

## Research Paper

# Intangible Assets and R&D to the Value of New IPO Companies with Financial Performance as Moderating Variable

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**ORCID**Raihan Hanafi Falah Achmad: <https://orcid.org/0000-0002-6282-7121>**Abstract.**

This study uses an explanatory quantitative design to determine the influence of research and development intensity and intangible assets on firm value with financial performance as a moderation variable. This study aims to add to the investor literature by providing a way to assess new companies in 2020 that initially conducted public offerings. Financial performance is used as a moderator to see whether it will strengthen the relationship between variables or weaken it. Companies in 2020 that have just made an initial public offering and disclosed research and development costs, recorded profits in financial statements, and value from intangible assets will be the sample in this study. Secondary data was used in this study from the Indonesia Stock Exchange with a moderation regression data analysis technique. This study indicates that firm value does not affect the intensity of research and development and intangible assets. However, intangible assets have a stronger relationship with firm value with moderating financial performance.

**Keywords:** intangible assets, R&D, firm value, financial performance, initial public offering

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## 1. Introduction

Competition in the business world in the capital market in the era of globalization is increasing. The number of companies conducting Initial Public Offering (IPO) due to tax breaks is one of the reasons for increased competition (Wahyu, 2011). This makes investors have a new perspective to assess a new company's prospects. Investors will make decisions in investing, in this case researchers believe that the intensity of intangible assets and research and development (R&D) costs can help them in making the decision to invest.

The use of a company's financial performance history is one way for investors to determine their decisions (Puspitaningtyas, 2012). The lack of a history of financial performance in new IPO companies in showing their profitability makes investors must

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look for other ways to assess the company. An alternative consideration for investors for new companies IPOs is to look at the intensity of intangible assets and the company's R&D costs to see how the company's future potential (Kurniawan & Mertha, 2016).

The Indonesia Stock Exchange has issued disclosures of intangible assets in the company's financial statements listed in 2020. According to PSAK 19, an intangible asset is an intangible asset but can be identified and includes non-monetary assets that will provide economic benefits in the future. will come. Looking at the intensity financial statements showing the value of intangible assets, it shows that the company has seen the future economic benefits from the intangible assets that they recognize (Chan et al., 2022).

Another way to increase company value is through R&D activities. Innovation resulting from these activities can increase the value of the company (Kurniawan & Mertha, 2016). Innovation is one of the company's demands to be able to survive and be competitive. The existence of an innovation will emerge and can have an impact on company management that becomes more effective and efficient or even the product of the company itself (Ayu et al., 2022). Therefore, one implementation of awareness of the importance of innovation in a company is by spending on R&D carried out.

New companies conducting IPOs need a competitive edge to face competitors and to be able to be sustainable in the future. The existence of R&D is expected to provide an innovation so that competitive products emerge, or the use of company assets becomes more effective and efficient (Rubera et al., 2016). In addition to R&D, the efficient use of intangible assets future companies will get economic benefits. This gives investors confidence that the company has concern for the quality of the welfare of the stakeholders involved (Danciu, 2013). The ability to be able to compete certainly must be owned by a new company. Company management is required to always pay attention to the performance of the companies they manage, good financial performance can show significant development and growth (Pratama & Mawardi, 2021). Thanks to positive financial performance, this can be a positive signal for investors.

In 2020, there were 731 companies that had IPOs on the Indonesia Stock Exchange (IDX, 2020). The number of new IPO companies in 2019 was 55 and the number was consistent in the following year as many as 51 companies. This is based on the company's desire to be able to compete competitively, increase its business and obtain additional capital (Cahyani & Suhadak, 2020). The consistently increasing number of new IPO companies is an achievement for Indonesia, which remains the largest stock exchange in ASEAN, but on the other hand it is a challenge for companies to always be

able to compete competitively with their competitors. According to Rofaida et al. (2019) In order to win the competition competitively, companies need to innovate.

Trisnajuna & Sisdyani (2015) stated that the company will be better at competing with its competitors if it has R&D activities. Therefore, new companies should have ongoing R&D activities to develop their products, services, and technology to create more effective and efficient improvements to the company (Kurniawan & Mertha, 2016). Such activities can create new hidden value for the company which can increase profitability. The increase in the value of a company in the capital market can be seen from the improvement of financial performance and profitability (Patricia et al., 2018). The intensity of intangible assets is also an illustration of future economic use by an entity. Firm value can directly increase with the effective use of company assets (Hadiwijaya & Rohman, 2013).

The results resulting from the utilization of intangible assets and R&D is one form of realization of Resource Based Theory (RBT). In this theory, the effective and efficient use of company resources can be a benchmark to be able to compete competitively (Rengkung, 2015). According to Kieso et al. (2016) the effective and efficient use of intangible assets is expected to provide benefits for the company in the future. Likewise, R&D can be one way of innovation in increasing the utilization of company resources by following current developments that will benefit the company (Akyunina & Kurnia, 2021).

According to Fidhayatin & Uswati Dewi (2012) before investing, investors still consider the value of the company to be invested. Khedher et al. (2015) states that firm value can be influenced by two factors, namely policy and performance. Policy factors include financing, investment, and dividend policies. Meanwhile, the performance section includes profitability, liquidity, activity, and company size. In this study, researchers use the performance factor in which R&D is one form of company investment that can maintain the company's advantage to compete with competitors. According to Kieso et al. (2016) these activities sometimes produce something new and add to the company's intangible assets that can provide benefits for the company. For example, the benefits provided by intangible assets are that there is a brand that is known to the public and easy to find, it will increase company sales and can directly increase the value of the company itself.

There are many ways that companies do to improve competitiveness, R&D is one way to make themselves market leaders (Gupta et al., 2017). Investors today also have many ways to see how serious a company is in competing with its competitors. A company incurs R&D costs to innovate its products to create new products to increase the selling

value of these products (Ilmi & Prastiwi, 2019). This shows the attention to innovation made by the company to have an influence on increasing company sales.

Chen et al. (2005) shows in his research that R&D and intangible assets have a positive relationship with financial performance, where intangible assets have a positive impact on financial performance and disclosure of R&D can show the company's structural capital which also has a positive impact on firm value. This shows that good company asset growth will provide benefits to the company (Dhani & Utama, 2017). The growth of these assets indicates the use of intangible assets and R&D costs that have succeeded in companies to increase superiority and competitiveness in increasing profitability. Therefore, according to the research of Pratama et al. (2019) states that R&D will be affected due to financial performance and will ultimately increase the value of the company. Intangible assets and company value can strengthen relationships with financial performance (Badarudin & Wuryani, 2018).

In this study, the use of financial performance will be a moderating variable represented by Return on Assets (ROA). The use of ROA itself is used by researchers to provide alignment and obtain research objectives that focus on the company's assets in the form of the intensity of intangible assets and the company's R&D costs that will generate benefits in the future. ROA itself will provide information on how the company generates profits by utilizing its assets (Heikal et al., 2014). The existence of ROA is expected to show how the company generates profits from the assets owned by the company. In accordance with resource based theory, ROA will show the level of effectiveness and efficiency of company resources in generating profits and will reflect the value of the company.

This study is a replication of Kurniawan & Mertha's (2016) research which is expected to contribute to readers by providing new literature on how to assess a new company from the point of view of the R&D costs incurred and the intensity of the intangible assets owned. This research has an update related to the object of research in the form of a new company IPO and using Moderated Regression Analysis (MRA) is used as an analytical technique. Based on the explanation above, how the influence of the intensity of intangible assets and R&D costs on firm value moderated by financial performance will be the purpose of this study. Will the financial performance strengthen the relationship between the intensity of intangible assets and R&D on firm value or will it weaken the relationship between the two.

## 2. Literature Review

In the current era of many new companies conducting IPOs, the competitive advantage of each company will become its own competitiveness. Resource Based Theory (RBT) is in line with this, where theory becomes an analytical tool in seeing how a company's competitive advantage is in terms of its assets (Aida & Rahmawati, 2015). The use of Resource Based Theory in this study is intended to see how the use of intangible assets in a company will provide economic benefits to competitive advantages for the company in the future. Companies that utilize their resources optimally can provide the company's ability to compete with its competitors (Aulia et al., 2020).

Intangible assets are long-term assets and do not have physical substance that will give a company a competitive advantage (Marcelina et al., 2020). A company with a well-known brand among the public can make the company able to compete competitively when many other companies are trying to compete with the same product. This is in accordance with the research of Kurniawan & Mertha (2016) where a positive influence is shown by intangibles that have a positive effect on firm value. Therefore, the value of the company is expected to increase with the influence of intangible assets (Chareonsuk, 2010).

However, research conducted by Kombih & Suhardianto (2018) states that intangible assets have no effect on increasing firm value. This happens because research conducted on certain sector companies reveals little about its intangible value. Intangible assets themselves provide an added value to the company, ranging from the existence of new patented technologies, new brands, to new innovations to extensive employee knowledge that will have a good impact on the company in the form of increasing company value. This is in line with the resource-based theory which states that if resources can be utilized properly, it can increase the value of the company. Hadiwijaya & Rohman (2013) research; Andonova & Ruiz-Pava (2016); and Haji & Ghazali (2018) support this and state that intangible assets have a positive influence on the value of a company.

H<sub>1</sub>: The intensity of intangible assets has a positive effect on firm value.

Companies in various fields compete in their respective R&D to continue to innovate and provide the best needs for the community, this is because innovation is currently the spearhead of the company (Kemenperin, 2019). Financial performance can increase directly thanks to the increase in income derived from innovation thanks to R&D (Yuliana, 2012). Improved financial performance can directly increase the value of the company (Tjandrakirana & Monika, 2014). Therefore, R&D can improve the company's ability to

manage resources to make the company's advantage to compete with competitors (Trisnajuna & Sisdyani, 2015).

R&D can have a positive impact by increasing firm value (Kurniawan & Mertha, 2016). However, in some cases there is still a failure to prove that R&D does not have a significant effect on firm value (Wahyuningsih & Purwanto, 2013). This is because some companies fail to gain competitive advantage from the R&D carried out. However, research conducted by Kurniawan & Mertha (2016); Trisnajuna & Sisdyani (2015); and Kim et al (2020) state that firm value can be positively influenced by R&D because investors assume that the results of R&D that produce innovation or intellectual capital will increase firm value. Therefore, the value of a company can be affected by the existence of R&D.

H<sub>2</sub>: Research and development costs have a positive effect on firm value.

Firm value has the potential to be affected due to the intensity of intangible assets and R&D (Kuniawati & Asyik, 2017). So, to determine the effect of the relationship between the intensity of intangible assets and R&D on firm value, a moderating variable is needed, namely financial performance. The researcher feels that financial performance can be a moderator between the relationship between intangible assets and firm value. Intangible assets themselves play an important role in increasing the value of a company (Kurniawan & Mertha, 2016). Therefore, the company's performance can increase along with its market value if the company can utilize intangible assets effectively (Saeed et al., 2013).

Research by Muasiri & Sulistyowati (2021) and Badarudin & Wuryani (2018) states that financial performance can moderate the relationship of intellectual capital which is part of intangible assets to firm value. However, Afief et al. (2021) states differently, where financial performance does not moderate intellectual capital which includes intangible assets to firm value. This difference occurs because the company is less effective in managing its intangible assets. However, according to Abadiyah et al. (2017) where the effective and efficient use of intangible assets will make the company's financial performance better and can increase the value of the company. Therefore, financial performance is considered to strengthen the relationship between intangible assets and firm value.

H<sub>3</sub>: Financial performance variable moderates the effect of intangible asset intensity on firm value.

The costs incurred by the company are one of the ways the company develops its products or services to increase the value of the company (Lubis et al., 2013). Financial performance can be improved by utilizing the results of R&D and from improving the

company's performance it can increase the value of the company in the future (Khoyriah & Idayati, 2018). Research conducted by B. C. Pratama et al. (2019); Ghaffar & Khan (2014); and Yousaf et al. (2019) states that financial performance can have an influence on R&D. This proves that an increase in R&D costs will provide an increase in the company's financial performance, which is marked by increased sales thanks to innovation, which in turn will have an impact on increasing investor confidence and ultimately increasing the value of the company.

Research by Ayu et al. (2022) give different results, where financial performance has no effect on firm value with R&D. The difference occurs because there are companies that fail to take advantage of innovation and do not pay attention to the increase or decrease in financial performance. However, if a company can make good use of its assets and can benefit from innovation, it can provide an increase in the company's financial performance. The value of the company can be increased by increasing the company's financial performance (Hadiwijaya & Rohman, 2013).

H<sub>4</sub>: Financial performance variable moderates the effect of research and development costs on firm value.

### 3. Method

This research is a type of explanatory quantitative research, which will provide an explanation regarding the relationship between variables that affect the hypothesis. The purposive sampling method is used by researchers to select the population and the criteria have been determined so that a representative sample can be selected to obtain the research objectives. The following criteria are used: (1) New companies conduct initial public offerings on the IDX in 2020, (2) Companies that list intangible assets and R&D in their annual financial statements in the notes section of financial statements, (3) Companies that record profits in their financial statements yearly.

The secondary data used in this study is in the form of annual financial reports obtained from the Indonesia Stock Exchange website (Indonesian Stock Exchange, 2018). This annual report is obtained by looking at the listed company's section and then looking at the sub-Financial and Annual Reports. In the annual report, researchers enter the keywords intangible assets, research, and development to find the data needed. The cost or intensity of intangible assets and R&D can be found in the balance sheet and notes to the financial statements, respectively. The collection of research data includes Cross Section or at a predetermined time and then the data is processed using the SPSS version 25 program.

Firm value can be an indication of the performance of a company (Marcelina et al., 2020). This is also the investor's perception of the company and the price of the company if it will be purchased by investors. To measure the value of the company in a company according to Tobins'Q in Kurniawan & Mertha (2016) the following calculations can be carried out:

$$Q = \frac{(MVS + D)}{TA}$$

Information:

MVS = *Market Value of All Outstanding Shares.*

D = *Debt.*

TA = *Total Asset.*

D= (AVCL – AVCA) + AVLTD

Information:

AVCL = *Accounting Value of the Firm's Current Liability.*

AVCA = *Accounting Value of the Firm's Current Assets.*

AVLTD = *Accounting Value of the Firm's Long-Term Debt.*

The interpretation to describe the results of the Tobin's Q calculation is as follows: if the value obtained is <1 then it indicates that the company's shares are undervalued. This indicates a low valuation of a company's shares and will potentially lead to a decline in the company's image. Meanwhile, if the value obtained is > 1, it describes the company in an overvalued condition and indicates a high valuation of a company's shares.

R&D is one way that a company can take to obtain innovation (product or technology), improve product or service quality to increase production efficiency or provide better services. In this study, R&D became the independent variable and according to Kurniawan & Mertha (2016) it could be measured using the following calculations:

$$\text{Research and Development} = \frac{\text{Total expenses research and development}}{\text{Total sale}}$$

In this study, Intangible assets refer to the financial statements in the statement of financial position of the company's non-current assets. Intangible assets can be measured using the following calculations:

$$\text{Intangible Asset} = \frac{\text{Total intangible asset}}{\text{Total assets}}$$

Measuring the performance of a company can use profitability. Profitability has several indicators including ROA (Return on Assets). To see the company's ability to earn a profit



from its assets, ROA is used as a measurement of financial performance. Therefore, the higher the ratio value obtained indicates the effectiveness of the company's assets when used. ROA measurement can be done as follows:

$$ROA = \frac{Net\ Profit}{Total\ assets}$$

Moderated Regression Analysis (MRA) is used as an analytical technique in this study. In this MRA analysis, it contains elements of multiplication of two or more independent variables and the technique is expected to show whether the moderating variable can weaken or strengthen the relationship between variables. To see that the regression equation has accuracy in estimation, is unbiased, and consistent, the researcher also tests the classical assumption to provide certainty (Kurniawan & Mertha, 2016).

#### 4. Result

TABLE 1: Moderated Regression Analysis.

Variable	$\beta$	Prob (t-stat)	Explanation
Intangible Asset	2,309	,054	Not Significant
R&D	-,582	,579	Not Significant
Intangible Asset*Finance Performance	2,338	,048	Significant
R&D*Finance Performance	-,801	,449	Not Significant
Adjusted R Square	,266		
F Statistic	1,996		
Prob (F-stat)	,200		
<i>Source; processed data, 2022</i>			

Based on table 6, the moderated regression analysis obtained the following equation:

$$Y = 0.261 + 2.309 X_1 - 0.528 X_2 + 2.338 X_1 * Z - 0.801 X_2 * Z +$$

Based on the results of the t-value test, the intangible asset variable has a coefficient value of 2.309 and a p-value (sig) of 0.054, because the t-value > 0.05 then H<sub>0</sub> is accepted and H<sub>1</sub> is rejected, so there is no significant effect between the intangible asset variable on firm value. Meanwhile, the R&D variable has a coefficient value of -0.582 and a p-value (sig) of 0.582, because the t value > 0.05 then H<sub>0</sub> is accepted and H<sub>2</sub> is rejected, so there is no significant effect between the R&D variables on firm value. The intangible asset variable moderated by financial performance has a coefficient value of 2.338 and p-value (sig) 0.048 because the t value > 0.05 then H<sub>0</sub> is rejected and H<sub>3</sub> is accepted, so there is a significant influence on the financial performance variable on the relationship between intangible assets variables. to the value of the company.

Meanwhile, R&D moderated by financial performance has a coefficient value of -0.801 and a p-value (sig) of 0.448, because the t value  $> 0.05$  then  $H_0$  is accepted and  $H_4$  is rejected, so that there is no significant effect on the financial performance variable on the relationship between R&D variable on firm value.

The results of testing the first hypothesis show that the intensity of intangible assets has no effect on firm value. The result has no effect because the data from the sample cannot prove the relationship between intangible assets and firm value. This result is presumably due to the absence of any perceived impact from the existence of intangible assets in the company's one year after the IPO and only less than half the number of new companies IPOs in 2020 that report the value of their intangible assets. Kombih & Suhardianto's research (2018) is in accordance with this where intangible asset have no effect on firm value and on the other hand the cause of the non-influence of intangible assets on firm value is conceptually possible because of company policies that do not use the fair value recording method and prefer the cost method. Almost all samples of companies in this study use the cost method and if the method is reapplied in the following year, it will cause the intangible asset value of the company to remain constant because it does not experience adjustments.

The results of testing the second hypothesis show that R&D costs have no effect on firm value. The results are not significant because the data from the sample cannot prove the relationship between R&D and firm value. This is thought to have occurred due to a 2.63% decrease in people's purchasing power, so that new products from the company's innovations were not sold optimally (Detik.com, 2021). Therefore, R&D is not considered by investors to assess new companies IPOs in 2020. The results of this study are in accordance with research by Wahyuningsih & Purwanto (2013) where R&D has no effect on firm value. Not getting a competitive advantage from the R&D carried out is thought to cause R&D to have no effect on company value. This is supported by research by Kusumawati (2010) which states that competitive advantage is a key component of a company's success.

The results of the MRA test, the third hypothesis is accepted which indicates that financial performance significantly strengthens the relationship between the intensity of intangible assets and firm value. These results are in accordance with the research of Sayyidah & Saifi (2017) and Badarudin & Wuryani (2018). This shows that the new intangible assets will affect the value of the company if it is supported by good financial performance of the company. Good financial performance is a picture of a company being able to manage its intangible assets so that it can minimize unwanted events and can benefit the company (Badarudin & Wuryani, 2018). Resource based theory also

supports this, where the effective use of company assets can increase productivity to company income which can directly increase company value (Abadijah et al., 2017).

The results of the MRA test on hypothesis four where the financial performance variable does not significantly moderate the relationship between R&D and firm value. These results are caused by the data from the sample cannot prove that financial performance can strengthen the relationship between R&D and firm value. The financial performance of the new company's IPO 2020 may not necessarily be due to the company's R&D. The development of the company's human resources is believed not to be able to directly increase the company's profit. These results are also in accordance with the research of Ayu et al. (2022) where financial performance has no effect on the relationship between firm value and R&D. This also occurs due to an assessment of companies that spend R&D without considering the increase or decrease in the company's financial performance. Therefore, research by Kurniawan & Mertha (2016) which states that financial performance does not affect R&D on firm value also supports this.

## 5. Conclusion

Based on the results of the analysis that has been carried out, the following conclusions can be drawn: 1) intangible assets have no effect on firm value, 2) R&D has no effect on firm value, 3) financial performance variables can moderate intangible assets on firm value, 4) financial performance variables do not moderate the relationship of R&D to firm value. Meanwhile, the limitations of this study are as follows: 1) at least new companies IPO in 2020 that report recognition of intangible assets or R&D costs, 2) the observation period for new companies IPOs is only in 2020 so that it cannot be compared to other periods.

Based on the results of the analysis of the discussion and some of the conclusions above, the authors provide suggestions for further researchers regarding new companies conducting IPOs as follows: 1) can expand the sample of companies to be studied to provide more company coverage, 2) can extend the observation period in order to see how the comparison and development of intangible assets and R&D results of new IPO companies. As for investors as follows: 1) the intensity of intangible assets and R&D costs cannot be used in assessing a new company within one year after the IPO, 2) the intensity of intangible assets can be used as a tool to assess a new company conducting an IPO with due regard to performance. company finances.

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