

# Is Pre-Eminence in Financial Performance Attributable to the Innovative Ideas of the CEO? (An Evidence from PSX 100 Listed Companies)

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The Stock Exchange of a country plays an indispensable role in economic development. For the non-satisfactory performance of stock exchange, the external indicators cannot always be the point of critique. However, the lapse may occur in the internal performance of the organization as well which often goes unnoticed. This study is based on such relevant concept which aims at studying the performance of top management such as a CEO in an organization by introducing the factor of innovation with the proxy of patent applications. Based on panel data, the sample consists of different companies of sectors listed in the Pakistan Stock Exchange for three years (2015-2017) time period. The literature leads to the development of models and framework for the study. The study is quantitative in nature, data being collected from financial statements and different websites which is analyzed through multiple statistical tools such as correlation and regression. This study is a prospect for developing countries, especially Pakistan, where innovation prevails at the initial stage where the developed countries have advanced level ahead, as evident from the studies conducted in such countries. The results did not prove significant due to limited availability and accessibility of data in Pakistan, nevertheless, there is a large scope for future research in this topic.

**Key words:** *CEO Expert Power, Tenure, Innovation, Patent, Financial Performance.*

## Introduction

The Stock Exchange of any country tends to be the pulse of the financial market, especially in Pakistan (Siddiqui, 2018). This is noticeable from the fluctuations that occur in stock prices due to political or economic crises. The unprecedented performance of the PSX from 2001-2014, in particular, remains a puzzle to many observers, the reason being the relatively poor execution of the sectors of the country's economy (Ahmed, Rosser, Jr., & Uppal, 2016). This leads to the subject matter of the study being the performance of the Pakistan Stock Exchange and how could it be improved. The crises situation of Pakistan related to development has still not diminished. The government and the regulatory authorities always blame the economic factors of the countries for the performance not being up to standard, whereas, the internal performance of the sectors is mostly unnoticeable. Internal performance leads to discernible development by having the motivation to achieve goals. In today's era, development is another name for innovation which is an elevation in Research and Development (Ely & Geall, 2015). A Chief Executive Officer (CEO), the top executive of a company, holds the authority to drive an organization towards the road of success (Booth et al., 2016).

Change is inevitable. A CEO is a highest-ranking executive who occupies the top position in the hierarchy of a corporation/firm. Technological advancement accompanied by changing human needs furnishes with avenues. To exploit these new avenues, CEO diverts his attention towards innovation, consequently affecting financial performance (Cho & Pucik, 2005). The outstanding performance of a company is the result of a CEO succession plan (Fiol, 1996). The CEO of a company is responsible for performing a significant role in implementing and functioning of organisational strategies, working along with the board of directors (Minnick & Noga, 2010; Ting, 2013). Companies that are mostly concerned with the outcome of CEO performance gain relatively improved financial performance. Knowing little about the relationship of Chief Executive Officer with innovation (Gomez-Mejia & Wiseman, 1997), the struggle for survival in competition prompts firms to continuously innovate (D'Aveni, 1994; Hamel & Prahalad, 1994; Schilling & Hill, 1998). Yet at present little is known about the relationship between Chief Executive Officer (CEO) and innovation. This study aims at studying the relationship between CEO expert power and financial performance through innovation.

The role of innovation in the performance of an organisation is imminent in developed countries such as OECD countries (Symeonidis, 1996; Andres, Azofra, & Lopez, 2005). This is possible on the accounts of data availability. The developing countries, especially Pakistan, are still in the starting phase of implementing innovation. Such developed countries create motivation for developing countries to implement innovation in their infrastructure for the betterment of the economy (Aftab, 2017). Fagerberg and Srholec in the year 2008 studied the

innovation systems at an advanced level. They found out that the smaller countries (in terms of population) such as Australia, Denmark, and Norway use these advanced levels of innovation. The factor to be noticed in these three countries is that they possess a low standard on patents and R&D. However, they explained this difference as these countries have well-developed capabilities and techniques for exploiting knowledge (Faberberg, 2010).

On analyzing the current performance of major sectors of Pakistan Stock Exchange through the annual reports, a dismal situation appears to be the result. The financial services sector has the second-largest representation by value witnessed a decline of 1% market capitalization in FY 2016. The same decline occurred in the Chemicals & Fertilizers Sector and Automobile Sector. Other sectors showed a growth of 2% and 4%, which can be considered just an average positive sign (Annual report of PSX, 2016). Development is one of the requirements to compete in the market. It can be possible by introducing the factor of innovation, which can be through patents in the industry (Basberg, 1987).

In today's era, development is very important for the prosperity of a country. Any failure related to economic development is often blamed upon the government policies that are neither devised or implemented correctly. The output of industries contributes significantly to the development of the country. The internal performance of the industries that contribute to economic development is mostly ignored. It is essential to shift the attention from economic indicators such as inflation, unemployment, etc. to the internal performance of the industries. The internal performance of any firm is mainly the responsibility of a CEO if he is authorised with such power. In a company, the CEO is mostly considered to have the decision making authority that can indeed create a huge difference. Thus, this study is focused on how a CEO, through his expertise, can create a distinctive aspect in the financial performance of an organization, by introducing the factor of innovation. To analyze the effect, the study focuses on three variables i.e., CEO Expert Power, Financial Performance and Innovation considered from the past literature (Qiao & Fung, 2016).

Various research papers have in the past few years analysed the effect of innovation on the performance of an organization/industry. The availability of literature reflects that the research has been done at the international level and not at the national level. Most of such studies were conducted in the developed countries which have fully adopted the factor of innovation. This has created a widening gap between the developed countries and the developing countries related to innovation. This gap creates a motivation for a researcher to find out the effect of innovation in the developing nations, especially at the national level. This study attempts to analyze the effect of innovation on the financial performance of the 100 companies listed in Pakistan Stock Exchange. It identifies the difference a CEO can create with his expertise in implementing the parameters of innovation. To the best knowledge of the author, no such research has been conducted in Pakistan in the past years.

This study aims to find the answer to the question of whether CEO expertise and innovative ideas during his tenure in a particular organisation affect significantly on the financial performance of the PSX-100 listed companies through the following objectives:

1. To study the relationship of CEO Expert Power with innovation.
2. To study the relationship of CEO Expert Power with the financial performance of a company.

## **Literature Review and Hypotheses Development**

### ***Important Key Theories***

#### ***Schumpeter's Theory of Innovation***

Joseph Alois Schumpeter was a German economist who proposed the theory of innovation for the first time and defined innovation as “the driving force of development”; the function to be performed by entrepreneurs (Sweezy, 1943) merely as a CEO of an organisation. He defined innovation by proposing five dimensions (Vyas, 2009);

- a) Improvement in existing product or creation of new product
- b) Introducing a new industrial process
- c) The opening of new market avenues
- d) Changed input sources of resources
- e) New organizational structure

#### ***Resource-based view***

The resource-based view (RBV) provides a basis for the firm to attain competitive advantage, primarily pertaining investment on valuable resources at the firm's disposal (Wernerfelt, 1984; Rumelt, 1984; and Penrose, 1959). The resource-based view of the firm examines the link between internal characteristics of an organization and organizational performance. It recommends that physical, human and hierarchical resources (assets) are semi-permanently tied to the organization. These resources are significant, uncommon and imperfectly imitable resulting as unique assets within an organization. However, with this mixture of assets and resources that create a difference among the organizations (Barney, 2001). According to the theory of Minnick & Noga (2010), directors and CEOs play an essential role in the decision of selecting strategies and resource allocation, performance and increased shareholder's wealth. These resources if properly utilised leads to the achievement of competitive advantage plus highly sustained levels of organizational performance (Bowman, Cliff, & Ambrosini, 2003).

### ***Resource Dependence Theory***

Resource dependence theory deals with how these external resources affect the behaviour of an organization. According to Pfeffer & Salancik (1978), Resource dependence theory states that an organization's corporate strategic inclination is linked to the opportunities available for access to the required resources. In particular, resource dependence theorists suggest that a board's human and social capital design whether how directors govern and offer a piece of advice to the firm. Consequently, this affects in one way or the other the ideas and resources that they provide (Dalziel et al., 2011; Haynes & Hillman, 2010). Accordingly, the study of resource dependence theory uses directors' educational level and industry-specific experience as indicators for board human capital (Barroso, Villegas, & Perez-Calero, 2011; Kroll, Walters, & Wright, 2008).

### ***CEO Power and Innovation***

Chen (2015), through his research work, tried to find out the relationship among three variables, i.e., Board Capital, CEO power and R&D Investment. The sample included 271 electronic firms, panel data for four years (2007-2010). Based on resource dependence theory, he found that the education, expertise, and experience of CEO play a critical role in making important decisions related to R&D investments. He concluded the results by using multiple regression techniques. He finds from his research work that the interaction of CEO power and board capital is positively related to the level of R&D investment. Lofsten (2016) conducted research to analyse the relationship between business and innovation resources with the survival of a firm. He calculated innovation through patents. The techniques he used to analyse the data were factor analysis and regression. He found that the development of patents is highly significant to firm survival and the patent firms had a higher rate of survival than the non-patent firms. However, producing more patents is often an indication of a powerful CEO (S. Sheikh, 2018).

**Hypothesis 1:** There is a significant impact of CEO expert power on the innovation of a firm.

### ***Innovation and Financial Performance***

Innovation is a complex phenomenon that involves formation and alteration of knowledge in the form of new or modified products or services (Bigliardi, 2014). Many studies have presented a positive and significant relationship innovation and financial performance (Schroll and Mild, 2011; Van de Vrande, Dejong, Vanhaverbeke and Rochemoont, 2009; Colombo Lause, Magnusson, and Rossi-Lamastra, 2012). Walker (2004) found out a significant positive effect of innovation on financial performance on reviewing the findings of 30 empirical studies from 1984 to 2003. Most of the cases showed similar results. Bigliardi (2014) found out the effect of innovation on financial performance through his research study

involving 98 SMEs belonging to the food machinery industry as a sample. Using statistical techniques of regression, he concluded that an increase in the innovation level increased financial performance. Muiruri & Ngari (2014) found that financial innovation had a significant effect on the financial performance of commercial banks in Kenya (2008-2012). Ezzi & Jarboui (2016) conducted a research work based on a sample of 96 Tunisian companies with high Research and Development from various industries. Working on primary as well as secondary data, they concluded that there is a positive relationship between innovation (R&D) and financial performance.

### ***CEO Power and financial performance***

For researchers, the relationship of CEO Power and performance of a firm is often thought to be the story of ‘a chicken and egg’ quandary-crux being about which appeared first, CEO Power or firm performance. Daily & Johnson (1997) were among the earliest researchers to analyze the relationship of CEO Power with the performance of the firm. Using a panel data of 100 firms from the fortune 500 companies during the year 1987 to 1990, they concluded that CEO Power and firm performance are interrelated. The performance, according to them, is the outcome of CEO Power. Adams, Almeida, & Ferreira (2005) concluded from their research work that CEO power has a very significant effect on firm performance. They tested their hypotheses on the sample of 336 firms selected from the 1998 Fortune 500 from the year 1992 to 1999. They measured the CEO power on a structural basis. Qiao & Fung (2016) calculated the effect of CEO power on the financial performance of a company by through innovation. He considered the sample of Chinese Small-and-medium enterprises (SMEs) from the year 2007-2013. The results of their research work indicated a significant effect of CEO power on financial performance. Furthermore, according to them, CEO power and pay can improve the innovation efficiency of SMEs. To calculate the output results for a set of production inputs, they used the Stochastic Frontier Model (SFM) (Aigner, Lovell, & Schmidt, 1977).

**Hypothesis 2a:** There is a significant effect of CEO expert power on the financial performance of a firm (ROA).

**Hypothesis 2b:** There is a significant effect of CEO expert power on the financial performance of a firm (ROE).

### **Methodology**

#### ***Sample Construction***

Based on studying the variables in the Pakistani context, this study determines the relationship of CEO Power (Expert Power) with financial performance and innovation of

PSX-100 listed companies. This study is deductive and descriptive, based on secondary data available yearly on the website. The sample consists of various sectors of PSX including Automobile Assembler, Automobile Parts and Accessories, Cement, Chemical, Engineering, Pharma, Food, and Leather and Tanneries. The total population includes 123 companies out of which the targeted sample consists of the 65 listed companies of PSX totalling in 195 observations. The sample collected is based on the availability of data using a purposive sampling technique. The data are cross-sectional for the time period of three years (2015-2017).

**Table 1:** Filer/non filer companies (patent applications)

S.no.	Sector	Total no. of companies	Filer companies	Non-filer companies
1	Automobile Assembler	11	7	4
2	Automobile parts and Accessories	5	1	4
3	Cement	9	2	7
4	Chemical	14	4	10
5	Engineering	8	1	7
6	Pharmaceuticals	7	4	3
7	Food	7	2	5
8	Leather and Tanneries	4	2	2

### *Measuring Variables*

#### *CEO Power*

The relation of CEO tenure and CEO Power is such that an increase in CEO tenure increases the CEO Power (Ryan & Wiggins, 2004; Li & Wahid, 2017; DeBoskey et al., 2018). As the CEO tenure increases, the level of the change introduced in a firm also increases. This is because, with each increasing year of tenure, a CEO becomes more committed to implementing his own unique way of running the organization (Hambrick & Fukutomi, 1991). According to literature, the tenure of a CEO positively affects the CEO Power (Barker & Mueller, 2002). However, the independent variable of CEO Power is calculated based on CEO Expert Power (Finkelstein, 1992). CEO Expert Power is measured as the tenure of a CEO in a company, sorted out from the website of respective companies and another website such as Bloomberg, Relationship science and Reuters.

### ***Financial Performance***

The dependent variable of financial performance is calculated through the profitability ratios of ROA and ROE (Brown & Caylor, 2006; Kostopoulos, Papalexandris, Papachroni, & Loannou, 2011; Aggarwal, 2013; Muhammad, Rehman, & Waqas, 2016). The data is collected from (1) the annual financial statements of the companies for the year 2015-2017 and (2) websites such as ksestock.com, sbp.org.pk.

### ***Innovation***

The other dependent variable of innovation is calculated as the number of patents filed by a company in a year, the reason being the accuracy of results and availability of data (Salomon & Shaver, 2005; Faberberg, 2010; Abbas, Zhang, & Khan, 2014; Qiao & Fung, 2016; Han, Nanda, & Silveri, 2016). The data regarding patents are collected from the Intellectual Property Organization (IPO) Pakistan website in the form of e-journals that are published on a weekly and monthly basis.

### ***Control Variables***

The control variables for the dependent variable (financial performance) include firm age, firm size and leverage (Qiao & Fung, 2016).

### ***Firm Size***

Larger companies have higher performance tending to invest more in R&D as compared to the smaller firms (Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001). This study calculates the firm size as the natural logarithm of Current Assets (ln CA) (Bujadi & Richardson, 1997; Barker & Mueller, 2002; Chen, Hsu, & Huang 2008).

### ***Age of the Firm***

The age of a firm refers to the years a firm has survived in the market since the beginning. The firms having a higher age are considered to be more stable and able to invest in R&D as compared to newly established firms. Firm age is calculated as the natural logarithm of the number of years a firm has existed (Brown & Caylor, 2004; Ezzi & Jarboui, 2016).

### ***Leverage***

Many studies illustrate that the performance of the highly leveraged firm is poor as compared to less highly leveraged firms (Cai & Zhang, 2011). The Leverage is calculated as the ratio of the book value of long-term debts to assets (Han, Nanda, & Silveri, 2016).

### ***Empirical Methodology***

The analysis of data is done with the help of E-views. The data is analyzed using statistical techniques of multiple regression and correlation. In order to check the statistical model of the study, the panel data is analysed through the Random Effect Model with the help of the Hausman Test. The assumptions of Ordinary Least Square (OLS) method are also part of measurement techniques, i.e., Multicollinearity, Heteroscedasticity, and Auto-correlation. The two hypotheses concluded from the literature review are based on three models to analyze the relationship between the variables shown below,

#### **Hypothesis 1**

Model 1: Patent =  $\alpha + \beta_1 * \text{tenure} + \beta_2 * \text{firmage} + \beta_3 * \text{firmsize} + \beta_4 * \text{leverage} + \epsilon$

#### **Hypothesis 2a**

Model 2: ROA =  $\alpha + \beta_1 * \text{tenure} + \beta_2 * \text{firmage} + \beta_3 * \text{firmsize} + \beta_4 * \text{leverage} + \epsilon$

#### **Hypothesis 2b**

Model 3: ROE =  $\alpha + \beta_1 * \text{tenure} + \beta_2 * \text{firmage} + \beta_3 * \text{firmsize} + \beta_4 * \text{leverage} + \epsilon$

Where,

Patent= No. of patent applications filed by the company

Tenure= No. of years CEO has served in the company

Firmage= Age of the firm from its existence

Firmsize= No. of total assets

Leverage= debt-asset ratio

ROA= Return on assets

ROE= Return on equity

$\epsilon$ = Error

## Results

### *Descriptive Statistics*

**Table 2:** Descriptive statistics of the variables

	Variables	Mean	Median	Maximum	Minimum	Std. Dev.
1	ROA	9.01	9.26	36.91	-21.02	8.43
2	ROE	12.8	16.25	79.61	-380.54	34.67
3	Tenure	1.60	1.79	3.56	0	1.09
4	Patent	0.64	0	14	0	1.48
5	Firmage	3.57	3.6	5.1	1.9	0.55
6	Firmsize	15.57	15.8	18.4	11.4	1.53
7	Leverage	8.62	3.65	73.03	0	11.4
	Observations	195	195	195	195	195

### *Correlation and Regression Analysis*

#### Hypothesis 1

$$\text{Model 1: Patent} = \alpha + \beta_1 \text{tenure} + \beta_2 \text{firmage} + \beta_3 \text{firmsize} + \beta_4 \text{leverage} + \epsilon$$

**Table 3:** Correlation Analysis

	Patent	Firmage	Firm size	Leverage	Tenure
Patent	1.000000				
Firmage	0.095778	1.000000			
Firmsize	0.215907	-0.019849	1.000000		
Leverage	-0.141514	-0.210535	0.275603	1.000000	
Tenure	-0.152817	-0.103275	-0.207322	-0.256631	1.000000

Table 3 shows the weak correlation among the variables. The variable of the patent shows a positive but weak correlation with the variables of firmage (0.095778) and firm size (0.215907), whereas, the patent shows a negative but weak correlation with leverage (-0.141514) and tenure (-0.152817). On applying the linear regression tool (table 5) the model calculates  $R^2$  as 5%, which concludes that the independent variables are not significant. The P-Value (24.13%) of tenure shows that it is not a significant variable to explain patents. The Prob (F-statistic) value is less than 5% which means the F-statistic is significant and shows a significant combined effect of independent variables on the dependent variable. The model showed no multicollinearity as the  $R^2$  value is not high, and there are few insignificant values. The value of Durbin-Watson (2.312584) shows that there is no autocorrelation. For

heteroscedasticity, the computed p-value is greater (0.432) than the significance level  $\alpha=0.05$ ; the null hypothesis cannot be rejected as the residuals are homoscedastic.

**Table 4:** Probability using Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.362838	4	0.2521

**Table 5:** Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.867971	1.540514	-1.861698	0.0642
Tenure	-0.020155	0.017147	-1.175461	0.2413
Firmage	0.004125	0.006441	0.640395	0.4227
Firmsize	0.235171	0.095726	2.456703	0.0149
Leverage	-0.017800	0.010551	-1.687083	0.0332
R-squared	0.051406	Mean dependent var		0.313479
Adjusted R-squared	0.031435	S.D. dependent var		1.008841
F-statistic	3.574103	Durbin-Watson stat		2.312584
Prob(F-statistic)	0.039109			

## Hypothesis 2a

$$\text{Model 2: } ROA = \alpha + \beta_1 * \text{tenure} + \beta_2 * \text{firmage} + \beta_3 * \text{firmsize} + \beta_4 * \text{leverage} + \epsilon$$

**Table 6:** Correlation Analysis

	Roa	Tenure	Firmage	Firmsize	Leverage
Roa	1.000000				
Tenure	-0.052304	1.000000			
Firmage	0.183145	-0.103275	1.000000		
Firmsize	0.526589	-0.207322	-0.019849	1.000000	
Leverage	-0.187846	-0.256631	-0.210535	0.51603	1.000000

Table 6 shows ROA has a weak correlation with the tenure (-0.052304), firmage (0.183145) and leverage (-0.187846). The result of probability (35.55%) is not significant. The  $R^2$  value

is 8.8450% which shows that the independent variables are not significant (table 8). The P-value of tenure (83.72%) is also not significant. Thus, tenure is not a significant variable in the model. The control variables are, however, significant for the dependent variable of ROA. The Prob (F-statistics), which is less than 5% shows the significance and the combined effect of independent variables on the dependent variable. The model showed that there is no multicollinearity between the variables as the  $R^2$  value is not high. The Durbin-Watson stat (1.88) indicates that there is no autocorrelation in the model. For heteroscedasticity, the computed p-value is greater (0.626) than the significance level  $\alpha=0.05$ , which means the residuals are homoscedastic. Conclusively, the null hypothesis cannot be rejected.

**Table 7:** Probability using Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.392298	4	0.3555

**Table 8:** Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-19.28499	8.808090	-2.189464	0.0298
Tenure	-0.020475	0.099480	-0.205819	0.8372
Firmage	0.054625	0.038125	1.432801	0.0536
Firmsize	1.755106	0.546970	3.208782	0.0016
Leverage	-0.127855	0.049553	-2.580175	0.0106
R-squared	0.088450	Mean dependent var		3.039610
Adjusted R-squared	0.069259	S.D. dependent var		4.236085
F-statistic	4.609041	Durbin-Watson stat		1.882495
Prob(F-statistic)	0.001420			

## Hypothesis 2b

$$\text{Model 3: } ROE = \alpha + \beta_1 * \text{tenure} + \beta_2 * \text{firmage} + \beta_3 * \text{firmsize} + \beta_4 * \text{leverage} + \epsilon$$

**Table 9:** Correlation Analysis

	Roe	Tenure	Firmage	Firm size	Leverage
Roe	1.000000				
Tenure	0.021648	1.000000			
Firmage	0.092674	-0.103275	1.000000		
Firmsize	0.202702	-0.207322	-0.019849	1.000000	
Leverage	-0.051330	-0.256631	-0.210535	0.595603	1.000000

The correlation in this model (table 9) shows ROE has a positive and weak correlation with tenure (0.021648), firmage (0.092674), firm size, i.e., (0.202702) whereas, it has a negative and weak correlation with leverage (-0.051330). For regression between the dependent and independent variable, the Hausman test was conducted to check the fixed/random effect. The result of probability was 97.23% which means the result was not significant (table 10). The  $R^2$  value i.e., 4.5% shows that the independent variables were not significant. This also means that independent variable only explains some percentage of the dependent variable in the model. The P-value of tenure was not significant, which was 50.13% being greater than 5%. So, tenure was not a significant variable in this model. The value of Prob (F-statistics), i.e., 4.3967% is significant in the model. The model showed that there is no multicollinearity between the variables as the  $R^2$  value is not high. The Durbin-Watson stat i.e., 2.5 showed that there is no autocorrelation in the model. For heteroscedasticity the computed p-value is greater (0.892) than the significance level  $\alpha=0.05$ , the null hypothesis cannot be rejected, which means the residuals are homoscedastic. Conclusively, the null hypothesis cannot be rejected.

**Table 10:** Probability using Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.512145	4	0.9723

**Table 11:** Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-75.78118	31.70405	-2.390268	0.0178
TENURE	0.236345	0.350767	0.673793	0.5013
FIRMAGE	0.130509	0.130321	1.001438	0.3179
FIRMSIZE	5.357349	1.978165	2.708242	0.0074
LEVERAGE	-0.244890	0.258556	-0.947143	0.3448
R-squared	0.045468	Mean dependent var		9.775254
Adjusted R-squared	0.025373	S.D. dependent var		30.93832
F-statistic	2.262615	Durbin-Watson stat		2.596425
Prob(F-statistic)	0.043967			

## Discussion and Implications

This study empirically examines if and how CEO Power based on his expertise, i.e., CEO Expert power (Finkelstein, 1992) affects the financial performance and innovation on PSX 100 listed companies. The three theories relate to this study i.e., Schumpeter theory of innovation, Resource-based view and Resource dependency theory. The Schumpeter theory of innovation was the first of its kind to define the word “innovation” by addressing its five

dimensions. These five dimensions explain the true context and meaning of what possibly innovation could be. The second theory, which is the Resource-based view, defines the value of the internal performance of an organization by mention the internal resources as true assets. The third theory explains the experience and education of board management, i.e., a CEO (in this study) has for the proper management and utilization of resources. Only efficient planning and working can prove in the successful outcome of resources which can result from the expertise the senior authorities have from education/knowledge and experience. A CEO shows his expertise as a result of the knowledge and experience he has gained during his life.

For hypothesis 1 the literature showed a significant impact of CEO expert power on the innovation (Chen H. L., 2015; Lofsten, 2016; & Qiao & Fung, 2016) where this study did not show a significant relationship. This shows that in Pakistan, not every innovation is considered to have the criteria of filing it as a patent. However, innovation can be in the form of research and development as well as having a different measure. Thus, to calculate the variable of innovation, the patent may not be a suitable measure. Each sector listed in PSX has its own definition and dimension for innovation such as product or process innovation. This means that innovation is sector-specific and cannot be measured collectively. Conclusively, calculation of innovation related to each sector individually may show significant results. It is observed in Pakistan that private companies mostly carry activity of filing patents as compared to public companies. Whereas, the trend is the opposite in the developed countries. The other reason may be less awareness about patents relation with the innovation among the higher hierarchy, shareholders and the general public. For hypothesis 2a & 2b, this study did not show significant results where the past researches showed that CEO expert power had a significant effect on the financial performance of a firm (Harjoto & Jo, 2009; Schroll & Mild, 2011; Atalay, Anafarta, & Sarvan, 2013; Muiruri & Ngari, 2014; Bigliardi, 2014; Rehman, 2016; & Ezzi & Jarbou, 2016) where. An acknowledgement of the fact is that there is insufficient work done on CEO expert power in Pakistan. Out of the four dimensions of CEO power, the expert power dimension stills lacks a proper study in Pakistan. Moreover, the hypothesis results in a statement that CEO expertise does not have any significant effect on financial performance based on the tenure for which a CEO works in that particular company. It is not the tenure that matters if a CEO has to improve the financial performance; it may be the teamwork or other aspects such as experience and education, which may have a significant effect.

### **Limitations and Future Area of Research**

Innovative activities are firm-specific (Aftab, 2017) so patents may be relevant for few sectors while irrelevant to others. The study did not show the significant results which may be due to the limited availability of data. Out of the four dimensions of CEO power, the other



dimensions can also be studied. The literature review for the other three dimensions is available even in the perspective of Pakistan, but the expert power variable is still unexplored. This study has analyzed CEO Expert power based on Tenure where it can also be calculated based on knowledge and experience (Qiao & Fung, 2016), board duality, etc. The data considered in this study is just for three years (2015-2017) because of the limited availability of data. The time frame can be extended to get better results in the future. For innovation, only one variable is used, which is patents. However, the literature suggests that innovation can also be estimated through Research & Development expense.

Moreover, there are various types of innovation, such as product innovation, process innovation which can be focused individually. The work can further be extended by focusing on a limited number of sectors as the Innovative activities are firm-specific (Aftab, 2017) so patents may be relevant for a few sectors while irrelevant for others. The limited number of control variables can also be increased by variables such as CEO age, work experience, knowledge. The dependent variables can also be altered by variables like Tobin Q, Return on Investment, Net Profit Margin.



## REFERENCES

- Abbas, A., Zhang, L., & Khan, S. (2014). A literature review on the state-of-the-art in patent analysis. *World Patent Information*, 37, 3-13. Retrieved from World Patent Information.
- Adams, R. B., Almeida, H., & Ferreira, D. (2005). Powerful CEOs and their impact on Corporate performance. *Review of Financial Studies*, 18(4), 1403-1432.
- Aftab, I. (2017). Quantifying Firm Level innovation in Pakistan and its consequences for Public Policy.
- Aggarwal, P. (2013, December). Corporate Governance and Corporate Profitability: Are they related?-A study in Indian Context. *International Journal of Scientific and Research Publications*, 3(12).
- Ahmed, E., Rosser, J. B., Jr., & Uppal, a. J. (2016). A raging bull or a long-term speculative bubble? The puzzling case of the Karachi Stock Exchange. *Pakistan Development Review*, 55(2), 79-85.
- Aigner, D., Lovell, C. K., & Schmidt, P. (1977). Formulation and estimation of Stochastic Frontier Production Function Models. *Journal of Econometrics*, 6, 21-37.
- Aivazian, V., Ge, Y., & Qiu, J. (2005). The impact of leverage on firm investment: Canadian Evidence. *Journal of Corporate Finance*, 11(1-2), 277-291.
- Andres, P. D., Azofra, V., & Lopez, F. (2005, March 11). Corporate Boards in OECD Countries: size, composition, functioning and effectiveness. *Corporate Governance-An International Review*, 13(2), 197-210. doi:10.1111/j.1467-8683.2005.00418.x
- Atalay, M., Anafarta, N., & Sarvan, F. (2013). The relationship between innovation and firm performance: An empirical evidence from Turkish automotive supplier industry. *Procedia- social and behavioral sciences*, 75, 226-235.
- Atanassov, J., Nanda, V., & Seru, A. (2007). Finance and innovation: The case of publicly traded firms. *Stephen M. Ross School of Business- Working Paper Series*.
- Balkan, D. B., Markman, G. D., & Gomez-Mejia, L. R. (2000). Is CEO Pay in High-Technology Firms Related to Innovation? *The Academy of Management Journal*, 43(6), 1118-1129. Retrieved 06 12, 2014, from <http://www.jstor.org/stable/1556340>.
- Barker, V. L., & Mueller, G. C. (2002, June 1). CEO Characteristics and firm R&D Spending. *Management Science*, 48(6), 782-801.



- Barney, J. B. (2001). Is the resource-based view a useful perspective for strategic management research? *Academy of Management Review*, 26, 41-56.
- Basberg, B. (1987). Patents and the measurement of technological change: A survey of the literature. *Research Policy*, 16(2-4), 131-141.
- Bigliardi, B. (2014). The effect of innovation on financial performance: A research study involving SMEs. *Innovation: Management, Policy & Practice*, 15:2, 245-255. Retrieved from <http://dx.doi.org/10.5172/impp.2013.15.2.245>
- Booth, L., Aivazian, V., Demirguc-Kunt, A., & Maksimovic, V. (2001, February). Capital Structures in Developing Countries. *Journal of Finance*, 56(1), 87-130. doi:10.1111/0022-1082.00320
- Booth, T., Murray, A. L., Overduin, M., Matthews, M., & Furnham, A. (2016). Distinguishing CEOs from Top Level Management: A Profile Analysis of Individual Differences, Career Paths and Demographics. *Journal of Business and Psychology*, 31(2), 205-216.
- Bowman, Cliff, & Ambrosini, V. (2003). How the Resource-based and Dynamic Capability Views of the Firm Corporate-level Strategy. *British Journal of Management*, 14, 289-303.
- Brown, L. D., & Caylor, M. L. (2004). Corporate Governance and Firm Operating Performance. *SSRN Journal*. Retrieved from <http://dx.doi.org/10.2139/ssrn.814205>
- Bujadi, M. L., & Richardson, A. J. (1997). A citation trial review of the uses of firm size in Accounting Research. *Journal of Accounting Literature*, 16, 1-27.
- Cai, J., & Zhang, Z. (2011). Leverage Change, Debt Overhang, and Stock prices. *Journal of Corporate Finance*, 17(3), 391-402.
- Chen, H. L. (2015). Board capital, CEO power and R&D investment in electronics firms. Corporate Governance: An. *Corporate Governance: An International Review*, 22, 422-436. doi:10.1111/corg.12076
- Chen, H. L., Hsu, W. T., & Huang, Y. S. (2008). Top management team characteristics, R&D investment and capital structure in the IT industry. *Small Business Economics*, 35(3), 319-333. doi:10.1007/s11187-008-9166-2
- Cho, H., & Pucik, V. (2005). Relationship between innovativeness, quality, growth, profitability, and market value. *Strategic Management Journal*, 26(6), 555-570.



- Colombo, M. G., Laursen, K., Magnusson, M., & Rossi-Lamastra, C. (2012). Introduction: Small business and networked innovation: Organizational and managerial challenges. *Journal of Small Business Management*, 50(2), 181-190.
- Daily, C. M., & Johnson, J. L. (1997). Sources of CEO Power and Firm Financial Performance: A Longitudinal Assessment. *Journal of Management*, 23(2), 97-117. doi:10.1177/014920639702300201
- DeBoskey, D. G., Luo, Y., & Zhou, L. (2018). CEO power, board oversight, and earnings announcement tone. *Review of Quantitative Finance and Accounting*, 1-24.
- Ely, A., & Geall, S. (2015). Innovation for sustainability in a changing China: Exploring narratives and pathways.
- Ezzi, F., & Jarboui, A. (2016, 03 16). Does innovation strategy affect financial, social and environmental performance? *Journal of Economics, Finance and Administrative Science*, 20.
- Faberberg, J. (2010). *The changing global economic landscape: The factors that matter*. doi:10.4337/9781849809122.00011
- Finkelstein, S. (1992). Power in Top Management Teams: Dimensions, Measurement, and Validation. *The Academy of Management Journal*, 35(3), 505-538. Retrieved 06 13, 2014, from <http://www.jstor.org/stable/256485>.
- Fiol, C. M. (1996). Squeezing harder doesn't always work: continuing the search for consistency in innovation research. *Academy of Management Review*, 21(4), 1012-1021.
- Gomez-Mejia, L., & Wiseman, R. M. (1997). Reframing executive compensation: An assessment and outlook. *Journal of Management*, 23(3), 291-374.
- Hambrick, D. C., & Fukutomi, G. D. (1991). The seasons of a CEO's tenure. *Academy of Management Review*, 16, 719-743.
- Han, S., Nanda, V. K., & Silveri, S. (2016). CEO Power and Firm Performance under pressure. *Financial Management*, 369-400.
- Harjoto, M. A., & Jo, H. (2009). CEO Power and Firm Performance: A Test of the Life Cycle Theory. *Asia-Pacific Journal of Financial Studies*, 38(1), 35-66.
- Kostopoulos, K., Papalexandris, A., Papachroni, M., & Loannou, G. (2011). Absorptive capacity, innovation, and financial performance. *Journal of Business Research*, 64, 1335-1343.



- Li, N., & Wahid, A. S. (2017). Director Tenure Diversity and Board Monitoring Effectiveness. *Journal of Economic Literature*. Retrieved from <http://dx.doi.org/10.2139/ssrn.2930136>
- Lofsten, H. (2016). Business and innovation resources-determinants for the survival of new technology-based firms. *Management Decision*, 54(1), 88-106.
- Minnick, K., & Noga, T. (2010). Do corporate governance characteristics influence tax management? *Journal of Corporate Finance*, 16, 703-718. doi:10.1016/j.jcorpfin.2010.08.005
- Muhammad, H., Rehman, A. U., & Waqas, M. (2016). The Effect of Corporate Governance Practices on Firm Performance: Evidence from Pakistan. *East Asian Journal of Business Management*, 6(1), 5-12.
- Muiruri, J. K., & Ngari, J. M. (2014, May). Effects of financial innovations on the financial performance of commercial banks in Kenya. *International Journal of Humanities and Social Science*, 4(7).
- Pfeffer, J., & Salancik, G. (1978). The external control of organizations: A resource dependence perspective.
- Prajago, D. (2016). The strategic fit between innovation strategies and business environment in delivering business performance. *International Journal of Production Economics*, 171(2), 241-249.
- PSX. (2016). *Pakistan Stock Exchange Limited*. Retrieved from <https://www.psx.com.pk/>.
- Qiao, P. H., & Fung, A. (2016, 07 14). How Does CEO Power Affect Innovation Efficiency? *The Chinese Economy*, 49:4, 231-238. doi:10.1080/10971475.2016.1179017
- Rehman, N. U. (2016). Do internal and external research and development affect innovation performance of SMEs? Evidence from Indian and Pakistan. *ADB Working paper 577*.
- Ryan, H., & Wiggins, R. (2004). Who is in whose pocket? Director Compensation, Board Independence, and Barriers to Effective Monitoring. *Journal of Financial Economics*, 73, 497-524.
- Salomon, R. M., & Shaver, J. M. (2005). Learning by exporting: New insights from examining firm innovation. *Journal of Economics and Management Strategy*, 14, 431-460. doi:10.1111/j.1530-9134.2005.00047.x



- Schroll, A., & Mild, A. (2011). Open innovation modes and the role of internal R&D: An empirical study on open innovation adoption in Europe. *European Journal of Innovation Management*, 14(4), 475-495.
- Sheikh, Shahbaz. "The impact of market competition on the relation between CEO power and firm innovation." *Journal of Multinational Financial Management* 44 (2018): 36-50.
- Siddiqui, S. (2018). *PSX ends as world's worst market in 2017*. Retrieved from The Express Tribune: <https://tribune.com.pk/story/1597565/2-psx-ends-worlds-worst-market-2017/>.
- Sweezy, P. M. (1943, 02). Professor Schumpeter's Theory of Innovation. *The Review of Economics and Statistics*, 25(1), 93-96. Retrieved 09 07, 2013, from <http://www.jstor.org/stable/1924551>.
- Symeonidis, G. (1996). Innovation, Firm Size and Market Structure: Schumpeterian Hypotheses and some new themes. *OECD Economics Department Working Papers no.16*. doi:<http://dx.doi.org/10.1787/603802238336>
- Ting, H. I. (2013). CEO turnover and shareholder wealth: Evidence from CEO power in Taiwan. *Journal of Business Research*, 66, 2466–2472. doi:10.1016/j.jbusres.2013.05.036.
- Van de Vrande, V., De Jong, J. P., Vanhaverbeke, W., & De Rochemont, M. (2009). Open innovation in SMEs: Trends, motives and management challenges. *Technovation*, 29(6-7), 423-437.
- Vyas, V. (2009). Innovation and new product development by SMEs: An investigation of Scottish food and drinks Industry.