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UNDERSTANDING RELATIONSHIP INTELLECTUAL CAPITAL AND FINANCIAL PERFORMANCE ON HEALTHCARE SECTOR

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ABSTRACT

In the era of knowledge-based economy, companies pay more attention to intellectual capital than managing tangible assets. This study aims to analyze the effect of the components of intellectual capital including human capital, structural capital, relational capital, and capital employed on the achievement of financial performance in the healthcare sector during the period intersecting with the pandemic. The sampling technique using purposive sampling obtained 15 companies during the 2019-2021 period so that the total observations were 45 firm-years. Quantitative research design using multiple regression with random effect model analysis. The results show that structural capital and capital employed have a significant positive effect of 5 percent on financial performance, while relational capital has the opposite effect. Human capital does not have a significant effect on achieving return on asset performance. As a post-pandemic implementation, the four components of intellectual capital should be managed in a balanced way so that they can add value to the sector.

Keywords: *financial performance; intellectual capital; healthcare sector*

1. INTRODUCTION

Maintaining corporate sustainability is the company's goal so that the realization of these goals is evidenced through financial performance. The process of achieving performance relates to various aspects including investment decisions on tangible and intangible assets. In the traditional view, it is stated that tangible asset as main factors that contribute in achieving company profit (Tiwari & Vidyarthi, 2018) [1]. Along with developing of knowledge-based economy era, so the economic model leads to information technology, employee skills and knowledge compared to tangible assets valuation. based on these situations, the company's strategy must be focused on managing intellectual capital rather than tangible assets.

According to Vishnu and Gupta (2014) [2] understanding “intellectual capital” (IC) is not limited to knowledge and insight assets owned by employees or human capital (HC), but includes other aspects, namely “structural capital” (SC), “relational capital” (RC) and “capital employed” (CE). Approximately in the last twenty years have seen the contribution of intellectual capital in increasing organizational competitiveness and performance, especially in knowledge-based companies. This problem has been the focus of previous studies (e.g., Joshi et al., 2013 [3]; Meles et al., 2016 [4]; Lalović & Koman, 2018 [5]; Xu & Li, 2019 [6]). These studies focus on the banking, financial, and manufacturing industry sectors with a pre-global pandemic background. The results of the study show that the coefficient of intellectual capital has a significant positive effect on financial performance where the most influencing factor is human capital.

Along with the pandemic situation since the end of 2019, many companies have faced problems in maintaining business performance. In this situation, intellectual capital becomes the dominant factor affecting company performance. It is described that under normal conditions the realization of business performance tends to fluctuate, moreover in a pandemic situation it

is certain that there will be many problems in maintaining financial performance. For this reason, a study was carried out in sectors that are closely related to the pandemic situation to identify the domain of intellectual capital that has the most impact on company performance. Thus, the healthcare industry is a sector that has a close relationship with performance issues in a pandemic situation.

In line with pandemic, the health products and services sector in Indonesia recorded the highest growth accompanied by an increase in the need for medicines and medical equipment to treat patients infected with the Corona virus. In a study by Deloitte (2019) [7] it is stated that the healthcare sector produces the fastest growth in the world, while research evidence related to intellectual capital is still limited. Based on these considerations this sector is interesting to do research.

The healthcare sector has made a huge contribution during the Covid-19 pandemic. One of the main characteristics of this industry is that it is knowledge-based and intellectual capital plays a very important role in the organization (Tiwari, 2022) [8]. Companies have the most valuable assets including knowledge, skills and experience of leaders and professionals working in this sector (Evans et al., 2015) [9]. Meanwhile, there were around 2,087 health workers who died during the peak of the Covid-19 pandemic. This condition causes problems in the reduction of health workers or human capital. To deal with a pandemic, a qualified information and technology system is needed. In this situation, companies in the healthcare sector must be able to manage limited resources efficiently to produce optimal performance.

Based on these problems, the problem formulation emphasizes whether human capital, structural capital, relational capital, and capital employed influence financial performance. The goal of the study is to be understanding the impact of these domains of intellectual capital in fostering the financial performance in the healthcare sector. Indonesia has as many as 15 corporates in this sector such as Darya-Varia Laboratoria, Kalbe Farma, Merck, Pharos, Pyridam Farma, Tempo Scan Pacific, and others. During the pandemic, market demand increased rapidly for their sales, so that it gave a positive relationship with financial performance. Behind this moment, this sector is supported by the intellectual capital, so that this study highlights the relationship between intellectual capital and the progress for capturing financial performance.

2. THEORETICAL REVIEW

This theory reveals the relationship between management and stakeholders. Stakeholders are individuals or groups that can influence or be influenced by organizational goals (Andriana, 2014) [10]. Shareholders, creditors, government, customers, and suppliers are all stakeholders. Company management must be able to utilize all limited resources owned by the company to create value for the company. When resources are optimally utilized, it provides values for the firm so that it can be maximized the stakeholder welfare.

This theory explains that when companies can manage special, unique, and irreplaceable resources appropriately, they can increase productivity and overall performance (Davis & Simpson, 2017) [11]. In this view, resources are considered as the main factor to drive the competitiveness and performance of the company. Resources include tangible and intangible assets utilized effectively and efficiently to carry out competitive strategies. With this approach companies can achieve sustainable competitive advantage and profitability by controlling these assets.

Priorly, Jensen and Meckling stated an agency relationship as a contract in which single or more principals employ an agent to make decisions on behalf of the principal or give some decision-making power (Zogning, 2017) [12]. The main problem with agency theory is caused by conflicts of interest that trigger opportunistic behavior among agents (Susanto & Nuringsih, 2020) [13]. Problems in agency relationships are caused by differences in interests between the principal and the agent. On the one hand, the principal tries to obtain maximum results from the capital owned, while the agent is required to serve the interests of the principal. In the context of agency theory, the mechanism so that agents can make the best decisions for the interests of the principal requires agency costs, e.g., costs of monitoring, bonding, and residual loss.

According to Vishnu & Gupta (2014) [2], intellectual capital is not limited to the knowledge and insight assets possessed by human capital but includes aspects of structural capital, relational capital, and capital employed. Human capital or human resources is a combination of employee knowledge, skills and competencies that can be improved through training and experience activities. Structural capital is the supporting infrastructure, procedures and systems within an organization that can support employee performance and business profitability. Relational capital is a company's ability to establish relationships with stakeholders such as shareholders, investors, suppliers, customers, government, and society (Tiwari, 2022) [8]. Capital employed refers to the amount of capital used by companies to generate profits (Izzo et al., 2022) [14]. Thus, this aspect is an important part in the management of intellectual capital.

Research by Victoria & Nuryasman (2020) [15] and Chowdhury et al., (2019) [16] shows that human capital has a significant positive effect on a company's financial performance with a performance measure of return on assets. Increasing the skills and knowledge of employees working in the company has been shown to be fundamentally important for the overall performance of the company, especially in the context of increasing the level of company productivity and work efficiency. Formulation first hypothesis as follows:
Ha1: Human capital has a positive effect on financial performance.

Efficient human capital needs to be supported by adequate facilities and infrastructure (structural capital) to support employee performance. If the company has facilities and infrastructure that are utilized optimally, it will have a positive effect on the company's financial performance. Research by Vishnu and Gupta (2014) [2] shows that structural capital has a significant effect on company performance. Formulation second hypothesis as follows:
Ha2: Structural capital has a positive impact on financial performance.

Companies need to maintain good relations with these external parties (relational capital) to create a good or positive assessment of the company's image. Research by Lalović & Koman (2018) [5] and Xu & Li (2022) [17] proves that relational capital giving a positive effect on a company's financial performance. Formulation third hypothesis as follows:
Ha3: Relational capital has a positive impact on financial performance.

Research by Sandy & Nuringsih (2019) [18], capital employed has a positive and significant influence on the company's financial performance. These results are in line with the research by Smriti & Das (2018) [19], Tiwari (2022) [8] which revealed similar results, namely that capital employed has a significant influence on the financial performance of healthcare companies in India. If the company utilizes this capital optimally, it can improve the company's performance. Formulation Fourth hypothesis as follows:

Ha4: Capital employed has a positive impact on financial performance.

3. RESEARCH METHOD

The research method includes several stages. First: The research design uses a quantitative approach. Second: The research population of all healthcare sector companies is listed on the Indonesia Stock Exchange for the 2019-2021 period. The sample selection technique uses non-probability sampling, especially purposive sampling with the following criteria: (1) healthcare companies are listed on the Indonesia Stock Exchange, (2) publish complete annual financial reports for 2019-2021, and (3) experience no losses during the study period. Based on these criteria, 15 companies were obtained with a mount of observation as many as 45 firm-year. The sample size is calculated from 15 companies multiplied by 3 observations to obtain 15 firm-years.

Third: Using secondary data in the form of financial reports of healthcare sector companies on the Indonesia Stock Exchange with panel analysis between 2019-2021. The company's financial statements are taken from the Indonesia Stock Exchange website www.idx.co.id.

Fourth: Operationalization of the variables as follows: The independent variables are the four components of intellectual capital as measured using the value-added intellectual capital (VAIC) method. This method measures the level of intellectual capital and provides an overview of the efficiency of asset utilization in generating added value. This model is updated to include relational modal (RC) (Vishnu and Gupta, 2014) [2]. Formulation as follows:

"Value-Added" (VA) = [OUT – IN]
OUT = Total sales; IN = Sales expense and other expenses

The four independent variables are described as follows:
1. First independent variable (X1) = "Human capital efficiency" (HCE)
   HCE = [VA / HC]
   HC = Total salaries and wages of employees
2. Second independent variable (X2) = "Structural capital efficiency" (SCE)
   SCE = [SC / VA]
   SC = [VA– HC]
3. Third independent variable (X3) = "Relational capital efficiency" (RCE)
   RCE = [RC / VA]
   RC = Selling and marketing expenses
4. Fourth independent variable (X4) = "Capital employed efficiency" (CEE)
   CEE = [VA / CE]
   CE = Total Equity

The dependent variable is financial performance which is proxied using return on assets (ROA). Formulation as follows: ROA = [Net Income / Total Asset]

Fifth: the analysis technique uses a multiple regression approach accompanied by classical assumption testing including multicollinearity and heteroscedasticity, followed by testing the panel data model including Chow-test, Hausman-test, and Langrange multiplier. Data processing using EViews 12 software.

4. RESULT AND DISCUSSION

The result of multicollinearity testing is proven through score of variance inflation factor (VIF) on four independent variables such as HCE, SCE, RCE, and CEE with criteria less than 10. VIF acquisition for each variable shows HCE (3.4442), SCE (3.1165), RCE (1.0227) and CEE (1.2286). This value is below 10 so that it shows low correlation between independent variables. Moreover, heteroscedasticity testing using the Glejser-test obtained the probability value of chi square of 0.1288. This score is over than 0.05 so it is concluded the regression model is free from heteroscedasticity problems. It is appropriate with homoscedasticity.

The testing process to determine the panel data model is through the following steps. Table 1 shows the results of the Chow-test with a probability of chi-square value of 0.0000. This value is smaller than the value of alpha (α) of 0.05. It was concluded that the research model should use the fixed effect model.

Table 1. The Result of Chow Test

Effect Test	Statistics	d.f.	Prob.
Cross-section F	9.618351	(14,26)	0.0000
Cross-section chi square	81.952857	14	0.0000

Source: The Result from EViews 12

Followed by the Hausman-test in Table 2. The results show a probability value of 0.2896 where the value is greater than the alpha (α) 0.05 so it is proven that it is better to use a random effect model.

Table 2. Result of Hausman Test

Test Summary	Chi-Sq. Statistic	Chi.Sq. df	Prob
Cross-section Random	4.977639	4	0.2896

Source: The Result from EViews 12

Table 3. The Result of Langrange Multiplier Test

	Cross-Section	Time	Both
Breusch-Pagan	19.34293	0.862110	20.20504
	(0.0000)	(0.3531)	(0.0000)

Source: The Result from EViews 12

The Langrange Multiplier-test is performed in Table 3 with a probability value of 0.0000 or less than an α value of 0.05. It was concluded that the analysis model should use a random effect model. Though three stages, this simulation can be concluded that the analysis technique uses a random effect model.

Table 4. The Result of Multiple Regression

Variable	Coefficient	Std. Error	t-statistics	Prob.
C	-0.108922	0.034758	-3.133689	0.0032
HCE	0.004324	0.009502	0.455039	0.6515
SCE	0.290589	0.060202	4.826899	0.0000
RCE	-0.051999	0.024755	-2.100542	0.0420
CEE	0.195567	0.043666	4.478658	0.0001

Source: The Result from EViews 12

More information of multiple regression analysis by random effect are summarized in Table 4. The equation can be made as follows:

ROA = -0.108922 + 0.004324 **HCE** + 0.290589 **SCE** – 0.051999 **RCE** + 0.195567 **CEE**

Referring to this equation, the HCE coefficient is produced (β = 0.004324) with a significance of 0.6515. This significance is greater than 0.05 so it is concluded that HCE has a positive influence, but this effect is not significant on financial performance. Thus, the first hypothesis (Ha1) cannot be accepted at the 5 percent level. SCE coefficient value (β = 0.290589) with a significance value of 0.000. The significance value is less than 0.05 so it is concluded that SCE has a significant positive influence on financial performance. The second hypothesis (Ha2) is accepted at a significance level of 5 percent. RCE coefficient value (β = – 0.051999) with a significance value of 0.042. This value is less than 0.05 so it is concluded that RCE has a significant negative effect on financial performance. The third hypothesis (Ha3) is not accepted at the 5 percent level. The coefficient value of CEE (β = 0.195567) with a significance value of 0.001. This value is lower than 0.05 so it is concluded that RCE has a significant positive effect on financial performance. The fourth hypothesis (Ha4) is accepted at the 5 percent level.

It was identified that the three hypotheses can be accepted at a significance of 5% so that the joint effect is reflected through the F-statistic of 22.89907 with a probability of 0.000. This test produces an R-squared of 0.696040 with an adjusted R-squared of 0.665644. The value of this determination shows that HCE, SCE, RCE, and CEE contribute 66.56 percent to financial performance, while 33.44 percent is explained by other factors in intellectual capital. Although not all variables are declared significant, the influence of the four independent variables is very high on business performance.

Based on these results show the impact of "human capital, structural capital, relational capital, and capital employed toward financial performance". Specifically, human capital efficiency has no significant effect on business performance in the healthcare sector on the Indonesia Stock Exchange in 2019-2021. The results do not match the studies of Victoria & Nuryasman (2020) [15] and Chowdhury et al., (2019) [16], but based on a non-significant effect are more in line with Veronica & Rasyid (2020) [20]; Aprilyani, Susbiyani, and Aspirandi (2020) [21]. The results provide information that human capital is not significant to business performance so that it has not fully utilized human capital efficiently. This is related to the pandemic period; the company has experienced an increase in total sales but also bears quite high sales expenses and other expenses. The added value of the healthcare sector has not fully offset expenses for paying employees' salaries and wages. This insignificant effect is related to a pandemic situation. However, in line with agency theory, agency costs are needed as a mechanism for monitoring agent behavior.

Structural capital efficiency has a significant effect on financial performance. The healthcare sector relies on information systems for the collection, management, and analysis of patient care history activities. Human capital requires adequate system support and structural capital to support overall company performance. The results show that healthcare companies make good use of structural capital or according to the study of Vishnu and Gupta (2014) [2]. These results are in accordance with the resource-based-view theory that when a company manages special, unique, and irreplaceable resources appropriately, it can increase productivity and overall performance.

Relational capital efficiency has a negative impact on financial performance. Relational capital is the ability to establish relationships with stakeholders such as shareholders, investors, suppliers, customers, government, and society (Tiwari, 2022) [8], should improve business performance. The results of the study are in accordance with Victoria & Nuryasman (2020) [15], relational capital efficiency has a negative influence on business performance. These results are related to the pandemic period so that the sales and marketing expenses are relatively greater compared to the added value generated by the healthcare sector. Stakeholder relations are directed to assist the handling of Covid-19 so that it has a negative effect on business performance. This result aligns with the theory of stakeholder that resources, or profitability are maximally utilized to create value-added companies so that they can provide stakeholder welfare.

Capital employed efficiency has a significant positive effect on financial performance. The results of the research are in accordance with previous studies, e.g., Smriti & Das (2018) [19], Sandy & Nuringsih (2019) [18], Tiwari (2022) [8] that capital employed efficiency has a significant effect on financial performance. Capital employed is the amount of capital to generate profits (Izzo et al., 2022) [14] so that optimal utilization can improve company performance. Thus, among the components of intellectual capital, capital employed has been utilized efficiently. This mechanism is suitable with the theory of equity agency that the capital or equity structure can increase profitability so that it is in accordance with the principal's expectations.

5. CONCLUSION

Research proves that there are variations between the four components of intellectual capital in shaping financial performance in the healthcare sector which are listed on the Indonesia Stock Exchange for the 2019-2021 period. It is identified that structural capital efficiency and capital employed efficiency have a significant on business performance according to the hypothesis, while relational capital efficiency has a negative effect. The effect of human capital efficiency is not significant on financial performance. Nonetheless, the mechanism is relevant to the theoretical basis used in constructing the hypothesis.

As a post-pandemic implementation, the four components of intellectual capital can be managed in a balanced way so that they can add value to the sector. The rapid development of the health industry and the challenges of achieving global community welfare have encouraged the healthcare sector to contribute to the achievement of sustainable development goals (SDGs) so that the orientation is not limited to profit but includes social and environmental aspects. This sector is closely related to social aspects because it contributes to supporting the implementation of public health. The Covid-19 pandemic proves the collaboration of the healthcare sector in helping the government and society deal with health problems. Relevant to achieving the SDGs in 2030, investment in the healthcare sector in intellectual capital is

urgently needed as a sustainable competitive strategy. In line with the hope of sustainable development, further research can direct intellectual capital in building competitive advantage in a sustainable manner.

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