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Confirmatory Factor Analysis Intellectual Capital Disclosure LQ-45 in Indonesia

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Abstract
This research was conducted using confirmatory factor analysis using several indicator variables that form variables that are not measurable directly based on a theoretical basis. This study aims to confirm the latent variable indicators that makeup Intellectual Capital. That the most important part of Intellectual Capital in the form of Internal Capital is more strongly reflects the variable Intellectual Property than external capital. This shows that LQ 45 companies are advised to maintain and maintain patents, copyrights, and trademarks in their respective companies in maintaining the company's value. Besides the Internal section, the most important thing that reflects External Capital is maintaining Company Names well compared to other variables such as brands, customers, and distribution channels so that the company can remain in the LQ 45 Company on the Indonesia Stock Exchange. So through this research, it is suggested that it is important not to commit fraud on financial statements, foster good relationships with customers, produce quality products, affordable prices and be able to meet the reach of customer needs to create loyalty in customers to consume the products produced by the Company both the tangible product nature or intangible.

Keywords*: intellectual capital; intellectual capital disclosure; LQ-45; confirmatory factor analysis.*

Introduction

General systems theory (General Systems Theory) states that all organisms are open and interact with their external environment. Even though each organism has clear boundaries, it cannot be understood separately. If applied to management theory, the concept of the system implies that business enterprises (social organisms) are embedded in a broader social structure (external environment) that interacts continuously with each other (Lawrence & Weber, 2014). Polo and Vázquez (2008) state that the concept of a company as an open social system implies the inclusion of a set of responsibilities as a result of interactions with agents.

A corporation is an entity that is seen as a body or person that stands alone, acts on its behalf, and is separate from its owner. Therefore, an entity becomes the center of attention for accounting and reporting subjects. The relationship with the owner is a business relationship so there is a need for management accountability through accounting and other reporting (Patton and Littleton, 1950 in Lako (2018). At present accounting reporting in the form of financial statements is deemed insufficient so that other reports are needed. Taking into account the demands of various groups externally, the company currently provides a lot of information both financial and non-financial, with additional information in the form of social information and intellectual capital information (Polo & Vázquez, 2008).

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The company's intellectual capital can be considered as "unaccounted capital" in the traditional accounting system (Abeysekera & Guthrie, 2005). Bollen et al. (2005) in Brüggen, Vergauwen, and Dao (2009) state that intellectual capital plays an increasingly important role in maintaining competitive advantage and creating corporate value. Consequently, companies have increased their investment in intellectual capital. The importance of information about intellectual capital is not accompanied by adequate information on intellectual capital in the company's financial statements. This is because there are no accounting standards that govern it. As a result, information asymmetry between users of financial statements and companies is increasing (Brüggen et al., 2009).

Several studies have been conducted on voluntary disclosure of intellectual capital. Although it is difficult to measure intellectual capital, there must be a reason for companies to disclose it (Lamber, 1998 in Brüggen et al. (2009). Voluntary disclosure of intellectual capital can reduce information asymmetry, reduce the cost of capital, and enhance reputation (Brüggen et al., 2009). Bukh, Nielsen, Gormsen, and Mouritsen (2005) find that investors assess the disclosure of intellectual capital in companies that make an Initial Public Offering (IPO) in Denmark as relevant information and as important information related to company strategy Furthermore Canibano et al. (1999) in Brüggen et al. (2009) stated that disclosure of intellectual capital can help improve the relevance of financial statements Failure to deliver relevant information about intellectual capital can cause deterioration of the company's financial position and loss of competitiveness in Long-term, initially intellectual capital in Indonesia is not widely known (Sawarjuwono & Kadir, 2004 in Sudibya and Restuti (2014). Many companies still rely on labor-intensive so that there is still minimal technological touch. Science and technology evolved so that many companies began to switch from labor-intensive to knowledge and technology-based companies.

The results of Sihotang and Sanjaya (2014) research show that companies in Indonesia have substantial intellectual capital and already have the awareness to disclose their intellectual capital, even though the method of disclosure varies. Rachmawati and Susilawati (2018) found intellectual capital was measured using the method of content analysis (CA). The results showed that voluntary and involuntary disclosure of intellectual capital had value relevance. The virtue of this research contributes academically to the search for alternative sources of intellectual capital disclosure. Another academic contribution is the use of online business media as a source of intellectual capital disclosure involuntarily enriching academic findings in research in the field of intellectual capital. This research was conducted at companies with LQ 45 criteria, among others; companies included in the 60 highest market capitalization in the last 1-2, including in the top 60 with transaction value lagging in the regular market in the last 12 months, have been listed on the Indonesia Stock Exchange for 3 (three) months minimum, and have financial conditions, high growth prospects and transaction value. Based on the phenomena and results of previous studies, this study is entitled "Forming Intellectual Capital in LQ 45 Companies according to Confirmatory Factor Analysis (Research Subjects on the Indonesia Stock Exchange in the 2019 Period)".

Literature Review

Definition of Intellectual Capital

Based on the theory of peningnalan, disclosure of intellectual capital will be a means to convey information (Ulum, 2015). Disclosure of intellectual capital changes the structure of business assets into intangible assets in the modern economic era (Alshhadat, 2018). Disclosure of intellectual capital is part of increasing the transparency of business and public institutions (Nielsen & Madsen, 2009).

The term intellectual capital first in 1969 by Galbraith (Ting, 2012) is the ability to utilize knowledge, skills, information, experience, problem-solving abilities and policies owned by companies that are integrated into human capital, structural capital and relationship capital. Human capital, among others; knowledge, skills, and experience of all employees and managers in a company. Structural capital, among others; the whole system and procedure for solving problems and creating value. And, relationship capital; the establishment, maintenance, and development of external relationships (with customers, suppliers, and partners) (Ting, 2012).

Abhayawansa and Guthrie (2016) makes the intellectual categorization of capital become; human capital, relational capital, and structural capital. Intellectual capital is the economic value of two intangible assets, including organizational

(structural) capital and human capital. Organizational (structural) capital includes software systems, distribution networks, and supply chains. Human capital includes human resources within the organization and external resources related to the organization (consumers and suppliers). The intangible value contained in the heads and relationships of employees, management staff, customers and other stakeholders are known as intangible assets. This intangible asset has the following characteristics: (1) invisible, (2) has a close relationship with the knowledge and experience of employees and customers and organizational technology and (3) opportunities for organizational success in the future (Fazlagic, 2005).

Intellectual capital is a multivariate construct expressed by four components: (1) human capital, (2) relational capital, (3) structural capital and (4) renewal capital (Weziak, 2007). Furthermore, human capital measurement models include; the level of population education, the quality of the education system, the quality of the workforce, information technology communication skills of the population and the use of communication information technology, population health, life satisfaction and happiness, and tolerance (Weziak, 2007). The measurement model for relational capital consists of; foreign relations, international trade, mutual trust, norms of behavior. Furthermore, measurement models for structural capital include the number of patent applications and the number of patents granted, the level of broadband penetration, the level of penetration of mobile networks. Finally, the measurement model for renewal capital reflects the ability for innovation which is future intellectual property, its components such as; the level of investment in research and development, the number of scientific publications, foreign patent applications, the share of the workforce assigned to research and development institutions, investment in the education system especially higher education, and investment in information technology communication systems.

Sveiby (1997) in the Intangible Assets Monitor (IAM) divides market values into tangible assets (visible equity) and intangible assets. Intangible assets were divided by Sveiby into three: external structure (brand, customer and supplier relations), the internal structure (organizational management, legal structure, manual system, attitude, R&D, software) and personnel competence (education, experience). In IAM, the following indicators measure each intangible asset: growth and renewal (change), efficiency and stability.

Edvinson and Malone (1997) in Skandia Navigator (SN) focus on five areas: finance, customers, processes, renewal, and development and human capital. Skandia Business Navigator (SBN) is a tool for measuring human capital. The Navigator reflects the whole and covers the financial and non-financial steps of each field and provides information about its history, present, and future. Edvinson and Malone (1997) also present the Skandia Value Scheme (SVS). SVS is a model in which market value is divided into financial capital and intellectual capital. Intellectual capital is further divided into human capital and structural capital. The difference between human and structural capital is in ownership. Structural capital is divided into customer capital and organizational capital, which is the sum of innovation capital and process capital. Innovation capital is again divided into intellectual property and intangible assets.

Intellectual capital is related to the ability formed from knowledge to create value for companies (Montemari & Nielsen, 2013). Knowledge is one of the assets that is a priority in a competitive advantage in a sustainable manner for the company. Thomas Stewart defines intellectual capital as follows (Zambon & Dumay, 2016) says intellectual capital is an intangible asset in the form of information, knowledge, experience, and intellectual property that can create value for the company. In other words, it is an internal process of continuous improvement to create value. Zambon and Dumay (2016) defines intellectual capital by focusing on the creation of value generated by intellectual capital. Values have broad definitions that can be measured in monetary, utility, social and sustainability units. Monetary value. Values must be measured in monetary units, even if they are not the main objective and are long term. But in the end, the use of monetary units to be able to measure the effectiveness of the use of assets, such as sales growth, return on assets (ROA), cost efficiency, and so on. Utility Value. Utility value is the value of the use of goods and services that consumers are willing to pay for. Example: company credit card customers are certainly willing to pay a higher fee than other companies' credit cards because the facilities meet the customer's needs. Social value. Social value is the value of benefits received by the community because of the existence of the company. Some companies have very large sizes, so their existence can affect people's lives. Example: a bank as an intermediary company can connect people who have excess funds and need funds. This is the social value that can be enjoyed by the community. The value of sustainability. The company must have a sustainability value. The value of sustainability is meeting the needs of the present without compromising future needs.

However, some companies only focus on increasing profitability and ignoring environmental preservation. Environmental preservation is a condition that can affect the company's sustainability in the future.

Wingren (2004) believes that intellectual capital is almost the same as the Balanced Score Card (BSC). Intellectual capital has 3 main components (Guthrie & Ricceri, 2002), namely: human capital, internal capital, and external capital. Human capital includes the abilities, knowledge, and competencies of individuals in the organization. Internal capital is an internal process within a company, including information systems, standard operating procedures, value chains, production processes, and so on. External capital is the company's relationship with external parties, such as consumers, suppliers, government, political connections, and so on. These three components work together to create value. Human capital, internal capital and external capital are reduced to several items that indicate "existence" or non-financial performance measures. Guthrie and Ricceri (2002) developed a framework for measuring intellectual capital as presented in Table 1. The non-financial indicators provide predictions of the organization's results or results in the form of financial performance measures as lagging indicators (Ittner & Larcker, 1998); (Banker & Mashruwala, 2007); (Widowati, 2017)
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Results or achievements both in the concept of intellectual capital and BSC are values. Values in the BSC tend to focus on financial or monetary, while intellectual capital can have another understanding: utility, social and sustainability (Zambon & Dumay, 2016). The redefinition of values has the aim of avoiding "Accountingisation" of intellectual capital (J. Dumay & Roslender, 2013) and (Guthrie, Dumay, & Chiucchi, 2015). "Accounting" is understood as the process by which the "forced" intellectual capital measurement framework can measure and recognize intangible assets in the financial statements as other tangible assets. Therefore, some studies tend to measure intellectual capital by determining the level of disclosure in annual reports (J. C. Dumay, 2009) and (J. Dumay & Roslender, 2013).

Research Hypothesis.

The research hypothesis is structured as follows:

H10 : The Independent Variable in the form of Intellectual is not reflected in Internal Capital through CFA First Order.

H11 : Independent Variable in the form of Intellectual Property is reflected in Internal Capital through the CFA First Order.

H21 : Independent Variable in the form of Internal Capital is reflected in Intellectual Property through the CFA Second Order.

Research Methodology

This research was conducted using confirmatory factor analysis using several indicator variables that form variables that are not measurable directly based on a theoretical basis. In confirmatory factor analysis, unobservable variables are called latent or construct variables. This analysis is carried out empirically from the sample data held for theoretical correctness about the latent variables that are formed. The research results obtained by using the second level confirmatory factor analysis which means that the first latent variable that is not measurable explains the second latent variable that is measurable (Widarjono, 2015). The software used is Smart PLS 3.00

Findings

In this study, the average value and standard deviation are used to describe the condition of each variable. The average value and standard deviation are useful to provide a comprehensive picture of how internal capital, external capital and human capital are at LQ 45 companies on the Indonesia Stock Exchange. Internal capital (IC) is measured using 12 disclosure items and an average disclosure index for all companies is 49.6% on a scale of 0-100. External capital (EC) is measured using 7 disclosure items and the average disclosure index for all companies at 44.1% on a scale of 0-100.

Human capital (HC) is measured using 5 disclosure items and an average disclosure index for all companies is 60.0% on a scale of 0-100. Furthermore, by the research objectives, namely, to find out the intellectual capital factors, second-order confirmatory factor analysis is used. In confirmatory factor analysis, it will be explained how the relationship of each manifest variable (indicator) with its latent variable. According to Hair Jr, Sarstedt, Hopkins, and Kuppelwieser (2014) indicators with factor weights less than 0.4 must be excluded from the measurement model. In this study, there were 4 latent variables with a total of 18 manifest variables. The latent variable internal capital consists of 6 manifest variables, external capital consists of 7 manifest variables, and human capital consists of 5 manifest variables.

Demographic

This research was conducted at LQ 45 Company which was listed on the Indonesia Stock Exchange in 2019. The population of this research is 45 companies and the sample in this study is saturated sampling where all members of the population are sampled (Sugiyono, 2011). The research data are ordinal data on the Tetrachoric correlation matrix having a dichotomous scale (dummy variables; 1 and 0). This study uses a manifest variable consisting of internal capital, external capital and human capital.

Based on existing theories, the indicators and dimensions of research used in this study include:

Table
Keywords Intellectual Capital Disclosure

No	Component	Dimension	Keywords
1.	Internal Capital (IC)	Intellectual property	Patent, copyright, and brand
		Management philosophy	Vision, mission, goals, objectives, and strategies
		Corporate culture	Organizational cultural values
		management process	Governance
		Information/networking system	A system that runs in related companies: sales, purchases, and customer service
		Financial relations	Relations with suppliers, banks and other financial service providers
2.	External Capital (EC)	Brands	The brand rating issued by an independent institution.
		Customers	Demographics of target consumers, regions/targets of target consumers, product innovation for target consumers
		Customer satisfaction	Customer satisfaction index, the company's efforts to improve consumer satisfaction
		Company names	Image company name, a company name that is synonymous with quality or certain products, the company's efforts to enhance the company's image
		Distribution channels	Sales agents, and or distributors who work with companies (including suk subsidiary which is the distributor)
		Business collaborations	R&D cooperation or other product development with other parties both domestically and abroad
		Licensing agreements	Types and number of licenses owned by the company
3.	Human Capital (HC)	Employee	Employee Number of employees, employee demographics, career path
		Education	Education Employee education level, opportunities

			scholarships for employees
		Training	Training Employee opportunities to get training and training that you can improve skills and expertise
		Work-related knowledge	The suitability of the field of expertise with the work
		Entrepreneurial spirit	Company ideas to improve services through partnerships with MSMEs and the community

Sources: (Rachmawati & Susilawati, 2018)

Confirmatory Factor Analysis

Furthermore, by the research objectives, namely to determine the factors of intellectual capital used second-order confirmatory factor analysis. In confirmatory factor analysis, it will be explained how the relationship of each manifest variable (indicator) with its latent variable. According to Hair Jr et al. (2014) indicators with factor weights less than 0.4 must be excluded from the measurement model. In this study, there were 4 latent variables with a total of 18 manifest variables. The latent variable internal capital consists of 6 manifest variables, external capital consists of 7 manifest variables, and human capital consists of 5 manifest variables. Using structural equation modeling with the alternative method of least little square obtained a path diagram of intellectual capital factors as shown in Figure 1 below

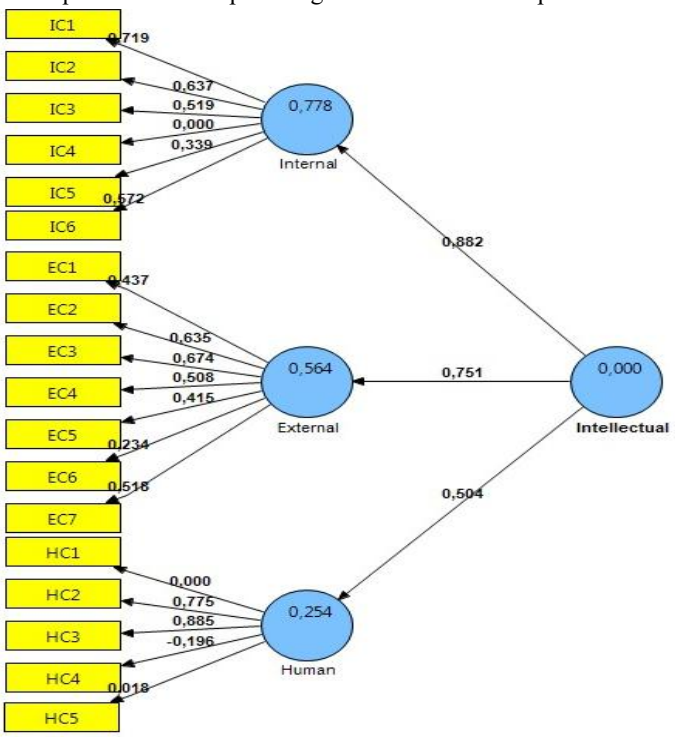

Figure 1
Initial Model Standardization Coefficients

Through the factor weights shown in Figure 1 can be seen in the latent variable internal capital (IC), there are 2 indicators having factor weights smaller than 0.4, namely IC4 (management process) and IC5 (information/networking system). Then in the latent variable external capital (EC), there is one indicator having a factor weigh less than 0.4, namely EC6 (business collaboration). Finally, in the latent variable of human capital (HC), there are 3 indicators having factor weights less than 0.4, namely HC1 (employee), HC4 (work-related knowledge) and HC5 (extraterrestrial spirit). Furthermore, indicators with factor weights smaller than 0.4 are excluded from the model, and the results are presented in Figure 2 below.

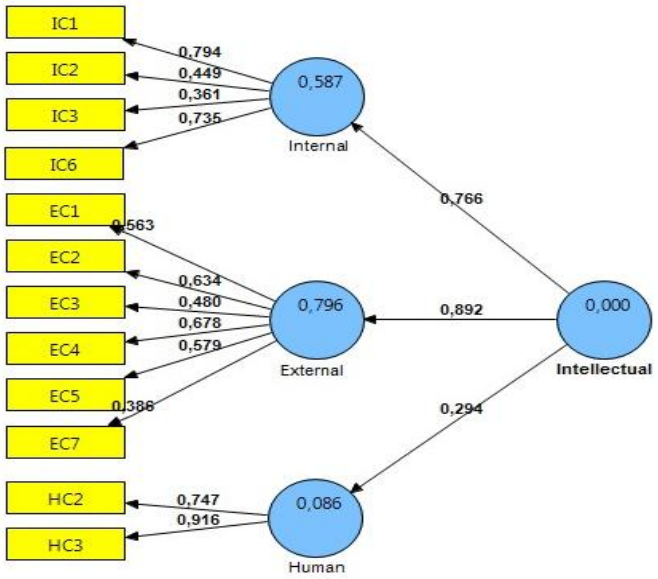

Figure 2
Standardization coefficient of the first reduction model

After 6 indicators that have a factor weight smaller than 0.4 are excluded from the model, it can be seen in the new estimation model that there are still indicators with factor weights less than 0.4. Even the latent variable of human capital also has a factor weight of less than 0.4 and must be reduced from the model. The following are the new estimation results after the IC3, EC7 and human capital dimensions are removed from the model.

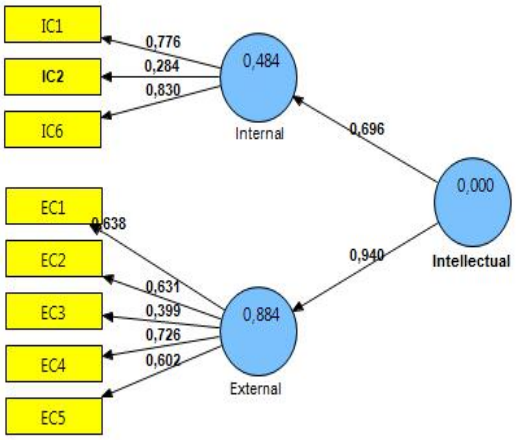

Figure 3
Standardization Coefficient of the Second Reduction Model

In figure 3 can be seen the second reduction model also still has indicators with factor weights smaller than 0.4, namely IC2 (management philosophy) and EC3 (customer satisfaction) indicators. After the indicators with factor weights smaller than 0.4 are excluded from the model, the results obtained as presented in Figure 4 below.

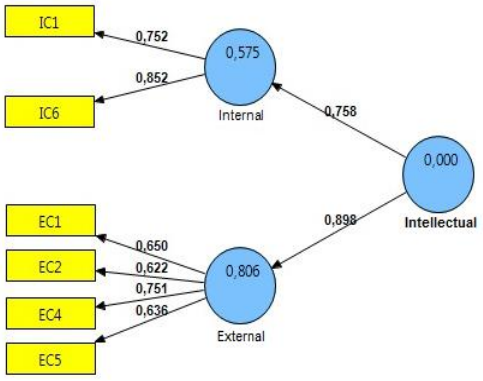

Figure 4
Final Model Standardization Coefficient

After a reduction of three times, in figure 4 it can be seen that all the remaining indicators already have a factor weight of more than 0.4. In the latent variable internal capital, the indicator IC6 (financial relations) is stronger in reflecting internal capital than the indicator IC1 (intellectual property). Then in latent external capital, the EC4 indicator (company names) is the strongest in reflecting external capital, whereas the EC2 indicator (customer) is the weakest in reflecting external capital. Furthermore, to find out whether the indicators used to measure the two latent variables already have a high degree of conformity, composite reliability, and variance extracted calculation is performed. The following results compute the calculation of reliability and variance extracted for each latent variable.

Table 2
***Composite Reliability* (CR) and *Average Variance Extracted* (AVE) First Order**

Latent Variable	CR	AVE
IC	0,784	0,646
EC	0,761	0,444

According to Hair Jr et al. (2014) the value of reliability composite between 0.70 to 0.90 is considered satisfactory. In the internal capital latent variable, the extracted variance value of 0.646 indicates that on average 64.6% of the information contained in each indicator can be represented through the internal capital latent variable. Then the composite value of the latent internal capital reliability variable (0.784) is still greater than the recommended one, which is 0.70. Furthermore, in the external capital latent variable, the extracted variance value of 0.444 indicates that on average 44.4% of the information contained in each indicator can be represented through the external capital latent variable. Then the value of the composite reliability of the latent variable external capital (0.761) is still greater than the recommended value of 0.70.

Table 3
***Composite Reliability* and *Average Variance Extracted* Second Order**

Latent Variabel	CR	AVE
Intelletual Property	0,816	0,691

Through the extracted average variance (0.691) it can be seen that the relationship between dimensions on the latent variable intellectual capital is quite strong. Then the value of the reliability composite latent variable intellectual property (0.816) is still greater than the recommended one, 0.70. Between the two dimensions, internal capital is stronger in reflecting intellectual property than external capital.

Discussion and Conclusion

Discussion

The conclusions that can be drawn from this study include:

1. The descriptive analysis illustrates that Internal capital (IC) is measured using 12 disclosure items and an average disclosure index for all companies is 49.6% on a scale of 0-100. External capital (EC) is measured using 7 disclosure items and is obtained on average disclosure index for all companies is 44.1% on a scale of 0-100. Human capital (HC) is measured using 5 disclosure items and an average disclosure index for all companies is 60.0% on a scale of 0-100.
2. Furthermore, the purpose of the study, namely to determine the factors of intellectual capital used second-order confirmatory factor analysis. In confirmatory factor analysis, it will be explained how the relationship of each manifest variable (indicator) with its latent variable. According to Hair Jr et al. (2014) indicators with factor weights less than 0.4 must be excluded from the measurement model. In this study, there were 4 latent variables with a total of 18 manifest variables. The latent variable internal capital consists of 6 manifest variables, external capital consists of 7 manifest variables, and human capital consists of 5 manifest variables.
3. After a reduction of three times, in figure 4 can be seen all the remaining indicators already have a weighting factor of more than 0.4. In the latent variable internal capital, the indicator IC6 (financial relations) is stronger in reflecting internal capital than the indicator IC1 (intellectual property). Then in latent external capital, the EC4 indicator (company names) is the strongest in reflecting external capital, whereas the EC2 indicator (customer) is the weakest in reflecting external capital. Furthermore, to find out whether the indicators used to measure the two latent variables already have a high degree of conformity, composite reliability, and variance extracted calculation is performed.
4. Composite Reliability (CR) and Average Variance Extracted (AVE) First Order, according to Hair, et al (2014; 102) the value of composite reliability between 0.70 to 0.90 is considered satisfactory. In the internal capital latent variable, the extracted variance value of 0.646 indicates that on average 64.6% of the information contained in each indicator can be represented through the internal capital latent variable. Then the composite value of the latent internal capital reliability variable (0.784) is still greater than the recommended one, which is 0.70. Furthermore, in the external capital latent variable, the extracted variance value of 0.444 indicates that on average 44.4% of the information contained in each indicator can be represented through the external capital latent variable. Then the value of the reliability composite latent variable external capital (0.761) is still greater than the recommended one that is 0.70.
5. Composite Reliability (CR) and Average Variance Extracted (AVE) Second Order, through the average variance extracted value (0.691) it can be seen that the relationship between dimensions on the latent variable intellectual capital is quite strong. Then the reliability value of the latent variable intellectual property as a measured variable (0.816) is still greater than the recommended value of 0.70. Between the two dimensions, internal capital is stronger in reflecting intellectual property than external capital.

Conclusion

1. That the most important part of Intellectual Capital in the form of Internal Capital is more strongly reflects the Intellectual Property variable compared to external capital. This shows that LQ 45 companies are advised to maintain and maintain patents, copyrights, and trademarks in their respective companies in maintaining the company's value.
2. Besides the Internal section, the most important thing to reflect External Capital is to maintain Company Names well compared to other variables such as brands, customers, and distribution channels so that the company can remain in the LQ 45 Company on the Indonesia Stock Exchange.Therefore in this research, it is recommended that LQ 45 companies maintain their good name through the importance of not cheating on financial statements so as not to cause biased information to investors, banks and the government. Also, fostering good relations with its customers by producing quality products, affordable prices and being able to meet the needs of its customers to create loyalty in customers to consume the products produced by the Company both the tangible or intangible nature of the product.

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