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Determinants of Profitability: A Comparative Study of Textile and Cement Sector of Pakistan

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Abstract: The intention of this research is to find the internal as well as external factors of profitability of textile and cement industries of Pakistan. Data is gathered aimed at the years of 2005-2010 from "Financial Statement Analysis of companies (non-financial) listed at Karachi Stock Exchange" by using random and convenient sampling technique. Dependent variables consist of ROA and ROE and independent variables are liquidity, leverage, growth, capital intensity, and size and market share. Out of the six variables, first four represents the internal factors and remaining two are external factors. In order to find the relationship among contingent and self-supporting variables, Panel data analysis is applied. The results of the study indicate that the liquidity and leverage impact significantly in the textile sector but growth, capital intensity, size and market share have no relevance with the profitability of this sector. In case of cement sector, liquidity, leverage and growth shows considerable effect while other factors are insignificant. This study is useful for the management of these sectors while carrying out any decision regarding internal and external variables.

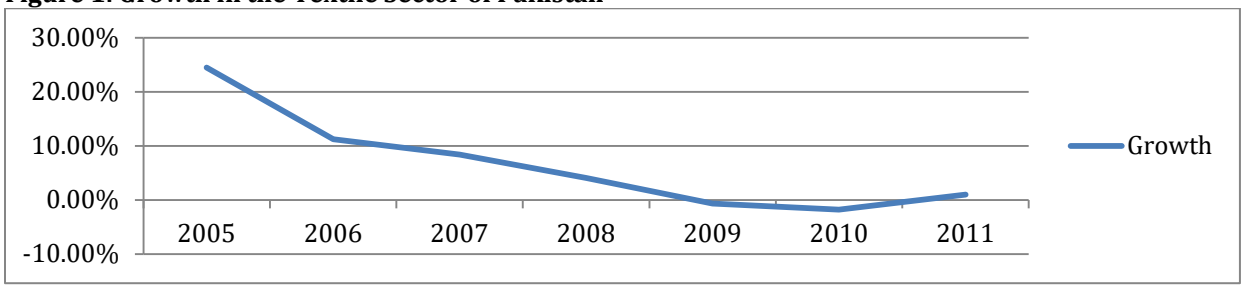
Keywords: *Profitability, internal factors, external factors, textile sector, cement sector, panel data analysis.*

1. Introduction

Competence of the business enterprise to create earnings through all company actions is referred to as profitability. Making a profit is the sole purpose of any business. Most of the time, term profit is used in the same meaning of profitability. Though they are equally inter-reliant and strongly correlated but perform different functions in business. So, in reality these two terms are very much different. Profitability refers to the relative theory whereas profit is considered to be the absolute phrase. Pakistan's economic growth is widely impacted by the textile and cement sectors. These are the major contributors of economic development and many individuals from all over the Pakistan got employment from these industries. However, from some period, these areas of industry encounter some challenges that are hindrance for their effectiveness and therefore development of the country's financial system. Textile industry was leading export industry of Pakistan by way of readymade garments and hosiery funding 544 billion PKR to total trade conferring to the 2018-19 Pakistan Economic Survey studied by Gallup Pakistan. But when its total exports which is 2,263 billion is linked to the total imports that are 5,371 billion, we come to the conclusion that our trade sector requires serious measures for growth (Gallup & Gilani, 2019). Budgetary measures and improbability in exchange rate adversely impacted the exports said by the exporters, because there is hurried cost of raw material whereas liquidity crisis intensified because of non-issuance of stuck-up repayments (Rizvi, 2019). Production of cement in Pakistan is decreased in June (2910 Thousands of tonnes) as compared to May of 2019 (3537 Thousands of Tonnes) (Tradingeconomics, 2019).

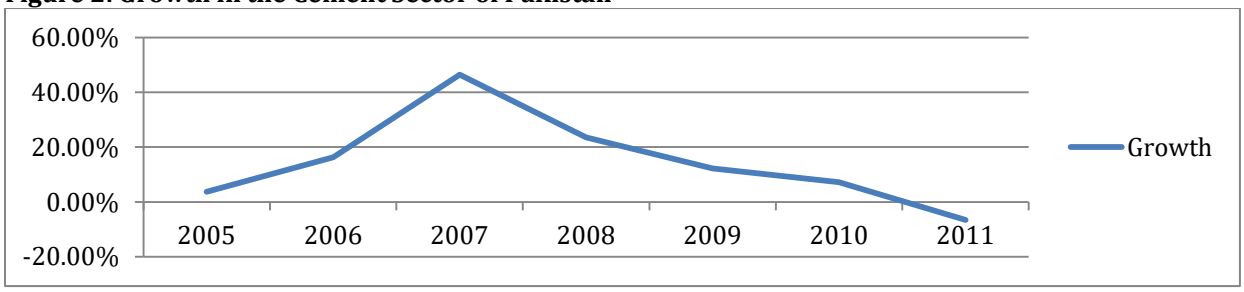
Significance of Study: The objective of this article is the relative investigation of Pakistan's textile and cement industries by checking the different variables impact on the firm's profitability. In the previous studies, much work is done on the determinants of profitability of different sectors worldwide especially banks. Reports are published in Pakistan about these sectors in which their overall factors for growth and decline according to government regulations are discussed which is only the one external factor of profitability but little work is done regarding the effects of internal and external determinants of profitability with descriptive statistics about textile sector and cement sector which are the backbone of our economy. The significant positive results pointed out by (Molyneux & Thornton, 1992; Bourke, 1989; Kwast & John, 1982; Short, 1979 and Heggested, 1977). Find support for the significant and negative effect of industry concentration on firm's productivity. He investigated external and internal factor's effect on the profitability of Class I railroads from 1996-2009 by constructing an econometric model. As the little work is done on the textile sector and cement sector in terms of profitability in Pakistan so, this paper will provide the foundation for this kind of study and helps these sectors to use the results of this research in formulating their plans. The growth charts of textile and cement sectors are as follows:

Figure 1: Growth in the Textile Sector of Pakistan



Source: (Pakistan Economic Survey 2012-13)

Figure 2: Growth in the Cement Sector of Pakistan



Source: APCMA (All Pakistan Cement Manufacturer Association)

The left behind portion of the research paper consisted of literature review under section 2, section 3 comprised of data and methodology, section 4 consisted of empirical findings and conclusion is explained in section 5.

2. Literature Review

Researchers in the previous studies divided determinants of profitability in two categories i.e. external determinants and internal determinants of profitability. The results indicate that the money supply and profits are positively and significantly related. He also recommended that growth in total market might produce possibility for banks to produce superior profits, if predominantly linked with entry obstacles. The factors which are believed to be away from the power of organization are external variables. The variables which are under the command of administration are internal determinants of profitability and these determinants are generally organized further in financial statement factors and non-financial statement factors.

External Factors of Profitability: Relationship among profitability and growth in total market was investigated by Bourke (1989) and he used the growth in money supply as the proxy for market growth. The results indicate that the money supply and profits are positively and significantly related. He also recommended that growth in total market might produce possibility for banks to produce superior profits, if predominantly linked with entry obstacles. Molyneux & Thornton (1992) also found similar results i.e. significant positive relationship of growth in total market and profitability. Raza, Farooq, & Khan (2011) carried out a research in profitability and its relationship with various factors of the firm under the title of "Firm and Industry Effects on Firm Profitability: an empirical analysis of KSE". He used financial statements of the firms, published by state bank of Pakistan from 2004-2009. Allen, Shaik, Myles, & Yeboah (2011), Independent variables consist of market share, industry effect and firm effect whereas profitability measures are ROA and ROE. He used regression technique to find the results which indicate that the dependent and independent variables are significantly related. Kessides (1990) finds the considerable affiliation of profitability with the market share by estimating oligopoly as a precise model. Number and size of companies in the marketplace refers to concentration of industry. Various researchers inspected the influence of industry concentration on the organization's profitability. Mixed results are found by all of them i.e. positive, negative and insignificant.

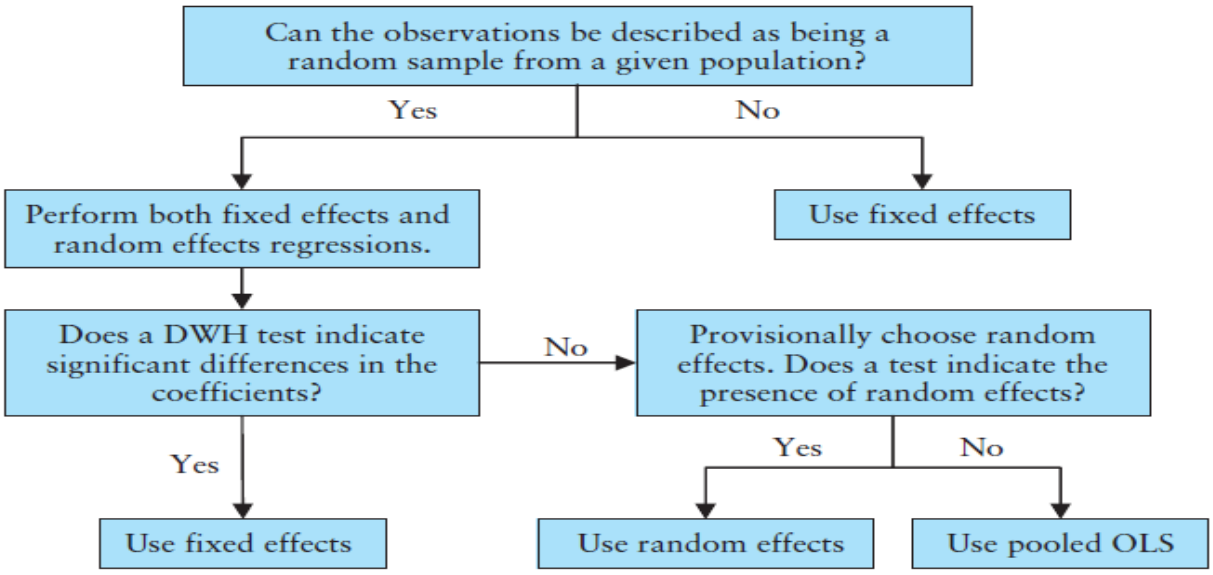
Internal Factors of Profitability: Ahmed & Khababa (1999) conducted a research on commercial banks in Saudi Arabia to assess their financial performance. For the analyses they incorporated both pooled time series data and time series data of 1987-1992. Major limitations of their research are the availability and short time series data. The profitability proxies are return on equity, earning per share and return on assets and checked its dependence on market size, concentration and business risk by employing the regression model. The results from all the three simulations indicate that company risk and bank size are major variables that explains financial performance. The study performed by Nagy, Newman, & Nelson (2009) carried out the research by taking the financial statement variables to assess the profitability of the firm. These variables include sales, 3-year return and prior year's net profit margin, firm's sector, reinvestment rate, dollar value of capital expenditures, debt-to-equity level and level of acquisition activity.

Profitability measure is ROA of the company. He concludes that these all factors are significant in shaping the ROA. Variables such as loan and deposit compositions and working costs believed to be a management controlled factors. Bank cost had the largest power to explain bank's profitability and then loan and bank's deposit composition (Fraser, Philips, & Rose, 1974). Influence of location on company's financial performance is determined by the (Vernon, 1971 and Kwast & John, 1982). The outcome revealed that the location is significantly related with profitability. Many authors perform research on financial performance regarding natural environment and they all find positive results and give reasons for their conclusions. Such as Shrivastava (1995); Dechant, Altman, Downing, & Keeney (1994) and Hart (1995) suggest that hands-on to environmental issues increases the reliability of government, employees, customers and all other key stakeholders, develops the firm image and helps to keep away from harmful response of key stakeholders.

3. Methodology

This article tries to discover the internal and external determinants of profitability of textile and cement sector. For this purpose data of 157 companies of textile sector and 19 companies of cement sector are taken from "Financial Statement Analysis of companies (non-financial) listed at Karachi Stock Exchange" comprising the years 2005-2010. I take only non-financial sector because of the importance of textile and cement sectors for the economy of Pakistan. As textile and cement industries faced extreme recession in the period from 2006 to 2010 so the data examined in this study comprises the years 2005 to 2010 for better understanding and to see the impact of extreme recession in textile and cement sectors on these variables. Secondary facts are used through random sampling technique and convenient sampling technique. Moreover, panel data set is used and process which is used for decision-making for the panel data is that proposed by (Dougherty, 2016).

Figure 3: Decision-Making Measures for Panel Data



Econometric Model: Both fixed effect and random effect models constructed for this research are as follows:
Model 1: Fixed effect model:
(1) $ROA_{it} = \beta_0 + \beta_1(liq_{it}) + \beta_2(lev_{it}) + \beta_3(g_{it}) + \beta_4(cint_{it}) + \beta_5(sz_{it}) + \beta_5(ms_{it}) + u_{it}$
Random effect model:
(2) $ROA_{it} = \beta_0 + \beta_1(liq_{it}) + \beta_2(lev_{it}) + \beta_3(g_{it}) + \beta_4(cint_{it}) + \beta_5(sz_{it}) + \beta_5(ms_{it}) + u_{it} + \varepsilon_{it}$
Model 2: Fixed effect model:
(1) $ROE_{it} = \beta_0 + \beta_1(liq_{it}) + \beta_2(lev_{it}) + \beta_3(g_{it}) + \beta_4(cint_{it}) + \beta_5(sz_{it}) + \beta_5(ms_{it}) + u_{it}$
Random effect model:
(2) $ROE_{it} = \beta_0 + \beta_1(liq_{it}) + \beta_2(lev_{it}) + \beta_3(g_{it}) + \beta_4(cint_{it}) + \beta_5(sz_{it}) + \beta_5(ms_{it}) + u_{it} + \varepsilon_{it}$

Where:

ROA_{it} = return on asset of firm i at time t	**ROE_{it} = return on equity of firm i at time t**	**liq_{it} = liquidity of firm i at time t**
lev_{it} = leverage or capital structure of firm i at time t	g_{it} = growth of firm i at time t	$cint_{it}$ = capital intensity of firm i at time t
sz_{it} = size of firm i at time t	ms_{it} = market share of firm i at time t	u_{it} = error term of firm i at time t or between firm error
ε_{it} = within firm error		

(liq, lev, g, cint are internal factors whereas sz and ms are external factors)

Liquidity: The potential rationale for organizations to keep liquid assets is four according to the literature of finance and economics. It includes the agency reason (Jensen, 1986), the tax reason (Foley, C. Fritz; Hartzell, Jay C; Titman, Sheridan; Twite, Garry, 2007), the precautionary reason (Opler, Pinkowitz, Stulz, & Williamson, 1999) and the transaction reason (Miller & Orr, 1966). Significant effect of liquidity and profitability is inspected by (Singh & Pandey, 2008) during the study about Hindalco Industries Limited. Considerable relationship was found among working capital to total asset; receivable turnover ratio, current ratio and liquid ratio with the effectiveness of Hindalco Industries Limited. Saleem & Rehman (2011) also found the noteworthy impact of all the liquidity ratios (liquid ratio, current ratio and quick ratio) on the organization's financial positions. This study used the current ratio as a proxy for liquidity which is calculated as the ratio of current assets to current liabilities.

Leverage or Capital Structure: Organization's capital structure is defined as the arrangement of long-term debts, preference shares and equity shares. Negative relationship was found by Bagchi & Khamrui (2012) in his paper in which he investigated the linkage among working capital management and organization's profitability. His had taken 10 mostly used buyer goods in India from 2001-2010. Return on asset is used as a profitability measure and independent variables were debt-equity ratio, cash conversion cycle, interest coverage ratio, age of debtors, age of creditors and age of inventory. The results showed negative relationship between profitability and both the debt and working capital factors. This study uses the debt-equity ratio as a proxy for leverage.

Growth: Growth means enhancement in the value of the deal with the passage of time. It may be calculated as cash or non-cash such as intangible assets. Hayajneh & Yassine (2011) carried out a research to find the linkage among working capital efficiency and profitability. Research also includes the variables of size, growth and liquidity. He studied 53 Jordanian industrial organizations given in Amman Exchange Market during the duration of 2000 to 2006. Outcomes suggest an affirmative and significant association of sales growth, size and liquidity in relation to profitability of the firm while it shows negative relationship with working capital variables. This research paper uses the substitution for growth is ratio of intangible assets/tangible assets.

Capital Intensity: Capital intensity deals with the use and management of fixed assets and it is the amount of real or fixed assets given relative to other factors of production, particularly labor. Mean value of ROA means that the average company in textile sector receives 0.99085% of return as percentage of its assets. Lee (2010) examined the connection among profitability and capital intensity for the U.S. restaurant industry for the period of 2000-2008 and concluded the negative connection among them. In this study total asset over sales revenue is taken in the place of capital intensity.

Size: It is believed that the firm's profitability is significantly affected by the firm's size. Khan, Jawaid, Arif, & Khan (2012) tries to look for the relationship among working capital management and profitability of four Pakistani sectors i.e. sugar and allied, chemical, engineering and textile for the duration of 2004-2009 by taking the cross sectional data. Variables of this research include debt ratio, average collection period, firm size, current ratio, inventory turnover and average payment period. Author suggests that firm's financial performance is significantly affected by firm size, current ratio, and inventory turnover in all sectors. In this study, log of sales is taken to find the impact of size on profitability.

Market Share: It indicates the proportion of a dominence in the marketplace by a particular company or product. Genchev (2012) researched to find the Bulgarian banks' impacted factors. For this purpose 22 banks were taken for the duration of 2006-2010 and variables include market share and concentration ratio. Return on equity is considered as the profitability measurement. Empirical results specified the statistically considerable and positive interconnection among market share and profitability while concentration shows no relationship with profitability. In this study, the proxy used for market share is assets/total assets of industry.

Hypothesis: In order to find the impact of internal and external factors on the profitability of textile and cement sector of Pakistan, following hypothesis are developed.

Liquidity
H_0 = liquidity has no positive impact on the profitability of textile and cement sectors
H_1 = liquidity has a positive impact on the profitability of textile and cement sectors
Leverage
H_0 = leverage has no negative impact on the profitability of textile and cement sectors
H_1 = leverage has a negative impact on the profitability of textile and cement sectors
Growth
H_0 = growth has no positive impact on the profitability of textile and cement sectors
H_1 = growth has a positive impact on the profitability of textile and cement sectors
Capital Intensity
H_0 = capital intensity has no negative impact on the profitability of textile and cement sectors
H_1 = capital intensity has a negative impact on the profitability of textile and cement sectors
Size
H_0 = size has no positive impact on the profitability of textile and cement sectors
H_1 = size has a positive impact on the profitability of textile and cement sectors
Market Share
H_0 = market share has no positive impact on the profitability of textile and cement sectors
H_1 = market share has a positive impact on the profitability of textile and cement sectors

4. Empirical Results

The Case of Textile Sector: In the textile sector 157 companies are analyzed during the period of 2005-2010 that are listed in Karachi Stock Exchange. Descriptive statistics of all the variables of textile sector is provided in table 1.

Table 1: Descriptive Statistics of Textile Sector

Variables	Observations	Mean	SD	Minimum	Maximum
ROA	848	.0099085	.1244873	-.3869673	1.736175
ROE	848	.1263471	3.459309	-14.38576	90.1775
Liq	848	1.007453	.9966363	.04	10.55
Lev	848	.4846934	70.1522	-2001.38	236.66
G	848	.0020671	.0179142	-.0179624	.3475363
Cint	848	4.179633	34.92237	.1743114	779.1205
Sz	848	6.0286	.6328159	2.220108	7.498802
Ms	848	.0063727	.0111786	.0000854	.1025491

According to this table all the variables have 848 observations. The mean value of ROA is 0.99085% and standard deviation is 12.44873% which means that from -11.45788% to 13.43958% dispersion is exist in this panel. The lowest value of this variable is -38.69673% that means the company exists in this panel that have a loss of -38.69673% as percentage of its assets and highest value is 173.6175% which represents the existence of the data of that company which earns 173.6175% as percentage of its assets and shows extraordinary performance. The mean value of another performance measure ROE is 12.63471% with standard deviation of 345.9309%. It shows that -333.29619% to 358.56561% dispersion is exists in this panel which is very high as compared to the panel of ROA. -1438.576% is the minimum value and 9017.75% is the maximum value. Similarly average age, standard deviation and lowest and largest values of independent variables are also presented in this table.

Table 2: Correlation Matrix of Textile Sector

Variables	ROA	ROE	Liq	Lev	G	Cint	Sz	ms
ROA	1.0000							
ROE	0.1812*	1.0000						
Liq	0.2227*	-0.0034	1.0000					
Lev	0.0128	-0.8950*	0.0119	1.0000				
G	-0.0387	-0.0083	-0.0355	0.0041	1.0000			
Cint	-0.0420	-0.0031	-0.0281	-0.0023	-0.0073	1.0000		
Sz	0.1100*	-0.0263	0.1089*	0.0391	0.0089	-0.4041*	1.0000	
Ms	0.0756**	-0.0067	0.1361*	0.0133	0.1937*	-0.0372	0.5757*	1.0000

Coefficients with significant at 1%= *, 5%= **, 10%= *** level of significance.

Table 2 presents the correlation among the variables. Correlation matrix shows the relationship and detects the multicollinearity among the variables. This table shows that the liquidity, leverage, size and market share has a positive impact on ROA while these variables show negative relationship with ROE. Both the models indicate that the model is good fit as f-statistic is 1.88 with significance at 10% level in fixed effect model and Wald chi^2 is 81.17 with significant at 1% level. Within R-square is greater in fixed effect model while between and overall R-square is greater in random effect model. Growth and capital intensity has a negative relation with both ROA and ROE. Secondly, no multicollinearity exists among the independent variables as market share has the highest coefficient which is 0.5757 with significant that is less than 0.8 which is according to the rule of thumb is acceptable in case of significance among independent variables.

Regression Models of Textile Sector

Table 3: Fixed Effect Model of Model 1

Variables	Coefficients	R. Std. Err.	T	P-value
Liq	.0583547	.0223157	2.61	0.010*
Lev	-.000029	.0000175	-1.65	0.100***
G	.0303456	.1477287	0.21	0.838
Cint	.0001532	.0001205	1.27	0.205
Sz	.0458075	.0304871	1.50	0.135
Ms	-.1703623	.569839	-0.30	0.765
_cons	-.3246396	.1880403	-1.73	0.086

R-square within = 0.0669, between = 0.1248, and overall = 0.0564, F statistics = 1.88, and Prob. > F = 0.0884. Variable is significant at * 1, ** 5, and ***10% level of significance (two-tailed).

Table 4: Random Effect Model of Model 1

Variables	Coefficients	R. Std. Err.	Z	P-value
Liq	.0293818	.0152174	1.93	0.054***
Lev	2.64e-06	.0000133	0.20	0.843
G	-.1674668	.1812491	-0.92	0.356
Cint	.0000154	.0000956	0.16	0.872
Sz	.0188485	.0141271	1.33	0.182
Ms	-.067135	.3940696	-0.17	0.865
_cons	-.1329161	.0855588	-1.55	0.120

R-square within = 0.0639, between = 0.1323, and overall = 0.0579, Wald chi^2 = 81.17, and Prob. > chi^2= 0.0000. Variable is significant at * 1, ** 5, and ***10% level of significance (two-tailed).

Table 5: Hausman Test of Model 1

Variables	Fixed	Random	Difference
Liq	.0583547	.0293818	.0289729
Lev	-.000029	2.64e-06	-.0000316
G	.0303456	-.1674668	.1978123
Cint	.0001532	.0000154	.0001378
Sz	.0458075	.0188485	.026959
Ms	-.1703623	-.067135	-.1032273

chi^2= 20.51, and Prob. > chi^2= 0.0004

Table 3 and 4 represents the fixed effect model and random effect model using the profitability measure of ROA. It shows that coefficients of liquidity and leverage are significant at 1% and 10% level of significance in fixed effect model and all other variables are insignificant while in random effect model, only liquidity is significant at 10% level of significance and all other variables are insignificant. In order to check that which model is best for textile sector, Hausman Specification test is applied. Table 5 shows that the results of fixed effect model are appropriate as the chi^2 is 20.51 which are significant at 1% level of significance. Similarly, fixed effect model and random effect model of textile sector with taking the performance measure of ROE is presented in table 6 and 7.

Table 6: Fixed Effect Model of Model 2

Variables	Coefficients	R. Std. Err.	T	P-value
Liq	.1327768	.0715603	1.86	0.066***
Lev	-.0446272	.0011886	-37.55	0.000*
G	-.1930844	.849128	-0.23	0.820
Cint	.0015526	.0011737	1.32	0.188
Sz	.3820803	.2854241	1.34	0.183
Ms	-5.256948	7.606985	-0.69	0.491
_cons	-2.261787	1.722722	-1.31	0.191

R-square within = 0.8118, between = 0.7230, and overall = 0.7976,
F statistics = 276.07, and Prob. > F = 0.0000. Variable is significant at
* 1, ** 5, and ***10% level of significance (two-tailed).

Table 7: Random Effect Model of Model 2

Variables	Coefficients	R. Std. Err.	Z	P-value
Liq	.0236755	.0343244	0.69	0.490
Lev	-.0441848	.0012129	-36.43	0.000*
G	-.8753061	1.114892	-0.79	0.432
Cint	-.0001805	.001442	-0.13	0.900
Sz	.0401711	.1926212	0.21	0.835
Ms	.2736867	4.525319	0.06	0.952
_cons	-.1179607	1.197832	-0.10	0.922

R-square within = 0.8111, between = 0.7474, and overall = 0.8012, Wald chi^2 = 1929.83, and Prob. > chi^2= 0.0000. Variable is significant at * 1, ** 5, and ***10% level of significance (two-tailed).

Table 8: Hausman Test of Model 2

Variables	Fixed	Random	Difference
Liq	.1327768	.0236755	.1091013
Lev	-.0446272	-.0441848	-.0004423
G	-.1930844	-.8753061	.6822217
Cint	.0015526	-.0001805	.0017331
Sz	.3820803	.0401711	.3419091
Ms	-5.256948	.2736867	-5.530634

chi^2= 3.52, and Prob. > chi^2= 0.4748.

Table 6 and 7 shows that the coefficients of liquidity and leverage are significant at 10% and 1% level of significance in fixed effect model and rest of the variables shows insignificant behavior with ROE while according to random effect model only leverage is significant at 1% level of significance. It also shows that model is good fit as the f-statistic is 276.07 with significant at 1% level and Wald chi^2 is 1929.83 which is also significant at 1% level of significance. Within R-square is greater in fixed effect model whereas between and overall R-square is greater in random effect model. After that Hausman test is applied to check the applicability of fixed effect or random effect model. Table 8 shows that the chi^2 is insignificant with the value of 3.52. It means that the results of random effect model are favorable. But in order to further check the significance of random effect model Breusch and Pagan Lagrangian multiplier test is used which shows that chi^2 is still insignificant at the value of 2.42.

Breusch and Pagan Lagrangian Multiplier Test for Random Effects: chi^2= 2.42, and Prob. > chi^2= 0.1194. So, in this case results of pooled ordinary least square regression are favorable for model 2 in the textile sector that is given in table 9.

Table 9: Pooled Ordinary Least Square Regression for Model 2

Variables	Coefficients	R. Std. Err.	Z	P-value
Liq	.0210888	.029678	0.71	0.478
Lev	-.0441511	.0012658	-34.88	0.000*
G	-.9419919	1.339443	-0.70	0.482
Cint	-.0002542	.0014502	-0.18	0.861
Sz	.0323436	.1888767	0.17	0.864
Ms	.5739722	4.462153	0.13	0.898
_cons	-.0691342	1.178465	-0.06	0.953

R-square= 0.8012, F statistics = 267.59, and Prob. > F = 0.0000. Variable is significant at * 1, ** 5, and ***10% level of significance (two-tailed).

According to table 9, only coefficient of leverage is significant at 1% level of significance whereas all other variables are insignificant and the model is good fit as the f-statistic is 267.59 with significant at 1% level of significance. R-square is 80.12% which means that the independent variables explain the dependent variable up to 80.12%.

The Case of Cement Sector: 19 companies are selected for the period of 2005-2010 from the Karachi stock exchange. Descriptive statistics and correlation matrix of both the models of cement sector are given in table 10 and 11.

Table 10: Descriptive Statistics of Cement Sector

Variables	Observations	Mean	SD	Minimum	Maximum
ROA	110	.0271246	.1283478	-.2477702	.4382894
ROE	110	-.2260918	2.527431	-26.18031	1.330472
Liq	110	.8779091	.5813778	.17	3.02
Lev	110	3.271818	16.68617	-8.24	175.8
G	110	.0052271	.0245448	0	.2074556
Cint	110	5.707904	19.70391	.4002351	148.313
Sz	110	6.482374	.5195719	4.477555	7.420457
Ms	110	.0509479	.0482286	.0051737	.2269716

This table shows that all the variables have 110 observations and the average age of ROA is 2.71246% with standard deviation of 12.83478%. It means that the panel is dispersed from -10.12232% to 15.54724% and average value signify that the average firm in cement sector gets 2.71246% return as percentage of its assets. Its minimum value indicate the existence of firm that earns loss of -24.7702% as percentage of its assets and it is the very weak firm in this sector and maximum value represents the extraordinary firm in the market that earns 43.82894% return as percentage of its assets. Similarly the mean, standard deviation, minimum and maximum values for other dependent and independent variables are shown in this table.

Table 11: Correlation Matrix of Cement Sector

Variables	ROA	ROE	Liq	lev	G	Cint	sz	ms
ROA	1.0000							
ROE	0.2439**	1.0000						
Liq	0.5103*	0.1321	1.0000					
Lev	-0.1611***	-0.9945*	-0.1020	1.0000				
G	-0.0728	0.0176	-0.0075	-0.0234	1.0000			
Cint	-0.1131	0.0065	-0.1366	-0.0200	-0.0337	1.0000		
Sz	0.3228*	0.1144	0.2916*	-0.0826	-0.0736	-0.5916*	1.0000	
Ms	0.0601	0.0972	0.2344**	-0.0879	-0.0863	-0.1051	0.6563*	1.0000

Coefficients with significant at 1%= *, 5%= **, 10%= *** level of significance.

According to table 11 liquidity, size and market share are positively correlated with ROA and leverage, growth and capital intensity negatively linked with ROA and in case of ROE, only leverage has a negative relationship with profitability while all other variables shows positive behavior towards profitability. In case of multicollinearity the largest coefficient is of market share and size i.e. 0.6563 with significance which is less than 0.8 which shows no multicollinearity. So, regression can be run on these models.

Regression Models of Cement Sector

Table 12: Fixed Effect Model of Model 1

Variables	Coefficients	R. Std. Err.	T	P-value
Liq	.0995791	.0353912	2.81	0.011**
Lev	-.0002644	.0001493	-1.77	0.094***
G	1.162307	.3686983	3.15	0.006*
Cint	-.0009313	.0006015	-1.55	0.139
Sz	-.0408656	.0500823	-0.82	0.425
Ms	-1.074236	.689411	-1.56	0.137
_cons	.2594441	.3337747	0.78	0.447

R-square within = 0.2727, between = 0.0028, and overall = 0.0591, F statistics = 9.09, and Prob. > F = 0.0001. Variable is significant at * 1, ** 5, and ***10% level of significance (two-tailed).

Table 13: Random Effect Model of Model 1

Variables	Coefficients	R. Std. Err.	Z	P-value
Liq	.1023326	.0207764	4.93	0.000*
Lev	-.0006956	.0001953	-3.56	0.000*
G	-.0591911	.1840029	-0.32	0.748
Cint	.0013829	.0006276	2.20	0.028**
Sz	.1333639	.0487375	2.74	0.006*
Ms	-1.036249	.3356505	-3.09	0.002*
_cons	-.8800807	.3072638	-2.86	0.004

R-square within = 0.1757, between = 0.6775, and overall = 0.3952, Wald chi^2 = 172.18, and Prob. > chi^2= 0.0000. Variable is significant at * 1, ** 5, and ***10% level of significance (two-tailed).

Table 14: Hausman Test of Model 1

Variables	Fixed	Random	Difference
Liq	.0995791	.1023326	-.0027534
Lev	-.0002644	-.0006956	.0004313
G	1.162307	-.0591911	1.221498
Cint	-.0009313	.0013829	-.0023142
Sz	-.0408656	.1333639	-.1742295
Ms	-1.074236	-1.036249	-.0379869

chi^2= 27.71, and Prob. > chi^2= 0.0001.

Table 12 and 13 shows the fixed effect and random effect model of cement sector in case of ROA as performance measure. It shows that coefficients of liquidity, leverage and growth are significant at 5%, 10% and 1% respectively while all other variables are insignificant in fixed effect model. In random effect model coefficients of liquidity, leverage, size and market share are significant at 1% level of significance; capital intensity is significant at 5% level of significance whereas growth is insignificant. Model is good fit in both the techniques as f-statistic is 9.09 and Wald chi^2 is 172.18 with both significant at 1% level of significance. Within R-square is greater in fixed effect model whilst between and overall R-square is greater in random effect model. After that hausman test is applied to check the applicability of fixed effect model or random effect model and according to table 14, chi^2 is 27.71 with significant at 1% that means the results of fixed effect model are suitable. Similarly the same procedure is applied by taking the performance measure of ROE. The fixed effect model and random effect model are presented in table 15 and 16.

Table 15: Fixed Effect Model of Model 2

Variables	Coefficients	R. Std. Err.	T	P-value
Liq	.1057341	.0548355	1.93	0.070***
Lev	-.1494851	.0003151	-474.35	0.000*
G	3.035041	1.350541	2.25	0.037**
Cint	-.0022584	.0016483	-1.37	0.187
Sz	-.086105	.1375031	-0.63	0.539
Ms	-.7551035	1.40182	-0.54	0.597
_cons	.7638331	.9065111	0.84	0.411

R-square within = 0.9936, between = 0.9577, and overall = 0.9872, F statistics = 1.78e+06, and Prob. > F = 0.0000. Variable is significant at * 1, ** 5, and ***10% level of significance (two-tailed).

Table 16: Random Effect Model of Model 2

Variables	Coefficients	R. Std. Err.	Z	P-value
Liq	.1107699	.0444422	2.49	0.013**
Lev	-.1499485	.0001524	-983.87	0.000*
G	.8156351	1.092561	0.75	0.455
Cint	.0013966	.0018674	0.75	0.455
Sz	.2007593	.1463152	1.37	0.170
Ms	-1.071583	1.051832	-1.02	0.308
_cons	-1.094105	.9399708	-1.16	0.244

R-square within = 0.9931, between = 0.9801, and overall = 0.9909, Wald chi^2 = 3.15e+06, and Prob. > chi^2= 0.0000. Variable is significant at * 1, ** 5, and ***10% level of significance (two-tailed).

Table 17: Hausman Test of Model 2

Variables	Fixed	Random	Difference
Liq	.1057341	.1107699	-.0050359
Lev	-.1494851	-.1499485	.0004634
G	3.035041	.8156351	2.219406
Cint	-.0022584	.0013966	-.0036549
Sz	-.086105	.2007593	-.2868643
Ms	-.7551035	-1.071583	.3164799

chi^2= 14.84, and Prob. > chi^2= 0.0215.

According to the results of table 15 and 16, in fixed effect model coefficients of liquidity, leverage and growth are significant at 10%, 1% and 5% level of significance respectively and remaining variables are insignificant. Market share is negative in cement sector and in model 1 of textile sector but it is irrelevant in all the models. From the previous text, (Boulding & Staelin, 1990) found an insignificant results for market share and profitability. In random effect model liquidity and leverage are significant at 5% and 1% level of significance respectively and rests of the variables are insignificant. Model is god fit as f-statistic and Wald chi^2 is significant at 1% level of significance. Within R-square is greater in fixed effect model, whereas between and overall R-square is greater in random effect model. In order to check that results of which model is used, hausman test is applied and it shows the favorable behavior towards fixed effect model as chi^2 is 14.84 which is significant at 5% level of significance.

5. Interpretation, Discussion and Conclusion

Table 18: Final Results of Textile and Cement Sector

Variables	Textile sector		Cement sector	
	Coefficients of model 1	Coefficients of model 2	Coefficients of model 1	Coefficients of model 2
Liq	.0583547*	.0210888	.0995791**	.1057341***
Lev	-.000029***	-.0441511*	-.0002644***	-.1494851*
G	.0303456	-.9419919	1.162307*	3.035041**
Cint	.0001532	-.0002542	-.0009313	-.0022584
Sz	.0458075	.0323436	-.0408656	-.086105
Ms	-.1703623	.5739722	-1.074236	-.7551035
_cons	-.3246396	-.0691342	.2594441	.7638331
R-square	within = 0.0669, between =0.1248 overall = 0.0564	0.8012	within = 0.2727 between=0.0028 overall = 0.0591,	within = 0.9936, between= 0.9577 overall = 0.9872,
F-statistic	1.88***	267.59*	9.09*	1.78e+06*

Variable is significant at * 1, ** 5, and ***10% level of significance (two-tailed).

According to table 4.18, liquidity is positive in all cases and shows the significant behavior with profitability except in model 2 of textile sector the positive and significant behavior of liquidity is according to the hypothesis and consistent with the previous research such as the researches of (Saleem & Rehman, 2011 and Nandi, 2012) as well as the positive and insignificant results of liquidity were also found by (Nandi, 2012) while conducting his research in Bharat Heavy Electrical Ltd for a period of 11 years. In case of leverage or capital structure, it is negative and significant in both the models of textile and cement sector. These results are also according to the hypothesis of this thesis and same as some of the previous authors found in their studies such as (Hayajneh & Yassine, 2011; Şamiloğlu & Demirgüneş, 2008; Bagchi & Khamrui, 2012 and Obert & Olawale, 2010). Growth is positive and significant only in case of cement sector as per the hypothesis but in case of textile sector, in model 1 it is positive but insignificant and in model 2 it is negative and insignificant. Insignificant behavior of growth in textile sector shows that it has no relationship with profitability. Both types of results have some resemblance with the previous literature such as positive and significant results found by (Hayajneh & Yassine, 2011; Şamiloğlu & Demirgüneş, 2008 & Coad, 2007).

No relationship among growth and profitability was found by (Fitzsimmons, Jason R; Steffens, Paul; Douglas, Evan J, 2005)**.** Capital intensity is negative in both of the models of cement sector and in model 2 of textile sector but it shows insignificant behavior with profitability in both the sectors. It is not according to the hypothesis and in the earlier studies (Lucius, Harold W; Habte-Giorgis, Berhe; Lee, Jooh, 2008) found no connection of capital intensity with return on asset. Size of the firm is positive in case of textile sector and negative in cement sector but have insignificant results. In the earlier studies Şamiloğlu & Demirgüneş (2008) and Molyneux, Philip, William, & John (1994) investigated no connection among size and profitability. In random effect model coefficients of liquidity from the above discussion, it is found that the liquidity and leverage considerably influences the textile sector but capital intensity, growth, size and market share shows no affiliation with profitability of this sector. In case of cement sector, liquidity, leverage and growth have a significant impact on profitability but capital intensity, size and market share not affects the profitability of this sector. So, we conclude that in general the internal factors affect the profitability of these sectors but external factors have no concern with these sectors.

Conclusion

The textile business is considered as the major and essential sector of Pakistan. It has the main role in contributing towards employment, exports and country's GDP. For the economy of Pakistan, it acts as the backbone. Out of total manufacturing of Pakistan, textile sector contains 38%. Cement industry is also the very important sector of Pakistan as it has the very critical and essential role in the socio-economic improvement. Growth in this sector is an indicator for monitory action. This study has been undertaken to scrutinize the internal and external determinants of profitability of textile and cement sector of Pakistan. Data is collected through secondary source which is "Financial Statement Analysis of companies (non-financial)

listed at Karachi Stock Exchange" from 2005-2010 as this is the period of extreme recession for both the industries. The results of the study indicate the significant behavior of internal factors whereas outside factors are irrelevant from the profitability of textile and cement sectors as the liquidity and leverage shows much effect on profitability in case of textile sector and in cement sector, with the liquidity and leverage, growth as well affects significantly but capital intensity, size and market share shows insignificant behavior.

This study is useful for the management of textile and cement sectors as well as the investors that it provides information about the factors at which the management should emphasize such as the management should not need to worry about the size and market share of the industry as well as capital intensity is also not a problem for these sectors. It is recommended to the firm managers that they should concentrate on working capital management to ensure the sound liquidity position of the company. They should also focus on the leverage as it is negative in all cases which mean that industry's return on equity share is less than the cost of borrowing money. This study is also useful for the people who want to invest in these sectors. Moreover due to the comparative and empirical nature of this study, upcoming investigators will also find it useful. Further, they can reproduce the results of this study on other industries and also explanation for the irrelevant performance of external factors for these industries can also be the next topic for future researchers. Restrictions for this study are the use of limited variables and shorter time period as important external variables are overlooked like inflation, industry concentration and regulation etc.

References

Ahmed, A. & Khababa, N. (1999). Performance of the Banking Sector in Saudi Arabia. *Journal of Financial Management and Analysis*, 12(2), 30-36.

All Pakistan Cement Manufacturer Association. (n.d.). Retrieved November 12, 2019, from www.apcma.com: http://apcma.com/data_history.html

Allen, A. J., Shaik, S., Myles, A. E. & Yeboah, O. A. (2011). Determinants of Profitability Performance: An Analysis of Class I Railroads in the United States. Southern Agricultural Economics Association Annual Meeting, Corpus Christi, TX.

Bagchi, B. & Khamrui, B. (2012, May). Relationship between Working Capital Management and Profitability: A Study of Selected FMCG Companies in India. *Business and Economics Journal,* 60, 1-11.

Boulding, W. & Staelin, R. (1990, October). Environment, Market Share, and Market Power. *Management Science,* 36(10), 1160-1177.

Bourke, P. (1989). Concentration and Other Determinants of Bank Profitability in Europe, North America and Australia. *Journal of Banking and Finance,* 13(1), 65-67.

Coad, A. (2007). Testing the principle of 'growth of the fitter': The relationship between profitas and firm growth. *Structural Change and Economic Dynamics,* 18(3), 370-386.

Dechant, K., Altman, B., Downing, R. & Keeney, T. (1994). Environmental leadership: From compliance to competitive advantage. *Academy of Management Executive,* 8(3), 7-28.

Dougherty, C. (2016). In C. Dougherty, Introduction to Econometrics (5 ed., p. 608). Oxford University Press.

Emery, J. T. (1971, March). Risk, Returns, and the Morphology of Commercial Banking. *Journal of Financial and Quantitative Analysis,* 6(2), 763-776.

Fitzsimmons, Jason R., Steffens, Paul. & Douglas Evan, J. (2005, February). Growth and Profitability in Small and Medium Sized Australian Firms. AGSE Entrepreneurship Exchange, Melbourne.

Foley, C. Fritz., Hartzell, Jay C., Titman, Sheridan. & Twite, Garry. (2007, December). Why do firms hold so much cash? A tax-based explanation. *Journal of Financial Economics, Elsevier,* 86(3), 579-607.

Fraser, D., Philips, W. & Rose, P. (1974). A Canonical Analysis of Bank Performance. *Journal of Financial and Quantitative Analysis,* 9(2), 287-295.

Gallup & Gilani. (2019). Pakistan Economic survey 2018-19. Pakistan: GILANI RESEARCH FOUNDATION POLLS.

Genchev, E. (2012). Effects of market share on the bank's profitability. *Review of Applied Socio- Economic Research,* 3(1), 87.

Haron, P. S. (2004, March). DETERMINANTS OF ISLAMIC BANK PROFITABILITY. *Global Journal of Finance and Economics. USA,* 1(1), 2-18.

Hart, S. (1995). A natural-resource-based view of the firm. *Academy of Management Review,* 20(4), 986-1014.

Hayajneh, O. S. & Yassine, F. L. (2011). The Impact of Working Capital Efficiency on Profitability – an Empirical Analysis on Jordanian Manufacturing Firms. *International Research Journal of Finance and Economics,* 66, 67-76.

Heggested, A. (1977). Market Structure, Risk, and Profitability in Commercial Banking. *Journal of Finance,* 32(4), 1207-1216.

Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *American Economic Review,* 76(2), 323-329.

Kessides, I. (1990). Internal Versus External Market Conditions and Firm Profitability: An Exploratory Model. *Economic Journal,* 100(402), 773-792.

Khan, Z., Jawaid, S. T., Arif, I. & Khan, M. N. (2012, March). Working capital management and firm's profitability in Pakistan: A disaggregated analysis. *African Journal of Business Management,* 6(9), 3253-3261.

Kwast, M. L. & John, T. R. (1982). Pricing, Operating Efficiency, and Profitability among Large Commercial Banks. *Journal of Banking and Finance,* 6(2), 233-254.

Lee, S. (2010). Effects of Capital Intensity on Firm Performance: U.S. Restaurant Industry. *Journal of Hospitality Financial Management,* 18(1), 1-13.

Lucius, Harold W., Habte-Giorgis, Berhe. & Lee, Jooh. (2008). Empirical Study of the Strategic Impact of Major Marketing Factors on Firms Accounting Performance in The Pharmaceutical Industry. *Business Research Yearbook,* XV(3), 205-209.

Miller, M. H. & Orr, D. (1966, August). A Model of the Demand for Money by Firms. *Quarterly Journal of Economics,* 80(3), 413-435.

Molyneux, P. & Thornton, J. (1992). Determinants of European Bank Profitability: A Note. *Journal of Banking and Finance,* 16(6), 1173-1178.

Molyneux, Philip., William, D. L. & John, T. (1994, May). Competitive Condition in European Banking. *Journal of Banking and Finance,* 18(3), 445-459.

Nagy, N., Newman, D. & Nelson, D. (2009). Determinants of Profitability: What factors play a role when assessing a firm's return on assets? The University of Akron.

Nandi, K. C. (2012). TRENDS IN LIQUIDITY MANAGEMENT AND THEIR IMPACT ON PROFITABILITY: A CASE STUDY. *Great Lakes Herald,* 6(1), 16-30.

Obert, M. & Olawale, F. (2010, August 4). Does debt really matter on the profitability of small firms? A perspective on small manufacturing firms in Bulawayo, Zimbabwe. *African Journal of Business Management,* 4(9), 1709-1716.

Opler, T., Pinkowitz, L., Stulz, R. & Williamson, R. (1999). The Determinants and Implications of Corporate Cash Holdings. *Journal of Financial Economics,* 52, 3-46.

Pakistan Economic Survey 2012-13. Retrieved November 20, 2019, from www.finance.gov.pk

Peltzman, S. (1968). Bank Stock Prices and the Effects of Regulation of the Banking Structure. *The Journal of Business, University of Chicago press,* 41, 413.

Raza, S. A., Farooq, M. S. & Khan, N. (2011). Firm and Industry Effects on Firm Profitability: An Empirical Analysis of KSE. International Research Journal of Finance and Economics.

Rizvi, K. R. (2019). Pakistan's textile sector exports decline 1.42 percent in FY19. Pakistan: customnews.pk.

Saleem, Q. & Rehman, R. U. (2011, July). Impacts of liquidity ratios on profitability (Case of oil and gas companies of Pakistan). *Interdisciplinary Journal of Research in Business,* 1(7), 95-98.

Şamiloğlu, F. & Demirgüneş, K. (2008). The Effect of Working Capital Management on Firm Profitability in Turkey. *The International Journal of Applied Economics and Finance,* 2(1), 44-50.

Short, B. (1979). The Relation between Commercial Bank Profit Rates and Banking Concentration in Canada, Western Europe and Japan. *Journal of Banking and Finance,* 3(3), 209-219.

Shrivastava, P. (1995). The role of corporations in achieving ecological sustainability. *Academy of Management review,* 20(4), 936-960.

Singh, J. & Pandey, S. (2008). Impact of Working Capital Management in the Profitability of Hindalco Industries Limited. *The Icfai University Journal of Financial Economics,* 6(4), 62-72.

Smirlock, M. (1985). Evidence on the (Non)Relationship between Concentration and Profitability in Banking. *Journal of Money, Credit and Banking,* 17(1), 69-83.

Tradingeconomics. (2019). Pakistan Cement production. Pakistan: tradingeconomics.com.

Vernon, J. R. (1971, January). Separation of Ownership and Control and Profit Rates, the Evidence from Banking: Comment. *Journal of Financial and Quantitative Analysis,* 6(1), 615-625.