Income Smoothing in Indonesian State Owned Enterprises

Wita Ramadhanti

Faculty of Economics and Business , Universitas Jenderal Soedirman

Abstract	This research is intended to know whether Indonesian State Owned Enterprises (BUMN or *Badan Usaha Milik Negara*) having income smoothing pattern. This study also testing the determinant factors for income smoothing behavior. Positive Accounting Theory is used with its three hypothesis: bonus plan, debt covenant, and political cost. The samples are BUMN that listed in Indonesian Stock Exchange in 2018 which issued completed audited financial statements from 2010-2018. Data then analyzed using logistic regression. The results shows that stock values, bond values, and company size have positive effect on income smoothing practice. The results is consistent with Positive Accounting Theory's hypothesis of bonus plan, debt covenant, and political costs hypothesis.
Keywords	**BUMN, income smoothing, positive accounting theory**

INTRODUCTION

Agency theory stated that there will be a problem between shareholder and debt holder as principal and top management as agent (Jensen and Meckling, 1976; Myers, 1977). This conditions perhaps will be differences in the stated owned enterprises where government acts as the majorities shareholder as well as creditor.

There are many problems in Indonesian BUMN. Astami et al., (2010) study shows that private sector ownership having higher level performance than government owned. Second, Apriliyani and Cristiansen (2019) interview concluded that there are practice of collective conservatism, reciprocal opportunism, and corruption in BUMN. Overall Musallam (2020) concludes that the higher government ownership, the higher agency cost in the companies.

Although there are some problem in Indonesian government owned enterprises, there are still some good points in it. Fu et al. (2017) empirical results shows that the higher government ownership, the easier for a company to get loan from government banks. Liem (2019) stated that government bank in Indonesia are efficient. This conditions can maintain BUMN good financial conditions. Duygun et al. (2018) research conclude that state owned enterprises pay more dividend than the private ones. This condition is important for investor to consider BUMN in their portfolio.

There are many research that government ownership have impact on earnings management. Doan et al. (2019) stated that the higher government ownership will leads to higher income smoothing behavior. The higher government ownership means the higher political connection that makes the higher income smoothing (Tee, 2020).

Positive Accounting Theory is best to explaining the determinant factors that have impact in earnings management using its bonus plan, debt covenant, and political cost hypothesis (Watts and Zimmerman, 1986). Based on this theory, this research intended to test three things. First, whether stock values have effect on Income smoothing (bonus plan hypothesis). Second, testing for the effect of bond value on income smoothing (debt covenant hypothesis). Third, finding empirical evidence for income smoothing affected by companies' size (political cost hypothesis).

Difference from previous research is as follows. Previous research were mostly using Ordinary Least Square Regression, while this research is using using logistic regression. Debt variable in other research usually using leverage (Lee and Choi, 2016; and Tee, 2020) or Loan (Vasilakopoulos et al., 2018, Osma et al., 2019, and Ozili, 2019), but this research is used bond returns.

THEORY AND HYPOTHESIS DEVELOPMENT

Agency Theory stated that there are parties in corporation, owner as principal and director as agent. There always be conflict of interest between agent's utility maximization behavior and principal's needs for increasing firm value, and there are mitigated by a good compensation schemes for manager (Jensen and Meckling, 1976).

Agency relationship developed further, not only between owner and top executive but also between debt holder and directors (Myers, 1977). In order to solve this problems, there will be debt covenant to force manager for creating a good company's performance (Defond and Jiambalvo, 1994).

Top executives try to fulfill owner and debt holder expectation using earnings management in financial reports. Earnings management are the action of management through financial statement in form of income increasing, income smoothing, income decreasing, and taking a bath according to impression that they want to achieve for external users (Scott, 2015).

There are several method to predict earnings management behavior. First, income smoothing (Eckel, 1981). This method is try to see whether company want to gave impression of stable growth from time to time. A stable companies' income is seen to be a good company rather than fluctuated ones.

Second, discretionary accruals method (Jones, 1991). Financial statements using accruals method have element that depend on management's accounting policy that called as discretionary accruals. This is consistent with element such as choice of accounting method, other accounting estimation and judgement favoured by directors.

Third, real earnings management. This method try to prove that top management not only manage expectation of principal from accounting numbers, but also with the real action. The three elements of real earnings management are operating cash flows abnormal, discretionary expenses abnormal, also production expenses as sum of cost of goods sold and inventories changes (Roychowdury, 2006; and Cohen and Zarowin, 2010).

According to Eckel (1981), income smoothing not only coming from manager intention but also can be natural ones. Hence, if it is intentionally happen it can be artificial or real smoothing. Artificial means that agent only manage it through accounting numbers, but for real smoothing management really using firms real activities to creates that (Shubita, 2015).

Positive Accounting Theory proposed the motivation for Directors for doing earnings management behavior. It has three hypothesis, that is bonus plan hypothesis, debt covenant violation, and political costs hypothesis (Watts and Zimmerman, 1986).

Bonus Plan Hypothesis stated that agent tend to do earnings management behavior to optimizing their compensation (Watts and Zimmerman, 1986). Empirical research by Meek et al. (2007) shows that equity compensation in the bonus plan having effect on earnings management behavior. This is consistent with Henry (2010) statement that stock option equity compensation in the bonus plan induce manager to do income smoothing. Stock option will increase managerial ownership, hence managerial ownership have effect in income smoothing (Habib & Jiang, 2012).

The stock price in the market having effect in Income smoothing behavior in African Banks (Ozili, 2017). Stock returns also having effect in earnings management in China (Madjeed et al., 2018). Based on theory and previous research, the first hypothesis in this research is:

H$_1$: Stock value have effects on Income smoothing

Debt covenant violation hypothesis stated that managers tend to manage earnings to attain credit contract ratio (Defond and Jiambalvo, 1994). Lee and Choi (2016) stated that debt structure having effect on earnings management. In the case of bank, loan structure have impact on income smoothing (Vasilakopoulos et al., 2018; Osma et al., 2019; Ozili, 2019;). Tee (2020) study resulted that debt structure have impact on income smoothing. In this research bond value is used as debt structures proxies, hence the second hypothesis of this research is:

H$_2$: Bond value have effect on income smoothing

Political Cost hypothesis stated that the bigger companies' size, the higher their political cost (Watts and Zimmerman, 1986). Political cost come from companies' stakeholders such as government taking higher taxes and more regulations, labor union asking for higher wages, and society asking for more donation. Hence, the bigger company

size also means that it has more credibility than smaller ones. Bigger companies having incentives for doing income smoothing to maintain their credibility. Previous research stated that size is an important income smoothing determinant factor (Lee and Choi, 2016; Safdar and Yan, 2016; Doan et al., 2019; Ozili, 2019; and Tee, 2020). Based on that, the third hypothesis of this study is:

H₃: Size have effect on income smoothing

RESEARCH METHOD

This is a quantitative research using archival study. The secondary data are taken from financial and annual reports of BUMN that listed in Indonesian Stock Exchange. The purposive sampling procedure are as follows. First, BUMNs are listed in Indonesian Stock Exchange during 2018. The BUMNs published completed Audited Financial Statements during 2010-2018.

There are dependent and independent variables as follows. Dependent variable is income smoothing using Eckel Index (Eckel, 1979; Shubita, 2015) with formula $CV_{\Delta I}/CV_{\Delta S}$. CV formula is standard Deviation per mean. ΔI is net income year t deducted with income year t-1. ΔS is the differences between sales year t and t-1. The Eckel Index then converted into dummy, "0" for non income smoothing (Eckel index <1) and "1" for income smoothing (Eckel index ≥ 1).

There are 3 Independent variables. First, Share Returns. Share returns is measured using earnings per share (EP). The formula for EP is Primary EPS before extraordinary items per share closing price (Goel, 2016).

Second, bond returns as representation of the debt in capital structure. Bond returns is calculated with formula Bond returns this year less with bond returns previous year plus bond coupon that year inflated by bond price previous year (modified from Aboody *et al.*, 2014).

Third, company size. Size is calculated using Natural Logarithm of Total Assets (Goel 2016).

Data then analyzed using logistics regression. The logistics regression model is:

Ln(IS/1-IS) = α + β₁EP + β₂BR + β₃SIZE + ξ

Notes:
Ln(IS/1-IS) : Income smoothing (dummy "1" for IS, "0" for non IS)
α : constant
β₁₋₃ : regression coefficients
EP : Earnings per Share
BR : Bond return

SIZE : Natural Logarithm of Total Asset
ξ : error.

RESULTS & DISCUSSIONS
Sample Descriptions

There are 20 Government companies that listed in Indonesian Stock Exchange during 2018. Based on analysis, 12 firms matches with income smoothing patterns. Using data from 2011-2018 make the total pooling data for analysis 160 firm years. The sample categorical process can be seen in Table 1.

Table 1. Income Smoothing Categories

Categories	Firm	Year	Pooling Data
Income Smoothing	12	8	96
Non Income Smoothing	8	8	64
Total	**20**		**160**

Sources: Data Analysis

There are 4 variables, 1 dependent variable and 3 independents variables. Dependent variable is dummy Eckel Index (EI). Eckel Index before converted into dummy categories (1 for income smoother and 0 for non) having minimum value -172.10, maximum value 1.84, mean -7.70, and Standard Deviation 37.85. Independent variables are Price Earnings (PE), Bond Return (BR), and Natural Logarithm of Total Assets (LNA). PE values are minimum -0.05, maximum 4.86, mean 0.22, and SD 0.43. BR having mean 0.11 with SD 0.13, and ranges between 0.00 - 0.79. LNA values ranges between 27.74 up to 32.19 with 31.02 mean and 1.02 SD. The complete results of Descriptive Statistics are in Table 2.

Table 2. Descriptive Statistics

	Min	Max	Mean	St. Deviation
PE	-0.05	4.86	0.22	0.43
BR	0.00	0.79	0.11	0.13
LNA	27.74	32.19	31.02	1.02
EI	-172.10	1.84	-7.70	37.85

N = 160

Sources: Data Analysis

Multicollinearity Test

Multicollinearity test results can be seen in Table. Price Earning (PE) and Bond Return (BR) correlation is 0.135 (<0.5). Price Earning (PE) and Natural Logarithm of Total Asset (LNA) correlation is 0.267 (<0.5). Bond Return and Natural Logarithm of Total Asset is 0.172 (<0.5). Since all correllation are less than 0.5 (0.5), it means that is no multicollinearity problem in the model (Hair *et al.*, 2019).

Table 3. Multicollinearity Test Results

Variables	PE	BR	LNA
PE	1.000	0.135	0.267
BR	0.135	1.000	0.172
LNA	0.267	0.172	1.000

*Correlation between variables <0.5
Sources: Data Analysis

Logistics Regression Analysis

Logistics regression analysis is consist of assessing overall model fit and hypothesis testing. The results is as follows.

Model Fit

Three step for assessing model fit are by checking statistical measure goodness of fit, pseudo R^2 measures, and classification accuracy (Hair *et al.*, 2019). The complete testing research will be discussed below.

Goodness of Fit Model

The Goodness of fit model can be seen by the difference between -2 Log Likelihood initial and ending and Hosmer and Lemeshow Test.First, -2 Log Likelihood is increased 64.253 from beginning to ending. It means that model fit. Table 4 shows the differences of -2 Log Likelihood.

Table 4. Difference of -2 Log Likelihood

-2 Log likelihood initial	215.364
-2 Log likelihood ending	151.111
	64.253

Sources: Data Analysis

The second step of model fit test is using Hosmer and Lemeshow χ^2 tests are used the see the significance of actual and predicted results of the model. Hair *et al.* (2019). The results in Table 5 shows that Hosmer and Lemeshow χ^2 value is 7.922 with df = 8 and significance 0.441 (>0.05), it means that this model is fit (Hosmer and Lemeshow, 2013).

Table 5. Hosmer and Lemeshow Tests Results

	Value	df	Significance
Hosmer and Lemeshow χ^2	7.922	8	0.441*

*Accepted (significance > 0.05)
Sources: Data Analysis

Pseudo R^2

Pseudo R^2 are tested using Cox & Snell R^2 and also Nagelkerke R^2. Cox & Snell R^2 Value is 0.331. Nagelkerke R^2 Value is 0.447. Overall the independent variables in this model can explain 33.1% up to 44.7% income smoothing motivations. The results can be seen in Table 6.

Table 6. Pseudo R^2 Results

Pseudo R^2	Value
Cox & Snell R^2	0.331
Nagelkerke R^2	0.447

Sources: Data Analysis

Classification Accuracy

Classification accuracy results shows that the model can accurately income smoothing companies 80.2 % comparing to non income smoothing 60.9%. Hence, the total percentage correct for the model 72.5% more than 50% cut off point can be seen as a good model.

Table 7. Classification Accuracy Results

Observed	Predicted		Percentage Correct
	Non Income Smoothing (0)	Income Smoothing (1)	
Non Income Smoothing (0)	39	25	60.9
Income Smoothing (1)	19	77	80.2
Overall Percentage			72.5

Sources: Data Analysis

Hypothesis Testing

Hypothesis testing result can be seen in Table 8. The results show as follows.

Table 8. Hypothesis Testing Results

Variables	Beta	P Value	Notes
Constant	-58.324	0.000	
PE	1.296	0.011	H1 Accepted
BR	6.038	0.003	H2 Accepted
LNA	1.858	0.000	H3 Accepted

Sources: Data Analysis

First, Price Earning (PE) having beta 1.296 and P value 0.011 (<0.05 two tails), it means that **hypothesis 1 is accepted**. Price Earning have influence on the likelihood of income smoothing.

Second, Bond Return (BR) beta is 6.038 with p value 0.003 (<0.05 two tails) **accepting hypothesis 2**. Bond returns can be use to predicted the income smoothing probability.

Third, LNA value is 1.858 and P value 0.000 (<0.05 two tails) explain that **hypothesis 3 is accepted**. Thus, size have effect on income smoothing probability.

Discussion

Based on statistical testing shows that price earnings as shareholder value has positive effect on income smoothing. This is consistent with bonus plan hypothesis (Watts and Zimmerman, 1986). This is also inline with research by Ozili (2017) and (Madjid et al., 2018).

Debt have effect on income smoothing. The higher bond return, the more income increasing likely to be happened. Debt covenant hypothesis (Defond and Jiambalvo, 1994) is applied in this situation. This is consistent with previous study (Lee and Choi, 2016; Vasilakopoulos et al., 2018; Osma et al., 2019; Ozili, 2019; also Tee, 2020).

The higher company size the more probability of income smoothing happened. The higher the companies size, manager have incentive to maintain its credibility. This is consistent with political cost hypothesis (Watts and Zimmerman, 1986), but there still open to discussion. If political cost hypothesis strongly suggest that the higher company size, the higher chance for the company to do income decreasing behavior.

Hence this positive effect of company size to income increasing pattern means the results is more consistent with bonus plan hypothesis. Since the true owner of state owned enterprise more dependent of their business on political condition than its true performance, the BUMN executive try to maximize their bonus.

Overall results shows that majority of the BUMN is doing income smoothing by continuously reported income increasing pattern in their financial reports. Overall results shows that most of the results consistent with Positive Accounting Theory. Among this theory three hypothesis, bonus plan is the best one to explain income smoothing behavior in Indonesia state owned enterprises.

CONCLUSIONS

Conclusion from this research is as follows. First, the higher stock value of a BUMN company, the more likely they will engage on income smoothing. Second, bond value have positive effect on income smoothing. Third, the bigger BUMN size the more likely income smoothing happen.

The accurate level of prediction from the model is 72,5%. This model are using only 20 BUMN and 3 independent variables to predict income smoothing behavior. Further research can use more entity and more independent variables in order to increased The accuracy of the model.

Further research may have to examine whether there are executive stock option on BUMN, if it is unclear then regulator have to make mandatory disclosure in annual reports for this parts. This to be clear the details how mechanism that makes bonus plan hypothesis in state owned enterprises in order to increase BUMN good corporate governance.

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