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**ABOUT JOURNAL**

**The Journal of Management, Digital Business and Entrepreneurship (JMDBE)** is a scientific journal published by the Global World Scientific which aims to publish articles of empirical and theoretical studies in the field of marketing management, finance, human resources, operations, strategy management, tourism management, digital business, and entrepreneurship. Editors accepted articles in English or Bahasa and were not delivered or published in another journal. Determination of the article that appeared determined by expert editors review results through a blind review process. JMDBE focuses related on various themes, topics, and aspects of Management, digital business, and entrepreneurship, including (but not limited) to the following topics: Human Resource Management, Financial Management, Behavioral Finance, Marketing Management, Strategic Management, Digital Business, Organizational Behavior, Operations Management, Change Management, Management of Sharia, Knowledge Management, Entrepreneurship, E-Business, Capital Market.

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## EDITOR'S INTRODUCTION

Dear readers,

The Journal of Management, Digital Business and Entrepreneurship (JMDBE) is published in February, May, August, and November four times a year. JMBDE is published concerning the Periodical Accreditation Guidelines (Permenristek Dikti RI No. 9 Tahun 2018) and the JMDBE Article Writing Guidelines included at the end of this journal. JMBDE aims as a media of information and exchange of scientific articles between teaching staff, alums, students, practitioners, and observers of science in the fields of Management, Digital Business, and Entrepreneurship. The JMDBE editorial staff received various scientific articles from empirical research and theoretical studies related to Management, which has never been published in other media.

JMDBE Volume 1, Issue 2, September 2023, published five scientific articles on various exciting topics with quantitative analysis and theoretical review. Journal topics published in this number consist of The Role of Brand Image Mediate the Influence of E-WOM and Celebrity Endorser on Purchase Intention of Lemonilo Instan Noodle Products; Analysis of Supplier Selection Using the Analytical Hierarchy Process Method (Case Study at PT. Seaport Services Indonesia); Tax Avoidance: Influencing Leverage, Capital Intensity, and Audit Quality?; Stock Liquidity and Default Risk among Listed Firms in Kenya; Companies Value of Indonesia Telecommunications Sector And Influencing Factors.

The Journal of Management, Digital Business and Entrepreneurship (JMDBE) is in the process of being indexed by Crossref, SINTA Riset Dikti, IPI, Google Scholar, and Directory of Open Access Journals (DOAJ), Dimension, Road, One Search. We are waiting for the participation of readers to submit the best articles for us to publish in subsequent editions.

Happy reading,

Editorial Team

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# The Role of Brand Image Mediate the Influence of E-WOM and Celebrity Endorsers on Purchase Intention of Lemonilo Instant Noodle Products

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ABSTRACT

This study aimed to determine and analyze the effect of electronic word of mouth (E-WOM) and celebrity endorsement on the purchase intention of Lemonilo instant noodles, with brand image as a mediating variable. The sample of this study was all teenagers and adults in Bandung who had never consumed Lemonilo instant noodles. The number of samples is 185 respondents. The data processing results are carried out using SEM analysis and smart PLS processing. From the results of hypothesis testing, it was found that there was no positive effect of E-WOM on purchase intention, there was a positive influence of celebrity endorsers on purchase intention, there was a positive effect of E-WOM on brand image, there was no positive influence of celebrity endorsers on brand image, there was a positive influence brand image on purchase intention. For mediating variables, brand image can mediate the impact of E-WOM on purchase intention, and brand image cannot mediate the impact of celebrity endorsers on purchase intention. Thus, the Lemonilo company needs to be able to improve E-WOM by standardizing the existence of reviews of Lemonilo noodles and being able to select easily recognizable celebrities for the advertisements used.

## INTRODUCTION

Instant noodles are one of the foods that are not good enough for the body because they contain preservatives, especially when consumed in excess. Instant noodles are foods that the people of Indonesia generally favour. There are 5 of Indonesia's best instant noodle products, namely, Indomie, Mie Sedap, Sarimi, Gaga 100, and Supermi (Angelia, 2022). There are instant noodles that are being talked about among the public, namely Lemonilo instant noodles, with claims to be healthy because their production uses natural ingredients and contains good

ingredients for the body. However, the taste of Lemonilo instant noodles is no less delicious than other instant noodles. Reviews of Lemonilo instant noodles can be found on the Home Tester Club website. The information shared is the consumer's experience after consuming Lemonilo instant noodle products.

Consumers can obtain information on E-WOM (Wardhana et al., 2021). E-WOM is a way of exchanging information and is an essential means for consumers to obtain information about the quality of products and services from a company (Akbar et al., 2019). Electronic word of mouth is communication between informal and non-commercial individuals via the Internet related to information about products or services (Tariq et al., 2017). Marketing through E-WOM has now become a style of communication that takes place in e-marketing, where consumers can provide comments and product reviews about things they like to friends and other people in online media due to new technological developments that have enlarged the scale of interaction. (Husnain, Qureshi, Fatima, & Akhtar, 2016).

One of the types of E-WOM often used is through individuals who are well-known endorsers (Teguh, 2022). Using well-known individuals or celebrity endorsements for targeted market share is a growing phenomenon for promoting a product or service (Rahmani et al., 2022). The primary mover in lifting a product's brand is still using celebrities; therefore, to market their products, many brands use celebrities (Romdhoni et al., 2022). The selection of the right celebrity to become a celebrity endorser has the critical task of conveying product messages to consumers; if the message is delivered correctly, consumers will show purchase intent (Megayani & Marlina, 2019).

Purchase intention is the level of evaluation that consumers do of the information they receive, or it can be said that purchase intention is something consumers think about when making a purchase (Saputra & K, 2020). Consumers will look for information and consider the product to be purchased if there is an intention to buy. This can be used to increase product sales by marketing and introducing products to consumers because if a purchase intention arises, consumers will seek information from anywhere. A purchase intention is a stage at which consumers build choices on several brands combined into a choice (Asif et al., 2018 in Tatel, Soegoto, & Poluan, 2022). Consumer attention and the intention to make purchases can increase if companies can compete carefully in promoting their products. Various kinds of strategies can be carried out by companies, such as increasing brand image.

Consumers use it as a guide to make purchases. Brand image is a consumer's understanding of a brand that comes from their memories of the product and how they feel about it (Firmansyah, 2019). Consumers will feel confident in the quality of a product if the brand image of the product is vital, so consumers who feel satisfied with the quality of their product purchases will spread the news to relatives and friends or post reviews on the Internet and social media (Candra & Suparna, 2019). Brand image can be built using celebrity endorsements as a general marketing communication strategy (Adam et al., 2022). This knowledge forms a brand image among consumers.

According to research (Wiwaha, 2022), the Lemonilo brand, which claims to be a healthy instant noodle product, has succeeded in taking fourth place on the list of top brands as the best instant noodle with a sales volume of 6.3%. This shows that consumers' purchase intentions for Lemonilo instant noodles are high because of the many fried instant noodles. Lemonilo instant noodles occupied fourth place, but the pre-survey results showed otherwise. Pre-survey results regarding consumer purchase intentions for Lemonilo instant noodle products still need to be higher.

According to the results of previous research (Dewi & Giantari, 2020), brand image plays a role in mediating the influence of E-WOM and celebrity endorsers on purchase intentions. E-WOM, endorsers, and brand image positively and significantly affect purchase intentions. Contradictory results were found in research (Ardiansyah & Aquinia, 2022), which stated that celebrity endorsements and brand image positively and significantly affected purchase intention. In contrast, electronic word of mouth did not significantly affect purchase intention. Other contradictory results

were also found in research (Alrwashdeh et al., 2019), which stated that the brand image could not mediate the effect of E-WOM on PI in the context of smartphone brands in North Cyprus. Inconsistent previous research results indicate a research gap.

Based on the phenomenon, brand image plays a role in mediating the influence of E-WOM and celebrity endorsers on purchase intentions. E-WOM, endorsers, and brand image positively and significantly affect purchase intentions. Other researchers have different views, so this assumption still needs to be tested empirically.

Electronic word of mouth (E-WOM) is online information about a product, either positive or negative, from previous consumers (Halim & Keni, 2022). Consumers share personal experiences about brands, products, or services that they have experienced themselves using social media (Sabrina et al., 2022). E-WOM can be accessed quickly and presented to every individual on the Internet through comments related to products or services (Rahaman et al., 2022). With the rapid growth of social networks, consumers have recently tended to seek information and suggestions from other consumers (Liao et al., 2022). E-WOM makes the marketing process easier now because time is shorter and there are no distance constraints (Kuo & Nakhata, 2019). E-WOM focuses on a broader and more subjective product experience because it can include something other than a product-focused online community (Daowd et al., 2020). This study uses the measurement of the E-WOM variable (Lin et al., 2013 in Wardhana, et al. 2021), which consists of: 1) E-WOM quality (E-WOM quality), 2) E-WOM quantity (E-WOM quantity), and 3) sender's expertise.

A celebrity endorser is a communication channel celebrities use to promote and express their opinions about a product based on their fame and individuality (Andini & R, 2022). Having celebrities in advertisements provides several benefits, namely helping to identify brands, changing negative attitudes towards brands, repositioning brands, positioning products in global markets quickly, and helping to influence consumer purchase intentions (Jolly & L, 2013). Companies and marketers have used celebrities in recent decades to promote products, services, and brands; nowadays, celebrity endorsements are an essential medium for communicating with consumers with the Internet and social media that are increasingly developing (Porral et al., 2021). Celebrity support used by marketers is an efficient strategy and answers consumer needs from a psychological perspective (Saldanha, 2022). This study uses celebrity endorsement variable measurements consisting of (Frimpong & Frimpong, 2019): 1) attractiveness, 2) trustworthiness, and 3) familiarity.

Brand image is a combination of beliefs, ideas, things that have been felt, and the understanding of a person, group, or community about a brand (Huda, 2020). A brand image arises in consumers' minds when a brand is displayed in front of their eyes (Lahap, Ramli, Said, Radzi, & Zain, 2016). Brand image is a picture of the overall opinion about the brand formed from news and experiences with the brand in the past (Hertina et al., 2022). Brand image is an assumption of integrity from a brand position in competition with brands known by consumers as strong brands or not (Sabrina et al., 2022). The brand image is people's thoughts about brands they have yet to see but already know have good or bad quality (Lamasi & Santoso, 2022). Consumers use a brand image to infer general perceptions of a particular product (Maymand & Razmi, 2017). This study uses the measurement of brand image variables, namely (Keller & Swaminathan in Gunawan & Kunto, 2022): 1) Strength of Brand Associations, 2) Favorability of Brand Associations, 3) Uniqueness of brand associations

Purchase intention is when a consumer illustrates an alternative between brands as a level of consideration in a choice that might lead to an intention to purchase the brand of interest (Hendro & Keni, 2020). Purchase intention is defined as the desire of consumers regarding specific products and services to make purchases (Lee et al., 2022). Purchase intention is used to estimate the future value of a brand; consumers' willingness to commit is related to future consumption. (Lu, 2021). Consumer purchase intention will arise when consumers get something convincing about the information about the product or service offered and then evaluate, assess, and carry out the

purchasing process (Amelia & Hidayatullah, 2020). Indicators of purchase intention consist of (Lu et al., 2014; Ma et al., 2021 in Mikhael & Susan, 2022): 1) Considerations for choosing a brand, 2) Likelihood of choosing a brand, 3) Likelihood to buy in the future 4) The ability to purchase when needed.

## RESEARCH METHOD

This study uses a quantitative method with a descriptive approach. This study's primary data source was obtained by distributing questionnaires with a Likert scale. The population of this study was all adolescents and adults in the city of Bandung. At the same time, the sample used was all adolescents and adults in the city of Bandung who had never consumed Lemonilo instant noodles. The population used in this study is unlimited due to the broad scope of the research. Calculate the minimum number of samples using the formula Hair et al. (2006). Because the population size is uncertain, the minimum sample size is 5–10 observations for each parameter estimated (Trihudiyatmanto, 2022). Data processing results will then be processed using SEM analysis and Smart PLS.

## RESULTS AND DISCUSSION

Description of Respondents

- Based on the gender of the respondents, it was found that the responses from the respondents were balanced between male and female respondents, namely 50%.
- For the respondents, the respondents aged 17-25 were 53.0%, 26-30 were 25.0%, aged 31-35 were 7.5%, and >35 were 14.5%. Thus, there are more respondents aged 17–25 years.
- For the respondents' work, there were 40.5% private employees, 20.5% others, 20.0% students, and 19.0% self-employed.
- All (100%) respondents have not consumed Lemonilo instant noodles.

### Outer Model Evaluation

In evaluating the outer model, there are several tests to test the validity and reliability of a study, including convergent validity, which requires an outer loading value > 0.50, average variance extracted (AVE) > 0.50, composite reliability > 0.70, and Cronbach's alpha > 0.70, which indicates this research is included in the "good" category.

Based on Table 2 regarding the results of the evaluation of the outer model, the results show that the variables brand image, celebrity endorsement, E-WOM, and purchase intention have convergent validity values > 0.50, AVE > 0.50, composite reliability > 0.70, and Cronbach's alpha > 0.70. These results are included in the "good" category when referring to the interval criteria, so it can be concluded that all variables have excellent levels of validity and reliability.

**Table 1. Outer Model Evaluation**

| Construct/Item | | Loadings | | Alpha Cronbach | CR | AVE |
|---|---|---|---|---|---|---|
| **Brand Image** | | | | | | |
| BRIMAGE_01 | BRIMAGE_05 | 0.857 | 0.507 | 0.865 | 0.904 | 0.591 |
| BRIMAGE_02 | BRIMAGE_06 | 0.873 | 0.528 | | | |
| BRIMAGE_03 | BRIMAGE_07 | 0.874 | 0.855 | | | |
| BRIMAGE_04 | | 0.876 | | | | |
| **CELEBRITY ENDORSER** | | | | | | |
| END_01 | END_07 | 0.859 | 0.833 | 0.878 | 0.909 | 0.536 |
| END_02 | END_08 | 0.869 | 0.864 | | | |
| END_03 | END_09 | 0.876 | 0.513 | | | |
| END_04 | END_10 | 0.830 | 0.509 | | | |
| END_05 | END_11 | 0.861 | 0.509 | | | |
| END_06 | | 0.857 | | | | |
| **E-WOM** | | | | | | |
| EWOM_01 | EWOM_08 | 0.800 | 0.848 | 0.960 | 0.964 | 0.657 |
| EWOM_02 | EWOM_09 | 0.820 | 0.821 | | | |
| EWOM_03 | EWOM_10 | 0.822 | 0.757 | | | |
| EWOM_04 | EWOM_11 | 0.811 | 0.803 | | | |
| EWOM_05 | EWOM_12 | 0.855 | 0.843 | | | |
| EWOM_06 | EWOM_13 | 0.857 | 0.778 | | | |
| EWOM_07 | EWOM_14 | 0.806 | 0.718 | | | |
| **PURCHASE INTENTION** | | | | | | |
| PINTENTION_01 | PINTENTION_04 | 0.836 | 0.857 | 0.914 | 0.936 | 0.744 |
| PINTENTION_02 | PINTENTION_05 | 0.872 | 0.864 | | | |
| PINTENTION_03 | | 0.884 | | | | |

Source*:* Data Processing Results, 2022

**Inner model Evaluation**

According to Ghozali and Latan (2015), a structural model is a model that connects each latent variable. Measurements using the PLS-SEM are carried out by testing the R-squared (R2) and testing the significance through the estimation of the path coefficient.

**Table 2. R Square Test**

| | R Square Adjusted |
|---|---|
| Brand Image | 0.849 |
| Purchase intentions | 0.334 |

Source*:* Data Processing Results, 2022

Based on the R-square test, the r-square value tested has an adjusted R-square value, which means: The dependent variables have an influence of 0.849 on brand image. The dependent variables have an influence of 0.334 on purchase intention.

**Table 3. Uji Hipotesis Langsung**

| | T Statistics | P Values |
|---|---|---|
| **Direct Influence** | | |
| E-WOM -> Purchase intentions | 0.731 | 0.465 |
| Celebrity endorser -> Purchase intentions | 2.592 | 0.010 |
| E-WOM -> Brand Image | 8.404 | 0.000 |
| Celebrity endorser -> Brand Image | 1.466 | 0.143 |
| Brand Image -> Purchase intentions | 2.221 | 0.027 |
| **Indirect Influence** | | |
| E-WOM -> Brand Image -> Purchase intentions | 2.141 | 0.033 |
| Celebrity endorser -> Brand Image -> Purchase intentions | 1.217 | 0.224 |

Source*:* Data Processing Results, 2022

**The influence of E-WOM on purchase intention**

For Hypothesis 1, if the obtained t value is 0.731($t_{count}$< $t_{table}$) and a significance of 0.465 > 0.05, then H0 is accepted, and Ha is rejected, meaning that E-WOM has no positive effect on purchase intention. In general, the existence of good reviews and various incentives to use Lemonilo noodles will not necessarily determine the purchase intention displayed by consumers.

The results of this study illustrate that the existence of ratings and reviews and the existence of positive testimonials as a form of E-WOM do not necessarily shape consumer purchase intentions because the taste and delicacy of food and beverage products will have a more significant impact on individuals when individuals try these food and beverage products. Yourself, and not just get a review from a third party.

**The influence of celebrity endorsers on purchase intention**

For Hypothesis 2, the t-count is 2,592 ($t_{count}$< $_{table}$) and a significance of 0.010 0.05, so H0 is rejected, and Ha is accepted, meaning that celebrity endorsers have a positive influence on purchase intention. In general, the existence of artists who can improve the image of Lemonilo noodles can determine the purchase intention displayed by consumers.

In the results of this study, the existence of well-known artists and social figures who provide positive recommendations for purchasing decisions can encourage purchase intentions for Lemonilo products. The public will identify themselves with well-known artist figures, and artists with good and positive characteristics can attract consumers and generate good purchase intentions for Lemonilo products. Selection of the appropriate artist, depiction of family, and other features are highlighted in the advertisement with the artist used.

**The Influence of E-WOM on Brand Image**

For Hypothesis 3, the t-count is 8,404 ($t_{-count}$< $t_{-table}$) and a significance of 0,000 0.05, then H0 is rejected, and Ha is accepted, meaning that E-WOM positively affects brand image. In general, the existence of good reviews and various encouragements to use Lemonilo noodles can determine the brand image consumers display.

From these results, a good image in the corporate environment can be formed from E-WOM, where displays are in the form of good reviews, and there are various encouragements to use Lemonilo noodles from the social media environment. These are characteristics that can drive the brand. The better image later on.

**The influence of celebrity endorsers on brand image**

For Hypothesis 4, the t value obtained is 1.466 ($t_{-count}$< $t_{-table}$) and a significance of 0.143 > 0.05, so H0 is accepted, and Ha is rejected, meaning that celebrity endorsers have no positive influence on brand image. Generally, the presence of famous or well-known artists does not necessarily improve the brand image consumers display.

In this study, the presence of excellent and well-known artists may only sometimes form a brand image. This can happen because many artists and celebrities are used as endorsers, so the company's efforts to form a positive image become diffused or unclear with the addition of the artists used in these advertisements.

**Effect of Brand Image on Purchase Intention**

For Hypothesis 5, if the t-value is 2,221 ($t_{-count} < t_{-table}$) and the significance is 0.027  0.05, then H0 is rejected, and Ha is accepted, meaning that brand image has a positive influence on purchase intention. In general, brand image can increase the purchase intention displayed by consumers.

Based on these results, the existence of a brand image as a basis for forming brand equity is one of the prerequisites for consumers to choose a brand. When consumers feel a brand is positive, it encourages them to purchase it.

**Brand image mediates the impact of E-WOM on purchase intention**

For Hypothesis 6, if the t-count is 2.141 ($t_{-count} < t_{-table}$) and the significance is 0.0330.05, then H0 is rejected, and Ha is accepted, meaning that brand image can mediate the impact of E-WOM on purchase intention. Thus, having a good brand image supported by good reviews is the basis for consumers' future purchase intentions.

Therefore, it can be illustrated that when consumers get favourable reviews in the form of E-WOM that are also favourable for the brand, this forms a positive brand image from individuals towards the brand, which allows consumers to be more likely to choose Lemonilo products in the future. Therefore, a positive brand image is a condition for consumers to choose products with good E-WOM. As a result, a positive brand image supports future consumer purchases.

**Brand image mediates the impact of celebrity endorsers on purchase intention**

For Hypothesis 7, if the t value is 1.217 ($t_{-count} < t_{-table}$) and the significance is 0.224 > 0.05, then H0 is accepted, and Ha is rejected, meaning that brand image cannot mediate the impact of celebrity endorsers on purchase intention. In general, the existence of a well-known artist and a positive image of the Lemonilo brand will not necessarily determine the purchase intention displayed by consumers.

**MANAGERIAL IMPLICATIONS**

Following the discussion, the researcher found the relevance of the respondents' answers in the form of indicators that best represent each variable, namely the value with the highest cross-loadings. From the description of this indicator, the research implications that can be taken are:
Meanwhile, the components that the company must repair are:

1. For the E-WOM variable, based on the answer with the highest average score, the company is expected to increase the number of Lemonilo instant noodle reviews on social media and displayed advertisements, which can convince consumers as part of the E-WOM of the Lemonilo brand alone. Meanwhile, responding to the lowest answer, Lemonilo is expected to have a script that can be mentioned to standardize the review of Lemonilo noodles and avoid mentioning things that were not considered before.
2. For the celebrity endorser variable, based on the highest average score, the company is expected to maintain the celebrity endorser because consumers feel that the celebrity endorser as a figure displayed by Lemonilo instant noodles is reliable. On the other hand, as a response to the lowest answer, Lemonilo will likely choose a celebrity that is more easily recognized for the advertisements used for the new ones.
3. For the brand image variable, based on the highest average score given by consumers, Lemonilo can maintain the image that its instant noodle products are practical in terms of presentation, which

is one of the things that makes up the brand image variable. On the other hand, we see things still needing improvement from items with the lowest average, where Lemonilo is expected to encourage a positive image as the top choice.

4. For the purchase intention variable, from the statement with the highest average score, Lemonilo needs to maintain the respondent's tendency to buy because, at this time, the respondents already tend to buy Lemonilo instant noodles in the future, which illustrates a robust relative purchase intention. On the other hand, items with the lowest average score Therefore, Lemonilo must work with online buying and selling sites to provide promotions.

**RESEARCH LIMITATIONS**

This research has the following limitations:

1. Performed on only one instant noodle brand, namely Lemonilo
2. Measure four variables, namely the dependent variable E-WOM, celebrity endorsers, brand image, and one dependent variable, purchase intention.
3. This research was conducted on a limited number of respondents, namely 185.

**CONCLUSION**

The findings of this study can be explained by the lack of a beneficial impact of E-WOM on consumers' intentions to buy Lemonilo products, indicating that consumers' intentions to buy products are only sometimes affected by the presence of E-WOM. Additionally, celebrity endorsements have a beneficial impact on consumers' buying intentions. Therefore, a rise in celebrity endorsements may encourage more people to purchase. Additionally, it was discovered that E-WOM had a favourable impact on brand perception, indicating that growing E-WOM can help build brand perception.

The use of existing artists did not encourage changes in brand image at Lemonilo, where it was also discovered that celebrity endorsers had no positive effect on brand image. However, brand image positively impacted purchase intention, and brand image could mediate the effect of E-WOM on purchase intention. This mediation hypothesis can be accepted since the brand image is a mediator variable of E-WOM on purchase intention. Finally, the brand image does not support a rise in the influence of celebrity endorsers on purchase intention to avoid a mediating effect since the brand image cannot mediate the impact of celebrity endorsers on buy intention.

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# Analysis of Supplier Selection Using The Analytical Hierarchy Process Method (Case Study at PT. Seaport Services Indonesia)

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ABSTRACT

Suppliers in the manufacturing industry have an important role because they determine product quality. Supplier selection is necessary so that the services produced are of quality according to the standards determined by the company. If the supplier's quality does not meet the criteria, it will cause several obstacles in the operational process. So, this research aims to find the best suppliers with priority criteria according to PT standards. Seaport Services Indonesia. The population in this study is marine engine suppliers owned by PT. Seaport Services Indonesia. The samples are from 3 marine engine suppliers who provide seawage at PT. Seaport Services Indonesia. The sampling technique uses Purposive Sampling. The analysis results show that the best supplier for PT. Seaport Services Indonesia is Supplier B with the highest weight compared to the other two suppliers. The priority criterion is Flexibility.

## INTRODUCTION

Purchasing is defined as an effort to meet the company's needs for goods and services required by the company, received on time with appropriate quality and profitable prices (Suarsana, 2007). In order for supplies to be fulfilled by getting suppliers that match what is needed, it is necessary to determine various considerations as a reference in selecting the right supplier (Kho, 2017). This explains that choosing a supplier must support business and operational processes within the company. Choosing a supplier that is outside the company's criteria will have a positive impact on operational activities within the company. Decreased operational activities can affect the service provided by the company.

Choosing a supplier that meets the company's criteria will help operational activities. Decreased operational activities can affect the service provided by the company. Things like this can be minimized using a particular assessment system that assesses the capabilities of prospective suppliers who will collaborate with the company.

PT. Seaport Services Indonesia is a company engaged in the service sector which started operating in May 2015. The company's main business activities are procuring goods and services for marine engines and ships. The company is positioned as a contractor that provides goods related to marine and services capable of servicing ships from suppliers who work with the company to the user. PT. Seaport Services has suppliers who supply the goods needed for the procurement and needs of goods in the ship servicing process.

PT. Seaport Services Indonesia experienced several problems in project work, such as unfulfilled supplies, late deliveries, and deliveries. The company itself has not determined the criteria for selecting suppliers and has not conducted an analysis. In achieving focus in the purchasing process to meet supplies, one is getting a supplier that suits the company's needs by setting various considerations as a reference in selecting the right supplier (Kho, 2017). Therefore, choosing a supplier with capabilities that can support business and operational processes within the company is a problem. With the benefits of the Analytical Hierarchy Process or AHP, companies can analyze suppliers to get the best suppliers with specified criteria for consideration (Darmanto, 2014).

Purchasing is one of the most critical functions in successful operations in a company. With this purchasing activity, the quantity and quality of materials must be obtained at the time needed at a price that follows the prevailing Price (Assauri, 2016). Achieving focus in the purchasing process so that supplies can be met is getting a supplier that suits the company's needs by setting various considerations as a reference in selecting the right supplier (Kho, 2017).

A supplier is a company or individual whose activities are to provide the resources the company needs to produce goods or services. In deciding to purchase goods or services that will be resold, it is necessary to select a quality supplier. Companies will look for suppliers with quality and efficiency that can be maintained because supplier development has an essential influence on the implementation of marketing within a company (Fauzi, 2016).

Choosing the right supplier is crucial, with wide-ranging implications in the supply chain. Suppliers play an essential role in the supply chain. Because of this, strategic relationships with suppliers with good performance must exist in the supply chain. Suppliers need to be evaluated with several criteria. Supplier selection is essential in choosing a complete strategy (Omadevi et al., 2012).

Analytical Hierarchy Process (AHP) is a concept for making decisions on a multicriteria basis (many criteria). Several criteria compared with each other (level of importance) are the main emphasis of the AHP concept (Nugeraha, 2017). AHP is included in the decision method with many criteria, which has been a reference for various industries for almost two decades (Darro et al., 2018).

The AHP survey was conducted to strengthen qualitative findings by determining priority burdens (Ho et al., 2016). The advantage of using AHP is that the assessment is consistent. The level of inconsistency and acceptable level of inconsistency can be measured with AHP (Matthew & Robert, 2007).

AHP provides a comprehensive and rational framework for creating decision structures, describing elements, connecting elements with goals, and evaluating alternative solutions (Alireza, 2013).

**Table 1**
**Supplier selection criteria according to TY Choi and JL Hartley**

| ***Categories*** | ***Criteria*** |
|---|---|
| *Finances* | *Financial conditions Profitability*<br>*Financial Information availability*<br>*Performance awards* |
| *Consistency* | *Product Conformity*<br>*Consistent Delivery Times*<br>*Quality Philosophy*<br>*Response times* |
| *Relations Capacity* | *Long-term relations*<br>*Closeness in relations*<br>*Openness in communication*<br>*Reputation* |
| *Flexibility* | *Changes in production volumes*<br>*Reduction of equipping times reduction of delivery times*<br>*Resolutions of conflicts* |
| *Technological Capabilities* | *Design Capabilities*<br>*Technical Capabilities* |
| *Services* | *Post-sales assistance*<br>*Sales representative competence* |
| *Reliability* | *Incremental improvements*<br>*Product reliability* |
| *Price* | *initial Price* |

Source: (Ghianni et al., 2013)

According to Sudaryono (2010), when solving problems using the Analytical Hierarchy Process (AHP) method, several basic concepts need to be understood, including:

1. Create a hierarchical system that is complex and understandable by breaking it down into supporting elements, arranging these elements hierarchically, and combining them.
2. Pairwise comparisons assess criteria and alternatives. For various issues, 1 to 9 is the best scale for interpreting opinions (Saaty, 2008).
3. Priority is determined for each criterion, and alternative pairwise comparisons must be made. The relative comparative values of all alternative criteria can be adjusted to the judgment that has been determined to determine weights and priorities. Weights and priorities are calculated by solving mathematical equations.
4. Logical Consistency has two meanings. First, similar objects can be grouped according to uniformity and relevance. They were second, transporting the level of Relationship between objects based on specific criteria.

The following are the steps in the Analytical Hierarchy Process (AHP) method according to Kursini (2007):

1. Identify existing problems and determine the desired solution, then arrange a hierarchy of existing problems.

2. First, determine the priority of the elements by making pairwise comparisons, namely comparing elements in pairs according to the given criteria. Second, the pairwise comparison matrix is assessed (providing judgment), which is carried out using numbers from 1 to 9 to represent the relative importance of an element to other elements.
3. Synthesis
   Considerations of pairwise comparisons are synthesized to obtain overall priorities. The things to do in this third step are:
   a. Add up the values from each column in the existing matrix.
   b. Divide each column value by the number of pools to obtain the normalization matrix.
   c. Add up the values from each row and divide by the number of elements to get the average value.
4. Measuring Consistency
   a. Multiply each value in the first column by the relative priority of the first element, the value in the second column by the relative priority of the second element, and so on.
   b. Add up each row.
   c. The row sum result is divided by the relative priority elements.
   d. Add the quotient to the number of elements present; the result is called max.
5. Calculate Consistency Index (CI)

$$CI = (\lambda max - n)/n$$

Where :

n = number of elements.

6. Calculate Consistency Ratio (CR)

$$CR = CI/RI$$

Where :

CR = Consistency Ratio

CI = Consistency Index

RI = Random Consistency Index

7. Check the Consistency of the hierarchy. If the value is more than 10% or 0.1, then the assessment data judgment (assessment) must be corrected. The calculated results can be declared correct if the Consistency Ratio is less or equal to 0.1.

A list of Random Consistency Index (RI) to see the values can be seen in the following Table 2:

**Table 2**
**List of Random Consistency Index**

| Matrix Size | IR value |
|---|---|
| 1,2 | 0.00 |
| 3 | 0.58 |
| 4 | 0.90 |
| 5 | 1.12 |
| 6 | 1.24 |
| 7 | 1.32 |
| 8 | 1.41 |
| 9 | 1.45 |
| 10 | 1.49 |
| 11 | 1.51 |
| 12 | 1.48 |
| 13 | 1.56 |
| 14 | 1.57 |
| 15 | 1.59 |

Source: Saaty and Tran (2007)

## RESEARCH METHOD

### Data collection technique

The data collection techniques in this research are primary data and secondary data. Primary data is data obtained directly from informants or main sources closely related to the central theme of the problem in the research. Researchers can make direct observations or observations, conduct interviews, or give questionnaires to obtain primary data. In this study, primary data was obtained through observation, interviews with the Main Director, and filling out questionnaires by Directors, Managers, and Chief Technicians at PT. Seaport Services Indonesia. Secondary data is data that is indirectly obtained because data is available, which supports primary data to obtain research results. Secondary data is usually displayed in the form of tables and diagrams. This data can be obtained from company documents or literature. In this study, secondary data can be in documents regarding suppliers and literature related to supplier selection.

### Data analysis techniques

The data analysis used in this research is the Analytical Hierarchy Process (AHP) method using an application called Expert Choice. Expert Choice can facilitate the analysis of priority (selected) suppliers by entering the criteria, suppliers, and pair comparison results that have been filled in in the questionnaire. Expert Choice can display the results of the analysis of the questionnaire results filled in on comparing criteria and suppliers. Starting from the weighting results, the level of Consistency of the weighting to the results of prioritized suppliers (selected suppliers).

The following are the steps in solving problems using the Analytical Hierarchy Process (AHP) method:

1. Questionnaire filling

Respondents filled out the questionnaire to find out the assessment, the results of which would be used to weigh criteria and suppliers.

2. Carry out weighting of the criteria.
   Criteria weighting is done with the aim that the value of each criterion can be known and performed as pairwise comparison values.
3. Carrying out supplier weighting
   Supplier weighting is carried out to know the value of each supplier, which will be carried out as a comparison value of one supplier with another supplier.
4. Selection Criteria & Priority Suppliers
   Priority Criteria & Supplier for selected companies.

**Assumptions in the Analytical Hierarchy Process (AHP):**

1. The minimum number of respondents is two.
2. Respondents are influential people in policy.
3. A pair comparison in the Analytical Hierarchy Process (AHP) is said to be consistent if the pair comparison value is not more than 0.1 (10%).

## RESULTS AND DISCUSSION

### Data Collection and Processing

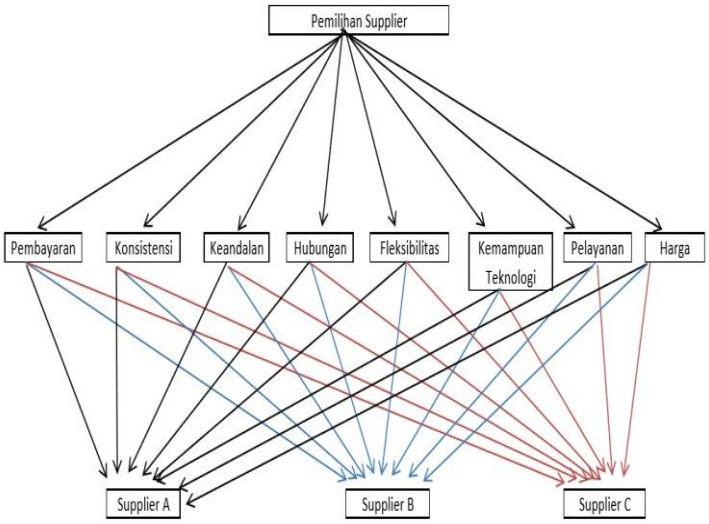
In this study, data on the number of suppliers used by the research object was obtained by conducting interviews with interested parties to determine suppliers within the company. Data for processing in determining priority criteria and priority suppliers (selected) are taken using a questionnaire by providing an assessment of the level of importance using the Saaty pair comparison scale, which has a score from 1 to 9. The questionnaire is filled out by three people who have an interest in making supplier decisions within the company, namely the Director, Deputy Director, and Chief Engineer.

**Weighting using the AHP (Analytical Hierarchy Process) Method**

### Hierarchy Arrangement

Establishing a hierarchy is the first stage in weighting values using the AHP method. The purpose of compiling a hierarchy is to explain the problem in a structured way and to make it easy to understand. The following is a hierarchical structure for this study.

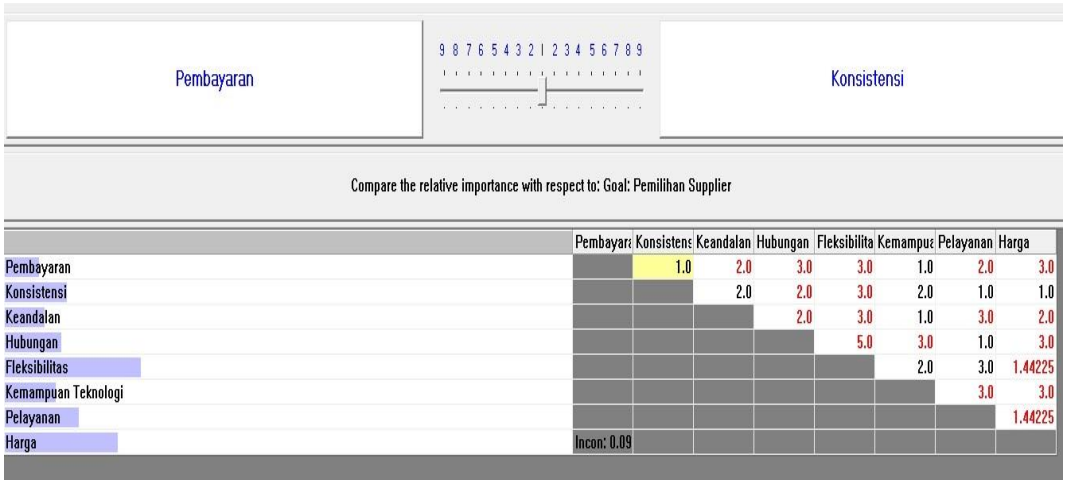
**Figure 1 Hierarchy Structure**



**Weighting Between Criteria**

At this stage, the weighting is done in pairwise comparisons between criteria. The numbers in the questionnaire filled in by three respondents were input into the Expert Choice application. The following results from a pairwise comparison of criteria using the Expert Choice application.

**Figure 2 Results of Pair Comparisons between Criteria**




| | Pembayara | Konsistens | Keandalan | Hubungan | Fleksibilita | Kemampua | Pelayanan | Harga |
|---|---|---|---|---|---|---|---|---|
| Pembayaran | | 1.0 | 2.0 | 3.0 | 3.0 | 1.0 | 2.0 | 3.0 |
| Konsistensi | | | 2.0 | 2.0 | 3.0 | 2.0 | 1.0 | 1.0 |
| Keandalan | | | | 2.0 | 3.0 | 1.0 | 3.0 | 2.0 |
| Hubungan | | | | | 5.0 | 3.0 | 1.0 | 3.0 |
| Fleksibilitas | | | | | | 2.0 | 3.0 | 1.44225 |
| Kemampuan Teknologi | | | | | | | 3.0 | 3.0 |
| Pelayanan | | | | | | | | 1.44225 |
| Harga | Incon: 0.09 | | | | | | | |

(Source: Processed data, 2019)

Information :

a. Black numbers indicate that the first criterion (decreasing) scores higher than the second criterion (even).
b. The red numbers indicate that the second criterion (even) scores higher than the first (declining) criterion.

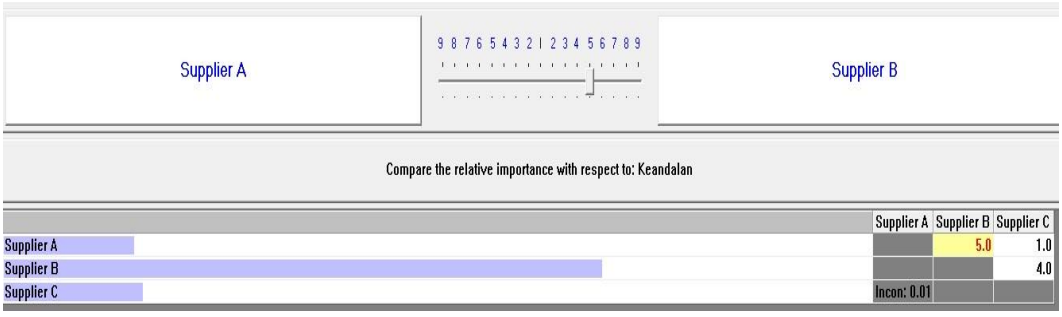
With these results, it can be concluded that the pairwise comparison assessment given by the three respondents has valueIncon/Consistency Ratio, which is smaller than 0.10 as the maximum limit of the Inconsistency Ratio value, with Flexibility selected as the priority criterion.

Based on Figure 2, it can be seen that the Incon/Consistency Ratio value is 0.09. This value is less than 0.10. With the results obtained after the data value comparison of the criteria pair is carried out, the calculation results can be consistent.

**Supplier Selection Assessment Weighting Based on Each Criterion**

At this stage, weighting is carried out in pairwise comparisons in assessing suppliers based on each criterion. The numbers filled in in the questionnaire, which three respondents have filled in, are input into the Expert Choice application. The following are the results of a pairwise comparison of criteria using the Expert Choice application.

**Figure 3 Supplier Assessment According To Payment Criteria**




| | Supplier A | Supplier B | Supplier C |
|---|---|---|---|
| Supplier A | | 5.0 | 1.0 |
| Supplier B | | | 4.0 |
| Supplier C | Incon: 0.01 | | |

(Source: Processed data, 2019)

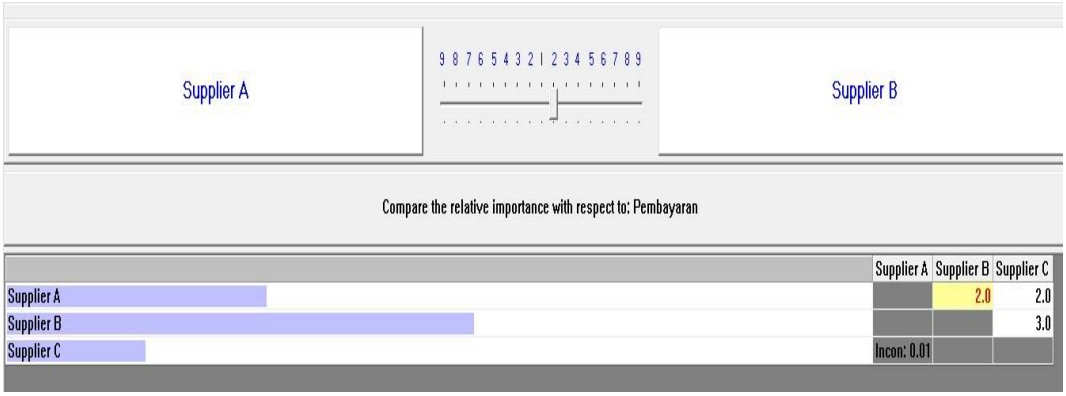
Information :

a. The black number shows that the first supplier (descending) scores higher than the second criterion (horizontal).
b. The red numbers show that the second supplier (even) scores higher than the first criterion (decreases).

With these results, it can be concluded that the pairwise comparison assessment given by the three respondents has a value*Incon/Consistency Ratio*, which is smaller than 0.10 as the maximum limit of the Incon/Consistency Ratio value. Supplier B was selected as the best supplier in the Payment criteria

Based on Figure 3, it can be seen that the value *icon/Consistency ratio* is 0.01. This value is less than 0.10. With the results obtained after comparing supplier pair value data is done, the calculation results are consistent.

**Figure 4 Supplier Assessment According to Consistency Criteria**



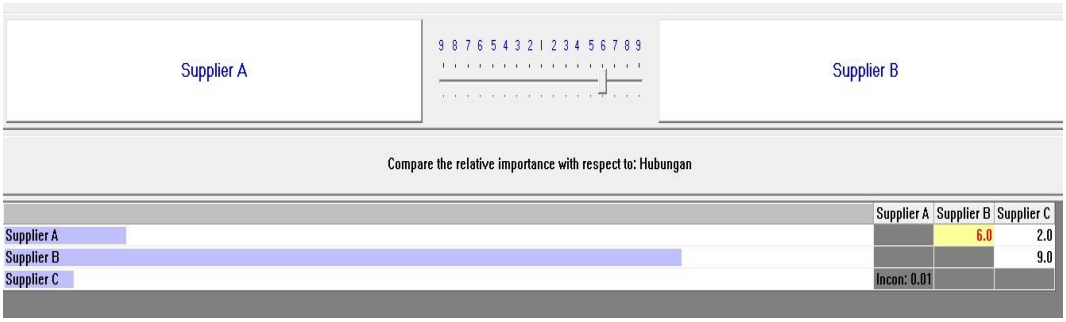

(Source: Processed data, 2019)

Information :

a. The black number shows that the first supplier (descending) scores higher than the second criterion (horizontal).
b. The red numbers show that the second supplier (even) scores higher than the first criterion (decreases).

With these results, it can be concluded that the pairwise comparison assessment given by the three respondents has a value *icon/Consistency Ratio*, which is smaller than 0.10 as the maximum limit of the Inconsistency Ratio value. Supplier B was selected as the best supplier in the Consistency criteria. Based on Figure 4, the value can be seen *as/Consistency* ratio of 0.01. This value is less than 0.10. With the results obtained after comparing supplier pair value data, the calculation results can be consistent.

**Figure 5 Supplier assessment according to Reliability criteria**



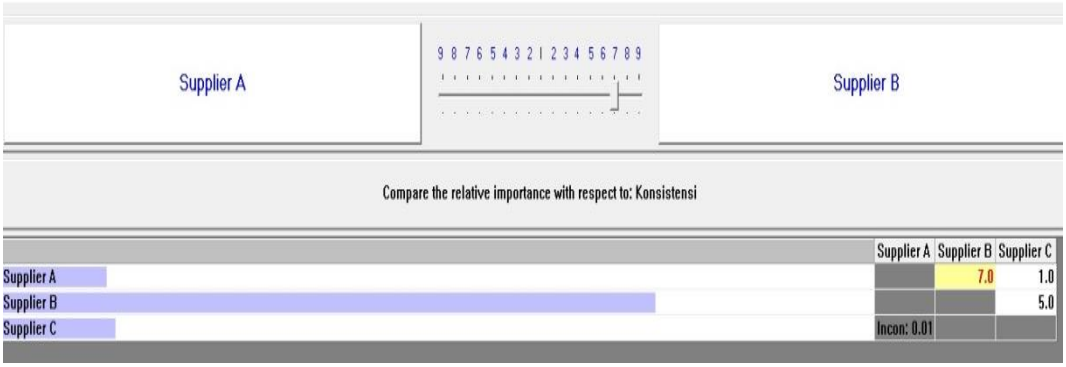

(Source: Processed data, 2019)

Information:

a. The black number shows that the first supplier (descending) scores higher than the second criterion (horizontal).
b. The red numbers show that the second supplier (even) scores higher than the first criterion (decreases).

With these results, it can be concluded that the pairwise comparison assessment given by the three respondents has a value*Incon/Consistency Ratio*, which is smaller than 0.10 as the maximum limit of the Incon/Consistency Ratio value. Supplier B was selected as the best supplier in the Reliability criteria. Based on Figure 5, it can be seen that the value icon*/Consistency ratio* is 0.01. This value is less than 0.10. With the results obtained after comparing supplier pair value data, the calculation results can be consistent.

**Figure 6 Supplier assessment according to Relationship criteria**



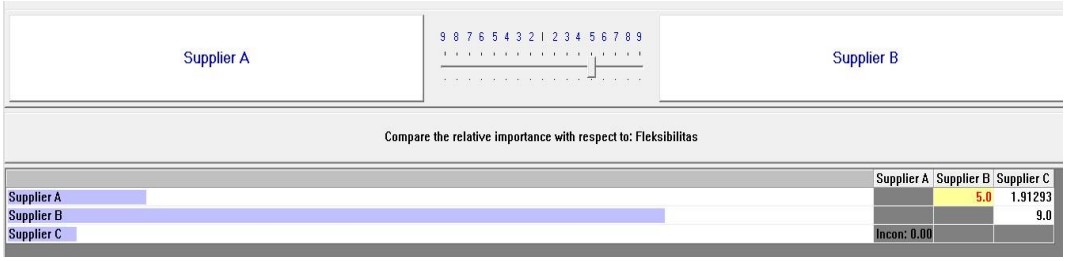

(Source: Processed data, 2019)

Information :

a. The black number shows that the first supplier (descending) scores higher than the second criterion (horizontal).
b. The red numbers show that the second supplier (even) scores higher than the first criterion (decreases).

With these results, it can be concluded that the pairwise comparison assessment given by the three respondents has a value*Incon/Consistency Ratio*, which is smaller than 0.10 as the maximum limit of the Incon/Consistency Ratio value. Supplier B was selected as the best supplier in the Relationship criteria. Based on Figure 6, the value can be seen *as/Consistency* ratio of 0.01. This value is less than 0.10. With the results obtained after comparing supplier pair value data, the calculation results can be consistent.

**Figure 7 Supplier assessment according to Flexibility criteria**



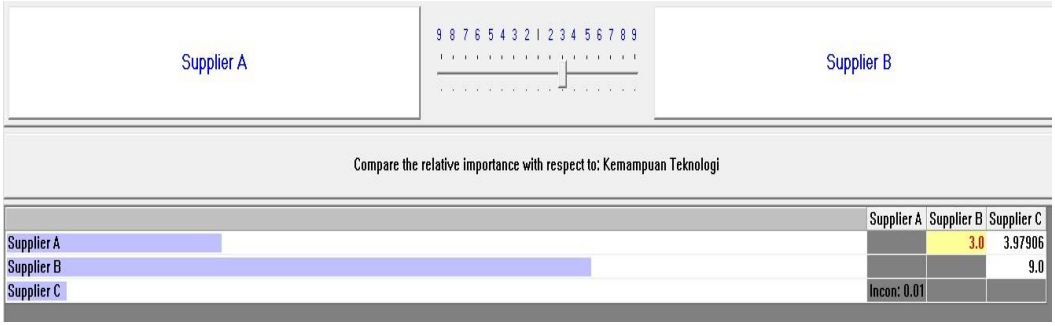

(Source: Processed data, 2019)

Information :

a. The black number shows that the first supplier (descending) scores higher than the second criterion (horizontal).
b. The red numbers show that the second supplier (even) scores higher than the first criterion (decreases).

With these results, it can be concluded that the pairwise comparison assessment given by the three respondents has a value *icon/Consistency Ratio*, which is smaller than 0.10 as the maximum limit of the Inconsistency Ratio value. Supplier B was selected as the best supplier in the Flexibility criteria. Based on Figure 7, the value can be seen *as/Consistency* ratio of 0.00039. This value is less than 0.10. With the results obtained after the comparison value data for supplier pairs is carried out, the calculation results can be consistent.

**Figure 8 Supplier Assessment According to Technology Capability Criteria**



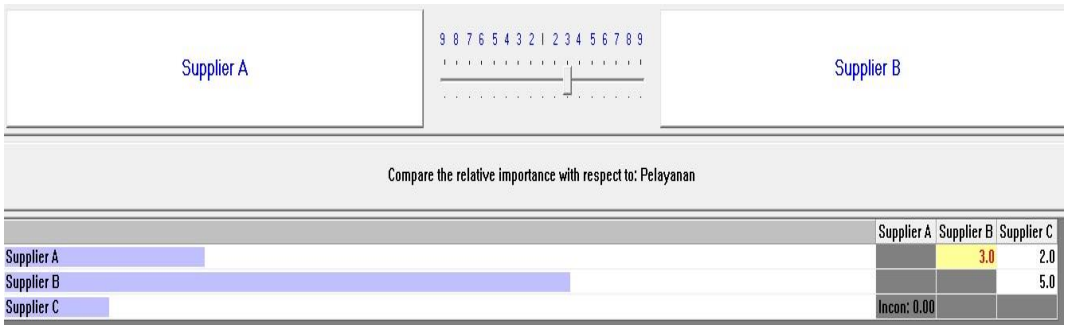

(Source: Processed data, 2019)

Information :

a. The black number shows that the first supplier (descending) scores higher than the second criterion (horizontal).
b. The red numbers show that the second supplier (even) scores higher than the first criterion (decreases).

With these results, it can be concluded that the pairwise comparison assessment given by the three respondents has a value*Incon/Consistency Ratio*, which is smaller than 0.10 as the maximum limit of the Incon/Consistency Ratio value. Supplier B was selected as the best supplier in the Technology Capability criteria. Based on Figure 8, it can be seen that the value*/Consistency ratio* is 0.01. This value is more than 0.10. With the results obtained after the supplier pair comparison value data was carried out, the calculation results are inconsistent. This happened due to a neutral assessment from one of the respondents.

**Figure 9 Supplier Assessment According to Service Criteria**



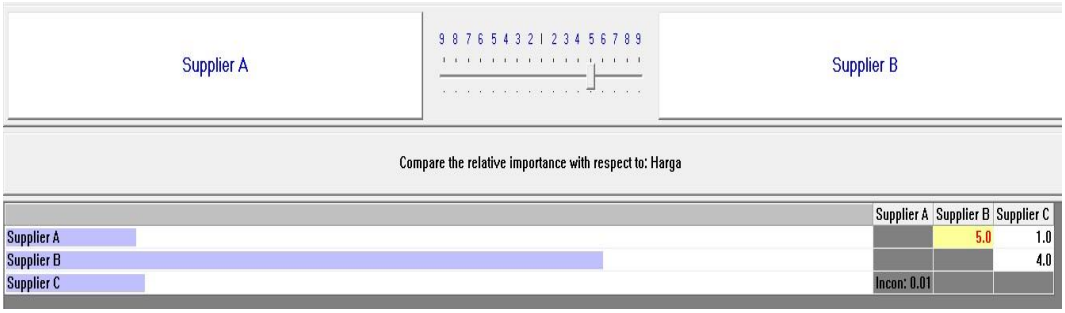

(Source: Processed data, 2019)

Information :

a. The black number shows that the first supplier (descending) scores higher than the second criterion (horizontal).
b. The red numbers show that the second supplier (even) scores higher than the first criterion (decreases).

With these results, it can be concluded that the pairwise comparison assessment given by the three respondents has a value *icon/Consistency Ratio*, which is smaller than 0.10 as the maximum limit of the Inconsistency Ratio value. Supplier B was selected as the best supplier in the Service criteria. Based on Figure 9, it can be seen that the Incon/Consistency Ratio value is 0.00352. This value is less than 0.10. With the results obtained after the pair comparison value data *suppliers* are done, the calculation results are consistent.

**Figure 10 Supplier Assessment According to Price Criteria**




(Source: Processed data, 2019)

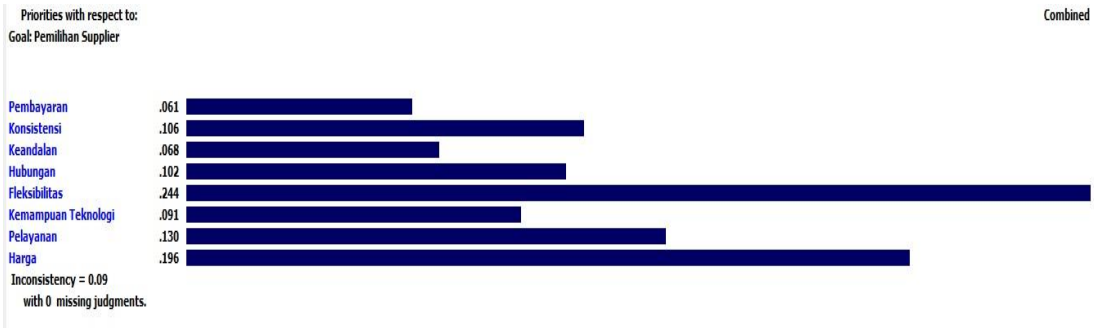
Information:

a. The black number shows that the first supplier (descending) scores higher than the second criterion (horizontal).
b. The red numbers show that the second supplier (even) scores higher than the first criterion (decreases).

With these results, it can be concluded that the pairwise comparison assessment given by the three respondents has a value *icon/Consistency Ratio*, which is smaller than 0.10 as the maximum limit of the Inconsistency Ratio value. Supplier B was selected as the best supplier in the price criteria. Based on Figure 10, the value can be seen *as/Consistency* ratio of 0.01. This value is less than 0.10. With the results obtained after comparing supplier pair value data, the calculation results can be consistent.

**Selection of Priority Criteria**

**Figure 11 Priority Criteria**




(Source: Processed data, 2019)

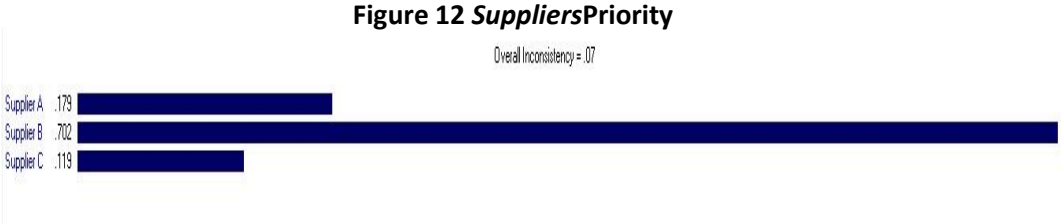
Based on Figure 11, it can be concluded that the results of data processing obtained from the results of the selected priority criteria questionnaire are Flexibility, which has the highest weight. Based on the priority ranking, the highest weighting criteria is Flexibility with a value of 0.244, followed by Price with a value of 0.196, Service with a value of 0.130, Consistency with a value of 0.106, Relationship with a value of 0.102, Technological Capability with a weight of 0.017, Reliability with a value of 0.068. At the same time, the last is a payment with a value of 0.061. The assessment carried out has an Incon/Consistency Ratio value smaller than 0.10 as the maximum limit for the Incon/Consistency Ratio value. Based on Figure 11, it can be seen that the Incon/Consistency Ratio value is 0.09. This value is less than 0.10.

**Table 2**
**Tabulation of the best suppliers on each criterion**

| Kritera | Supplier Terpilih |
|---|---|
| Pembayaran | Supplier B |
| Konsistensi | Supplier B |
| Keandalan | Supplier B |
| Hubungan | Supplier B |
| Fleksibilitas | Supplier B |
| Kemampuan Teknologi | Supplier B |
| Pelayanan | Supplier B |
| Harga | Supplier B |

**Priority Supplier Selection**

**Figure 12 *Suppliers*Priority**




(Source: Processed data, 2019)

Based on Figure 12, it can be concluded that from the data processing results obtained from the questionnaire results, the selected priority supplier is Supplier B, which has the highest weight. Based on the priority ranking, the highest supplier weight belongs to Supplier B, with a value of 0.702, followed by Supplier A, with a value of 0.179, and Supplier C, with a value of 0.119. The value of priority suppliers is consistent because the value*/Consistency ratio* is 0.07. This value is less than 0.10. With the results obtained after comparing supplier pair value data, the calculation results can be consistent.

The results of data analysis, pair comparison assessment, and consistency test of at most 0.1 have fulfilled what has been stipulated in the calculation*Analytical Hierarchy Process*(AHP) by Saaty. Saaty stipulates that a comparison matrix is consistent if the value of CR is not more than 0.1 (10%) (Adam et al., 2012).

According to Budi Kho (2017), to achieve a focus on purchasing so that supply can be fulfilled, one of them is to choose suppliers that the company needs by setting various considerations or criteria as a reference in selecting the right supplier. Decision-making can be done with the AHP method, which has a concept based on criteria (Nugeraha, 2017). Selection of the best supplier, namely supplier B, can be decided based on the criteria needed by the company using the AHP method.

## CONCLUSION

AHP is a method for overcoming selection problems involving many interrelated criteria and alternatives. This method is beneficial in various contexts, including business decision-making, project planning, product appraisal, investment selection, etc. AHP results show the best supplier for PT. Seaport Services Indonesia is Supplier B with the highest weight compared to the other two suppliers. The priority criterion for the AHP method in selecting suppliers is Flexibility.

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# Tax Avoidance: Influencing Leverage, Capital Intensity, and Audit Quality?

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ABSTRACT

Tax is a mandatory contribution to the state used for the people's prosperity. On the other hand, tax for companies is a burden that can reduce the company's net profit. This difference in interests between the government and company management results in tax avoidance. Tax avoidance is an action taken by a company to minimize tax payments. This study aims to determine the effect of leverage, capital intensity, and audit quality on tax evasion. Tax avoidance is measured using ETR Calculation. The population in this study are property and real estate companies listed on the Indonesia Stock Exchange for the 2018-2022 period. The sample selection technique used purposive sampling and obtained a sample of 9 companies. The data analysis method in this study used linear regression with a significance of 5%. The results showed that partial leverage had a significant positive effect on tax avoidance, capital intensity did not affect tax avoidance, and audit quality significantly impacted tax avoidance. Meanwhile, simultaneously, leverage, capital intensity, and audit quality have a significant positive effect on tax avoidance.

## INTRODUCTION

The State of Indonesia obliges its citizens to comply with taxes. Tax is a collection a person or entity must pay to a coercive state without direct remuneration. On the other hand, for companies, tax is a burden that can reduce the company's net profit, so many companies tend to do tax evasion. Ari et al. (2020).

Tax Avoidance or tax avoidance is an act of minimizing tax payments by seeking and exploiting the weaknesses of tax flexibility so that it is considered valid and does not violate the law. Oktavia et al., (2021). In Indonesia, tax avoidance activities are very likely to occur because of the accepted taxation system, namely the self-assessment system, where taxpayers are given the trust to calculate, pay, and self-report the amount of tax paid in accordance with the tax regulation.

Several factors cause companies to carry out tax avoidance in this research. The main focus of the factors that will affect tax avoidance are leverage, capital intensity, and audit quality. Leverage is the ratio used to overcome the extent to which the company can pay off its debts. Rizqia & Lastiati, (2021). Leverage is implemented using the Equality Ratio, which compares the total debt generated and the total equity obtained by the company as a funding source. Darmayanti et al. (2023) The more significant the level grade value, the greater the level of tax evasion the company carries. The results of the previous study found differences; the research by Riskatari & Jati (2020), Triyanti et al. (2020), and Gulnawan (2020) found that the level variable has a positive effect on tax avoidance. In contrast, research by Ari et al. (2020) shows that the gel level negatively impacts tax avoidance.

The next factor influencing tax avoidance is capital intensity, an indicator used to evaluate how many companies invest company assets in the form of fixed assets and supplies Ari et al., (2020). Capital intensity explains how many company assets are invested in fixed assets. Companies can use fixed assets to carry out tax evasion so that the company's tax burden is low. The higher the company's capital intensity, the higher the level of tax evasion by the company. The results of the previous research show a difference; the study of Ari et al. (2020) shows that capital intensity positively affects tax avoidance. Meanwhile, research by Fransisca Shelly (2022) shows that capital Intensity does not affect tax avoidance.

Another factor that influences the occurrence of tax avoidance is audit quality. Audit quality is the main result of an auditor's work in providing information that can be trusted and relied upon to fulfil the needs of the service provider of an individual public accountant, Ainiyah et al., (2021). The results of the previous study found differences; namely, research by Tahilia et al. (2022) found that audit quality positively affects tax avoidance. Meanwhile, research by Fransisca Shelly (2022) shows that audit quality does not affect tax avoidance.

The property industry is considered to play a strategic role in growing the national economy, and the property industry has proven to be resilient in facing the economic crisis during the COVID-19 pandemic.

The reason for researchers choosing this research topic is because of the relative gap or difference in results that are diverse because there are differences in variables, the number of samples, the observation period, and the statistical methodology used, so researchers are attracted to repeat tests to find out how many times garish leverage, capital intensity, and audit quality against tax avoidance.

**Agency Theory**

The theory prohibits agency relations as a contractual arrangement between management as an agent and the government as a principal. Darmayanti et al., (2023). For corporate governance, taxes are a burden that can reduce a company's net profit, while for the government, taxes are the biggest source of financing for the state.

**Planned Behavior Theory**

Planned Behavior Theory explains that behavioural intentions can lead to behaviours that the individual will carry out. The basic principle of using this theory is the assumption that the sense that a person has will cause the behaviour he will take, where the higher the intention of the individual to try to take the initiative to do something, the greater the pull of the action that will be carried out based on the preference. Krishna, (2019).

**Tax**

Taxes are mandatory contributions to countries that are owed by individual or corporate taxpayers who are coercive based on the law, with no direct compensation and used for state affairs for the greatest possible prosperity of the people.

**Tax Avoidance**

Minimizing tax payments results in a decrease in the amount of tax that the state should receive by taking advantage of the weaknesses of tax laws so that they are considered valid and do not violate laws Oktavia et al., (2021).

**Leverage**

Leverage is the ratio used to leverage the extent to which a company is able to pay off its debts, both short-term and long-term debt Rizqia & Lastiati, (2021). The leverage can be calculated using the debt-equity ratio (DER) formula, which is used to see how much the company is financed by debt by dividing the total debt by the total assets owned. Darmayanti et al., (2023).

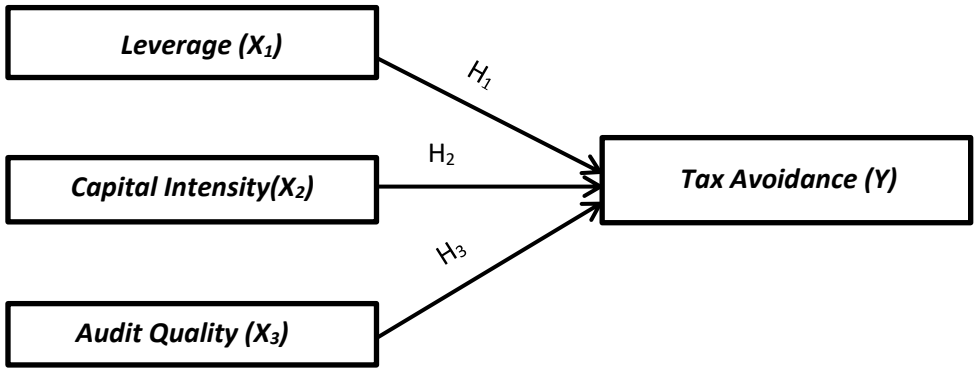
**Capital Intensity**

Capital intensity is a ratio used to see how large a company invests its assets in the form of fixed assets. Viryatama, (2020). Capital intensity can be measured by dividing total fixed assets by total assets. Ari et al. (2020).

**Audit Quality**

Audit quality is a systematic process to evaluate and objectively evaluate volumes regarding statements about activities and economic events to determine the level of conformity between statements and criteria set correctly—delivery of results to interested users. Ainiyah et al., (2021). Audit quality can assess high or low variations in tax avoidance. Audit quality can be evaluated using the Dummy variable; that is, if KAP Big Foulr audits a company, it will be given a score of 1; on the other hand, a company that KAP Big Foulr does not audit will be given a score of 0. Rizqia & Lastiati, (2021)

**Figure 1 Conceptual Framework**



Information :

X1: Leverage (DER)

X2: Capital Intensity (CI)

X3: Audit Quality (Dummy)

Y: Tax Avoidance (ETR)

**Hypothesis**

**H1: Effect of leverage (X1) on tax avoidance (Y)**

The results of Gulnawan's research (2020) show that the level variable significantly affects tax avoidance. Meanwhile, Awalianti and Nasultion's research (2020) found that the level variable has no effect on tax avoidance. This is because debt owned by the company will result in the appearance of interest expenses, which can be a multiplier for taxable profits, while dividends originating from retained earnings cannot be a multiplier for profits. Thus, the higher the level, the higher the pull for tax avoidance.

**H2: Effect of capital inetnsity (X2) on tax avoidance (Y)**

The research results by Widya et al. (2020) stated that capital intensity impacts tax avoidance. The company's fixed assets each year will generate consulting expenses, which can directly reduce the company's profits, which are the basis for calculating company taxes, so the higher the company's capital intensity, the higher the company's tax evasion. In the meantime, Melnulult's research, Monika & Noviari (2021), shows that capital intensity does not affect tax avoidance.

**H3: Effect of audit quality (X3) on tax avoidance (Y)**

Research results of S.T. Tahilia et al. (2022) found that audit quality significantly affects tax avoidance. The higher the company indicator score in audit quality, the smaller the company's tax avoidance practice. Meanwhile, research by Monika & Noviari (2021), shows that audit quality has no effect on tax avoidance.

## RESEARCH METHOD

The research approach used is a quantitative research approach. The quantitative research approach uses data shaped by numbers in carrying out the analysis using statistics Ramdhan, (2021: 6). This research will be carried out by collecting data at the BEI through the official site www.idx.co.id. Meanwhile, the time for carrying out this research starts in April 2023. The research object that will be analyzed is a property and real estate company registered during the BEI period 2018-2022, which will then be used to embrace leverage, capital Intensity, and audit quality against tax avoidance. The population used in this research is all property and real estate companies registered at BEI in 2018-2022. The total population in this research is as many as 84 companies. In this research, there were 9 companies that were sampled from 84 companies in the property and real estate sector registered at BEI in 2018-2022, so a total of 9 unit analyses was obtained (9 x 5 years). The data to be retrieved in this research is secondary data. The selective data in this research are in the form of annual return reports on property and real estate companies registered at the BEI, which have been audited and published in 2018-2022.

## RESULTS AND DISCUSSION

### Descriptive Statistics

Descriptive Statistics is a statistic that is used to analyze data by describing or describing the data that has been collected as it is without intending to make generally accepted conclusions or generalizations (Andini & Surya, 2020).

**Table 1 Descriptive Statistical Test Results**

| *Descriptive Statistics* | | | | | |
|---|---|---|---|---|---|
| | N | *Minimum* | *Maximum* | *Mean* | *Std. Deviation* |
| *Leverage* | 45 | .04 | 3.79 | .8369 | .88010 |
| *Capital intensity* | 45 | .01 | .19 | .0667 | .05121 |
| *Audit quality* | 45 | .00 | 1.00 | .3333 | .47673 |
| *Tax avoidance* | 45 | .00 | .98 | .1258 | .20044 |
| *Valid N (listwise)* | 45 | | | | |

Source: data processed by researchers, 2023

Based on the results of the descriptive test above, it can be seen that the variable Leverage (X1), which is stretched, favours the Debt to Equity Ratio (DER) and has a minimum value of 0.04 at the company PT. Puradelta Lestari Tbk in 2018, the maximum value is 3.79 at the company PT. PP Property Tbk in 2022. On average, the figure is 0.8369, and the standard deviation is 0.88010. Variable Capital Intensity (X2), which is extended, favours the Capital Intensity ratio, which has a minimum value of 0.01 at the company PT. Bumi Selrpong Damai Tbk in 2020. The maximum value is 0.19 at the company PT. Jababeka Industrial Estate Tbk in 2018. According to the average value, the figure is 0.0667, and the standard deviation is 0.05121. The variable audio quality (X3), implemented using the dummy variable, has a minimum value of 0. KAP Big Foulr does not audit these companies and has a maximum value of 1, namely companies audited by KAP Big Foulr with an average value of 0.3333 and a standard deviation value of large 0.47673. The variable tax avoidance (Y), measured using the Effective Tax Rate (ETR), has a minimum value of 0.00 at the company PT. Suryamas Dutamakmur Tbk in 2019, the maximum value is 0.98 at the company PT. Jababeka Industrial Estate Tbk in 2019. According to the average value, the number is 0.1258 (12.58%), and the standard deviation is 0.20044.

### Classic assumption test

### Normality test

Based on Table 2, it can be seen that the results of the normality test with the Kolmogorov-Smirnov test one sample show Asymp. Sig. (2-tailed) 0.200, which means 0.200 > 0.05.

**Table 2 Normality Test Results**

| *One-Sample Kolmogorov-Smirnov Test* | | |
|---|---|---|
| | | *Unstandardized Residual* |
| N | | 45 |
| *Normal Parameters*[a,b] | *Mean* | -.8482621 |
| | *Std. Deviation* | 2.42289945 |
| *Most Extreme Differences* | *Absolu* | .088 |
| | *Positive* | .088 |
| | *Negative* | -.069 |
| *Test Statistic* | | .088 |
| *Asymp. Sig. (2-tailed)* | | .200[c,d] |

Source: data processed by researchers, 2023

**Multicollinearity test**

**Table 3 Multicollinearity results**

| *Coefficients* | | | | |
|---|---|---|---|---|
| | | *Unstandardized Coefficients* | | *Standardized Coefficients* |
| Model | | B | *Std. Error* | *Beta* |
| 1 | *(Constant)* | -.026 | .046 | |
| | *Leverage* | .129 | .033 | .569 |
| | *Capital intensity* | .631 | .490 | .161 |
| | *Audit quality* | .003 | .061 | .008 |

A. *Dependent Variabel: Tax avoidance*

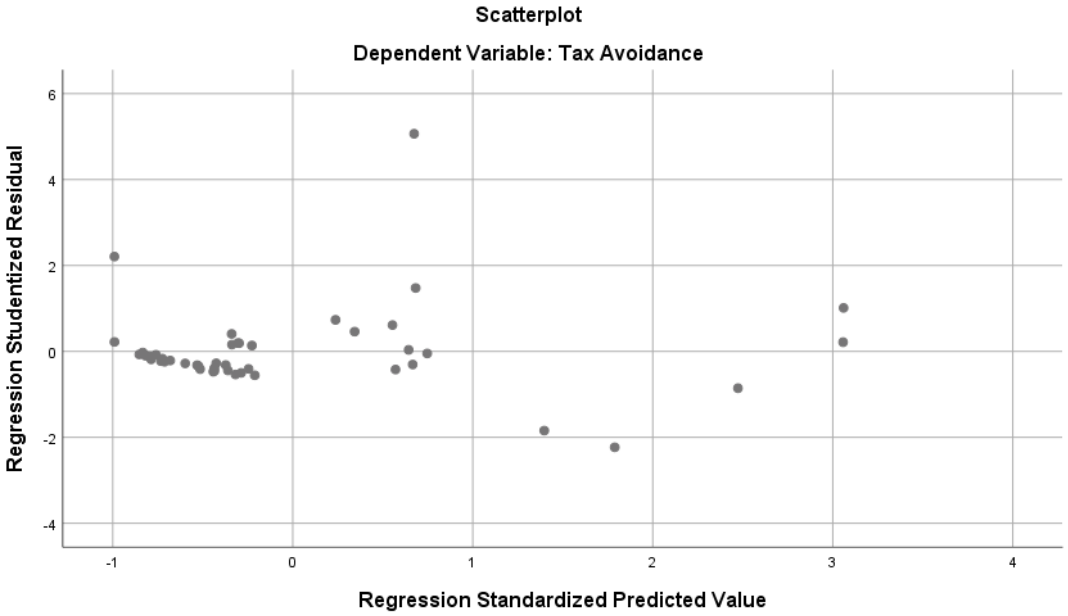
Source: data processed by researchers, 2023

Based on Table 3, the Leverage variable (X1) has a tolerance value of 0.732 > 0.10 and a VIF value of 1.366 <10. It means that the Leverage variable does not occur in multicollinearity. Variable Capital intensity (X2) has a tolerance value of 0.977 > 0.10 and a VIF value of 1.023 <10, which means that the Leverage variable does not occur multicollinearity. 10, it means that the Leverage variable does not occur in multicollinearity. Variable audit quality (X3) has a tolerance value of 0,738 > 0,10 and a VIF value of 1,355 < 10, which means that the audit quality variable does not occur in multicollinearity.

**Heteroskedastisitas test**

Based on the scatterplot Figure 2, it can be seen that the dots spread randomly do not form a clear rectangular pattern and spread out both above and below the number 0 from the origin of Y, from the independent variables consisting of leverage, capital Intensity, and audit quality to tax avoidance as a depletion variable, then this means that there is no heteroskedasticity in this regression model.

**Figure 2 Heteroskedastisitas test results**




**Autoccorrelation test**

**Table 4 Autoccorrelation Results**

| Model *Summary*[b] | |
|---|---|
| Model | *Durbin-Watson* |
| 1 | 1.960 |

Source: data processed by researchers, 2023

Based on Table 4, the Dulrbin-Watson (D-W) value is more significant than 1.960, with a thickness of n = 45, k = 3, obtained dUl = 1.6662, so that 4-dUL = 4-1.6662 = 2.3338, which means the value of DW bera is between dUl and (4-dUl), i.e. 1.6662 < 1.960 < 2.3338. Thus, in this correlation model, there is no autocorrelation.

**Statistical inference test**
**Linear regression analysis**

**Table 5 Linear Regression Analysis**

| ***Coefficients*** | | | | |
|---|---|---|---|---|
| | | *Unstandardized Coefficients* | | *Standardized Coefficients* |
| Model | | B | *Std. Error* | *Beta* |
| 1 | *(Constant)* | -.026 | .046 | |
| | *Leverage* | .129 | .033 | .569 |
| | *Capital intensity* | .631 | .490 | .161 |
| | *Audit quality* | .003 | .061 | .008 |
| B. *Dependent Variabel: Tax avoidance* | | | | |

Source: data processed by researchers, 2023

Based on the Table 5, the following correlation formulas can be obtained:

Y = -0.026 + 0.129 X1 + 0.631 X2 + 0.003 X3 + e

Based on the research results Table 5, it was obtained:

1. The constant value is -0.026, which means that if Leverage (X1), capital intensity (X2), and audit quality (Y) are 0% (zero), then tax avoidance (Y) will experience a reduction of -0.026.
2. The variable Leverage (X1) increases by 0.129, which means that if the other independent variables have a fixed value and Leverage increases by 1%, then tax avoidance (Y) will increase by 0.129. The coefficient has a positive value, meaning a positive relationship exists between the independent variables and the dependent variables.
3. The variable Capital Intensity (X2) is 0.631, which means that if the other independent variables have a fixed value and capital intensity has increased by 1%, then tax avoidance (Y) will have increased by 0.631. The coefficient has a positive value, meaning there is a positive relationship between the independent and dependent variables.
4. The variable Audit quality (X3) is more significant than 0.003, which means that if the other independent variables have a fixed value and Audit quality has increased by 1%, it will be increasingly difficult for companies to implement tax evasion. The coefficient has a positive value, meaning there is a positive relationship between the independent and dependent variables.

**Determination analysis (R2)**

**Table 6 Determination analysis**

**Model *Summary***

| Model | *R* | *R Squ* | *Adjusted R Square* | *Std. Error of the Estimate* |
|---|---|---|---|---|
| 1 | .628[a] | .394 | .350 | .16173 |

a. *Predictors: (Constant*), *Audit quality*, *Leverage*, *Capital Intensity*

b. *Dependent Variable*: *tax avoidance*

Source: data processed by researchers, 2023

Based on the Table 6, the results of the determination analysis on the ultimate final model obtained an $R^2$ (R Sqare) figure of 0.350 (35%). This value shows that tax avoidance as a dispelling variable can explain about 35% of the variable leverage, capital intensity, and audit quality. In comparison, 65% is explained by other factors not explained by the variables in this.

**Hipotesis test**

**T-test**

**Table 7 T-test**

***Coefficients***

| | Model | T | Sig. |
|---|---|---|---|
| 1 | *(Constant)* | -2.823 | .007 |
| | *Leverage* | 3.270 | .002 |
| | *Capital Intensity* | 1.109 | .274 |
| | *Audit Quality* | 2.241 | .031 |

Source: data processed by researchers, 2023

Based on the Table above, various results are obtained:

1. Leverage impact on tax avoidance
   The Thicount value is selelsar 3.270 > Ttable 2.01410 and the Sig Lelvelragel value in Table shows the number 0.002 <0.05, which means that the Levelragel variable partially has a significant positive effect on tax avoidance.
2. Implementation of Capital Intensity against Tax Avoidance
   The T-count value is 1.109 < T-table 2.01410, and the sig capital Intensity value in the Table shows 0.274 > 0.05, meaning that the capital Intensity variable partially does not significantly affect tax avoidance.
3. Impact of audit quality on tax avoidance
   The Thicount value is seller 2.241 > Table 2.01410, and the sig audit quality value in Table shows the number 0.031 > 0.05, which means that the audit quality variable partially has a significant effect on tax avoidance

**F-Test**

**Table 8 F-test**

| ***ANOVA[a]*** | | | | | | |
|---|---|---|---|---|---|---|
| | Model | *Sum of Squirres* | *Df* | *Mean Square* | *F* | *Sig.* |
| 1 | *Regression* | .658 | 3 | .219 | 8.099 | .000[b] |
| | *Residual* | 1.110 | 41 | .027 | | |
| | Total | 1.768 | 44 | | | |
| a. *Dependent Variable: Tax avoidance* | | | | | | |
| b. *Predictors: (Constant), Audit quality*, *Capital intensity*, *Leverage* | | | | | | |

Source: data processed by researchers, 2023

Based on Table 8, the F-count value is more significant than 8.099 > F-table 2.81 and a sig value of 0.000 <0.05, which means that the level variable, capital Intensity, and audit quality simultaneously significantly positively affect tax avoidance.

**Discussion**

**Effect of Leverage on Tax Avoidance**

The results of the first hypothesis test, namely variable leverage proxied by DER. The results of the t-test calculation show that the T-count value is more significant than 3.270, and the sig level value in the T-table shows the number 0.002 is smaller than 0.05, which means the research results show that the level has a significant effect on tax avoidance. Thus, (H0) was rejected, and (H1), proposed in this research, was accepted.

Companies that apply leverage policies will get tax incentives that take advantage of interest charges to reduce their tax burden. This means that companies with high levels of credit are likely to carry out tax avoidance actions as a result of tax incentives on interest charges received by companies to minimize their tax burden. The results of this research are in line with research conducted by Triyanti et al. (2020), Riskatari & Jati (2020), and Gulnawan (2020), which stated that level variables have a positive effect on tax avoidance.

**Effect of Capital Intensity on Tax Avoidance**

The results of the first hypothesis test, the capital Intensity variable proxied by the capital Intensity ratio with the test results, show that the T-count value is 1.109. The sig capital Intensity

value in the T-table shows several 0.274 greater than 0.05, which means that the research results show that the capital Intensity variable does not have a significant effect against tax avoidance. Thus, the second hypothesis proposed in this study (H2) is rejected, and (H0) is accepted.

The high investment of fixed assets in the company is used for company operational activities to increase the company's net profit and carry out tax evasion actions. Companies with sound operations and do not take actions that are detrimental to the company can improve the company's image to create a community of trust in the telco company. The results of this research are in line with research conducted by Sonia & Sulnarto (2022), Monika & Noviari (2021), and Fransisca Shelly (2022), which explains that variable Capital Intensity does not affect tax avoidance.

**Effect of Audit Quality on Tax Avoidance**

The results of the third hypothesis test, namely the variable Auldit quality proxied by ElTR, with the results of the ultimate calculation it is known that the T-count value is less than 2.241 and the sig Audit quality value in the T-table shows the number 0.31 is smaller than 0.05, which means that the research results show that the variable Audit quality has a significant effect on tax avoidance. Thus, (H0) was rejected, and the third hypothesis proposed in this study (H3) was accepted.

The results of this research reveal that the higher the quality level of the audit that is assessed based on the auditor coming from the KAP Big Four, the more difficult it will be for companies to carry out tax evasion. The external auditor has the responsibility to analyze and see the ability of the company's staff to carry out its business through a return report. Furthermore, if his ability is increasingly recognized or has a name, the external auditor will indirectly have good audit quality. External auditors acknowledged to have names in Indonesia today are the Big Four, namely Pricel Waterhouse Cooper (PWC), Deloitte Touche Tohmatsu, KPMG, and Ernst & Young (E&Y). The results of this study are in line with those of Melrici et al. (2022), Monika & Noviari (2021) and Widayanti et al. (2022), which explain that the variable Audit quality has a positive and significant effect on tax avoidance.

**Effect of Leverage, Capital Intensity, and Audit Quality on Tax Voidance**

Based on the results of the simultaneous significance test (F test) in the Table above, it is known that the F-count value is 8.099 > F-table 2.81 and the sig value is 0.000 <0.05, which means that the Leverage variable, Capital intensity, and Auldit quality are simultaneously highly significant to tax avoidance. Thus, the third hypothesis proposed in this study was accepted. Based on the results of this research, it has been concluded that the variables Leverage, Capital Intensity and Audit quality will have an impact on tax evasion actions. The results of this research are in line with those of Widayant et al. (2022), Friyanka (2020), and Oktrivina et al. (2020), which explain that together with the leverage, capital Intensity and audit quality have a significant positive effect on tax avoidance.

**CONCLUSION**

Based on the results of the research and discussion above, it can be concluded as follows. Leverage has a positive and significant effect on tax avoidance in property and real estate companies registered in BEI the model period 2018-2022. The larger the level of corporate governance, the higher the level of tax evasion that will be carried out. Variable capital Intensity does not impact tax avoidance in property and real estate companies registered in BEI the period for the 2018-2022 period. The research results show that the investment of assets carried out by companies cannot affect the company's ability to carry out tax avoidance. Audit quality has a positive and significant effect on tax avoidance in property and real estate companies registered at the BEI period model 2018-2022. The results of the study show that the better the companies audited by large public accounting firms or those with a name like KAP Big Four will have

reliable and quality return information so that the quality of return reports is maintained and can be detected in the event of a deviation such as tax evasion.

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# Stock Liquidity and Default Risk among Listed Firms in Kenya

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ABSTRACT

Default risk is costly for investors and firms, particularly in less developed financial markets such as Kenya. Default risk may even lead to the collapse of an entire financial system. Therefore, this study sought to examine the effect of stock liquidity on default risk among listed firms in the Kenya equity market. The study used a sample of 31 nonfinancial firms listed in the Nairobi Securities Exchange between 2011 and 2020. Data was analyzed using fixed and random effect panel data estimation techniques. The findings of this study demonstrate a significant negative relationship between the stock liquidity and default risk of listed firms in Kenya. Based on the results, this study recommends that stock market regulators and policymakers pay special attention to promoting/maintaining stock market liquidity as a way of cushioning listed firms from falling into default risk.

## INTRODUCTION

The recent pandemic and related worldwide economic downturn have dramatically increased corporate defaults. For instance, in China, where the real estate tycoon Evergrande has a crippling debt of $300 billion, the amount of debt default reached US$ 29.9 billion in 2020 and US$ 25 billion in the first half of 2021 (Meng et al., 2023). Further evidence shows that firms continue to experience severe financial distress. For example, Kaur (2019) found that over 65% of the banks in India are in distress zones, representing a high probability of default. In the Zimbabwe Stock Exchange, a study by Ncube (2014) reported that 83.33% were experiencing a financial distress zone, whereas 16.67% were in the grey zone. A study by Baklouti, Gautier and Affes (2016) that focused on the period 2005 to 2011 shows that financial distress among firms in Ireland, the

United Kingdom, Belgium, Greece, France, Germany and Cyprus was 64.29%, 53, 97%, 50.00%, 40.00%, 28.57%, 27.38% and 20% respectively. Nandi, Sengupta and Dutta (2019) report that over 25 percent of the companies in the oil industry in India were financially distressed and on the verge of bankruptcy. Soni et al. (2021) show that 118 of 161 Indian textile companies are financially distressed. Sewpersadh (2020) demonstrates that over 34% of firms listed in the Johannesburg Stock Exchange (JSE), the telecommunications and healthcare sectors, were classified as "grey" zones. In contrast, Mujwahuzi and Mbogo (2020) found that 2 of the six manufacturing firms Listed in Tanzania were experiencing financing distress. Ninh, Do Thanh and Hong (2018) show that around 24% of Vietnamese listed firms were facing bankruptcy. Feng (2021) over 24% of Chinese firms face financial distress. In Egypt, Shahwan (2015) reports that over 52% of listed firms are financially distressed. Gichaiya, Muchina and Macharia (2019) show that the percentage of financially distressed listed firms in Kenya increased from 28.9% to 46.2% between 2012 and 2015. Similarly, the author noted that the percentage of safe firms dropped from 50% to 35.9%.

These corporate default occurrences harm investors' interests and potentially disseminate negative expectations in the global financial system. Default risk plays a vital role in signaling a firm's health (Foster et al., 1998; Rego et al., 2009; Ho et al., 2020). The performance of the stocks of distressed firms is a matter of concern for investors, incredibly close to the announcement of default or bankruptcy, which can cause extreme stock price reactions. If a company performs well and there is no risk of financial distress or bankruptcy, stock prices increase and vice versa (Effendi et al., 2016). The key source for information on the financial health of a firm is its financial statements. All interested parties can learn about the company's health by analyzing its financial accounts. The chance of bankruptcy or default risk is a crucial factor that investors should take into account when valuing a firm using the information presented. The failure of the Firm to make its financial obligations on time results in a financial crisis or default risk. Financial distress may lead to bankruptcy of the Firm, which can cause severe damage to investors, suppliers, creditors or the economy.

Default risk is associated with the probability that a leveraged firm cannot pay its financial obligation on time. Therefore, lenders demand a high rate over a risk-free rate of return from the borrowers, and the difference between the risk-free rate and the rate of return demanded by lenders is known as the spread, which is an increasing function of default risk. Further, a firm with a higher probability of failure or default risk is expected to provide higher stock returns, but this is not always true. The relationship between default risk and stock returns is significant from an investor's point of view because it has important implications for risk and returns tradeoff.

Since so many entities are interconnected in the global economy, a single broken link might harm every connected company's short- and long-term liquidity and solvency. Therefore, academics and practitioners should pay more attention to the mechanism of corporate default. As stated by Vassalou and Xing (2004) and Bakshi, Madan, and Zhang (2006), default risk is the risk a lender assumes should a company fail to fulfill the agreed-upon payments on its loan obligation. Default risk refers to the likelihood that a leveraged corporation would be unable to make timely payments on its financial obligations. As a result, lenders demand high rates over the risk-free rate of return from borrowers, and the variation between these two rates of return is known as the spread, which rises in proportion to the risk of default. The phrase "default risk" refers to using debt in a company's financial operations. The danger of default rises when debt is used excessively in a company's finances. According to asset pricing theory, default risk is considered systematic, as higher returns compensate for the higher risk. Investors demand high-risk premiums as compensation for holding the stock of distressed firms exposed to bankruptcy risk. In other words, investors may suffer huge losses by holding the stock of distressed firms, and hence, default risk is compensated in the stock returns (Rietz, 1988). Market liquidity is the simplicity with which a large-volume transaction can be completed briefly without influencing the price (Sarr & Lybek, 2015).

Market liquidity is currently receiving more attention due to its apparent deterioration in many markets, even in those that were initially the most liquid (IMF, 2015; OFR, 2015). The fragility of liquidity has grown because of recent decreases in market making and structural market shifts (IMF, 2015). According to the European Securities and Markets Authority (ESMA, 2016), sovereign bonds have consistent liquidity but diminishing liquidity for corporate bonds. A liquid market is generally referred to as a market in which a large quantity is traded without delay at lower transaction costs with minimum price impact. The previous literature proposes four main liquidity characteristics: trading quantity, execution time, transaction cost, and price impact.

The crucial significance of liquidity in capital structure decisions has attracted increasing attention in recent years. The ability of a company to raise additional funds from prospective investors is impacted by the liquidity of the securities issued by the company in the secondary market. It influences the cost of issuing new securities and how quickly a company can raise cash from outside sources (Butler et al., 2005). In its simplest form, the traditional tradeoff hypothesis contends that corporations strive to balance costs and advantages while taking out debt. It is logical to argue that, all things being equal, any factor that lowers the net cost of equity should result in favoring stock over debt. Brogaard et al. (2017) argue that improving stock price informational efficiency is a mechanism through which stock liquidity reduces firm default risk. Goldstein and Guembel (2008) argue that uninformed investors may drive down stock prices through sell orders due to stock liquidity. The static tradeoff model predicts that more liquid companies will have lower floatation costs for equity issues, making equity financing more appealing than debt financing. As a result, high-liquidity companies are less leveraged. The adverse effects of liquidity on capital structure are demonstrated in the US and Thai markets, respectively, by Lipson and Mortal (2009) and Udomsirikul, Jumreornvong and Jiraporn (2011). Consequently, firms that enjoy more liquid equity experience a lower cost of equity and may be more motivated to adopt more equity and less debt in their capital structure.

Institutional environments are frequently seen as external control mechanisms that lessen agency conflicts and provide macro-level investor protection at a "cheap" price. According to Öztekin and Flannery (2012), firms that operate in countries with better institutional settings have lower external financing costs and higher leverage, thus more likely to face default risk. In addition, the monitoring costs of large shareholders may be cheaper for companies operating in nations with robust legal and political systems than those operating in nations with weak institutional capabilities. Using a worldwide dataset, Gao and Zhu (2015) show that high-liquidity firms are predicted to have less debt financing in their capital structure. This link is more substantial in nations with weak institutional settings.

This study contributes to the empirical literature by examining the association between stock liquidity and default risks in a developing economy in Kenya, with weak institutional arrangement compared to earlier studies. Surprisingly and contrary to this notion, the empirical evidence demonstrates an inverse relation between stock liquidity and default risk. The rest of the article proceeds as follows. Section 2 reviews the related literature and develops the hypothesis. Section 3 presents the data and constructs the variables in our empirical study. Section 4 explains the empirical methods. Section 5 concludes the article.

## REVIEW OF LITERATURE AND HYPOTHESIS DEVELOPMENT

The crucial role that liquidity plays in lowering transaction costs has been underlined in corporate finance theories (Amihud & Mendelson, 1986; Butler et al., 2005; Dang et al., 2015; Lipson & Mortal, 2009). When raising more money, an issuer of either debt or equity will have to pay extra fees to underwriters/intermediaries (such as investment banks and financial institutions). Following Butler et al. (2005), underwriters charge more outstanding fees while helping illiquid companies with the issuing process. Higher corporate governance of high-liquidity firms also results in lower transaction costs (Edmans et al., 2013) because it enables significant shareholders to rectify

managerial mistakes and offset oversight of the costs through informed trading; liquidity can assist the execution of governance functions.

Research on the interaction of corporate finance and stock market microstructure is still in its infancy. Diverse capital structure theories can be used to determine the implications of stock liquidity on debt-equity decision-making. First, according to the static tradeoff hypothesis, as liquidity impacts companies' cost of equity, it also influences their target leverage (Amihud & Mendelson, 2000). Second, according to the dynamic tradeoff theory, stock liquidity influences the price of issuing equity (Butler et al., 2005). As a result, it influences how quickly debt is adjusted. The pecking order theory can also be used to explain the impact of stock liquidity. Since high liquidity reduces the negative consequences of information asymmetry, it may also affect a firm's propensity for financing a deficit through the issuing of shares (Jiang et al., 2017).

Regarding the pecking order theory, firms should seek financing options that will lessen the negative consequences of information asymmetry instead of aiming to meet their target leverage while seeking capital. As debt financing has fewer negative impacts from knowledge asymmetry, firms should prefer it to other methods of financing deficits. When Shyam-Sunder and Myers (1999) examined how much debt American corporations use to pay their deficits, they found that the pecking order theory effectively explained those corporations' actions. Fama and French (2002) believed that the pecking order theory 'wins' over the tradeoff hypothesis, but only in explaining the scenario of low-leverage enterprises with substantially better profitability. Debt is the primary method of capital financing, according to Frank and Goyal (2003).

Recent studies on the impact of stock liquidity on the capital structures of organizations are based on tradeoff theories of capital structure. Concerning the static tradeoff theory of capital structure, a firm can operate at a target debt ratio that balances the advantages and disadvantages of debt financing and optimizes its value. According to the dynamic tradeoff theory, when companies stray from their goal ratios, they will modify to get back on track (Fischer et al., 1989); Goldstein et al., 2001; Leary & Roberts, 2005). The capital structure adjustment is dynamic, but the speed of adjustment (SOA) may be unexpectedly slow owing to financial obstacles. The crucial importance of liquidity in choosing a capital structure has drawn more attention in the past couple of years. Following the static tradeoff model, more liquid companies have lower floatation costs for equity issuance, rendering equity financing more appealing than debt financing. High-liquidity companies are, hence, inclined to have less debt. Empirical studies attest to the impact of stock liquidity on a company's decision between debt and equity. It has been demonstrated by Lipson and Mortal (2009) and Dang et al. (2019) that companies with more liquid shares are less leveraged since the cost of equity is lower. Exploring the Australian context, Nadarajah et al. (2018) suggest a significantly negative liquidity-leverage relationship and find that high-liquidity firms have significantly negative corporate governance-leverage relationships.

In contrast, low-liquidity firms do not have this association. These studies, however, focus on the static tradeoff view of capital structure. It is, therefore, interesting to know how liquidity affects the dynamic nature of capital structure, precisely the speed at which firms adjust their capital structure toward the target, given the increasingly important role of institutional environments in firms' financial policies.

Using a sample of 707 Thai firms that are listed on the Stock Exchange of Thailand (SET) for the period 2002–2008, Udomsirikul, Jumreornvong & Jiraporn (2011) show the negative impact of liquidity on capital structure in the US and Thailand markets, respectively.

Using a global dataset, the sample consists of 90,514 firm-year observations for 13,019 industrial firms from 39 developed and developing countries from 1997 to 2007. Gao and Zhu (2015) document that high-liquidity firms are expected to have lower debt financing in their capital structure. This relationship is more pronounced in countries with weak institutional environments. Lipson and Mortal (2009), using a sample of all firms with data available on both CRSP and

Compustat for any year between 1985 and 2006, found that firms with more liquid equity have lower leverage and prefer equity financing when raising capital. Chen et al. (2020) find similar results, although they attribute this association to information asymmetry and the threat of leave from block holders. According to Lipson and Mortal (2009), equity financing is preferred when a company has to raise capital. Rashid and Mehmood (2017) for the Pakistani market and Dutta, Sen and Mukherjee (2022) for the Indian market both noted a similar link. Ho, Lu and Bai (2021), using panel analysis of data from 35 countries between 1996 and 2016, studied the effect of liquidity on the speed of adjustment (SOA) of capital structure and found that firms with more liquid stocks have faster SOA. In addition, Nguyen et al. (2021) find that firms with relatively more liquid bonds than stocks have higher leverage. Shen's (2014) research indicates that companies replace equity with debt when information asymmetry increases. Qu et al. (2018) find that consistently with the predictions of the pecking order theory, companies whose shareholders face more severe informational disadvantages are associated with a higher degree of leverage.

Abdulla and Ebrahim (2020) examined the impact of stock liquidity on capital structure using a sample of 108 nonfinancial firms listed on the Tadawul stock exchange from 2007–2018. The findings indicate no significant relationship between stock liquidity and leverage. El Kalak et al. (2017) examined the relationship between stock liquidity and SMEs' likelihood of bankruptcy. The authors considered a data sample comprising information on 5,075 US SME firms between 1984 and 2013. The results of this study demonstrate that the liquidity of the stocks in the sample of bankruptcies is lower than that of the stocks in the sample of non-bankruptcies. Gniadkowska-Szymańska (2022) assessed the relationship between the shares' liquidity and the bankruptcy risk. The study analyses companies from the WIG, OMXBBGI, and DAX indexes between 31 March 2012 and 31 December 2017. The study found a positive association between the stock turnover rate (trading quantity) and the risk of bankruptcy, which means that the liquidity of the company's shares should increase the bankruptcy risk of the company. Using a sample of 108 nonfinancial firms listed on the Tadawul stock exchange between 2007 and 2018, Abdulla and Ebrahim (2020) assessed the effect of spread (trading cost) liquidity on firm leverage but found no significant relationship between spread and leverage. Alimoradia et al. (2020) assessed the association between stock liquidity (bid-ask quoted spreads) and the risk of default of petrochemical and petroleum products companies listed on the Tehran Stock Exchange (TSE). The study considered a sample of 44 companies from 2011 to 2017. The findings show a negative association between stock liquidity and default rate. Taking into account the existing empirical literature on stock liquidity and capital structures and based on theoretical arguments of the static tradeoff theory, we hypothesize as follows:

H1. Stock liquidity has a negative effect on default risk

## RESEARCH METHOD

### Data, sample

The study focused on listed nonfinancial firms in Kenya. As of 2022, Kenya had 65 listed firms, of which 40 were nonfinancial and 25 financials listed across 13 sectors. The study applied inclusion and exclusion criteria that the firms ought to have had their shares traded throughout the study period between 2011 and 2020, and its financial and stock information must be available for ten consecutive years—the final sample comprised 31 firms that yielded 310 firm-year observations. Stock market data is extracted from the Nairobi Securities Exchange reports, while the rest are hand-collected from the annual reports.

**Measurement of variables**

**Dependent variable- Default risk**

The study uses Merton's (1974) model to measure default risk. As the baseline measure of default risk, the distance to default (DD) has been widely used to estimate default risk among nonfinancial firms (Bharath & Shumway, 2008; Chava & Purnanandam, 2010; Hovakimian et al., 2012). Distance to default (DTD) is inversely associated with default risk, meaning that a higher value of distance to default indicates lower default risk. The study estimates the probability of default (Prob. Default) as the N (-DD). Where N (-DD) is the CDF of normal distribution

**Independent variable- Stock market liquidity**

A liquid market is generally referred to as a market in which a large quantity is traded without delay at lower transaction costs with minimum price impact. Thus, the reviewed studies have measured liquidity in the stock market by using a variety of liquidity measures that can fairly capture the key market liquidity characteristics, that is, depth (trading quantity), breadth (price impact), immediacy (trading speed), and transaction costs (relative spread). All four measures of stock liquidity were computed every year. Consequently, and based on the literature, this study employed the four leading indicators of stock liquidity comprising trading quantity, trading speed, transaction cost, and price impact (Le & Gregoriou, 2020; Tse & Zabotina, 2001; Boudt & Petitjean, 2014).

**Control Variables**

The study also controls for several relevant firm characteristics that could affect default risk in the regression model: (1) Profitability, the ratio of net income to total assets; (2) Tangibility, the ratio of property plant and equipment (3) Size, measured using the logarithm of total assets; (4) institutional ownership, the ratio of institutional ownership to total shareholding (5) Firm age; which is the natural logarithm of the number of years since incorporation (6) leverage; the ratio of total debt to total assets (Atif & Ali, 2021; Kabir et al., 2020; Nadarajah *et al.,* 2021; Nie et al., 2023; Yildirim, 2020). Table I provides detailed definitions, constructions, and economic rationales for these variables.

**Table 1. Measurement of Variables**

| Variable | Definition | Notation |
|---|---|---|
| Default risk | The default risk is derived from Merton's (1974) Distance to Default. The probability of default is given as P D = N(−DD), where N is the standard normal distribution function, and DD is the default distance. | PD |
| Firm size | Nature logarithm of total assets denominated in Kenyan Shillings | FS |
| Firm Age | Natural logarithm of the number of years since incorporation | FA |
| Firm performance | Return on assets | ROA |
| Tangibility | The ratio of plant property and equipment to total assets | TAN |
| Leverage | The ratio of debt to assets | |
| Institutional ownership | Proportion of shares held by institutional investors | INOW |
| Price impact | Annual Amihud (2002) illiquidity- Annual average of the daily ratio of the absolute value of stock return divided by shilling trading volume. | |
| Trading quantity | Turnover ratio, which is the average of the daily number of shares traded scaled by the average number of shares outstanding over 12 months | TQ |
| Trading cost | Annual relative effective spread. The difference between the execution price and the midpoint of the prevailing best bid-ask quote divided by the midpoint of the prevailing best bid-ask quote, multiplied by one hundred, and measured over one year. | TC |
| Trading speed | Liu's (2006) liquidity measure (LM) represents the stocks' trading frequency. LM measures the number of zero daily trading volumes for stock. To annualize, the study uses the proportion of days with zero returns multiplied by one hundred and measured over one year. We flip LM to measure speed. | TS |

**Estimation model**

We empirically investigate the effect of stock liquidity on default risk using the model given below:

$$PD_{it} = \beta_0 + \beta_1 FP_{it} + \beta_2 TAN_{it} + \beta_3 FS_{it} + \beta_4 INOW_{it} + \beta_5 PI_{it} + \beta_6 TQ_{it} + \beta_7 TC_{it} + \beta_8 TS_{it} + \varepsilon_{it}$$

Where PD = probability of default, FP = firm performance of Firm I at year t, TAN = Tangibility of Firm I at year t, FS = Firm size of Firm I at year t, INOW = Institutional Ownership of Firm I at year t, PI = Price impact of Firm I at year t, TQ= Transaction quantity of Firm I at year t, TC= Transaction cost of Firm I at year t, TS= Transaction speed of Firm I at year t and GO= Growth opportunities of Firm I at year t. β1 to β8 = coefficients of the equations, t = time, i = firm and $\varepsilon_{it}$= error term

## RESULTS AND DISCUSSION

### Descriptive Statistics

The descriptive statistics for the research variable from 2011 to 2020 are presented in Table 2 below. The mean probability of default is 0.2787, suggesting a low likelihood of the selected firms falling into default. The standard deviation of 0.3009 indicates high default risk variability among Kenya-listed firms. The average tangibility, institutional ownership and leverage are 0.369, 0.7066

and 0.4444, respectively. The mean leverage reveals that the selected firms are moderately leveraged. The average firm performance (ROA), age and size are 0.064. 61.145 and 7.09598, respectively. Regarding the liquidity measures, the means of price impact, trading quantity (turnover ratio), transaction cost and trading speed are 0.003, 0.189, 0.0253 and 0.292, respectively.

**Table 2. Summary Descriptive Statistics**

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| PD | 310 | .2787133 | .3009113 | 0.000 | 1.000 |
| TAN | 310 | .3691107 | .2728815 | 0.001 | .9415659 |
| INST | 310 | .7066368 | .1643937 | 0.000 | 0.970 |
| LEV | 310 | .4440806 | .1359944 | .0260912 | .9379133 |
| FA | 310 | 61.145 | 39.41155 | 0.000 | 152 |
| ROA | 310 | .0642881 | .1529423 | -0.420 | .5909452 |
| FS | 310 | 7.095973 | .8466186 | 5.198698 | 9.405137 |
| PI | 310 | .0029711 | .0068866 | 0.001 | .0765279 |
| TQ | 310 | .18933 | .1458865 | 0.06351 | .75262 |
| TC | 310 | .0253353 | .0199728 | 0.000 | .1818182 |
| TS | 310 | .2922759 | .6057812 | .0005351 | 4.734821 |

*PD, probability of default; TAN, tangibility; LEV, leverage; ROA, return on assets; FS, firm size; INOW, institutional ownership; PI, price impact; TQ, trading quantity; TC, transaction cost; TS, trading speed*

**Correlation analysis**

Table 3 provides correlation coefficients between default risk (PD), stock liquidity dimensions and other control variables. The correlation coefficients for price impact and transaction cost show a positive relation with a measure of default risk since they measure stock illiquidity. However, trading quantity and trading speed show a negative and significant relationship with default risk variables because they are measures of stock liquidity. As for the control variables, Tangibility (TANG), leverage (LEV) and institutional ownership (INOW) show a positive significant correlation with default risk. Firm size (FS) and profitability (ROA) correlate negatively and significantly with the default risk variable.

**Table 3. Pearson Pairwise Correlation**

| | *PD* | *TAN* | *LEV* | *ROA* | *FS* | *FA* | *INST* | *PI* | *TQ* | *TC* | *TS* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *PD* | *1.0000* | | | | | | | | | | |
| *TAN* | *0.2097** | *1.0000* | | | | | | | | | |
| *LEV* | *0.3950** | *0.1274** | *1.0000* | | | | | | | | |
| *ROA* | *-0.3452** | *-0.0875* | *-0.2273** | *1.0000* | | | | | | | |
| *FS* | *-0.5281** | *0.1170** | *-0.1090* | *0.3752** | *1.0000* | | | | | | |
| *FA* | *-0.1615** | *-0.1384** | *-0.1223** | *0.0471* | *0.1105* | *1.0000* | | | | | |
| *INOW* | *0.3503** | *-0.0165* | *0.2659** | *-0.0868* | *-0.2232** | *-0.0182* | *1.0000* | | | | |
| *PI* | *0.3503** | *0.0586* | *0.0514* | *-0.0130* | *-0.0599* | *-0.0685* | *0.0934* | *1.0000* | | | |
| *TQ* | *-0.4629** | *-0.1447** | *-0.2044** | *0.2223** | *0.3920** | *0.1952** | *-0.0396* | *0.0591* | *1.0000* | | |
| *TC* | *0.6171** | *0.1330** | *0.2927** | *-0.2569** | *-0.2673** | *-0.2159** | *0.2622** | *-0.3383** | *-0.3028** | *1.0000* | |
| *TS* | *-0.6185** | *-0.1173** | *-0.3123** | *0.3632** | *0.3408** | *0.2670** | *-0.1253** | *0.2359** | *0.2111** | *-0.4971** | *1.0000* |

PD, probability of default; TAN, tangibility; LEV, leverage; ROA, return on assets; FS, firm size; INOW, institutional ownership; PI, price impact; TQ, trading quantity; TC, transaction cost; TS, trading speed.

Note(s) * $p<0.05$

**Regression results**

Table 4 presents the results for the fixed effect and random effect regression. The findings suggest that all the dimensions of stock liquidity significantly affect default risk at 5% significance levels. These results suggest that higher price impact (illiquidity) leads to a higher likelihood of default risk. The coefficient of the change in the price efficiency measure is statistically significant and positive for each specification. Consequently, an improvement in price efficiency is associated with a decline in a firm's default risk. Khanna and Sonti (2004) show that liquidity can positively affect firm performance by stimulating the entry of informed investors who make prices more informative to stakeholders. As shown in Khanna and Sonti (2004), informed traders factor the effect of their trades on managerial behavior into their trading strategy, trading more aggressively and thus making prices more informative. This feedback effect improves operating performance and relaxes financial constraints. Stock liquidity allows informed investors to profit more from their private information, consequently encouraging investors to acquire more information and trade on it, therefore leading to more informed stock prices (Holden & Subrahmanyam, 1992; Holmstrom & Tirole, 1993; Subrahmanyam & Titman, 2001). Firms with relatively illiquid firms (i.e., high price impact) are less likely to issue shares and, thus, would use more debt, subjecting the Firm to default risk. The results further suggest that higher trading quantity lowers default risk, implying that trading quantity improves stock liquidity and preference for equity capital instead of debt capital. The findings further reveal that trading cost (bid-ask spread) positively and significantly affects default risk. And influences all the dimensions of liquidity (i.e., Bid-ask spread, price impact, and trading frequency). The results agree with those of Brogaard, Li and Xia (2017 ), who used a sample of 7,128 firms and US common stocks between 1993 and 2013, yielding 51,527 firm-year observations. Similar to the findings of Bharath and Shumway (2008) and Li and Xia (2015), the results for the control variable (namely firm leverage and performance) suggest that firms are less likely to fail if they have lower levels of leverage and higher levels of default risk.

**Table 4. Regression Results**

| | **Fixed Effect** | **Random Effect** | **SGMM** |
|---|---|---|---|
| PD | Coef. | Coef. | Coef. |
| CONSTANT | .771(0.178)** | .671(0.115)** | .778(0.197)** |
| Controls | | | |
| TAN | .116(0.030)** | .115(0.027)** | .097(0.034)** |
| LEV | .120(0.037)** | .113(0.036)** | .117(0.040)** |
| ROA | -.101(0.033)** | -.093(0.031)** | -.145(0.036)** |
| FS | -.027(0.008)** | -.022(0.005)** | -.029(0.008)** |
| FA | .031(0.021)** | .034(0.020)** | -.017(0.033) |
| INOW | .118(0.045)** | .106(0.042)** | .133(0.061)** |
| Stock liquidity | | | |
| PI | .154(0.024)** | .153(0.023)** | .153(0.024)** |
| TQ | -.115(0.032)** | -.118(0.031)** | -.130(0.033)** |
| TC | .829(0.138)** | .743(0.120)** | .754(0.159)** |
| TS | -.063(0.013)** | -.069(0.013)** | -.035(0.015)** |
| R-squared | 0.6905 | 0.6948 | - |
| Observations | 310 | 310 | 248 |
| Post estimation | | | |
| AR(1) | - | - | 0.089 |
| AR(2) | - | - | 0.129 |
| Hansen | - | - | 0.320 |

PD, probability of default; TAN, tangibility; LEV, leverage; ROA, return on assets; FS, firm size; INOW, institutional ownership; PI, price impact; TQ, trading quantity; TC, transaction cost; TS, trading speed; AR, Arellano-Bond; ** significant at 5%; standard errors(Std. Err.) in parentheses.

***Robustness test***

The study further employed the system generalized method of moments (SGMM) to consider all endogeneity and serial correlation, which could be linked to stock liquidity dimensions and default risk. As reported in Table 4, the results remain consistent with prior findings. Third, we use a two-step GMM system to deal with endogeneity issues. The GMM estimation lessens simultaneity, unobserved heterogeneity, and dynamic endogeneity concerns. Column four of Table 4 reports the results for GMM estimation. The models' diagnostics exhibit insignificant statistics for

second-order autocorrelation (AR2). The statically insignificant Hansen J-statistics of over-identification suggest the validity of instruments in the two-step system GMM. Overall, the SGMM results concur with those reported for the fixed effect and random effect regression model that stock liquidity is negatively associated with default risk.

Similarly, our results for the control variables also remain consistent. Specifically, high tangibility, leverage, firm size and institutional ownership are positively related to default risk. However, profitability is inversely related to default risk.

**CONCLUSION**

We compiled a sample of 31 firms listed in Kenya from 2011 to 2020 to investigate the relationship between stock liquidity and corporate default risk. To assess default risk, we use Merton's (1974) distance to default (DTD) and four dimensions of stock liquidity (price impact, trading quantity, transaction cost and trading speed). Our findings indicate that firms with high stock liquidity are associated with lower default risk. The study's findings have practical implications for the different sections of society. The study findings will immensely benefit stock market analysts, equity researchers and investors. Stock liquidity can be necessary in explaining default risk, particularly in emerging markets like Kenya, where the information environment and opaque information are more significant challenges. Regulators should give stock liquidity importance since it can minimize information asymmetry, lower default risk and improve the development of the stock market, which in turn can increase the efficient allocation of scarce resources. The present research only considered default risk measured by Merton's distance to default. Further studies may use other measures of default risk, such as the Altman's. Additionally, further research can validate the results of this study in other regions.

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# Companies Value of Indonesia Telecommunications Sector And Influencing Factors

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ABSTRACT

The increase in public demand for telecommunications facilities provides opportunities for telecommunications companies, especially in the company's value, which the weight of total assets can measure. This study aims to determine the effect of the Current Ratio, Debt To Asset Ratio, Return On Equity, Return On Investment on firm value. The object on this study is the telecommunications sector companies since 2014-2020, uses quantitative research methods with multiple linear regression data analysis. The results obtained that the best model is the common effect model (CEM) with t-test results in the Debt To Asset Ratio and Return On Equity variables having a significant effect on firm value with each t value of 0.003 and 0.001. Still, for the variables, the Current Ratio and Return On Investment has no effect on firm value with t-value 0.133 and 0.437. Meanwhile, simultaneously, these four variables significantly affect firm value with a significance value off of 0.000. The value of the R square obtained is 70.31%, which indicate that if the company wants to increase its total assets, it must increase its current assets and attract investors to invest more capital so that the profits received by the company can be improved.

## INTRODUCTION

In 2018, the Indonesian telecommunications industry experienced a reasonably high dynamic and required the sector to face negative growth minus 7.3%. However, in 2020, the

telecommunications sector will become one of the sectors that are the backbone of the nation's defense in the face of the Covid-19 pandemic. This sector showed growth of 9.42% in 2019 and again increased to 10.58% in 2020 (BPS, 2020). This is very reasonable, considering that almost all business services switched to the digital realm during the pandemic.

Indonesia's telecommunications potential is still very prospective, even though the pandemic has become a momentum and game-changer that increases the role and urgency of telecommunications in people's lives. So it's not surprising that issuers engaged in telecommunications service providers compete with each other in the market to provide excellent service to the public and always maintain good financial performance and collaborate with the government in guarding a competitive telecommunications industry (Brodjonegoro, 2020).

In reality, behind the government's optimism for this sector, not all Indonesian telecommunications service providers have superior financial performance. PT Telekomunikasi Indonesia, Tbk as a state-owned company, was able to record revenue of Rp. 136.46T, or up 0.66% over the previous year. Following his senior, XL Axiata, Tbk. (EXCL) in the first quarter of 2020 experienced a 9% increase in revenue to Rp. 6.4T. Smartfren Telecom Tbk (FREN) also posted revenue growth of Rp. 4.9 trillion and PT. Indosat Tbk (ISAT) in 2020 grew by Rp. 3.45T. However, PT. Bakrie Telecom Tbk (BTEL) still posted an operating loss where net operating income decreased by 25.55% from Rp 4.02 trillion to Rp 3.03 trillion.

In general, the global telecommunications sector faces challenges, especially on the financial side. Like companies in general, telecommunications also seeks to increase company value and prosper the shareholders (Sukma, 2021). One strategy that can be done is to maximize stock prices, and another advantage of this activity is to obtain new sources of funding and gain investors' trust.

In general, firm value is the selling price of a company that is considered feasible for prospective investors. The main objective of the company's management is stockholder wealth maximization by maximizing the company's stock price. To maximize the company's stock price is carried out by increasing the enterprise value or firm value. The firm value is related to business management, policies, working environment conditions, and business ethics. The higher price book value (PBV), the more successful the company in creating the value and prosperity of the owner. According to (Husna & Satria, 2019) "the greater the PBV value, the higher the company is valued by the relative investors compared to the funds that have been invested in the company. "The better the financial performance of a company, the better the firm value." The higher the firm value, the higher the return obtained, and the higher the stock return, the more prosperous the shareholders. The financial decisions taken by the financial manager are intended to increase the prosperity of the company owner indicated by the increasing value of the company. Several factors that influence investors in assessing the company's ability to increase the firm value are Return on Equity (ROE), Debt to Asset Ratio (DAR), Current Ratio (CR), Firm Size and Return on Investement (ROI) (Brigham & Houston, 2019; Soewignyo, 2020).

## REVIEW OF LITERATURE AND HYPOTHESIS DEVELOPMENT

Signalling theory explains why firms are compelled to disclose financial statements to external parties. Firms are encouraged to disclose financial statements because of the asymmetry of information between internal parties and the firms external parties because the firms internal parties are essentially more aware of the company than external parties. The lack of information obtained by external parties influences the decision making in investments from outside parties. Therefore, internal firm can reduce the information asymmetry by disclosing firms information in the financial statements.

Companies Value is the perception of investor in success rate of a firm which is often affiliated with the stock price. A high stock price creates a high companies/firm value. A high companies value does not only show the credibility of the firm performance, but also the firm prospect in the future.

The proxy of companies value in this study is measured by Price to Book Value (PBV) (Brigham & Houston, 2019).

**Effect of Current Ratio on Firm Value**

The current ratio measures a company's ability to pay short-term debt/debt due soon. If a company has a high Current Ratio, the company will experience an increase in liquidity. Investors will be attracted because a company with a high Current Ratio indicates that the liquidity risk is lower. Likewise, suppose a company has a low current ratio. In that case, the firm will also experience a decrease in liquidity because the company lacks the capital to pay its short-term debt. And investors are not interested in investing because, according to him, the liquidity risk they bear is considerable. Thus the Current Ratio has a positive effect on firm value (Nurwulandari et al., 2021; Sondakh, 2019).

H1 : Current Ratio affects firm value of telecommunication companies listed in Indonesia Stock Exchange for the period 2014-2020

**Effect of Debt to Asset Ratio on Firm Value**

Every company must have the financial resources needed to carry out its activities and to expand its business. However, the financial resources available are not necessarily sufficient. To cover the shortage of financial resources, the sources of funds should be divided into two, external and internal sources. Internal funding sources come from within the company, such as a capital increase from owners and retained earnings. On the other hand, external sources include bank, third-party debt, and the issuance of securities to obtain resources from outside the company. Debt to Asset Ratio is used to measure how much the company's assets are financed by debt or how much the company's debt affects asset management. If a company has a high level of Debt to Asset Ratio, then the level of risk experienced by creditors and investors is also high. This causes investors to be reluctant to invest in the company and can reduce the confidence of creditors in providing funding. Conversely, if a company has a low Debt to Asset Ratio level, the level of risk accepted by creditors and investors is low. This will give a positive signal for investors to invest in the company, which can also increase the company's value. So the Debt to Asset Ratio can positively influence firm value (Pasando et al., 2019; Ramadhany & Purwohandoko, 2020).

H2 : Debt to Assets Ratio affects firm value of telecommunication companies listed in Indonesia Stock Exchange for the period 2014-2020

**Effect of Return on Equity on Firm Value**

Profitability is an indicator of management performance in handling the companies assets as shown by the income generated through the sales and investments made by the company. It means the greater the profits obtained, the greater the companies ability to pay its dividends and carry on its business (Soewignyo, 2020). In this study, the researcher used Return On Equity / ROE. Return on Equity is used to measure how much profit will be generated from the funds invested in total Equity. A company must constantly maintain and increase ROE, namely by increasing its profits; if a company has a high level of ROE, it is very positive because investors will be interested in investing in the company so that it can increase the value of the company. Vice versa, if a company has a low level of ROE, it can be detrimental to the company. Thus Return on Equity can have a positive influence on firm value (Sukmawardini & Ardiansari, 2018)

H3 : Return on Equity affects firm value of telecommunication companies listed in Indonesia Stock Exchange for the period 2014-2020

**Effect of Return on Investment on Firm Value**

ROI measures the rate of return on assets by firms. This ratio helps to assess managerial performance, measure the effectiveness of the assets used and evaluate proposed capital expenditure projects. ROI is one of profitability ratio used to be able to measure a firms ability with

the total funds invested in assets used in the firms operations to turn a profit (Rangkuti et al., 2020; Wijaya & Sedana, 2015).

H4 : Return on Investment affects firm value of telecommunication companies listed in Indonesia Stock Exchange for the period 2014-2020

## RESEARCH METHOD

### Data, sample

According to the time of collection, this study uses panel data. Panel data are a combination of series time data and cross section data. The data sources is the financial statement of the telecommunication industry firm and allied products, IDX (Indonesia Stock Exchange). The populations are all firms of telecommunication which are registered in IDX. The sampling method used is purposive sampling. There are some criteria in choosing the population member to be sample of this study : (1) Firms of telecommunication industry which are registered in Indonesia Stock Exchange; and (2) all companies have listed the financial statement of the firm from 2014 – 2020. Based on the criteria set, there are 5 qualified firms, namely PT.Telkom Indonesia, Tbk (TLKM), PT. XL Axiata, Tbk. (EXCL), PT. Smartfren Telecom, Tbk. (FREN), PT. Indosat, Tbk. (ISAT), and PT. Bakrie Telecom, Tbk. (BTEL)

### Measurement of variables

### Dependent variable - Companies Value

The companies value is reflected on stocks price. The higher stocks price, the higher value of the company because of the high value of the company indicates the prosperity of shareholders is also high. Company value can be measured using Price to Book Value (PBV) which is the ratio of the share price to the book value per share. Based on this comparison, the companies stocks price can be known to be above or below the value of the book. The higher the value of this ratio, the more expensive the price of the stock so that it can increase the value of the company. Therefore, companies that have a PBV ratio of more than 1 (one) indicate that the company has a good performance because investors are willing to buy shares more expensive than the value of the book. (Mai, 2017; Soewignyo, 2020; Sukmawardini & Ardiansari, 2018). Also the companies value in the signaling theory represented by Price to Book Value (PBV) is crucial to signal information given by the company to external parties, so this signal indicates that the company is transparent in its management (Brigham & Houston, 2019).

### Independent variable- Stock market liquidity

Current Ratio (CR) is one of the most popular ratio to measure companies liquidity. This ratio used to shows firm's ability to pay its short term debts (liabilities) that are due, or a ratio to determine its ability to finance and meet obligations (debts) when billed. Most important indicator to see the companies value is leverage ratio, which be measured by Debt to Asset Ratio (DAR), cause it compares firm debt which obtained from the ratio of total debt devided by total assets. The higher the debt ratio, the greater the probability of the company not able to pay off its obligations, therefore the loan must be spent properly to obtain greater profit opportunities. In terms of profitability, this study using Return On Equity (ROE), describes the firms ability to generate profit on own capital. Therefore, ROE reflects the wealth of shareholders or the firm's value. And Return On Investment (ROI) to measure a companies ability with the general funds invested in assets used to generate profits. The higher the return on investment will be able to create interest for investors so that the value of the company will increase by it self along with the flow of money to the company concerned. All variables used in this study can be calculated using the following table :

**Table 5. Measurement of Variables**

| Variable | Measurement | Notation |
|---|---|---|
| Companies Value | $PBV = \frac{Market\ Price\ per\ Share}{Book\ Value\ per\ Share}$ | PBV |
| Current Ratio | $CR = \frac{Current\ Assets}{Current\ Liabilities}$ | CR |
| Debt to Asset Ratio | $DAR = \frac{Total\ Debt}{Total\ Assets}$ | DAR |
| Return on Equity | $ROE = \frac{Net\ Profit}{Total\ Equity}$ | ROE |
| Return in Investment | $ROI = \frac{Net\ Profit}{Total\ Investment}$ | ROI |

**Analysis Method**

The analysis technique of this study is multiple linear regression analysis test, and hypothesis testing using Stata 15 version. Multiple linear regression analysis is a model that has more than one independent variable, as follows:

$$PBV_{it} = \propto + \beta_1 CR_{it} + \beta_2 DAR_{it} + \beta_3 ROE_{it} + \beta_4 ROI_{it} + \varepsilon$$

Where : PBV is Price to Book Value, α is a constanta, CR is Current Ratio, DAR is Debt to Assets Ratio, ROE is Return on Equity, ROI is Return on Investment, $\beta_1$, $\beta_2$, $\beta_3$, $\beta_4$ is coefficient regress, and ε is error term.

The steps that must be taken before answering the hypothesis are estimating the multiple linear regression model, regression model selection, classic assumption test, and hypothesis test. The estimation of multiple linear regression model is devided into three models, namely Pooled Least Square (PLS), Fixed Effect Model (FEM) and Random Effect Model (REM). The next step is "selection of the best model" by performing Chow Test, Hausman Test, and Lagrange Multiplier (LM) Test. And the classic assumption test that must be fulfilled in regression analysis include normality test, multicollinearity test, and heteroscedasticity test (Gujarati, 2004).

## RESULTS AND DISCUSSION

**Estimation Panel Data Model**

Chow test has been conducted as determination of estimation model between Common Effect Model (CEM) and Fixed Effect Model (FEM) with Chow Test. Based on Chow Test it is known that the probability value is 0.1267. Because the probability value is 0.1267 > 0.05, the estimated model used is Common Effect Model (CEM). Furthermore, the Hausman Test has been carried out as a determination of the estimated model between Fixed Effect Model (FEM) and the Random Effect Model (REM) with the Hausman Test. The probability value is 0.5815. Because the probability value is 0.5815 > 0.05, the estimation model used is the Random Effect Model (REM). Final step is LM Test as determination of estimation model between Random Effect Model (REM) and Common Effect Model (CEM) with LM test. Based on LM test it is known that the probability value is 1.00. Because the probability value is 1.00 > 0.05 the estimated model used is Common Effect Model (CEM). So, the best estimate model on this study is using Common Effect Model (CEM) because the probability on Chow Test and LM test > 0.05.

**Classic Assumption**

The second stage in the data analysis process in this study is the classic assumption test. Good regression model was a regression model that was free from deviations either in the form of

normality, multicollinearity, heteroscedasticity, or autocorrelation. The classical assumption test used in this research were Normality Test, Multicollinearity Test, and Heteroscedasticity Test :

**Table 2 Normality Test**

```
. swilk simpan_data_residual

                    Shapiro-Wilk W test for normal data

    Variable |        Obs       W           V        z       Prob>z
-------------+-------------------------------------------------------
simpan dat~l |         35     0.97483       0.898   -0.224    0.58849
```

Based on Spahiro-Wilk Test, it can be seen probability value is 0.58849 > 0.05, so it can be concluded that the data is normally distributed.

**Table 3 Multicollinearity Test**

```
. vif

    Variable |       VIF       1/VIF
-------------+----------------------
          CR |      3.46    0.288689
         DAR |      2.11    0.473562
         ROI |      1.95    0.511826
         ROE |      1.21    0.827063
-------------+----------------------
    Mean VIF |      2.18
```

Based on the results multicollinearity test, it is known that between the variable coefficient is smaller than 0.9. So it can be concluded that the data above does not have multicollinearity.

**Table 4 Heterocedasticity Test**

```
      Source |       SS       df       MS              Number of obs =      35
-------------+------------------------------           F(1, 33)      =    1.30
       Model |  .001690991     1  .001690991           Prob > F      =  0.2626
    Residual |  .042965872    33  .001301996           R-squared     =  0.0379
-------------+------------------------------           Adj R-squared =  0.0087
       Total |  .044656863    34  .001313437           Root MSE      =  .03608

------------------------------------------------------------------------------
residual_kua~t |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
---------------+--------------------------------------------------------------
ypredikси_kua~t |   .0557091   .0488833     1.14   0.263    -.0437447    .155163
         _cons |   .0182939   .0126149     1.45   0.156    -.0073712    .043959
------------------------------------------------------------------------------
```

Based on the heterocedasticity test, it is known that probability value is 0.2626 > 0.05, and it can be concluded that the regression model does not occur heteroscedasticity.

**Regression results**

The results of hypothesis testing are performed by multiple linear regression test on Stata. From the table below, regression equation can be written as follows :

**Tabel 5 Regression Output**

```
reg PBV CR DAR ROE ROI
```

| Source | SS | df | MS | | |
|---|---|---|---|---|---|
| | | | | Number of obs | = 35 |
| | | | | F(4, 30) | = 17.76 |
| Model | 2.55933606 | 4 | .639834016 | Prob > F | = 0.0000 |
| Residual | 1.08073822 | 30 | .036024607 | R-squared | = 0.7031 |
| | | | | Adj R-squared | = 0.6635 |
| Total | 3.64007429 | 34 | .107061008 | Root MSE | = .1898 |

| PBV | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| CR | .2639147 | .170834 | 1.54 | 0.133 | -.0849748 | .6128042 |
| DAR | -.1767629 | .0538991 | -3.28 | 0.003 | -.2868396 | -.0666863 |
| ROE | -.6214336 | .1706676 | -3.64 | 0.001 | -.9699834 | -.2728838 |
| ROI | .0032167 | .0040877 | 0.79 | 0.437 | -.0051314 | .0115649 |
| _cons | .4615198 | .1280268 | 3.60 | 0.001 | .2000542 | .7229853 |

$$\mathrm{PBV_{it}} = 0.46 + 0.26\mathrm{CR} - 0.17\mathrm{DAR} - 0.62\mathrm{ROE} + 0.003\mathrm{ROI} + \varepsilon$$

Based on the data in the above table, the hypothesis test results obtained from the coefficient of determination (R2) in this study, known the value of the coefficient of determination (R-squared) of $R^2$ = 0.7031. F test was tested on all independent variables together or simultaneously against dependent variable. Based on the results of the F test known the value of Prob. (F-statistic), which is 0.0000 < 0.05, it can be concluded that all independent variables, namely Current Ratio, Return on Equity, Debt to Assets Ratio, and Return on Investment simultaneously have significant effect on the variable firm value (PBV).

T test results on Current Ratio, it is known that the coefficient value of the independent variable Current Ratio is 0.26 which is a positive value and a significance value of 0.133. This shows that the effect of Current Ratio (CR) does not affect the increase in firm value (PBV) at a significance level of 5%.

T test results on Debt to Assets Ratio, it is known that the coefficient value of the independent variable Debt to Assets Ratio is -0.17 which is a negative value and a significance value of 0.003. This shows that the effect of Debt to Assets Ratio (DAR) affects the increase in firm value (PBV) at a significance level of 5%.

T test results on Return on Equity, it is known that the coefficient value of the independent variable Return on Equity is -0.62 which is a negative value and a significance value of 0.001. This shows that the effect of Return on Equity (ROE) affects the increase in firm value (PBV) at a significance level of 5%.

T test results on Return on Investment, it is known that the coefficient value of the independent variable Return on Investment is 0.003 which is a positive value and a significance value of 0.437. This shows that the effect of Return on Investment (ROI) does not affect the increase in firm value (PBV) at a significance level of 5%.

**DISCUSSION**

Based on the results with Common Effect Model (CEM), it is known that the R-Squared results of the independent variables in this study amounted to 0.7031 or 70.31%. This means that 70.31% of the firms value (PBV) can be explained by the four variables namely Current Ratio, Debt to Assets Ratio, Return on Equity, and Return on Investment. While 29.69% explained by other variables outside the regression model. Based on the results of the F test known the value of Prob. (F-statistic), which is 0.0000 < 0.05, it can be concluded that all independent variables, namely Current Ratio, Debt to Assets Ratio, Return on Equity, and Return on Investment simultaneously have significant effect on the variable firm value (PBV).

First hypothesis states that Current Ratio affects firm value of telecommunication companies listed in Indonesia Stock Exchange for the period 2014-2020. From the coefficient value of 0.2639147, current ratio has positive correlated with firm value (PBV). Significance value amount 0.133, the significance value more than 0.05 (0.133 > 0.05), so that H1 rejected. The results of this study support research conducted by (Husna & Satria, 2019; Sukmawardini & Ardiansari, 2018). High Current Ratio value does not reflect high PBV, conversely, low Current Ratio value does not reflect low PBV. Likewise, the inverse relationship does not apply, meaning that high Current Ratio value does not reflect low PBV, while a lower Current Ratio value does not reflect high PBV. It can be said that to invest in a company, an investor does not pay attention to the Current Ratio of the company, because it merely shows the company's ability to cover the current debt with current company. The liquidity position is not considered by the investors. The results of this study are consistent with the results of (Annisa & Chabachib, 2017) study that Current Ratio does not have a significant effect on firm value (PBV).

Second hypothesis states that Debt to Assets Ratio affects firm value of telecommunication companies listed in Indonesia Stock Exchange for the period 2014-2020. From the coefficient value of -0.1767629, Debt to Assets Ratio has negative correlated with firm value (PBV), and consistent with the results of the empirical evidence in manufacturing sector (Ginting & Suriany, 2013; Sukma, 2021). Significance value amount 0.003, the significance value less than 0.05 (0.003 > 0.05), so that H2 accepted. The results of this study support research in companies value affected by Debt to Asset Ratio, conducted by (Pasando et al., 2019; Ramadhany & Purwohandoko, 2020; Soewignyo, 2020). This research prove that the company is capable of paying off its long-term debts so it can be said that telecommunications companies registered in The Indonesian Stock Exchange for the 2014-2020 period has performed its best to create value good company too. The use of leverage can increase the value of the company because in tax calculations, the interest charged due to the use of debt is deducted first, so that resulting in companies getting tax breaks. This indicates if leverage increases or increases, the value of the company will increase. Conversely, if leverage falls or decreases then the value of the company will decrease.

Third hypothesis states Return on Equity affects firm value of telecommunication companies listed in Indonesia Stock Exchange for the period 2014-2020. From the coefficient value of -0.62, Return on Equity has negative correlated with firm value (PBV), and consistent with the results of indirect impact on Price to Book Value (Majid & Benazir, 2015). Significance value amount 0.001, the significance value less than 0.05 (0.001 > 0.05), so that H4 accepted, and the results of this study support research conducted by (Mai, 2017; Soewignyo, 2020; Sukmawardini & Ardiansari, 2018). Form the result, shows that company management fails to increase company value in accordance with financial management objectives, namely maximizing company value, and also when a company experiences losses, it is possible that the company is first short of capital, second is excess debt, and third is a book negative net profit.

The last hypothesis states that Return on Investment affects firm value of telecommunication companies listed in Indonesia Stock Exchange for the period 2014-2020. From the coefficient value of 0.003, current ratio has positive correlated with firm value (PBV). Significance value amount 0.133, the significance value more than 0.43 (0.43 > 0.05), so that H4 rejected. The results of this study are consistent with the results of (Rangkuti et al., 2020) study that Return on Investment does not have a significant effect on firm value (PBV).

## CONCLUSION

Based on the results of research and discussion, it can be concluded that Current Ratio (CR) and Return on Investment (ROI) does not affect the increase in firm value (PBV) at a significance level of 5%. On ther side, Debt to Assets Ratio (DAR) and Return on Equity (ROE) affects the increase in firm value (PBV) at a significance level of 5%. According with this study, the suggestions for

companies to increase their profitability are : raises a positive signal that investors are investing capital in the company, there will be high demand for shares increase share prices so that the value of the company also increases. Management also needs to pay attention to all aspects, especially the debt ratio, which can be a negative signal for potential investors.

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