

# Institutional Ownership, Productivity Sustainable Investment Based on Financial Constrains and Firm Value: Implications of Agency Theory, Signaling Theory, and Asymmetry Information on Sharia Companies in Indonesia

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## Abstract

This study tests the implications of agency theory, signal theory and information asymmetry on the relationship between institutional ownership and a firm's value supported by the new concept of Productive Sustainable Investment based on Financial Constraints. Sample of this study is sharia companies in the Indonesia Stock Exchange on the period of 2011 to 2016 with a population of 412 firms; purposive sampling was used and obtained a sample of 131 companies with 786 observations. Data analysis used a path analysis utilizing the Warp PLS analysis tool. The result of this study shows that institutional ownership has a significant negative effect on the firm's value, which means there is a non-linear relationship between institutional ownership and the firm's value. The findings do not support the agency theory. However, productive sustainable investment based on financial constraints is able to mediate the influence of institutional ownership on firm value. It means that this finding supports the signal theory. Thus, productive sustainable investment based on financial constraints significantly has a positive influence on the firm's value. In other words, this finding supports the theory of information asymmetry.

**Keyword:** institutional ownership, productivity sustainable investment based on financial constraints, firm value, agency theory, signaling theory, asymmetry information

## 1. Introduction

The issue of institutional owner control related to the firm's value in agency theory initiated by Jensen and Meckling (1976) becomes an important discussion in the corporate's financial function. According to Jensen and Meckling (1976), one of the mechanisms to minimize agency conflict between owners and managers is supervision done by institutional shareholders. By institutional shareholders' supervision, the manager is expected to work well to increase the value of the firm (Asante-Darko et al., 2018).

Institutional shareholders are usually financial institutions such as investment banking, insurance companies, pension funding companies, and mutual funding companies. Large shareholders are indeed effective at reducing agency problems. Nevertheless, this mechanism also needs costs because they have limited opportunities to diversify, so the company bears a greater risk. The results of Alipour and Pejman (2015), Arouri et al. (2014), Mollah et al. (2012), Jafarinejad et al. (2015) found the evidence that the institutional ownership has a positive effect on the firm's value. Likewise, different results are shown by Zouari and Taktak (2014) who stated that institutional ownership has a negative effect on its value.

Based on the description above, there is a research gap in the relationship between institutional ownership and the firm's value. In addition, none of the previous studies included some intervening variables to mediate its relations with the firms. To overcome this problem, this study adds a concept named productivity sustainable investment based on financial constraints as a mediation of the relationship between both of them. Productivity sustainable investment based on financial constraints is a new concept elicited by researchers by synthesizing between the

productivity sustainable investments measured by the sales growth divided by total assets adopted from Adam and Goyal (2008) and the financial constraints proxies by cash flow adopted from Rousseau and Kim (2008). Baños-Caballero et al. (2014) and López-Gracia and Sogorb-Mira (2014) measure the cash flow by counting the net income plus the depreciation divided by the total assets.

Furthermore, the investment made by companies is very necessary to increase the value of the firm (Fama, 1974). Meanwhile, productivity sustainability investment is a company activity to get greater investment opportunities by investing in assets (Adam and Goyal, 2008). Company investment in capital goods in the form of factories, machinery, equipment, inventory, and other tangible assets is expected to generate sales in a long period. The continuity of the company can be realized by making productivity sustainable investments (Fasaei et al., 2017). The growth of its assets from time to time shows the development of its investment (Vengesai and Kwenda, 2018). The growth can be seen from its sales growth and the cash flow towards the assets.

Financial constraints are proxies by cash flow because they companies tend to have problems in accessing funding sources, especially external funding, so the financial constraints companies tend to use internal funding sources, i.e. cash flow. According to Guariglia and Yang (2016), the existence of information asymmetry on external funding (i.e. debt) will make the external funding more expensive than the internal one, so that the firms with high financial constraints will have less access to the external one. Because of these limitations, their investment decisions tend to be more sensitive to internal funding sources.

The new concept offered to solve the problems is productivity sustainable investment, by measuring sales growth with cash flow (EAT and depreciation) divided by total assets. It means that company investment in its assets can be used to increase its net sales and cash flow. In other words, the higher the net sales and cash flow of assets owned, the higher the investment will be made, especially investments that use internal funding sources so that it will help the company increase its value. Thus, by using this new concept, a company that has good sales growth and cash flow and high depreciation towards its total assets will be able to increase the value of the firm. It can also be said that the investment made by the company in a sustainable and productivity manner and its cash flow towards its total assets will be able to increase its value.

From the description, this research is conducted to test the implication of agency theory, signaling theory, and information asymmetry by creating a new model by adding productive sustainable investment based on financial constraints as an intervening variable in mediating the relationship between the institutional ownership and the firm value.

## **2. Literature Review and Hypothesis Development**

### *2.1 Relationship Between Institutional Ownership and Firm Value*

Agency theory is defined as a game theory's version that makes a contractual model between two or more people, i.e. agents and principals. In agency theory, the relationship between agents (management and shareholders or principals) is often referred to as the relationship between agents and principals (Varun, 2014). The shareholders or principals expect the agents or managers to act based on the principals' interests so that they delegate their authority to them. Meanwhile, managers have to take the best business decision to increase shareholders' wealth. The decision is to maximize the company's resources. Principals can monitor and provide appropriate incentives for agents in order to limit agents from doing things that can harm the company, especially the interests of the principal, so that the interests of both parties can be achieved (Fama and Jensen, 1983).

To reduce the managers' opportunity of taking actions that harm external investors, Jensen and Meckling (1976) proposed two ways, the external investors do monitoring (in this study, the supervision of institutional shareholders) and the managers themselves do bonding. On one side, these two activities will reduce the chance of irregularities by managers so that the value of the company will increase. On the other side, both will generate costs that will decrease the value of the company. Jensen and Meckling (1976) proposed that prospective investors will anticipate the costs as well as the losses that still arise despite monitoring and bonding, which is called residual loss.

Institutional ownership has a very important role in corporate governance (Schmidt and Fahlenbrach, 2017). It is very important in monitoring managers because it will be able to increase more optimal supervision towards managers. Such supervision can guarantee the prosperity of shareholders. Furthermore, high institutional ownership can increase greater oversight by institutional investors towards the manager's opportunist behavior. According to Ducassy and Guyot (2017), the institutional shareholders with large share ownership have incentives to oversee company decision making. Mollah et al. (2012) stated that institutional supervision activities could change the

management structure of the company and increase the prosperity of shareholders. It means that institutional ownership could increase the value of the company.

According to Jensen and Meckling (1976), institutional ownership has a very vital role in minimizing agency conflicts that occur between managers and principals. It has an important role in reducing conflict of interest and agency problems through supervision of manager's performance or controlling the company (Chen et al., 2017). Meanwhile, institutional investors are considered active supervisors if they try to increase the value of their equity investments in the company. The reason is that the institutional ownership will reduce agency problems between managers and shareholders, which in turn; it will reduce the managers' incentives and opportunities to control income, and increase the effectiveness of their performance so that it will influence the value of the company. The institutional investors also try to maintain their ownership liquidity and desire to get benefit from higher corporate performance in the long term (Arouri et al., 2014).

Attig et al. (2012) argued that the institutional investors, in the long term, have greater economic scale incentives and efficiency in collecting and processing companies' information to engage in effective supervision, and in turn, they reduce the asymmetric information's dilemma and agency problems. The results of the Alipour (2013), Arouri et al. (2014), Mollah et al. (2012), Jafarinejad et al. (2015) found evidence that the institutional ownership had a positive effect on firm value. Therefore, based on the description above, the hypothesis proposed is:

H1: Institutional ownership has a positive effect on firm value.

## *2.2 Relationship Between Institutional Ownership, Productivity Sustainable Investment Based on Financial Constraints and Firm Values*

The signaling model was proposed as an effort to maximize the company's value by investing in productive assets because of the information asymmetry between managers and shareholders. Ross (1977) and other writers developed a signaling model for the company's capital structure based on the asymmetry's problem between managers with good information and outside investors with little information. One of the solutions used by the managers with very good information about their companies is by giving the investors the signal of action or policy that cannot be replicated by companies, like the companies investing in sustainable productive assets. According to Brigham and Houston (2012), the signal is an action that will burden the signal providers a large cost so that the outsider with less information believe more in what they deliver. The signals become credible if other companies that do not have the same performance as the signal provider find it difficult to mimic these signals.

Leland and Pyle (1977) also stated that the companies that dare to take external funds to finance an investment in a project give a signal that the project has a high intrinsic value. According to Vithessonthi and Tongurai (2015), the signaling model provides a good explanation in relation to the differences in market response to the different types of securities issued by companies to invest in productive assets.

Institutional ownership is the ownership of shares possessed by institutions or companies, such as insurance companies, banks, investment companies, and other institutions (Alipour, 2013, Arouri et al., 2014). It is very important in monitoring managers in the frame of increase more optimal supervision of managers. Eventually, such supervision can guarantee the prosperity of shareholders (Jensen and Meckling, 1976). Then, institutional investors can be involved in strategic decision making, so they have not just believed in the actions of managers that can harm the company. According to Schmidt and Fahlenbrach (2017), the institutional shareholders, with large share ownership, have incentives to monitor the company decision making. Mollah et al. (2012) stated that institutional supervision activities could change the structure of corporate management and improve the prosperity of shareholders.

Moreover, institutional investors can influence the company's investment. In this case, productive sustainable investment based on financial constrains will be able to mediate the influence of institutional ownership on the firm value. This is because they have bought most of the company's shares (Jafarinejad et al., 2015). They do not sometimes know clearly about the managers' investments, consequently, information asymmetry occurs between managers and institutional shareholders. For this reason, in order to avoid it, the company must invest in sustainable productive assets so that it can reach high sales growth and cash flow (net income and depreciation). Eventually, the sales growth and high company cash flow to total assets will have a good impact on the company's value.

The findings of Attig et al. (2012) show that corporate investment decisions are sensitive to cash flow when there are institutional investors that take part in corporate governance in reducing agency problems and information asymmetry. Chen et al. (2017) also found that institutional ownership has a positive effect on the efficiency of corporate investment so that it can increase the value of the company. Based on the description, the hypothesis in this study is:

H2: Productive sustainable investment based on financial constraints can mediate the effect of institutional ownership on the firm value

### 2.3 Relationship Between Productive Sustainable Investment Based on Financial Constraints and Firm Value

According to Myers and Majluf (1984), information asymmetry happens when a manager is more aware of current company earnings and investment opportunities than the outside investor. In addition, he acts based on the existing company shareholders' interests. The assumption that information asymmetry can be interpreted is that if managers find good investment opportunities (high net present value), they cannot convey the information to outside investors. However, the outside investor does not trust it although the managers are eager to inform a good project to increase their stock price.

To cope with this problem, the company must save financial slack, such as cash owned by the company, short-term securities, and unused debt capacity (risk-free debt). Companies with adequate financial slack do not need to issue their risky loans or shares to fund new projects so that information asymmetry problems will not arise. They will be able to receive all the projects without having to harm the old shareholders (Myers and Majluf, 1984).

Capital investment is a signal used by managers to show the company's prospects or high performance. The signal is important for the company because there is information asymmetry between insiders (managers) and outsiders (investors) in the capital market. Riachi dan Schwiembacher (2015) and Arslan-Ayaydin et al (2014) develop a model where the level of investment expenditure chosen by managers can provide a reliable signal about the company's cash flow. This signal is trusted because if the company is in a weak position, the company will not be able to make investment expenses without having to drain its cash reserves. As a result, the investor will positively respond to a good signal of investment's increase so that it improves the value of the company.

Companies' ability to produce cash to meet long-term and short-term needs influence on making an investment, and it's called company liquidity. It must maintain its liquidity in order not to be disturbed, so it does not disturb the smooth running of its activities to invest and lose the confidence of outsiders. Liquidity is the company's ability to meet its obligation especially its short-term obligation (Brigham and Ehrhardt, 2013).

The cash flow of companies with high levels of volatility has expenditure, research, development, and lower advertising costs (Ahiadorme et al., 2018). It means that the different levels of investment will make different volatility, depending on the company's investment goals. The companies do not usually use their debt or equity markets in order that the volatility of cash flows is not sharp. This is because the entrance cost in the capital market is also connected with the volatility of their cash flow. Thus, it can be concluded that investment based on financial constraints is very important for them to increase their value.

Productive sustainable investment based on financial constraints will increase the value of the company. This is on account of the fact that a company with high sales growth and cash flow (net income and depreciation) towards its total assets will be able to achieve high corporate value. Research by Cheung et al. (2011), Riachi and Schwiembacher (2015), Arslan-Ayaydin et al. (2013), Erhemjamt et al. (2012), showed that investment has a positive effect on company value. Based on the description, the hypothesis in this study is:

H3: Productive sustainable investment based on financial constrains has a positive effect on firm value.

Based on the description in the literature review and the development of the hypothesis, this research model can be seen in Figure 1.

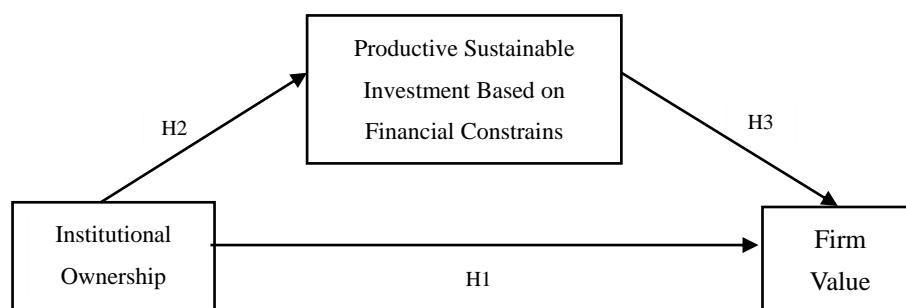


Figure 1. Empirical research model

### 3. Research Method

#### 3.1 Research Variable

The variables of this research consist of the independent, dependent and mediating variable. Institutional ownership belongs to the independent variable. It is measured by its percentage of the number of outstanding shares, as in the study of Alipour and Pejman (2015), Alipour and Pejman (2015), Arouri et al. (2014), Mollah et al. (2012), Jafarinejad et al. (2015), Zouari and Taktak (2014). The dependent variable is the company value measured by Price to Book Value (PBV). This is consistent with the study of González (2013), Kim et al. (2016), de Andrés et al. (2014). PBV is a comparison between the stock market price and the stock book value.

The mediating variable, in this study, is a productive sustainable investment based on financial constraints, that is, a synthesis between investment decisions and financial constraints. Investment decisions are measured by productivity sustainable investment as Adam and Goyal (2008) with a measure of the company's net sales growth divided by the company's total assets. Meanwhile, financial constraints are measured by cash flow as used by Rousseau and Kim (2008). Ameer (2014), as well as López-Gracia and Sogorb-Mira (2014). Ameer (2014), López-Gracia and Sogorb-Mira (2014) measured the cash flow with net income plus depreciation divided by total assets. according to Ameer (2014), López-Gracia and Sogorb-Mira (2014), measurements utilized EAT plus depreciation as EAT could show the actual company cash flow.

Briefly, the synthesis of productivity sustainable investment with financial constraints is sales growth plus cash flow (net income plus depreciation) divided by total assets. The measurement of productive sustainable investment with financial constraints means that corporate investment in productive company assets can be used by the companies to increase the net sales and cash flow in a sustainable manner.

#### 3.2 Sample

Samples, in this study, are sharia companies registered in the Indonesian sharia capital market by using the company's financial statements for the period of 2011 to 2016. Data are obtained from the Indonesia Stock Exchange in the form of annual reports and the Indonesian Capital Market Directory (ICMD). The reason for choosing sharia companies listed on the Indonesia Stock Exchange is because they are carried out based on OJK Regulation no. II. K.1 and also on the Fatwa of the National Sharia Council-Indonesian Ulama Council (DSN-MUI) no. 40/DSN-MUI/2003, namely: 1) Not conducting gambling business activities, trade which is not accompanied by the delivery of goods and services, *ribawi* financial services (such as conventional banks and conventional insurance), conducting production, distribution and trading on goods or services whose substance is *haram* and/or morally damaging, as well as bribery transactions; and 2) From the financial aspect, the issuer has a ratio of total interest-based debt compared to total assets of not more than 45%, and a total of non-*halal* income as many as the maximum of 10%.

The sampling technique uses purposive sampling, with the following criteria: 1) Islamic companies are listed on the Islamic stock exchange on the Indonesia Stock Exchange and publish their financial reports in the period of 2011 to 2016, and 2) Islamic companies have their complete data relating to this research variables. Based on the results of data collection with these criteria using panel data, from a population of 412 companies, 131 companies was obtained with a total of 786 observations as a sample. Table 1 shows the process of selecting samples.

Table 1. Sample selection process

Criteria	Number of Companies
1. The population of sharia companies listed on the Islamic stock exchange on the Indonesia Stock Exchange period 2012-2016	412
2. Sharia companies that are not consistently listed on the Islamic stock exchange on the Indonesia Stock Exchange period 2012-2016	(270)
3. Islamic companies that do not have institutional ownership	(11)
4. Islamic companies listed on the Islamic stock exchange on the IDX and publish financial statements consistently in the 2012-2016 period	131
5. Number of observations	786

### 3.3 Data Analysis

In this study, data analysis uses path analysis. Based on the empirical research model as in Figure 1, the path analysis model can be made as follows:

$$IBPFAC = \alpha + \beta_1 INOWN + \varepsilon_1 \tag{1}$$

$$PBV = \alpha + \beta_1 INOWN + \beta_2 IBPFAC + \varepsilon_2 \tag{2}$$

In equations 1 and 2, INOWN is an exogenous variable as an independent variable. PBV is an endogenous variable as the dependent variable. IBPFAC is an endogenous one as a mediating variable, while  $\varepsilon$  is an error term or disturbance that is the element of endogenous variable variation unexplained by all direct and indirect cause factors.

## 4. Research Result and Discussion

### 4.1 Statistic and Data Analysis

Based on the results of data collection using panel data, with a population of 412 companies, the sample of 131 companies was obtained with a total observation of 786. The descriptive statistics of the research variables are shown in Table 2.

Table 2. Descriptive statistics of research variables

Variable	Min	Max	Mean	Std. Deviation
INOWN (%)	17,48	98,15	0,4594	0,26595
IBPFAC (%)	0,29	9,70	1,8068	1,27903
PBV (x)	0,08	8,59	1,8761	1,43663
N	786			

Note: INOWN is institutional ownership as an independent variable; IBPFAC is a a productive sustainable investment based on financial constrains as mediating variable, and PBV is the proxy of company value as dependent one.

In this study, the fit testing uses average path coefficient (APC), average R-square (ARS), average adjusted R-square (AARS), average block VIF (AVIF), average full collinierity VIF (AFVIF) and tenenhaus GoF (GoF). The results of the model fit testing can be seen in Table 3.

Tabel 3. Fit model research

Testing	Conclusion
Average Path Coefficient (APC) = 0.130, P<0.001	Fit
Average R-Square (ARS) = 0.097, P=0.002	Fit
Average Adjusted R-Square (AARS) = 0.092, P=0.002	Fit
Average Block VIF (AVIF) = 1.025, acceptable if <= 5, ideally <= 3.3	Fit
Average Full Collinierity VIF (AFVIF) = 1.036, acceptable if <= 5, ideally <= 3.3	Fit

Based on the results of the fit model and quality indice as presented in Table 3, it shows that the APC value is 0.130 with P <0.001; ARS value = 0.090 with P = 0.002; and the value of AARS is 0.092 with P = 0.002. The probability value (P) for APC, ARS and AARS recommended as a fit model is <0.05 (Kock, 2012). In conclusion, this research model is fit. This is also supported by the AVIF value of 1.025 and the AFVIF value of 1.036, which is smaller than 3.3, indicating that there are no problems with multicollinearity between indicators and exogenous variables. The strength of the prediction model is shown by the GoF value of 0.364 so it can be concluded that the prediction of the model is very large because it is greater than 0.360.

In this study, data are analyzed by path analysis using latent variables with one formative construct. The aim of the study is to examine the mediating effect of productive sustainable investment variables based on financial constraints

in the relationship between institutional ownership and the value of Islamic companies in Indonesia. The results of path analysis testing with the WarpPLS direct effect is stated in Table 4.

Table 4. Result of path analysis

Path	Coefficient	P Value
<b>Direct Effect</b>		
INOWN → PBV	-0.084	0.009***
INOWN → IBPFAC	0.051	0.077*
IBPFAC → PBV	0.190	<0.001***
<b>Indirect Effect</b>		
INOWN → IBPFAC → PBV	0.010	0.026*
<b>Total Effect</b>		
INOWN → PBV	-0.094	0.004***
INOWN → IBPFAC	0.061	0.042**
IBPFAC → PBV	0.190	<0.001***

Note: \*\*\*Sig at 1%      \*\* Sig at 5%      \*Sig at 10%

#### 4.2 Discussion

Based on the path coefficient model equation testing and P value in Table 4, the results of hypothesis 1 (INOWN) testing significantly have a negative effect on firm value (PBV), meaning that the results of the model testing are not suitable with the hypothesis 1. Furthermore, the results of hypothesis 1 testing indicate that institutional ownership significantly has a negative effect on firm value, which means that it does not support agency theory.

These findings support the empirical research from Zouari and Taktak (2014). The results of the empirical study have not shown adequate evidence to support the idea that the role of institutional ownership can increase corporate value. The results of the research gave evidence that the role of institutional ownership made its value decline. This is probably because the institutional owners of Islamic companies in Indonesia are still weak in supervising managers' performance. Institutional shareholders may trust the management of the company so much that the two parties become negligent towards their responsibilities, and eventually the value of Islamic companies cannot increase as expected.

The results of hypothesis 1 research show that there is a non-linear relationship between institutional ownership and the firm value. Calculations using non-linear equations obtained the values as follows: a) 0,00015, b) 0,01308, and c) of 1,81267. From the calculation of the values of a), b) and c) after calculating the formula to find the peak point (extreme point), namely  $(-b / 2a, b^2 - 4ac / -4a)$ , the peak point is in the ordinate value of institutional ownership (INOWN) of 43.31786% and company value (PBV) of 2.09595x. The value of  $<0$  in point a) means that the parabolic curve opens down. Based on the results of these calculations, it is known that the institutional ownership (INOWN) have a significant positive effect on the firm value (PBV) if the institutional ownership (INOWN) rises to the value of 43.3186%, then PBV increases to 2.09595x. If the value of institutional ownership (INOWN) exceeds 43.3186%, it will reduce the value of the company. Figure 2 shows the non-linear relationship between institutional ownership and firm value.

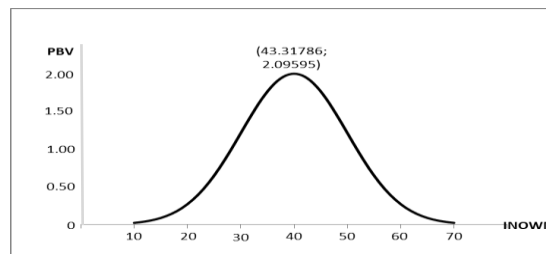


Figure 2. Nonlinear relations between institutional ownership and firm value

The results of this empirical study are not in line with the agency theory because according to (Jensen and Meckling, 1976), the institutional owners can be supervisors of managerial behavior so as to minimize agency conflict. However, this study shows that the possibility of the supervisory role of Islamic company institutional owners listed on the Indonesia Stock Exchange is still so weak that the value of the company does not rise. Based on the results of empirical testing, it is stated that hypothesis 1 is rejected. Thus, its results have not found sufficient proof about the role of institutional ownership in increasing corporate value.

The results of hypothesis 3 testing show the evidence that productive sustainable investment based on financial constraints (IBPFAC) significantly has a positive effect on the firm value. The findings show that the new concept in this research has a meaningful role. These results also support the signal theory, in which according to Leland and Pyle (1977) companies can give a signal in the form of investment in productive assets on a project. Productive sustainable investment based on financial constraints (IBPFAC) as measured by net sales growth plus net income and depreciation divided by total assets describes that the company's investment in productive company assets can be used by the company to increase net sales and profits (EAT) and sustainable depreciation so that it can increase its value. In other words, the higher its net sales (investment) and net income and depreciation (proxy cash flow) from the assets owned, the higher the investment in productive assets will be carried out, especially investments that use its resources internal funds so that they will eventually help it to increase its value in a sustainable manner.

The findings of this empirical research support the empirical one conducted by Cheung et al (2011), Riachi dan Schwiembacher (2015), Arslan-Ayaydin et al (2014), Erhemjamts et al (2013), indicating that investment has a positive effect on firm value. Based on the results of this empirical study, hypothesis 3 is acceptable. It means that productive sustainable investment based on financial constraints (IBPFAC) has a significant role in increasing the value of the firm. This is because sharia companies listed on the Indonesia Stock Exchange have sales growth, net income and high depreciation of their total assets in a sustainable manner, so they can achieve high corporate value.

The testing of mediation effects is conducted to test the relationship between institutional ownership and the firm value mediated by productive sustainable investment based on financial constraints (IBPFAC). Based on the results of the mediating indirect effect model testing in Table 4, hypothesis 2 shows that productive sustainable investment based on financial constraints is able to mediate the influence of institutional ownership on the firm value. The results of the model testing are consistent with hypothesis 2. The results of testing hypothesis 2 in accordance with the proposed hypothesis, productive sustainable investment based on financial constraints has an important role in mediating the relationship between institutional ownership and the firm value.

This empirical study supports the information asymmetry, in which the results of hypothesis 1 testing show that the institutional owners trust overly in managers so they become weak in monitoring their performance that leads to decrease in the company value. Nevertheless, when both of them are mediated by productive sustainable investment based on financial constraints, the relationship between the institutional ownership and the company value becomes significant. It means that there is information asymmetry between them. Therefore, the owners should monitor the managers to invest in productive assets on an ongoing basis based on cash flow which will have an impact on the increase of its value. According to Attig et al. (2012), the institutional investors in the long term have greater economic scale incentives and efficiency in collecting and processing the information companies to engage in effective supervision, which will eventually reduce the asymmetric information dilemma and agency problems.

Moreover, these findings show that there is a very meaningful role in financial constraints based productive sustainable investment. These empirical findings support the empirical study conducted by Attig et al. (2012) who found that corporate investment decisions are sensitive to cash flow when there are institutional investors, which means that the institutional investors have a role in corporate governance. Chen et al. (2017) also found that institutional ownership has a positive effect on the efficiency of corporate investment so that it can increase its value.



Productive sustainable investment based on financial constraints can also mediate the effect of institutional ownership on the firm value. Besides, sales growth and high company cash flow to total assets will have an impact on increasing its value. This means that the institutional investors need to conduct the tighter supervision of managers to invest in productive assets sustainably in order to obtain high sales and cash flow, so as to do so.

The results of the hypothesis 2 model testing show there is the condition of an inconsistent mediation in which IBPFAC becomes a suppressor (Barron and Kenny, 1986). This is because the presence of IBPFAC makes the INOWN coefficient to PBV change from positive to negative. While the effect of INOWN on IBPFAC and the influence of IBPFAC on PBV are equally significant. Thus, it can be said that the testing of the hypothesis 2 model shows that there is an inconsistency in the effect of institutional ownership on the value of the company mediated by IBPFAC. For more details, see in Figure 3.

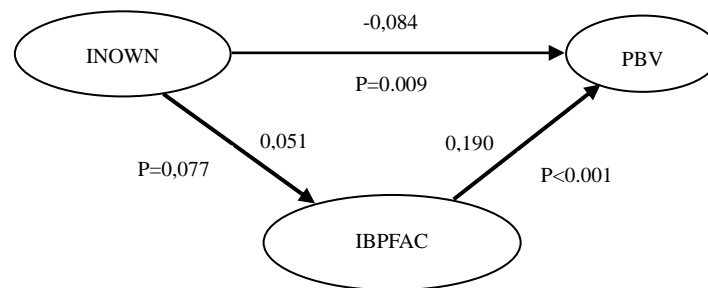


Figure 3. Full model of the research

## 5. Conclusion and Recommendation

The test results in this study indicate that institutional ownership has a significant but negative coefficient value on the firm value. It means that it has a non-linear relationship with the firm value, in which the coefficient changes from positive to negative but significant. Thus, the findings of this research do not support the agency theory. In addition, the institutional shareholders have not been able to strictly monitor the managers' performance, so it is difficult to increase the value of the company. This is probably because the institutional ownership is still too confident about the managers' performance so that the controls become weak.

Productive sustainable investment based on financial constraints is able to mediate the influence of institutional ownership on the firm value. The findings show that productive sustainable investment based on financial constraints has a very meaningful role. This is as the results of hypothesis 1 testing indicate that the influence of institutional ownership directly decreases the value of the company. However, after having been mediated by productive sustainable investment based on financial constraints, the results show that institutional ownership indirectly affects its value. So, this finding supports information asymmetry, where the managers (in this case institutional owners) know the better investments than the outside investors. For this reason, the institutional owners must participate in the supervision of investments made by managers, especially investment in productive assets on a sustainable based on financial constraints in order to raise the value of the company.

Based on the results of hypothesis 3 testing shows that productive sustainable investment based on financial constraints has a significant positive effect on the firm value. The results of this empirical study show that it plays an important role in raising the company's value. These findings indicate that the sales and cash flow (net income and depreciation) of the company can increase and influence on increasing its value if the companies invest in productive assets sustainably. It means that the higher the productive sustainable investment based on financial constraints, the higher the value of the company. In summary, the results support signal theory, in which if the companies can invest in productive assets in a sustainable manner, they will be able to obtain high sales and net income and high depreciation as well. This provides a positive signal for investors, so they are interested in investing in the company and it will have an impact on the increase of its value.

This study only uses institutional ownership as an independent variable in testing agency theory, signalling theory and information asymmetry to increase firm value through productive sustainable investment based on financial constraints. In the future research agenda, it is better to add the other independent variables in testing agency theory,

signalling theory and information asymmetries such as a debt policy and dividend policy. This is important because both the company's financial policies are very necessary for increasing the company's value as well. Furthermore, upcoming research also needs to be compared to other companies in Southeast Asia.

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