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UNRAVELING THE LINK BETWEEN OWNERSHIP STRUCTURE AND INTELLECTUAL CAPITAL EFFICIENCY: A STUDY OF NON-FINANCIAL FIRMS IN PAKISTAN

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ABSTRACT
This study examined the effect of ownership structure on intellectual capital efficiency of nonfinancial firms listed on PSX 100 in Pakistan. This research has covered the data of non-financial firms from period 2010 to 2018 from the official website of Pakistan Stock Exchange and furthermore from the companies" financial statements. The independent variable of this research is ownership structure which is divided into five different categories family ownership, government ownership, institutional ownership, individual ownership and foreign ownership while the dependent variable of the research is value added capital efficiency which is divided into three components human capital efficiency, structural capital efficiency and capital employed efficiency which is calculated by using Public's model Intellectual Capital Efficiency. The results of this study have shown that family ownership have a positive significant relationship with intellectual capital efficiency, government ownership a negative significant relationship with intellectual capital efficiency, institutional ownership a positive significant relationship with intellectual capital efficiency and foreign ownership structures have a positive significant impact on intellectual capital efficiency, while individual ownership, firm age, firm size and firm leverage have an insignificant impact on intellectual capital efficiency. The purpose of this study is to add to existing literature of ownership structure and intellectual capital efficiency in regard to Pakistan.

Keywords: Ownership structure, intellectual capital efficiency, agency theory, resource-based theory.

1. INTRODUCTION
Promptly altering dynamics of globalization and increased competition in every aspect, have opposed enterprises globally towards numerous discoveries and possibilities to work towards value creation (Bchini, 2015).

Intellectual capital is essential and crucial feature for success of any business and it is useful in identifying and mapping intangible assets. For example, general understanding, proficiency of workers, culture of a company, different structures of companies, cognitive expertise, and technical control. Intellectual capitals consist of knowledge that is information to perform a certain action, to understand that action and how can it be used for benefiting the company. Knowledge infers to a link amid information and a continuous progression of learning, this results in exclusivity, originality, modernism, and evolution. It is acquired to work with gather material in an efficacious purposeful manner and to compete effectively in the economy to

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survive. Intellectual capital is a perilous foundation that provides competitive advantage for many corporations (Alfraih, 2017). Intellectual capital is responsible for adding value to stakeholders, (Chahal & Bakshi, 2015) (Marr, Schiuma, & Neely, 2004) and providing benefits to external and internal stakeholders, and for generating wealth for the company (Lentjushenkova, 2016).

Human capital is an intangible asset, employee experience and skills can be considered as human capital as well which adds to economic value of a business. It can also include tools such as education, observation, training, intelligence, skills, punctuality, expertise, health, accuracy (Noradiva, Parastou, & Azlina, 2016). Structural capital is the part of the intellectual asset and includes information included in the database structures, strategies, routines, manuals and training materials of a company when there is no employee at work (Van Caenegem, 2002).Capital employed exhibits how much value is being created by investment of an additional unit of capital, both physical and financial assets (Basso, Kimura, & Aguiar, 2009).Ownership structure is scattering of capital in a company, but also by the identity of the owners who own that company. It is of great importance because it determines all the enticement of managers and economic efficiency of that company. Ownership Structure is a governance tool that improves how information can be used by changing governance styles, designing and developing suitable strategies and policies to protect investors and customers by reducing agency cost (Al-Musali & Ismail, 2014) (Al-Sartawi, 2018).

Structures of ownership are used all around the world to make sure a company is managed well and is progressive in every way when it comes to output, success and performance. Value creation from performing well is not only how much limited contribution an employee deposits while they work on a certain project or a task and what reimbursements they gain from it. It is related to working on their interpersonal skills other than what they already possess. All these pointers will reflect upon how efficiently someone works and it's called intellectual capital efficiency. Pakistan has diverse structures when it comes to ownership there are some issues regarding corporate governance regulation's that doesn't gives us full closure related tow the treatment of intellectual capital efficiency. A lot of studies have taken place regarding this association around the world and in Pakistan but no one have used all ownership structures with these elements of intellectual capital efficiency and especially on entire nonfinancial sector of Pakistan using stratified sampling technique. This study will shed light on the effect of ownership structure on intellectual capital efficiency and facilitate various predictors and forecasters to do comparison about value creation of numerous non-financial firms of Pakistan to make important decisions and to do future planning. The objectives of the research are:

- To scrutinize impact of family ownership on intellectual capital efficiency.
- To explore effect of government ownership on intellectual capital efficiency.
- To examine the outcome of institutional ownership on intellectual capital efficiency.
- To discover the impact of individual ownership on intellectual capital efficiency.
- To observe the impact of foreign ownership on intellectual capital efficiency.

Therefore, the effect of ownership structure on intellectual capital efficiency in terms of value creation is theoretically outlined in the literature review along with the hypothesis of the study and then empirical analysis is done for testing them. The ownerships in this research comprises of government ownership, family ownership, institutional ownership, individual ownership and foreign ownership. The last section of the research is based on discussion of results, conclusions, practical implications, limitations along with recommendations for future researches.

2. REVIEW OF LITERATURE

Intellectual capital efficiency is referred as understanding, abilities, functional expertise's to have competitive advantage for a business, and to stand out among its competitors (Wang, Sharma, & Davey, 2016) (Haji & Ghazali, 2012) (Singh & Narwal, 2016) (Tayles, Pike, & Sofian, 2007). The more strictly a company manages their intellectual resources in terms of efficiency the more company's value creation accomplishments will increase. However, value creation also has detrimental results wen company is incompetent and lacks useful expertise to sufficiently run their intellectual assets (Ozkan, Cakan, & Kayacan, 2017) (Pulic, 2000). Ownership structure remains an important element of corporate governance mechanism within an organization which adds

towards clarifying differences among several intellectual capital efficiencies (Muttakin, Khan, & Belal, 2015).

According to Agency Theory, it is said that concentrated ownership has complementary tendency to monitor managers to motivate them to achieve the owners' objectives in a more responsible and efficient way. It is stated that higher agency cost is associated with the distance between principals and agents aims, so for that to evaluate the performance of managers it is compulsory to inspect the affiliation between ownership structure and performance of the company's intellectual capital efficiency (Lensink, Meesters, & Naaborg, 2008). The Signaling Theory is when one party credibly conveys some information about itself to another party. Investors and other parties will critic a company that has a good intellectual capital performance because it is considered to survive in intense competition (Whiting & Miller, 2008).The Resources Based Theory states that company's resources are diverse, not standardized, productive services that provide an exclusive character for each company. All these resources need to be diverse and unique which will constitute towards better performance of workers towards adding value to the company (Barney & Arikan, 2005).

Intellectual capital efficiency consists of human capital efficiency, structural capital efficiency and capital employed efficiency (Bontis, Keow, & Richardson, 2000).Human capital is argued to be essential for businesses because it is focused upon excellence of the workforces working in a firm which comprises of capacity, familiarity, technicality, involvement that in turn improves company's creativity and performance regarding intellectual capital efficiency (Naixiao, 2009). Structural capital maintains the structure of a company like what ideas, theories, approaches, methods, practices, and technical systems will be used. The true worth of structural capital lies with the collection of human resources, the achievement of tactical objectives, the provision of sufficient space for innovation and business development (Naixiao, 2009). Capital employed is referred to how much investment a company does to support their structural and human capital. It is viewed as the strongest predicator of value-added intellectual capital because it preserves solid relation between employees, clients, suppliers, partners and lead to procedure and merchandise innovations and empowers the company to fully apply their knowledge by spreading it across the entire company.

Foreign ownership is necessary for value creation because acquisition of a company by foreign investors increases its productivity. A study was conducted by (Aydin, Sayim, & Yalama, 2007) that examined performance differences between foreign and domestically owned Turkish listed companies. Results showed that the positive influence of foreign ownership on company's intellectual capital efficiency is the effect of transferring advance technical equipment's and better monitoring abilities of the company. Similarly, polish companies were studied on bases of how ownership structure works with intellectual capital efficiency. It established that structure of ownerships are important for intellectual efficiency and sometimes dependent upon how technological extensive a can be company or not, but there was a negative association of foreign ownership with capital employed efficiency (Bohdanowicz & Urbanek, 2013). Research was done on Indonesian manufacturing companies to see effect of structure of ownership, size and age of the company with intellectual capital, variables like institutional, foreign ownerships and companies' size and age was significant (Febriani, 2016). Therefore, it is hypothesized that

H_1: Foreign ownership has a significant positive relationship with intellectual capital efficiency.

Effect of government ownership on intellectual capital efficiency also needs to be taken into consideration. Most of the existing studies concluded that companies that are owned by government are less efficient and profitable than privately-owned companies (Majumdar, 2008; Megginson & Netter, 2001). In this respect (Brouthers, Brouthers, & Werner, 2008) noted that state-controlled companies' managers are not very prone to be creative and bring more ideas towards being innovative and adopt professional corporate practices. Likewise, one thirty-four Kuwaiti companies were chosen to have an insight of government ownership and intellectual capital efficiency and there was a negative bond amongst both variables. According to them, government ownership tends to prioritize political goals rather than business ones and lacks an adequate entrepreneurial drive (Alfraih, 2017). Another study showed a negative association between government ownership and intellectual capital efficiency because resources of the

company are used for communal and party-political events and it puts an undesirable effect on intellectual capital efficiency (Sun, Tong, & Tong, 2002). Therefore, it can be hypothesized that:

H_2: Government ownership has a significant negative relationship with intellectual capital efficiency.

The early study about institutional ownership and intellectual capital efficiency was proved to be positive because institutional investors are good at observing the company from view of shares, proportionate to every shareholder, stability, and how employment of ownership works (Elyasiani & Jia, 2010).Similar research was conducted in emerging market countries and it examined institutional ownership with intellectual capital efficiency of one thirty-four Kuwaiti companies and there is a positive linkage between variables as institutional investors are more influential and have a solid control in a company (Alfaraih, Alanezi, & Almujamed, 2012). Also, ownership structure and intellectual capital efficiency were examined of fifty companies in Tehran which had ownership as institutional and non-institutional. The study caused positive association between institutional ownership and intellectual capital (Barzegar & Babu, 2008). Therefore, it can be hypothesized that

H_3: Institutional ownership has a significant positive relationship with intellectual capital efficiency

Family ownership offers huge number of unique resources and capabilities, due to the interaction of family within the business. Family owners may be more concerned towards the firm and view firm's health in form of growth, profit and value creation as part of their own wellness (Berrone, Cruz, & Gomez-Mejia, 2014; Le Breton–Miller & Miller, 2006; Mitter, Duller, Feldbauer-Durstmüller, & Kraus, 2014).

For a family business to be exceptionally credible there should be focus upon management, corporate professionalism, contribution of the family. It is said that companies with family ownership means longstanding assurance towards the company and perform well. Some argue that more value is created when CEO of a company belongs to a family because of so many perks like hierarchy, double share class, settlements on several decisions. Business arguments in a family business won't be destructive as compared to non-family owned business because of personal interest of owner and managers (Kellermanns & Eddleston, 2007; Maury, 2006) (Villalonga & Amit, 2006).

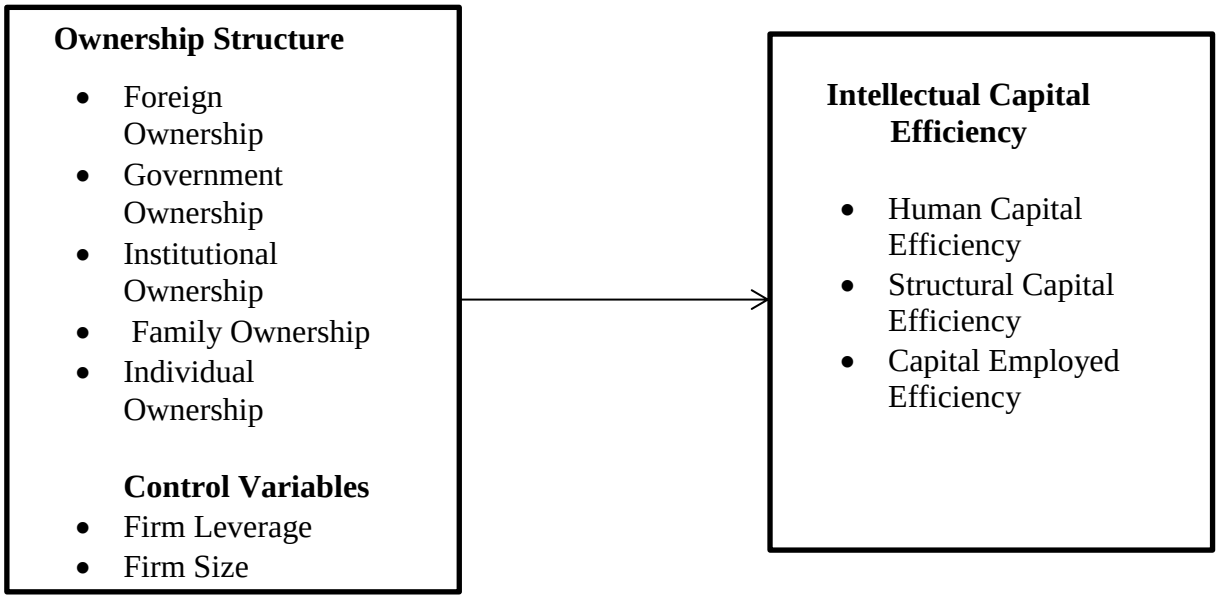
Association of family-owned business differs in comparison to non-family owned when it comes to agency issues. This variation is due to distinctive methods like monitoring managers, control and command, checking of annual statements, reporting all these contribute towards less agency cost and it was also increasing intellectual capital efficiency (Ali, Chen, & Radhakrishnan, 2007).

Therefore, it can be hypothesized that

H_4: Family ownership has a significant positive relationship with intellectual capital efficiency.

Individual ownership can have positive impact on intellectual capital efficiency because individual shareholders have more tendency to increase monitoring and motivation of the managers to achieve their objectives more cautiously. A study was done that classified that if value of a company is high due to majority of ownership being owned by individual owners it may be due to more professional knowledge and they might be able to implement a lot of creative ideas in the company making the value addition very smooth (Chang & Hsieh, 2011). A specific amount of ownership concentration is desired in the company to increase the performance and making sure that the company doesn't go bankrupt. Additional owners indicate that there are more people who have invested in the company and there are less chancing of that company becoming defaulter because in this case owners can pool money for uncertain circumstances (Mohd-Saleh & Che Abdul Rahman, 2009). However, Individual ownership is professed as an ideal corporate governance mechanism with having very strong motivation to monitor the management because it is believing that individual owners might have a significant control over the company (Estrin, Hanousek, Kocenda, & Svejnar, 2009). Therefore, it can be hypothesized that

H_5: Individual ownership has a significant positive relationship with intellectual capital efficiency.



This research sample encloses 50 non-financial companies operating in the Pakistan that are listed on Pakistan Stock Exchange (PSX 100). Entire data is collected from year 2010 to 2018 and the relevant data is obtained from company's annual reports. These end of year statements were acquired from PSX website. During sample selection, those firms in which data is not available or which were declared defaulted by Pakistan Stock Exchange (PSX) are not be considered. The sample technique that has been used is stratified sampling so that each non-financial sector is given equal importance and can be studied equally in reference to their ownership structures and their role in value creation through intellectual capital efficiency. To measure the effect of ownership structure on intellectual capital efficiency regression analysis is used by the authors of the previous works as stated in literature review. The regression analysis is a statistical measure to determine the affiliation between two or more variables and how they affect each other. There are two main variables of this study that are used in regression analysis the dependent variable on which the effect is to be seen that is intellectual capital efficiency and the independent variable the one doing the effect that is ownership structure. On the other side, firm size, firm age and firm leverage are control variables. Ownership structure is measured with family ownership, government ownership, institutional ownership, individual ownership and foreign ownership.

$$ICEit = \beta_1 FAMit + \beta_2 GOVit + \beta_3 INSit + \beta_4 INDit + \beta_5 FORit + \beta_6 LEVit + \beta_7 AGEit + \beta_8 SIZEit + \varepsilon it$$

Where,
ICEit = it represents the "Intellectual Capital Efficiency" of firm i with specific time period t.
FAMit = it signifies the "Family Ownership" of firm i with specific time period t.
GOVit = it denotes the "Government Ownership" of firm i with specific time period t.
INSit = it symbolizes the "Institutional Ownership" of firm i with specific time period t.
INDit = it exemplifies the "Individual Ownership" of firm i with specific time period t.
FORit = it characterizes the "Foreign Ownership" of firm i with specific time period t.
LEVit = it represents the "Firm Leverage" of firm i with specific time period t.
AGEit = it embodies the "Firm Age" of firm i with specific time period t.
SIZEit = it represents the "Firm Size" of firm i with specific time period t.

εit = it represents the "error" of firm i with specific time period t.

The dependent variable is intellectual capital efficiency and has been identified as an intangible asset for example resources, abilities and aptitudes that pushes an organization to perform in efficient way for value creation. It encompasses human capital, structural capital and capital employed (Chu, Chan, Yu, Ng, & Wong, 2011). The Independent variable in this research is ownership structure which is divided into five different categories; government, family, institutional, individual, and foreign ownership structure. (Alcaniz, Gomez-Bezares, & Roslender, 2011) (Imam & Malik, 2007) (Vishnu & Gupta, 2014).

Firm size, firm age and firm leverage are taken as control variables (Bontis & Serenko, 2007).

The measures of variables are as follows:

Dependent Variables	
Intellectual Capital Efficiency (ICE)	ICE = HCE + SCE + CEE
Human Capital Efficiency (HCE)	HCE = Value added / Human Capital, where Human Capital is the amount of expenditures a firm incurs on its employees, while Value Added is the sum of a firm's operating profit, employees costs, depreciation, and amortization.
Structural Capital Efficiency (SCE)	Structural Capital / Value Added, where Structural Capital is the difference between Value Added and Human Capital.
Capital Employed Efficiency (CEE)	Value Added / Capital Employed, where Capital Employed is the amount of physical and financial capital of the firm.
Independent Variables	
Family Ownership (FAM)	% of shares retained by a family
Government Ownership (GOV)	% of shares owned by the government
Institutional Ownership (INS)	% of shares owned by corporations and institutions
Individual Ownership (IND)	% of shares maintained by individuals
Foreign Ownership (FOR)	% of shares preserved by foreign investors
Control Variables	
Firm Age (AGE)	Age of firm from the time of its establishment
Firm Size (SIZE)	Log of a firm's total assets
Firm Leverage (LEV)	Total debt / Total assets

3. RESULTS AND DISCUSSIONS

This section provides details of regression analysis, detailed analysis, results interpretation and discussion after empirically testing hypothesis constructed to scrutinize the data set which is being studied. However, descriptive statistic, correlation analysis and regression analysis are also presented in this chapter.

3.1. Descriptive Statistics

Variables	**Mean**	**Standard Deviation**	**Min**	**Max**	**Observations**
Intellectual capital efficiency	2.77e+10	1.85e+10	-2.49e+10	6.96e+10	N = 450 n = 50
Family ownership	29.21778	15.244	1	53	N = 450 n = 50
Government ownership	22.52889	12.46582	1	39	N = 450 n = 50

Institutional ownership	24.49556	14.26698	1	47	N = 450 n = 50
Individual ownership	37.12222	18.19767	1	66	N = 450 n = 50
Foreign ownership	25.88444	12.32909	1	39	N = 450 n = 50
Firm Age	38.6022	15.76958	2.19	76.1	N = 450 n = 50
Firm Size	10.05399	.9494602	7.747778	11.95778	N = 450 n = 50
Firm leverage	.40939887	.2637362	-.3388889	1.255556	N = 450 n = 50

The table shows that intellectual capital efficiency has a mean of 2.77e+10 its standard deviation is 1.85e+10, has a minimum value of -2.49e+10 and it has a maximum value of 6.96e+10. Family ownership has a mean of 29.21778 its standard deviation range is from 15.244, a minimum value of 1 and it has a maximum value of 53. Government ownership has a mean of 22.52889 its standard deviation range is 12.46582, have a minimum value of 1 and it have a maximum value of 39. Institutional ownership has a mean of 24.49556 its standard deviation range is 14.26698, have a minimum value of 1 and it have a maximum value of 46. Individual ownership has a mean of 37.12222 its standard deviation range is 18.19767, have a minimum value of 1 to and it have a maximum value of 66. Foreign ownership has a mean of 25.88444 its standard deviation range is 12.32909, have a minimum value of 1 and it have a maximum value of 39.

3.2. Correlation Matrix

	ICE	**AGE**	**SIZE**	**LEV**	**FAM**	**GOV**	**INS**	**IND**	**FOR**
ICE	1.0000								
AGE	0.0079	1.0000							
SIZE	0.0098	-0.0426	1.0000						
LEV	-0.0421	-0.0097	0.1670	1.0000					
FAM	0.2622	0.0586	0.0013	0.0219	1.0000				
GOV	-0.1323	-0.2222	-0.1390	-0.0222	0.0089	1.0000			
INS	-0.0620	0.0645	-0.2283	0.0738	-0.2675	-0.0330	1.0000		
IND	0.1704	0.0248	0.0517	0.0240	0.1049	-0.1613	0.0180	1.000	
FOR	0.1582	0.1065	0.1755	0.1146	03916	-0.0016	-0.2109	-0.0085	1.0000

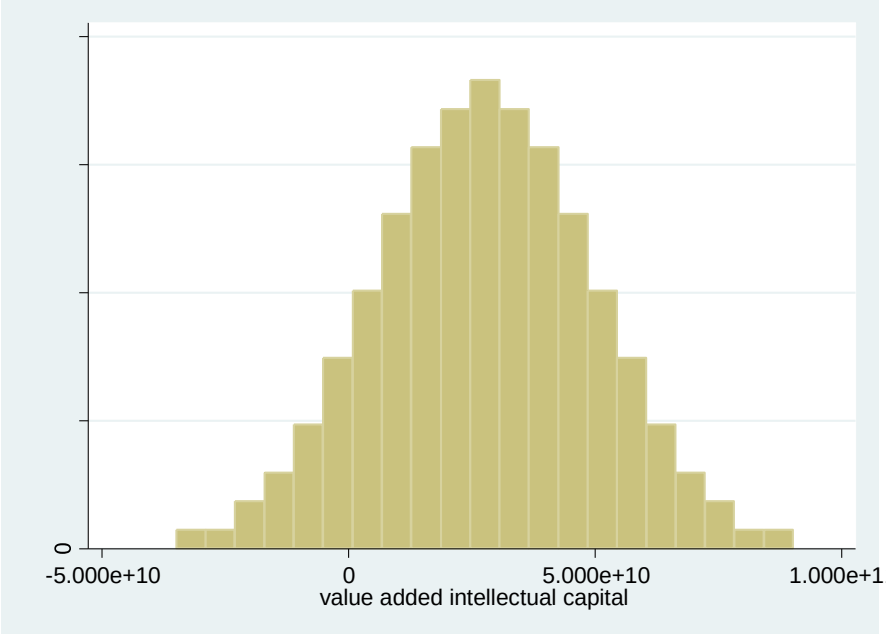
Table presents Pearson's correlation analysis which supports the association among all the variables to be examined in detail. The correlation analysis presented above displays the values of correlated co-efficient and their significance related to all the values for both our independent and dependent variables. The relation among same variables indicates perfect correlation with one another, that's why relationship of those variables cannot be studied because both variables are inclined to behave in a similar way. However, association between different variables is identified. The test not only concludes the connotation, but also the strength of that connotation through degree, linearity and relationship, which is specified by either positive sign or negative sign. Correlation which lies between 0-0.3 shows weak correlation, correlation which lies between 0.3 to 0.5 shows a moderate correlation whereas 0.5-0.7 shows a strong correlation. As we can see that above mentioned family ownership is positively weakly correlated with a value of 0.2622 in association with value added capital efficiency, government ownership have a value of -0.1323 in

association with value added capital efficiency which is negatively weakly correlated ,institution ownership have a value of -0.0620 in association with value added capital efficiency which is negatively weakly correlated, individual ownership have a value of 0.1704 in association with value added capital efficiency which is positively weakly correlated , foreign ownership have a value of 0.1582 in association with value added capital efficiency which is positively weakly correlated.

3.3. Normality

Variable	Observations	W	V	z	Prob > z
Intellectual Capital Efficiency	450	0.99943	0.175	-4.173	0.99998

As data is not normal that's why normal values were created by intellectual capital efficiency to normalize the data. After this normality was tested and it results in normalize values with p-value of 0.99998 which is greater than 0.05 and illustrates that data is properly normal. Hence, alternative hypothesis is accepted that data under consideration is normally distributed.



This histogram is perfectly skewed because of normal data. The mean and median is equal and moreover data is in perfect equal intervals. The pattern represents a perfect bell shape distribution which means data is normally distributed.

3.4. Multicollinearity

Multicollinearity is an arithmetical phenomenon in which numerous independent variables show high correlation amongst each other. In other words, the variables used to forecast the independent variable is also inter-related. Multicollinearity can be identified with the support of tolerance and its reciprocal which is known as VIF (variance Inflation factor). If the VIF is grander than 10 then the problem of multicollinearity exists. Since mean VIF is 1.15 which is less than 10 so this exhibits no sign of multicollinearity.

Table 3.4.1. Multicollinearity

Variable	VIF	1/VIF
Family ownership	1.28	0.784284
Foreign ownership	1.27	0.789672

Institutional ownership	1.18	0.845050
Government ownership	1.11	0.902539
Individual ownership	1.05	0.955541
Firm age	1.08	0.924973
Firm leverage	1.06	0.946057
Firm size	1.16	0.862598
Mean VIF	1.15	

Heteroscedasticity

White's test for Hetero scedasticity

Breusch-Pagan / Cook-Weisberg test for hetroskedasticity

Ho: Constant Variance

Variables: fitted value of values added intellectual capital efficiency

Chi 2 (1) = 0.78

Prob> chi 2 = 0.3769

Heteroscedasticity is an organized change in the distribution of residuals over the range of measured values that are to be measured. Heteroscedasticity is an issue because ordinary least squares (OLS) regression makes an assumption that all residuals are drawn from a population that has persistent variance (homoscedasticity). However, change in variances can lead towards heteroscedasticity. The P value comes up to be 0.3769 which is less than 0.05 so we'll conclude that our variances are equal because of which problem of heteroscedasticity does not exists.

3.5. Regression Analysis

	p values	**Coefficient**
Family ownership	0.000	3.100e+08***
Government ownership	0.008	-2.213e+08***
Individual ownership	0.793	1.971e+07
Institutional ownership	0.005	1.568e+08***
Foreign ownership	0.075	1.574e+08*
Firm age	0.319	-6.523e+07
Firm size	0.687	-4.365e+08
Firm leverage	0.185	-3.599e+09
_cons	0.085	2.162e+10*
R-squared 0.113		

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Family ownership have a p value of 0.000 this portrait that family ownership is 1% positively significant in relationship with value added intellectual capital efficiency. Government ownership have a p value of 0.008 this means that government ownership is 1% negatively significant in relationship with value added intellectual capital efficiency. Individual ownership has a p value of 0.793 this means that individual ownership is not significant in relationship with value added intellectual capital efficiency. Institutional ownership has a p value of 0.005 this means that institutional ownership is 1% positively significant in relationship with value added intellectual capital efficiency. Foreign ownership has a p value of 0.075 this indicates that foreign ownership is 10% positively significant in relationship with value added intellectual capital efficiency. Firm age has a p value of 0.319 this means that firm age is negatively significant in relationship with value added intellectual capital efficiency. Firm size has a p value of 0.687 this demonstrates that firm size is negatively significant in relationship with value added intellectual capital efficiency. Firm leverage has a p value of 0.185 this shows that firm leverage has a negative significant relationship with intellectual capital efficiency.

Family ownership with intellectual capital efficiency:
Family ownership structure showed a positive significant influence over intellectual capital efficiency because Pakistan's corporate sector is predominantly controlled by certain families with the help of through cross-shareholding, interconnected-directorships and pyramids moreover family owned firms can make well planned investment judgments as compared to company not owned by families because family businesses have more strategies and have more firm specific knowledge and they are always have a greater advantage to lessen agency problem due to their extensive resources (Arshad, Akram, Amjad, & Usman, 2013; Hussain & Shah, 2015).

Institutional ownership with intellectual capital efficiency:
The positive significant relationship of institutional ownership indicates that institutional investors plan and work accordingly and have greater effect on firm financial decisions and procedures because they are huge institutes and there investments are very large that's why they are way too concerned about a company and its performance and how their money is being utilized (Alfaraih et al., 2012) (Tornyeva & Wereko, 2012).

Government ownership with intellectual capital efficiency:
The negative significant relationship of government ownership indicates that government has made rules and regulations in order to facilitate their own needs and personal benefits rather than organizations in Pakistan. It is claimed that government owned companies can certainly have shortage of adequate entrepreneurial enterprises and incline to be politically than being commercially driven, which hints towards detrimental financial performance (Cuervo & Villalonga, 2000; Najid & Rahman, 2011).

Foreign ownership with intellectual capital efficiency:
The positive significant relationship of foreign ownership with intellectual capital efficiency indicates that knowledge from foreign ownership structure in form of advanced technologies, strategies, processes, skills and expertise have led to value creation (Aydin et al., 2007; Djankov & Hoekman, 2000).

Individual ownership with intellectual capital efficiency:
The insignificant relationship of individual ownership with intellectual capital efficiency indicates that mostly individual ownership fail to keep track of all the activities that are taking place in a certain work place and because they are the sole owners so they burden of all the expenses and whatever hurdles are faced by the company (Mohd-Saleh & Che Abdul Rahman, 2009).

Firm leverage, firm age and firm size with intellectual capital efficiency:
The negative significant relationship of firm leverage with intellectual capital efficiency means that when leverage of a company increases it also increases debt of a company alongside which means that company has to pay high interest rate to cover those debt obligations this means the company is not able to perform well and value creation (Foroughi & Fooladi, 2012).The negative significant relationship of firm size with intellectual capital efficiency means that maybe the size of the company is so huge as compared to its resources that all money is being utilized to operate and maintain them and there is no money left to invest back in the company or to invest in better technology or resources for value creation. The negative significant relationship of firm age with intellectual capital efficiency means that older firms do not have any flexibility to adapt to new circumstances and advanced technologies and consequently are most likely to be outperformed by more flexible and younger firms.

5. CONCLUSION

In thought-provoking era, a company's value creation for performing efficiently depends upon how well their well their insubstantial assets are in evaluation of their physical possessions. Intellectual capital efficiency is kind of incorporeal asset that is always present and is linked with performance of a firm for value creation. Increasingly accepted intellectual capital efficiency is the most vital technique and sustainable possession for a corporation's benefit. This research provides observed evidences that financiers always consider firms with more value and superior intellectual capital efficiency, it an only possible with relative ownership structure of the firm that is needed to create that intellectual capital efficiency, that further yields additional revenue,

productivity for creation of value. Outcomes of this research emphasize on prominence of intellectual capital efficiency in value creation by using all possible ownership structures and states that family ownership structure showed a positive significant influence over intellectual capital efficiency because Pakistan's corporate sector is predominantly controlled by certain families with the help of through cross-shareholding, interconnected-directorships and pyramids moreover family owned firms have more firm specific knowledge and they are always have a greater advantage to lessen agency problem due to their extensive resources.

The positive significant relationship of institutional ownership indicated that institutional investors plan and work more on management and have the ability to control them because of their resources and because they have been an institute and they have more stake in the business and they are more concerned that how is the company performing. The negative significant relationship of government ownership indicated that government has made rules and regulations in order to facilitate their own needs and personal benefits rather than organizations in Pakistan. It is claimed that government owned companies can certainly have shortage of adequate entrepreneurial enterprises and incline to be politically than being commercially driven. The positive significant relationship of foreign ownership with intellectual capital efficiency indicated that knowledge from foreign ownership structure in form of advanced technologies; skills and expertise have led to value creation. Furthermore, association of individual ownership with intellectual capital efficiency is insignificant because there is less trend of individual ownership in Pakistan and it is believed that mostly individual owners are not equipped with those many strategies and resources that are required for operational of the company.

The negative significant relationship of firm leverage with intellectual capital efficiency means that when leverage of a company increases it also increases debt of a company alongside which means that company has to pay high interest rate to cover those debt obligations this means the company is not able to perform well and value creation. The negative significant relationship of firm size with intellectual capital efficiency means that maybe the size of the company is so huge as compared to its resources that all money is being utilized to operate and maintain them and there is no money left to invest back in the company or to invest in better technology or resources for value creation. All the associations and support from various previous studied we can conclude that the relationship between ownership structure and intellectual capital efficiency in Pakistan can be positive and negative depending on various factors.

Limitation of study

Limitation of this research is limited information availability on all dimensions of intellectual capital efficiency and ownership structure. Different countries apply different accounting standards and procedures for requiring the data of companies they are working upon. These differences can have significant or insignificant results in different states as Pulic's model used in this research takes accounting records annual financial statements.

Recommendations for Future Research

It is recommended that policy makers and researchers should strengthen their initiatives towards improved and superior learning and should be considerate to grasp more concepts and aspects of intellectual capital efficiency and ownership structures to have more and authentic information related to this topic. Moreover, researchers can also take and test this topic on financial sector or one specific sector using multiple other variables and add moderator and mediator to see different results.

Practical Implications of study

This study will help in distinguishing that which ownership structure is more efficient and less efficient in relationship with intellectual capital efficiency. This will support organizations to choose which ownership structure is necessary to use for more progressive efficiency and output and how essential it is to focus on expertise of employees in a company for better performance in terms of value. It will add to the existing literature of ownership structures in regards to intellectual capital efficiency that means what really needs to be the focal point of a company if they need to be competitive. It will be interesting research to government, policymakers, regulators, and stakeholders. In addition to create awareness among executives, shareholders and investors regarding intellectual capital efficiency and ownership structures.

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