

Knowing the Unknown: The Dynamic Role of Intellectual Capital on Firm's Performance

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Abstract

This paper analyses the relationship between Intellectual Capital and its components and the financial performance of the firms. Modified Value-Added Intellectual Capital (MVAIC) model has been employed to calculate the Intellectual Capital. To measure financial performance, the proxy return on assets (ROA) has been utilized. The relationship between Intellectual Capital and financial performance has been explored by considering non-financial listed companies of the Pakistan Stock Exchange. This paper investigates data ranging from 2010 to 2024. Autoregressive Distributed Lag (ARDL) Model has been applied to better understand the relationship. The outcomes of this paper reveal a strong association between Intellectual Capital and financial performance in the short and long run. Moreover, the components of Intellectual Capital, such as human, structural, relational, and employed capital, also showed a strong association with financial performance in both the short and long run.

Keywords: Intellectual Capital, Financial Performance, Non-Financial Firms, ARDL Model.

Introduction

The modern concept of the “new economy,” grounded in information and knowledge, has accelerated interest in intellectual capital (Mohamed et al., 2022). This is a highly debated topic that has attracted the attention of researchers and industry, as it plays a vital role in increasing the value of organizations. But this attention is also focused on ways to calculate immaterial resources, i.e., intellectual capital. The researchers now view current management and accounting practices as losing importance because they do not provide detailed information on intangible assets (Fischer et al., 2021).

In the past, the variance between immaterial resources and intellectual capital was not well defined, and intellectual capital was considered as “goodwill” (International Accounting Standards Committee, 1998). In the 1980s, management reporting techniques and business practices used to categorize a company's intangible assets as goodwill (International Federation of Accountants, 1998). The financial performance of every organization in today's world depends on decisions about how it uses its unique assets, particularly intellectual capital, to maximize profits. By defining profit-oriented plans and streamlining the organization's operations, it is always directed towards higher financial outcomes. The advantages of these tactics can be seen in financial ratios like return on assets and asset turnover ratio. In the same way, firms rely on their assets, particularly

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intellectual capital, to maintain a competitive edge over rivals and, as a result, improve the organization's financial performance.

The defined accounting practices and financial measurement systems have the shortcoming of failing to notify, measure, and infer intangible resources, particularly the intellectual capital of knowledge-oriented firms. Intangible resources such as workers' abilities and proficiency, client relations, operational procedures, information technology systems, and managerial practices are not reflected in financial reports (Oprean-Stan et al., 2020). Moreover, intangible resources such as brand name, trademarks, copyrights, and goodwill are traditionally not reported in the financial statements. In reality, International Accounting Standards (IAS) do not require such information about immaterial assets to be written in the financial statements (International Federation of Accountants, 1998; International Accounting Standards Committee, 1998).

The increasing gap between market value and book value prompted the researcher to examine the unknown values in traditional financial reports. Many researchers view this unknown, secret information as intellectual capital, and its value is not reported in the financial statements. It is also the main reason to achieve competitive advantage (Naila et al., 2025). Intellectual capital is considered a unique resource that enhances an organization's value. Although, in the recent financial reports the intellectual capital is not written but along with tangible assets the various components of intellectual capital like employee's know how and expertise, operational systems, market linkages and information technology system etc. also make addition in the organizational attainments and creates the value of the organization.

Literature Review

The importance of intellectual capital is evident in its being the most discussed topic among scholars, experts, and businesses today. The reason is, companies compete with rivals that use the most intangible resources, such as the latest technology, inventions and innovations, employees' knowledge and expertise, and networks with external parties (Dancaková et al., 2022). Academia is also debating this topic widely because intellectual capital determines national competitiveness and improvement (Bamel et al., 2022). Although the literature addresses this topic and highlights its importance, a new topic is emerging: how intellectual capital can influence companies' financial performance and enable them to achieve a competitive advantage (Purnamawati et al., 2022). Because of the increased and evolving value of intellectual capital, universities and managers are struggling to define its methodological framework and its components. Further, they are also interested in the role and scope of intellectual capital in disrupting a country's economy. Since 2000, a large number of researchers have begun to explore the role of intellectual capital and its components in creating organizational value and, most importantly, their effects on corporate financial performance (Paoloni et al., 2020).

According to Nicolò (2020), the non-financial and immaterial resources that are wholly or partially controlled by the organization and contribute to its value creation process are termed intellectual capital. Immaterial resources, especially intellectual capital, have demonstrated a central role in generating an organization's value over the last twenty years (Abeysekera, 2021). This style is directed toward establishing a new epoch in science and technology, from labor-driven to knowledge-driven organizations. So, all non-physical, non-material sources that are fully or partly controlled by the organization and that strongly affect the organization's position are referred to as intellectual capital (Essien & Aniekan, 2022).

In the present era, intellectual capital has achieved a unique position in attaining competitive advantage and achieving financial outcomes in the short and long term (Dumay et al., 2020). In a

nutshell, all immaterial resources that help create the value of the organization are referred to as intellectual capital. While discussing the market value of the organization, intellectual capital refers to the difference between the organization's book value and its market value (Chowdhury et al., 2019). When there is a large gap between the book value and market value of the organization, all such differences are recognized as intellectual capital.

There are two important arguments that the Resource Based Theory follows. First, an organization's performance is determined by its assets (Nason & Wiklund, 2018). Secondly, the assets of an organization should be rare, inimitable, valuable, very costly to copy, suitable, focused, and appropriate (Barney et al., 2011). Most intangible assets do not possess characteristics that would qualify them as competitive pre-emptive sources. Of all such features that should be present in a strategic asset, only the intellectual capital meets the standards. So, intellectual capital possesses the qualities that enhance an organization's performance. Hence, a long-lasting competitive edge could be achieved via the use of intellectual capital. The following reasons advocate that intellectual capital is strategic asset for an organization (i) It is very hard to make copy of intellectual capital (ii) To make substitute of intellectual capital is almost impossible, as it attains unique position in the organization (iii) it is very tough to transfer intellectual capital from a firm to another firm (iv) Efficiency and effectiveness of an organization is also greatly influenced by the intellectual capital. As intellectual capital has a significant effect on an organization's financial performance, different journals consider it a strategic asset and the real explanation of the Resource-Based Theory (RBT). Although tangible assets are important, intellectual capital holds a unique position and is considered a key strategic source for a firm. It not only helps the firm attain a competitive edge but also paves the way for the organization to gain dominance (Marr et al., 2004).

Because intellectual capital is composite and intricate, the second important step is to categorize it comprehensively. Different researchers have extended this topic and added valuable contributions to the categorization of intellectual capital. Most of the academic world has used dichotomous and trichotomous categorization of intellectual capital. Hall (1989) was one of the initial researchers who gave the initial idea of dichotomous categorization of intellectual capital. Depending on capability and detecting it separately from human capital, he divided intellectual capital into two different categories. Intangible resources that reside within the human body are known as human capital. Human capital is comprised of different kinds of knowledge and may be divided into different kinds of knowledge like general or specific.

Some of the researchers also used a trichotomous categorization of intellectual capital. Bontis (1998) also used three types of categorizations. In his view, intellectual capital can be divided into human, structural, and customer capitals. As per the Meritum project guidelines, intellectual capital can be divided into three forms: human, structural, and relational. These three types of division were also endorsed by O-Sullivan (2010). He also argued that a firm should have as many resources as possible to transform its intellectual capital into the firm's intellectual property.

Human capital includes characteristics related to the organization's workers, such as educational background, experience, expertise, knowledge, work ethic, and distinctiveness, that directly link to innovation and invention, thereby enhancing the firm's returns (Martin-de-Castro et al., 2011). The richness of an organization's innovation and strategic mechanisms is also considered human capital (Bontis, 1998). Nazari and Herremans (2007) also described it as a strong source for building the firm's structural capital. Both human and structural capital are linked to internal sources within an organization, while relational capital is linked to enhancing relationships with external sources of the firm (Maria, 2001).

The infrastructure that provides the environment that converts employees' knowledge, ideas, concepts, and plans into reality is termed structural capital. The firm's hierarchy, vision, mission, policies, strategies, use of information technology, and data sources are also counted in structural capital. Latest developments in structuring the firm aim to reduce costs and increase profits (Mondal & Gosh, 2014).

The overall infrastructure that contributes to transforming the employee's ideas, concepts, novelties, and creativities into something worthwhile for the organization is termed organizational or structural capital. An organizational hierarchy, guidelines, strategies, facilities, designs, and traditions are also referred to as structural capital. More precisely, mechanisms that minimize costs and maximize the company's returns are also included in the definition of structural capital (Mondal & Gosh, 2014). An organization's structural capital will never vanish, even if all its employees leave. Because all resources and values will be retained for the organization. So, the structural capital is the real asset for an organization (Bernadette, 1999). Structural capital also contributes to an organization's efforts to achieve maximum intellectual performance. From the above discussion, it can be argued that both human and structural capital are interconnected and mutually reinforce the firm's value (Bontis, 2000).

Roos et al. (2005) stated that an organization's contacts and linkages with customers, traders, partners, suppliers, other related firms, and other stakeholders are termed relational capital. The firm's initiatives and strategies like loyalty beneficiary programs for customers, prizes to achieve sales targets, on-time delivery and payments to traders, not only increase the worth of the organization in the market, but it also develop third-party sincere relations with the organization. Sincerity of the third party helps in market promotion of the firm and its products. It ultimately boosts the brand image to the common man and maximizes returns for the organization. Moreover, relational capital represents an organization's track record of gathering information that strengthens relationships with external entities such as government authorities, customers, dealers, other firms, and associations (Bontis, 1998).

Methodology

Mr. Ante Pulic proposed a unique approach to calculating intellectual capital in the late 1990s. This approach is known as Value-Added Intellectual Coefficient (VAICTM). This approach is very helpful in quantifying intellectual capital and its impact on business return. In VAICTM technique, there are three important parts that calculate the value and efficiency of intellectual capital. These three components are structural capital, human capital, and capital employed. Structural Capital Efficiency (SCE) measures the structural capital invested in the business's value development, while Human Capital Efficiency (HCE) measures the amount invested in human capital, and finally Capital Employed Efficiency (CEE) evaluates the amount of financial and physical capital invested in the business.

The researchers added a new feature, Relational Capital, to the VAICTM technique and named the resulting model the modified VAIC (MVAIC) model. Relational Capital Efficiency (RCE) measures a firm's ability to manage external relationships to create value. MVAIC model enhances the worth of the basic VAICTM technique. The addition of RCE reduced the criticism that the VAICTM technique ignored the importance of external linkages and networks, which are very important in today's business world, the global village. Studies also argued that the addition of RCE enables a more comprehensive study of intellectual capital. RCE also plays an important role in enhancing a firm's financial performance.

Recent studies widely use the MVAIC technique to calculate the value of intellectual capital and explore its value within a specific economic sector or geographical region. The studies also investigate the extent of intellectual capital's impact on firms' financial performance (Bansal et al., 2025).

Model Specification

Return on Assets (ROA) is a proxy for an organization's financial performance. Return on Assets (ROA) also indicates the firm's profitability.

Its formula is as under;

$$ROA = \text{Net income} / \text{Total assets}$$

To calculate the intellectual capital, Modified Value-Added Intellectual Model (MVAIC) model is applied. VAICTM technique is the basis of MVAIC model. The first three components of the intellectual model (Human, Structural, and Capital Employed) are calculated in the same way as in the VAICTM technique. The method to measure VAICTM is as under;

$$VA = W + I + T + NI$$

$$CEE = VA / CE$$

$$HCE = VA / HC$$

$$SCE = (VA - HC) / VA$$

$$VAIC = CEE + HCE + SCE$$

In the above-mentioned equations, VA denotes value added, W denotes wages and salaries, I denote interest expenses of the firm, T denotes tax paid during the year and NI denotes net income of the firm at end of the year. Further, CE is the capital employed by the organization. It also represents the total value of the total assets of the organization, while HC is the overall human capital engaged by the firm. It is basically the total amount paid to the all workers in the name of wages and salaries. The researchers introduced, a basic and important component in the original VAICTM technique i.e. relational capital. After introducing this component, they named the new technique as Modified Value-Added Intellectual Capital (MVAIC). This component represents the value of the linkages of the firm with suppliers, dealers, other companies, government authorities and customers. Its formula is as under;

$$RCE = RC / VA$$

Where RC denotes for the marketing and advertising expenses of the firm. Now, the overall calculation method for Modified Value-Added Intellectual Capital model is as under;

$$MVAIC = CEE + HCE + SCE + RCE$$

Models

The main objective of this research paper is to investigate the influence of intellectual capital and its parts on the financial performance of the firms.

The table-1 shows the models that are used in this research;

Table 1: Model Illustration

Sr. #	Model	Functional Representative
1	F.Perf = f(CEE, HCE, SCE, RCE)	Perf _f = $\beta_0 + \beta_1 HCE + \beta_2 CEE + \beta_3 SCE + \beta_4 RCE + \varepsilon$
2	F.Perf = f(MVAIC)	Perf _f = $\beta_0 + \beta_1 MVAIC + \varepsilon$

Model 1 shows the parts of intellectual capital and its influence on financial performance of the firms. Model 2 intellectual capital and its influence on financial performance of the firms.

Variables

The variables that are used in this research are as follows;

Dependent Variable

The dependent variable that is used in this study is

(i) Firm's Financial Performance

The proxy that is used to measure the firm's financial performance is
Return on Assets (ROA)

Independent Variables

The independent variables that are used in this study are;

(i) Human Capital Efficiency (HCE)

(ii) Capital Employed Efficiency (CEE)

(iii) Structural Capital Efficiency (SCE)

(iv) Relational Capital Efficiency (RCE)

(v) Modified Value-Added Intellectual Capital (MVAIC)

This research uses secondary data both for dependent and independent variables. Financial ratio i.e. return on assets (ROA) is used in this study. Studies are also available in which such proxy has also been used (Aybars and Öner, 2022; Lehenchuk et al., 2024). The data to calculate the intellectual capital and its fragments (human capital, capital employed, structural capital and relational capital) is not readily available in the financial reports of the firms. These variables are calculated with the use of formula that are discussed earlier. Further the financial data that is used is available on the website of State Bank of Pakistan.

Population

All the firms that belong to non-financial sector and are publicly traded firms registered in Pakistan Stock Exchange are population of this research. The time period used in this study is from 2010 to 2024. As per reports of State Bank of Pakistan, all the non-financial sector has been divided in to 28 different sectors. There are 353 firms are registered in these sectors. 283 firms are chosen, out of these 353 registered firms. 70 firms have been excluded due to non-availability of data. Because these firms were not continuously performing. So, the criteria, of this paper for the firm's selection is; the firms that are continuously trading since last 15 years. So, all the firms that are not continuously performing and have some interruption in their trading years have been excluded.

ARDL Model

For all nonfinancial sectors the ARDL approach to study is as under;

$$\Delta ROA_{it} = \alpha_i + \alpha_1 \Delta HCE_{it-1} + \alpha_2 \Delta CEE_{it-1} + \alpha_3 \Delta SCE_{it-1} + \alpha_4 \Delta RCE_{it-1} + \alpha_5 \Delta MVAIC_{it-1} + \gamma_i (ROA_{it-j} + \beta_1 HCE_{it-j} + \beta_2 CEE_{it-j} + \beta_3 SCE_{it-j} + \beta_4 RCE_{it-j} + \beta_5 MVAIC_{it-j}) + \mu \quad (1)$$

In the abovementioned model, one dependent variable named as Return on Assets (ROA) is used while five independent variables are also used for this study. The abbreviations used for independent variables are as under;

HCE= Human Capital Efficiency

CEE=Capital Employed Efficiency

SCE= Structural Capital Efficiency

RCE= Relational Capital Efficiency

MVAIC= Modified Value-Added Intellectual Capital

Long Run Results for the Components of Intellectual Capital

Table 2 depicts Long Run results of the study by using ARDL model. Table shows probability value less than .05 for the relationship of Human Capital Efficiency (HCE) and Return on Assets (ROA). The coefficient value is 0.20726. So, it can be stated that that a positive and significant relationship exists between Human Capital Efficiency (HCE) and Return on Assets (ROA). Further every 01 percent change in HCE, the value of ROA will also increase by 0.20726.

Table shows probability value less than .05 for the relationship of Capital Employed Efficiency (CEE) and Return on Assets (ROA). The coefficient value is 1.13628. So, it can be stated that that a positive and significant relationship exists between Capital Employed Efficiency (CEE) and Return on Assets (ROA). Further every 01 percent change in CEE, the value of ROA will also increase by 1.13628.

Table also shows probability value less than .05 for the relationship of Structural Capital Efficiency (SCE) and Return on Assets (ROA). The coefficient value is 0.50799. So, it can be stated that that a positive and significant relationship exists between Structural Capital Efficiency (SCE) and Return on Assets (ROA). Further every 01 percent change in SCE, the value of ROA will also increase by 0.50799.

Further the Table also shows probability value less than .05 for the relationship of Relational Capital Efficiency (RCE) and Return on Assets (ROA). The coefficient value is -0.0812. So, it can be stated that that a negative and significant relationship exists between Relational Capital Efficiency (RCE) and Return on Assets (ROA). Further every 01 percent change in SCE, the value of ROA will also decrease by -0.0812.

Table 2: Long Run Results

Variable	Long Run Equation			
	Coefficient	Std. Error	t-Statistic	Prob.
HCE	0.20726	0.09135	2.2689	0.02340
CEE	1.13628	0.05927	19.171	0.00000
SCE	0.50799	0.13118	3.87248	0.00010
RCE	-0.0812	0.13744	-0.591	0.04460
C	1.26179	0.06739	18.724	0.00000

Short Run Results for the Components of Intellectual Capital

Table 3 depicts short run results of the study by using ARDL model. Table shows probability value less than .05 for the relationship of Human Capital Efficiency (HCE) and Return on Assets (ROA). The coefficient value is 0.47984. So, it can be stated that that a positive and significant relationship exists between Human Capital Efficiency (HCE) and Return on Assets (ROA). Further every 01 percent change in HCE, the value of ROA will also increase by 0.47984.

Table shows probability value less than .05 for the relationship of Capital Employed Efficiency (CEE) and Return on Assets (ROA). The coefficient value is 0.73489. So, it can be stated that that a positive and significant relationship exists between Capital Employed Efficiency (CEE) and Return on Assets (ROA). Further every 01 percent change in CEE, the value of ROA will also

increase by 0.73489. The pattern of 01 year and 02 years old relation between CEE and ROA is also represented in the Table.

Table also shows probability value less than .05 for the relationship of Structural Capital Efficiency (SCE) and Return on Assets (ROA). The coefficient value is 0.0927. So, it can be stated that that a positive and significant relationship exists between Structural Capital Efficiency (SCE) and Return on Assets (ROA). Further every 01 percent change in SCE, the value of ROA will also increase by 0.0927. The pattern of 01 year and 02 years old relation between SCE and ROA is also represented in the Table.

Further the Table also shows probability value less than .05 for the relationship of Relational Capital Efficiency (RCE) and Return on Assets (ROA). The coefficient value is -0.4527. So, it can be stated that that a negative and significant relationship exists between Relational Capital Efficiency (RCE) and Return on Assets (ROA). Further every 01 percent change in SCE, the value of ROA will also decrease by -0.4527. The pattern of 01 year and 02 years old relation between RCE and ROA is also represented in the Table.

Moreover, the value for error correction term is also less than 0.05. Table represents its negative value and also confirms its range from 0 to 1. So. It could be stated that the short run results are true representation of the model. Further, these results will also be adjusted in the long run results.

Table 3: Short Run Results

Variable	Short Run Equation			
	Coefficient	Std. Error	t-Statistic	Prob.
D(ROA(-1))	-0.1124	0.02548	-4.4128	0.0000
D(ROA(-2))	-0.0367	0.02049	-1.7907	0.0735
D(HCE)	0.47984	0.04932	9.73001	0.0000
D(CEE)	0.73489	0.0384	19.137	0.0000
D(CEE(-1))	0.09227	0.04861	1.89818	0.0578
D(CEE(-2))	-0.0207	0.04326	-0.4796	0.6316
D(CEE(-3))	-0.0889	0.0261	-3.4066	0.0007
D(SCE)	0.0927	0.05015	1.8477	0.0468
D(SCE(-1))	0.104	0.04956	2.099	0.0359
D(SCE(-2))	-0.0926	0.04482	-2.0653	0.0390
D(RCE)	-0.4527	0.06331	-7.1509	0.0000
D(RCE(-1))	0.1358	0.08065	1.68378	0.0924
D(RCE(-2))	-0.2576	0.06479	-3.9754	0.0001
CointEq(-1)	-0.5038	0.02627	-19.179	0.0000

Long Run Results for Intellectual Capital

Table-4 shows the ARDL model long run results for the relationship of Modified Value-Added Intellectual Capital (MVAIC) and Return on Assets (ROA). Table shows probability value less than 0.05 for the relationship of Modified Value-Added Intellectual Capital (MVAIC) and Return on Assets (ROA). The coefficient value is 17.3033. So, it can be stated that that a positive and significant relationship exists between Modified Value-Added Intellectual Capital (MVAIC) and Return on Assets (ROA). Further every 01 percent change in MVAIC, the value of ROA will also increase by 17.3033.

Table 4: Long Run Results

Variable	Long Run Equation			
	Coefficient	Std. Error	t-Statistic	Prob.
MVAIC	17.3033	5.29187	3.26979	0.0012
C	17.3764	5.37436	3.23321	0.0013

Short Run Results for Intellectual Capital

Table-5 shows the ARDL model short run results for the relationship of Modified Value-Added Intellectual Capital (MVAIC) and Return on Assets (ROA). The Table shows probability value less than .05 for the relationship of Modified Value-Added Intellectual Capital (MVAIC) and Return on Assets (ROA). The coefficient value is 20.052. So, it can be stated that that a positive and significant relationship exists between Modified Value-Added Intellectual Capital (MVAIC) and Return on Assets (ROA). Further every 01 percent change in MVAIC, the value of ROA will also increase by 20.052. The pattern of 01 year and 02 years old relation between MVAIC and ROA is also represented in the Table.

Moreover, the value for error correction term is also less than 0.05. Table represents its negative value and also confirms its range from 0 to 1. So. It could be stated that the short run results are true representation of the model. Further, these results will also be adjusted in the long run results.

Table 5: Short Run Results

Variable	Short Run Equation			
	Coefficient	Std. Error	t-Statistic	Prob.
D(ROA(-1))	-0.4676	0.07499	-6.2359	0.0000
D(ROA(-2))	-0.229	0.07331	-3.1236	0.0019
D(MVAIC)	20.052	2.35006	8.53254	0.0000
CointEq(-1)	-0.4238	0.0766	-5.5322	0.0000

Discussion

According to the literature, the variables used in this paper mostly show a positive and significant relationship with firms' financial performance, but some studies have also identified the opposite pattern. The reasons behind this difference include differences in business environments across countries, economic conditions, the population used, the selected sample, and the method used to analyze the data.

As per the results, Human Capital Efficiency (HCE) had a significant impact on the financial performance of all non-financial sectors of the Pakistan Stock Market. A positive and significant relationship between Human Capital Efficiency and financial performance appears common over a similar period, but may deviate in a far-ahead period (Kuo et al., 2020). The results also depict that Capital Employed Efficiency (CEE) and financial performance have a strong positive relation. It is evident that along with knowledge-based resources, the firms should also pay attention to traditional resources. The usefulness and proficiency of tangible assets remain important for the financial growth of firms (Gupta et al., 2023).

Both variables, Human Capital Efficiency (HCE) and Capital Employed Efficiency (CEE), have gained a unique position, as they affect the financial performance of firms at large. Mohammad et al. (2018) also found that employees' competencies, skills, knowledge, and experience related to job duties are the main factors that ultimately contribute to achieving maximum financial output.

The roles of Human Capital Efficiency (HCE) and Capital Employed Efficiency (CEE) in financial wellbeing are found to be positive and well-supported (Polat, 2023).

Gupta et al. (2023) also confirmed a strong positive relationship between HCE and the financial and market worth of organizations. They further stated that by giving prime importance to employee development through on-the-job and off-the-job training, and by introducing bonuses and rewards, the organization can enhance its financial worth and boost its market standing. The efficient utilization of human resources helps in lowering the operating costs, which eventually supports in enhancing the profits (Soewarno and Tjahjadi, 2020).

Rachmawati (2024) also affirmed the strong relation between Intellectual Capital and a firm's profitability by exploring Indonesian and Malaysian markets. In his study, he answered the research questions regarding the role of human, structural, and relational capitals. The significant role of human capital in the organization's financial performance in both countries suggests that employees' knowledge, experience, competencies, and problem-solving abilities are the decisive drivers of higher financial performance.

According to this study's results, Structural Capital Efficiency (SCE) has a strong, positive, and significant relationship with the financial performance of the non-financial sector of the Pakistan Stock Exchange. Gupta et al. (2023) confirmed that SCE adds a valuable contribution to the financial as well as in the market performance of the companies. They also found that firms that prioritize their infrastructure and work procedures, and that aim to improve their advanced policy framework, intend to achieve higher financial gains and a competitive edge over rivals. Rachmawati (2024) also holds that SCE had a stronger impact on the financial performance of Malaysian firms than on that of Indonesian firms. This is due to advanced infrastructure and governance mechanisms that create an efficient working environment, technologically advanced options, and a valuable, innovative organizational atmosphere. Indonesian firms showed a weaker relation with SCE. This means a gap exists in working environment and technologically advanced options. It suggests that the Indonesian firms need to improve their infrastructure and internal processes to get maximum financial gains.

Rehman et al. (2024) also found that SCE is significantly and positively associated with firms' financial performance. They also reiterated that the SCE plays a more vital role in determining higher financial performance than other components of Intellectual Capital. Díaz-Chao (2015) stated that achieving increased productivity in SCE paves the way for higher financial performance, which aligns with the Resource-Based View. So, government bodies, strategy planners, and all other stakeholders of the firm should give weight to SCE to achieve higher financial performance (Nadeem et al., 2017).

The results of this paper also indicate a significant, but negative, relationship between Relational Capital Efficiency (RCE) and the financial performance of organizations. Gupta et al. (2023) confirmed that Relational Capital has a positive and significant impact on firms' overall financial performance. It can be inferred that by preserving durable relationships with customers and stakeholders, organizations may achieve better long-term growth. Zakariaa et al. (2020), on the other hand, are of the view that RCE has an insignificant relationship with the financial performance of firms. The competence of a firm to have links with the business environment, like customers, opponent firms, intermediaries, labor unions, and government authorities, always serves in attaining maximum financial returns.

Nuresha et al. (2024) also confirmed that Relation Capital mirrors the firm's ability to connect with the outside world and significantly influences financial performance. The positive effect is stronger relationships with customers, dealers, partners, rivals, and regulators, which support achieving

financial good health. On the other hand, the absence of a significant relationship between RCE and financial performance may be due to factors such as poor performance in relationship management, inappropriate networking, or over-reliance on other components of Intellectual Capital. This means the companies need to strengthen relationships with the outside business world and develop plans and strategies to enhance the potential benefits of Relational Capital Efficiency (RCE).

The results also indicate that Intellectual Capital has a significant influence on the financial performance of firms. Zakariaa et al. (2020) are of the view that there is a critical role for Intellectual Capital in defining the financial health of firms. Better financial outcomes could be achieved by the resourceful use of the company's human and employed capital. It could be stated that employees' knowledge, competencies, and experience always pay in achieving financial good health. It could also be inferred that latest technology, innovative work processes, distinguished skills and problem-solving abilities of the employees always determine the financial good health of the organizations (Kusumawardhani, 2012; Ghosh and Maji, 2015; Nimtrakoon, 2015; Kamath, 2017; Anifowose et al., 2018; Xu and Wang, 2019).

Intellectual Capital confirms a positive and significant relationship with better financial outcomes for companies. Shairi et al. (2021) also confirmed this relationship, stating that MVAIC and profitability are strongly associated. Ali et al. (2022) also argued that intellectual capital shows a positive, significant relationship with profitability. Khan et al. (2025) also reiterated that Intellectual Capital is a key resource for achieving higher corporate performance and plays a crucial role in setting financial strategies. The outcomes of this paper are also in line with the Resource-Based View (RBV) and the Knowledge-Based View (KBV). Both theories explain that resources of the organizations determine its performance, especially the immaterial resources. The findings of this research is also in line with other studies (Ahmad and Ahmed, 2016; Hamdan et al., 2017; Amin et al., 2018; Adegbayibi, 2021; Battisti et al., 2022).

Conclusion

As the world has become a global village, the concept of the economy has undergone many changes. The concept of knowledge-based resources has introduced significant changes to the global market. Now organizations depend more on immaterial resources. This concept also aligns with the Resource-Based View, which gives greater weight to an organization's internal resources as the real assets for achieving maximum financial outcomes. Now this maximization of profits also greatly depends on the utilization of immaterial resources. There is no doubt that physical resources and cultural assets always play an integral role in achieving a competitive edge over rivals, but now academia is giving greater importance to immaterial resources, i.e., Intellectual Capital. This shift is due to the vital role that Intellectual Capital plays in achieving superior financial performance.

In today's world, profit is no longer the sole criterion for determining a business's success. Along with profits, it is the responsibility of management to create value for stakeholders and to plan strategies that can assist in today's highly competitive business world. This all depends on decisions to invest in invention and innovation, new marketing tools and tactics, employee training programs, the use of information technology, and strong association with all stakeholders. This is the scenario in which Intellectual Capital comes into the big picture, as it possesses all the aforementioned characteristics. This research paper investigates the association between intellectual Capital and its components and financial performance in the Pakistani context. This

paper found that Intellectual Capital and its components have a positive and significant relationship with the financial performance of firms.

In short, the results confirmed that Intellectual Capital plays a vital role in enhancing the financial performance of registered non-financial firms. The firms must invest in human, structural, relational, and employed capital to boost financial performance and gain a competitive edge over rivals.

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