



Advance Journal of Econometrics and Finance

Vol-3, Issue-4, 2025

Advance Journal of Econometrics and Finance

Online ISSN

2959-8990

Print ISSN

2959-8982

<https://ajeaf.com/index.php/Journal/About>

Name of Publisher: SCHOLAR CRAFT EDUCATION & RESEARCH HUB

Review Type: Double Blind Peer Review

Journal Frequency: Quarterly Research Journal



INTERSECTION BETWEEN VALUE ADDED INTELLECTUAL CAPITAL AND FIRMS’ SUCCESS THROUGH MODERATION OF BOARD SIZE IN THE TEXTILE SECTOR OF A DEVELOPING ECONOMY

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	Abstract
Muhammad Adnan Afzal¹, <i>¹Lecturer, College of Commerce, Government College University Faisalabad, Pakistan.</i> ¹adnanafzal@gcuf.edu.pk Muhammad Toseef Aslam² <i>²Lecturer, Virtual University of Pakistan.</i> ²toseefaslam@vu.edu.pk Shahid Mahmood^{*3} <i>^{*3}Research Officer, College of Commerce, Government College University Faisalabad, Pakistan.</i> ^{*3}shahidmahmood@gcuf.edu.pk	This study seeks to investigate the intersection of value-added intellectual Capital (VAIC) with its components with Firms’ success (ROA) with the moderating effect of board size (BRS) evidence from textile sector of Pakistan. This study employs the data collected from Pakistan Stock Exchange (PSX) with the time of 2015 to 2024 regarding textile firms. This study used regression analysis panel data the statistical package EViews 8.0 to investigate the intersection among variables. Before running regression analysis, various preliminary tests are performed like descriptive statistics, correlation matrix to assure the validity and normality of data sample. The outcomes reveal substantial intersection between VAIC, its components and firms’ success with the moderating effect of board size. This study appeals to executives, policy makers and all other stakeholders while making decisions based on the textile firm’s resources. This study helps the management of the textile firms especially and various other decision markers while going for the firms’ success determinants. Govt. officials can also use this study in order to thoroughly and deeply explain and predict the future place of textile sector in terms of their success.
Keywords:	Value Added Intellectual Capital, Firms’ Success, Board Size, , Pakistan Stock Exchange



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Introduction

Recently, numerous economic and organizational adaptations have influenced social and market dynamics. The transition to the digital age has underscored the vitality of intellectual capital (ITC) into the assessment of organizational success (Al Frijat & Elamer, 2025). Intellectual capital, among the different sorts of capital has been identified as a core aspect in shaping firms' success (ROA), and their market value specifically in knowledge-based enterprises (Tjahjadi et al., 2024). The firms are prioritizing the intellectual capital (ITC) as it has emerged as a crucial determinant of competitive advantage and wealth generation in contrast to tangible capital. Numerous economic, managerial, corporate and marketing studies have addressed organizations' demands for innovative conceptual structures, technological tools, and managerial strategies to enhance comprehension and oversight of developing market settings (Cahyono & Ardianto, 2024; Somwethee et al., 2025).

This is pertinent to the textile sector of a developing economy, Pakistan where application of intellectual resources and proficient management are highly acknowledged as crucial for boosting organizational performance and guiding through intricate market dynamics (Iqbal et al., 2025). Pakistan's textile sector frequently neglects the strategic significance related with intellectual means in enhancing its overall growth and success despite its substantial contribution to the economy encompassing major exports and job creation. The textile firms in Pakistan encounter distinct obstacles coupled with unique opportunities, rendering an intensive inquiry regarding ITC considering organizational governance measures (Afzal, Imtiaz, et al., 2025). These firms are driven by fierce competition, varying raw material costs, and changing global trade global trading regulations, highlighting the imperative for enterprises to proactively handle their intellectual resources to enhance endurance and preserve competitive advantage (Tiwari & Arora, 2024). Furthermore, the distinctive corporate governance framework in Pakistan typically marked by a heightened dependence on major internal investors instead of external funding exacerbates the intellectual capital usage shaping firm's success, thereby underscoring the potential impact of board size (Zhang et al., 2025). Large boards specifically may provide varied perspectives and improve monitoring, potentially amplifying the influence of capital elements on firms' outcomes. However, excessively large boards may result in prolonged managerial decisions and reduce accountability, thus hindering the effective deployment of intellectual capital to attain improved firms' success (Suharman et al., 2023).

1.1 Research Questions

RQ1: Is there any relationship between human capital efficiency (HMCE) and firms' success in textile sector?

RQ2: Does the moderating effect of board size (BRS) on the relationship of human capital efficiency and firms' success exist in textile sector?

RQ3: Is there any relationship between structural capital efficiency (STCE) and firms' success in textile sector?

RQ4: Does the moderating effect of board size on the relationship of structural capital efficiency and firms' success exist in textile sector?

RQ5: Is there any relationship between capital employed efficiency (CPEE) and firms' success in textile sector?

RQ6: Does the moderating effect of board size on the relationship of CPEE and firms' success exist in textile sector?

RQ7: Is there any relationship between value-added intellectual capital (VAIC) and firms' success in textile sector?

RQ8: Does the moderating effect of board size on the relationship of value-added intellectual capital and firms' success exist in textile sector?

1.2 Research Objectives

This study intends to attain the following objectives.

To evaluate the human capital efficiency (HMCE) and firms' success intersection of textile sector.

To examine the moderating effect of board size (BRS) on the relationship of Human capital efficiency and firms' success of textile sector.

To explore the connection between structural capital efficiency (STCE) and firms' success of textile sector.

To check the moderating effect of board size on the relationship of structural capital efficiency and firms' success of textile sector.

To examine the relationship between capital employed efficiency (CPEE) and firms' success of textile sector.

To explore the moderating effect of board size on the relationship of employed capital efficiency and firms' success of textile sector.

To unpack the value-added intellectual capital link with firms' success in textile sector.

To investigate the moderating effect of board size on the relationship of value-added intellectual capital and firms' success exist in textile sector.

1.3 Significance of Study

This study is novel to unpack the way human capital, including creativity, expertise, and knowledge directly drives firms' success whereas structural capital, consisting of organizational culture and procedures, offers the framework for using intellectual capital (Iqbal et al., 2025). Furthermore, capital employed denotes the funds available fueling intellectual endeavors, while intellectual innovation refers to the ongoing creation of novel ideas and advancements, both of which aid in firms' success (Afzal, Ahmed, et al., 2025). This holistic approach promotes an intricate comprehension regarding various facets of intellectual capital mutually drive success throughout the distinct setting of Pakistani textile firms (Keter et al., 2024). Moreover, this study focuses how board size, as a critical corporate governance aspect, either accentuates or impairs the beneficial impacts of intellectual capital elements shaping the textile firms' success in Pakistan. The outcomes offer essential insights for enhancing corporate governance mechanisms to optimize yields from intellectual capital spending in this crucial textile sector.

Literature Review and Theoretical Perspective

Recently, the association between VAIC and firms' performance has garnered extensive interest. VAIC is acknowledged as a vital asset driving firms' success by Enhancing the value of HMCE, STCE, together with CPEE. The VAIC evaluation has become crucial in elucidating the intangible resources regarding firms' success (Pulic, 2000). VAIC is a rigorous approach for evaluating intellectual capital determining the firm's efficacy in transitioning its IC into value.

This study addresses the Resource Based View (RBV) paradigm to assess the ITC and enterprises performance nexus. This theory posits that the assets of an enterprise must possess four attributes exclusivity, scarceness, non-substitution, and value to attain its competitive benefits (Barney, 1991). The researchers have endeavored to depict ITC in multiple approaches owing to vague and intricate nature. Nevertheless, an accurate description or category of ITC is elusive. For instance, according to Roos and Roos (1997) identified ITC as firms intangible resources, including copyrights, logos, and trademarks encompassing every resource not reflected in financial statements. However, according to Ghosh and Mondal (2009), ITC is an asset that is not quantifiable and not reflected in financial profitability. Numerous studies reveal that VAIC favorably impacts firms'

performance, as it highlights their capacity to derive value through its intellectual capital. Moreover, Yousaf(2022) explores the interplay between ITC and firm operation in Czech during 2015 to 2019. The outcomes indicate that IC components are favorably linked with firm performance. Further, Bataineh et al. (2022) unpacks the influence of ITC on organizational success on 46 Jordian Firms through intervening role of family management. The investigation by taking data for 2014 to 2019 indicates the higher firm's performance due to intellectual capital. The study also reveals that family management does not play an intervening role in the association. Moreover, Xu & Li, (2022) inspects the ITC components on the Chinese manufacturing enterprises performance. The study considers 953 listed enterprises for a period of 2012 to 2016. The outcomes denote that ITC elements favorably impact business performance with high tech, public, and Eastern based enterprises deriving higher benefits from ITC. Additionally, the research underscores the disparities in ITC performance based on ownership, industry, and region. Truong et al. (2023) examines the nexus among knowledge sharing, knowledge management, Governmental innovation support, and organizational performance in Vietnam employing PLS -SEM. The outcomes indicate that intellectual capital with governmental support favorably impacts performance and innovation. Also, Suharman et al. (2023) examines the association of IC with firms productivity in Indonesia by considering State Owned Enterprises through intervening role of value chain. The outcomes reveal that ITC drives both firm performance and value chain emphasizing the worth of managing resources effectively in boosting performance within these enterprises. Additionally, Mukaro et al. (2023) the linkage between ITC and organizational performance in Turkey by collecting data for 2009 to 2021. The authors by employing ARDL approach reveal that equity and debt financing help in enhancing performance, whereas TIC and long-term liabilities unfavorably influence organizational profitability. Besides, Keter et al., (2024) investigates the linkage between firms' value and financial outcomes and the intervening role of ITC disclosure considering 39 firms in Nairobi (2010-2022). The outcomes illustrate the positive association between financial productivity and firm value, also negative linkage with IC Disclosure and also the ITC disclosure intervening the association of financial performance with firms' value. Also, Tjahjadi et al. (2024) uncovers the IC and organizational performance nexus in Indonesia. The findings through PLS-SEM describe the favorable nexus through intervening role of open innovation and moderating role of organizational inertia. Similarly, Mohapatra and Pattanayak (2024) employs the curvilinear together with linear approaches to find the effect of ITC on firms performance. The authors consider the 795 firm in India for a period of 2004 to 2021. The findings indicate that IC favorably affects financial advancement in the presence of BIG4 auditors. Additionally, Cahyono and Ardianto (2024) explores the association of IC with firms' performance considering 1151 Indonesian firms during 2018 to 2022. The outcomes indicate the favorable linkage of IC with firms' performance through moderating role of political connections. Further, Tiwari and Arora, (2024) investigates the ITC efficiency association with 500 listed Indian firms' performance from 2015 to 2020. The outcomes indicate the favorable association of ITC with performance, while gender diversity shows no significant moderating role in this linkage. Also, Zhang et al. (2025) unpacks the modified VAIC factors and construction companies' performance in China (2015-2021) through moderation of digital transformation. The findings highlight the significant favorable influence of ITC on these firms. Likewise, Baig et al. (2025) probes the direct influence of Fintech innovation on firms' performance and through intervening role of VAIC as knowledge asset and R &D for a period of 2014 to 2022. This study's outcomes describe that there exists favorable association of fintech innovation with organizational performance. Al Frijat and Elamer (2025) investigates the effect of human capital associated with organizational performance through corporate sustainability as intervening variable for the period of 2022 in emerging nations of Amman. The outcomes highlight that the human capital directly and favorably association with organizational success. Somwethee et al. (2025) delves into the association of shared value, ITC, and organizational agility on organizational sustainability output and conclude that intellectual capital favorably impacts corporate performance. Based on this discussion, the authors suggest that

H₁: HMCE has positive intersection with Firms' success.

H₂: STCE has positive intersection with Firms' success.

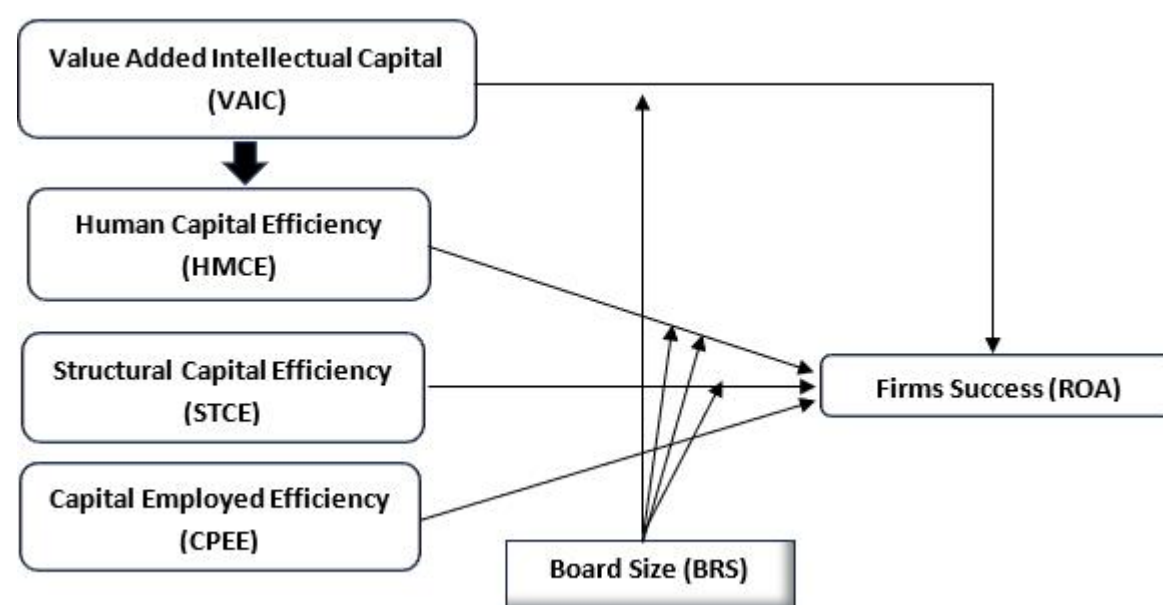
H₃: CPEE has positive intersection with Firms' success.

H₄: VAIC has positive intersection with Firms' success.

H₅: BRS moderates the linkage of HMCE, STCE, CPEE, and VAIC on Firms' success.

2.1 Theoretical Framework:

The theoretical framework based on above discussion is presented in Fig.1.



Source: Author's own work

Methodology

This study specifies the data discussion, variables detail, and empirical models for estimation. The study attempts to analyze the HMCE, STCE, CPEE influence on firm performance with the moderating effect of board size.



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3.1 Data and Research Samples

The total sample this study comprises top 148 textile firms operating and listed in Pakistan Stock Exchange (PSX) during 2015 to 2024 for a period of ten years. These textile firms were chosen based on the availability of data that is important for leading the investigation for analysis. This study used regression analysis panel data the statistical package EViews 8.0 to investigate the results. Before running regression analysis, various preliminary tests are performed like descriptive statistics, correlation matrix to assure the validity and normality of data sample.

3.2 Research Variables:

The variables that are considered for the research with their description and explanation are discussed as under:

3.2.1 Value Added Intellectual Coefficient (VAIC)

This approach “value-added Intellectual Coefficient (VAIC)” created by Pulic (2000) frames the fundamental estimation reason for the investigation of variable in this study. Further, VAIC is a systematic strategy intended to empower administration, investors and other significant stakeholders to successfully screen and assess the proficiency of value added (VA) by a company's aggregate assets and each real asset component.

$VA = \text{Operating Profit} + \text{Employees' costs} + \text{depreciation}$

$ITCE = HMCE + STCE$

$VAIC = ITCE + CPEE$

$HMCE = VA / HMCE$

$STCE = VA / STCE$

$CPEE = VA / CPEE$

3.2.2 Explained variables

In this study, the authors employed the accounting measure such as “Return on Asset (ROA)” for the estimation of firms success as this measure provides the historic performance of firms for future decision making. .

3.2.3 Firms Success (ROA):

Profitability demonstrates how much a company's income goes beyond over cost. The proportion of the net revenue (less inclination profits) separated by book estimation of aggregate resources are ported in the yearly reports. ROA helps to think about the company's effectiveness in utilizing her aggregate resources while holding the budgetary arrangement of the firm consistent.

$\text{Firms' Success (ROA)} = \text{Profit before tax} / \text{Total Assets}$

3.2.4 Moderating Factor: Board Size (BRS)

In the current study, the factor of board size has been included as the key moderator which has some ultimate impact (either significant/insignificant) on the liaison among predictors and firms' success. The board size is measured by calculating the total number of members in the BODs of the selected firms. This number will include both the male and female members either the internal members or selected from the outside as the key role player in board. For this purpose, all the firms selected have been selected.

3.3 Regression Models

$ROA = \alpha + \beta_1 (CPEE) + \mu_1$

$ROA = \alpha + \beta_1 (CPEE) + \beta_2 (\text{Board Size}) + \mu_1$

$ROA = \alpha + \beta_1 (CPEE) + \beta_2 (\text{Board Size}) + \beta_3 (\text{interaction term}) + \mu_1$

$ROA = \alpha + \beta (HMCE) + \mu_1$

$ROA = \alpha + \beta_1 (HMCE) + \beta_2 (\text{Board Size}) + \mu_1$

$ROA = \alpha + \beta_1 (HMCE) + \beta_2 (\text{Board Size}) + \beta_3 (\text{interaction term}) + \mu_1$

$ROA = \alpha + \beta_1 (STCE) + \mu_1$

$ROA = \alpha + \beta_1 (STCE) + \beta_2 (\text{Board Size}) + \mu_1$

$ROA = \alpha + \beta_1 (STCE) + \beta_2 (\text{Board Size}) + \beta_3 (\text{interaction term}) + \mu_1$

$ROA = \alpha + \beta_1 (VAIC) + \mu_1$

$ROA = \alpha + \beta_1 (VAIC) + \beta_2 (\text{Board Size}) + \mu_1$

$ROA = \alpha + \beta_1 (VAIC) + \beta_2 (\text{Board Size}) + \beta_3 (\text{interaction term}) + \mu_1$

3.4. Results and Discussion

This section reveals the descriptive statistics, multicollinearity test, and regression outcomes, which highlight the intellectual capital and firms' success linkage.

3.4.1 Descriptive Values

Table 4.1 below represents the descriptive statistics of the study. The maximum, minimum, mean, standard deviation values of the study variables are described in this table. The number of observations for ROA is 430. The minimum value of this variable is -92.8 and the maximum value of return on assets is 86.53, which shows that there is existence of data among dual values. The mean value of return on assets is 3.216 and standard deviation of this variable is 14.



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Similarly, the number of observations regarding HMCE is 430. The minimum value of the human capital efficiency is -24.8 and maximum value is 14.71, which shows that there is existence of data among dual values. The mean value of accrual quality is 1.233 and standard deviation of this variable is 3.58.

Moreover, the number of observations regarding CPEE is 430 with minimum value -0.57 and maximum value is 0.43, which shows that there is existence of data among dual values. CPEE shoes a mean value of 0.132 and standard deviation 0.12. Further, the minimum value of the STCE is -2.46 and maximum value is 11.05, which shows that there is existence of data among dual values. Furthermore, STCE represents the mean value of -0.776 and standard deviation of this variable is 15.32. Additionally, the number of observations of this variable is 430. The minimum value of the capital employed efficiency is -2.47and maximum value is 15.70, which shows that there is existence of data among dual values. VAIC denotes the mean value of 0.589 and standard variation of this variable is 15.83. The moderating variable of this study is board size with minimum value of 7.00 and maximum value 19.00, which shows that there is existence of data among dual values. The mean value of board size is 12.411 and standard deviation of this variable is 3.37.

Table 1: Descriptive Values

Variables	Obs.	Mean	St. Dev	Minimum	Maximum
ROA	430	3.216	14	-92.8	86.53
HMCE	430	1.233	3.58	-24.8	14.71
CPEE	430	0.132	0.12	-0.57	0.43
STCE	430	-0.776	15.32	-2.46	11.05
VAIC	430	0.589	15.83	-2.47	15.70
BRS	430	12.411	3.37	7.00	19.00

3.4.2 Correlation Analysis

The correlation analysis among the dependent, independent, moderating and control variables has been presented in table 4.2 below. This table explains the association among different variables. Most correlations lie below 70%, highlighting no significant issues regarding multicollinearity, except the correlation between ROA and capital employed efficiency which is 0.7439. which may imply probable multicollinearity affects. All further correlations are minimal, with no suggestion of multicollinearity.

Table 2: Correlation Matrix

	ROA	CPEE	HMCE	STCE	VAIC	BRS
ROA	1					
CPEE	0.7439	1				
HMCE	0.506	0.588	1			
STCE	0.089	0.069	0.021	1		
VAIC	0.207	0.208	0.252	0.972	1	
BRS	0.045	0.025	0.021	0.031	0.035	1

3.4.3 Regression Outcomes

Regression 1: $ROA = \alpha + \beta_1 (CPEE) + \mu_1$

Table 03 below shows first regression model of the study, in which ROA is to be considered as major outcome factor, and the value of coefficient for the capital employed efficiency explains that unit change in the value of capital employed efficiency causes a change of 81.393 in the value of return on assets which is positive change. The accepted value for the T-statistics is 11.19, which indicates that there exists a significant impact of capital employed efficiency on the value of return on assets. The value of p is also in the accepted region as it is 0.000 revealing positive and significant linkage of CPEE with firms' success (ROA).

Table 3:

ROA	Coefficient	St. Error	t. statistic	p
Capital employed efficiency	81.393	3.84	11.19	0.000

Regression 2: $ROA = \alpha + \beta_1 (CEE) + \beta_2 (Board Size) + \mu_1$

Table 04 below shows second regression model, in which coefficient value for CPEE explains that unit change in the worth of CPEE produces 81.51change in return on asset which is positive change. The t-value of 21.21 indicates that alternative hypothesis will be accepted highlighting the substantial influence of CPEE on the value of return on assets. The value of p value (.000) is below 01% revealing the acceptance of alternate hypothesis

Table 4:

ROA	Coefficient	St. Error	t. statistic	p
CEE	81.51	3.84	21.21	0.000



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BRS

0.13

0.12

1.09

0.27

Interaction Term:

Regression 3: $ROA = \alpha + \beta_1 (CPEE) + \beta_2 (\text{Board Size}) + \beta_3 (\text{interaction term}) + \mu_1$

Table 5 below explains the outcomes for the 3rd regression equation where coefficient value of CPEE is 0.911 specifying that unit change in the CPEE leads to a variation in return on assets which is 0.911. The board size exhibits the regression coefficient of 0.0165 which is positive but insignificant as the p-value is not acceptable while the t-statistics value is less than the value of 1.96. The regression coefficient for the very 3rd interactive term is -0.434 which indicates positive but an insignificant impact on the value of return on assets.

Table 5:

ROA	Coefficient	St. Error	t. statistic	p
CPEE	0.911	5.146	0.18	0.860
BRS	0.0165	0.1288	0.13	0.898
Interaction term	-0.434	0.547	-0.79	0.428

Regression 4: $ROA = \alpha + \beta (\text{HMCE}) + \mu_1$

Table 06 below demonstrates the regression equation outcomes where the coefficient value regarding HMCE is 2.015 highlighting that the unit variation in the HMCE value results in the change of return on assets. This significant change with p value of 0.000. Hence, lastly, the authors determine with the 99 % level of confidence revealing the significant and positive influence of human capital efficiency on return on assets. Moreover, the standard error of 0.20, and t. statistics of 9.66 highlight the connection between return on assets and human capital efficiency which is favorable and significant.

Table 6:

ROA	Coefficient	St. Error	t. statistic	p
HMCE	2.015	0.20	9.66	0.000

Regression 5: $ROA = \alpha + \beta_1 (\text{HMCE}) + \beta_2 (\text{Board Size}) + \mu_1$

Table 07 below expounds the goodness of fit regarding the regression equation. Here the total number of observations is 430, which is the final product of entities multiply with time of the study. The value of P of significance level of 01 % as p value is less than 01 (.000). Based on these facts, finally authors conclude that the coefficients in this model are not zero or model is positive relation.

Table 7:

ROA	Coefficient	St. Error	t. statistic
HCE	0.20	9.68	0.001
BRS	0.22	1.080	0.28

Interaction Term:

Regression 6: $ROA = a + b_1 (\text{HCE}) + b_2 (\text{Board Size}) + b_3 (\text{interaction term}) + \mu_1$

Table 8 below explains the outcomes for the 6th regression equation in which coefficient value for HMCE is 1.046 illustrating that a unit change in the HMCE triggers 1.046 change in the return on assets. Moreover, this variation is significant and positive with a p value below 1%, and t-statistic is 1.96. Furthermore, the board size indicates the regression coefficient of 0.0183844 which is positive but insignificant. Also, t-statistics value is also less than 1.96. The regression coefficient for the very first interactive term is -.0126 which indicates negative but an insignificant impact on the value of return on assets. So finally, the outcomes for the HCE are acceptable for the alternative hypothesis.

Table 8:

ROA	Coefficient	St. Error	t. statistic	p
HMCE	1.046	0.166	6.28	0.000
BRS	0.018	0.125	0.15	0.884
Interaction term	-0.0126	0.0188	-0.67	0.502

Regression 7: $ROA = a + b_1 (\text{SCE}) + \mu_1$

Table 9 below explains the outcomes for the regression equation in which coefficient value of STCE is 0.077, directing that a unit modification in the STCE leads to variation of 1.042 in ROA. This modification is significant and positive, as the p value, which is below 01%, with the t-statistics which is 1.58.



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Table 9:

ROA	Coefficient	St. Error	t. statistic	p
STCE	0.077	0.04	1.588	0.103

Regression 8: $ROA = \alpha + \beta_1 (SCE) + \beta_2 (Board\ Size) + \mu_1$

Table 10 below explains the goodness of fit for regression equation where SCE indicates the coefficient value of 0.07 with p value of 0.11. This highlights a positive and marginally insignificant linkage with ROA. The coefficient value of 0.06 regarding, with p value 0.72 suggests insignificant influence on ROA with high standard errors and highlighting weak association.

Table 10:

ROA	Coefficient	St. Error	t. statistic	p
SCE	0.07	0.04	1.59	0.11
BRS	0.06	0.18	0.35	0.72

Interaction Term:

Regression 9: $ROA = \alpha + \beta_1 (SCE) + \beta_2 (Board\ Size) + \beta_3 (interaction\ term) + \mu_1$

Table 11 below explains the outcomes for the 9th regression equation in which return on assets is outcomes variable and structural capital efficiency and board size are the predictors. The coefficient value of 0.063 regarding STCE and with a p value of 0.054 indicates a marginally significant and positive link with ROA. While BRS and interaction terms illustrate a low coefficient of 0.010 and 0.0180 with high p- values 0.937 as well as 0.618, implying that they don't have substantial influence on ROA.

Table 11:

ROA	Coefficient	St. Error	t. statistic	p
SCE	0.063	0.312	1.93	0.054
BRS	0.010	0.128	0.08	0.937
Interaction term	0.0180	0.036	0.5	0.618

Regression 10: $ROA = \alpha + \beta_1 (VAIC) + \mu_1$

Table 12 below explains the outcomes for the regression equation in which return on assets is explained variable and VAIC is explanatory variables of the study. Besides this researcher has also considered the interactive term which is the final product of value-added intellectual capital. The VAIC with a coefficient value of 0.185, together with 3.977 value of t statistics as well as p value of 0.001 point out the empirically significant and favorable link with ROA. This indicates the substantial impact of VAIC in boosting ROA of textile firms.

Table 12:

ROA	Coefficient	St. Error	t. statistic	p
VAIC	0.185	0.046	3.977	0.001

Regression 11: $ROA = \alpha + \beta_1 (VAIC) + \beta_2 (Board\ Size) + \mu_1$

Table 13 below explains the regression outcomes for ROA with two predictors of the study. VAIC with coefficient value of 0.18 together with t. statistics and p value of 3.98 and 0.001 respectively reveal the significantly positive association with ROA. This denotes that higher VAIC is linked with rise in ROA. Whereas BRS with a coefficient of 0.07 and p value of 0.662 describe the insignificant influence on ROA.

Table 13:

ROA	Coefficient	St. Error	t. statistic	p
Value added intellectual capital	0.18	0.046	3.98	0.001
BRS	0.07	0.18	0.43	0.662

Interaction Term:

Regression 12: $ROA = \alpha + \beta_1 (VAIC) + \beta_2 (Board\ Size) + \beta_3 (interaction\ term) + \mu_1$

Table 14 below explains the outcomes for the last regression equation in which return on assets is explained variable and value-added intellectual capital and board size are predictors. The outcomes highlight the significant positive coefficient value of 1.528 regarding VAIC and the value of t. statistics is 11.97 and p value is 0.000 indicating substantial positive linkage with ROA. While very small coefficient values of -0.0037 -0.0023 for BRS and interaction terms with the p- value of 0.974 and 0.872 infer that both BRS and interaction terms don't significantly drive ROA.

Table 14:

ROA	Coefficient	St. Error	t. statistic	p
Value added intellectual capital	1.528	0.127	11.97	0.000
BRS	-0.0037	0.1179	-0.03	0.974
Interaction term	-0.0023	0.0143	-0.16	0.872

4. Conclusion and Discussion

This study is conducted to explore the intersection among the VAIC components and firms' success (ROA) reflecting BRS as a moderator considering the textile firms in Pakistan. The outcomes indicate the significant and positive intersection between VAIC and ROA. Whereas BRS and interaction terms don't indicate significant influence on performance as evident by their low values of coefficient and with higher p- values. In this framework, it indicate, the crucial role of VAIC in influencing performance, whereas BRS together with interaction terms failed to significantly enhance the justification of variation in performance as similar to findings by Bataineh et al. (2022), Truong et al. (2023), and Mohapatra and Pattanayak (2024). In the 4th regression equation the impact of HMCE has been identified on the ROA. The findings presented support the research hypothesis indicating the substantially positive linkage between HMCE and performance. In the third regression equation, the effect of HMCE on the ROA with the moderating effect of BRS has been identified. The fifth regression equation was also fit based on the t-statistics. In the sixth regression equation, the effect of HMCE and interactive term of HMCE and BRS with the moderating effect of BRS is analyzed. In the third model the outcomes for the ROA regarding the STCE have been presented. The findings are for the alternative hypothesis but at 10 % level of significance. In the very next model, the outcomes for the ROA with respect to STCE and moderating effect of BRS is presented. The findings are consistent with H2 regarding STCE and the moderating effect of BRS. In the 7th regression equation, the effect of STCE on performance is measured with the interactive term of BRS and. This model is insignificant as regression coefficient. In the very next model, the effect of CPEE with the BRS is measured but this model is also insignificant. In the 10th regression model, VAIC is considered as major explanatory factor of the study while the ROA is as outcome variable. This model is significantly fit based on the value of t-test which is significant at 5 % level of significance.

5. Managerial and practical Implications

The outcomes of this investigation reveal multiple managerial insights. The managers would gain comprehension regarding VAIC, ROA, and BRS based on market and accounting success metrics. The outcomes have substantial implications for developing nations as they demonstrate that ITC is a critical determinant of firms' success, potentially improving economic progress. The outcomes are in line with prior studies conducted in different industries and nations (Xu and Li, 2022) and (Mukaro et al., 2023). Therefore, to enhance the firms' success and stimulate economic progress, governments and firms in developing nations should promote investing in boosting ITC to establish a distinctive edge (Yousaf, 2022). Moreover, the outcomes suggests that regardless of BRS in Pakistani firms, their influence on ITC remains subtle. The lack of critical concentration can be an aspect that policy makers ought to contemplate while devising policies for Pakistan specifically and developing nations generally. Governments have taken mechanisms to determine effective board size (The Companies' Act, 2013). Now, the Pakistani firms must further this innovative initiative by crafting policies that consider board size, hence enhancing the BRS on ITC and performance intersection, which is now lacing due to inappropriate board size.

5.1 Limitations and Suggestions

This study helps the management of the textile firms especially and various other decision markers while going for the profitability determinants. Govt. officials can use this study in order to thoroughly and deeply explain and predict the future position of textile sector in terms of firms' success. Future studies in this domain from developed as well as developing nations are urged to uncover the link between value added intellectual capital (VAIC) components and firms' success (ROA) to boost the outcomes generalizability. Moreover, they may consider other interaction components to justify the connections and arrive at an agreement. The research outcomes are confined to the leading 148 textile firms in Pakistan. Consequently, the outcomes generalizability across various firms and developing nations necessitates prudence.

REFERENCES

- Act, C. (2013). *The Companies Act, 2013. Ministry of Corporate Affairs, Government of India.*
- Afzal, M. A., Ahmed, W., Abbas, N., & Shah, M. N. (2025). Exploring the Nexus Among Financial Advancement, Natural resources Rent, Green Innovation and Environmental Quality in Pakistan. *Sustainable Business and Society in Emerging Economies*, 7(1), 39–52.
- Afzal, M. A., Imtiaz, A., & Abbas, N. (2025). Money Matters: Unveiling the Interplay between Firm's Financial Constraints, Investment Decisions and Stock Returns: Evidence from a Developing Economy. *Qlantic Journal of Social Sciences*, 6(4), 197–210.
- Al Frijat, Y. S., & Elamer, A. A. (2025). Human capital efficiency, corporate sustainability, and performance: Evidence from emerging economies. *Corporate Social Responsibility and Environmental Management*, 32(2), 1457–1472.
- Baig, M. H., Xu, J., Shahzad, F., & Ali, R. (2025). Revealing the potential of FinTech innovation through knowledge assets: a study of firm financial performance. *International Journal of Innovation Science*, 17(3), 650–682.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
- Bataineh, H., Abbadi, S. S., Alabood, E., & Alkurdi, A. (2022). The effect of intellectual capital on firm performance: the mediating role of family management. *Journal of Islamic Accounting and Business Research*, 13(5), 845–863. <https://doi.org/10.1108/JIABR-02-2022-0032>
- Cahyono, S., & Ardianto, A. (2024). Intellectual capital, political connection, and firm performance: exploring from Indonesia. *Risks*, 12(7), 105.
- Ghosh, S., & Mondal, A. (2009). Indian software and pharmaceutical sector IC and financial performance. *Journal of Intellectual Capital*, 10(3), 369–388.



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- Iqbal, Y., Rehman, S. U., Akram, I., Abdulmuhsin, A. A., & Afzal, M. A. (2025). Uncovering the relationship between intellectual capital, organizational resilience, innovation capacity, risk-taking tolerance and competitive advantage in manufacturing context. *Business Process Management Journal*, 1–23.
- Keter, C. K. S., Cheboi, J. Y., & Kosgei, D. (2024). Financial performance, intellectual capital disclosure and firm value: the winning edge. *Cogent Business & Management*, 11(1), 2302468. <https://doi.org/10.1080/23311975.2024.2302468>
- Mohapatra, S., & Pattanayak, J. K. (2024). Unraveling the dynamics of intellectual capital, firm performance, and the influential moderators—BIG4 auditors and group affiliation. *International Journal of Financial Studies*, 12(1), 29.
- Mukaro, C. T., Deka, A., & Rukani, S. (2023). The influence of intellectual capital on organizational performance. *Future Business Journal*, 9(1), 31.
- Pulic, A. (2000). VAIC™—an accounting tool for IC management. *International Journal of Technology Management*, 20(5–8), 702–714.
- Roos, G., & Roos, J. (1997). Measuring your company's intellectual performance. *Long Range Planning*, 30(3), 413–426.
- Somwethee, P., Ru-Zhue, J., Aujiapongpan, S., Chanthawong, A., & Usman, B. (2025). Developing social entrepreneurial capability in Thai community enterprises: The roles of intellectual capital, creating shared value, and organizational agility on sustainability. *Social Sciences & Humanities Open*, 11, 101269.
- Suharman, H., Hapsari, D. W., Hidayah, N., & Saraswati, R. S. (2023). Value chain in the relationship of intellectual capital and firm's performance. *Cogent Business & Management*, 10(1), 2199482.
- Tiwari, R., & Arora, A. (2024). Moderating role of gender diversity in the relationship between intellectual capital efficiency and corporate performance. *International Journal of Productivity and Performance Management*, 74(2), 544–563. <https://doi.org/10.1108/IJPPM-12-2023-0698>
- Tjahjadi, B., Soewarno, N., Sutarsa, A. A. P., & Jermias, J. (2024). Effect of intellectual capital on organizational performance in the Indonesian SOEs and subsidiaries: roles of open innovation and organizational inertia. *Journal of Intellectual Capital*, 25(2/3), 423–447.
- Truong, B. T. T., Nguyen, P. V., & Vrontis, D. (2023). Enhancing firm performance through innovation: the roles of intellectual capital, government support, knowledge sharing and knowledge management success. *Journal of Intellectual Capital*, 25(1), 188–209. <https://doi.org/10.1108/JIC-08-2023-0181>
- Xu, J., & Li, J. (2022). The interrelationship between intellectual capital and firm performance: evidence from China's manufacturing sector. *Journal of Intellectual Capital*, 23(2), 313–341.
- Yousaf, M. (2022). Intellectual capital and firm performance: evidence from certified firms from the EFQM excellence model. *Total Quality Management & Business Excellence*, 33(13–14), 1472–1488. <https://doi.org/10.1080/14783363.2021.1972800>
- Zhang, Y., Li, H., & Yao, Z. (2025). Intellectual capital, digital transformation and firm performance: evidence based on listed companies in the Chinese construction industry. *Engineering, Construction and Architectural Management*, 32(4), 2128–2159.