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## **DETERMINANTS OF FIRM VALUE WITH CONDITIONAL PROCESS MODEL: EVIDENCE FROM HEALTHCARE SECTOR COMPANIES IN INDONESIA**

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### **ABSTRACT**

*This study aims to analyze the variables that affect the value of health sector companies in Indonesia, using the conditional process model with variables of Intellectual capital, IOS, DPR, Leverage, and firm size. The research method used is a descriptive method with a non-experimental quantitative approach. The population of this study was 30 health sector companies indexed on the IDX-IC Indonesia Stock Exchange. Furthermore, using a purposive sampling technique with the main criteria, nine companies were obtained as samples. Important findings in this study are that IOS is a predictor that has the strongest relative total effect on firm value, and IOS also plays a role in mediating the effect of intellectual capital and firm size on firm value. Next, leverage is found to moderate the effect of IOS on firm value positively. IOS optimization is influenced by intellectual capital. Thus, health sector companies must improve and manage intellectual capital well. Health sector companies can maximize their debt to invest in new products or expand the production of existing products. This provides theoretical implications for the firm value literature, where mediation and moderation models using IOS and Leverage in this research context are still limited.*

**Keywords:** DPR; firm value; intellectual capital; IOS; Leverage.

### **ABSTRAK**

Penelitian ini bertujuan menganalisis variabel-variabel yang mempengaruhi nilai perusahaan sektor kesehatan di Indonesia, menggunakan conditional process model dengan variabel-variabel Intellectual capital, IOS, DPR, Leverage, dan firm size. Metode penelitian yang digunakan metode deskriptif dengan pendekatan kuantitatif non eksperimental. Populasi penelitian ini adalah 30 perusahaan sector kesehatan yang terindeks di IDX-IC Bursa Efek Indonesia. Selanjutnya menggunakan teknik purposive sampling dengan kriteria utama, diperoleh sembilan perusahaan sebagai sampel. Temuan penting pada penelitian ini yaitu IOS adalah predictor yang memiliki pengaruh total relatif paling kuat terhadap firm value, kemudian IOS juga berperan memediasi pengaruh intellectual capital dan firm size terhadap firm value. Berikutnya, leverage ditemukan memoderasi positif pengaruh IOS terhadap firm value. Optimalisasi IOS dipengaruhi oleh intellectual capital,

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dengan demikian perusahaan sector kesehatan harus meningkatkan dan mengelola intellectual capital dengan baik. Perusahaan sector kesehatan dapat memaksimalkan hutang yang dimiliki untuk berinvestasi pada produk baru atau memperluas produksi produk yang sudah ada. Ini memberikan implikasi teoritis pada literature firm value, di mana model mediasi dan moderasi menggunakan IOS dan leverage pada konteks penelitian ini masih terbatas.

**Keywords:** DPR; firm value; intellectual capital; IOS; Leverage.

## INTRODUCTION

Healthcare sector companies have unique stock characteristics and defenses amid global economic challenges and other macroeconomic changes (Maghiszha 2023). Before the COVID-19 pandemic occurred, the share prices of health sector companies listed on the Indonesia Stock Exchange did not show good performance. For example, in 2018–2019, pharmaceutical industry sub-sector companies experienced a decline in stock prices. However, in 2020, when the COVID-19 pandemic entered Indonesia, health sector companies experienced a strengthening in their share prices during trading session II. Looking back, when reflecting on the sectoral stock price index of health and pharmaceutical sector companies during 2012–2019, the company experienced fluctuations. However, analysts revealed that the health sector in 2022 is still attractive, and after the COVID-19 pandemic, it is proven that stocks in the health sector managed to enter the ranks of top gainers on July 11, 2023 (Annur 2023).

Empirically, many researchers are interested in looking at the prospects of issuers in the health sector. Various studies on health sector companies have also been conducted during the COVID-19 period. Fissholah & Hascaryani (2022) stated in their research that there was a significant difference in the stock return variable between before and during the COVID-19

pandemic; this was supported by an increase in the profits of health sector companies during the pandemic. In addition, trading volume activity (TVA) also shows a significant difference between before and during the COVID-19 pandemic. This can be seen from the increase in transaction volume, which shows investor interest in health sector stocks. Changes in stock returns of health sector companies during the observation period in the second quarter of 2020–the first quarter of 2021, according to research (Nihayah, Malukah, & Hariri 2021), were influenced by sales growth.

Fluctuating stock prices and stock returns indicate uncertainty in the value of the company. In general, company value is reflected in the market value or share price of a company that has been determined from the demand and supply of shares by the stock market. Firm value is the investor's perception of the level of wealth of shareholders (Wardah, 2019). Various efforts have been made by many researchers to predict factors that are thought to affect firm value.

The phenomenon of company valuation tested across various countries yields diverse results. Corporate decisions in determining capital structure policies and company characteristics are regarded as factors signaling shareholders in investment decision-making. Therefore, this study aims to analyze company size, profitability, and debt levels to predict company value from the perspective of signaling theory. The



significance of this research is to broaden knowledge, particularly in the field of management accounting.

Ross elucidates that the signaling model is linked to managerial activity choices. Signaling Theory posits that managers or companies qualitatively possess more information compared to external parties, and they employ certain metrics or facilities to imply the quality of the company. At least four types of signaling theories are known in financial literature, namely: 1) debt maturity option signaling model, 2) company investment signaling model, 3) financial structure signaling model, and 4) dividend signaling model. Each model has its own implications for managers, shareholders (investors), or treasury shareholders. Shareholders or investors must utilize any understanding to suspect potential signals indicated by managers. If shareholders or investors fail to seek information related to signals, they will be unable to capitalize on them. Hence, every signal regarding company value should be carefully scrutinized.

Given the fluctuating performance of healthcare sector company stocks, this research aims to analyze variables influencing company value within the healthcare sector in Indonesia. This research is grounded in signaling theory for analyzing company value. Among other supporting theories used are dividend policy theory, capital structure theory, and Resource-Based View (RBV). Therefore, the variables analyzed in relation to company value are intellectual capital, Investment Opportunity Set (IOS), Dividend Payout Ratio (DPR), firm size, and leverage.

Intellectual capital is defined as the invisible assets of a company. Today's enterprises have gradually shifted from traditional physical capital (e.g., equipment, land, funds, and simple labor) towards

intellectual capital (e.g., human capital, organizational capital, and relationship capital). Therefore, it is important to measure intellectual capital and investigate the effect of intellectual capital on firm value. Research (Bayraktaroglu, Calisir, and Baskak 2019; Chen, Lam, and Zhu 2020; Gantino and Alam 2021; Putri and Miftah 2021; Sardo and Serrasqueiro 2018; Tiwari 2022) proves that intellectual capital has an effect on firm value.

Investment Opportunity Set (IOS) as the dependent variable has a positive effect on firm value. (Al-Gamrh et al. 2020; Fauzy et al. 2019; Firmansyah et al. 2022; Riahi-Belkaoui and Picur 2001). According to (Kallapur and Trombley 2001; Rizqia, Aisjah, and Sumiati 2013), increasing and decreasing investment opportunities can change the value of the company, because the market positively values companies that have high investment in the hope of future growth. Research conducted by (Alamsyah and Malanua 2021; Essen 2018; Goel 2016; Kholid and Rahmawati 2023; Wahasusmiah and Arshintia 2022) stated that there is a positive influence of IOS on the value of company shares. The results of this study mean that the increase in wealth or assets in the company tends to occur in companies that invest a lot.

Then, the Dividend Payout Ratio (DPR), according to the bird in the hand theory, will affect firm value. Meanwhile, according to Modigliani & Miller's theory, DPR does not affect firm value. Research that shows dividend policy affects firm value (Hansda, Sinha, and Bandothy 2020; Santosa, Aprilia, and Tambunan 2020; Yulandri, Hertina, and Asih 2023; Yuliani, Fuadah, and Thamrin 2018). However, there is research found that dividend policy does not affect firm value (Afeeanti and Yuliana 2021; Budagaga 2020; DeAngelo and DeAngelo 2006; Fadila, Nugraheni, and Utami 2023;



Handley 2008; Labhane and Mahakud 2016).

Referring to the capital structure theory, it is explained that debt policy affects firm value. DER research affects firm value, including (Afeeanti and Yuliana 2021; Maptuha, Hanifah, and Ismawati 2021; Putri and Miftah 2021; Santoso and Susilowati 2020). However, there are also studies that state that DER has no effect on firm value (Atiningsih, Pancawardhani, and Mohklas 2020; Prasetyaningrum et al. 2020; Sinaga and Mustafa 2019; Yulandri et al. 2023; Yulimtinan and Atiningsih 2021).

Company size has a positive influence on the company's dividend policy (Hasanah and Lekok 2019). Large companies will tend to pay high dividends to maintain a reputation among investors so that the company's value will also tend to increase. (Julita and Fitri 2021; Syahputra 2021). After conducting a search, no research was found that specifically examined the role of IOS as a mediator in the relationship between intellectual capital and firm value. However, there are several studies that examine the effect of human capital and IOS separately on firm value. Human capital is unlimited, and its value grows when companies invest in it. This can lead to increased profitability and growth. Therefore, it can be concluded that there is a potential indirect relationship between human capital, IOS, and firm value. Further research may be needed to explore this particular relationship in more detail.

Meanwhile, agency theory predicts that companies with higher leverage ratios will disclose more information because a high capital structure will increase agency theory costs (Jensen & Meckling, 1976). This theory is the background for the use of leverage as a moderating variable.

For a more detailed understanding of the factors that affect the value of health sector companies, researchers introduced a

conditional process model, which uses mediator and moderator variables. Researchers use the Investment Opportunity Set (IOS) as a mediator variable in the relationship between intellectual capital and firm size and firm value. Furthermore, DPR is also a mediator variable between firm size and firm value. Meanwhile, the moderator variable will predict leverage in the relationship between Investment Opportunity Set (IOS) and DPR on firm value.

Thus, this study will expand previous research that only used one particular model to test the mediation effect or moderation effect. This study also uses a composite score of firm value measurement with Tobin's Q and Price to Book Value (PBV). Thus, this study will contribute to helping health sector companies increase their investment opportunities through intellectual capital and firm size and increase DPR through firm size so that it can have an impact on firm value.

Thus the hypothesis of this study is as follows

### **Hypothesis**

H<sub>1</sub> : IOS has an effect on Firm Value

H<sub>2</sub> : DPR has an effect on Firm Value

H<sub>3</sub> : Leverage affects Firm Value

H<sub>4</sub> : Intellectual Capital Affects Firm Value

H<sub>5</sub> : LEV moderates the effect of IOS on FV

H<sub>6</sub> : LEV moderates the effect of DPR on FV

H<sub>7</sub> : Intellectual Capital affects IOS

H<sub>8</sub> : Firm Size affects IOS

H<sub>9</sub> : Firm Size affects DPR

H<sub>10</sub> : IOS mediates the effect of Intellectual Capital on Firm Value

H<sub>11</sub> : DPR mediates the effect of Firm Size on Firm Value

H<sub>12</sub> : IOS mediates the effect of Firm Size on Firm Value



## RESEARCH METHODS

This paper uses a descriptive method with a non-experimental quantitative approach. This study aims to analyze the variables that affect firm value in health sector companies in Indonesia using exogenous variables (VAIC, IOS, DPR, leverage), mediation (IOS, DPR), and moderation (leverage). Therefore, the data analysis method used is the conditional process model, developed by Hayes. In Hayes' (2022) format, the model involves not only moderator variables but also mediator variables. This conditional process model is innovative and can close the research gap to analyze firm value because it combines moderation and mediation components into one model based on previous research findings. The statistical software used to help process this research data is SmartPLS version 4. This study uses secondary data, whose data sources come from annual reports accessed through the company's official website. The population in this study were health sector companies indexed on the IDX-IC Indonesia Stock Exchange. There are 30 companies indexed in total. Not all companies are used for data analysis because they are tailored to research needs. Thus, the sampling technique used is purposive sampling, with the following criteria: the company must be indexed no later than 2020, included in the IDX-IC list according to the stock evaluation as of January 2023; the research focuses on when COVID-19 occurs so that the research period is 2020-2023; the company must distribute cash dividends consecutively during the research period; and it must have complete financial reports during the research period. Based on the evaluation of

sampling criteria, nine companies were obtained with the issuer codes KLBF, TSPC, SOHO, SIDO, PRDA, PEHA, MERK, MIKA, and DVLA.

## RESULTS AND DISCUSSION

### Research Results

Table 1 explains the descriptive statistical results of the variables used in this study. The average dividend payout ratio is 60.97% compared to the nominal value; the lowest among the surveyed companies is 29.82% from the issuer DVLA in 2020, and the highest is 123.56% from the company SOHO in 2020. The average logarithm of total assets (SIZE) is 28.52, with the issuer KLBF in 2022 having the largest company size of 30.93 and the lowest of 20.65 owned by the company MERK in 2020. Firm value owned by the smallest health sector company is 1,186 from the TSPC issuer in 2022, and the largest is 7,659 from the SIDO issuer in 2020, while the average for the whole is 3,624. IOS shows future investment opportunities owned by the company; the lowest percentage is owned by PEHA (2022) at 0.746 percent from the issuer, and the highest investment opportunity comes from the SIDO issuer (2020 at 7.496 percent). The leverage level of health sector companies averages 50.089 percent. This is quite high and indicates that health sector companies rely on debt in their business processes. Finally, the intellectual capital owned by health sector companies averages 4,859, with the highest nominal value of 13,966 owned by the issuer MERK (2022). Finally, from the standard deviation results, we can see that most of the variables are stable and reliable.





**Table 1 Descriptives**

	Mean	Median	Observed min	Observed max	Standard deviation	Excess kurtosis	Skewness	Number of observations used
DPR	60.973	53.69	29.82	123.56	29.82	123.56	24.18	27.000
FS	28.252	29.023	20.651	30.936	20.651	30.936	2.776	27.000
FV	3.624	3.08	1.176	7.659	1.176	7.659	2.063	27.000
IOS	3.334	2.634	0.746	7.496	0.746	7.496	2.153	27.000
LEV	50.089	35.794	0.191	136.711	0.191	136.711	36.818	27.000
VAIC	4.859	4.222	-0.75	13.966	-0.75	13.966	3.323	27.000

Source: SmartPLS output data processing results version 4

Table 1 also shows that the normalization of this data is shown through excess kurtosis and skewness. The results show that in excess kurtosis, there are variables that are outside the range of values -2 to 2, so it is concluded that the data is not normal and the distribution is leptokurtis. Then, in the Skewness results, there are also variables that are outside the range of values -2 to 2, so the data is not normally distributed. According to Hair et al. (2021), PLS-SEM can handle extremely non-normal data (e.g., data with high levels of skewness). For example, bootstrapping with non-normal data can produce peaked and skew distributions. The use of the bias-

corrected and accelerated (BCa) bootstrapping routine handles this issue to some extent, as it adjusts the confidence intervals for skewness. Therefore, in testing the hypothesis below, researchers used the Bias-Corrected and Accelerated (BCa) bootstrapping technique. Table 2 is a correlation matrix. Referring to this table, the researcher found that in all the variables studied, there was no multicollinearity between variables. The absence of multicollinearity is also confirmed based on the variance inflation factor (VIF) results for all models because the value is below the threshold value of ten.

**Table 2 Matrix Correlation Analysis**

	DPR	FS	FV	IOS	LEV	VAIC	LEV x IOS	LEV x DPR
DPR	1.000							
FS	-0.373	1.000						
FV	0.268	0.188	1.000					
IOS	0.268	0.192	0.998	1.000				
LEV	0.117	0.195	-0.205	-0.209	1.000			
VAIC	0.284	-0.698	0.227	0.237	-0.194	1.000		
LEV x IOS	-0.177	-0.286	-0.479	-0.500	-0.418	-0.166	1.000	
LEV x DPR	0.421	0.106	-0.071	-0.089	0.075	-0.489	0.112	1.000

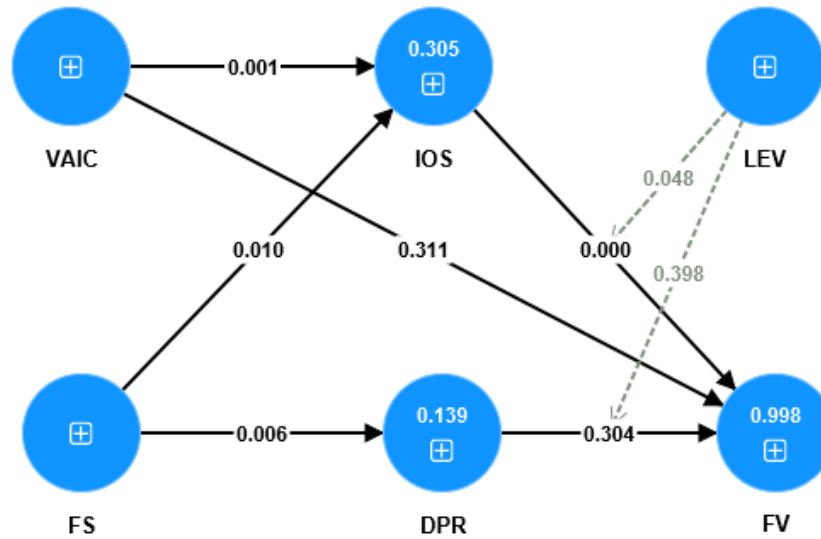
Source: SmartPLS output data processing results version 4

**Hypothesis Testing**

The previously proposed hypotheses were tested to analyze the data

and verify the relationships in the proposed model. The results of direct effect hypothesis testing can be seen in the following figure:





Source: SmartPLS output data processing results version 4

**Figure 1 Direct Effect P-Value and R-Square Results**

The regression value shows the magnitude of the direct effect coefficient between variables as shown in Table 3 below:

**Table 3 Direct Effect (Path Coefficient, p Value, R<sup>2</sup>, and Q<sup>2</sup>)**

Model	Path Coefficient	P-value	Test Results	R <sup>2</sup>	Q <sup>2</sup>
<b>FV Model</b>				0.998	0.163
H <sub>1</sub> : IOS in effect against FV <b>IOS -&gt; FV</b>	1.036	0.000	H <sub>0</sub> is rejected H <sub>1</sub> accepted		
H <sub>2</sub> : House of Representatives in effect against FV <b>DPR -&gt; FV</b>	-0.024	0.304	H <sub>0</sub> accepted H <sub>2</sub> is rejected		
H <sub>3</sub> : LEV in effect against FV <b>LEV -&gt; FV</b>	0.037	0.237	H <sub>0</sub> accepted H <sub>3</sub> is rejected		
H <sub>4</sub> : VAIC effect against FV <b>VAIC -&gt; FV</b>	0.020	0.311	H <sub>0</sub> accepted H <sub>4</sub> is rejected		
H <sub>5</sub> : LEV moderates the effect of IOS to FV <b>LEV x IOS -&gt; FV</b>	0.071	0.048	H <sub>0</sub> is rejected H <sub>5</sub> accepted		
H <sub>6</sub> : LEV moderates the effect of DPR against FV <b>LEV x DPR -&gt; FV</b>	0.023	0.398	H <sub>0</sub> accepted H <sub>6</sub> is rejected		
<b>IOS Model</b>				0.305	0.233
H <sub>7</sub> : VAIC effect against IOS <b>VAIC -&gt; IOS</b>	0.724	0.001	H <sub>0</sub> is rejected H <sub>7</sub> accepted		
H <sub>8</sub> : FS in effect against IOS <b>FS -&gt; IOS</b>	0.697	0.010	H <sub>0</sub> is rejected H <sub>8</sub> accepted		
<b>Model House</b>				0.139	0.120
H <sub>9</sub> : FS in effect	0.373	0.006	H <sub>0</sub> is rejected		



against the House of Representatives  
**FS -> DPR**

H<sub>9</sub> accepted

Source: SmartPLS output data processing results version 4

The information provided by Figure 1 and Table 3 was used to test the research hypotheses H<sub>1</sub> to H<sub>9</sub>, following the results obtained.

a. For the Firm Value (FV) model, the coefficient of determination for the FV model is 0.998 (strong). This means that 99.8% of the variation that occurs in FV can be explained by this model. The remaining 0.2% is explained by other variables not explained by the model. The Q statistic<sup>2</sup> for the FV model is 0.163. This means that the model has sufficient predictive validity or relevance in predicting variations in the latent variable FV. Furthermore, the hypothesis results are explained as follows.

- 1) H<sub>1</sub> is supported by the data. That is, the high and low Firm Value (FV) is positively influenced by the high and low Investment Opportunity Set (IOS) ( $p_1 = 1.036, p = < 0.001$ ).
- 2) H<sub>2</sub> is not supported by the data. This means that the high and low Firm Value (FV) is not influenced by the high and low Dividend Payout Ratio (DPR) ( $p_2 = -0.024, p = > 0.05$ ).
- 3) H<sub>3</sub> is not supported by the data. This means that the high and low Firm Value (FV) is not influenced by the high and low leverage ( $p_3 = 0.037, p = > 0.05$ ).
- 4) H<sub>4</sub> is not supported by the data. This means that the high and low Firm Value (FV) is not influenced by the high and low Intellectual Capital ( $p_4 = 0.020, p = > 0.05$ ).
- 5) H<sub>5</sub> is supported by the data. Leverage moderates the effect of Investment Opportunity Set (IOS) on Firm Value (FV) ( $p_5 = 0.071, p = < 0.05; 95\% \text{ CIBC} \neq 0$ ).
- 6) H<sub>6</sub> is not supported by the data. Leverage does not moderate the effect of Dividend Payout Ratio (DPR) on Firm Value (FV) ( $p_6 = 0.023, p = > 0.05; 95\% \text{ CIBC} = 0$ ).
- b. For the Investment Opportunity Set (IOS) model, the coefficient of determination for the IOS model is 0.305 (medium). This means that 30.5% of the variation that occurs in IOS can be explained by this model. The remaining 69.5% is explained by other variables not explained by the model. The Q statistic<sup>2</sup> for the IOS model is 0.233. This means that the model has sufficient predictive validity or relevance in predicting variations in the latent variable IOS. Furthermore, the hypothesis results are explained as follows:
  - 7) H<sub>7</sub> is supported by the data. That is, the high and low Investment Opportunity Set (IOS) is positively influenced by the high and low Intellectual Capital ( $p_7 = 0.724, p = 0.001$ ).
  - 8) H<sub>8</sub> is supported by the data. That is, the high and low Investment Opportunity Set (IOS) is positively influenced by the high and low Firm Size (FS) ( $p_8 = 0.697, p = < 0.05$ ).





c. For the Dividend Payout Ratio (DPR) model, the coefficient of determination for the DPR model is 0.139 (weak). This means that 13.9% of the variation that occurs in DPR can be explained by this model. The remaining 86.1% is explained by other variables not explained by the model. The Q statistic<sup>2</sup> for the DPR model is 0.120. This means that the model has sufficient predictive validity or relevance in predicting variations in the latent variable IOS. Furthermore, the hypothesis results are explained as follows:

9) H<sub>9</sub> is supported by the data. That is, the high and low Dividend Payout Ratio

(DPR) is positively influenced by the high and low Firm Size (FS) ( $p = 373, p = > 0.001$ ).

Referring to the results of hypothesis testing above, it can be concluded that Leverage (LEV) is a moderator variable for the independent variable Investment Opportunity Set (IOS) with the dependent variable Firm Value (FV), but not a predictor variable for the dependent variable Firm Value (FV).

The above presentation has explained the results of testing the path coefficient (direct effect and moderation effect, path coefficient) for the six models tested. The following reports the results of the specific indirect effect test.

Table 4 Specific Indirect Effect

Model	Specific Indirect Effect	P Values	95% CIBC*)		Test Results
			2.5%	97.5%	
H <sub>10</sub> = BI mediates effect of DM on UB <b>VAIC -&gt; IOS -&gt; FV</b>	0.750	0.001	0.313	1.229	H <sub>0</sub> is rejected H <sub>10</sub> accepted
H <sub>11</sub> = BI mediates influence of HV on UB <b>FS -&gt; DPR -&gt; FV</b>	0.009	0.443	-0.001	0.048	H <sub>0</sub> accepted H <sub>13</sub> is rejected
H <sub>12</sub> = BI mediates effect of PL on UB <b>FS -&gt; IOS -&gt; FV</b>	0.722	0.010	0.229	1.370	H <sub>0</sub> is rejected H <sub>12</sub> accepted

Source: SmartPLS output data processing results version 4

To test the hypothesis H<sub>10</sub> to H<sub>12</sub> specific indirect effect output is used. Table 4 shows the specific indirect effect output. The following results are obtained:

- 10) H<sub>10</sub> is supported by the data. That is, IOS significantly mediates the effect of Intellectual Capital on Firm Value (FV) ( $p_{10} = 0.750, p = 0.001; 95\% \text{ CIBC} \neq 0$ ).
- 11) H<sub>11</sub> is not supported by the data. This means that DPR does not mediate the effect of Firm Size (FS) on Firm

Value (FV) ( $p_{11} = 0.009, p = > 0.1; 95\% \text{ CIBC} = 0$ ).

- 12) H<sub>12</sub> is supported by the data. That is, IOS significantly mediates the effect of Firm Size (FS) on Firm Value (FV) ( $p_{12} = 0.722, p = < 0.05; 95\% \text{ CIBC} \neq 0$ ).

Based on the information obtained from table 4 of the 95% CIBC estimation results, only H<sub>10</sub> and H<sub>12</sub> do not give zero. Thus H<sub>10</sub> and H<sub>12</sub> are accepted, in other words, the effect of intellectual capital on



firm value is indirectly mediated by investment opportunity set, and the effect of firm size on firm value is also indirectly mediated by investment opportunity set. Referring to the research findings that seen

from the magnitude of the estimated coefficient of *specific indirect effect*, the IOS variable tends to have a relatively stronger role in mediating the effect of intellectual capital on firm value.

Table 5 Total Effect

Variable Influence	Effect			Value of t	P-value	95% CIBC*)	
	Direct	Indirect	Total			2.50%	97.50%
DPR -> FV	0.024	-	0.024	1.029	0.304	-0.088	0.005
FS -> DPR	0.373	-	0.373	2.732	0.006	-0.664	-0.129
FS -> FV	-	0.731	0.731	2.583	0.010	0.188	1.325
FS -> IOS	0.697	-	0.697	2.568	0.010	0.174	1.266
IOS -> FV	1.036	-	1.036	49.928	0.000	0.985	1.072
LEV -> FV	0.037	-	0.037	1.182	0.237	-0.051	0.081
VAIC -> FV	0.020	0.750	0.770	3.315	0.001	0.340	1.277
VAIC -> IOS	0.724	-	0.724	3.268	0.001	0.300	1.188
LEV x IOS -> FV	0.071	-	0.071	1.974	0.048	-0.022	0.130
LEV x DPR -> FV	0.023	-	0.023	0.845	0.398	-0.035	0.075

Source: SmartPLS output data processing results version 4

Based on table 5, objective information is obtained, the total effect of each predictor or exogenous latent variable contained in the tested model is not all significant. Judging from the magnitude of the total effect, the research findings show that compared to other exogenous latent variables, Investment Opportunity Set (IOS) is a predictor that has the strongest relative total effect on firm value (1.036). The relatively strong total effect of IOS on FV indicates that IOS has an important role in increasing firm value in the Health Sector in Indonesia.

## Discussion

An important discussion of the research results is the proof of the dividend irrelevance theory of Miller and Modigliani (1961) in which, corporate dividend policy has no role in increasing or decreasing firm value. (DeAngelo and DeAngelo 2006).. This supports the rejected result of H<sub>2</sub> where DPR does not affect firm value. In

other words, no matter how much care managers take in developing their firm's dividend policy, no particular form of dividend policy can maximize or minimize their shareholders' wealth (Neugebauer, Shachat, and Szymczak 2023). Some previous studies that support the results of this study (Budagaga 2020; Fadila, Nugraheni, and Utami 2023; Naceur and Goaid 2002)..

Furthermore, no less important result is that Investment Opportunity Set (IOS) is a predictor that has the strongest relative total influence on firm value (H<sub>1</sub>). Research supported by (Al-Gamrh et al. 2020; Fauzy et al. 2019; Firmansyah et al. 2022; Riahi-Belkaoui and Picur 2001).. Myers (1977) views firm value as the total of the value of existing assets and the value of options to make future discretionary investments in projects with positive NPV. The component of firm value resulting from the option to make future investments has been referred to by Myers (1977), Smith and Watts



(1992), and others as the investment opportunity set, or IOS.

Maulana (2016) states that investment decisions are long-term capital investment decisions related to expectations for future company profits. Cahyono and Sulistyawati (2017) proved that firm value can be positively influenced by investment decisions. The research findings indicate that a company's ability to maximize investments in an effort to generate profits in line with the amount of tied funds. These results also support signaling theory, where their investment expenditures provide a strong signal about the company's future performance, thus stock price increases are used as indicators of firm value.

Another important finding of this study is that the mediator variable used is proven to mediate the effect of intellectual capital and firm size on firm value ( $H_{10}$  and  $H_{12}$ ). This result is also reinforced by the partial effect of Intellectual Capital on IOS ( $H_7$ ), and the effect of IOS on firm value ( $H_1$ ). The partial result of  $H_4$  confirms that intellectual capital is not able to mediate firm value. This indicates that the company's strategic resources are able to generate competitive advantages that can be in the form of superior long-term performance, higher profits than competitors, increased sales or market share, and investment opportunities. This supports

Investment opportunities, or IOS, are the choice to invest in projects with a positive present value. The investment opportunities available to a firm are an important component of market value. A firm's investment opportunities greatly influence the way the firm is viewed by managers, owners, investors, and creditors. Intellectual capital fits the description of a strategic asset because it is valuable, rare, difficult to replicate, and has no tactically equal substitute. Real and financial assets of

the same quality and quantity will usually produce the same output, but intellectual capital, especially the human component of the same quality and quantity, can produce different outputs because knowledge and skills can be improved through research and development activities that foster creativity and innovation. The emphasis on intellectual capital recognizes its ability to create an investment opportunity set (IOS). The positive effect of intellectual capital on IOS implies that firms can greatly benefit from spending on human capital as these investments add value to their firms.

Firm size significantly affects firm value by mediating the investment opportunities set. This is reinforced by the effect of investment opportunities on firm value, which is also significant. Company size is a description of the company's wealth related to the value of the company's assets. The size of the company shows that the company's wealth is growing, and this shows the company's consistent investment in generating profits. This situation will be positively responded to by investors so that the company's stock price increases, reflecting an increase in company value. This is indicated by the significant effect of firm size on firm value. While the effect of firm size through investment opportunities set on firm value is also significant,

Finally, leverage acts as a positive moderating variable for IOS and firm value; this proves  $H_5$ , where leverage positively moderates the effect of IOS on firm value. This shows the consistency of  $H_1$  and supports the theory of Myers (1977), Gaver and Gaver (1993), and Smith and Wrath that the component of firm value is a result of investment choices for future use. The positive effect here indicates that the level of debt in health sector companies listed on the Indonesia Stock Exchange can be used to maximize investment opportunities so as to increase firm value. In the trade-off



model, companies with high profitability tend to have a high tax burden and a small risk of bankruptcy, so they will choose to go into debt. This is also related to company size. Large companies will have a high debt ratio because they have easy access to markets, can borrow well, and have low bankruptcy costs, while small companies are more dependent on debt due to the high cost of issuing equity.

In the end, this research aligns with signaling theory, suggesting that the debt undertaken by the company, investment opportunities pursued by the company, and the increasing size of the company serve as positive signals for investors to assess the company's future performance. Consequently, this will enhance stock demand, leading to an increase in stock prices, which reflects an increase in the company's value.

## CONCLUSION

This study concludes that the direct effect on the firm value model is only the Investment Opportunity Set (IOS), which affects firm value. Then, these results remain consistent after being moderated by leverage, where the moderating effect given is a positive effect. This indicates that the debt owned by health sector companies can increase investment opportunities and firm value. Meanwhile, dividend payout ratio (DPR) and leverage have no effect on firm value. DPR still has no effect on firm value after being moderated by leverage. In the IOS model, it is proven that intellectual capital and firm size have a positive effect on the investment opportunity set (IOS). Finally, in the DPR model, it is found that firm size has a positive effect on firm value. In terms of indirect effect, this study concludes that IOS mediates the effect of intellectual capital and firm size on firm value, while DPR does not provide a

mediating effect on the relationship between firm size and firm value.

An important finding in this study is that the Investment Opportunity Set (IOS) is a predictor that has the strongest relative total influence on firm value. The relatively strong total effect of IOS on firm value indicates that IOS has an important role in increasing firm value in health sector companies on the Indonesia Stock Exchange. Next, leverage is found to positively moderate the effect of IOS on firm value. This provides theoretical implications for the firm value literature, where mediation and moderation models using IOS and leverage in this research context are still limited.

While the practical implications for health sector companies can make this research a consideration, considering that Investment Opportunity Set (IOS) is the strongest variable that affects firm value, IOS optimization is influenced by intellectual capital; thus, health sector companies must improve and manage intellectual capital properly. Health sector companies can maximize their debt to invest in new products or expand the production of existing products.

The operational implications of these conclusions are that healthcare sector companies should prioritize optimizing the Investment Opportunity Set (IOS) as this variable has the strongest influence on firm value. This means companies should focus on developing and managing their intellectual capital effectively, such as through increased investment in human resources, research and development, and technology. Furthermore, the finding that leverage has a positive effect in moderating the relationship between IOS and firm value suggests that companies can use debt wisely to enhance investment opportunities and firm value.



Therefore, management should carefully consider their financial decisions, taking into account the risks and benefits of leveraging. Although the Dividend Payout Ratio (DPR) does not directly affect firm value, healthcare sector companies should still pay attention to their dividend policies as they can signal the financial health of the company. Additionally, a focus on managing company size is also important, given the finding that company size has a direct positive effect on firm value. This emphasizes the need for companies to consider appropriate growth strategies, product portfolio diversification, and operational efficiency. Lastly, further research into developing mediation and moderation models can help deepen understanding of the dynamics of firm value in the context of healthcare sector companies.

One of the limitations of this study is that its findings are based on data from healthcare sector companies in Indonesia, thus may not directly apply to companies in other industries or countries. Therefore, caution is needed when generalizing these results beyond the scope of this research. The study employed a cross-sectional design, which only collected data at a specific point in time. This resulted in limitations in establishing causality and understanding the dynamic relationships over time. To gain a more comprehensive understanding of the factors influencing firm value, longitudinal studies observing changes over time would be a more appropriate approach.

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