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Nexus between Financial leverages, Operating Liquidity & Firm's Performance: A Panel Data Analysis of Pakistan's Cement Industry

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Abstract: This study investigates the relationship between financial leverage, operating leverages and industrial performance in the context of Pakistan. For this purpose secondary data have been collected and ratio analysis, as well as, fixed effect model has been used to estimate the results. The Hausman test suggested the presence of cross section heterogeneity. It was established that FL and OL have significant impact on cement sector firm's performance and it is also providing close eye view on interrelation between financial management and operational management and their impact on firm success or failure.

Keywords: Financial leverages, Operating leverages, Cement industry, Pakistan, Panel regression, Firm's performance

1. INTRODUCTION

Industralization can paly a vital role in the economic development of a country. The industrial revalution in Europe in the nintheen century change the structure of traditional economies and brings economic development and improve the living satandard of the masses. Therefore, in the past, researcher carried out a number of studies to anlayze the effect of industrialization on economic growth and economic developmet. Industy is composed of fims, recently, in the every business, a major objective of the firms and researcher are study the factors that can influence the firms performance, productivity and profitability (Amjed 2007). Financial leverages and operating liquidity is one of the important factors that can effect the performance and profitability of firms. Such capital structure is the combination of all debts and equity of the firm (Abor 2005). Firms which are highly levered are those which use higher debt portion in their capital structure because in financing decisions debt is considered to be cheaper source of finance and on other hand firms which are unlevered are those which did not use debt in their capital structure (CS). Firms which are more levered that bring more profit for the existing shareholders, on the other hand, it also

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brings higher risk for the equity holders as it creates agency costs and also bankruptcy cost include direct and indirect bankrupty (Titman et al., 2004). According to Mohohlo et al. (2018), Operating leverage is the ability of the firm to use the fixed operating cost in order to amplify the effect of change in sales on its operating profit and it is associated with investment activities (asset acquisition). Financial leverage describes the relationship between borrowed funds and owner funds (common equity and preferred equity) in the capital structure of the firm that are utilized to finance the firm's total assets, operations and financial growth (Goel et al., 2015). Risk engaged with both kind of leverage but effective implementation can bring significant benefit (Pandey, 2004).

Presently, Pakistan and world economy change drastically due to CPEC. This creates not only the opportunity for the international but also it creates challenges for others. CPEC has positive impacts on cement industry under project of OBOR initiative. Secondly, Government of Pakistan has released Rs. 2.35 billion in the housing and work division construction to start new housing scheme. Lastly, Some other opportunities is under consideration which may include Thaliyan Housing Scheme on the M-2 Motorway interchange. However, due to these project demands for cement increases over time. According to International cement review (January, 2018) Pakistan cement industry is currently operating at its peak level due to which local cement manufacturers expand and install new production capacity. Last decade of years, the cement industry taken no notice on by researcher and investors. Because, the cement industry is a capital intensive industry and requires large finances either to start a venture or for the expansion.

Like the other industries, cement industry also play a vital role in the economy because cement is second most used element after water (Noche&Elhasia, 2013). As Hijazi & Tariq (2006) says that the cement industry is a capital intensive industry and requires large finances either to start a venture or for the expansion. According to business recorder (BR 2016), cement is a "*barometer of progress*" for every developing economies particularly for Pakisan. It brings socioeconomic change in a country because it provides employment opportunity, infrastructure is also being improved as the cement consumption rises, more investment being done and, ultimately, the economy is moving toward growth and development. Kintisch, (2008) said that cement is a capital intensive industry because of the high cost of production, taxes, regulations etc. in Europe and this industry contributes to employment opportunity and creation of one job creates two more jobs in somewhere. The fruits of it are multiplied over twenty years (Baeza et al., 2013).

The goal of a firm is maintain liquidity performance after maximizing its profits and maximizing its profits at the expense of liquidity causes serious problems for the company (Pandey, 2010). Because, due to urgent need of liquidity will increase in debt and, hence, more debt are risky for firms (Pandey, 2010). That's way, there should be a trade-off between these two objectives of the companies (Gill et al., 2010). If management does not consider profit then the survival of firm may not be possible for long term (Vieira, 2010). Further, if management is not concerned about liquidity, it would face the problem of insolvency and bankruptcy (Mazhar & Nasr, 2010). For these reasons working capital management should be given appropriate consideration that will ultimately impact the performance and profitability of the firm.

Existing literature support that impact of financial leverages and operating liquidity on firms performance is scarece in case of cement industry on Pakistan economy. Therefore this study revolve around leverage and liquidity of cement sector firms and examines the impact of leverage and liquidity on profitability of cement sector firms. Cement industry is largest industry after textile and suger industries. Hence, objective of this examination is to empirically examine the impact on firms performance. Furthermore it can also be discussed which policy will be helpful for the firms to increase their performance and overall economic growth.

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The remaining study is organized as: section 2 try to explain the existing literature that link between poor performance and capital mangment, section 3 and 4 explain the data construction and econometrics methodology simultaneously. The data analysis dealt at section 5 and section 6 conclude on the results.

2. LITERATURE REVIEW

Existing literature supports the importance of capital structure, profitability of the firms, financial leverages and size of the firms on the firm performance. Hung et al. (2002) use construction sectors data in Hong Kong. Capital gearing is positively enhance the assests of the firms but, however, it is negatively associated with the profit of the firm using rati analysis [Hung et al. (2002)]. Similerly, capital structure also play a vital role to increase the profitability of the firm [Eriotis et al., (2002)]. In this capital structure, profit margin is negtiely associated on every increase of debt to capital ratio because it will generate the uncertainty of firms and investors are anticipated for the profit. Investors know that the distribution of profit is after the payment of debt serviceing. Hence, profit margin decreases. Stephan &Tsapin (2008) found in their study "persistence and determinants of firm profit in emerging market" that liquidity of the firms has positive effect on profitability by analyzing the statements of open joint stock Ukrainian companies during 1999-06. Odit and Gobardhun (2011) in their article on "determinent of financial leverage of SME in Mauritus" establish the positive relationship among leverage, growth and asset structure of the firm by testing the data from SME's of Mauritius by using descriptive analysis.

Some researchers investigate and conclude that that profitability is primary objective of almost each business organization after studing relationship among earnings and invetment (Pandey, 2010). Additionally, some previous studies (Booth et al., 2001; Akhtar et al., 2012; Dawar, 2014; Khidmat& Rehman, 2014) also explain that leverage have, both, positive and negative effect on profitability. Meanwhile, profitability of the firms is also depend on the firm's debt to equity ratio and conflict of interest among the managment. Company which have low debt ratio leads to increase in profitability and show negative relationship (Booth et al., 2001). Similerly, conflict of interest between owners and management results in occurrence of agency cost which might be reduce the profitability of the firms.

Xu (2012) Investigated in the article "profitability and capital structure: evidence from import penetration" that profitability is negatively correlated with the leverage. Firms issue more shares to reduce the effect of leverage instead of using more debt. Goel et al. (2015) take financial data of 151 machinery firms of India by using CMIE PROWESS database and findings shows relationship between financial leverage and operating liquidity of machinery firm of India. Goel et al., (2015) used ratio analysis and panel data regression technique to accomplish the results. Hashemi and Zadeh (2012) take sample of 74 joint stock firms listed in Tehran stock Market for a time period during 2002-10 in his article "the impact of financial leverages operating cash flow and size of company on the dividend policy: a case study of Iran" and use the multiple regressions to check the hypothesis. Their findings panel data technique shows that there is an inverse relationship between dividend policy and financial leverages that's why firms with high leverage distribute less profit than the firms having low leverage. Dogan (2013) selected 200 companies from Istanbul Stock Exchange listed during 2008-2011 in the article "does firm size affect the firm's profitability? Evidence from Turkey" and multiple regression and correlation results shows that the size of the firm and profitability are truly related. Control variable like age of the firm and leverage are negatively correlated with profitability. Liquidity and profitability are positively

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related. Khan et al., (2013) explain in his article "impact assessment of financial performance and leverage on dividend policy of Pakistan in comical and pharmaceutical industries" that profitability has a positive effect on dividend payout while leverage has no impact on dividends payout by smearing ordinary least square (OLS). Akhtar et al., (2012) in article "relationship between financial leverage and financial performance: evidence from fuel and energy sector of pakistan" also concluded that there is a positive relationship between financial leverage and profitability of 20 companies of fuel and energy sector listed at Karachi stock exchange KSE, while using percentage gearing ratio, percentage debt to equity ratio as the measures for the independent variable Financial leverage, and the dependent variable Financial performance indicators were percent return on assets (ROA), percent return on equity (ROE), percent dividend coverage ratio, sales as the percent of total assets, net profit margin, dividend ratio to equity earnings per share before tax, and sales growth percentage (Baeza et al. 2013).

Zeitun and Saleh (2015) also explore the dynamic performance, financial leverage and financial crices evidence from GCC countries (Gulf Cooperation Council) by appling panel data technique and generalize method of movement (GMM). Authors disclose that performance of firms and financial crisis had a negative impact on organizations performance in case of GCC. Similerly, liquidity and solvency also has impacts on chemical sector in Pakistan was tested by Khidmat and Rehman (2014). They explain that liquidity indicators were current ratio and quick ratio, solvency indicators were debt ratio, debt to equity ratio and coverage ratio and for performance indicators proxy variables are return on assets and return on equity were chosen. Outcome of the model indicate that liquidity ratio affects profitability positively and, however, solvency affects profitability negatively (Lazaridis &Tryfonidis 2006).

3. DATA

For the sake of accuracy and proof of the data this study selected only those cement firms which are listed in PSX. The data of firms has been taken from financial statements. Following table no 1 shows the description of variables used to measure the performance of industry.

Table No. 1: Description of variables

Variable	Variable Name	Variable Description
FL	Financial Leverages	FL = TD / TA
CR	Current Ratio	CR = CA / CL
CCC	Cash Conversion Cycle	CCC = Inventories + R/A – P/A
OCFM	Operating Cash Flow Margin	OCFM = OCF / Sale
ROA	Return on Assets	ROA = NP / TA
Age	Age	Age = Current year – Age of incorporation
Size	Size	Size = TA
Sale	Sale	Net Sale
OCF	Operating Cash Flow	OCF

In the above Table No 1, TD indicate the total debt of the firm which indicate the sum of short-run and long-run debt of the firm, TA indicate the Total assets of the firm which include liquid assets, inventory, Fixture, machinery and land. Similerly, CA indicate all current assets which are most liquid and must be used over the next year and CL stand for current liabilities of the firms which must be paid over the next year. Additionaly, R/A indicate the outstanding invoice or amount receivable from the debtor and P/A indicate the amount pay payable mean the total amount payable to the creditors and OCF indicate the operating cash flow to operate the routine activity.

4. ECONOMETRICS METHDOLOGY

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To analyze the impact of financial and operating leverages on the firm either we used FEM (Fixed Effect Model) or REM (Random Effect model). For this purpose, Hausman test used to differentiate between the fixed effect and the random effect and Hausman test suggest that fixed effect model is more efficient and consistent. In the table no 2, model 1, 2 and 3 are used to measure the operating liquidity and model 4 is used to measure the impact of financial leverages and operating liquidity on firms performance.

Table No. 2: Models

Model	Equation
Model 1	$CCC_{it} = \alpha + \beta_1 FL_{it} + \beta_2 Sale_{it} + \beta_3 Size_{it} + \beta_4 Age_{it} + \beta_5 CFO_{it} + \varepsilon$
Model 2	$CR_{it} = \alpha + \beta_1 FL_{it} + \beta_2 Sale_{it} + \beta_3 Size_{it} + \beta_4 Age_{it} + \beta_5 CFO_{it} + \varepsilon$
Model 3	$OCFM_{it} = \alpha + \beta_1 FL_{it} + \beta_2 Size_{it} + \beta_3 Age_{it} + \varepsilon$
Model 4	$ROA_{it} = \alpha + \beta_1 FL_{it} + \beta_2 CCC_{it} + \beta_3 CR_{it} + \beta_4 OCFM_{it} + \beta_5 Sale_{it} + \beta_6 Size_{it} + \beta_7 Age_{it} + \varepsilon$

5. RESULTS AND DISCUSSION

The following table no. 3 shows the correlation coefficient which is used to show the direction of the variables with other variables and, as well as, also show the strength with other variables. The value of correlation is always between +1 and –1 and the most common correlation is Pearson Correlation Coefficient (Asteriou, 2006). In this table, financial leverages negatively correlated with CCC, CR and OCFM. OCF strongly correlated with the firms size.

Table No. 3: Correlation Coefficient

	CCC	CR	OCFM	FL	Sale	Size	AGE	OCF	ROA
CCC	1								
CR	0.1650	1							
OCFM	0.0621	0.1279	1						
FL	-0.2012	-0.3824	-0.1078	1					
Sale	0.1252	0.4254	0.2274	-0.376	1				
Size	0.2472	0.2090	0.1498	-0.302	0.7882	1			
AGE	0.0586	0.0638	-0.0545	01362	-0.1484	-0.108	1		
OCF	0.0817	0.4334	0.2598	-0.351	0.9256	0.7694	-0.123	1	
ROA	0.3179	0.4941	0.2758	-0.618	0.4734	0.2984	-0.043	0.4950	1

Results, table no. 4, explained that financial leverage has significantly and negatively impact on CCC, CR, OCFM and ROA. This indicates that any increment in total debt to total assets will adversely effect the firm liquidity (Yousaf & Sadia, 2014). Age of the firm has negatively effected the CCC and ROA and positively effect the OCFM. Reason is that, older firms were more productive as compared to other firms. Older firms invest more in technology, supply channel and human capital (Goel et al. 2015 & Ware 2015). Hence, firm's performance increases over time. However, other firms are investing in customer relation and financing their costs (Dawar 2014). As compared to the other firms, older firms are more stable and have goodwill in the business sector (Kaya 2014). That's the main reason oldest firm efficiently uses their resources and firms returns increases.

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Table No. 4: Fixed Effect Model results								
Variables	**Model 1 CCC**		**Model 2 CR**		**Model 3 OCFM**		**Model 4 ROA**	
	Coefficient		**Coefficient**		**Coefficient**		**Coefficient**	
FL (TD/TA)	-71.812**		-3.17*		0.36*		-0.15*	
Age	3.01**		0.178***		-1.86**		0.009*	
Sale	-0.109**		-2.872*		-		6.175*	
Size	0.1235***		1.370**		1.05*		-3.62**	
CFO	-0.3244*		0.90***		-		-0.00*	
CCC = Inventry+R/A	-		-		-		-2.951*	
CR = CA/CL	-		-		-		0.045	
OCFM = OCF/Sale	-		-		-		-0.009***	
R^2	0.6843		0.5956		0.0649		0.56	
Hausman Test								
Chi Sqr	14.168	0.000	18.581	0.000	88.021	0.000	0.682	0.000

Sale of firms positively associated with CCC and ROA. Increase in sale will ultimately enhance the firms CCC and ultimately ROA also increases. However, sale will negatively associate with CR this is just because of credit sale. Because credit sale attracts more people into coming to store and encourages customers to increase amount of their spending. However, this will reduce the current ration, but ultimately it will enhance firms performance (Hung et al. 2002 and Zeitun& Saleh 2015). As compared to other variables, the size of the firms cannot be overlooked. Size play an important role of any firm. Economies of scale and economies of scope can only achieve due to large business size. Due to the economies of scope firm's financial leverages increase and firm's performance are also increasing. These results are coincide with Xu (2012). One firm's size increase the share of market which will reduce the other firms share in the market. Hence, size of firms are beneficient for one firms and harmful for the other.

The overall results of the model suggest that all variables FL, CCC and CR are considered as important instrument to evaluate and determine the firm performance. The results from model 1, 2 and 3 explain that the more leverage the leverage is indicate more liquid as explain by the Dogan (2013). Financial leverage negatively affects firm performance. The reason can be said as it causes increase in financial cost Additionaly, Model 4 explain the objective of operating leverages and financial leverages has the significant impact on firms performance. Operating leverages affects firm's performance positively because of the assistance in requirements of huge funds for machinery and to support in day to day operating activities and cash conversion cycle had a significant effect over company's profitability (Khan et al., 2013). The lower panel of the table suggests the results of Hausman test. The Hausman test can be used to differentiate between the fixed effect and the random effect. In this model 1, 2, 3 and 4, p-value is less than 0.05 then we reject the null hypothesis and this suggests that fixed effect model is more efficient and consistent.

6. CONCLUSION

It is conclude from the discussion that firms which are highly levered are those which use higher debt portion in their capital structure because in financing decisions debt is considered to be cheaper source of finance and on other hand firms which are unlevered in financing decision that

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did not practice more debt in their CS (capital structure). Firms which are more levered, bring more profit (tax shield) for the existing shareholders but on the other hand it also bring higher risk for the equity holders as it creates agency costs and also bankruptcy cost (working capital, trade off theory).

RECOMMENDATION

On the basis of our analysis, we suggest some recommendation that will helpful for the cement industry to increase their profitability and production.

- Firstly, those firms which want to increase their production capacity they must increase financial investment through debt. Debt is considered as cheaper source of finance.
- Secondly, more levered firms earned more profit because it use as a tax shield for the organization profit. But it would also increase bankruptcy cost.
- Lastly, leverages also play a vital role to improve the financial position of the company. Because, it would help to the organization to boosting the opportunity through additional investments.

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