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[From Knowledge to Growth: Investigating Intellectual Capital's Impact on Financial Sustainability in Emerging Economies]

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ABSTRACT

Pakistani firms face significant issues (e.g., weak innovation capacity, limited global competitiveness, inefficient resource allocation, and over-reliance on traditional assets). These issues restrict their ability to achieve sustainable financial growth (SFG). To overcome these issues, our study investigates the impact of Intellectual Capital (IC) on SFG, based on the Knowledge-Based View (KBV) theory. The study employs a quantitative approach using secondary data from 125 non-financial firms listed on the Pakistan Stock Exchange (PSX) for the period 2016–2024. The Modified Value Added Intellectual Coefficient (MVAIC) is used to measure IC, which includes Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), Relational Capital Efficiency (RCE), and Capital Employed Efficiency (CEE). SFG is assessed through a composite index of four financial ratios, while firm size, age, and long-term debt to total assets are used as control variables. Panel data regression models, including random and fixed effects, were applied to test the hypotheses. Findings reveal that all components of IC positively and significantly influence SFG, with RCE having the strongest effect. KBV theory supports these findings and claims that intangible assets are vital for sustained competitive and financial performance. This study contributes to the literature by shifting the focus from short-term firm performance to sustainable financial outcomes and offers practical implications for managers, investors, and policymakers in knowledge-based resource planning.

Keywords: Intellectual Capital, Sustainable Financial Growth, Knowledge-Based View, Non-Financial Firms, Pakistan.

Introduction

Pakistani firms face problems (limited innovation capabilities, low productivity, inadequate technological adoption, weak governance structures, and inefficiencies in resource management) that limit their long-term financial stability and competitiveness (Ahmad, 2024). In a rapidly globalizing economy, such shortcomings restrict firms' ability to achieve SFG. Traditional reliance on tangible assets and outdated business practices often results in poor market responsiveness and declining profitability (Anser et al., 2024). In this context, IC and its components HC, SC, and RC have emerged as a vital intangible resource that can address these structural inefficiencies (Farooq et al., 2025). According to Yuen and Lam (2024), skilled human resources, fostering knowledge-sharing systems, and building strong stakeholder relationships, IC empowers firms to innovate, improve decision-making, and adapt to market dynamics. As global business shifts towards a knowledge-based economy, implementing IC becomes a strategic imperative for Pakistani firms aiming to enhance their financial sustainability (Ahmad, 2024).

Although numerous studies (Farooq & Ahmad, 2023; Ali et al., 2022; Ahmad, 2024; Farooq et al., 2025) have explored the relationship between IC and firm performance, most of these investigations have centered around short-term financial indicators such as profitability, return on assets, and earnings per share. While these studies are valuable, they do not capture the broader and more enduring dimensions of a firm's financial well-being. In today's volatile and competitive business environment, SFG, which

encompasses stability, long-term value creation, and consistent financial development, has gained increasing importance (Simanjuntak, 2024). However, prior research by Farooq and Ahmad (2023) and Simanjuntak (2024) overlooked the investigation of how IC directly impacts SFG, particularly in the emerging economy context of Pakistan. Sustainable growth of firms requires a long-term strategic outlook that goes beyond traditional financial performance metrics, creating a gap in the literature. This study fills this gap through the effect of IC that contributes to the long-term economic performance of businesses.

The objectives of this research are aligned with the KBV theory because this theory emphasizes that knowledge is the most strategically significant asset of businesses for achieving long-term financial goals (Amaya et al., 2024). KBV theory claims that firms that efficiently generate and manage intangible resources are better positioned in the market to innovate, adapt, and grow over time (Satar et al., 2025). IC is an intangible asset (e.g., employee expertise, organizational systems, and customer relationships), which is directly linked with KBV theory (Zheng et al., 2024). This theory helps in understanding how IC and its components act as a strategic resource for long-term financial success. This theory is useful in addressing the central research question of whether and how IC enhances the SFG of firms. It is an analytical approach to investigate how intangible assets, like as IC, are not utilized in traditional financial models, can be leveraged for enduring performance. In the context of Pakistani non-financial firms, KBV offers a base for assessing the strategic role of IC in navigating complex market challenges and sustaining financial progress over time for firms.

This study is relevant to Pakistan’s non-financial sectors, which significantly contribute to the country's GDP but also continue to struggle with structural inefficiencies, limited innovation, and inconsistent financial performance (Naeem et al., 2025). According to Asghar et al. (2020), financial institutions operate under strict regulatory frameworks and often possess more structured financial strategies. So this study is relevant to the non-financial firms that frequently lack formal mechanisms to harness intangible. As time, countries should move towards greater economic liberalization and digital transformation because the effective utilization of IC becomes essential for these firms to remain competitive and ensure long-term growth in the market. Moreover, Pakistan's economy is increasing day by day, making it an ideal environment to investigate how knowledge-based resources influence sustainable financial outcomes in environments marked by volatility, resource constraints, and rapid market evolution (Shahbaz et al., 2025). Through this, our study provides insights into how strategic investment in IC can strengthen resilience, improve adaptability, and promote SFG.

Our empirical research used a quantitative research design and secondary data of 125 non-financial firms listed on the PSX from 2016 to 2024. IC is measured through the MVAIC method, which consists of HCE, SCE, RCE, and CEE. The SFG is measured through a composite index of four financial ratios (profitability, operating capacity, solvency, and development ability) that reflect long-term financial stability and performance. To increase the strength of the model, control variables such as firm size, firm age, and long-term debt to total assets are included, as these variables influence SFG. The study used

panel data techniques. Hausman test shows that the random effect is suitable for analysis. This methodological approach ensures a rigorous investigation into how knowledge-based resources drive the sustainable growth of non-financial firms in Pakistan.

This study makes several contributions to the literature. Firstly, this study contributes to shifting the focus from short-term financial performance to SFG in the context of IC, particularly within the Pakistani non-financial firms. Secondly, this study used the KBV theory, but earlier studies employed different theories to check the relationship between IC and short-term financial performance. Thirdly, this study used the MVAIC method, which focuses on RC. The findings of this study have important implications for stakeholders (managers, policymakers, and investors) of businesses to emphasize the need to invest in and manage intangible resources such as IC. This study also recommends that practitioners integrate IC into strategic planning to ensure sustained competitiveness and growth. Policymakers recognize the importance of creating supportive environments that encourage knowledge development and innovation, especially in developing countries. Ultimately, our study promotes a deeper understanding of how IC can enhance financial sustainability in resource-constrained economies.

The remaining paper is organized as follows: Section two presents a literature review, Section three discusses methodology, Section four presents' results, and while last section five, presents the conclusion of the study.

Literature Review

Theoretical Framework

Prior studies (Farooq & Ahmad, 2023; Ali et al., 2022; Ahmad, 2024; Farooq et al., 2025) used several theories to explain the IC relationship with firm performance, including the Resource-Based View (RBV), Stakeholder Theory, and Signaling Theory. While these theories offer valuable insights, they often emphasize the firm's internal or external signaling without fully capturing the knowledge-driven nature of intangible assets (Naeem et al., 2024). Among them, the KBV emerges as a more fitting theoretical lens, especially when exploring the strategic role of IC. KBV extends RBV by asserting that knowledge is the most critical and unique resource for achieving sustainable competitive advantage (Pereira & Bamel, 2021). Prior researches that focus on the IC effect on short-term FP and neglects how firms can translate intangible resources into long-term financial performance. KBV theory addresses these issues by conceptualizing IC as an integrated system of knowledge components (HC, SC, and RC) that collectively contribute to innovation, adaptability, and strategic renewal. Thus, KBV theory is aligned with the objectives of this study, which is to investigate how knowledge-based assets drive financial sustainability. According to Khalil et al. (2024), SFG is the firm's ability to continuously improve and maintain financial performance. The KBV theory also supports the notion that businesses equipped with effective IC can better adapt to market changes and achieve competitive advantages. Therefore, this study aligns its theoretical framework with its practical objective.

Hypotheses Development

Human Capital and Sustainable Financial Growth

HC represents the skills, competencies, creativity, and experience of employees, and it has been widely recognized as a strategic asset that drives innovation, productivity, and adaptability (Thatrak, 2021). Numerous studies (Liu, 2025; Mustafa & Lleshi, 2024) affirm that firms with highly skilled and continuously trained employees tend to outperform their peers in both operational efficiency and long-term value creation. HC plays a foundational role by enabling firms to identify new market opportunities, improve internal processes, and respond swiftly to environmental changes (Shi, 2024). However, critical gaps remain in how firms, particularly in developing countries like Pakistan, harness and retain talent to drive sustainable outcomes. While HC positively correlates with short-term performance in many empirical studies, fewer studies (Farooq & Ahmad, 2023; Mustafa & Lleshi, 2024; Ahmad, 2024; Farooq et al., 2025; Liu, 2025) have addressed its long-term impact on financial sustainability. Moreover, HC's effectiveness depends heavily on organizational culture, leadership support, and investment in learning, which are often lacking in non-financial sectors of emerging economies (Leonidou et al., 2024). Therefore, while HC has clear potential to influence SFG, its contribution is contingent on how well firms align human development with strategic goals. So, based on the above literature following hypothesis is formulated.

H1: Human capital has effects on sustainable financial growth.

Structural Capital and Sustainable Financial Growth

SC includes the organizational routines, databases, intellectual property, and culture that support employees' productivity and organizational efficiency (Ali et al., 2022). It acts as the internal backbone that enables HC to function effectively. Kantaros et al. (2025) argue that firms with robust SC are better positioned to achieve consistent performance due to well-documented procedures, advanced IT infrastructure, and innovation-enabling environments. According to Oshilalu, (2024), SC contributes to institutionalizing knowledge, reducing operational inefficiencies, and enhancing scalability, all of which are vital for long-term growth. However, despite these benefits, the literature points to a critical concern: SC's value is not automatic. In many firms, especially in Pakistan's non-financial sector, underinvestment in systems, poor organizational memory, and lack of innovation frameworks can neutralize SC's potential. Furthermore, overly rigid structures can hinder flexibility, leading to a paradox where SC becomes a bottleneck rather than an enabler (Katic & Agarwal, 2018). Thus, SC can increase SFG its effectiveness, which depends on the firm's ability to balance stability with agility and continuous improvement. Thus, based on the above literature following hypothesis is formulated.

H2: Structural capital has effects on sustainable financial growth.

Relational Capital and Sustainable Financial Growth

RC is the value derived from a firm's relationships with external stakeholders (e.g., customers, suppliers, investors, and regulators) (Firmansyah & Ardi, 2020). RC is critical for market access, customer retention, and brand loyalty, all of which are essential for generating stable revenue streams over time. Ali et al. (2022) suggest a strong positive link between RC and firm performance, particularly through enhanced customer satisfaction and reduced transaction costs. RC supports financial stability by fostering

trust and long-term partnerships, enabling firms to navigate market uncertainties more effectively (Naeem et al., 2024). According to Anser et al. (2024) that over-reliance on informal relationships and weak institutional frameworks, as seen in many emerging markets, may make RC vulnerable to political and economic shifts. In Pakistan, where relationship-based business practices are common, firms may fail to institutionalize these relationships into formal knowledge systems, reducing their strategic impact (Mehralian et al., 2024). Therefore, while RC is undeniably valuable for SFG, its sustainability depends on transparency, formalization, and ethical engagement with stakeholders. So, based on the above literature following hypothesis is formulated.

H3: Relational capital has effects on sustainable financial growth.

Capital Employed Efficiency and Sustainable Financial Growth

CEE measures how efficiently a firm utilizes both tangible and intangible resources to create value (Dancaková & Glova, 2024). CEE has gained importance as a proxy for operational efficiency and strategic alignment. A high CEE indicates that the firm is generating greater value from its available capital, which is a key prerequisite for SFG (Ahmad, 2024). According to Prasad and Mondal, (2025) report a significant positive relationship between CEE and firm performance. Efficient capital deployment helps firms optimize costs, improve return on investment, and mitigate financial risks, especially crucial in volatile markets like Pakistan (Naeem et al., 2024). However, CEE alone cannot drive sustainability unless it is supported by investments in innovation, human development, and stakeholder engagement. Moreover, some critics argue that short-term profits influence CEE and do not fully capture strategic reinvestments or long-term capacity building. Hence, while CEE is an important driver of SFG, its effectiveness increases when combined with a holistic IC strategy. So, based on the above literature following hypothesis is formulated.

H4: Capital employed affects sustainable financial growth.

Research Methodology

Research Design and Approach

This study employs a quantitative research design, secondary and panel data based in **a** positivist paradigm in Pakistani non-financial firms.

Data Collection and Sample

The data is collected from the annual reports of non-financial firms listed on the PSX over nine years (2016–2024). A total of 125 firms were selected through purposive sampling, ensuring representation across various non-financial sectors such as manufacturing, energy, services, and industrial products. Financial institutions were excluded due to their distinct regulatory frameworks and financial structures.

Measurement of Variables

Independent Variable: Intellectual Capital

IC is measured using the MVAIC, which includes:

a) Human Capital Efficiency: VA/HC

HCE is the amount of value-added generated per employee invested in monetary units.

Value Added: VA is value added to the firms, measured as;

VA = OUTPUT – INPUT

The output is net sales, and the input is total expenses, like operating profit + employee

expenses + depreciation + amortization.

b) Structural Capital Efficiency: SC/VA.

SC= VA-HC

c) Relational Capital Efficiency: RC/VA.

RC is the sum of marketing, selling, promotion, and donations.

d) Capital Employed Efficiency: VA/CE.

Capital employed is the difference between total assets and intangible assets.

MVAIC = HCE + SCE + RCE + CEE

Dependent Variable: Sustainable Financial Growth

SFG is captured through an index of four financial ratios (profitability, operating capacity, solvency, and development ability) reflecting long-term financial stability:

1. **Profitability**
   a) ROA= Total income / Total assets
   b) ROE= Earnings available for common shareholders / Shareholders' Equity (TA-TL)
2. **Operating capacity**
   a) Total Assets Turnover = Operating Income / Total Assets
   b) Account Receivable Turnover = Operating Income / Account Receivable
3. **Solvency**
   a) Current Ratio = Current Assets / Current Liabilities
   b) Quick Ratio = (Current Assets – Inventory) / Current Liabilities
   c) Cash Ratio = Cash and Cash Equivalents / Current Liabilities
4. **Development Abilities**
   a) Total Assets growth rate = (End of year total assets – total assets at the beginning) / total assets at the beginning
   b) Net Assets growth rate = (End of year net assets – net assets at the beginning) / net assets at the beginning

Control Variables

a) Firm size: Measured by the natural log of total assets.
b) Firm age: Measured by the years since the firm's incorporation.
c) Long-term debt to total assets: Measured by the Proportion of long-term debt over total assets

Econometric Model

The following econometric model is proposed to assess the relationship between IC and SFG:

$$SFGit = \beta o + \beta 1HCEit + \beta 2SCEit + \beta 3RCEit + \beta 4CEEit + \beta 5FSizeit + \beta 6Fageit + \beta 7LTDTAit + €it$$

Where:

SFG_{it}= Sustainable Financial Growth
HCE_{it}= Human Capital Efficiency
SCE_{it}= Structural Capital Efficiency
RCE_{it}= Relational Capital Efficiency
CEE_{it}= Capital Employed Efficiency
$FSize_{it}$ = Size of the firm
$Fage_{it}$ = Age of the firm

$LTDTA_{it}$ = *Long-term debt to total assets*
i = Firm
t = time
β_0 = *Constant value*
ϵ_{it} = *Error term.*

Results

Descriptive Result

The descriptive statistics in Table I provide an overview of the variables. The mean value of SFG is slightly negative at -0.03 with a standard deviation of 0.39, indicating that while most firms hover around low to moderate financial growth. HCE has a relatively high average of 3.87, suggesting that firms are investing significantly in HC. SCE and RCE show lower means (0.63 and 0.13, respectively), indicating that firms are underutilizing their internal processes and external relationships. CEE also has a modest average (0.40), pointing to room for improvement in converting capital into value-added output. FS has 6.87 men value while firm age has 37.01 men value. The LTDTA has a 0.39 mean value.

Table I: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
SFG	1125	-0.03	0.39	-0.52	6.57
HCE	1125	3.87	1.56	0.49	12.09
SCE	1125	0.63	0.23	-0.45	0.89
RCE	1125	0.13	0.15	0.07	0.72
CEE	1125	0.40	0.27	0.13	1.39
FS	1125	6.87	0.49	3.89	7.69
Fage	1125	37.01	13.17	9	87
LTDTA	1125	0.39	0.19	0.10	0.78

Source: Authors' Work

Correlation Result

Table II presents the correlation result of the dependent and control variables. All the values are less than 0.70, so multicollinearity does not exist in this dataset.

Table II: Correlation Matrix

Variables	HCE	SCE	RCE	CEE	FS	Fage	LTDTA
HCE	1						
SCE	0.39	1					
RCE	0.32	0.39	1				
CEE	0.45	0.34	0.39	1			
FS	0.20	0.19	0.21	0.20	1		
Fage	0.29	0.11	0.17	0.27	0.43	1	
LTDTA	-0.10	0.09	-0.11	-0.13	0.30	-0.29	1

Source: Authors' work

Regression Result

Table III presents the results of the Hausman test, which helps determine the appropriate panel regression model. The test reports a p-value of 0.09 for the main model because the p-value is greater than the threshold of 0.05. It means that the Random Effects model is appropriate for this analysis.

The positive and statistically significant impact of HCE on SFG confirms that investments in employees' skills, experience, and creativity lead to improved long-term financial performance. This result aligns with Ali et al. (2022), which emphasized the role of HC in organizational competitiveness and knowledge creation. From a KBV perspective, HC forms the foundation of firm knowledge, innovation, and learning, all of which are central to sustaining financial outcomes over time. Hence, these findings validate the theoretical proposition that knowledge embedded in people enhances the firm's ability to adapt and grow sustainably.

SCE also shows a positive and marginally significant relationship with SFG, suggesting that supportive organizational structures, systems, and processes moderately contribute to sustainable financial outcomes. This supports the arguments of Anser et al. (2024), who assert that structural mechanisms enhance the productivity of HC. The result implies that while structural resources such as IT systems and standardized processes are important, they must be continuously updated to remain effective. According to the KBV, structural capital is a repository of organizational routines and knowledge that supports the diffusion and reuse of intellectual assets, making it a key enabler of long-term performance when effectively aligned with human capabilities.

RCE demonstrates the strongest positive effect among all IC components, indicating that relationships with customers, suppliers, and other stakeholders are crucial for sustaining financial performance. This finding is consistent with Naeem et al. (2024), who highlighted the strategic importance of customer loyalty and trust. In the Pakistani context, where personal and institutional relationships significantly influence market dynamics, the high coefficient of RCE emphasizes its value. The KBV supports this as well, suggesting that valuable external relationships form part of the firm's extended knowledge base and play a critical role in resource acquisition, innovation diffusion, and resilience in uncertain markets.

CEE has a positive and significant impact on SFG, indicating that efficient utilization of physical and financial capital contributes to long-term financial sustainability. This echoes findings from Farooq and Ahmad, (2023), who found that firms optimizing capital efficiency often achieve higher performance. In KBV terms, CEE complements IC by demonstrating how well tangible resources are aligned with intangible knowledge processes. Efficient capital allocation, when guided by knowledge and strategic insight, ensures that firms are financially agile and strategically resilient.

The positive and significant coefficient for firm size suggests that larger firms tend to enjoy more sustainable financial growth. This may be due to economies of scale, better access to resources, and mature internal systems. Larger firms may also have more capacity to invest in and benefit from IC components. Firm age also shows a weak but significant positive relationship with SFG. Older firms may benefit from accumulated

experience, established market reputation, and long-standing customer relations. However, this also implies the importance of legacy knowledge, consistent with the KBV's emphasis on organizational learning over time. Although LTDTA has a negative coefficient, its effect is statistically insignificant. This suggests that long-term debt does not play a major role in shaping sustainable financial growth in this sample. The result may indicate that IC-driven growth relies more on internal capabilities than on external financing, supporting the KBV view that knowledge resources, rather than financial leverage, are the key drivers of sustained advantage.

Table III: Hausman test

Variables	SFG	SFG (Robustness)
Chi2(6)	20.19	1.32
Prob>chi2	0.09	0.001
Model	Random effect	Fixed effect

Source: Authors' own work

Table IV: Regression Results

Variables	SFG
HCE	0.059**
	(0.201)
SCE	0.039*
	(0.187)
RCE	0.431**
	(0.247)
CEE	0.130**
	(0.799)
FS	0.139**
	(0.293)
Fage	0.029*
	(0.020)
LTDTA	-0.059
	(0.029)
Constant	1.09**
	(0.595)
Model	**Random effect**
Obs.	1125
R-squared	0.27
No. of coid	125

Source: Authors' Work

Robustness Result

The robustness regression results in Table V confirm the positive and significant relationship between IC and SFG, with IC showing a strong effect. FS and Fage also positively influence SFG, indicating that larger and older firms are better positioned to convert intellectual resources into long-term financial sustainability. LTDTA, though negative, remains statistically insignificant, reinforcing the idea that knowledge assets rather than financial leverage drive sustainable growth. The fixed effects model, with an

R-squared of 0.25, further supports the internal validity of the findings by controlling for firm-specific heterogeneity across time.

Table V: Regression results (Robustness)

Variables	SFG
IC	0.071***
	(0.329)
FS	0.236**
	(0.197)
Fage	0.035*
	(0.013)
LTDTA	-0.060
	(0.030)
Constant	1.31**
	(0.679)
Model	**Fixed effect**
Obs.	1125
R-squared	0.25
No. of coid	125

Source: Authors' work

Conclusion

This study examined the impact of IC on SFG among non-financial firms listed on the PSX over the period 2016 to 2024. Drawing upon the KBV, the research employed the MVAIC to assess the efficiency of human, structural, relational, and capital employed components of IC. Using panel data regression techniques on a sample of 125 firms and 1125 observations, the results confirmed that all four dimensions of IC significantly contribute to SFG, with RC showing the significant effect. FS and Fage also positively influenced SFG, whereas LTDTA had no significant impact. These findings validate that knowledge assets are essential for long-term financial stability and performance in emerging economies like Pakistan.

This research contributes to the growing body of IC literature by shifting the focus from traditional financial performance to the broader and more strategic dimension of SFG. Most prior studies emphasized short-term profitability metrics; however, this study introduces a composite index of long-term growth ratios (ROA, ROE, EPS, and revenue growth) as a more holistic performance measure. Additionally, it strengthens the theoretical linkage between KBV and SFG by empirically showing that intangible knowledge resources form the basis for sustained financial progress. This study also extends Pulic's VAIC framework by incorporating RC, which is often underexplored in developing country contexts. By doing so, it provides a more complete and practical model for assessing the value-generating potential of IC.

The findings offer practical implications for managers, policymakers, and stakeholders within the Pakistani corporate sector. Firms should prioritize investments in employee development, technology systems, and stakeholder relationships to enhance their IC and, in turn, their financial sustainability. Boards and corporate strategists must view IC as a strategic asset rather than a cost center. Policymakers and regulators can

also benefit by formulating frameworks that encourage transparent reporting and the development of intangible resources across industries. In addition, investors looking for long-term value creation may consider IC disclosures as key indicators of a firm's growth potential. Overall, the study underscores the importance of knowledge-driven strategies in achieving economic resilience and competitiveness.

Despite its valuable contributions, this study has several limitations. First, it relies on secondary data extracted from financial statements, which may not fully capture the qualitative dimensions of IC, such as innovation capability or employee engagement. Second, the scope is limited to non-financial firms in Pakistan, which may restrict the generalizability of results to other sectors or countries. Future research could expand the model by incorporating mediating or moderating variables such as innovation or digital transformation to explore the indirect effects of IC on SFG. Additionally, qualitative or mixed-method studies could offer deeper insights into how intellectual capital is managed and developed within firms. Exploring cross-country comparisons would also provide a broader perspective on how cultural, institutional, and economic factors shape the IC and SFG relationship globally.

Reference

Ahmad, F. (2024). The relationship between intellectual capital, financial stability, firm performance, market value, and bankruptcy risk: Empirical evidence from Pakistan. *Journal of the Knowledge Economy*, 1-49.

Ahsan, T., Mirza, S. S., Al-Gamrh, B., Bin-Feng, C., & Rao, Z. U. R. (2021). How to deal with policy uncertainty to attain sustainable growth: the role of corporate governance. *Corporate Governance: The International Journal of Business in Society*, 21(1), 78-91.

Ali, S., Murtaza, G., Hedvicakova, M., Jiang, J., & Naeem, M. (2022). Intellectual capital and financial performance: A comparative study. *Frontiers in Psychology*, *13*, 967820.

Amaya, N., Bernal-Torres, C. A., Nicolás-Rojas, Y. W., & Pando-Ezcurra, T. T. (2024). Role of internal resources on the competitive advantage building in a knowledge-intensive organisation in an emerging market. *VINE Journal of Information and Knowledge Management Systems*, *54*(5), 1153-1169.

Anser, M. K., Naeem, M., Ali, S., Huizhen, W., & Farooq, S. (2024). From knowledge to profit: business reputation as a mediator in the impact of green intellectual capital on business performance. *Journal of Intellectual Capital*, *25*(5/6), 1133-1153.

Asghar, B., Wasim, A., Qazi, U., & Rasool, A. (2020). Financial and non-financial practices driving sustainable firm performance: Evidence from banking sector of developing countries. *Sustainability*, *12*(15), 6164.

Dancaková, D., & Glova, J. (2024). The Impact of Value-Added Intellectual Capital on Corporate Performance: Cross-Sector Evidence. *Risks*, *12*(10), 151.

Farooq, M., Nawaz Saleem, H. M., Al-Jabri, Q., & Nazir, M. A. (2025). Corporate social responsibility and firm financial performance: the role of intellectual capital. *Journal of Accounting in Emerging Economies*.

Firmansyah, A., & Ardi, A. K. (2020). Related party transactions, supply chain and cost management on firm's value: Evidence from Indonesia. *International Journal of Supply Chain Management*, *9*(3), 1201-1209.

Kantaros, A., Zacharia, P., Drosos, C., Papoutsidakis, M., Pallis, E., & Ganetsos, T. (2025). Smart Infrastructure and Additive Manufacturing: Synergies, Advantages, and Limitations. *Applied Sciences*, *15*(7), 3719.

Katic, M., & Agarwal, R. (2018). The Flexibility paradox: Achieving ambidexterity in high-variety, low-volume manufacturing. *Global Journal of Flexible Systems Management*, *19*, 69-86.

Khalil, M. A., Khalil, S., & Sinliamthong, P. (2024). From ratings to resilience: The role and implications of environmental, social, and governance (ESG) performance in corporate solvency. *Sustainable Futures*, *8*, 100304.

Leonidou, E., Battisti, E., Ahmad, M. I., & Campo, R. (2024). Financial and non-financial factors for the success of hybrid offerings: evidence from multinational enterprises in an emerging market. *International Marketing Review*, *41*(3/4), 827-846.

Liu, S. (2025). Green management promotes long-term business competitive advantage through the resource-based view. *Total Quality Management & Business Excellence*, 1-28.

Mehralian, G., Farzaneh, M., Yousefi, N., & Haloub, R. (2024). Driving new product development performance: Intellectual capital antecedents and the moderating role of innovation culture. *Journal of Innovation & Knowledge*, *9*(3), 100503.

Mustafa, B., & Lleshi, S. (2024). The impact of lifelong learning and investments in employee development on employee productivity and performance. *Multidisciplinary Reviews*, *7*(8), 2024175-2024175.

Naeem, M., Ali, S., Islam, M., & Rehman, A. (2024). Does Intellectual Capital mediate the relationship of Artificial Intelligence Investment, and Firm Value in Pakistani Non-Financial Firms?. *NICE Research Journal*, *17*(3), 63-76.

Naeem, M., Memon, S., Salman, M., Mehboob, A., Fatima, A., & Rehman, A. (2025). Transformational Leadership and Operational Efficiency in Industry 4.0: The Mediating Role of Digitalization through the Lens of Dynamic Capabilities Theory. *Asian Journal of Economics, Finance and Management*, *7*(1), 240-251.

Oshilalu, A. Z. (2024). Sustainability meets scalability: transforming energy infrastructure projects into economic catalysts through supply chain innovation. *International Journal of Research Publication and Reviews*, *5*(12), 762-779.

Pereira, V., & Bamel, U. (2021). Extending the resource and knowledge based view: A critical analysis into its theoretical evolution and future research directions. *Journal of Business Research*, *132*, 557-570.

Prasad, R., & Mondal, A. (2025). Does intellectual capital impact the financial performance of Indian-listed SMEs? Evidence from GMM estimation. *International Journal of Learning and Intellectual Capital*, *22*(1), 5-28.

Satar, A., Musadieq, M. A., Hutahayan, B., & Solimun, S. (2025). Creating a sustainable competitive advantage: the roles of technological innovation, knowledge management, and organizational agility. *Global Business and Organizational Excellence*, *44*(3), 11-23.

Shahbaz, M. H., Ahmad, S., & Malik, S. A. (2025). Green intellectual capital heading towards green innovation and environmental performance: assessing the moderating effect of green creativity in SMEs of Pakistan. *International Journal of Innovation*

Science, *17*(3), 683-704.

Shi, J. (2024). Adaptive change: Emerging economy enterprises respond to the international business environment challenge. *Technovation*, *133*, 102998.

Simanjuntak, R. (2024). Navigating the Dynamics of Corporate Financial Management for Sustainable Growth. *Advances in Economics & Financial Studies*, *2*(2), 53-66.

Thatrak, D. (2021). Human capital orientation, employee creativity development, organizational innovation capabilities, and outstanding performance of SMEs businesses in thailand. *International Journal of Economics and Business Administration*, *9*(2), 126-142.

Yuen, S. S., & Lam, H. Y. (2024). Enhancing competitiveness through Strategic Knowledge sharing as a driver of Innovation Capability and Performance. *Sustainability*, *16*(6), 2460.

Zheng, G., Haq, M. Z. U., Huo, B., Zhang, Y., & Yue, X. (2024). Leveraging intellectual capital for building a supply chain circular economy system: A knowledge-based view. *International Journal of Production Economics*, *272*, 109225.