Does CEO age matters? : A case of an emerging economy.

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Abstract:

In today's business environments, "Does CEO age matters?" still have doubts due to multiple pros and cons associated with the age. Where CEO age has been noted as an influencing element on firm performance. The intervening mechanism that governs direct and indirect effect of CEO age on performance via CEO tenure has remained limited and under researched in the markets of emerging economies. Specifically, test models of this paper suggest that CEO Tenure indirectly influences performance through its direct effect on the link between CEO Age and performance. Results from regression and pairwise correlation analysis confirms the study hypothesis and are consistent with model. In discussion this study traces the implication of results for practice and future research.

Key words: CEO Age, CEO Tenure, Firm performance

1-Introduction:

Today's modern world seems to be divided among two groups of executives. First group is based on CEOs irrespective of age with proven experiences in running complex businesses. And demand for such people is always high. But sometimes such groups of executives turns into high stakes when it comes towards the lacking of a key element of motivation to continue and abilities to be a bunny rabbit of energizing large organization. The second group seems to overcome these deficiencies. This group is based on young CEOs who are willing to give anything at their disposal to succeed, K Sudarshan (2015). However a chief executive (CEO) is considered as an important and responsible figure for articulating the future direction and vision of company being the figurehead of the organization. Mitzberg 1973; Bigboy and Wisersema, 2001- The role played by executives in impacting organizational performance outcomes has been challenge of many extensive scholarly researcher and conversations in performance management. Both the strategic and planning choices (Child, 1972; Wiles and snow, 1978: joyace, 1985) and Upper Echelon (Hambrick and Mason 1984; Finkelstein, 1996) ambitions argue that executives try to control and monitor changes in business environment. They plan and execute goals strategically that leads to superior performance and high portability (Weick and Daft, 1984: spreitizer, 1997: Gorg et all, 2003). While and extensive research has been conducted on the impact of CEO Age on firm performance in general, surprisingly comparatively little exploration is done about the mediation mechanism of CEO Tenure and its impact on the link between CEO Age and firm performance. Researchers have investigated the relationship between CEO Tenure and firm performance for decades. Which was generally based on main effects of CEO Tenure on performance. However, currently it has been acknowledged that relationship between tenure and performance is much more complicated that what was originally viewed (Fukutomi and Hambrick, 1991).

In particular, few researches are being conducted to analyze the mechanism of indirect effect of tenure on performance. But only limited number of researcher have investigated an intervening effect of CEO Tenure on the link between CEO age and firm performance. This study is consistent with the prior researches, we propose and test a model that mediates the effect of CEO Age on performance through CEO Tenure. Which is far beyond the tenure's main effect. Besides the fact that impact of CEO Age on firm performance has been investigated in developed countries (Dalton et al, 1998; Shoar and Bestrand, 2003; Metzger, 2014). But little research has been done regarding CEO characteristics on firm performance in emerging economies of undeveloped countries. That's why we have selected Pakistani public listed companies from cement sector. As these companies of cement sector have major share in the economy of Pakistan. This study also involves agency theory because of conflicting nature among executives of different ages and experiences. Because presently CEOs of young ages may cater for only their self-interests while completely ignoring the choices of share- holders to raise the higher profits in interest of their job securities and superior performance. These types of conflicts between among executive and shareholders creates agency problems and ultimately leads to poor firm performances (Priem et al, 2005).

This paper is an investigation of CEOs Age direct impact on firm performance and additionally, "how the CEO Tenure will mediate the link between CEO Age and firm performance"?

In literature many studies have been conducted to emphasize the association among CEO Age and firm performance. But no study has ever provided any in depth insight regarding the mediation effect of CEO Age on performance via CEO Tenure. According to Muller (2002), researchers are now governing and performance relationship by focusing on tenure with more proximal outcome like spending and taxation but explored with deeper insights. Therefor we might be able to address the following research questions:

RQ1: How does CEO age influences the performance of the firm?

RQ2: Whether CEO tenure mediate the link between CEO age and firm performance?

These are the research questions which are mainly discussed and analyzed empirically in this paper. By considering the literature gaps, specifically under research topics in emerging economies. This research is conducted to overcome the limitations of past studies.

The sample consist of randomly selected independent variables. These sample values consist of 20 firms (94%) public companies from cement sector of Pakistan. All of these companies are listed in Pakistan stock exchange (PSK). Data related to CEO Age, CEO Tenure and board independence are collected from annual reports, LinkedIn and various periodicals of cement companies from the period 2009-2018. In this paper, we have perceived that cement sector of Pakistan is the most suitable choice to investigate the impact of CEO Age on firm performance. Due to high share of cement companies in the economy of Pakistan, this sector choice seems more convenient for selection and investigation of intervening effects of CEO Tenure on link between CEO Age and firm performance. This study focuses on more complex intervening mechanism. Our study is the first to examine the CEO Tenure mediation mechanism for understanding the relationship between CEO Age and firm performance with more in depth insights and practical implications.

The empirical findings of cement-case study contributes to literature in the context of emerging economies. The most important contribution of this study is that CEO Tenure mediates the effect of CEO Age on firm performance.

Coming sections of this study are organized as follows, Next section entails the literature review and hypothesis development. Whereas third section will consist on methodology. In fourth section, data analysis discussion and results are conducted. Fifth section of this paper is based on limitations and conclusions.

2- Literature Review and Hypothesis development:

Firms need clear direction and guidance to move on smoothly. For all firm's operations and accomplishments there is always a need for some leader. That's why it turns necessary for companies to hire a CEO who can decide a clear direction and guidance for employees as company founders have less or no experience necessary to run a business. Even if founder have experience, they might have not time or interest. In some cases founders of company gets much involved in running the business without intentions for innovations. A lack of innovation can turn into stagnation and ultimately loss. Hiring a CEO can assure to keep firm floating. CEO age is another factor which can effect company performance.

Several studies in literature link the CEO age to various firm performance priorities, preferences and firm risk taking behaviors. In recent studies Serfling, (2019) found that older CEOs are focused for superior performance that results in high stock value and higher inner wealth of shareholders' equity. Furthermore, several other studies are associated with young CEOs who intend to take smarter planning and quick solutions to generate high profits and performance. May be the reduction if performance is exactly the reason to bring in new CEOs in firms. Alternatively, may be reduction in performance is deteriorating the high value potential of firms. Which tend to avoid young CEOs to generate high profits with riskier policies in limited time frame Terpstra et al, (1993). Firms offering high compensation incentives to attract highly qualified and talented young CEOs. This would imply those efforts to raise profits for high firm values and targets specific practices should be actively undertaken Janson Fink (2015). In prior literature several studies has addressed the questions like, "Do CEOs influences firm performance?" and "How do CEOs impact firm performance?" These questions can be answered by using Upper Echelon theory (UET) by (Donald C. Hambrick and Phyllis A. Mason 1984). This theory states that organizational outcomes are partially predicted by managerial back grounds (Ham brick, 2007) and characteristics of chief executives (CEO) (Hambrick and Mason, 1984).

Broadened economic and psychology literature propose a positive relationship between age and moral behavior, Mudrack, (1989) believes that age is an effective indicator of moral values and ethical behaviors. He argues that thereafter old age CEO have deeper commitment with traditions and cultural values, so they are believed more ethical Terpstra et al. , (1993), found in an empirical study that young CEOs are practical and profit oriented than old CEOs. Deshpande, (1997) argues in his study findings of non-profit organizations that older CEOs are more focused on moral practices of business as compared to young CEOs. Dawson, (1997) and Peterson et al., (2019) in their studies investigate the relationship between risk taking and risk averse behaviors and age.

It reports that older business entities show higher standards of performance and morally sound findings. Furthermore, Hess et al., (2015) examines age differences in social-cognitive activities and researched the conclusion that older CEOs are more likely as compared to younger CEOs to antecede with trait-diagnostic implication of morally high standard values and found older CEOs less pessimistic. Graham et al., (2019) found consequences of older CEOs as more optimistic for long term planning and higher performance. Therefore, following hypothesis is developed as follows.

H1:   The CEO age has a positive impact on firm performance.

Tenure and Age;

Finkelstein and Hambrick (1990: 486) argued that 'a atop team's tenure' in the organization affects and serves as an approximation for -------- its attitudes toward performance. Tenure's more proximal outcomes such as company invention (Wu, Levitas, and priem, 2015) and R&D spending (Baker and Mueller, 2012). Tenure shapes the performance that the CEO brings to the task of evaluation, reward and motivation of members of management team. We envision behavioral propensity as causal bridge between tenure and performance. Moreover, because executives' behavioral propensity are considered important influences on strategic initiatives, we reason that management with longer tenure will influence performance via the firms' pursuit of profitable entrepreneurial initiatives (Zahra, 1996). CEO tenure plays an important role in making overall performance better with high profits. Hambrick et al., (1993) suggests that newly hired young CEOs have more exogenous interests and are expected to quick business choices preferably high profits' ones first. Firms with shorter tenured CEOs disclose more information about companies' market standing and performance than those with long tenured CEOs, (Mohd. sanusi and Abd-Rehman, 2019). In absence of independent boards and good monitoring, CEO tenure is partially associated with performance at low moderate levels of tenure and negatively associated with performance when tenure further rises to substantial levels (Bruce A. Walter, 2017). Firm performance starts declining after fewer years of CEO Tenure, if industry environment is dynamic and rapidly changing as compare to CEOs with loger tenure (Francois Brrchet et al, 2019). Researches find that CEO Tenure increases if performance increases. It is almost impossible to expel CEOs with longer tenure and good performance history. But CEOs with shorter tenure and poor performance can't stay longer. Especially executive with low performance and risk planning may cause companies to face big losses (Jeff, Brookman and Paul D. Thistle, 2019). Study of previous literature give mixed results where tenure sometimes negatively impacts performance due to lack of governance and sometimes CEO Tenure positively impacts performance. As tenure exceeds CEOs become more confident and accept more challenges in generating quick revenues and profits. Therefore, CEO age plays and important role on making performance better during the total time period in CEO Tenure. Based on these arguments Hypothesis is developed as follows;

H2: The CEO tenure mediates the link between CEO Age and performance.

3-Methodology:

3.1-Procedures and Sample;

Our empirical analysis draws on data gathered from Pakistan cement companies, which make up 99 percent of all Pakistani cement firms (PSX Pakistan stock Exchange Limited;2018) and are considered the back bone of Pakistan economy (Mapack PSE, 1996). There are 22 cement companies in Pakistan, 14 in the public sector and 8 in the private sector. The Pakistan Stock Exchange lists 21 companies in the cement sector with the -------- at least 3 million tons of demand will be generated through CPEC (Nishat group; 2017). Thus Pakistan cement sector is an appropriate context for the present study's research focus.

The non-probability sampling technique is applied in choosing the sectors and the companies. Initially, all listed cement companies were from both public and private sector of the Pakistan economy. These are selected according to their contributions to the Total GDP as well as their market shares in PSE. In the second stage, the companies from the selected sector are chosen by their ability to retain their listing status from 2009-2018. Among selected companies, 99 percent are listed in the PSX. The number and proportion of the selected companies in the economic sector are presented in the table-1.

3.2-Measurement of variables:

Dependent variable:

Our primary dependent variable is firm performance. Return to assets (ROA) is the first measure of firm performance. ROA is equal to net income divided by total assets. Return to equity (ROE) is second measure of firm performance. ROE equals to net income divided by shareholders' equity.

Explanatory variable:

CEO Age is used as an explanatory variable under the mediation effect of CEO Tenure.

Control Variable:

Substitute variable for firm characteristics including total assets (TA), Total shares (TS) and board size (BS) are taken as controlled variables in this study.

3.3-Statistical Technique:

This 2009-2018 data is from 20 firms belonging to different companies of cement sectors. It is based on panel data. Panel data, is known as longitudinal data or cross-sectional time series data in special cases, where data is derived from a (usually small) number of observations over time on a (usually large) number of cross-sectional entities. Neeraj R. Hatekar (2010) stated that panel data provide "more information", more variation, less heteroskadasticity and no auto correlation or multicollinearity among explanatory variables. There is more degree of freedom and more efficiency. "Panel data analysis can be performed by three different models, namely pooled regression model, the fixed effect model, and the random effect model. In Panel data analysis Hausman test help to determine among fixed effect model, we assume that in both models, residuals and explanatory variables are correlated, and the intercept varies for each class.

Table1: Sample distribution

Sector	No of Comp.	Criterion for selection
Cement	20(94%)	I) – Sectors are selected on the basis of companies' economic contribution in GDP. II) – Firms from cement sector are selected on the basis of market capitalization and remain listed on stock market during the study period.

no	Categories	Var. name	Abbrev.	Type	Description
1-	CEO Characteristics	CEO age	CEOA	Scale	CEO age yearly
2-		CEO Tenure	CEOT	Scale	Total duration of time of contract -for service with firm.
3-	Firm performance	Return on Assets	ROA	Scale	An indicator of profitability relative to total assets givens as %
4-		Return on Equity	ROE	Scale	It is the profitability ratio that each dollar of common stock holders' equity generates.
5-	Control	Total Assets	TA	Scale	Liabilities plus owners' equity
6-		Total shares	TS	Scale	Market capitalization figure divided by share price.
7-		Board Size	BS	Scale	Board size shows the total number of directors on the board inclusive CEO and Chairman

Table-2: Variable description

3.4-Empirical Results and Discussion:

The empirical results are discussed in preceding sections along with descriptive and summary statistics.

Observations:200   Variables: 20   size: 27,202

Variable name	Storage type	Display format
Cement sector	Str6	%9s
CN	Str44	%44s
Year	In t	%t y
C code	Byte	%10.0g
Dir. Non Exe	Byte	%14.2f
Board size(BS)	Byte	%14.2f
BI	Byte	%10.0g
CEOA	Double	%10.0g
DR	Byte	%10.0g
TA	Double	%10.0g
ROA	Double	%10.0g
ROE	Double	%10.0g
T shares	Double	%10.0g
Total Capital	Double	%10.0gc

**Table-3:
Data List**

3.5-Descriptive and Correlation Analysis:

Table 3& 4 list the variables and show the details of descriptive and summary statistics. Accordingly our sample data is collected from 20 different listed public and private listed companies of cement sector. This sample is based on 200 firm year observation. Each of these public firms have separate chairman and CEOS working as independent directors. After enactment of revised laws of governance in Pakistan awareness about independent ownership and its benefits has increased and practiced in large scale all over Pakistan. In comparison to economies of developed countries' listed firms, independent ownership in Pakistan has increased since 2012 (PICG).

Variable	Observations	Mean	Standard Deviation	Min	Max
ROA	200	.803934	3.428388	-15.46	19.54
ROE	200	1.569936	5.491177	-1.28	35.7079
Ln TA	200	16.27390	1.449209	11.06772	23.00171
DR	200	1.4822	12.45833	-8.24	175.8
CEOT	200	5.5	2.879489	1	10
CEOA	200	45.45	6.98293	35	67
BI	200	1.285	.6526136	1	4
BS	200	8.215	.8959849	6	11

Table-4:
Descriptive statistics;

The average age of old CEOs is Pakistan is recorded around 65 years max and 52 min. whereas younger CEOs have an age bracket of 34-51 years. Similarly range of CEO tenure is calculated as min 1 and max 10 years with an average of 2.9 in present public and private firms. Whereas (Kato, Takao; Long, Cheryl, 2006) observed CEO tenure of listed firms in developed economies around 6-12 years. The board size has min value of 6 and max 11. Whereas Board independence (BI) has min 1 and max 4.

Return on assets (ROA) and return on equity (ROE) are taken as proxies of firm performance which is defined as net income divided by total assets. ROA in this study has min value of negative 15.5 and max 19.54. Return on equity is also a measure of firm performance and it is obtained by dividing the net-income by shareholders' equity because shareholders equity is equal to companies' assets minus debt. ROE in current study has min value of negative 1.3 and max 36. Total assets and Debt to equity ratios are taken as controlled variables. Total assets are equal to sum of liabilities and owner's equity. TA of listed firms in this study ranges from 11.07 min and 23 max. Debt to equity ratio is obtained by dividing the total liabilities by stockholder's equity. DR of this has min value of negative 8.24 and max 176.

These variables will be used for empirical testing of hypothesis of current study as follows;

	ROA	ROE	CEOA	CEOT	BS	TA1	TS1	BI	T-capital
ROA	1.000								
ROE	0.6335**	1.000							
	0.0000								
CEOA	0.0821	0.0791	1.0000						
	0.2476	0.2654							
CEOT	0.2113**	0.2386**	0.4039**	1.0000					
BS	-0.1152	-.0345	-.2067**	-.0867	1.0000				
	0.1043	0.6278	0.003	0.2223					
TA1	0.0657	0.0518	.1213	.1612**		1.0000			
	0.3551	0.4662	0.0870	0.0226					
TS1	-.0414	-.0748	0.3269**	0.1367**		.2551**	1.0000		
	0.5610	0.2925	0.000	0.053		0.0003			
BI	-0.0487	-0.0014	0.0324	-0.0308	0.7627**			1.0000	
	0.4932	0.9847	0.6491	0.6655	0.0000				
T-capital	-0.0146	-0.0167	-0.0306	0.1546**	-0.0305			-0.0541	1.0000
	0.8373	.8142	.6668	.0288	.6684			0.4467	

Table V: Correlation matrix

The table v presents pairwise correlation and probabilities values for the variables that will be used in regression. *, **, *** shows the significance levels at 10%, 5% and 1% respectively.

In this study 95 %(0.05) confidence interval is used. CEO Tenure and CEO Age are highly positively correlated. It means long service period and old age CEOs always make sensible and risk averse planning to secure their job and firm's outer image in market (Jeff Brook man, 2019). The variable measuring the board independence is highly positively correlated (0.9993) with performance measure ROE. Which may be due to CEO and chair positions are held separately as independent directors. If the employer has a positive attitude toward hiring outside independent directors then CEOs can make fair decisions. Board size is taken as control variable in this study. This process can increase vigilance of board and enhance the controlling mechanism of governance in firms. It could be evident in a significant correlation between board independence (0.001) and board size. Finally total shareholder's equity (TS) has a positive correlation with CEO Age. It show s older CEOs always give priority to shareholders' profit over their personal benefits that built trust among firm and its stake holders.

3.6-Panel Data Analysis and Discussion:

CEO characteristics (tenure), CEO demographics (Age) are described as predictor variables to find the effect on ROA and ROE, which are taken as measures of performance. To reduce the variation differences, natural log transformation is applied to all variables including control variables such as total assets, total shares and board size.

Type	Numeric yearly date(int.)				
Range:	[2009,2018]		units:1		
Or equivalently;	[2009,2018]		units: years		
Unique values:	10				
Mean:	2013.5= 2013 (+3monts)				
Std. dev.:	2.87949				
Percentiles:	10%	25%	50%	75%	90%
	2009.5	2011	2013.5	2016	2017.5
	2009	2011	2013	2016	2017

Dependent Variable	ROA fixed effects	CEOT fixed effects	ROE fixed effects	ROA GMM-estimation	ROE GMM- estimation
	1	2	3	4	5
Variables	**(sig)**	**(sig)**	**(sig)**	**(sig)**	**(sig)**
C**	-10.833** (0.01)	-37.417** (0.01)	-37.837** (0.01)	20.458** (0.01)	-15.624** (0.01)
CEOA**	0.2560** (0.01)	10.228** (0.01)	9.459** (0.01)	4.850** (0.01)	10.228** (0.01)
CEOT**	0.350** (0.01)		0.2913** (0.01)	0.923** (0.01)	0.707** (0.01)
Ln TS**	-0.04141 (0.561)	0.136** (0.053)	0.074810 (0.292)		
Ln TA**	0.0657 (0.355)	0.1612** (0.022)	0.0518 (0.466)		
BI	0.0487 (0.493)	-0.0308 (0.665)	0.0014 (0.984)		
Ln T. Cap**	-0.0146 (0.837)	0.1546** (0.028)	-0.0167 (0.814)		
BS**	-0.11526 (0.104)	-0.2067** (0.003)	-0.0345 (0.627)		
Year-dummy	yes	yes	yes	yes	yes
Adj. R2	0.0067	0.1841	0.0206		
Model sig	3.449 (000)		4.5337 (000)		
Wald test				22.52(0.01)	18.67(0.01)
Auto corr.	-0.8912		-0.7638		
T-stats	3.25** (0.01)	39.12** (0.01)	4.67** (0.01)		
F-stats	10.57** (0.01)	1530.6** (0.01)	21.8** (0.01)		
Likely hood R	-1674.49 (0.01)		-1767.005 (0.01)		

Note: *,**,*** significance at 10%, 5%,and 1% levels respectively

Table-vii: Regression analysis

CEO characteristics' V S firm performance

Fixed effect within regression model is recorded as significant by F-test and its corresponding p value= 0.01, which is less than 0.05. Therefore H1 is accepted and H0 is rejected. The regression coefficient of CEO Age is also positive that shows for one unit increase in CEO Age there is .256 unit increase in ROA.

It means there is a significant and positive effect of CEO Age on ROA as a proxy of financing decisions. This result is supported by empirical evidence presented in literature; where CEO Age has a positive impact on ROA (Davidson et al, 2017).

From results prob.> chi2= 0.01 which is less than 0.05. Therefore H1 is accepted and H0 is rejected. It means CEO Age has a significant positive effect on ROA.

As coefficient value of CEO Age is positive it means for one unit increase in CEO Age there is 4.85 unit increase in ROA. All values are independent and model is positive and significant.

Mediation effect of CEOT on the link between CEOA and firm performance (ROA):

To examine the mediation effects of CEOT on the link between CEOA and ROA, mediation analysis is generated accordingly with Baron and Kenny (1986). Sobel's test is performed to estimate the significance effect of mediator. The goal of first two procedures lies in finding whether the zero order relationship in first two steps of Baron and Kenny then mediation is not the likely solution (Mackinnoet et al. 2017), this may not be the strictly acted upon. Before performing Baron and Kenny's steps first, regress the data by taking CEOT as dependent variable and CEOA as an independent variable. Then alternatively regress the data with fixed effects model by taking ROA as dependent variable and CEOT and CEOA as independent variables. Firstly data will be checked for independence assumptions by using generalized estimation equation approach. Same tests are repeated for ROE as well,

Model	1			2		
	CEOA, CEOT and Return on asset			CEOA, CEOT and returns on equity		
Steps	1st	2nd	3rd	1st	2nd	3rd
Dep. v	ROA	CEOT	ROA	ROE	CEOT	ROE
Var.	(Sig)	(Sig)	(Sig)	(Sig)	(Sig)	(Sig)
C**	-10.833 (0.01)	-37.4272 (0.01)	-61.989 (0.01)	-15.624 (0.01)	-37.414 (0.01)	-38.83 (0.03)
CEOA**	-.00188 (0.96)	.16653 (0.01)	.04032 (0.244)	.07840(0.04)	.1665 (0.01)	.0622 (0.262)
CEOT**	.211 (.002)		.2534 (0.05)	.47087 (0.01)		.47081(0.01)
Log TA	.0657(.355)	.1612(0.02)	s	.0518(0.46)		
Log TS	-.0414(.56)	.1367(0.05)		-.0748(0.29)		
Year D.	Y	Y	Y	Y	y	y
R2	.04466	.16310	.163116	.05727	.16310	.163420
F-stat	10.57** (0.01)	530.6** (0.01)	14.7** (0.01)	21.8** (0.01)	1530.6** (0.01)	10.8** (0.01)
Sobel's	-.00188(0.96)		.0422** (0.01)	-.2838(0.910)		.622(0.01)
Z-stat	-.050		2.57	-.27		1.12

Note: *, **, ***, significance at 10%, 5%, and 1% levels respectively

Table-VIII: Mediation analysis of CEO

-characteristics and firm performance

From fixed effects within regression results prob.> F=0.01 which is less than 0.05. Therefore H1 is accepted and H0 is rejected. It means CEOA has a significant positive effect on CEOT. The coefficient of CEOA is positive. It means for one unit increase in CEOA there is 10.2 unit increase in CEOT. Results show a significant positive effect of independent variables on dependent variable.

From fixed effects within regression result prob.> F=0.01, which is less than 0.05. Therefore H1 is accepted and H0 is rejected. It means overall model is significant. The coefficient of CEOA is positive, it means for one unit increase in CEOA there is 15.8 units increase in ROA. Results shows a significant positive effect of CEOA on ROA. Whereas for CEOT p> t= 0.5, it means H0 is accepted and H1 is rejected. Therefore there is insignificant negative effect of CEOT on ROA as the regression coefficient of CEOT is negative. But overall model is significant.

Data is also regressed with pairwise correlation to check tolerance and pair wise mean differences.

Form generalized estimation equation approach, prob.> chi2=0.01. Which is less than 0.05. Therefore H1 is accepted and H0 is rejected. It means overall model is significant and independent variable has significant impact on dependent variable. The probability value of CEOA= 0.4, which is greater than 0.05 level of significance. Therefore H0 is accepted. It means CEOA has an insignificant effect on ROA. Whereas CEOT has p> t= 0.01, which is less than 0.05 level of significance. Therefore H1 is accepted. It means CEO Tenure has positive significant effect on ROA. As regression coefficient of CEOT is positive, therefore, for every unit increase in CEOT, there is 0,922 units increase in ROA.

Model:
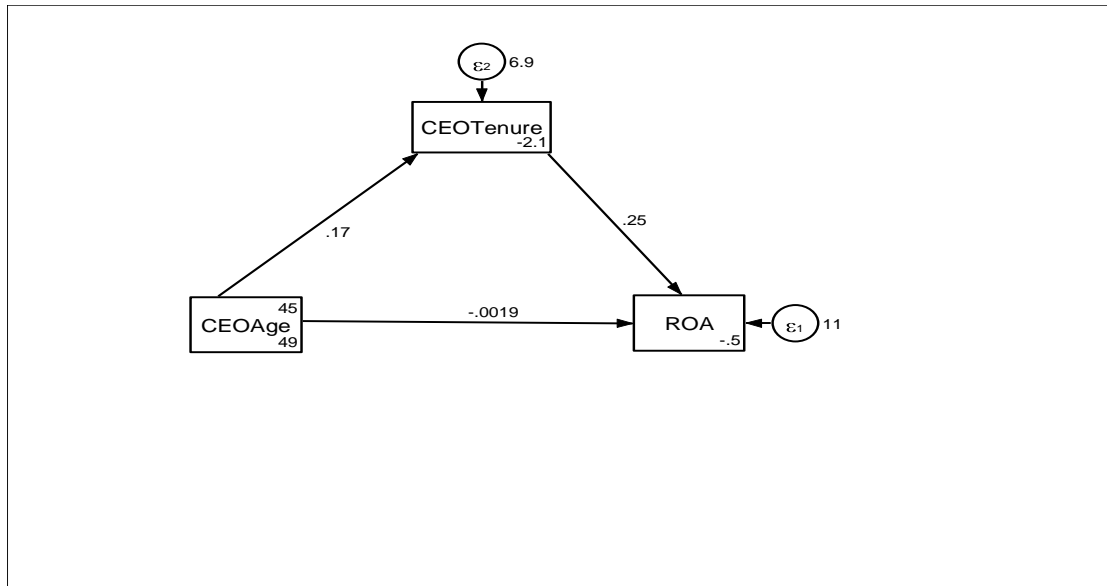
Results: Prob.> chi2= 0.01. It shows that model is significant. The CEOA has a positive and significant impact on CEOT. Whereas mediation effect shows a full mediation of CEOA on ROA via CEOT. Barron and Kenny Steps: direct effects, indirect effects and total effects of ROA on CEOT and CEOA, goodness of fit in table vii shows the results of mediation analysis according to Baron and Kenny (1986), Where CEO is employed as a predictor variable and CEOT is used as a mediator. ROA and ROE are used as dependent variables. Total assets, total shares (TS) and Board size are used as controlled variables. The results of direct links of CEOA (x) -> ROA (y) shows insignificant effect of CEOA on performance.

Whereas indirect link of CEOA to ROA via CEOT is positive and significant. However CEOA to performance is insignificant which shows full mediation results. Furthermore z-test and sobel's test results confirm the significance of full mediation. Finally the total effect analysis confirms the full mediation effects of CEOA on performance. R-squared shows the model is good as 16% correct information of explanatory variables is explained by dependent variables. ROE v s CEOA model is used to examine the direct effect of CEOA on ROE as a proxy of firm performance. Same tests are repeated for ROE and all results are same to both and above. From fixed effects within regression results prob.> F=0.01, which is less than 0.05 level of significance. Therefore H1 is accepted and H0 is rejected. It means CEOA has a significant effect on ROE.

Results show a significant positive effect of independent variables on dependent variable. From fixed effects within regression results prob.> F=0.01, which is less than 0.05 level of significance. Therefore H1 is accepted and H0 is rejected. It means CEOA has a significant positive effect on CEOT. The coefficient of CEOA is positive. It means for one unit increase in CEOA there is 10.22 units increase in CEOT. Results show a significant positive effect of independent variables on dependent variable.

Results from fixed effects within regression results prob.> F=0.01 which is less than 0.05 level of significance. Therefore H1 is accepted and H0 is rejected. It means overall model is significant. The coefficient of CEOA is positive. It means for one unit increase in CEOA there is 9.73 unit increase in ROE. Results show an insignificant positive effect of CEOA on ROE. Whereas for CEOT p>t=0.9, it means H0 is accepted and H1 is rejected. Therefore there is insignificant negative effect of CEOT on ROE as the regression coefficient of CEOT is negative. But overall model is significant.

Data is also regressed with pairwise correlation to check tolerance and pairwise mean differences, pairwise correlation for ROE, CEOA and CEOT. Result from generalized estimation equation approach, prob.> chi2=0.01, which is less than 0.05 level of significance. Therefore H1 is accepted and H0 is rejected. It means overall model is significant and independent variable has significant impact on dependent variable. The probability value of CEOA= 0.4, which is greater than 0.05. Therefore H0 is accepted. It means CEOA has an insignificant effect on ROE. Whereas CEOT has p=0.01, which is less than o.o5 level of significance. Therefore H1 is accepted. It means CEOT has positive significant effect on ROE. As regression coefficient of CEOT is positive therefore for every unit increase in CEOT, there is 0.707 unit increase in ROE.

Model:
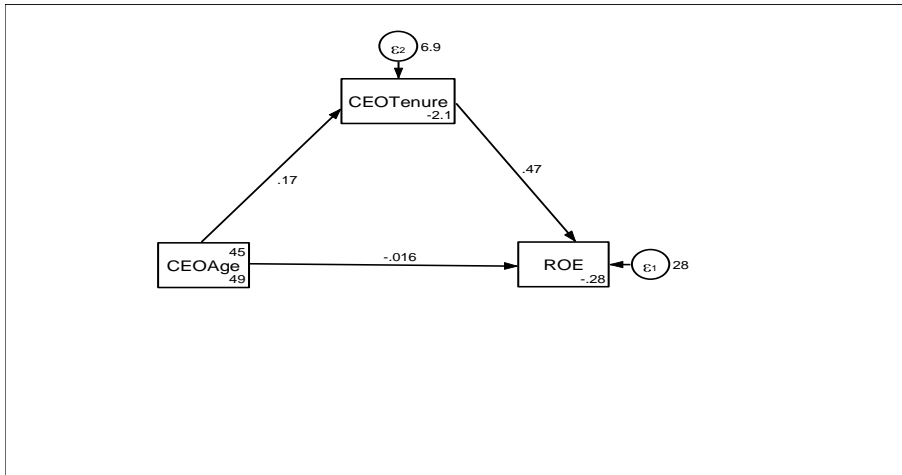
Results show p>chi2=0.01. It means model is significant. The CEOA has a positive and significant impact on CEOT. Whereas mediation effect shows full mediation of CEOA on ROE. Barron and Kenney Steps; direct effect, indirect effect and total effects of ROE on CEOT and CEOA, goodness of fit.

Results from table viii shows the results of mediation analysis according to Baron and Kenny (1986), where CEOA is employed as a predictor variable and CEOT is used as mediator. ROE is used as a dependent variables. Total assets (TA), total shares (TS) and board size are used as controlled variables. The results of direct links of CEOA(x) -> ROE(y) shows an insignificant effect of CEOA on ROE. Whereas indirect link of CEO Age to ROE via CEOT is positive and significant. However CEOA to ROE is insignificant which shows full mediation result. Furthermore, z-test and sobel's test results confirm the significance of full mediation. Finally the total effect analysis confirms the mediation effect of CEOA on ROE is significant via mediator (CEO Tenure).

Robust Check of results:

Several additional tests are performed in order to assure the robustness of the presented results. First to ensure that results are not generated out of biasedness. Same regressions are examined based on originally observed data with results reported in table vii. According to results of robust test for fixed effects robust estimator of variance is positive and significant. It means all observations are independent and unbiased.

4-Limitations:

Despite the additional test for robustness several limitations lies that hinders the interpretation of results presented in this paper. First the sample consist of only 20 firms of cement sector in Pakistan. These results may not be applicable to larger firms operating inside and outside the Pakistan. Second since the sample size is limited and mostly based on firm's annual reports and LinkedIn with limited time constraints and data shortage additional analysis with other executive specific characteristics variables can't be here but future studies could examine for example effects of CEO gender and job experiences in different career paths and different sectors with several other companies. The smaller observations prevent further analysis of the effects of CEO education and gender. This issue is therefore left for future studies to cover it.

Finally the CEO demographic variables could be endogenous. Despite controlling for board size some correlated variables may have been omitted. Unlikely inferential instruments for these types of tests are very problematic especially in situations where many demographic variables are added in the research. Prior literature point out various statistical problems and highly misguided parameter estimates associated with weak instruments (Hahn and Hausman 2013; Lacker and Rutiws, 2010). Therefore using apparently low instruments result in contradictory statements and endogenity. Thus the reported results should be considered unreliable and un-exploratory.

5-Conclusion:-

This study examines the effect of CEO characteristics (CEOT) and CEO demographics (CEOA) on firm performance. In the context of major public and private listed firms of cement sector in Pakistan. This study of cement-case supports the hypothesis related to the impact of CEOA (CEO characteristics) on firm performance formulated by agency theoretical perspective that ownership structure and management should be separated to increase fir performance (Fama and Tensen 1983).

These findings are consistent with the literature of prior studies. This hypothesis regarding the impact of CEOA on firm is empirically supported. This study shows that CEOs of old age works more coherently towards the interest of shareholders and a more stable market image instead of higher profitability in short time periods. Whereas CEOs of young age go for speedy business deals that can generate quick returns and profits (Kuo et al., 2014).

This study shows that after specific age the impact on performance declines that leads toward a nonlinear relationship between CEOA and firm performance, supported by (Panayiotis C. Andreous, 2016).This study also support the full mediation effect of CEOT on the link between CEOA and firm performance. It shows that CEOs service period has a significant impact on firm performance that helps them make more effective planning and smarter execution of strategically important goals to improve firm performance. The empirical results also proves the hypothesis of full mediation. Therefore CEOs with longer service duration and experience can manage and accomplish dead line more efficiently that results in improved performance and higher returns (Baik, Farber, and Lee, 2011). Overall results shows that age does effect firm performance though full mediation by CEO tenure have decrease the direct impact CEO age on performance.

This study expands our knowledge regarding how CEOA have become a source of Agency problems. This study findings can be helpful for roles of boards in selection and control mechanism by appointing CEOs of specific age. As boards should consider age or rather not when choosing an executive to lead the company. Especially when deciding about company's plans and monitoring mechanism or financial schemes.

Although our results uncover many important implications relating to effects of CEO Age on firm performance. But many related issues are still worthy of further investigation. Therefore for future researchers some directions are included such as: The main focus of this study revolves around mediation effect of CEO tenure on relationship among CEO age and firm performance. But it is not clear whether other substitutes for CEO characteristics can have more or less likely effects on firm performance. Further studies can examine moderating effect of CEO education on CEO characteristics to determine the strength of relationship and direction of future performance. In addition our results are based on cement firms exclusively in Pakistan. It would be interesting and beneficial to see whether identical relations are present in other markets with different board structures, different environments and different preferences.

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