Intellectual Capital Performance: A Comparative Study between Family and Non-Family- Owned Business in India

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Abstract

The objective of the paper is to examine the impact of founder's family equity and family board presence on intellectual capital performance (ICP) of the company and further to differentiate the performance between family and non-family-owned businesses in India. It employs panel data estimation model using Feasible Generalized Least Square (FGLS) regression to analyze data on 308 companies listed on National Stock Exchange 500 (NSE 500) in India between 2012 and 2022. This paper utilizes the modified value-added intellectual coefficient (MVAIC) approach to measure Intellectual capital Performance. Our findings show the significantly positive relationship between the family presence and combined IC which demonstrates that the family involvement in company's equity and participation in management affairs leads to improved intellectual capital performance. In order to compare the performance between family and non-family businesses, we applied Mann Whitney U-Test. Moreover, it has been found that family-owned businesses are preferably in a position to achieve better performances in sub-elements of intellectual capital except human capital efficiency. Therefore, key take-away for family enterprises is to design their human resource strategies in a way to build their best human potential. These findings contribute to the body of knowledge by identifying the essential components of ICP and figure out how to distribute them in a way that will allow for superior performances in a company.

Keywords: MVAIC, Intellectual capital performance, family-owned business, non-family-owned business, FGLS

Introduction

Family-owned businesses, or FOBs as they are now called, are fairly widespread globally. Because "family" is valued as an institution in Indian society and FOBs have a rich history in the country enduring through multiple generations. Family members who possess a majority interest in the equity, management, and operational rights of the company are to be identified as a FOB.The general consensus that there

is a well found difference between FOBs and non-FOBs in their operations that has led some researchers to examine the impact of family engagement in business on performances.In order to establish and preserve consumer confidence and goodwill, FOBs put long-term stability ahead of short-term advantages and concentrate on creating an organization that will endure for future generations (Arregle et al., 2007; Sciascia et al., 2012& 2013). They are distinct due to the fact that business affairs are blended & mingled with family affairs (Mardievna, S. G., &Zhamshedovich,K. Z., 2023). This integratedrelationship is a unique featurethat highlight the research on family businesses and make it complicated to study (Sacristan-Navarro, Gomez-Anson, &Cabeza-Garcia, 2011; Colli, 2013; James, Jennings, &Breitkruz, 2012; Yu, lumpkin et al., 2012). As a result, FOBs have consistently discovered novel approaches to create a healthy balance between the needs of the family and the success of the company. It takes the correct tactics and a proactive strategy to ensure family business continuity.

In this day & age, FOBs are focussing on their unique assets that will provide a competitive edge when used efficiently over time like tangible and intangible resources, human, relational, financial capital and strong reputation (Kowalewski et al., 2010; Sciascia and Mazzola, 2008 & Martinez, Stohr, &Quiroga 2007). Hence, this situation divert the attention of researchers from scrutinizing the basic financial performance towards exploring the intellectual capital performances (henceforth, ICP) of such companies as intellectual capital comprises of mainly the human capital, relational capital, technological capital and spiritual capital etc.Intellectual capital is a company's intangible assets that contribute to its value and ability to create a comparative advantage. It's the aggregate of a company's knowledge, employees' expertise, experiences, original data, creativity, and other intangibles that help it improve, grow, and drive profits (Paoloni, Paola, et al., 2023). Habbershon and Williams (1999) and Claver-Cortes (2015) assert that FOBs are abundant in resources and intellectual capital. IC assets play a critical role in creating long-term value for family enterprises (Sun et al., 2019; Grimaldi et al., 2016). Limited literature review shows that family ownership and family presence in management are associated with higher IC Performance in a several economies. (Greco et al., 2014). Ginesti and Ossorio (2021) have noted that companies managed and controlled by family members' exhibit a higher and superior ICP when many generations actively participate in the business.

This premise prompts the currentstudy that points to assess intellectual capital performance and to determine whether or not FOBs are better positioned to achieve IC performance than non-FOBs. The modified Pulic Value Added Intellectual Coefficient, or MVAIC (Pulic, 2000; Saddam et al., 2021), is applied in this research as a substitute for IC performance. Thirty-three companies are found to be FOBs after a study of the Nifty 50, an index that represents the average of 50 of the largest Indian listed companies by market capitalization. Put differently, there are numerous Indian enterprises that are publicly traded and that are controlled and influenced by their founding families (Gupta, 2006). For that reason; the NSE-500 index comprised 194 FOBs and 114 non-FOBs during the 10-year period from 2012 to 2022. The study's sample was defined by the criterion that any company with a 20% or greater ownership stake and family members on board is considered a FOB. The paper will contribute to the existing knowledge on this topic, by proposing a research proposal that reveals the intellectual capital performance of Indian listed family-owned businesses. Its findings, which are based on the MVAIC Model, demonstrate that the presence of family members significantly relates and positively affects to nearly every component of IC performance. Further, suggesting that family managers who are also the owners are more likely to have higher ICPs.

The remaining sections of the paperwork are arranged as follows: The upcoming section examines previous research that elaborates on how families are involved in business and impacting the performances of the company. Another section covers the research models, variables, dataset, and methods used. The study's findings & conclusions are discussed in further section, along with its ramifications, constraints, and potential future research areas.

Literature Review

A review of the already published, pertinent literature provides a theoretical framework for the upcoming research issue based on the conclusions of earlier studies. It is an essential component of research analysis that helps to identify gaps in the area of study and formulate research objectives.

Theoretical Foundation

This section reviews the following theories in brief to consider the theoretical attributes associated with FOBs and IC Performance.

Resource-based theory:

The resource-based view is a modern and interesting theory. According to Penrose (1959), the organization's resources are primarily based on both tangible and intangible assets which define the resource-based view of the corporation.By examining the competitive advantage that FOBs derive from their distinct resources, the resource-based view broadens the scope of strategic management (Habbershon& Williams, 1999). This demonstrates how particular companies continually perform better than others (Barney, 2001; Miller & Le Breton-Miller, 2006). Previous research indicates that families and businesses can combine to create unique resources, such as financial & family capital, human capital, relational capital, and tacit family knowledge (Pearson et al., 2008; Sirmon&Hitt, 2003) because family members can create networks and personnel relationships within the companies that help to improve the performance of IC. Irava&Moores (2010) assert that families' distinct abilities can result in betterICP in FOBs. The resource-based view provides an appropriate theoretical framework for examining the relationship between FOB and IC Performance because of the dynamic and abundant intangible resources of family-owned firms (Arregle et al., 2007; Miller et al., 2014).The positive association between intellectual capital and business performance is studied by Pratama and Innayah (2019), who additionally look at the favourable moderating effect of family ownership on this relationship. Ginesti and Ossorio (2021) have noted that family enterprises with a high degree of family ownership have superior and increased IC performance.

Knowledge-based theory:

The knowledge-based theory is designed by Grant (1991) and then enlightened by Sveiby (2001).The capacity of an organization to acquire information and skills in order to adjust to environmental demands is the source of its survival and competitive advantages (Eisenhardt and Martin, 2000; Carpenter et al., 2001).In the knowledge-based economy, knowledge become the foundation of an organization's capabilities, and managers need to know which capabilities their company needs to sustain its competitive advantages (Barney, 1991; Prahalad and Hamel, 1990; Jafari et al., 2022; Namvar et al., 2010).Since wisdom comes from knowledge, it is crucial for managers of organizations to take this competitive edge (Seviby, 2001). However, Nonaka (1991), Kogut and Zander (2003) and Hedlund (1994) also identified that the in order for an organization to function effectively, knowledge-based theory helps the organization create, store, and use knowledge.

One of a company's most vital and essential resources is knowledge, which it may create, share, and transfer inside the organization to provide it a competitive edge and allow it to be inventive in the ever-changing market. FOBs stand out from the competition due to their highly contextual culture and the family connection that shapes how the firm is operated (Motoc A., 2020). Thus, this research aims to provide an understanding of how family influences the performance of intellectual capital in the company.

Intellectual capital theory:

Intellectual capital theory suggests that a company's performance improves as its knowledge stocks increase at all levels of the organization. Intellectual capital is a company's intangible assets, such as its collective knowledge, skills, experience, and training. It can also include anintellectual property, information, company's culture, processes, relationships and other intangible assets. Human capital, organizational capital, or structural capital, technological capital, social capital, and business process capital, or customer capital is among the components of intellectual capital according to Ramezan (2011). Khalique et al. (2011c) argued that intellectual capital is an important factor for the profitability of organization.Additionally,

they advised to investigate and identify the key elements of intellectual capital in order to enjoy the market competitive advantage.

Family owners have the authority, motivation, and experience to manage a company well while they are in charge (Miller and Le Breton-Miller, 2006). Family directors frequently create enduring, solid social ties with community members and stakeholders over generations (Miller and Le Breton-Miller, 2007; Berroneet al., 2010). Participation of family members in management activities has a greater impact on Relational Capital Efficiency, one of the components of IC performance, when there are better connections with shareholders (Berrone et al., 2010). According to a Manzaneque et al. (2017) study, family participation in management increases the effectiveness of structural and human capital in achieving technological innovation results. However, Ramirez et al. (2021) provide a convincing explanation of the moderating role of family management that plays in IC performance, highlighting the impact that family involvement with management has on the efficiency of intellectual capital. Values and family relationships, such as unity and trust, are acknowledged to be the foundation of family businesses; these intangible assets are traditionally transferred from generation to generation (Greco et al., 2014). A company's potential for expansion and financial success is reflected in its intangible assets, which are its founders' and directors' skills as well as its connections with staff and managers. As a result, Ginesti and Ossorio, (2021) made the argument that one family CEOs' long-term goals can promote, control, and enhance IC in several of ways. According to Yu et al. (2023), family generation significantly promotes the various aspects of an enterprise's intellectual capital.

Hypothesis Development

To examine the influence of family on firm's intellectual capital performance and its components.

Three components of ICP are Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), and Capital Employed Efficiency (CEE). These three measurements are called as intellectual capital performance (through MVAIC).In an attempt to comprehend the sub-components of IC performance amongst firms; this paper examines two important ways of family influence through: (i) founders' or family equity stake and (ii) family on board.

H1: Family Ownership bears a significant impact on firms' MVAIC

H1a: Family Board Ratio bears a significant impact on firms' MVAIC

H2: Family Ownership bears a significant impact on firms' HCE

H2a: Family Board Ratio bears a significant impact on firms' HCE

H3:Family Ownership bears a significant impact on firms' SCE

H3a: Family Board Ratio bears a significant impact on firms' SCE

H4: Family Ownership bears a significant impact on firms' CEE

H4a: Family Board Ratio bears a significant impact on firms' CEE

To perform a comparative analysis of Intellectual capital performance between FOBs and non-FOBs.

Evidence from various sources (e.g., Anderson &Reeb, 2003; Villalonga&Amit, 2006; Aguiló&Aguiló, 2012; Allouche et al., 2008; Cassia, De Massis, &Kotlar, 2012; Coleman &Carsky, 1999; Gallo, Ariño, Máñez, &Cappuyns, 2000; Maury, 2006; McConaughy, Matthews, &Fialko, 2001; San Martin-Reyna & Duran-Encalada, 2012; Shyu, 2011) demonstrates that family firms outperform non-family enterprises in terms of financial performance. Thus, the participation of family members in ownership and management with regard to intellectual capital performance has received less empirical study. This is an attempt to fill the knowledge vacuum regarding family presence in the relationship of companies intellectual capital performance listed on the NSE 500, as indicated by the literature review above. Furthermore, an effort has been made to investigate the variations in IC Performance between FOBs and non-FOBs.

H5: Does Intellectual Capital Performance differ significantly between FOBs and non-FOBs

Research Methodology

Sample:

The dataset, which is a sample of Indian listed companies for the years 2012–2022, was assembled by combining data and information from multiple sources, most notably the PROWESS database. The company's annual and governance reports provided the details on corporate governance features, such as the board composition. The Prowess DX database of CMIE provided us with all of the financial data as well as the data regarding shareholding patterns. This results in the final sample of 308 Indian Listed Companies from the NSE-500 for the years 2012–2022 (3080 firm-year observations), of which 194 had a family ownership stake and 114 did not.

Methods and Measures:

Metrics for the Independent Variables (variables related to the family):

The current study uses two metrics as indicators for family members' presence in the business (Gill &Kaur, 2015; Greco et al., 2014; Ginesti and Ossorio, 2021).

Family ownership (henceforth, FAMOWN) - The founder or his family's share in the company's equity.

Family on Board (henceforth, FAMBR) - The Family Board Ratio is calculated by dividing the total number of directors by the number of family members serving on the board.

Computing Dependent Variable (IC Performance):

The Modified Value Added Intellectual Coefficient (MVAIC), which has been extensively referenced in numerous studies (Saddam et al., 2021; Nadeem et al., 2019; Ginesti et al., 2018; Maditinos et al., 2011; Pew Tan et al., 2007), is applied to measure a company's IC performance. Three components of ICP are Human Capital Efficiency, Structural Capital Efficiency, and Capital Employed Efficiency. These three measurements are called as intellectual capital efficiency. For every company, the IC monetary values are therefore calculated shown in Figure-1; utilizing the financial data taken from the PROWESS database.

Figure- 1

MVAIC		
HCE = HC/VA	SCE = SC/VA	CEE = VA/CE
MVAIC = HCE + SCE + CEE		
VA = Value Added = Operating Income + Employees Salary + Depreciation + Amortization		
HC = Human capital; employee expenses include training		
SC = Structural Capital; VA – HC		
CE = Capital employed; book value of total assets - Intangible assets		

Control Variables:

The research accounts for asset utilization ratio, firm size, asset tangibility, liquidity ratio, and company age. Similar studies in the literature (e.g., Ng et al., 2015; Gonzales et al., 2017; Anderson &Reeb, 2003; Gill &Kaur, 2015; Gupta K et al., 2020; Ginesti and Ossorio, 2021) have established the proxies utilized for each of the control variables. The study uses two Corporate Governance indicators of the company which are board size and independent directors on board.

Table- 1: Variables Definition

Variables	Definition
Independent Variables:	
1. Family Ownership Stake (FAMOWN)	Founders' or his family's share in the company's equity.
2. Family on Board (FAMBR)	Family presence on board / Total number of board of directors
Dependent Variables:	
Modified Value-Added Intellectual Capital (MVAIC)	MVAIC = HCE + CEE + SCE
a. Human Capital Efficiency (HCE)	Skills & Expertise of human resources owned by the firm.
b. Capital Employed Efficiency (CEE)	How much capital is used to generate income

Variables	Definition
c. Structural Capital Efficiency (SCE)	The ability of a business to implement the policies and frameworks that encourage employees' efforts to produce superior intellectual capital and higher levels of profitability
Control Variables:	
1. Corporate Governance Indicators:	
a. Board Size (BRDSIZE)	Sum total of Board of Directors
b. Board Independence (BRDIND)	Percentage of Independent Directors on Board.
2. Asset Utilization Ratio (AUR)	Annual Sales/ Total Assets
3. Firm Size (SIZE)	Natural Logarithm of Total Assets of company
4. Tangibility of Assets (ATANG)	Total Fixed Assets/ Total Assets
5. Liquidity Ratio (LQR)	Current Assets/ Current Liabilities
6. Age (AGE)	Natural Log of number of years since the firm's incorporation.

Data Analysis

Descriptive Statistics and Correlation Matrix:

Descriptive statistics contribute in providing a quick overview of each dependent and independent variable's parameters. The Table- 2 presented below give the descriptive statistics and correlation matrix of the variables used in the analysis of our sample of companies. This also suggests that there is apparently no Multicollinearity issue in our data by using Variation Inflation Factor (VIF).

Table- 2: Descriptive Statistics and Correlation Matrix

	Mean	St. Dev.	FAMOWN	FAMBR	HCE	CEE	SCE	MVAIC	AUR	BRDIND	BRDSIZE	LQR	ATANG	SIZE	AGE	VIF
FAMOWN	0.63	0.48	1													3.73
FAMBR	0.16	0.14	0.8592	1												3.47
HCE	0.29	0.46	-0.0536	-0.1193	1											
CEE	3.8	5.42	0.0787	0.1126	-0.2547	1										
SCE	0.23	0.31	0.0721	0.0988	0.1225	0.084	1									
MVAIC	4.32	6.02	0.0934	0.1224	-0.1524	0.9764	0.2069	1								
AUR	1.07	0.73	-0.1296	-0.1124	0.2581	-0.531	0.3497	-0.4646	1							1.15
BRDIND	0.28	0.13	0.0062	0.0152	-0.0195	0.0288	0.0282	0.0323	0.0013	1						1
BRDSIZE	8.8	3.43	0.2679	0.211	-0.05	0.0845	0.0901	0.0879	-0.0323	0.001	1					1.1
LQR	2.57	3.05	-0.1115	-0.0504	0.036	0.0226	-0.0856	0.0054	-0.0618	0.003	-0.0172	1				1.08
ATANG	0.27	0.17	0.058	0.1007	-0.0832	0.1748	0.168	0.1798	0.0648	0.0055	0.0692	-0.1861	1			1.06
SIZE	10.06	1.45	0.3713	0.3315	-0.2338	0.2913	-0.0315	0.2595	-0.3563	-0.0285	0.1544	-0.165	-0.0225	1		1.35
AGE	3.45	0.64	0.1132	0.0871	0.05	-0.0099	0.2241	0.0046	0.0248	-0.0117	0.1061	0.0402	0.0156	0.2072	1	1.07

According to the univariate test conducted on the entire sample, in terms of the performance of intellectual capital, the mean of HCE is 29%, CEE is 380% that signifies the capacity to produce revenue through the money utilized is quite good. Then again mean of SCE is 23% and overall mean of MVAIC is 4.32 (in ratio). The average ownership stake of family members in the company's equity is 63%. Based on the statistics on board characteristics, the organizations usually have a board size of approximately nine members; with independent directors constituting about 28 percent of directors as a whole and 16% represents the family members' participation in managerial affairs.

Correlation matrix in the Table- 2 depicts that all the components of intellectual capital performance are positively related to FAMOWN and FAMBR except HCE. This indicates that IC performance is more likely to be improved by family ownership and family board ratios. Nonetheless, increasing their human capital efficiency needs additional focus.

In same Table- 2, in order to assess the Multicollinearity among the variables, we computed the Variance Inflation Factor (VIF). The results indicate that there is no Multicollinearity issue because all of the VIF values are less than 10.

Panel Data Regression Analysis:

Utilizing panel data techniques, we have examined how family influence affect the taken components of intellectual capital performance (MVAIC). Therefore, the study applies Feasible Generalized Least Squares (FGLS)regression as it incorporates both time-series analysis along with cross-sectional data. It's an extension of the traditional Ordinary Least Squares (OLS) regression method, and it can account for heteroscedasticity and serial correlation in data. FGLS can also provide more robust parameter estimates by considering the error terms' structure.The following equations show how all of the independent and control variables are simultaneously entered into the chosen regression model:

Panel Data Model using FGLS Technique:

Model-1:

$$MVAIC_{it} = a + B1\,(FAMOWN_{it}) + B2\,(FAMBR_{it}) + B3\,(AUR_{it}) + B4\,(SIZE_{it}) + B5\,(BRDIND_{it}) + B6\,(BRDSIZE_{it}) + B7\,(LQR_{it}) + B8\,(AGE_{it}) + B9\,(ATANG_{it}) + \varepsilon_{it}$$

Table-3: Impact of Family presence on MVAIC (substitute for ICP)

MVAIC	Coefficient	Std. Err.	z	P>z	Sig
FAMOWN	-1.364	0.427	-3.19	0.001	***
FAMBR	3.522	1.367	2.58	0.01	**
AUR	-1.318	0.155	-8.5	0.00	***
SIZE	0.131	0.085	1.54	0.123	
BRDIND	1.050	0.817	1.28	0.199	
BRDSIZE	0.061	0.033	1.87	0.061	*
LQR	0.000	0.036	-0.01	0.991	
AGE	-0.202	0.171	-1.18	0.237	
ATANG	-0.036	0.639	-0.06	0.955	
_cons	4.583	1.061	4.32	0.00	***
Wald Chi2	105.31				
prob> chi2	0.00				
No. of Observations	3080				
*** p<.01, ** p<.05, * p<.1					

Table- 3 demonstrates the results of panel data analysis of family ownership and family board ratio on MVAIV, using FGLS Technique for the full sample. The results show that FAMOWN has significantly positive coefficient (B=1.364, p<.01). Similarly, FAMBR has significantly positive relationship with regards to MVAIC (B=3.522, p<.01). This indicates that the family members' presence in company's equity as well as in board of directors leads to improved intellectual capital performance in terms of MVAIC. Further BRDSIZE has representing positive and significant relation to MVAIC whereas AUR shows negative but significant relation with MVAIC. Other control variables like SIZE, BRDIND, LQR, AGE and ATANG shows no association with Intellectual Capital Performance.

Model-2:

HCEit = a + B1 (FAMOWNit) + B2 (FAMBRit) + B3 (AURit) + B4 (SIZEit) + B5 (BRDINDit) + B6 (BRDSIZEit) + B7 (LQRit) + B8 (AGEit) + B9 (ATANGit) + εit

Table-4: Impact of Family presence on HCE (component of ICP)

HCE	Coefficient	Std. Err.	z	P>z	Sig
FAMOWN	0.066	0.033	1.98	0.047	**
FAMBR	-0.275	0.107	-2.57	0.01	**
AUR	0.037	0.012	3.08	0.002	***
SIZE	-0.027	0.007	-4.12	0.00	***
BRDIND	-0.130	0.064	-2.03	0.042	**
BRDSIZE	0.000	0.003	0.17	0.862	
LQR	-0.004	0.003	-1.39	0.165	
AGE	0.004	0.013	0.33	0.738	
ATANG	-0.141	0.050	-2.82	0.005	***
_cons	0.594	0.083	7.15	0.00	***
Wald Chi2	66.70				
prob> chi2	0.00				
No. of Observations	3080				
*** p<.01, ** p<.05, * p<.1					

Table- 4 demonstrates the results of panel data analysis of family ownership and family board ratio on HCE, using FGLS Technique for the full sample. The results show that FAMOWN has significantly positive coefficient (B=0.066, p<.05). AndFAMBR has significantly negative relationship with regards to MVAIC (B= -0.275, p<.05). This indicates that the family members' presence in company's equity leads to improved human capital efficiency but family on board seems to discourage the employee's morale towards achieving better ICP. Further AUR has representing positive and significant relation to HCE whereas SIZE, BRDIND and ATANG show negative but significant relation with HCE. Other control variables like BRDSIZE, LQR and AGE shows no association with HCE.

Model-3:

SCEit = a + B1 (FAMOWNit) + B2 (FAMBRit) + B3 (AURit) + B4 (SIZEit) + B5 (BRDINDit) + B6 (BRDSIZEit) + B7 (LQRit) + B8 (AGEit) + B9 (ATANGit) + εit

Table-5: Impact of Family presence on SCE (component of ICP)

SCE	**Coefficient**	**Std. Err.**	**z**	**P>z**	**Sig**
FAMOWN	0.023	0.022	1.03	0.301	
FAMBR	0.082	0.070	1.16	0.244	
AUR	0.087	0.008	10.88	0.00	***

SCE	Coefficient	Std. Err.	z	P>z	Sig
SIZE	-0.014	0.004	-3.11	0.002	***
BRDIND	0.025	0.042	0.59	0.555	
BRDSIZE	0.003	0.002	1.72	0.085	*
LQR	-0.006	0.002	-3.37	0.001	***
AGE	0.064	0.009	7.23	0.00	***
ATANG	0.142	0.033	4.34	0.00	***
_cons	-0.029	0.055	-0.52	0.6	
Wald Chi2	258.47				
prob> chi2	0.00				
No. of Observations	3080				
*** p<.01, ** p<.05, * p<.1					

Table- 5 demonstrates the results of panel data analysis of family ownership and family board ratio on SCE, using FGLS Technique for the full sample. The results show that FAMOWN and FAMBR both show no relation with SCE. This indicates that the family members' presence in company has insignificant association with SCE. Further AUR, BRDSIZE, AGE and ATANG have representing positive and significant relation to SCE whereas SIZE and LQR show negative but significant relation with SCE. Other control variable like BRDIND also shows no association with SCE.

Model-4:

CEEit = a + B1 (FAMOWNit) + B2 (FAMBRit) + B3 (AURit) + B4 (SIZEit) + B5 (BRDINDit) + B6 (BRDSIZEit) + B7 (LQRit) + B8 (AGEit) + B9 (ATANGit) + εit

Table-6: Impact of Family presence on CEE (component of ICP)

CEE	Coefficient	Std. Err.	z	P>z	Sig
FAMOWN	-1.346	0.382	-3.53	0.00	***
FAMBR	3.483	1.221	2.85	0.004	***
AUR	-1.452	0.139	-10.47	0.00	***
SIZE	0.153	0.076	2.02	0.044	**
BRDIND	1.450	0.730	1.99	0.047	**
BRDSIZE	0.053	0.029	1.82	0.068	*
LQR	0.005	0.032	0.17	0.866	
AGE	-0.282	0.153	-1.85	0.065	*
ATANG	-0.122	0.571	-0.21	0.831	
_cons	4.212	0.948	4.44	0.00	***
Wald Chi2	159.85				
prob> chi2	0.00				
No. of Observations	3080				
*** p<.01, ** p<.05, * p<.1					

Table- 6 demonstrates the results of panel data analysis of family ownership and family board ratio on CEE, using FGLS Technique for the full sample. The results show that FAMOWN has negative and significant coefficient (B= -1.346, p<.01). And FAMBR has significantly positive relationship with regards to CEE (B=3.483, p<.01). This indicates that the family members' presence in management affairs leads to improved capital employed efficiency. Further SIZE, BRDIND, BRDSIZE have representing positive and significant relation to CEE whereas AUR and AGE shows negative but significant relation with CEE. Other control variables like LQR and ATANG shows no association with CEE.

IC Performance Comparison between FOBs and Non-FOBs

Using the non-parametric Mann-Whitney U Test, we first analyze the differences in the three distinct components of IC Performance between FOBs and non-FOBs. As we previously discussed, the three metrics that assess the performance of intellectual capital are human capital efficiency (HCE), capital employed efficiency (CEE), and structural capital efficiency (SCE).

Table- 7: IC Performance between FOBs and non-FOBs

Category		N	Mean Rank	Sum of Ranks	Z Value	P value
HCE	FOB	1940	0.273	530	2.974	0.029**
	Non-FOB	1140	0.315	359		
CEE	FOB	1940	3.810	7391.40	-4.368	0.000***
	Non-FOB	1140	3.761	4287.5		
SCE	FOB	1940	0.239	463.66	-4.003	0.001***
	Non-FOB	1140	0.211	240.54		
MVAIC	FOB	1940	4.324	8388.6	-5.182	0.000***
	Non-FOB	1140	4.307	4910		

*** p<.01, ** p<.05, * p<.1

From the result of Mann-Whitney's U Test in Table- 7, it is evident that family businesses have a mean rank of 0.273 for human capital efficiency, but non-family enterprises have a mean rank of 0.315. The mean rank of human capital efficiency in the FOB and non-FOB categories differs significantly. As a result, Non-FOBs have higher human capital efficiency than FOBs. Similarly, for FOBs, the mean rank of capital employed efficiency is 3.810, while for non-FOBs, it is 3.761. FOB maintains capital employed efficiency more effectively than CET, albeit the difference is significant. FOBs have a significantly lower mean structural capital efficiency score is 0.239 than Non-FOBs, which is 0.211. Lastly, family firms outperform non-family enterprises in terms of total MVAIC. As a result, it has been discovered that FOBs perform better in every ICP component except HCE.

Discussion and Implication

We provide a brief summary of the results and interpret them in the context of different understanding of FOB in this section. The primary finding of the present study is that, with regard to the two aspects of IC performance-structural capital efficiency and capital employed efficiency-listed FOBs in India perform better than non-FOBs. However, the non-FOBs do better than the FOBs in terms of human capital efficiency.

More precisely, the connection between the company and its various stakeholders, including consumers, suppliers, the government, society and shareholders are examined by SCE. It's possible that FOBs foster a stronger sense of connection and belonging among employees. Employee motivation and deeper relationships with other stakeholders are fostered by the long tenure and active participation of top management people in operations.The increased SCE of FOBs serves as evidence for this. Planning deliverables with the needs and preferences of the stakeholders in mind can help non-family businesses establish their brand and increase their customer base, which will lead to enhancing their structural capital efficiency.

Our research shows that compared to non-family enterprises, family businesses have much higher CEE. FOBs capacity to adapt their standard set-ups to the ever-changing needs of their customers is excellent. The family members' tenure in higher managerial positions, their involvement in the business's operations, and their personal stake all contribute to the firm's intangible outlook, which encourages employees to come up with innovative ideas.Non-family businesses should strive to boost their innovation dynamics in order to offer value-oriented goods and services, and they should take advantage of their employees' creative efficiency. This generally supports the

research that has already been done, which shows that FOBs perform better than non-FOBs (Anderson &Reeb, 2003; Gama & Rodrigues, 2013; Halili et al., 2015; McConoughy et al., 2001). Few research indicating that family businesses have an average value-added intellectual coefficient that is significantly higher than that of non-family businesses (Greco et al. 2014; Ginesti and Ossorio, 2021). Our findings make an important contribution to the existing academic conversation regarding comparing ICP between FOBs and non-FOBs.

The ability of a business to effectively utilize its human capital, or the abilities, expertise, and experience of its employees, is known as human capital efficiency. It tracks the amount of output and business effect produced for every rupee spent on expenses related to employees. In the current study, we find that, in comparison to FOBs, non-FOBs record much greater HCE.These results indicate that non-FOBs are investing most of the capital in their people so that they can bring the best to the job and for the company. Salary is the most evident. In addition, there are other investments in the form of incentives, rewards, learning and development, team meals, social trips, and all-hand retreats. All of these have a direct bearing on revenue and can be linked to employee efficiency. In a word, that is human capital efficiency. Therefore, it is essential and being suggested that FOBs should understand the value of human resources in order to succeed in a transforming environment for business.

The study also examines the impact of family-related components on every element of IC taken shown on Table-8. It finds that family ownership, as measured by the percentage of shares owned by family members, affects the performance of the company's intangible assets because family members are more likely to maintain the goodwill and reputation of the business among stakeholders. The outcome also supports the findings of earlier research like Greco et al. 2014; Ginesti and Ossorio, 2021. Also, the study demonstrates a strong favorable influence on IC performance when taking into account the family members' involvement on the board as indicated by the family board ratio.

Table- 8: Summary of results of study

	Hypothesis	Decision
H1	Family Ownership bears a significant impact on firms' MVAIC	Accepted
H1a	Family Board Ratio bears a significant impact on firms' MVAIC	Accepted
H2	Family Ownership bears a significant impact on firms' HCE	Accepted
H2a	Family Board Ratio bears a significant impact on firms' HCE	Accepted
H3	Family Ownership bears a significant impact on firms' SCE	Rejected
H3a	Family Board Ratio bears a significant impact on firms' SCE	Rejected
H4	Family Ownership bears a significant impact on firms' CEE	Accepted
H4a	Family Board Ratio bears a significant impact on firms' CEE	Accepted
H5	Does Intellectual Capital Performance differ significantly between FOBs and non - FOBs	Accepted

The current study adds significantly to the literature. It is one of the rare studies in which we look at the connections between ICP and family involvement in company, as well as the differences in ICP between FOBs and Non-FOBs. Broadly speaking, our research suggests that intangible assets could be a useful replacement for creating value over time, adding to the growing knowledge of literature on ICP in FOBs. The paper suggests FOBs that in order to gain a comparative advantage and assure continued success, then managers of businesses should keep developing and improving the key elements of intellectual capital. To ensure continued success in the future, they should specifically spend more in the competences and capabilities of their staff, such as their education and training programs. Investors should also closely monitor the elements of intellectual capital in order to predict family-owned business performance and identify the most promising prospects for investment.

Limitations

The present paper does have several limitations, though. First, this research is based on a rather small sample size as that doesn't seem many listed family-owned firms in India and a lot of unlisted family-owned enterprises restrict their data and reports. The National Stock Exchange 500 is the exclusive list of companies that are included in the study. Second, the paper incorporates MVAIC model as measurement of IC performance, although MVAIC's reach is restricted since it solely uses intellectual capacity to track the company's efficiency rather than calculating the stock and market value of IC that is available to the company. Thirdly, FOB may be impacted by other noneconomic factors moreover to the significance of family influence on ICP. To increase awareness of IC efficiency, more research on unlisted, small, and medium-sized family businesses should be done in the future. Prospects for the future can make use of a wide range of financial structure-based IC metrics to generate more reliable and consistent results across different sectors and economies. For further insight into the family members' contributions to IC success, it is also possible to look into their backgrounds and professional qualifications.

References:

- Anderson, R. C., &Reeb, D. M. (2003). Founding-family ownership and firm performance: evidence from the S&P 500. The journal of finance, 58(3), 1301-1328.
- Anderson, R. C., Mansi, S. A., &Reeb, D. M. (2003). Founding family ownership and the agency cost of debt. Journal of Financial economics, 68(2), 263-285.
- Allouche, J., Amann, B., Jaussaud, J., & Kurashina, T. (2008). The impact of family control on the performance and financial characteristics of family versus nonfamily businesses in Japan: a matched-pair investigation. Family business review, 21(4), 315-329.
- Arregle, J. L., Hitt, M. A., Sirmon, D. G., & Very, P. (2007). The development of organizational social capital: Attributes of family firms. Journal of management studies, 44(1), 73-95.
- Barney, J. (1991) Firm Resources and Sustained Competitive Advantage. Journal of Management, 17, 99-120. http://dx.doi.org/10.1177/014920639101700108
- Barney, J. B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. Journal of management, 27(6), 643-650.
- Berrone, P., Cruz, C., Gomez-Mejia, L. R., &Larraza-Kintana, M. (2010). Socioemotional wealth and corporate responses to institutional pressures: Do family-controlled firms pollute less? Administrative science quarterly, 55(1), 82-113.
- Carpenter, M. and Westphal, J. (2001) The Strategic Context of External Network ties: Examining the Impact of Director Appointments on Board Involvement in Strategic Decision Making. Academy of Management Journal, 4, 639-660.
- Cassia, L., De Massis, A., &Kotlar, J. (2012). Exploring the effect of family control on the characteristics of SMEs in Northern Italy. International Journal of Engineering Business Management, 4, 16.
- Claver-Cortés, E., Zaragoza-Sáez, P. C., Molina-Manchón, H., &Úbeda-García, M. (2015). Intellectual capital in family firms: human capital identification and measurement. Journal of Intellectual Capital, 16(1), 199-223.
- Coleman, S., &Carsky, M. (1999). Sources of capital for small family-owned businesses: Evidence from the national survey of small business finances. Family Business Review, 12(1), 73-85.
- Colli, A., Fernández, P., Melin, L., Nordqvist, M., & Sharma, P. (2013). Business history and family firms. Sage Handbook of Family Firms, Sage, Londres, 269-292.
- Eisenhardt, K.M. and Martin, J.A. (2000) Dynamic Capabilities: What Are They? Strategic Management Journal, 21, 1105-1121. http://dx.doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E

- Espinoza Aguiló, T. I., & Espinoza Aguiló, N. F. (2012). Family business performance: evidence from Mexico. Cuadernos de Administración, 25(44), 39-61.
- Gallo, M. Á., Tàpies, J., &Cappuyns, K. (2004). Comparison of family and nonfamily business: Financial logic and personal preferences. Family business review, 17(4), 303-318.
- Gill, S., &Kaur, P. (2015). Family involvement in business and financial performance: a panel data analysis. Vikalpa, 40(4), 395-420.
- Ginesti, G., &Ossorio, M. (2021). The influence of family-related factors on intellectual capital performance in family businesses. Journal of Management and Governance, 25, 535-560.
- Ginesti, G., Caldarelli, A., &Zampella, A. (2018). Exploring the impact of intellectual capital on company reputation and performance. Journal of Intellectual Capital, 19(5), 915-934.
- Gonzales-Bustos, J. P., Hernández-Lara, A. B., & Li, X. (2017). Board composition in family and non-family innovative businesses. Corp. Ownersh. Control, 15(1), 459-466.
- Grant, R. M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. California management review, 33(3), 114-135.
- Greco, G., Ferramosca, S., &Allegrini, M. (2014). Exploring intellectual capital in family firms. An empirical investigation. International Journal of Learning and Intellectual Capital, 11(2), 91-106.
- Grimaldi, M., Cricelli, L., & Greco, M. (2016). Perceived benefits and costs of intellectual capital in small family firms. Journal of Intellectual Capital, 17(2), 351-372.
- Gupta, V., Cassidy, C., &Gervais, M. Family Business. speaks..., 5
- Gupta, K., Goel, S., & Bhatia, P. (2020). Intellectual capital and profitability: Evidence from Indian pharmaceutical sector. Vision, 24(2), 204-216.
- Habbershon, T. G., & Williams, M. L. (1999). A resource-based framework for assessing the strategic advantages of family firms. Family business review, 12(1), 1-25.
- Halili, E., Saleh, A. S., &Zeitun, R. (2015). Governance and long-term operating performance of family and non-family firms in Australia. Studies in Economics and Finance, 32(4), 398-421.
- Hedlund, G. (1994). A model of knowledge management and the N-form corporation. Strategic management journal, 15(S2), 73-90.
- Irava, W. J., &Moores, K. (2010). Clarifying the strategic advantage of familiness: Unbundling its dimensions and highlighting its paradoxes. Journal of family business strategy, 1(3), 131-144.
- Jafari-Sadeghi, V., & Dana, L. P. (Eds.). (2022). International entrepreneurship in emerging markets: Contexts, behaviours, and successful entry. Taylor & Francis.
- James, A. E., Jennings, J. E., &Breitkreuz, R. S. (2012). Worlds apart? Rebridging the distance between family science and family business research. Family business review, 25(1), 87-108.
- Khalique, M., Shaari, J.A.N. and Isa, A.H.B.M. (2011, June) Intellectual Capital and Its Major Components. International Journal of Current Research, 3, 343-347.
- Kogut, B., & Zander, U. (2003). Knowledge of the firm and the evolutionary theory of the multinational corporation. Journal of international business studies, 34, 516-529.
- Kowalewski, O., Talavera, O., &Stetsyuk, I. (2010). Influence of family involvement in management and ownership on firm performance: Evidence from Poland. Family Business Review, 23(1), 45-59.
- Maditinos, D., Chatzoudes, D., Tsairidis, C., &Theriou, G. (2011). The impact of intellectual capital on firms' market value and financial performance. Journal of intellectual capital, 12(1), 132-151.
- Manzaneque, M., Ramírez, Y., &Diéguez-Soto, J. (2017). Intellectual capital efficiency, technological

innovation and family management. Innovation, 19(2), 167-188.

- Mardievna, S. G., &Zhamshedovich, K. Z. (2023). SYNERGETICS AND ITS ROLE IN SOLVING PROBLEMS OF FAMILY BUSINESS. British View, 8(1).
- Martínez, J. I., Stöhr, B. S., &Quiroga, B. F. (2007). Family ownership and firm performance: Evidence from public companies in Chile. Family Business Review, 20(2), 83-94.
- Matias Gama, A. P., & Rodrigues, C. (2013). The governance-performance relations in publicly listed family controlled firms: an empirical analysis. Corporate Governance: The international journal of business in society, 13(4), 439-456.
- Maury, B. (2006). Family ownership and firm performance: Empirical evidence from Western European corporations. Journal of corporate finance, 12(2), 321-341.
- McConaughy, D. L., Matthews, C. H., &Fialko, A. S. (2001). Founding family controlled firms: Performance, risk, and value. Journal of small business management, 39(1), 31-49.
- Miller, D., & Le Breton-Miller, I. (2006). Family governance and firm performance: Agency, stewardship, and capabilities. Family business review, 19(1), 73-87.
- Miller, D., Le Breton-Miller, I., Lester, R. H., &CannellaJr, A. A. (2007). Are family firms really superior performers? Journal of corporate finance, 13(5), 829-858.
- Miller, D., Le Breton-Miller, I., Minichilli, A., Corbetta, G., &Pittino, D. (2014). When do non-family CEO s outperform in family firms? Agency and behavioural agency perspectives. Journal of Management Studies, 51(4), 547-572.
- Motoc, A. (2020). Knowledge dynamics in family business. Management Dynamics in the knowledge economy, 8(2), 145-157.
- Namvar, M., Fathian, M., Akhavan, P., & Reza Gholamian, M. (2010). Exploring the impacts of intellectual property on intellectual capital and company performance: The case of Iranian computer and electronic organizations. Management decision, 48(5), 676-697.
- Ng, S. H., Ong, T. S., Teh, B. H., &Soh, W. N. (2015). How is firm performance related to family ownership in Malaysia and does board independence moderate the relationship. Corporate Board: Role, Dufies, and Composifion, 11(2), 21-35.
- Nonaka, I. (1991) The Knowledge Creating Company. Harvard Business Review, 69, 96-104.
- Paoloni, P., Modaffari, G., Ricci, F., & Della Corte, G. (2023). Intellectual capital between measurement and reporting: a structured literature review. Journal of Intellectual Capital, 24(1), 115-176.
- Pearson, A. W., Carr, J. C., & Shaw, J. C. (2008). Toward a theory of familiness: A social capital perspective. Entrepreneurship theory and practice, 32(6), 949-969.
- Penrose, E. (1959) The Theory of the Growth of the Firm. Basil Blackwell, Oxford.
- Pew Tan, H., Plowman, D., & Hancock, P. (2007). Intellectual capital and financial returns of companies. Journal of Intellectual capital, 8(1), 76-95.
- Prahalad, C.K. and Hamel, G. (1990) The Core Competence of the Corporation. Harvard Business Review, 79-91.
- Pratama, B. C., &Innayah, M. N. (2019). Intellectual capital and firm performance: The role of institutional and family ownership. Benefit: JurnalManajemendanBisnis, 4(2), 140-150.
- Pulic, A. (2000). VAIC™–an accounting tool for IC management. International journal of technology management, 20(5-8), 702-714.
- Ramezan, M. (2011) Intellectual Capital and Organizational Organic Structure in Knowledge Society: How Are These Concepts Related? International Journal of Information Management, 31, 88-95. http://dx.doi.org/10.1016/j.ijinfomgt.2010.10.004

- Ramírez, Y., Dieguez-Soto, J., &Manzaneque, M. (2021). How does intellectual capital efficiency affect firm performance? The moderating role of family management. International Journal of Productivity and Performance Management, 70(2), 297-324.
- Sacristán-Navarro, M., Gómez-Ansón, S., &Cabeza-García, L. (2011). Family ownership and control, the presence of other large shareholders, and firm performance: Further evidence. Family Business Review, 24(1), 71-93.
- Saddam, S. Z., &Jaafar, M. N. (2021). Modified value-added intellectual capital (MVAIC): contemporary improved measurement model for intangible assets. Int. J. Acad. Res. Account. Fin. Manag. Sci, 11, 201-210.
- Saleem, I., Khalid, F., &Nadeem, M. (2019). Family business governance: what's wrong? What's right? What's next? Emerald Emerging Markets Case Studies, 9(1), 1-23.
- San Martin-Reyna, J. M., & Duran-Encalada, J. A. (2012). The relationship among family business, corporate governance and firm performance: Evidence from the Mexican stock exchange. Journal of Family Business Strategy, 3(2), 106-117.
- Sciascia, S., &Mazzola, P. (2008). Family involvement in ownership and management: Exploring nonlinear effects on performance. Family Business Review, 21(4), 331-345.
- Sciascia, S., Mazzola, P., Astrachan, J. H., & Pieper, T. M. (2012). The role of family ownership in international entrepreneurship: Exploring nonlinear effects. Small Business Economics, 38, 15-31.
- Sciascia, S., Mazzola, P., Astrachan, J. H., & Pieper, T. M. (2013). Family involvement in the board of directors: Effects on sales internationalization. Journal of small business management, 51(1), 83-99.
- Sciascia, S., Mazzola, P., & Chirico, F. (2013). Generational involvement in the top management team of family firms: Exploring nonlinear effects on entrepreneurial orientation. Entrepreneurship theory and practice, 37(1), 69-85.
- Shyu, J., &Shen, Y. H. (2011). How Does Family Management Affect Firm Performance: Evidence from Taiwanese Firms. Electronic Journal of Family Business Studies (EJFBS)
- Sirmon, D. G., &Hitt, M. A. (2003). Managing resources: Linking unique resources, management, and wealth creation in family firms. Entrepreneurship theory and practice, 27(4), 339-358.
- Sun, X., Lee, S. H., &Phan, P. H. (2019). Family firm R&D investments in the 2007–2009 great recession. Journal of Family Business Strategy, 10(4), 100244.
- Sveiby, K. E. (2001). A knowledge-based theory of the firm to guide in strategy formulation. Journal of intellectual capital, 2(4), 344-358.
- Villalonga, B., &Amit, R. (2006). How do family ownership, control and management affect firm value? Journal of financial Economics, 80(2), 385-417.
- Yu, A., Lumpkin, G. T., Sorenson, R. L., & Brigham, K. H. (2012). The landscape of family business outcomes: A summary and numerical taxonomy of dependent variables. Family business review, 25(1), 33-57.
- Yu, X., Ao, X., & Wang, Y. (2023). Family Business Intergenerational Succession and Market Sustainable Competitive Advantage–Based on the Mediating Effect of Intellectual Capital. Journal of Business-to-Business Marketing, 30(4), 441-452.