

# “Free cash flow, investment inefficiency, and earnings management: evidence from manufacturing firms listed on the Indonesia Stock Exchange”

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## ARTICLE INFO

Zaki Fakhroni, Imam Ghozali, Puji Harto and Etna Nur Afri Yuyetta (2018). Free cash flow, investment inefficiency, and earnings management: evidence from manufacturing firms listed on the Indonesia Stock Exchange. *Investment Management and Financial Innovations*, 15(1), 299-310.  
doi:[10.21511/imfi.15\(1\).2018.25](https://doi.org/10.21511/imfi.15(1).2018.25)

**DOI** [http://dx.doi.org/10.21511/imfi.15\(1\).2018.25](http://dx.doi.org/10.21511/imfi.15(1).2018.25)

**RELEASED ON** Wednesday, 21 March 2018

**RECEIVED ON** Thursday, 23 March 2017

**ACCEPTED ON** Friday, 09 February 2018

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## JOURNAL

"Investment Management and Financial Innovations"

## ISSN PRINT

1810-4967

## ISSN ONLINE

1812-9358

## PUBLISHER

LLC “Consulting Publishing Company “Business Perspectives”

## FOUNDER

LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

**52**



NUMBER OF FIGURES

**0**



NUMBER OF TABLES

**3**

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BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"  
Hryhorii Skovoroda lane, 10, Sumy,  
40022, Ukraine

[www.businessperspectives.org](http://www.businessperspectives.org)

**Received on:** 23<sup>rd</sup> of March, 2017  
**Accepted on:** 9<sup>th</sup> of February, 2018

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# FREE CASH FLOW, INVESTMENT INEFFICIENCY, AND EARNINGS MANAGEMENT: EVIDENCE FROM MANUFACTURING FIRMS LISTED ON THE INDONESIA STOCK EXCHANGE

## Abstract

The study aims to test investment inefficiency of fixed assets in mediating the relationship between free cash flow and earnings management and to test the controlling shareholders in moderating the relationship between free cash flow and fixed assets investment inefficiency. The research problem proposed in this study is whether the use of free cash flow for the investment inefficiency of fixed assets is able to ultimately improve the managerial performance. This research investigates new empirical evidence related to management earnings practices caused by free cash flow fixed assets investment inefficiency. The study was conducted on all the manufacturing firms listed on the Indonesia stock exchange from 2010 to 2015. The data used are secondary data in the form of the firms' financial statements. Using purposive sampling, 314 units were analyzed from 69 manufacturing firms. The estimation of the path model was completed using Structural Equation Modeling (SEM) by WarpPLS program version 5.0. The results showed that free cash flow is positively related to earnings management. Fixed assets investment inefficiency is able to mediate the relationship between free cash flow and earnings management.

## Keywords

free cash flow, earnings management, investment inefficiency

## JEL Classification

D22, D25, G31

## INTRODUCTION

Earnings management has been a negative trending topic in accounting literature, considered as a tool for managers to fulfill their personal interest. In this case, the manager changes and manipulates profit, aiming to mislead the reader of financial statements regarding the firm's real condition (Bukit & Nasution, 2015; Healy & Wahlen, 1999; Kurniawan, 2017)<sup>1</sup>. In addition, earnings management practice often causes agency problem, information asymmetry, financial losing, and investor trust crisis (Healy & Wahlen, 1999).

Several studies (Chen et al., 2011; Lakhali et al., 2014) strengthen the publics' negative perceptions of earnings management. The incentive of management and shareholders induces the management to use the flexibility provided by accounting standards to manage profit on op-

<sup>1</sup> Earnings management incidents which shocked the business world, such as the Enron and Worldcom cases, have been causing a great loss for businesses and accountants. One related example is the failure of accounting firm Arthur Andersen in performing independent audit function. The earnings management case has not only happened abroad, but also in Indonesia, such as the PT Ades Alfindo case, the PT Indofarma case, the Tbk case, the PT Perusahaan Gas Negara case, the PT Bank Lippo case, and the PT Kimia Farma Tbk case. For more detailed discussion, see Sulistiawan et al. (2011).

portunistic basis, thereby creating distortions in reported earnings. In contrast, a number of studies argue that earnings management can provide benefits due to potentially increasing the earnings information value. Managers can use their own discretion in communicating financial information to shareholders and public (Demerjian et al., 2016; Holthausen, 1990; Jiraporn et al., 2008; Subramanyam, 1996).

Jiraporn et al. (2008) state that there are two points of view based on the agency theory in earnings management. The first is based on the assumption that opportunistic managers take risks in managing earnings to maximize their own utility at the expense of those stakeholders. The second is based on the idea of efficient contract, in which accounting policy conducted by the managers aims to increase their compensation, avoids breaching debt agreements, and reduces the possibility of exposure to political or government interference in business affairs of the firm. The managers are also likely to have the motivation to report profits in an effort to meet the expectations of shareholders or investors on the future cash flow. It can reduce the potential for conflicts, known as agency problem, between management and the various parties, including shareholders.

The opportunity for conducting earnings management is greater at a firm that has free cash flow (Bukit & Iskandar, 2009). The firms which are able to conduct earnings management have to deal with bigger agencies (Chung et al., 2005). The existence of free cash flow is able to be used as an alternative to improve the performance of firms such as investment stocks, purchase and preservation of assets, as well as dividend distribution (Cardoso et al., 2014).

However, firms that have free cash flow are more likely to use those funds for nonproductive projects (Jensen, 1986; Richardson, 2006). The existence of the free cash flow allows the managers to select sub-optimal investment policy. To hide the unproductive projects, managers tend to be involved in the earnings management practice (Bukit & Iskandar, 2009; Chung et al., 2005; Jaggi & Gul, 1998; Rusmin et al., 2014). Cupertino et al. (2000) state that the earnings management is used to describe the manager's decision in choosing the use of accounting methods or directing operational activities to influence the earnings by fulfilling specific objectives reported in the financial statements. This study examines whether fixed assets investment inefficiency is able to mediate the relationship between free cash flow and earnings management. Moreover, this study also analyzes the moderating effect of the controlling shareholders in the relationship between free cash flow and fixed assets investment inefficiency.

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## 1. LITERATURE REVIEW

### 1.1. Agency theory

Gilson and Gordon (2003) state that for something to be considered agency conflict between shareholders and management, certain criteria must be met, namely that the ownership of public firms is scattered. On the other hand, Porta et al. (1999), Claessens et al. (1999), Faccio and Lang (2002) found that the ownership of public firms around the world is concentrated, except in the United States, the United Kingdom, Ireland, and Japan (Siregar, 2007).

The agency problem of free cash flow is a conflict between insiders and outsiders of the firm related to the firm's free cash flow usage (Porta et al.,

2000a, 2000b). The insider is the party who has power to control the firm effectively, while the outsider is less able to control. The concentrated firm ownership may trigger expropriation against minority shareholders. Expropriation can be done by majority shareholders through firm policy regarding the use of free cash flow and selection policy of accounting method to close the firm's losses due to inefficiency of the free cash flow usage. Manager's desire to increase his power through control over greater resources has boosted the insider to invest in attempt to enlarge the firm (Jensen, 1986). Therefore, the existence of free cash flow will provide opportunity and encouragement for the insider to invest. Chung et al. (2005) state that the investment projects benefit personal insiders more. This situation led to the emergence of the agency problem of free cash flow.

## 1.2. Agency problem of free cash flow and earnings management

The theory of agency problem regarding the free cash flow states that a conflict of interest between the insider (i.e. managers and controlling shareholders) and the outsider in terms of minority shareholders is related to the firm's free cash flow and could lead to managers and/or controlling shareholders to conduct expropriation behavior by utilizing the firm's free cash flow (Jensen, 1986; Porta et al., 2000a, 2000b). Free cash flow is generally defined as having a positive net present value (NPV) resulting from the firm-owned cash remaining after all projects and relevant capital costs have been funded. Thus, it must be distributed to shareholders in the form of dividends (DeAngelo et al., 2009; Jensen, 1986). However, conflicts of interest among the parties that exist in the firm cause the free cash flow to not always be fully distributed to the shareholders, resulting in an agency problem of free cash flow. More broadly, Porta et al. (2000b) argue that the agency problem of free cash flow is conflicts of interest between the managers and/or controlling shareholders with the minority shareholders. For instance, any actions which are taken by the managers and/or controlling shareholders, are benefiting themselves and costing the firm by using the firm's free cash flow. It basically causes losses to minority shareholders.

The insider is interested in not distributing the free cash flow to the shareholders in the form of dividends in order to satisfy their own interest, while the outsider distributes the free cash flow to shareholders in the form of dividends to avoid losses due to the misapplication of free cash flow by the insiders (DeAngelo et al., 2009; Jensen, 1986). The emphasis is on the use of free cash flow, which is not related to the firms' interest. Based on the investment opportunities appearing with the good growth opportunity, agency cost associated with free cash flow problems is not significant enough (Gregory & Wang, 2013). On the contrary, without a good growth opportunity, expropriation problems may arise and cause losses for the minority shareholders. Free cash flow can also cause a firm to buy its own shares, as well as make transactions with the leaders, major shareholders, and/or directors (Nekhili et al., 2016). Such behavior can affect the financial position of the firm (Nekhili et al., 2016; Opler et al., 1999; Richardson, 2006; Opler et al., 2001). Reducing its impact, then

the earnings manipulation is conducted to hide the use of available free cash flow funds (Chung et al., 2005; Leuz et al., 2003; Nekhili et al., 2016).

Chung et al. (2005) argue that the firms' free cash flow leads to earnings management that is used to cover failed projects. It is confirmed by Bukit and Iskandar (2009) that free cash flow has a significant positive influence on earnings management. This study used 155 firms listed on the Stock Exchange of Malaysia in 2001 as the sample. In the context of a concentrated ownership, managers set the earnings to meet the desires and goals of controlling shareholders. Shleifer and Vishny (1997) state that the managers make decisions on behalf of controlling shareholders. In terms of concentrated ownership, the conflict of interest between the controlling shareholders and minority shareholders made the main influence on the earnings management (Ding et al., 2007). According to Leuz et al. (2003), the opportunity to illustrate the firm's financial performance through the earnings management will appear as a conflict of interest between the controlling shareholders and minority shareholders.

## 1.3. Investment inefficiency

Increasing the value of a firm depends on favorable investment decisions, where such policies depend on the shareholders, manager, and debtholder (Cherkasova & Zakharova, 2016). Conflict of interest leads to investment decisions which are inefficient and non-optimal. This conflict can cause one of four effects: burden of excessive debt, shifting risks, avoiding the risks, and empire-building. Those effects explain both under-investment and over-investment. Under-investment is the rejection of projects with a positive NPV. Over-investment is the condition in which there is a lot of investment with negative NPV in various projects (Cherkasova & Zakharova, 2016).

The effect of shifting the risk and empire-building is excessive investment. However, the burden of excessive debt and risk avoidance is associated with a lack of investment. Cherkasova and Zakharova (2016) argue that shifting risk is the result of a conflict of interest between shareholders and creditors, when the manager invests in risky projects on behalf of shareholders. Empire-building is a conflict of interest between managers and shareholders (Jensen, 1986). The managers are more likely to increase the income

and bonuses, thus they are able to invest the firms' free cash flow to acquire a new firm. However, the lack of investment is caused by excessive debt burden, risk avoidance, and the conflict of interest between shareholders and creditors.

Excessive investments are based on the hypothesis of opportunistic behavior by the managers (Jensen & Meckling, 1976). The managers consider the firm as a device to get economic benefits (Cherkasova & Zakharova, 2016). According to the free cash flow hypothesis (Jensen, 1986), if there is a lack of profitable projects, the managers tend to use free cash flow for new investment (opportunism) instead of giving it to shareholders in the form of dividends.

Richardson (2006) found empirical evidence that excessive concentrated investment occurs in firms that have free cash flow. It shows the manifestation of the agency problem in which the manager is involved in wasteful spending. Similarly, Huang et al. (2015) argue that the existence of free cash flow increases the resources under the manager's control, thus personally benefitting the manager while inflicting financial losses to the shareholders.

According to Cherkasova and Zakharova (2016), suboptimal investment is an inefficient investment that significantly affects financial performance of the firm. There are two types of inefficient investment, namely excessive investment or over-investment and lack of investment or under-investment, each of which is a consequence of agency conflict between shareholders and the manager or shareholders and debt-holders.

## 2. HYPOTHESES

### 2.1. The effect of free cash flow on earnings management

The theory of agency states that conflicts of interest between insider and outsider are related to the existence of firm's free cash flow. As a consequence, the insider conducts expropriation behavior in terms of excessive investment by using the firm's free cash flow (Jensen, 1986). If the firm's free cash flow is not used or invested to maximize and balance the interest of the whole shareholders, it leads

to the emergence of an agency problem. The insider is able to choose to invest in unprofitable projects for their own interest. As a consequence, the firm might be in a low growth position. The absence of monitoring by the outsider consequently leads the insider to hide information regarding the activities in financial statements or to manipulate the accounting figures. The outsider as a group of stakeholders has no information access inside the firm.

Based on this minimal information, the outsider is less able to know the prospect of their personal earnings or losses from the project (Chung et al., 2005). The insider provides projected cash flows for some investments. Avoiding the risk of inefficient investment, the insider can use accounting figures to increase the earnings that are reported. Therefore, the insider is motivated to manage earnings to meet their needs.

Jaggi and Gul (1998) show a positive correlation between free cash flow and earnings management; the insider with a high free cash flow tends to manipulate earnings and publish the increase in earnings to maintain their position. In addition, Chung et al. (2005) state firms with free cash flow use discretionary accruals to increase earnings for covering negative NPV projects.

Jaggi and Gul (1998) and Chung et al. (2005), later confirmed by Bukit and Iskandar (2009), find that free cash flow has a significantly positive relationship with accrual earnings management based on a sample of 155 firms listed on the Stock Exchange of Malaysia in 2001. In addition, Bhundia (2012) finds that free cash flow has a positive and significant relationship with accrual earnings management based on the manufacturing firms listed in the Stock Exchange of India and confirms that the firm's free cash flow is the cause of accrual earnings management.

Based on the results of previous research, there is evidence that the insider uses free cash flow on negative investment. This behavior is likely to have a negative impact on the welfare of the outsider and leads to earnings management practices. The outsider suspects that the insider is always seeking high profit with excess cash (Christie & Zimmerman, 1994). Moreover, the presence of

free cash flow will open the opportunity for the insider to use discretionary accruals in increasing earnings (Chung et al., 2005; Jaggi & Gul, 1998).

Based on above the explanation, the hypothesis proposed is as follows:

*H1: There is a positive effect of free cash flow on earnings management.*

## 2.2. The effect of free cash flow on inefficiency of the fixed assets investment

Agency theory suggests that the availability of free cash flow under the control of the insider tends to encourage the controllings shareholders to conduct expropriation towards the outsider using free cash flow to invest in unprofitable or negative net present value (NPV) projects (Jensen, 1986). The insiders' motivation in investing free cash flow on negative NPV projects is to manage their firms in order to grow larger than the normal size, albeit by sacrificing the firms' profitability (Jensen, 1986). The larger the firm size, the larger the firms' resources which are under the control of the insider and, therefore, the more likely the insider misapplied the firms' resources for their personal interests. Results of a study by Lang et al. (1991) support the free cash flow hypothesis that was put forward by Jensen (1986) stating that firms with free cash flow tend to grow by taking on projects with a negative NPV, thus reducing wealth for shareholders.

Richardson (2006) used framework-based accounting to measure free cash flow, excess investment, and compustat data from 1988 to 2002. The results are consistent with the concepts of agency costs that the firms which have high free cash flow are likely to invest excessively. Some evidence shows that the free cash flow distributed to external stakeholders creates high potency in excessive investment funded by future free cash flow. In addition, Taghavi et al. (2014) found evidence of a significant relationship between the flow of free cash and excess investments in firms listed on the Tehran Stock Exchange during the period 2008–2011. Based on the above explanation, the hypothesis proposed is as follows:

*H2: There is a positive effect of free cash flow on fixed assets investment.*

## 2.3. The effect of fixed assets investment inefficiency on earnings management

Based on the agency theory, agency problems emerge because of the difference in interest between the insider and the outsider, both of which are likely to maximize their own interest. Therefore, the insider behaves opportunistically which is contrary to the objectives of the firm by maximizing the value for all shareholders. Accordingly, the firm policy which is taken by the insider results in decision-making is likely to become expropriation such as investing excess (investment inefficiency) by using the firms' free cash flow.

The firms with excess investment are involved in unprofitable investments. Therefore, the insider tries to manipulate accounting numbers by using discretionary accruals to increase profits and avoid decrease in the firm performance (Chung et al., 2005; Jaggi & Gul, 1998).

Di Meo (2014) states that managers are investing excessively and hiding the inefficient investment behavior by manipulating earnings. The results also show that managers tend to be more involved in earnings management.

Based on the above explanation, the hypothesis proposed is as follows:

*H3: There is a positive effect of fixed assets investment inefficiency on earnings management.*

## 2.4. The mediating effect of fixed assets investment inefficiency

Free cash flow hypothesis states that firms that have free cash flow tend to have more investment problems. The fixed assets investment gives personal earnings for the manager and/or controlling shareholders, nevertheless it causes the firm and minority shareholders suffered loss.

Jensen (1986) states that managers and/or controlling shareholders have an incentive to make the firm exceed its optimal size, even though it requires investing in a negative enterprise value. Over-investment uses funds from the firm's internal resources, namely from the free cash flow. Richardson

(2006) states that the firms with free cash flow tend to use those funds for unprofitable projects.

The firms involved in excessive investment activities are likely to manipulate earnings to take advantage of inefficient investment (McNichols dan Stubben, 2008). The controlling shareholders insist the management hides expropriation activity by manipulating accounting numbers using discretionary accruals to increase earnings (Bukit & Iskandar, 2009; Chung et al., 2005). Based on the above explanation, the hypothesis proposed is as follows:

*H4: The fixed assets investment inefficiency mediates the relationship between free cash flow and earnings management.*

### 3. METHODOLOGY

#### 3.1. Research design

This study measures the inefficiency of fixed asset investment as a deviation from expected investment using a model that predicts investment as a function of annual sales growth for the previous 3 years. Therefore, to know whether the investment is efficient or not, it is necessary to obtain the actual sales data realization. Here, this study's purpose is to provide the examination of investment efficiency and not to provide sales forecasting data.

#### 3.2. Sample description

The population of this study was chosen from all manufacturing firms listed on Indonesia Stock Exchange from 2010–2015. The sampling method used in this study is purposive sampling. The criteria for sample selection is as follows:

- a. included on IDX during observation period 2010–2015;
- b. had positive cash flow during the observation period 2010–2015;
- c. had positive free cash flow during observation period 2010–2015;
- d. reported earnings during observation period 2010–2015.

Therefore, the final samples are 314 firms.

The selection of data from 2010 to 2015 was based on a few reasons. First, calculating the inefficiency of fixed assets investment required data from 3 years earlier to reflect the average growth of company sales. Thus, financial data from 2007 were required as the initial data used to calculate fixed asset investment inefficiency. This reason was highly related to the second reason. Second, these research data were obtained from the Indonesia Stock Exchange (IDX), which was recently established in 2007. Third, the total units observed between 2010 and 2015 were 913 manufacturing companies. Then, companies were eliminated that did not meet the criterion of having positive free cash flow (FCF). After elimination, 314 companies were selected. This study only examines companies that have a positive FCF because it matches the FCF concept of Jensen (1986) highlighting that companies with FCF tend to use FCF for waste. Companies that have FCF are marked with a positive value on FCF, while those with a negative one do not have FCF. Based on these reasons, data evaluation in IDX between 2010 and 2015 can be considered very meaningful, interesting, or enlightening, and has originality in testing data using the variables of free cash flow, earnings management, and investment inefficiency after IDX was established in 2007.

#### 3.3. Variable measurement

The independent variable in this study is free cash flow. Free cash flow in this study is defined as firm's cash that could be used for funding fixed assets investment. Free cash flow is measured by using a model of Gul and Tsui (1997) as follows:

$$FCF_{it} = \frac{CFO_{it} - DIV_{it}}{TA_{t-1}}, \quad (1)$$

where  $FCF_{it}$  – free cash flow of firm  $i$  at the year of  $t$ ,  $CFO_{it}$  – cash flow operating of firm  $i$  year  $t$ ,  $DIV_{it}$  – dividend of firm  $i$  year  $t$ ,  $TA_{t-1}$  – total assets of firm  $i$  year  $t-1$ .

The dependent variable in this study is earnings management. Earnings management in this study is defined as a form of policy's action towards the accounting figures conducted by the insider to avoid losses in the financial statements. This is

in line with the research of previous studies (i.e. Roychowdhury, 2006; Tahinakis, 2014), stating that earnings management is the policy of reporting earnings and avoiding losses.

A previous study also reveals that the accrual earnings management is proxied by discretionary accruals. The modified Jones model implicitly assumed that all changes of the credit sales period are the result of earnings manipulation. Accordingly, it is easier to manipulate earnings by changing the income statements from the credit sales than changing the income statements from cash sales (Dechow et al., 1995).

$$\frac{TAC_t}{TA_{t-1}} = \beta_1 \cdot \frac{1}{TA_{t-1}} + \beta_2 \cdot \frac{\Delta REV_t - \Delta REC_t}{TA_{t-1}} + \beta_3 \cdot \frac{PPE_t}{TA_{t-1}} + e_t, \quad (2)$$

where  $TAC_t$  – total accruals of firm  $i$  at  $t$  period,  $TA_{t-1}$  – total assets for firm's sample  $i$  at the end of year  $t-1$ ,  $\Delta REV_t$  – changes in income of firm  $i$  from the year of  $t-1$  to  $t$ ,  $\Delta REC_t$  – changes in debt of firm  $i$  from year  $t-1$  to  $t$ ,  $PPE_t$  – firm fixed assets (gross property plant and equipment) at the year of  $t$ ,  $e_t$  – error.

The mediation variable in this study is the inefficiency of fixed assets investment, defined as an act to use the firm's resources inappropriately and waste the available resources. Investment inefficiency is the level of sub-optimal investment from the firm or unprofitable investment for the firm, which leads to a condition of over-investment or under-investment.

Consistent with the previous studies by Biddle et al. (2009), Chen et al. (2011), Gomariz and Ballesta (2014), fixed assets investment inefficiency is measured as a deviation from the expected investments using models that predict the investment as a function of growth opportunities. Accordingly, the lack of investment (negative deviation from the expected investment) and excessive investment (positive deviation from the expected investment) are considered to result from the inefficiency of fixed assets investment. The equation of investment inefficiency (Gomariz & Ballesta, 2014) is as follows:

$$Investment_{t-1} = \beta_0 + \beta_1 SalesGrowth_{i,t-1} + \varepsilon_{i,t}, \quad (3)$$

where  $Investment_{t-1}$  – total investment of firm  $i$  at the year of  $t$ , defined as the sum of capital expenditure, research and development reduced by disposal assets and scaled with the previous total assets,  $SalesGrowth$  – sales growth of firm  $i$  at the year of  $t-1$ .

From the above equation, investment is expected to be a function of income growth. However, in this study, income fluctuations are more likely to cause income differences, meaning that the income may increase or decrease. This study uses the arithmetic average of the annual sales growth rate for the previous three years. The reason for using geometric percentage average annual growth is to ensure that this disparity (increases and decreases in income) results in the same conclusion in the data analysis. The equation is as follows:

$$Inew_{it} = \beta_0 + \beta_1 AVSG_{i,t-1} + \varepsilon_{i,t}, \quad (4)$$

where  $Inew_{it}$  – total investment of firm  $i$  at the year of  $t$ , defined as the sum of capital expenditure, reduced by disposal assets and revaluation of fixed assets, and scaled with the previous total assets,  $AVSG_{i,t-1}$  – the average of sales growth in firm  $i$  at  $t-1$  for previous 3 years.

After determining the magnitude of the normal investment value, this study used firms' capital expenditure. The next step is to determine the magnitude of over-/under-investment by subtracting the firms' actual capital expenditure from the value of investment. A positive or negative value indicates that the firm conducts over-investment, exactly reduces its level of investment, or conducts under-investment.

Control variables in this study are as follows:

1. Debts (DER). DER variable as control variable based on the agency theory perspective that debt is a means to discipline the managers (Jensen, 1986). Firms with large debt levels are more likely to conduct earnings management than the firms that have less debt (Jensen, 1986; Chung et al., 2005). DER is estimated with the total debts and scaled by total equity.

**Table 1.** Descriptive statistics

| Variable | N   | Minimum | Maximum | Mean    | Std. Deviation |
|----------|-----|---------|---------|---------|----------------|
| FCF      | 314 | 0.012   | 0.399   | 0.13218 | 0.086357       |
| INEVAT   | 314 | -0.040  | 0.390   | 0.05722 | 0.064178       |
| DAC      | 314 | -0.116  | 0.590   | 0.02296 | 0.097172       |
| SIZE     | 314 | 0.214   | 0.951   | 0.65813 | 0.225955       |
| ROA      | 314 | 0.043   | 0.381   | 0.48518 | 0.184305       |
| ROS      | 314 | 0.044   | 0.306   | 0.12241 | 0.055829       |
| DER      | 314 | 0.127   | 0.748   | 0.54150 | 0.218541       |

Note: FCF – Free Cash Flow, INEVAT – Fixed Assets Investment Inefficiency, DAC – Accrual Earnings Management, SIZE – Firm Size, ROA – Return on asset, ROS – Return on sales, DER – Debt equity ratio.

- Return on assets (ROA). ROA as control variable naturally is based on the idea that an increase in performance argumentation leads to an increase in cash flow (Nekhili et al., 2016). Research by Kothari et al. (2005), Jiraporn et al. (2008) and Zamri et al. (2013) found a negative relationship between ROA and earnings management. That means that the lower the performance of the firm, the higher the possibility of the insider to be involved in earnings management activities. ROA is estimated as profit before tax and scaled by total assets.
- Return on sales (ROS). ROS as control variable is based on the argument that increased cash and sales credits will naturally improve profit. Emamgholipour et al. (1995) found the existence of a positive correlation between the return of ROS with management. That means that the higher the sales on credit, the higher the possibility of the insider to be involved in management activities. ROS is estimated as operating profit scaled by net sales.
- Firm size (SIZE). SIZE as control variable was based on Chunget al. (2005) who state that the greater the firm, the greater the support to conduct earnings management because of its complex operation system, causing difficulties of the outsider to detect it. SIZE is estimated with Ln total assets.

### 3.4. Data analysis

Data were further analyzed by model path estimation using Structural Equation Modeling (SEM) with WarpPLS program version 5.0.

## 4. RESULTS

### 4.1. Descriptive statistics

Descriptive statistics are used to explain the characters of the research variables used. Therefore, the explanation regarding descriptive statistics in this study is as follows:

**Table 2.** Coefficient and *p*-value

| Path         | Direct effect |            | Indirect effect |         |
|--------------|---------------|------------|-----------------|---------|
|              | Coefficient   | P-value    | Coefficient     | P-value |
| FCF → INEVAT | 0.442         | < 0.001*** | –               | –       |
| INEVAT → DAC | 0.257         | < 0.001*** | –               | –       |
| FCF → DAC    | 0.321         | < 0.001*** | 0.114           | 0.015** |
| SIZE → DAC   | 0.170         | 0.010**    | –               | –       |
| ROA → DAC    | -0.034        | 0.319      | –               | –       |
| ROS → DAC    | 0.313         | < 0.001*** | –               | –       |

Note: FCF – Free Cash Flow, INEVAT – Fixed Assets Investment Inefficiency, DAC – Accrual Earnings Management, SIZE – Firm Size, ROA – Return on asset, ROS – Return on sales, \* significant at level 10%, \*\* significant at level 5%, \*\*\* significant at level 1%.

## 4.2. Hypotheses testing result

Testing results of coefficient and  $p$ -value path to see the magnitude of coefficient and significant level are presented in Table 2 below.

Table 2 shows that the coefficient direct effect of free cash flow (FCF) towards accrual earnings management (DAC) is 0.321 and significant to  $p < 0.001$ . This result shows the first hypothesis is accepted. The FCF is positively and significantly related and to DAC. These results indicate that the first requirement to become a mediation variable is fulfilled by the coefficient of FCF  $\rightarrow$  DAC (path c) and is significant.

The results of direct effect testing show that the coefficient of free cash flow (FCF) path on the fixed assets investment inefficiency (INEVAT) is 0.442 and significant at  $p < 0.001$ . Thus, it can be inferred that the second hypothesis is accepted and the FCF is positively and significantly related to INEVAT. These results indicate that the requirement to be a mediation variable is fulfilled by the coefficient of FCF  $\rightarrow$  INEVAT (path a) and is significant.

Additionally, the path of the fixed assets investment inefficiency (INEVAT) coefficient on accrual earnings management (DAC) is 0.257 and significant at  $p < 0.001$ . Therefore, it can be inferred that the third hypothesis is accepted. The fixed assets investment inefficiency (INEVAT) is positively and significantly related to the accrual earnings management (DAC). These results indicate that the requirement to be a mediation variable is significantly fulfilled by the coefficient of INEVAT  $\rightarrow$  DAC (path b) and is significant.

The results of indirect effects testing of the path free cash flow (FCF) coefficient on accrual earnings management (DAC) show the coefficient of 0.114 and significance at 0.015 ( $p < 0.05$ ). These results show that the coefficient of indirect effect FCF  $\rightarrow$  DAC (path c'') declines to 0.114 from 0.321 (path c'' < c). It can be concluded that the fixed assets investment inefficiency (INEVAT) mediates the correlation between free cash flow (FCF) and accrual earnings management (DAC). Then it can be inferred that the fourth hypothesis is accepted. Accordingly, the fixed assets investment inefficiency (INEVAT) mediates the relationship be-

tween free cash flow (FCF) and accrual earnings management (DAC).

The next mediation testing with variance accounted for by the VAF method, as well as was suggested by Hair et al. (2013) that if the value of VAF is above 80%, it has full mediation. If VAF is 20%-80%, it is categorized as partial mediation. However, if VAF is less than 20%, it is categorized as almost no mediation effect. The results are presented in Table 3 below.

**Table 3.** VAF calculation

| Variance Accounted For (VAF) Calculation                                | Results |
|---|---------|
| Indirect effect $0.442 \times 0.257$                                    | 0.114   |
| (FCF $\rightarrow$ INEVAT = 0.442;<br>INEVAT $\rightarrow$ DAC = 0.257) | -       |
| Direct effect   | -       |
| FCF $\rightarrow$ DAC = 0.321   | 0.321   |
| Total effect = $0.114 + 0.321$  | 0.435   |
| VAF = Indirect effect / Total effect<br>$0.114/0.435$                   | 26%     |

The results of VAF calculation in Table 3 show the value of 26%. Therefore the fixed assets investment inefficiency (INEVAT) is categorized as partial mediation in the relationship of free cash flow (FCF) towards accrual earnings management (DAC).

## 5. DISCUSSION

In the context of evaluating whether profit manipulation is more due to inefficient investment or excess cash flow, this study uses one independent variable, i.e. free cash flow (FCF), one mediating variable, i.e. inefficiency of fixed asset investment (INEVAT), and one dependent variable, i.e. accrual earnings management (DAC). In testing the data, FCF is regressed to DAC and INEVAT is also regressed to DAC. The results of regression testing show that FCF and INEVAT are the cause of DAC, as shown by  $H1$  and  $H2$  testing results.

In the context of whether earnings management is related to previous investment failures to increase sales as anticipated but that failed in retrospect, one needs to consider the fact that public companies in Indonesia are in the category of companies with concentrated ownership. Thus, they tend to make investment decisions to increase profits

and business power by using free cash flow in investing, because their goal is to build a business empire. The investment objectives created to cut costs and modernize or increase sales are one of the foundations to increase ownership concentration and business strength. From the perspective of agency theory, there is a shift of conflict in investment objectives from conflict of interest to conflict between the controlling shareholder and the non-controlling one.

The motivation of the controlling shareholder to develop the business empire is to obtain personal gain in both financial and nonfinancial forms. Examples are the financial benefits gained from the increase in salaries and bonuses, while the nonfinancial benefits are the rising reputation as owner and holder of large companies. The construction of a business empire by this controlling shareholder may result in excessive investment. Hence, excessive investment is an inefficient or

suboptimal investment, because it is more likely able to cause the company's value to fall, even if the overall size of the firm increases. Companies in excessive investments are more likely to engage in unprofitable investments in order to avoid a decrease in corporate performance. Then, controlling shareholders try to manipulate accounting figures by using discretionary accruals to increase profits. In addition, investment inefficiencies will ultimately lead to falling stock prices which then trigger the reaction of investors and non-controlling shareholders. In this condition, to avoid market reaction, the controlling shareholder asks the managers to hide the negative impact of such adverse investment with earnings management. Accordingly, earnings management is done if there is a decrease in corporate profits due to the failure of investment, while the failure of investment will be related to the decrease in corporate profits (loss), not to earnings management.

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## CONCLUSION

The main contribution of this study is to give empirical evidence that free cash flow (FCF) is an internal resource which becomes a supporting factor for the insider to conduct expropriation on the outsider by using free cash flow for unprofitable projects or fixed assets investment inefficiency. Consequently, the insider conducts earnings management to cover it. This study affirmed empirical evidence that free cash flow related positively to the increase of earnings management practices through free cash flow usage for inefficient fixed assets investment.

The effects of investment inefficiency in mediating the relationship between free cash flow and earnings management function in accordance with the agency theory from the free cash flow hypothesis, in which firms with high free cash flow have policy and incentive to invest excessively with the aim to maximize their own interest. Expropriation behavior such as the use of free cash flow on inefficient investment from the insider is able to cause the company and minority shareholders to suffer losses. To hide expropriation, managers conduct earnings management. The results of the study have a limitation caused by the measurement of earnings management based on discretionary accrual that has not been measured to exact discretionary accrual quantity.

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