital management differences exist because of the system and industry specific differences across those countries [6]. Likewise some studies have identified that type of industry also matter for working capital management policies [1, 9, 11, 28], however in certain cases, type of industry was found to have no effect on working capital management differences [13]. This necesitates a lot of extensive research to explore the working capital management and its determinants in various corporate settings [4, 8, 25, 28, 34]. Moreover there is a need to conduct more detailed studies concerning industry specific effects [32]. Case studies and interventionist research is highly required in working capital management studies to open new arenas for further explorations [32]. Moreover most of the research conducted on working capital management during 1990-2010 does not seem to be quality work exploring the issue, hence there is a lot more to do in it [19].

MATERIALS AND METHODS

Holistic View of Methodologies Adopted in Earlier Studies: On the basis of the review of the literature, the study found the following methodologies adopted by the researchers around the world to develop the constructs and measure the relationship between the studied constructs and their impact on corporate performance valuation.

Liquidity Management and Corporate Performance	
Independent Variables	Cash Conversion Cycle, Quick Ratio, Current Ratio, Current Assets to Total Assets, Current Liabilities to Total Assets, Inventory Days, Receivables Days, Operating Cycle, Operating Cash Flows
Dependent Variables	Return on Assets, Return on Equity, Market to Book Ratio, Size, Tobin's Q, Gross Operating Profit
Methodology Adopted	Fixed Effects Model, OLS Regression, Multivariate Analysis, Panel Data Analysis, Multiple Regression, Pearson Correlation, ANOVA, F-Statistics, Random Effect Model, Panel Unit Root Test, Heteroskedasticity of Residuals, Descriptive statistics, Unbalanced Panel Data Analysis

Operationalization of Variables and Development of Hypotheses: Corporate performance valuation is measured through market to book-Tobin's Q. Tobin's Q is an extensively used score for measuring corporate performance and estimating the value of stock as against its replacement cost. A low score reflects that the cost of replacing the assets is more as against the value of the stocks, presuming the stock to be undervalued. A high score reflects that the cost of replacing the assets is less as against the value of stocks, presuming the stock to be overvalued [30]. Liquidity analysis is conducted to determine how far a company is stable or otherwise in payment of the short term obligations; whether short term debts or other accrued liabilities; as and when they

are becoming due. Following the earlier studies and their methodologies it is measured through current ratio, quick ratio, receivable turnover and inventory turnover.

Hypotheses: The review of the literature allows developing the following hypotheses for evaluating the effect of liquidity position on corporate performance valuation;

H1: Firms with low current ratio tend to have high market to book value
H2: Firms with low quick ratio tend to have high market to book value
H3: Firms with high inventory turnover tend to have high market to book value
H4: Firms with high receivable turnover tend to have high market to book value

Measurement of Variables: On the basis of the review of literature the variables of the study are measured as follows:

Constructs	*Variables*	*Measurements*
Liquidity Management	Current Ratio (CR)	Current Assets/ Current Liabilities
	Quick Ratio (QR)	Quick Assets/ Current Liabilities
	Inventory Turnover (IT)	Cost of sales/ Inventory
	Receivable Turnover (RT)	Sales/Receivables
Corporate Performance	Market to Book (MB)/ Tobin's Q	Market Value Per Share/Book Value Per Share

Population and Sample of the Study: The population of the study is Chemical industry of Pakistan. The study uses purposive sampling or judgmental sampling; a non probability sampling technique for selecting sample companies; based on the knowledge of the population and the purpose of the study. Only those companies have been selected having complete financial records availability and continuity of existence over the period of study. The companies not having the existence over the entire period of study are dropped for analysis purposes, since the newly entering companies and the companies leaving the industry distort the results due to the abnormality of their data.

Population and Sample Distribution

Sector	*Listed Companies*	*Deselected Companies*	*Selected Companies*	*Sample Size*
Chemical	43	13	30	70%

Period of Study: The study took 10 years data from the financial statements of the selected 30 companies; covering years 2002 to 2011. Hence 300 firm years data is used for measuring and analyzing the relationships between the studied variables.

Data Collection and Data Analysis Techniques: Financial statements data is collected through "Financial Statements Analysis of Nonfinancial Companies Listed at Karachi Stock Exchange"; published by the Statistics and Data Warehouse Department of State Bank of Pakistan. Balanced panel data is taken for the purpose of study. Both descriptive and inferential statistics are used to analyze the data and generalize the results. Most commonly used descriptive statistics measures for secondary data are mean, median, standard deviation, skewness and kurtosis. The study uses Levin, Lin and Chu test to check the stationarity of data and White Test to check the heteroskedasticity of data. The reliability and validity of the model increases when the data is free from stationarity and heteroskedasticity problems. Panel least square fixed effect model is used after adjusting for heteroskedasticity of data to measure the impact of independent variables on dependent variable.

Data Analysis and Discussion: The results based on descriptive statistics in Table 1 indicates that all the variables measuring the liquidity and corporate performance are positively skewed and leptokurtic. Mean and median values indicate that overall liquidity position measured through CR, QR, RT and IT; and corporate performance measured through MB are satisfactory. The Levin, Lin and Chu test statistics in Table 2 suggest the rejection of null hypothesis of presence of unit root, hence data is stationary. The inferential statistics results in Table 3 reflect the significance and direction of the relationship between the studied variables. The significance of t-statistics depicts that CR, QR, RT and IT are significant predictors of MB. Coefficients depict that CR, RT and IT are positively linked whereas QR is negatively linked with MB. Adjusted R^2 tells that almost 72% of the variation in MB is explained by variation in CR, QR, RT and IT. The significance value of F statistics endorses the overall fitness of the model.

Table 1: Panel Descriptive Statistics - Liquidity Management and Corporate Performance

	MB	CR	QR	RT	IT
Mean	2.322745	1.660210	1.306250	39.87713	9.520292
Median	1.302700	1.456500	1.073500	10.52630	3.409850
Std. Dev.	6.060851	1.219457	1.118554	124.5864	26.74468
Skewness	11.34095	2.363522	3.207565	6.572826	8.459481
Kurtosis	159.5298	12.51996	19.55053	48.83770	96.46043
Observations	300	300	300	300	300

Source: Secondary Data

Table 2: Levin, Lin and Chu - Unit Root Test - Liquidity Management and Corporate Performance

Null Hypothesis: Unit root (common unit root process)
Sample: 2002 2011
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 1
Newey-West bandwidth selection using Bartlett kernel
Cross-sections included: 30

Method	Variable	Statistic	Probability
Levin, Lin and Chu t*	MB	8.53339	0.0000
Levin, Lin and Chu t*	CR	-5.03947	0.0000
Levin, Lin and Chu t*	QR	-5.02745	0.0000
Levin, Lin and Chu t*	RT	-10.4643	0.0000
Levin, Lin and Chu t*	IT	-4.70974	0.0000

Source: Secondary Data

Table 3: Panel Least Square-Fixed Effects Model-Liquidity Management and Corporate Performance

Dependent Variable: MB
Method: Panel Least Squares
Sample: 2002 2011
Cross-sections included: 30
Total panel (balanced) observations: 300
White cross-section standard errors and covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.335630	0.118151	-2.840682	0.0048
CR	0.365249	0.145072	2.517703	0.0124
QR	-0.476297	0.127727	-3.729035	0.0002
RT	0.078546	0.026450	2.969608	0.0033
IT	0.179364	0.055600	3.225969	0.0014
	Effects Specification			
Cross-section fixed				
R-squared	0.752832		F-statistic	24.55129
Adjusted R-squared	0.722169		Prob (F-statistic)	0.000000

Source: Secondary Data

As per the fixed effects model results H2, H3 and H4 are accepted whereas H1 is rejected. Mathematically the relationships may be expressed as:

LS(CX=F,COV=CXWHITE) MB CR QR RT IT

$$MB = C(1) + C(2)*CR + C(3)*QR + C(4)*RT + C(5)*IT + [CX=F]$$

$$MB = -0.3356 + 0.3652*CR - 0.4763*QR + 0.0785*RT + 0.1794*IT + [CX=F]$$

The results of the sector studied above are summarized below

Hypotheses	*Expected*	*Actual*	*Acceptance/Rejection*
H1	-	+	*Rejected*
H2	-	-	*Accepted*
H3	+	+	*Accepted*
H4	+	+	*Accepted*

The results indicate that the top performing companies along with the well above average companies have relatively very good liquidity position with higher

current ratio, quick ratio, receivable turnover and inventory turnover as against the average firms of the industry having satisfactory liquidity. Since the chemical and allied sector companies are having satisfactory liquidity and are not facing liquidity risk as such therefore the companies may go ahead with taking risk to enhance profitability of the sector, by investing more in long term assets and less in short term assets. However due care should be taken while doing so regarding the cost of risk associated with the decreased investment in current assets and the returns associated with noncurrent assets. Similarly the chemical and allied sector companies should improve inventory turnover by speeding up their selling efforts and reducing the time inventory is lying on the floors unsold, this will result in better market to book value ratio along with the improved liquidity position of the companies due to improved turnover. Further the chemical and allied sector companies should decrease their quick ratio by decreasing either of quick assets held by the companies. This will add to the market and book value ratio of the companies. The above analysis demands that the chemical and allied industry should improve current ratio on one side and decrease quick ratio on the other side to improve market to book value ratio. Hence it implies that the chemical and allied sector companies may increase inventory to get the desired outcomes, but the speed of selling that inventory must not be compromised in order to have higher inventory turnover leading to better market to book value ratio. Moreover receivable turnover should also be increased by chemical and allied sector companies in order to have better market to book value ratio through offering stricter credit terms to deflate investment in receivable level, however due care should be taken in this regard by the cmpanies to financially evaluate the risk and returns associated with decreasing receivables. The level of receivables should be decreased to the level as long as the returns associated with funds released from receivables are greater than the cost of lost sales due to stricter policies.

CONCLUSION

The present study observed that the performance of the chemical sector in terms of market to book value is affected by the liquidity management of the companies. Since it is a challenge for every corporate sector organization to generate, sustain and enhance the value of business in terms of increased equity market value, hence the sector need to perceive clearly about how their liquidity management strategies would affect its performance and the valuation. The study contributed to the construct validity of liquidity measures and their impact on corporate performance and augmented the predictability of liquidity management indicators for measuring corporate performance and suggested what combination of these ratios may lead to improved corporate performance in future. The results supported the resource based view that the firm specific capabilities along with the available resources are equally significant for creating value through the idiosyncratic resources and thus the firm specific factors are considered key determinants of firms' performance.

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