European Economic Letters
ISSN 2323-5233
Vol 14, Issue 1 (2024)
http://eelet.org.uk

Intellectual Capital and Firm Performance: Review and Assessment

Destaw Simret Tesfie
Research Scholar, Department of Commerce, Punjabi University, Patiala, India,
corresponding author email: sdestaw@gmail.com

Navkiranjit Kaur Dhaliwa
Professor, Department of Commerce, Punjabi University, Patiala, India

Abstract

In the age of the knowledge economy, intellectual capital has emerged as a crucial element for enhancing the competitiveness and success of corporations. The study of intellectual capital and its impact on corporate performance has gained significant attention in the discipline of accounting, finance and management accounting in recent years. Nevertheless, due to the insufficient development of the theoretical foundation of intellectual capital, experts engage in debates and struggle to arrive at a consistent consensus. This paper provides a concise overview of the fundamental concept, components, and assessment of the relationship between intellectual capital and corporate performance. It primarily examines the existing literature that explores the correlation between intellectual capital and firm performance. The objective is to identify the accomplishments made thus far, identify any limitations, and suggest potential areas for future research.

Keywords: Intellectual Capital, Performance, Review and Assessment

1. INTRODUCTION

Discussion on intellectual capital (IC) and financial success has recently gained attention. In recent years, the world has seen enormous changes. Every process in our environment is currently undergoing digitization. The knowledge-intensive economy prioritizes acquiring information and knowledge. During globalization, intellectual capital is emphasized as more important for creating value than physical assets(Weqar et al., 2020). Potential IC includes intangible assets such as staff skills (human capital), technology innovation (structural capital), and customer relationships (direct relational capital)(Kasoga, 2020). While not officially stated in financial records, IC is increasingly considered a strategic asset (Kasoga, 2020). According to Zéghal & Maaloul (2010), a company's value and competitiveness rely heavily on this factor.

Service-oriented businesses rely heavily on their employees' intellectual capital assets, such as expertise and creativity, rather than tangible assets, such as land, machinery, and money, to enhance the value of their company (El-Bannany,2012). Financial institutions like banks and insurance companies are considered sectors with high IC value-added (Firer & Williams, 2003; Andreeva & Garania, 2016). They are ideal for conducting IC research because they have reliable data, are intellectual capital-intensive, and have a more uniform intellectual environment (Mavridis, 2014). Despite intellectual capital's potential for strategic advantage and its role in assessing a company's financial performance, only a few organizations truly understand its significance in emerging and developing countries like Ethiopia.

2. LITERATURE REVIEW

2.1 Definition and Classification of IC

IC has developed from various academic fields and is now considered an interdisciplinary area, leading to a lack of a singular definition or classification(Mohammad & Bujang, 2019). Table 1 outlines the structure and definition of intellectual capital proposed by different authors.

Table 1 Classification and Definition of IC

Authors	Classifications	Definitions
Roos & Roos (1997)	Human capital, Structural capital	IC refers to a company's "hidden" assets, including brands, trademarks, patents, and any assets not shown in financial records. IC is a company's primary source of enduring competitive advantage.

Stewart (1997)	Human capital, Structural capital, Customer Capital	IC encompasses knowledge, information, intellectual property, and experience. It refers to the collective brainpower or usable knowledge.
Edvinsson & Malone (1997)	Human capital, Structural capital, Relational capital	IC represents the disparity between a company's market and book values.
Sveiby (1997)	Personal competence, Internal structure, External structure	IC is knowledge that can be transformed into worth.
Bontis (1998)	Human capital, Structural capital, Relational capital	A company's ability to compete and succeed may be bolstered by the expanded resource base that IC offers.
Andriessen (2004)	Human resource, Organizational resource, Relational resource	IC refers to the intangible resources a business possesses that provide a competitive advantage and the potential to offer future advantages when combined.
Youndt et al.(2004)	Human capital, Organizational capital, social capital	IC is the knowledge an organization may utilize to enhance its business operations and achieve a competitive edge.
Reed et al. (2006)	Human capital, Organizational capital, social capital	IC is an intangible asset and a capability that organizations need to have to gain a competitive edge.

Source: Modified from Mohammad & Bujang (2019)

Scholars domestically and internationally have varying opinions on the components of intellectual capital due to varied research viewpoints. There are primarily three main perspectives: Dualism, trialism, and pluralism (Si, 2019). The author also mentioned that dualism suggests that IC mainly consists of human capital and structural capital. The concept of Trinity indicates that IC consists of human capital, structural capital, and relational capital. While there is no universally accepted classification of IC, the literature commonly identifies three primary categories: human capital, structural capital, and relational capital (Marr & Adams, 2004; Ting & Lean, 2009; Martín-de-Castro et al., 2011).

Huma capital (HC): pertains to employees' tacit or explicit knowledge and ability to disseminate knowledge for the company's advantage (Buallay, 2019). Individuals' intellectual capital encompasses their beliefs, attitudes, behaviors, education, experiences, and competencies (Edvinsson & Malone, 1997; Martín-de-Castro et al., 2011).

Structural capital (SC): refers to the interactions among individuals within a company and the lasting impact after an employee leaves the organization (Halim, 2010). The author also pointed out that SC refers to the company's knowledge assets, including corporate culture, internal collaboration, leadership strategies, information technology, explicit knowledge, product innovation, process improvement, and innovation.

Relational capital: RC represents the whole worth of a company's connections with its stakeholders, such as customers, suppliers, competitors, government, and trade groups (Buallay, 2019). External stakeholder relationships, supplier and distributor networks, partnerships with lobbying organizations and customers, and branding activities such as image building, loyalty, and brand recognition are all part of this capital (Sydler et al., 2014).

2.2 IC Measurement Methods

Based on the literature, 35 techniques are available for measuring IC. No universally accepted strategy has been established worldwide due to the diversity of IC elements across various businesses and phases (Gao & Tang, 2012). The 35 approaches can be categorized into five groups: market value and book value difference method, scorecard method, economic value-added method, direct measurement method, and intellectual capital value-added coefficient method (Si, 2019). Among the methods mentioned above, the intellectual capital value-added coefficient method is a popular one in current IC research, but other methods are also utilized due to its simplicity, capacity for facilitating comparisons across different firms and countries, and ease of computation using audited financial statements that are publicly available (Zéghal & Maaloul, 2010; Dzenopoljac et al., 2017).

2.3 Intellectual Capital and Firm Performance

Researchers globally utilize diverse measurement approaches in empirical studies to evaluate intellectual capital, collect data from various nations and industries, and examine the relationship between intellectual capital and company performance. However, they arrive at different conclusions.

Bontis et al. (2000) conducted an empirical study of the three parts of intellectual capital, namely human capital, structural capital, and customer capital, and their interrelationships in two Malaysian industry sectors using a psychometrically verified questionnaire. The results have revealed that intellectual capital has a considerable and positive association with business performance regardless of industry sector.

Riahi-Belkaoui (2003) examined 81 US multinational corporations and found a substantial association between the dependent and independent variables. A study on the correlation between intellectual capital and financial success in US multinational businesses found favourable and significant results.

Firer & Williams (2003) examine the relationship between the efficiency of value added (VA) by a firm's resource base (physical, human, and structural capital) and three traditional dimensions of corporate performance in South Africa from business sectors. The result indicated no significant correlation between a firm's profitability and the efficiency of its VA resources.

Tovstiga & Tulugurova (2007) studied how intellectual capital affects the corporate value of small innovative firms in Russia using questionnaires. They found that intellectual capital can enhance corporate value.

Chan (2009) investigated the correlation between the "value added intellectual coefficient" and financial performance and concluded that there was no association.

Ghosh & Mondal (2009) examine the correlation between intellectual capital and traditional financial performance measures of Indian software and pharmaceutical companies during five years from 2002 to 2006. The authors found that IC does not possess sufficient explanatory power to account for profitability fully.

Ting & Lean (2009) conducted a study to examine the impact of IC performance on the financial performance of financial institutions in Malaysia between 1999 and 2007. They employed the Value-Added Intellectual Coefficient (VAIC) approach for their analysis. The empirical evidence demonstrates a positive correlation between intellectual capital and financial performance.

Wang et al. (2010) researched a study on the performance of private firms using intellectual capital and financial capital using a questionnaire survey. They found that structural capital has the most significant impact on the performance of private enterprises.

Clarke et al. (2011) examined how intellectual capital affects the performance of Australian-listed corporations. This study measures intellectual capital using VAIC. The results demonstrate an association between VAIC and the financial performance of publicly listed companies in Australia.

Maditinos et al. (2011) investigated the influence of intellectual capital (IC) on Greek-listed organizations' market value and financial performance. The study collected empirical data from a panel of 96 Greek companies that are listed on the Athens Stock Exchange (ASE). This study utilized the VAIC model and its constituent elements as independent variables. The results demonstrate a statistically significant association between HCE and financial performance.

Phusavat et al. (2011) examined the impact of intellectual capital on the performance of manufacturing enterprises in Thailand. They discovered a strong and positive relationship between IC and firm performance.

Yang & Yan (2011) conducted a study on the traditional technology industry in Jiangxi Province and indicated that structural capital is the main factor determining performance development, while human capital has a limited impact. On the other hand, high-tech companies' success is mainly influenced by physical and human capital, whereas the significance of structural capital is negligible.

Alipour (2012) conducted a study to examine the correlation between intellectual capital and the financial performance of insurance businesses in Iran over the years 2005 to 2007. The study's results demonstrated a robust positive correlation between value-added intellectual capital and its constituents and a company's profitability.

Mondal & Ghosh (2012) utilized the VAIC approach to analyze how the performance of 65 top Indian banks is connected to their intellectual capital. They concluded that intellectual capital is crucial in achieving a competitive edge for banks.

Pucar (2012) examines how intellectual capital affects the export performance of companies and sectors. The study utilized the VAIC to assess Intellectual Capital as an independent variable and export performance as the dependent variable. There were 134 enterprises included in the Bosnia and Herzegovina (B&H) sample. The regression analysis

results indicate a statistically significant positive impact of the VAIC and its components on export growth sectors in the food and beverage and the manufacturing of furniture and wood products in B&H. There is no substantial correlation between other sectors' independent and dependent variables.

Wang & Sun (2012) conducted a study using the VAIC method to examine 336 sample enterprises in the bio-pharmaceutical industry and 208 sample enterprises in the textile and garment industry. The various components of intellectual capital have varying impacts on the performance of these sectors.

Joshi et al. (2013) investigated the connection between intellectual capital and corporate performance of the Australian financial industry between 2006 and 2008. The authors employed the VAIC method to measure intellectual capital. The study found that human capital is the primary determinant of the performance of the Australian financial industry.

Naidenova & Parshakov (2013) contends that there are distinctions between IC investment activities and firm performance. In the Russian retail and steel sectors, human capital positively influences economic efficiency, and there is interplay among various components of intellectual capital in the steel and telecommunications sectors.

Yang (2013) examined how intellectual capital affects corporate performance using annual report data of 95 publicly traded companies in China's car manufacturing sector from 2008 to 2011 by employing the VAIC model. The empirical evidence shows that physical capital, human capital, and structural capital positively affect corporate success.

Al-Musali & Ismail (2014) conducted a study to analyze the influence of the "value-added intellectual coefficient" on the financial performance of commercial banks listed in Saudi Arabia. The study's empirical findings indicate that the "value-added intellectual coefficient" substantially influences financial performance.

Kharal & Zia-ur-Rehman (2014) examined the influence of the "value-added intellectual coefficient" on the success of the oil and gas sector in Pakistan, namely those listed in the Karachi Stock Exchange, from 2005 to 2013. The findings suggest that the "value-added intellectual coefficient" has a beneficial effect on organizational effectiveness.

Vishnu & Gupta (2014) researched the relationship between IC and the performance of 22 large pharmaceutical firms in India by employing the VAIC technique to investigate the relationship between IC and corporate performance. They proposed to improve the VAIC model by including relational capital. The study's empirical findings show that "intellectual capital has a significant influence on financial performance."

Bhatia & Aggarwal (2015) examine the correlation between intellectual capital and financial performance of Indian software companies from 2001 to 2011 in 2020. The VAIC technique was used to measure the value-based performance of the companies. The results show a positive correlation between profitability and intellectual capital.

Nimtrakoon (2015) explored the relationship between a firm's internal capital and its components and financial performance as measured by ROA. The findings suggest a positive link between IC and ROA.

Sherif & Elsayed (2016) investigated the impact of IC on the performance of Egyptian insurance businesses. The study used annual data from Egyptian insurance companies from 2006 to 2011. The study's findings suggested a positive association between VAIC and company performance.

Dzenopoljac et al. (2017) examined how the "value added intellectual coefficient" and its components impact the financial success of Serbian ICT enterprises. The study indicated that CEE has a considerable impact on the financial measurements of ICT businesses. Additionally, VAIC and its components link significantly with all selected dependent variables.

Sardo & Serrasqueiro (2017) the researchers examined the influence of the "value-added intellectual coefficient" on the financial performance of non-financial listed corporations in eight European nations. The findings indicate that the "value-added intellectual coefficient" substantially influences economic performance.

Ulum et al. (2017) investigate the effects of intellectual capital performance evaluated with the MVAIC on four traditional financial performance indicators: return on assets, return on equity, market-to-book value, and price-earnings ratio. The statistics were gathered from the 50 largest market capitalization companies listed on the Indonesia stock exchange over eight years (2007–2014). The findings suggest that MVAIC significantly impacts current and future financial performance.

Sardo et al. (2018) examined how intellectual capital impacted the financial performance of small and medium-sized hotels from 2007 to 2015 using a sample size of 934 Portuguese small and medium-sized hotels. The results indicated that intellectual capital components, such as human capital, structural capital, and relational capital, benefit hotel financial performance.

Tiwari (2020) explored the relationship between intellectual capital and profitability in healthcare companies in India, spanning from 2009 to 2018, focusing on 84 specific companies within the healthcare sector. The regression study shows that the intellectual capital coefficient is positively associated with healthcare enterprises' profitability in India.

Using data from the Stock Exchange, Weqar et al. (2020) examine how intellectual capital affects the financial performance of knowledge-driven companies in India over 10 years, specifically from 2009 to 2018. The study found that the VAIC is not significantly related to the profitability and productivity of the enterprises in the sample.

Aybars & Oner (2022) seek to analyze how Intellectual Capital (IC) and its components affect the financial performance and value of publicly traded companies in the Turkish manufacturing industry using panel data analysis. The study incorporates information from firms listed on the Borsa Istanbul (BIST) and consists of 825 firm-year observations from 2009 to 2019. The MVAIC is used to measure IC efficiency and its components. The results do not show a substantial impact of MVAIC on the chosen performance metrics.

3. DISCUSSIONS, CONCLUSIONS AND SUGGESTIONS

3.1 Discussions

Undoubtedly, intellectual capital is a popular term in today's economic environment. This paper examines the existing research on the correlation between intellectual capital and firm performance. It is evident that numerous experts have extensively researched the relationship between intellectual capital and corporate performance. In the field of intellectual capital and corporate performance, several researchers such as Bontis et al. (2000), Riahi-Belkaoui (2003), Tovstiga & Tulugurova (2007), Ting & Lean (2009), Phusavat et al. (2011), Mondal & Ghosh (2012), Pucar (2012), Yang (2013), Al-Musali & Ismail (2014), Kharal & Zia-ur-Rehman (2014), Vishnu & Gupta (2014), Bhatia & Aggarwal (2015), Dzenopoljac et al. (2017), Sardo & Serrasqueiro (2017), Ulum et al. (2017), Sardo et al. (2018), Tiwari (2020), Clarke et al. (2011), Alipour (2012), Nimtrakoon (2015) and Sherif & Elsayed (2016) have shown a significant and positive relationship between intellectual capital and business performance. However, there is little research indicating no correlation between the two factors, as demonstrated by Chan (2009), Ghosh & Mondal (2009), Weqar et al. (2020), Aybars & Oner (2022) and Firer & Williams (2003). Not only that, but the exact nature of the relationship between the two has been the subject of mixed findings in various studies. For instance, Yang & Yan (2011), Wang & Sun (2012) and Naidenova & Parshakov (2013) discovered varied outcomes in their research. Specifically, they observed that certain firms had a positive correlation while others did not. Some researchers have demonstrated a partial correlation between intellectual capital and company performance. For example, according to Wang et al. (2010), only structural capital has a substantial impact on organizational performance. Similarly, Maditinos et al. (2011) and Joshi et al. (2013) found that only human capital affects financial performance, but there was no observed association between any of the other components of intellectual capital in both researchers.

3.2 Conclusions and Suggestions

This paper examines the existing research literature that explores the connection between intellectual capital and corporate performance. Most researchers believe there is a direct relationship between a business's intellectual capital and performance. It is clear, however, that different industries and economic conditions can cause some researchers to come to different conclusions, even when looking at data from the same business in various years. Academics have not come to a consensus on the mechanism by which intellectual capital affects corporate performance or on the effects of human, structural, and relational capital on various industries and businesses with varying degrees of performance (Si, 2019). The inconsistent result might be primarily attributed to the subsequent factors: First, the sectors and locations examined are distinct. Empirical studies are frequently carried out within the framework of particular geographical areas and sectors. Due to variations in sample data across different regions and industries, the resulting findings will vary. Second, there are varying perspectives on the fundamental components of intellectual assets, such as dualism, trialism, and pluralism classification (Si, 2019). Because intellectual components are categorized differently, there will be differences in how intellectual capital and its various features and relationships are assessed. Third, the methods used to measure intellectual capital vary. In the preceding empirical study, Bontis et al. (2000), Tovstiga & Tulugurova (2007), and Wang et al. (2010) employed a questionnaire to quantify intellectual capital directly. Others used the VAIC and MVAIC approaches to measure intellectual capital. Fourth, the performance measuring indicators of enterprises vary. For instance, some used Return on Equity (ROE) and Return on Asset (ROA); others used Tobin Q, ATO, or the natural logarithm of income. A combination of many indicators is also employed to examine organizational performance.

The study's findings will unquestionably contribute to the existing literature and provide compelling evidence either supporting or refuting the use of IC as the primary catalyst for corporate performance. The author of the empirical review recommends conducting additional research to determine the most suitable methods for measuring intellectual capital. This is because different approaches yield significantly different results, highlighting the need for further investigation to evaluate a particular industry's intellectual capital accurately. Furthermore, additional research may be conducted on the choice of performance evaluation measures. Prior research mainly concentrated on financial indicators, disregarding the strategic significance of intellectual capital in generating organizational performance. Hence, intellectual capital, a crucial strategic asset, becomes more persuasive when integrated with studies on the association between company strategic performance evaluation systems.

Reference

1. Al-Musali, M. A. K., & Ismail, K. N. I. K. (2014). Intellectual Capital and its Effect on Financial Performance of Banks: Evidence from Saudi Arabia. *Procedia - Social and Behavioral Sciences*, *164*, 201–207. https://doi.org/10.1016/j.sbspro.2014.11.068
2. Alipour, M. (2012). The effect of intellectual capital on firm performance: An investigation of Iran insurance companies. *Measuring Business Excellence*, *16*(1), 53–66. https://doi.org/10.1108/13683041211204671
3. Andreeva, T., & Garania, T. (2016). Intellectual Capital and Its Impact on Firm's Performance. *Journal of Intellectual Capital*, *11*(1), 229–237.
4. Andriessen, D. (2004). Making Sense of Intellectual Capital. *Making Sense of Intellectual Capital*. https://doi.org/10.4324/9780080510712
5. Aybars, A., & Oner, M. (2022). The impact of intellectual capital on firm performance and value: An application of MVAIC on firms listed in Borsa Istanbul. *Gazi Journal of Economics and Business*, *8*(1), 47–60. https://doi.org/10.30855/gjeb.2022.8.1.004
6. Bhatia, A., & Aggarwal, K. (2015). Intellectual Capital and Financial Performance of Indian Software Industry: A Panel Data Analysis. *Pacific Business Review International*, *7*(8), 33–43.
7. Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Management Decision*, *36*(2), 63–76. https://doi.org/10.1108/00251749810204142
8. Bontis, N., Keow, W. C. C., & Richardson, S. (2000). Intellectual capital and business performance in Malaysian industries. *Journal of Intellectual Capital*, *1*(1), 85–100. https://doi.org/10.1097/00000658-197811000-00016
9. Buallay, A. (2019). Intellectual capital and Islamic and conventional banking performance: Empirical evidence from Gulf Cooperative Council countries. *Journal of Management Development*, *38*(7), 518–537. https://doi.org/10.1108/JMD-01-2019-0020
10. Chan, K. H. (2009). Impact of intellectual capital on organizational performance An empirical study of companies in the Hang Seng Index (Part 2). *The Learning Organization, 16*(1), 4–21. https://doi.org/10.1108/09696470910927650
11. Clarke, M., Seng, D., & Whiting, R. H. (2011). Intellectual capital and firm performance in Australia. *Journal of Intellectual Capital*, *12*(4), 505–530. https://doi.org/10.1108/14691931111181706
12. Dzenopoljac, V., Yaacoub, C., Elkanj, N., & Bontis, N. (2017). Impact of intellectual capital on corporate performance: evidence from the Arab region. *Journal of Intellectual Capital*, *18*(4), 884–903. https://doi.org/10.1108/JIC-01-2017-0014
13. Edvinsson, L., & Malone, M. S. (1997). *Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower. Harper Business, New York.* -. https://www.scirp.org/(S(lz5mqp453edsnp55rrgjct55.))/reference/references papers. asp?referenceid=1927565
14. El-Bannany, M. (2012). Global financial crisis and the intellectual capital performance of UAE banks. *Journal of Human Resource Costing & Accounting*, *16*(1), 20–36. https://doi.org/10.1108/14013381211272626
15. Firer, S., & Williams, S. M. (2003). Intellectual capital and traditional measures of corporate performance. *Journal of Intellectual Capital*, *4*(3), 348–360. https://doi.org/10.1108/14691930310487806
16. Gao, J., & Tang, J. (2012). Invisible Assets Accounting Theory: Evolution and Development. *Financial Communication*, *7*, 125–127.
17. Ghosh, S., & Mondal, A. (2009). Indian software and pharmaceutical sector IC and financial performance. *Journal of Intellectual Capital*, *10*(3), 369–388. https://doi.org/10.1108/14691930910977798
18. Halim, S. (2010). Statistical analysis on the intellectual capital statement. *Journal of Intellectual Capital*, *11*(1), 61–

73. https://doi.org/10.1108/14691931011013334
19. Joshi, M., Cahill, D., Sidhu, J., & Kansal, M. (2013). Intellectual capital and financial performance: An evaluation of the Australian financial sector. *Journal of Intellectual Capital*, *14*(2), 264–285. https://doi.org/10.1108/14691931311323887
20. Kasoga, P. S. (2020). Does investing in intellectual capital improve financial performance ? Panel evidence from firms listed in Tanzania DSE Does investing in intellectual capital improve financial performance ? Panel evidence from firms listed in Tanzania DSE. *Cogent Economics & Finance*, *8*(1), 1802815. https://doi.org/10.1080/23322039.2020.1802815
21. Kharal, M., & Zia-ur-Rehman, M. (2014). *Intellectual Capital & Firm Performance : An Empirical Study on Pakistan's Oil & Gas Sector*. *4*(1), 238–261. https://doi.org/10.5296/ijafr.v4i1.5759
22. Maditinos, D., Chatzoudes, D., Tsairidis, C., & Theriou, G. (2011). The impact of intellectual capital on firms' market value and financial performance. *Journal of Intellectual Capital*, *12*(1), 132–151. https://doi.org/10.1108/14691931111097944
23. Marr, B., & Adams, C. (2004). *The Balanced Scorecard and Intangible Assets: Similar Ideas: Unaligned Concepts.* (Vol. 8, Issue 3).
24. Martín-de-Castro, G., Delgado-Verde, M., López-Sáez, P., & Navas-López, J. E. (2011). Towards "An Intellectual Capital-Based View of the Firm": Origins and Nature. *Journal of Business Ethics*, *98*(4), 649–662. https://doi.org/10.1007/s10551-010-0644-5
25. Mavridis, D. G. (2014). Intellectual capital performance determinants and globalization status of Greek listed firms. *Journal of Intellectual Capital*, *6*(1), 127–140. https://doi.org/10.1108/14691930510574708
26. Mohammad, H. S., & Bujang, I. (2019). Performance of Malaysian Financial Firms: An Intellectual Capital Perspective Using Mvaic Model. *Asian Economic and Financial Review*, *9*(7), 752–765. https://doi.org/10.18488/journal.aefr.2019.97.752.765
27. Mondal, A., & Ghosh, S. K. (2012). Intellectual capital and financial performance of Indian banks. *Journal of Intellectual Capital*, *13*(4), 515–530. https://doi.org/10.1108/14691931211276115
28. Naidenova, I., & Parshakov, P. (2013). Intellectual capital investments : evidence from panel VAR analysis. *Journal of Intellectual Capital, 14*(4), 634–660. https://doi.org/10.1108/JIC-01-2013-0011
29. Nimtrakoon, S. (2015). The relationship between intellectual capital, firms' market value and financial performance. *Journal of Intellectual Capital*, *16*(3), 587–618.
30. Phusavat, K., Comepa, N., Sitko-Lutek, A., & Ooi, K. B. (2011). Interrelationships between intellectual capital and performance: Empirical examination. *Industrial Management & Data Systems*, *111*(6), 810–829. https://doi.org/10.1108/02635571111144928
31. Pucar, S. (2012). The influence of intellectual capital on export performance. *Journal of Intellectual Capital*, *13*(2), 248–261. https://doi.org/10.1108/14691931211225715
32. Reed, K. K., Lubatkin, M., & Srinivasan, N. (2006). Proposing and testing an intellectual capital-based view of the firm. *Journal of Management Studies*, *43*(4), 867–893. https://doi.org/10.1111/j.1467-6486.2006.00614.x
33. Riahi-Belkaoui, A. (2003). Intellectual capital and firm performance of US multinational firms: A study of the resource-based and stakeholder views. *Journal of Intellectual Capital*, *4*(2), 215–226. https://doi.org/10.1108/14691930310472839
34. Roos, G., & Roos, J. (1997). Measuring your company's intellectual performance. *Long Range Planning*, *30*(3), 413–426. https://doi.org/10.1016/s0024-6301(97)00022-8
35. Sardo, F., & Serrasqueiro, Z. (2017). A European empirical study of the relationship between firms' intellectual capital, financial performance and market value. *Journal of Intellectual Capital*. https://doi.org/https://doi.org/10.1108/JIC-10-2016-0105
36. Sardo, F., Serrasqueiro, Z., & Alves, H. (2018). On the relationship between intellectual capital and financial performance: A panel data analysis on SME hotels. *International Journal of Hospitality Management*, *75*(January), 67–74. https://doi.org/10.1016/j.ijhm.2018.03.001
37. Sherif, M., & Elsayed, M. (2016). The impact of intellectual capital on corporate performance: Evidence from the Egyptian insurance market. *International Journal of Innovation Management*, *20*(3). https://doi.org/10.1142/S1363919616500341
38. Si, X. (2019). Literature Review on the Relationship between Intellectual Capital and Enterprise Performance.

Modern Economy, *10*(02), 386–398. https://doi.org/10.4236/me.2019.102026

39. Stewart, T. A. (1997). Intellectual capital: the new wealth of organizations, Bantam Doubleday Dell Publishing Group. In *Inc., New York, NY*.
40. Sveiby, K. (1997). The Intangible Assets Monitor. *Journal of Human Resource Costing & Accounting*, *2*(1), 73–97. https://books.google.com/books/about/The_New_Organizational_Wealth.html?id=xKNXlgaeCjAC
41. Sydler, R., Haefliger, S., & Pruksa, R. (2014). Measuring intellectual capital with financial figures: Can we predict firm profitability? *European Management Journal*, *32*(2), 244–259. https://doi.org/10.1016/j.emj.2013.01.008
42. Ting, I. W. K., & Lean, H. H. (2009). Intellectual capital performance of financial institutions in Malaysia. *Journal of Intellectual Capital*, *10*(4), 588–599. https://doi.org/10.1108/14691930910996661
43. Tiwari, R. (2020). Nexus between intellectual capital and profitability with interaction effects: panel data evidence from the Indian healthcare industry. *Journal of Intellectual Capital*, *23*(3), 588–616. https://doi.org/10.1108/JIC-05-2020-0137
44. Tovstiga, G., & Tulugurova, E. (2007). Intellectual capital practices and performance in Russian enterprises. *Journal of Intellectual Capital*, *8*(4), 695–707.
45. Ulum, I., Kharismawati, N., & Syam, D. (2017). Modified value-added intellectual coefficient (MVAIC) and traditional financial performance of Indonesian biggest companies. *International Journal of Learning and Intellectual Capital*, *14*(3), 207–219. https://doi.org/10.1504/IJLIC.2017.086390
46. Vishnu, S., & Gupta, V. K. (2014). Intellectual capital and performance of pharmaceutical firms in India. *Journal of Intellectual Capital*, *15*(1), 83–99. https://doi.org/10.1108/JIC-04-2013-0049
47. Wang, L., & Sun, H. (2012). Research on the Impact of Intellectual Capital on the Performance of Listed Companies—Take Biomedicine, Textile and Garment Industry as an Example. *Monthly Journal of Finance and Accounting*, *30*, 33–37.
48. Wang, T., Liu, N., & Huang, G. (2010). Empirical Study on Intellectual Capital and Governance Performance of Private Enterprises. *Financial Communication*, *27*, 92–95.
49. Weqar, F., Khan, A. M., & Haque, S. M. I. (2020). Exploring the effect of intellectual capital on financial performance: a study of Indian banks. *Measuring Business Excellence*, *24*(4), 511–529. https://doi.org/10.1108/MBE-12-2019-0118
50. Yang, M. (2013). An Empirical Study on the Impact of Intellectual Capital on Corporate Performance—A Case Study of China's Automobile Manufacturing Listed Companies. *Friends of Accountants*, *22*, 53–56.
51. Yang, X., & Yan, C. (2011). Study on the Effectiveness of Intellectual Capital Driven Enterprise Performance Improvement—Based on the Data of Jiangxi Listed Companies. *Monthly Journal of Finance and Accounting*, *15*, 13–15.
52. Youndt, M. A., Subramaniam, M., & Snell, S. A. (2004). Intellectual Capital Profiles : An Examination of Investments and Returns *. *Journal of Management Studie*, *41*(2), 335–365.
53. Zéghal, D., & Maaloul, A. (2010). Analyzing value added as an indicator of intellectual capital and its consequences on company performance. *Journal of Intellectual Capital*, *11*(1), 39–60. https://doi.org/10.1108/14691931011013325