Bulletin of Business and Economics, 13(3), 197-202
https://bbejournal.com
https://doi.org/10.61506/01.00469

Assessing the Connection between Intellectual Capital and Financial Success in Islamic Banking: Empirical Analysis

Dr. Farah Yasser[1], Dr. Ghulam Murtaza Lahbar[2], Dua Ali[3], Ali Raza Zaidi[4]

Abstract
Intellectual capital (I.C.) and other intangible assets have changed the modern economy, especially knowledge-intensive fields like banking. Utilizing the VAIC model, the study examines the correlation between financial performance and I.C. efficiency in Islamic institutions in Pakistan. This research fills a void in the literature regarding Islamic banking's role in improving financial performance by concentrating on Islamic banking's distinctive context governed via Shariah-compliant principles. The research sample includes 11 Islamic banks; more studies evaluate I.C. components and banks' financial performance through AMOS software. The findings suggest that greater I.C. efficiency, mainly through human and structural capital, positively impacts financial outcomes, offering insights into how Islamic banks optimize intangible assets to enhance financial performance. This research helps banks improve economic competitiveness and sustainability, centred on knowledge and recognition of Islamic banking I.C.'s strategic position.
Keywords: Intellectual capital, HCE, CEE, SCE, Islamic banking, financial performance

1. Introduction

Modern organizations endeavour to cultivate intellectual capital to enhance competitiveness and cultivate capacity building through a positive financial image. Today's economy increasingly focuses on intangibles, i.e. intellectual capital (Xu & Li, 2022). However, financial statements often need to adequately report I.C. as a significant portion of an organization's value (Soewarno & Tjahjadi, 2020). According to Khattak & Shah (2020), firms with high I.C. appear more valuable in recent years, potentially leading to gaining a competitive advantage. As the economy shifts toward knowledge-based industries, the creation and management of I.C. have become critical for achieving financial performance and growth objectives. Welly et al. (2021) describe I.C., which includes knowledge, experience, brands, systems, and human resources, as a vital asset for supporting firm value creation and could significantly enhance corporate wealth.

Various international organizations have been established to improve the understanding and reporting of I.C. For example, most global firms have highlighted the importance of growing unrecognized intangible assets in financial reporting, emphasizing total contribution towards competitive capacity and sustainability (De Villiers & Sharma, 2020). Despite integrating I.C.'s numerous challenges into mainstream asset reporting, its importance is increasingly recognized, particularly in the context of sustainable business practices. Efficient I.C. management is crucial for long-term competitive advantage, especially in service industries like banking, which rely heavily on knowledge and skilled human resources (Alvino et al., 2021).

Intangible asset investment significantly contributes to the conventional banking system, but the Islamic banking sector still needs to be explored (Vo & Tran, 2021). Studies have demonstrated that I.C. efficiency improves businesses' financial performance, including banking (Maside-Sanfiz et al., 2024). However, few studies focused on I.C.'s unique aspects in Islamic banks (Nawaz et al., 2021). This study measures I.C. efficiency within Pakistan using the VAIC model and explores the relations between I.C. efficiency and financial performance. Existing studies contribute to the literature for the following reasons. First, the study explores I.C. in Islamic banks, offering a unique viewpoint by applying the I.C. framework to institutions governed by ethical and religious principles, which have been under-researched compared to conventional banks. Second, empirical evidence of a robust positive association between I.C. elements (i.e. structural, human, relational capital) and Islamic banking financial performance indicators, i.e. return on assets (ROA). Third, it highlights human capital's critical significance in Islamic banks, where skilled and knowledgeable employees are essential for ensuring both Sharia law compliance and improved financial performance (Hassan et al., 2023). Fourth, Structural capital, including internal processes and innovation, improves profit efficiency, while relational capital strengthens customer trust and loyalty, leading to long-term profitability. Fifth, the study employs VAIC techniques that provide practical, quantifiable tools for measuring intellectual capital in Islamic banks, which could be utilized in future research and performance evaluations. Lastly, it offers actionable insights for Islamic bank managers, emphasizing intellectual capital investment for boosting both ethical adherence and financial success.

2. Literature Review

A solid and healthy financial system has drastically grown intellectual capital. Better intellectual capital understanding likely drives organizational performance efficiently (Xu & Liu, 2020). Additionally, this research has enabled organizations to better manage and leverage their I.C. Several articles in global literature investigate I.C.'s influence on better market value, performance, and competitiveness.

[1] Assistant professor, Dr. Hasan Murad School of Management, University of Management and Technology, Lahore, Pakistan, farah.yasser@umt.edu.pk
[2] Assistant Professor, Benazir School of Business, Benazir Bhutto Shaheed University, Lyari, Karachi, Pakistan, gmlahbar@yahoo.com
[3] MS Scholar, Bahria University Islamabad, Pakistan, dua.globian@gmail.com
[4] Department of Business Administration, Government College University, Hyderabad, Pakistan, ali.zaidi@gcuh.edu.pk

Several accounting models and frameworks have been developed to measure I.C., including methods that assess market capitalization, firm performance, and scorecards (Saddam & Jaafar, 2021). The increasing number of these frameworks reflects the growing importance of I.C. in accurately representing a company's market value in financial reports. Comparing asset returns across different organizations using traditional financial statements (balance sheets and income statements) obscures the importance of I.C. as a criterion for assessing corporate success. Over the past three decades, more innovative methods for measuring I.C. have been introduced, such as VAIC, human resource accounting, economic value added (EVA), etc.

While many studies focused on I.C. efficiency and financial performance in various regions (Xu & Li, 2022; Welly et al., 2021; Vo & Tran, 2021), only a few have examined I.C.-related issues in Asian countries like Pakistan (Khattak & Shah, 2020). These studies have explored topics such as I.C. disclosure, I.C. performance determinants, and relation via I.C. performance efficiency and financial performance (Akram et al., 2023). For instance, research in Pakistani's banking sector found that I.C. disclosure was primarily discursive, with human capital (H.C.) being the most reported category. Studies in other Middle-East countries identified factors like information technology investment, entry barriers, and size of banks as significant determinants of I.C. performance. Although research on Islamic financial institutions, particularly Islamic banks, is relatively scarce (Haris et al., 2019), existing studies have shown that these banks also efficiently utilize their I.C. resources, particularly in human capital efficiency, which tends to be higher than structural and employed capital efficiencies (Asghar et al., 2023) Human capital has significantly influenced I.C. and overall performance in Islamic financial institutions. For instance, prior research highlighted human capital importance and driving banks' performance (Hamzah et al., 2021). These results indicate that banks must invest in their employees and assets to improve performance.

Additionally, banks should focus on developing their human capital to stay competitive. An existing literature review indicates that I.C. significantly impacts Islamic banks' financial performance. However, research in Pakistan, despite its concentration of Islamic banks, still needs to be improved. Hence, more research is needed to understand Islamic banks' I.C. and financial performance better. The Islamic banking industry should also consider investing in its I.C. to remain competitive.

2.1. Hypotheses Development

Resource-based theory suggests companies achieve sustainable competitive advantage by optimizing tangible and intangible assets (Kamasak, 2017). Likewise, these assets should possess qualities that make them valuable, rare, inimitable, and nonadjustable. Intellectual capital (I.C.) is considered a strategic resource within this framework, as its efficient use can provide firms with a competitive edge. Although some research treats I.C. as a whole, proponents of dissecting it into its parts counter that perspective (Kianto et al., 2020). This study aligns with the latter perspective, considering the I.C. components, i.e. HCE, CEE, and SCE—as distinct constructs.

2.2. I.C. efficiency and performance

The existing study's framework demonstrates that I.C. influences corporate performance, with a direct association between I.C. (measured via VAIC) and financial performance and an individual relation between I.C. and efficient financial performance (Abbasi et al., 2024). I.C. has grown in importance, particularly in knowledge-intensive sectors like banking, where I.C. and physical capital provide more essential value (Saddam & Jaafar, 2021). Research has linked I.C. to competitive advantage, suggesting firms with higher I.C. likely enhance financial performance. Therefore, it proposed that:

H1 Greater I.C. (VAIC) is linked to enhancing bank financial performance

2.3. CEE & financial performance

Capital employed efficiency (CEE) is another critical factor in creating value, as it combines I.C. (financial/non-financial assets) for firm success. Some studies have found CEE to have a positive impact on financial performance, though results have varied across different regions (Hamzah et al., 2021). The study hypothesizes that Islamic banks with higher CEE will also show enhanced financial performance.

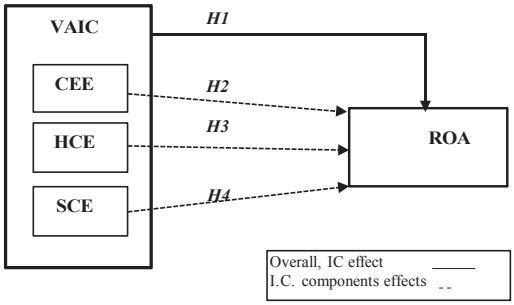

Figure 1: Theoretical framework

H2. Islamic banks with higher CEE typically exhibit enhanced financial performance

Investors often evaluate firms based on H.C. information, which helps create value. The relevance of Shariah knowledge makes employee knowledge, abilities, and experiences valuable in Islamic banking (Hamzah et al., 2021). hence, the existing study hypothesizes that Islamic banks with greater HCE would achieve better financial performance.

H3: Higher HCE is associated with developed Islamic bank's financial performance

S.C. stipulate the environment necessary for knowledge creation and innovation. A strong S.C. supports an innovative organizational culture, which can significantly impact performance (Kianto et al., 2020). For Islamic banks, S.C. is vital for

fostering innovation in Islamic products, which can enhance firm value. Therefore, the study hypothesizes that Islamic banks with greater SCE will have better financial performance.
H4. Higher SCE is associated with higher Islamic bank's financial performance

3. Research method

3.1. Sample and data collection

Islamic banks with operations in Pakistan made up the research sample. Pakistani full-fledged Islamic banks were included. After eliminating banks that lacked necessary information, 18 Islamic banks were found for data collection; as shown in Table I, the study sample consisted of 11 Islamic banks, and 195 study samples were considered. Three years of the study period, from 2021 to 2023, were examined. Due to the limited number of Islamic banks, the study's sample size increased data collection spanning three months.

Table 1: Selected Bank

S.No:	Pakistan Selected Islamic Banks
1	Bank Islami
2	Al Baraka
3	Dubai Islamic
4	MCB Islamic
5	Faysal
6	Habib
7	United Bank
8	Askari
9	Standard Chartered
10	Summit Bank

3.2. Dependent variables

Profitability is used in this study as a stand-in for performance. In the models, it stands in for the dependent variable. ROA = operational income/total assets are the two financial performance proxies used to quantify it.

3.3. Independent variables

This research assesses intellectual capital (I.C.) using the VAIC model as the independent variable. The model considers the company's value as comprised of capital employed (C.E.), including financial, physical, and intellectual capital. I.C. itself consists of HCE, SCE, and CEE. Hence, the VAIC model offers more insights and value-creation efficiency via company I.C. This analytical process is designed to help stakeholders, such as shareholders, manage the company's total capital and resources. However, VAIC is estimated by measuring the company's I.C. coefficient by value-added (V.A.) efficiency, which includes three key efficiency metrics: CEE, HCE, and SCE. However, VAIC is determined by the equation: VAIC=CEE+ HCE+SCE. CEE represents V.A. efficiency by C.E., calculated company's V.A. to C.E. Also, C.E. refers to the company's net assets book value, and CEE measured: CEE=VA/CE. At the same time, V.A. is determined by subtracting inputs from outputs. HCE measured the V.A. ratio to H.C.'s total salary and wages, which was considered an investment. HCE is calculated as VA/HC. SCE measures the V.A. efficiency of S.C., representing the amount required to invest in S.C. to generate V.A. S.C. calculated as a difference among V.A. & H.C. (SCE=SC/VA). The research also includes the control variables, such as leverage and firm size. Leverage is the equity ratio to debt utilized finance assets and measured by dividing total shareholders' equity total liabilities. Firm size is measured by total revenue.

3.4. Regression models

This research assesses intellectual capital (I.C.) using the VAIC model as the independent variable. The model considers a company's value to be comprised of capital employed (C.E.), including financial and physical capital and intellectual capital. Hence, IC itself consists of H.C. and S.C. The VAIC model offers insights into the efficiency of value creation using a company's physical and intellectual resources. This analytical process is designed to help stakeholders assess and manage the efficiency of value-added (V.A.) by a company's total capital and resources, as well as each principal component. The VAIC is calculated by measuring the V.A. efficiency of the company's I.C. coefficient, which includes three key efficiency metrics: CEE, HCE, and SCE on banks' performance.

Moreover, an ordinary least-squares regression model was employed to measure financial performance using VAIC and its components. Models correspond to financial performance metrics, precisely, return on assets (ROA). Models through 4 are designed to assess the impact of VAIC and its three components—CEE, HCE), and SCE—on financial performance. The models are formulated as follows: Regression model evaluate current research as under.

Model-1: $\alpha + \beta 1\ VAIC_{jt} + \beta 2\ Leverage_{jt} + \beta 3\ size + \varepsilon_{jt}$

Model-2: $\alpha + \beta 1\ CEE_{jt} + \beta 2\ Leverage_{jt} + \beta 3\ size + \varepsilon_{jt}$

Model-3 : $\alpha + \beta 1\ HCE_{jt} + \beta 2\ Leverage_{jt} + \beta 3\ size + \varepsilon_{jt}$

Model-4: $\alpha + \beta 1\ SCE_{jt} + \beta 2\ Leverage_{jt} + \beta 3\ size + \varepsilon_{jt}$

Additionally, control variables, such as leverage and firm size, are included in the research. Leverage is the equity ratio to debt utilized for finance assets, measured by dividing liabilities by shareholders' equity. Firm size is measured through total revenue.

4. Results

Table 1 shows descriptive statistics provide variable insights. The table shows CEE has a low mean (0.017) and a median (0.040) slightly higher than the mean, indicating a skewed distribution with skewness of -2.387 and high kurtosis (10.006), suggesting extreme values. Human Capital Efficiency (HCE) shows a high mean (3.562) and a lower median (2.979), with right skewness (0.837) and large variability (S.D. = 11.152), indicating a few firms with much higher HCE. SCE has a mean of 0.852 and a median close to the mean (0.875), with low skewness (0.185) and relatively high kurtosis (9.337), suggesting extreme values in its distribution. VAIC (Value Added Intellectual Coefficient) shows a mean of 4.398 with high variability (S.D. = 11.332) and moderate right skewness (0.793), indicating a few firms with higher VAIC. Firm size has a mean of 172,050 and is positively skewed, while leverage has moderate skewness (0.601) and relatively low kurtosis (-0.480). Return on Assets (ROA) has a low mean (0.028) with significant left skewness (-2.878) and high kurtosis (12.112), reflecting a distribution with a few firms showing negative or low ROA.

Table 1: Descriptive Analysis

	(CEE)	(HCE)	(SCE)	(VAIC)	(SIZE)	(LEVERAGE)	(ROA)
Mean	.017	3.562	0.852	4.398	172050.820	3.651	.028
Medium	.040	2.979	0.875	3.697	59121.000	3.441	.007
S.D.	0.285	11.152	0.527	11.332	25366.842	3.316	0.138
Skewness	-2.387	0.837	0.185	0.793	0.793	0.601	-2.878
Kurtosis	10.006	6.337	9.337	6.301	2.874	-0.48012.112	12.112

Table 2: Correlation Coefficient

	1	2	3	4	5	6	7
VAIC	1						
Size	0.268***	1					
Leverage	0.258**	0.279***	1				
ROA	0.607***	0.179	0.283***	1			
CEE	0.204	0.202	0.224**	0.774***	1		
HEC	0.274***	0.274***	0.265***	0.605***	0.736***	1	
SCE	-0.128	-0.128	-0.178	-0.172	-0.169	-0.153	1

The correlation table highlights the relationships between financial metrics and intellectual capital components. VAIC (Value Added Intellectual Coefficient) is strongly correlated with ROA (0.607***) and HCE (0.274***), indicating that higher intellectual capital efficiency is linked to better asset returns and efficient human capital management. However, it shows a weak negative correlation with SCE (-0.128), suggesting an inverse relationship with structural capital efficiency. Firm size has a moderate positive correlation with leverage (0.279***) and VAIC (0.268***), implying that larger firms tend to have higher leverage and intellectual capital efficiency. However, size has weaker correlations with other variables, such as ROA and CEE, showing no significant relationships. Leverage is positively correlated with ROA (0.283***) and HCE (0.265***), suggesting that firms with higher leverage tend to have better asset returns and human capital efficiency. Its correlation with CEE (0.224**) shows that leverage is also linked to more efficient capital use. ROA exhibits strong positive correlations with CEE (0.774***) and HCE (0.605***), meaning that firms with higher asset returns are more efficient in managing both capital employed and human capital. CEE is also positively correlated with HCE (0.736***), indicating that firms excelling in capital-employed efficiency are more effective in managing human capital. However, CEE and SCE show a weak negative correlation (-0.169), suggesting that capital efficiency employed and structural capital do not always align. Finally, HCE shows a weak negative correlation with SCE (-0.153), reinforcing the limited alignment between human and structural capital efficiency. Overall, the data emphasizes that human capital efficiency is key in enhancing asset returns, while larger firms tend to make better use of intellectual capital. However, there is minimal overlap between human and structural capital efficiencies.

Table 3: Regression Analysis

	Coefficient ROA	t-statistic
(Constant)	-0.079	-4.436
VAIC	0.575	6.508
CEE	0.749	10.849***
HCE	0.574	6.458***
SCE	-0.118	-1.151
Leverage	0.140	1.565
Firm Size	-0.015	-1.65
Adj. R2	0.365	
F	18.43***	

The regression analysis reveals several insights into the factors affecting Islamic banks' Return on Assets (ROA). The significant positive coefficients for VAIC (0.575), CEE (0.749), and HCE (0.574) indicate that greater efficiency in intellectual capital, capital employed, and human resources is strongly associated with improved ROA. The high t-statistics for these variables confirm

their substantial impact on financial performance. Conversely, SCE shows a negative coefficient (-0.118) with a non-significant t-statistic, suggesting it does not affect ROA in this sample. Leverage (0.140) and firm size (-0.015) also show positive and negative relationships, respectively, but neither are statistically significant, implying their limited impact on ROA. With an adjusted R^2 of 0.365, the model explains 36.5% of the variance in ROA, indicating moderate explanatory power. The overall significant F-value (18.432) suggests the model is robust, but other factors not included may also influence ROA.

4.1. Discussion of results

The study reveals that Islamic banks in Pakistan exhibit lower levels of intellectual capital (I.C.) efficiency than their counterparts in other Asian countries. This discrepancy should be interpreted cautiously, as it arises from differing regulatory and legal contexts. For example, Pakistan has established itself as a prominent hub for Islamic finance, supported by numerous educational institutions offering extensive programs in Islamic finance. This has led to a well-developed human capital base in the region.

In contrast, while Islamic laws are integrated into daily life in Pakistan, the availability of skilled professionals in Islamic finance is still developing. Pakistan's educational opportunities in Islamic finance are less advanced than those in other Asian countries. Despite these challenges, the study finds that I.C. positively influences the financial performance of Islamic banks in Pakistan.

The analysis indicates that capital employed (C.E.) and human capital (H.C.) significantly impact the financial performance of these banks. However, structural capital (S.C.) does not positively affect financial performance. This highlights that the value creation capacity of Islamic banks largely depends on H.C. and C.E., which is expected given the service-oriented nature of the banking industry. The study also underscores the need for greater focus on S.C. to achieve growth, emphasizing technological knowledge and its maintenance. Moreover, findings offer valuable insights for policymakers, including legislators, and stock exchanges in Pakistan. These insights could inform policy reforms to enhance resource efficiency and Islamic banking performance. Overall, research suggests the need for increased attention to boost I.C.-related financial performance in Islamic banks within Pakistan. It serves as a foundation for further investigation into the role of I.C. in the financial industry.

5. Conclusion

The Islamic banking sector is rapidly expanding, drawing significant interest from researchers across various fields. One of the primary concerns for regulators and managers is identifying the factors that can enhance financial performance. I.C. has been shown to influence the financial performance of both conventional and Islamic banks. Despite this, the topic has yet to be extensively explored. The study contributes to the existing literature by examining I.C. efficiency's impact on Islamic banking financial performance (Harris et al., 2019). The findings reveal that I.C. has a significant positive effect on financial performance. Specifically, C.E. and H.C. are necessary for financial performance, whereas S.C. does not have a significant impact.

Moreover, the implications are relevant for knowledge, practice, and policy-making. From a knowledge perspective, the study enriches the literature by focusing on Islamic banks within the highly concentrated Pakistan market. Practitioners in the Pakistan Islamic banking industry can use these insights to better understand how to leverage I.C. for improved performance and value creation. While C.E. and H.C. are effectively utilized, Islamic banks must develop strategies to optimize S.C.

For policymakers, the study's findings suggest a need for strategic reforms. As Islamic banking in Pakistan aims to diversify its economies and shift towards knowledge-based economies, I.C. will play a crucial role in enhancing firm performance. This is particularly relevant for regulators in countries like Saudi Arabia, as these countries strive to become leading financial hubs for Islamic finance. Moreover, the study does have limitations. Due to data availability issues, it did not include banks from foreign Islamic banks, though including banks in future research could enhance findings.

The research covers only three years; a longer timeframe might yield more comprehensive results. Finally, the reliance on quantitative analysis limits the depth of understanding. Given the rapid evolution of the Pakistan financial markets, incorporating qualitative methods, such as interviews with key decision-makers, could provide a more nuanced perspective on the role of I.C. in the industry.

References

Abbasi, K. A., Shaikh, N. A., Nauman, M., Adnan, A., Asif, N., & Marwat, A. (2024). Green finance: Impact of green finance on green SCM: Mediation impact of Green Innovation. Remittances Review, 9(1), 2425-2448.

Akram, N., Zubair, S. S., Asghar, F., Nishtar, Z., & Lodhi, K. (2023). Public-private partnerships (PPPs) in construction projects: A study on the utilization, effectiveness, and challenges in Pakistan. Bulletin of Business and Economics (BBE), 12(3), 402-409.

Alvino, F., Di Vaio, A., Hassan, R., & Palladino, R. (2021). Intellectual capital and sustainable development: A systematic literature review. *Journal of Intellectual Capital, 22*(1), 76-94.

Asghar, F., Farooq, P., Nadim, M., ul Abidin, Z., & Wadood, F. (2023). Global Financial Crisis: A critical study on Role of Auditorâ€™ s and Stakeholder. Journal of Policy Research (JPR), 9(2), 452-458.

De Villiers, C., & Sharma, U. (2020). A critical reflection on the future of financial, intellectual capital, sustainability and integrated reporting. *Critical Perspectives on Accounting, 70*, 101999.

Hamzah, M. F., Md Hussain, M. N., Abdul Rahim, A. K., & Abu Bakar, A. (2021). The influence of competency towards the performance of Islamic banking industry in Malaysia. *Turkish Journal of Computer and Mathematics Education, 12*(3), 1252-1262.

Harris, M., Yao, H., Tariq, G., Malik, A., & Javaid, H. M. (2019). Intellectual capital performance and profitability of banks: Evidence from Pakistan. *Journal of Risk and Financial Management, 12*(2), 56.

Hassan, S., Adnan, A., Asghar, F., Ahmad, I., & Marwat, A. (2023, December 3). UNDERSTANDING GREEN PRODUCT KNOWLEDGE AND CONSUMERS' PURCHASE BEHAVIOR: SOCIAL MEDIA MARKETING AS MEDIATOR. https://ijciss.org/index.php/ijciss/article/view/174

Kamasak, R. (2017). The contribution of tangible and intangible resources and capabilities to a firm's profitability and market

performance. *European journal of management and business economics, 26*(2), 252–275.
Khattak, M. S., & Shah, S. Z. (2020). The role of intellectual and financial capital in competitiveness and performance: A study of emerging small and medium enterprises. *Business Strategy & Development, 3*(4), 422-434.
Kianto, A., Ritala, P., Vanhala, M., & Hussinki, H. (2020). Reflections on the criteria for sound intellectual capital measurement: A knowledge-based perspective. *Critical Perspectives on Accounting, 70*, 102046.
Maside-Sanfiz, J. M., Iglesias-Casal, A., Mazahreh, Q. A. S., & López-Penabad, M. C. (2024). The impact of competition on environmental and social performance in the MENA banking sector. *Corporate Social Responsibility and Environmental Management*.
Nawaz, T., Haniffa, R., & Hudaib, M. (2021). On intellectual capital efficiency and shariah governance in Islamic banking business model. *International Journal of Finance & Economics, 26*(3), 3770-3787.
Saddam, S. Z., & Jaafar, M. N. (2021). Modified value-added intellectual capital (MVAIC): contemporary improved measurement model for intangible assets. International Journal of Academic Research in Accounting Finance and Management Sciences, 11(1), 201–210.
Soewarno, N., & Tjahjadi, B. (2020). Measures that matter: An empirical investigation of banking firms' intellectual capital and financial performance in Indonesia. Journal of Intellectual Capital, 21(6), 1085-1106.
Vo, D. H., & Tran, N. P. (2021). Intellectual capital and bank performance in Vietnam. Managerial Finance, 47(8), 1094–1106.
Welly, Y., Ikhsan, A., & Situmeang, C. (2021). The effect of capital employed, human capital and structural capital on financial performance in the consumer goods sector period 2015-2019. International Journal of Trends in Accounting Research, 2(1), 72-86.
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.
Xu, J., & Liu, F. (2020). The impact of intellectual capital on firm performance: A modified and extended VAIC model. Journal of Competitiveness (1).