
THE MEDIATION AND MODERATION ROLE OF KNOWLEDGE ASSETS IN RELATIONSHIP BETWEEN INTELLECTUAL CAPITAL DIMENSIONS AND COMPANY PERFORMANCES

Nur Khusniyah INDRAWATI^{1*}

Atim DJAZULI²

Ubud SALIM³

Received: 9 April 2022 | Revised: 5 June 2022 | Accepted: 2 August 2022

Please cite this paper as: Indrawati N.K., Djazuli A., Salim U., (2022). The Mediation and Moderation Role of Knowledge Assets in Relationship Between Intellectual Capital Dimensions and Company Performances. *Holistica Journal of Business and Public Administration*, Vol 13, Iss. 2, pp.9-24

Abstract

Intellectual capital and knowledge assets are intangible assets with an important role to create advantage in competition. This study examines the main dimensions of intellectual capital as an independent variable in order to provide more detail information about the influence of dimensions of intellectual capital on performance of financial, either directly or indirectly through knowledge assets. Knowledge assets also become moderation and mediation variable for the effect of intellectual capital and performance of financial. This study population is manufacturing industry companies in Indonesia Stock Exchange (IDX). The samples selection uses saturated or census sampling. Data is collected by documentation techniques from www.idx.go.id. The data analysis tool is regression. The results show that except for the influence of human capital on knowledge assets either directly or through knowledge assets, all hypotheses for the effect of intellectual capital dimension on company performance either directly or through knowledge assets is accepted. The results also show that knowledge assets only strengthen the relationship between capital employed and company's performance of financial, but cannot strengthen the relationship between human capital and structural capital and company's performance of financial. This study also found that intellectual capital has a significant positive effect both directly on financial performance or through knowledge assets. Knowledge assets also strengthens the influence of IC on performance.

Keywords: human capital, structural capital, capital employed, profitability, knowledge asset.

¹ Economics and Business Faculty, Brawijaya University, Malang, Indonesia. e-mail: nur_khusniyah@ub.ac.id

² Economics and Business Faculty, Brawijaya University, Malang, Indonesia.

³ Economics and Business Faculty, Brawijaya University, Malang, Indonesia.

* Corresponding author

1. Introduction

The global economy changes are more complex, dynamic and competitive in 21st century. Therefore, companies are required to have a competitive advantage in winning the competition. Baron and Armstrong (2016) stated that a company focuses not only on tangible assets but also intangible assets to create the market value. Therefore, companies with economy based on knowledge concern to the knowledge importance as the main factor in maintaining the company's competitive advantage (Ting and Lean, 2009). If the company can convert the knowledge into value creation actions, then the knowledge becomes intellectual capital (Pulic, 2008). Intellectual and knowledge assets are one part of intangible assets with a vital role in creating advantage in competition.

Pulic (2008) argued that intellectual capital was defined as workers ability to transform and combining the science into goods and services in creating value. It means that intellectual capital is considered as important as intangible assets. Therefore, sustainable the grow of economic related to productivity and innovation with management of tangible and intangible assets. This is consistent with Hazlina and Zubaidah (2008) in Ting and Lean (2009) that capital of intellectual is considered a source of a company competition advantage to increase company the margin. Good intellectual capital management affect beneficially to performance of financial (Ulum, 2016: 82).

The previous research of Sardo et al. (2018) showed that intellectual capital significantly affect on performance of financial. Meanwhile, Nuryawan (2015) showed that intellectual capital has no significant effect on performance of financial. In addition, Gruian (2011) stated that intellectual capital can improve the performance of financial. On other hand, Ranani and Bijani (2014) stated that intellectual capital cannot improve performance of financial.

The researches analyze the intellectual capital as an intact variable and not the intellectual capital dimension contribution as human capital, structural capital, and capital employed. This study uses the dimensions of intellectual capital as an independent variable analyzed for the effect on performance of financial by adding knowledge assets as a moderation and mediation variable (Pulic, 2008). This study also includes control variables of financing policies, liquidity, company size, firm age, and business diversification.

The remainder of article is describes literature review and hypotheses, followed by methodology of research. It is continued by discussion and conclusions and closed by research weakness and suggestions.

2. Literature Review and Hypotheses Development

2.1 Literature Review

Stewart (1998) defined intellectual capital as material consisting of intellectual property knowledge, experience, and information to produce property through company's advantage in competition. Edvinsson (2013) stated that the core of intangible assets is intellectual capital which is defined as knowledge, ability, loyalty, stakeholder satisfaction, intellectual property, innovation ability, creativity, ethics, education for sustainable development, and others. Intellectual capital can be concluded as part of intangible assets in form of effective knowledge, resources, skills, intangibles that originate from knowledge and have an effect on competence, managerial technology to drives performance in form of strategic and useful judgment to create added value for today and future. It is also based on knowledge to creates financial values in an organization, but excluded from statements (Haghshenas and Barzegar, 2014). It dimensions are human capital, structural capital and capital employed (Pulic, 2008).

Human capital (HC) is all business capital that is embedded in financial employees from finance department. Human capital consists of competencies, experience, knowledge, abilities, behaviors, commitments and policies owned by managers and employees (Hsu and Fang, 2009). Structural capital (SC) includes activities, information systems and networks, financial culture, and financial management processes. Structural capital supports activities done by human capital to optimize the company as a whole (Canizares et al., 2011). Capital employed (CE) is created from available funds, namely equity and net income to create value (Pulic, 2008).

The profitability ratio describes the company's fundamental performance in terms effectiveness and efficiency level of operations to get profits (Fahmi, 2012). The high profit increases the investors interest because higher rate of return (Harmono, 2014). There are several types of profitability ratios, each of which is useful to assess and measuring financial position in a certain time. This study uses Return on Assets (ROA) as the profitability ratio.

Knowledge is recognized as specific asset with an important role to create value from inputs, outputs, and moderator in creating financial value and "intangible assets". Knowledge assets are grouped into tacit that difficult to measure related to the knowledge in individuals is not appear, while codified knowledge can be identified as inputs, outputs, activities in research and development (Denicolai et al., 2014).

Knowledge assets built from Resource-Based View (RBV) (Barney, 1986) are strategic resources and help finance in achieving advantage in competition because they are scarce resources. RBT refers to organization culture in sense that organization culture as a source of financial advantage in competition because it can produce superior performance. The culture of organization consists of managerial values, beliefs, assumptions, and symbols used to direct businesses to create innovation and faster flexibility in finance. These values, when associated with management control, will create a sustainable competitive advantage (Barney, 1991) because the organization culture has an impact not only on financial to define a workforce that relevant to

financial needs, customers, suppliers, and competitors, but also defining how finance will interact with these things.

RBT is based on assumption that resources in an industry are distributed heterogeneously and mobilization is not perfect among finances. Resources that can create competitive advantage have the following characteristics: valuable, rare, inimitable, and organized. Therefore, RBT focuses on managerial attention to internal financial resources in the efforts to identify assets, capabilities, and competencies possessed by finance that have potential to create a superior competitive advantage. The competitive advantage in financial can be achieved by efficient usage of codified knowledge assets these codified knowledge assets are included as part of financial operations, especially in activities to facilitate the development of the knowledge.

2.2. Hypotheses Development

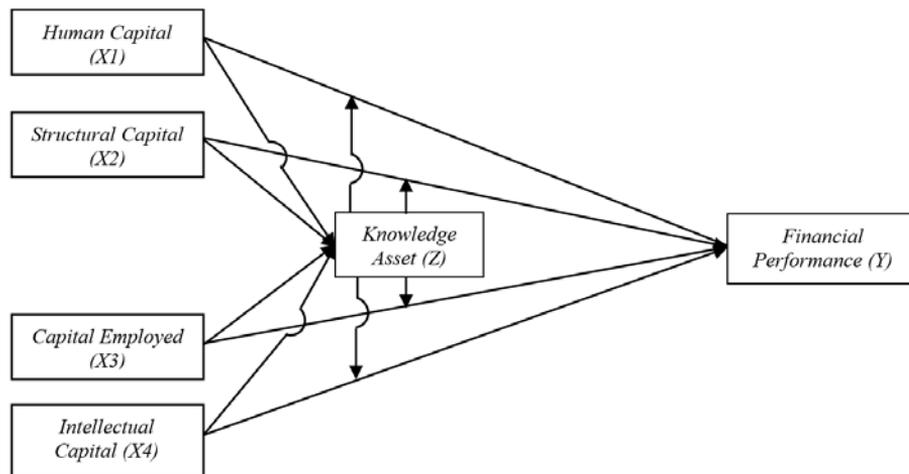
Based on literature review, research hypotheses are presented below.

- H1: Human capital significantly affect on performance of financial.
- H2: Structural capital significantly affect on performance of financial.
- H3: Capital employed significantly affect on performance of financial.
- H4: Human capital significantly affect on knowledge assets.
- H5: Structural capital significantly affect on knowledge assets.
- H6: Capital employed significantly affect on knowledge assets.
- H7: Knowledge assets have a significant effect on performance of financial.
- H8: Intellectual capital significantly affect on performance of financial.
- H9: Intellectual capital significantly affect on knowledge assets.
- H10: The influence of human capital on performance of financial is mediated by knowledge assets.
- H11: The influence of structural capital on performance of financial is mediated by knowledge assets .
- H12: The influence of capital employed on performance of financial is mediated by knowledge assets .
- H13: Knowledge assets mediate the relationship between intellectual capital and performance of financial.
- H14: The influence of human capital on performance of financial is strengthened by knowledge assets.
- H15: The influence of structural capital on performance of financial is strengthened by knowledge assets.
- H16: Knowledge assets strengthen the effect of capital employed on performance of financial.
- H17: The relation of intellectual capital and performance of financial is strengthened by knowledge assets

3. Conceptual Framework

These study variables are divided into 4 namely dependent, independent, mediation and moderation variables. The conceptual framework can be illustrated in figure 1.

Figure 1. Conceptual Framework



Source: Secondary data processed, 2022

4. Research Methodology

This is quantitative research with inferential statistical analysis to answer research questions and test the hypotheses. The secondary data is collected from manufacture firms listed in Indonesia Stock Exchange (IDX) for 2010 – 2019 research periods. Data collection uses the documentation method. The population criterias of manufacture firms are:

1. listed in IDX.
2. publish audited financial reports consecutively in the 2010-2019.
3. manufacturing companies with positive profits in a row during the 2010 - 2019 research period

There are 43 companies are selected as population. It is census sampling because all population becomes samples. There are 430 observations (43 companies x 10 years).

5. Research Variables

5.1. Independent Variables

The independent variables uses following abbreviation

Value added (VA): The difference of output (sales and other income) and input (total expenses except employee expenses)

Human capital (HC): Employee expenses

Structural capital (SC) : The difference between VA and HC

Capital employed (CE) : Available funds (equity and net income)

VAHU : Human capital - Value Added Human Capital

STVA : Structural capital - Structural Capital Value Added

VACA : Capital employed - Value Added Capital Employed

Human Capital (X1)

It is a source of added value as an important element of company. It refers to company workers. The calculation of VAHU) is:

$$VAHU = \frac{VA}{HC}$$

Source: Sardo et al., 2018

Structural Capital (X2)

It refers to supporting infrastructure, processes, and databases of finance to make human capital function. STVA can be calculated by:

$$STVA = \frac{SC}{VA}$$

Source: Sardo et al., 2018

Capital Employed (X3)

Capital employed is company's physical and financial assets to create good value for company. The company's ability to manage capital employed is useful to create value added to become a competitive advantage in a company's business competition. VACA is calculated by following formula:

$$VACA = \frac{VA}{CE}$$

Source: Sardo et al., 2018

Intellectual Capital (X4)

Intellectual Capital is the company's financial ability at a high level or holistic to coordinate, organize and empower knowledge resources to create the desired value in

$$VAIC = VAHU + STVA + VACA$$

order to achieve financial targets and visions. It can be formulated as follows:

Source: *Sardo et al., 2018*

5.2. Dependent Variable

Performance of financial (Y)

Performance of financial shows the condition of company financial at a certain period to collect and distributing the money which are usually measured by certain financial ratios. Good performance of financial shows that company's financial condition is also good and vice versa. The proxy used is Return on Assets (ROA) and the calculation as follows:

$$ROA = \frac{Net\ Income}{Assets}$$

Source: *Ardiansari et al., 2018*

5.3. Mediation and Moderation Variables

Knowledge Asset (Z)

The mediation and moderation variable in this study is market knowledge (MK) because the price of securities in capital market offers a strong estimate of the knowledge assets value. Knowledge assets are supplies or flows of financial knowledge. Knowledge assets are proxied by Market Knowledge (MK). The formula to calculate MK is:

$$MK = \text{market price per share} - \text{book value per share}$$

Source: *Amien et al., 2008*

The control variables are firm size and research and development (R&D) intensity. The larger financial and technology-intensive operation should ceteris paribus. The calculation of firm size and R&D intensity is:

$$\text{Firm size} = \text{Natural log of Total Assets}$$

Source: *Kaguri, 2012*

$$\text{R\&D Intensity} = \text{Investment in R\&D} / \text{Sales}$$

Source: *Kaguri, 2012*

5.4. Data Analysis

This research uses quantitative analysis method with Multiple Regression, Mediated Regression, and Moderated Regression methods. Based on proposed hypothesis, the research model is follows:

$$\text{Model I : } Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 Z + \varepsilon$$

$$\text{Model II : } Z = a + b_6 X_1 + b_7 X_2 + b_8 X_3 + b_9 X_4 + \varepsilon$$

Description:

a = Constant

b = Beta coefficient value

X1 = Human Capital (HC)

X2 = Structural Capital (SC)

X3 = Capital Employed (CE)

X4 = Intellectual Capital (IC)

Y = Performance of financial (KK)

Z = Knowledge Asset (KA)

ε = error

6. Results and Discussion

6.1. Result

6.1.1. Goodness of Fit Test

The goodness of fit test is done by calculating the predictive relevance value (Q2). Predictive relevance shows observations quality to create research model. Higher Q2 value shows more suitable to the data.

Table 1. Predictive Relevance Test

Variabel	R square
Knowledge aset	0,727
Knowledge Aset	0,094

$$Q^2 = 1 - (1 - R_1^2)(1 - R_2^2)$$
$$= 1 - (1 - 0,727)(1 - 0,094)$$
$$= 0,753$$

Source: Secondary data processed, 2022

The goodness of fit test shows that Q2 is 0.753 or 75.3%. It means the study model has a good predictive relevance. This shows that human capital, structural capital, intellectual capital, and knowledge assets can predict the knowledge assets by 75.3% and other 24.7% is variables outside the research.

6.1.2. Hypothesis Testing

The statistical test of independent variables are presented below.

Table 2. Test Result of Direct Effect

Hypothesis	Relationship	Beta Coefficient	t-stats	Probability Value	Information
H1	HC → KK	0.323	7,784	0.000	H1 accepted
H2	SC → KK	0.234	5,613	0.000	H2 accepted
H3	CE → KK	0.548	20.858	0.000	H3 accepted
H4	HC → KA	-0.023	-0.303	0.762	H4 rejected
H5	SC → KA	0.211	2,808	0.005	H5 accepted
H6	CE → KA	0.225	4,834	0.000	H6 accepted
H7	KA → KK	0.136	5,111	0.000	H7 accepted
H8	IC → KK	0.587	16.366	0.000	H8 accepted
H9	IC → KA	0.190	3.998	0.000	H9 accepted

Source: Secondary data processed, 2022

Table 3. Test Results of Mediation Effect

Hypothesis	Relationship	Direct Effect	Indirect Effect	Information
H10	HC → KA → KK	0.323	0.367	H10 rejected
H11	SC → KA → KK	0.234	0.266	H11 accepted
H12	CE → KA → KK	0.548	0.623	H12 accepted
H13	IC → KA → KK	0.587	0.667	H13 accepted

Source: Secondary data processed, 2022

Table 4. Test Results of Moderation Effect

Hypothesis	t-stats	Probability Value	Information
H14	-3.993	0.000	H14 accepted
H15	-1.598	0.111	H15 rejected
H16	2.386	0.017	H16 accepted
H17	-3.527	0.000	H17 accepted

Source: Secondary data processed, 2022

6.2. Discussion

The hypotheses testing indicate that human capital significantly and positively affect on performance of financial. This study results are consistent with Ting and Lean (2009), Alipour (2012), Clarke et al. (2011), and Ozkan et al. (2017), (Muslim, 2020). This shows that manufacturing companies listed in IDX use knowledge resources are the main factor to face knowledge-based economy. If a manufacturing industry company listed in IDX can convert the knowledge into value creation actions then the knowledge becomes intellectual capital for company even though it is not shown in financial statements. This is consistent with opinion of Rucci et al. (1998) in Baron and Armstrong (2016: 218) that

the investment provided by company to this employee will increase employee commitment which will increase productivity, thereby increasing the company's performance of financial. Adversely, Lotfi et al. (2016) and Simaungkalit and Prasetiono (2015) found that human capital had no significant effect on companies performance of manufacturing industry listed in IDX.

Structural capital also significantly and positively affect on performance of financial. These findings are consistent with Sardo et al. (2018), Alipour (2012), Dadashinasab and Sofian (2014), Amin and Aslam (2018), Girma (2017), and Mosavi et al. (2012). It indicatres that investment in non-physical capital (such as systems, procedures, processes, and routines that support the mechanisms done by employees) optimize the company's overall performance (Xu and Wang, 2019) and become important in improving the companies performance of manufacturing industry listed in IDX. On other hand, this study results are inconsistent with Clarke et al. (2011), Ozkan et al. (2017) who found that structural capital insignificantly affect on performance of financial of manufacturing industry companies listed in IDX.

Capital employed also significantly and positively affect on performance of financial. It consistent with Alipour (2012), Sardo et al. (2018), Ozkan et al. (2017), and Ardiansari et al. (2018). It illustrates that manufacturing industry companies manage the capital employed efficiently to create a positive effect to improve performance of financial. Pulic (2008) stated that intellectual capital plays an important role where value enhancement must be done efficiently. Efficiency means to create higher value with one monetary value invested or being able to produce the same product at a lower cost to makes the company earn higher profit margins. However, this study results are not consistent with Lotfi et al. (2016) and Masovi et al. (2012) who found that capital employed had no significant effect on performance of manufacturing industry companies listed in IDX.

The study results show that human capital insignificantly affect on knowledge assets. Human capital consists of competencies, experience, knowledge, abilities, behaviors, commitments and policies owned by managers and employees (Hsu and Fang, 2009). Pulic (2008) stated that effective knowledge can meet the needs or goals of company in creating value. According to Jerzak (2015), human capital is the most important dimension of intellectual capital because human capital as a human being who interacts with motivated and supported environment can create added value for company. This study results show that economic growth of sustainable manufacturing industrial companies cannot be significantly affected by productivity and innovation of employee performance.

The research shows the opposite where structural capital insignificantly and positively affect on knowledge assets. Structural capital includes activities, information systems and networks, financial culture, and financial management processes. Structural capital supports activities done by human capital with aim to optimize the company as a whole (Canizares et al., 2011). These results are consistent with Hazlina and Zubaidah (2008) in

Ting and Lean (2009). This is because an individual has a high intellectual level. However, this intellectual capital may not achieve optimal performance and cannot utilize the existing potential optimally without attention to system and good procedures.

Capital employed also significantly positively effect on knowledge assets. This result can be understood that as higher capital employed will increase the knowledge assets. Pulic (2008) stated that capital employed was created from available company funds, namely equity and net income, used by company to create value. The management of capital employed must be done properly by company. Good management of capital employed will useful for company to create value added and competitive advantage for company's business competition.

Other hypothesis testing shows that knowledge assets significantly and positively affect on performance of financial. These results are consistent with previous research of Amien et al. (2008) and Denicolai (2014). The company's performance can be seen from the performance of financial. Teece (2006) explained that knowledge assets were developed from Resource Based Theory (RBT) as strategic resources and to help company finances to excel because they are scarce resources.

Intellectual capital significantly and positively affect on performance of financial. It is inline with Rahman (2012), Hassanzadeh et al. (2012), Amri and Abdoli (2012), Rehman et al. (2012), Pouraghajan et al. (2013), Shamsudin and Yian (2013), Emadzadeh et al. (2013), Ranani and Bijani (2014), Najafizadeh and Fordoei (2014), and Nezhad et al. (2014). Based on descriptive analysis results of average capital employed value of manufacturing industry companies for 2010-2019 periods, every IDR 1 of intellectual capital (available funds, namely equity and net income) on average, can generate a return of 4.07338. Companies should use their intellectual capital to increase company returns. Baron and Armstrong (2013:4) explained that companies should concern to intangible assets to provide added value, which previously only focused on tangible resources.

Intellectual capital also significantly and positively affect on knowledge assets. In simple terms, it indicates that more intellectual capital will increase the knowledge assets. Pulic (2008) stated that companies with competitive advantage can produce products at lower costs to get higher profit margins.

Knowledge asset is widely recognized as a resource specific that plays an important role to create value (Amin et al., 2008; Nonaka and Takeuchi, 1995). It can be input, output, and moderator to create financial value and "intangibles assets" (Brown and Kimbrough, 2011) that cannot mediate human capital and performance of financial effect on manufacturing industry. This is because the knowledge and skills possessed by employees are actually assets in themselves and the existence automatically can improve performance of financial.

In contrast to results above, knowledge assets can mediate structural capital effect on knowledge assets. This is consistent with explanation by Hair et al. (209:747). This is

possible because if the individual has a high intellectual without good systems and procedures cannot achieve optimal performance and potency. It can be seen that knowledge assets can mediate structural capital and performance of financial in manufacturing industry.

Knowledge assets mediate capital employed effect on performance of financial. If the company can manage capital employed well, it will get big returns. Therefore, good use of capital employed is part of company's intellectual capital.

It was found that knowledge assets can mediate intellectual capital effect on performance of financial. It can also be seen from criteria described by Hair et al. (2009:47) which can be concluded that knowledge assets can fully mediate the effect of intellectual capital on performance of financial.

The statistical testing shows that knowledge assets can moderate the relationship between human capital and performance of financial. This result relates with economic growth of sustainable manufacturing industry companies cannot significantly affected by productivity and innovation of employee performance.

Knowledge assets are not a moderation variable for the relationship of structural capital and performance of financial. This result can be based on fact that an individual who has a high intellectual level unable to achieve optimal performance without good systems and procedures.

Another study showed that knowledge assets become moderation variable for the relationship between capital employed and performance of financial. This study results are supported by fact that companies in their activities in producing and distributing require a combination of people, available funds, and information.

The same results found that knowledge assets moderate intellectual capital effect on performance of financial. These results are consistent with Mahmood (2017) that the company will have a advantage in competition through products at low costs with higher profit margins. Salvatore (2011:8) explained that the production activities done by company can maximize the sales.

7. Conclusion and Implication

The statistical hypothesis testing showed that only human capital insignificantly affect on knowledge assets. It cannot proves the human capital effect on knowledge assets. Human capital (HC) is all business capital that is embedded in financial employees owned by finance. Human capital consists of competencies, experience, knowledge, abilities, behaviors, commitments and policies owned by managers and employees. This study results are possible because the economic growth of sustainable manufacturing industrial companies cannot be significantly affected by productivity and innovation of company's employee performance.

The table 2 showed that human capital an insignificantly affect on knowledge assets . It can be concluded that knowledge assets cannot mediate human capital effect on knowledge assets. This is because the knowledge assets cannot provide a significant positive effect between human capital and firm value, possibly because the economic growth of sustainable manufacturing industry companies cannot be significantly affected by productivity and innovation of company's employee performance. Based on effect of mediation, the performance of financial cannot mediate human capital and knowledge assets in manufacturing industry. Based on Resource-Based Theory (Barney and Clark, 2007), a company will achieve a competitive advantage to create value added if the company has superior resources that difficult to imitate, scarce, and there is no substitution for superior resources to make company can implement a good business strategy.

Table 3 shows the beta coefficient calculation that that knowledge assets can mediate the effect of human capital, structural capital and intellectual capital on performance of financial. This is because the companies may consider knowledge assets as specific resources that play an important role to create value in form of inputs, outputs, and moderation to create financial value and " intangible assets ". This is because the economic growth of sustainable manufacturing industry companies cannot be affected significantly by productivity and innovation of company's employee performance.

Table 4 shows the beta coefficient calculation that knowledge assets can moderate the capital employed and intellectual capital on performance of financial. This is because the company production and distribution requires a combination of people, available funds, and information. This is possible because the company is considered to have a competitive advantage if produce the same product at a lower cost to makes the company get a higher profit margin.

This study results confirm the importance of intellectual capital in a company to improve performance of financial. Higher value of intellectual capital will help the company to improve the quality without requiring additional costs.

8. Limitations and Suggestions for Future Research

This research still has some limitations. First, this study does not pay attention to risk aspects that can affect the achievement of company profitability. Second, this study uses the return on assets profitability measure, while there are other profitability measures can be used to measure profitability. Third, this study does not analyze per sub-sector of manufacturing companies that have different characteristics. Future research can be done by overcoming these limitations.

References

- Alipour, M. (2012). The effect of intellectual capital on firm performance: an investigation of Iran insurance companies. *Measuring Business Excellence*, 16(1), 53-66.
- Amin, S. & Aslam, S. (2018). Relationship between Intellectual Capital and Performance of financial: The Moderating Role of Knowledge Assets. *Pakistan Journal of Commerce and Social Sciences*. 12, 521-547.
- Amri, O., & Abdoli, M. (2012). The Relationship Between Intellectual Capital and Performance of Companies (A Case Study of Cement Companies Listed in Tehran Stock Exchange).
- Ardiansari, A., Nugrahaini, M., & Putri, V. N. (2018). Intellectual Capital Influence on Performance of financial and Company Value. *International Conference on Economics, Business and Economic Education 2018*. KnE Social Sciences, pp.1242–1254.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management* , 17(1), pp.99-120.
- Barney J Bey and Delwyn N. Clark. (2007). *Resource-Based Theory Creating and Sustaining Competitive advantage*. Oxford University Press
- Baron, A., & Armstrong, M. (2016). *Human Capital Management: Achieving Added Value Through People*. Jakarta: Penerbit PPM.
- Brown, N.C., & Kimbrough, M.D. (2011). Intangible investment and the importance of firm-specific factors in the determination of earnings. *Review of Accounting Studies*, 16, 539-573.
- Canizares, S. M., Munoz, M. A., & Guzman, T. L. (2007). organization culture and *Capital employed*: a new model. *Journal of Capital employed*, 3(3), pp. 409-430.
- Clarke, Martin & Seng, Dyna & Whiting, Rosalind. (2011). Intellectual capital and firm performance in Australia. *Journal of Intellectual Capital*. 12, 505-530.
- Dadashinasab, M., & Sofian, S. (2014). The Impact of Intellectual Capital on Firm Performance of financial by Moderating of Dynamic Capability. *Asian Social Science*, 10, 93-100.
- Denicolai Stefano., Antonella Zucchella, dan Roger Strange, 2014, Knowledge assets and firm international performance. *International Business Review*, 23. 55-62
- Edvinsson, L. (2013). IC 21: reflections from 21 years of IC practice and theory. *Journal of Intellectual Capital* , 4(1), pp. 163-172.
- Emadzadeh, A., et al. (2013). Effect of Intellectual Capital on Firm Performance. *International Journal of Academic Research in Accounting Finance and Management Sciences*, 3(2), 129–137.
- Fahmi, I. (2012). *Investment Mngementi*. Jakarta: Salemba Empat.
- Girma, B. (2017). Intellectual Capital Efficiency and Its Impact on Performance of financials of Ethiopian Commercial Banks. *Research Journal of Finance and Accounting*, 8, 17-31.
- Gruian, Claudiu Marian. (2011). The influence of *Capital employed* on Romanian companies performance of financial. *Annales universities apulensis series oeconomica*, 13(2), 260-272.
- Haghshenas, H., Barzegar, G. (2014) Intellectual Capital and Knowledge Assets for Value Creation. *Science and Nature*. 3(1), 21-25.
- Hair, Jr et.al. (2009). *Multivariate Data Analysis* (7th ed). United States : Pearson
- Harmono. (2014). *Financial Management: Balanced Scorecard Bases*. Jakarta: Bumi Aksara.
- Hassanzadeh, R. B, Lalepour, M., & Imanzadeh, P. (2012). Effect of *Capital employed* on Performance of financial and Market Value of Companies. *Australian Journal of Basic And Applied Sciences*, 6(13), 258-266.

- Hsu, Y.H. & Fang, W. (2009), *Capital employed* and new product development performance. the mediating role of organizational learning capability. *technological forecasting and social change*, 76, 664-677.
- Jerzak, K. (2015). The Essence of Human Capital in a Building Company – Selected Aspects. *Procedia Engineering*. 122, 95-103.
- Kaguri, W.A. (2012). Relationship between firm characteristics and performance of financial of life insurance companies in Kenya. *A research project submitted in partial fulfillment of the requirements for the award of degree in master of science in finance*. University of Nairobi.
- Lotfi, M., Elkabbouri, M., & Ifleh, Y. (2016). The relationship between intellectual capital, firm value and performance in the banking sector: empirical evidence from morocco. *International Journal of Innovation and Applied Studies*,17, 1004-1013.
- Mosavi, S.A., Nekouezadeh, S., & Ghaedi, M. (2012). A study of relations between intellectual capital components, market value and finance performance. *African Journal of Business Management*, 6, 1396-1403.
- Muslim, A.I. (2020). The Effect of Firm Value and Performance of financial on Earnings Management in Sharia Issuers: Evidence From the Indonesia Stock Exchange. *Journal of Business and Finance in Emerging Markets*, 3(1), 13-22
- Najafizadeh, S. A., & Fordoei, E. J. (2014). Investigation the Effect of *Capital employed* on Market Value and Performance of financial of Listed Companies in Tehran Stock Exchange. *Global Journal of Management Studies and Researches*, 1(3), pp. 143-150.
- Nezhad, A. A., Yamrali, O., & Aboujafari, M. R. (2014). The Impact of *Capital employed* on Return of Fixed Assets and Firms Total Assets Return Which Listed On The Tehran Stock Exchange. *Asian Economic and Financial Review*, 4(10), pp 1409-1419.
- Nonaka, I & Takeuchi, H. (1995). *The knowledge-creating Company: How Japanese companies create the dynamics of innovation*. Oxford: Oxford University Press.
- Nuryawan. (2015). The Influence of Intellectual Capital on The Firm's Value with The Performance of financial as Intervening Variable. *Procedia Social and Behavioral Sciences*, 211, 292-298.
- Ozkan, N., Cakan, S., & Kayacan, M. (2017). Intellectual capital and performance of financial: A study of the Turkish Banking Sector. *Borsa Istanbul Review*, 17, 190-198.
- Pouraghajan, A., & Ramezani, A. M. (2013). Impact of *Capital employed* on market value and firm's performance of financial: evidence from the Tehran stock exchange. *world of sciences journal*, 1(12), pp. 197-208.
- Pulic, A. (2008). *The Principles of Intellectual Capital Efficiency-A Brief Description*. Zagreb: Croatian Intellectual Capital Center.
- Rahman, S. (2012). The role of intellectual capital in determining differences between stock market and performance of financial. *International Research Journal of Finance and Economics*, 89, 46-77.
- Ranani, H. S., & Bijani, Z. (2014). The impact of *Capital employed* on the performance of financial of listed companies in tehran stock exchange. *International journal of academic research in accounting, finance and management sciences*, 4(1), 119-127.
- Rehman, W., Ilyas, M., Rehman, H. (2011). Intellectual capital performance and its impact on financial returns of companies: An empirical study from insurance sector of Pakistan. *African journal of business management*, 5, 8041-8049.
- 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, 67-74.
- Salvatore, Dominick. (2011). *Managerial Economics* (Edisi kelima). Jakarta: Salemba Empat.
-

- Shamsudin, L. I. & Yian, R. Y. (2013). Exploring the Relationship between *Capital employed* and Performance of Commercial Banks in Malaysia. *Review of Integrative Business & Economics Research*, 2(2), 326-372.
- Mahmood, S. (2017). The moderating role of knowledge assets in measuring the impact of intellectual capital of performance of financial. *International Journal of Management Sciences and Business Research*, 6(7), 74–82
- Simanungkalit, P., and Prasetiono, P., 2015. The influence of intellectual capital on firm value with performance of financial as an intervening variable (Study on Manufacturing Companies Listed in Indonesia Stock Exchange, in the 2009-2013 Period) *Diponegoro Journal of Management*, 0, 190-202.
- Stewart, T. (September 1998). Intellectual Capital: The New Wealth of Organizations. *Performance Improvement* , 37(7), 56-59.
- Teece, D.J. (2006). Reflections on "Profiting from Innovation". *Research Policy*, 35, 1131-1146.
- Ting, I. W., & Lean, H. H. (2009). Intellectual capital performance of financial institutions in Malaysia. *Journal of Intellectual Capital*, 10(4), 588-599.
- Ulum, I. (2016). *Intellectual Capital*. Malang: UMM Press.
- Xu, J., & Wang, B. H. (2019). Intellectual Capital Performance of the Textile Industry in Emerging Markets: A Comparison with China and South Korea. *Sustainability*, 11(8), 2354.