

Detecting Earnings Management: A Foreign Exchange Losses (FEL) Model

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ABSTRACT

Foreign exchange losses bear some pressures for numerous companies in Indonesia particularly for those having liabilities denominated in foreign currencies. This occurs when Indonesian Rupiah (IDR) current exchange rate has weakened against foreign currencies. Related to those phenomenon, this study aims to investigate model earnings management actions using foreign exchange losses (FEL) which provides a method for the detection of earnings management. By employing a quantitative approach, this study used secondary data of financial statements. The data were collected from 50 companies with the largest market capitalisation, 50 of the most active companies based on trading volume, 50 of the most active companies based on the value of trade and 50 of the most active companies by frequency trading. Totally, 200 public companies listed in Indonesia Stock Exchange were gained as the data based on IDX statistical report 2013. The results identify that FEL model is capable to detect earnings management from a transaction in foreign exchange losses. However, the model cannot capture the phenomenon of earnings management if the company does not own or reported long-term debt and profit/loss on foreign exchange. To prove whether the manager will perform earnings management from FEL, it is suggested to conduct further research using the hypothesis of positive accounting theory (PAT).

1. Introduction

Previous research assessing Earnings Management Detection can be grouped into two models: 1] those associated to what is established for detecting earnings management: accrual, real activity and shifting classification models. This group emphasizes on finding the best model among them; 2] they are related to the use of statistical or mathematical models for detecting earnings management. This group is focused on the best statistical or mathematical method. However, these two groups are not concerned with what is right for the variable detecting earnings management.

Accrual based earnings management detection has been widely cited by researchers. Jones (1991) measured earnings management as the difference between the total accrual and the non-discretionary accruals (NDA), where the NDA is estimated as a function of changes in income and fixed assets (compared to the previous period). Meanwhile, earnings management from real activities are gained through some sources such as: premature revenue recognition (Stubben, 2010), expenditure on non-operational activities and activities that do not generate revenue (Eldenburger et al., 2011), offering discount prices to increase sales on a temporary basis, performing overproduction to lower the cost of goods sold and lowering discretionary expenses aggressively to increase profit margins (Roychowdhury, 2006). Earnings management is also done by changing the classification of posts in the income statement (classification shifting). McVay (2006) mentions that management is opportunistic when it moves/shifts expenses of core expense (COGS, G & A expenses) to special items.

In accounting concepts, the gains and losses of foreign exchange can occur due to transactions in foreign currencies. Transactions in foreign currency are denominated or required settlement in a foreign currency. Indonesian Statement of Financial Accounting Standards (SFAS-Ind) No. 10 stipulates that transactions in foreign currencies are recognized from the exchange rate on the transaction date, and from each balance sheet date of assets and liabilities denominated in foreign currencies reported in the Rupiah currency. It applies the

exchange rate of balance sheet date of Bank Indonesia. Furthermore, it mentions that a cumulative translation adjustment of monetary assets and liabilities in foreign currencies can be identified from the balance sheet date and from the income losses arising from transactions in foreign currencies charged to profit or loss in a certain period (IAI, 2007). Earnings management through real activities can be performed by referring to SFAS-Ind No. 10. When the Rupiah has depreciated against foreign currencies, but the management still wanted to keep achieving profit targets, they can increase monetary asset accounts to boost foreign exchange earnings. This can be done by increasing cash and cash equivalents, and also sales in foreign currencies. Management may also reduce foreign exchange losses by setting off monetary liabilities, such as accounts payable, bank debt either in short term or long term.

Earnings management by foreign exchange losses can also be done by using the accounting policies set out in SFAS-Ind No. 26 which states that borrowing costs that are directly attributable to the acquisition, construction or production of a certain assets should be capitalized as part of the acquisition cost of Certain Assets (IAI, 2007). Foreign exchange differences on loans denominated in foreign currencies is one borrowing costs as defined in this SFAS. This regulation is an opportunity for managers to capitalize on foreign exchange losses. Managers may affect the value of foreign exchange losses capitalized by increasing the value of foreign exchange losses or extend the period of capitalization.

This research is motivated by the issues of foreign exchange losses in Indonesia. These conditions bear some pressures for many companies in Indonesia, particularly for those having liabilities denominated in foreign currencies when the current exchange rate of Indonesian Rupiah (IDR) weakens against foreign currencies. Thus, FEL that is modeled in this study are generated from long term debt transactions FEL.

This phenomenon can trigger the companies to perform earnings management through foreign exchange losses. Therefore, this study is expected to seek a method for detecting earnings management using foreign exchange loss account. The new method will be called Foreign Exchange Loss (Forex, FEL) model. In fact, management can “create” profits through FEL, such as capitalizing FEL i.e. increasing assets or decreasing liabilities denominated in foreign currencies. So far, some researchers have detected earnings management by using accruals, management of real activity, and misclassification models. Most variables used to explain and predict are endogenous, while other researchers only apply the latest mathematical or statistics models for detecting earnings management. The FEL model as the outcome of this study is expected to explain and predict earnings management by involving external variables which might impact foreign currency exchange rates. This research therefore aims to find out this research question: “Can FEL model be applied to detect earnings management?”

The remaining paper is structured as follows: the second part describes related work on earnings management methods and their application in the context of PAT. Next part articulates the basic framework of theory and hypothesis development, followed by part four which explains the detail of research methods. Part five lists the research findings, continued to the next part of the discussion of research findings, and the last part is conclusion and limitations.

2. Literature Review

There are three main variables used by a model to detect earnings management i.e. accruals, real activity and shifting classification. Accrual model is based on a premise that management’s choice(s) of accounting policy will be reflected on its total accrual. The total accrual can be defined as the difference of cash from operating activities and the accounting profit. Total accruals can be divided into two components: 1) the accruals components that cannot be controlled by management (normal accrual/non-discretionary accrual; NDA), and 2) the accruals component that can be controlled by management (abnormal accrual/discretionary accrual). The existence of earnings management can be detected from abnormal accrual/discretionary accrual.

Table 1. Summary of Literature Review

Accrual	Detection Models		Mathematical & Statistical Models
	Real Activities	Classification Shifting	
Jones [1991]	Stubben [2010]	MacVay [2006]	Hoglund [2010]
Dechow et al. [1995]	Eldenburg et al. [2011]		Kirkos et al. [2007]
Becker et al. [1998]	Roychowdhury [2006]		Ezazi et al. [2013]
Dechow et al. [2002]			
Peasnell et al. [2006]			

Sources: authors

Jones’ Model (1991) is one example of an earnings management detector using an accrual basis. Jones (1991) determines NDA as a function of changes in income and fixed assets (compared to the previous period). Later, he develops another model called “Modified Jones model”, which has the greatest statistical power than other models accrual (Dechow et al., 1995). Jones’ model is also applied in the cross-sectional version (Becker et al., 1998). Dechow et al. (2002) introduced a new measure for the quality of accrual and earnings. The quality of accrual is measured from the residual error of regression equation on changes in working capital for

operating cash flow last year, the current and next year. Peasnell et al. (2006) estimate the normal accrual of normal changes in working capital for one year.

Earnings management can also be done by manipulating some real activities of the company. This action is defined as a management act that deviates from the practice of business in general, with the main objective to meet certain earnings thresholds. In this case, some real activities include: 1) discretionary revenue, such as sales discount, loosening credit terms, channel stuffing, bill and hold sales and so on (Stubben, 2010), 2) non-operational activities and activities that do not generate revenue in the hospital (Eldenburg et al., 2011, 3) offering discount prices to increase sales on a temporary basis, 4) performing overproduction to lower the cost of goods sold, and 5) lowering discretionary expenses aggressively to increase profit margins (Roychowdhury, 2006).

Besides, earnings management can be executed by changing classification of existing accounts in the income statement (classification shifting). McVay (2006) tested the reclassification of items in the income statement as a way to perform earnings management. Furthermore, McVay (2006) reveals that the management has moved/shifted expenses of core expense (COGS, G & A expenses) to special items. This activity does not change the bottom line of the earnings, but it will make the core earnings higher/overstated. It indicates that management uses post reclassification way to meet the analysts' earnings targets in capital markets. This condition suggests that the unexpected core earnings are increasing on special items in the current year yet they could reverse in the future. This increase will reverse if there is no special item in the following year that can be taken for reclassification.

In addition, other researchers have been using several statistical methods and new mathematics procedures for detecting earnings management, such as Neural Networks (Hoglund, 2010), Trees decision (Kirkos et al., 2007), Bayesian Belief Network (Kirkos et al., 2007), Imperial Competitive Algorithm (ICA), and Support Vector Machine and Radial Bases Function (Ezazi et al., 2013). Kirkos et al., (2007) conclude that Bayesian Belief Network model has the best results in the classification with the accuracy rate prediction of 90.3%, followed by the method of Neural Network and Decision Tree with the accuracy rate of 80% and 73.6%. Ezazi, et al. (2013) predict earnings management by using some methods including: Imperial Competitive Algorithm (ICA), Support Vector Machine (SVM), and Radial Bases Function (RBF) combined with Particle Swarm Optimization (PSO). The research was conducted on 113 companies listed in Tehran Security Exchange in 2005-2011. The result showed that ICA has better performance results than the other two methods.

Based on those previous literatures, there is no research which concerns to detect earnings management from foreign exchange transactions yet. Hence, this study extends those previous studies, especially on developing models for detecting earnings management. In contrast to the previous research which mostly used accrual, real activity and classification shifting as a model to detect earnings management, this study is proposing foreign exchange loss (FEL) as the basis for detecting earnings management. The FEL model acknowledges the impact of external factors, namely changes in currency exchange rates and the desire of management to perform earnings management, which so far it has not been explored in the prior earnings management research. This study will apply multiple regression analysis.

Furthermore, this study will enrich the literature on earnings management, particularly related to the implementation of Positive Accounting Theory (PAT) in conjunction with debt. This study will also show that earnings management can be detected by FEL methods. According to PAT (Watts and Zimmerman, 1990), a company is considered as a collection of contracts (the nexus of contract), mainly the contracts to employees, suppliers and capital providers. PAT states that the chosen accounting policies are part of the company's efforts to minimize the cost of the contract and provide the best interests in maximizing the utility or manager. PAT has three hypotheses which is related to bonus plan, the debt contract, and the political cost. According to bonus plan hypothesis, managers are more likely to use accounting methods that increase the income report in current period. On the other hand, debt contract hypothesis states that firms with higher debt ratios are more likely to use accounting methods that increase the income. Likewise, political cost hypothesis assumes that large companies are more likely to choose accounting methods that reduced the reported profit than small firms. Foreign Exchange Loss model in this study will be relevant to debt contract and bonus plan hypotheses.

3. Conceptual Framework

The FEL models developed in this study is based on the following accounting equation:

$$\text{Ending balances of Long-term debt in foreign currencies (LTD End)} = \text{Beginning balances of Long-term debt in foreign currency (LTD Beg)} + \text{receipt of LTD} - \text{payment of LTD} + \text{FEL}.$$

Or it can be mathematically written as follows:

$$\begin{aligned} \text{LTD end} &= \text{LTD beg} + \text{receipt of LTD} - \text{repayment of LTD} + \text{FEL} \\ \text{FEL} &= (\text{LTD end}) - (\text{LTD beg}) - \text{receipt of LTD} + \text{repayment of LTD}, \text{ or} \\ \text{FEL} &= \Delta \text{LTD} - \text{Cash Flow of LTD} \dots \dots \dots \text{(Equation 1)} \end{aligned}$$

Equation 1 is made in order to estimate the normal values of FEL. From equation (1), FEL function can be derived by the change of long term debt (LTD), and its cash flows. Below is the regression equation:

$$FEL_t = \beta_0 + \beta_1 \Delta LTD_t + \beta_2 \text{Cash Flow LTD}_t + \varepsilon_t \dots \dots \dots \text{(Equation 2)}$$

Change of Long Term Debt (ΔLTD) is the difference of the ending balance Long Term Debt in Financial Statement and the beginning balance. The cash flow of Long Term Debt (*Cash Flow LTD*) is how much cash used to repay Long Term Debt deducted with cash received from Long Term Debt. The Values of Long Term Debt change may not be equal to the Long Term Debt cash flow because Long Term Debt is stated in units of foreign currency. In this situation, exchange differences will possibly occur at the end of period balance sheet date, whereas repayment and borrowing rates will likely prevail on the transaction date.

Equation (1) shows that FEL is a function of LTD change and cash flow of LTD. The greater the ΔLTD , the greater FEL. It also makes the revenues derived from LTD (cash flow LTD) become greater and will reduce the FEL. Finally, the greater the repayment, the FEL will be increasing. This can be illustrated as follows:

Table 2. Illustration 1: FEL, with no repayment

	USD	Currency	Rupiah
Beg. Balance	10.000	10.000	100.000.000
Repayment	0	0	0
FEL			20.000.000
End. Balance	10.000	12.000	120.000.000

Table 3. Illustration 2: FEL, with repayment

	Case 1			Case 2		
	USD	Curr	Rupiah	USD	Curr	Rupiah
Beg Balance	10.000	10.000	100.000.000	10.000	10.000	100.000.000
Repayment	(7.000)	11.000	(77.000.000)	(7.000)	10.000	(70.000.000)
FEL			13.000.000			6.000.000
End Balance	3.000	12.000	36.000.000	3.000	12.000	36.000.000

Illustration (1) summarizes long term debt transaction with an initial balance of USD 10,000 and there is no repayment during the period. Assuming the exchange rate rose from USD 1 = 10,000 at the beginning of the period to USD 1 = Rp 12,000 at the end of the period, the company recognizes FEL as Rp 2,000/USD or equal to Rp 20,000,000. This illustration concludes that if there is no repayment, the increase of LTD (ΔLTD) = FEL.

Illustration (2) describes long term debt transactions with an initial balance of USD 10,000 and there is a repayment during the period amounted to USD 7,000. Assuming the exchange rate rose from USD 1 = 10,000 at the beginning of the period to USD 1 = Rp 12,000 at the end of the period, in one case the company repaid when the exchange rate of USD 1 = Rp11,000, therefore the companies recognize FEL Rp 13,000,000. , In the second case, the company repaid when the exchange rate of USD 1 = 10,000 so that companies recognize FEL Rp 6,000,000. It can be concluded that, if the repayment is done at a lower rate, the company will recognize the lower FEL. Exchange rate differences may occur when there is repayment led to the recognition of different FEL.

If the management does not take any action to determine the level of FEL in an income statement, the FEL value will be the same as the results of mathematical equations above. On the contrary, if the management performs an earnings management on FEL, its amount in income statement will not be as same as the results of the mathematical equations. In Illustration 1, the management capitalised FEL of Rp 15,000,000, the amount of FEL reported in the income statement will be different as much as Rp. 5,000,000, which finally increase company's profit. This kind of management action in the regression equation model of FEL will be detected as the residual error (ε_t).

From equation (1), FEL function can be derived by the change of long term debt (LTD), and its cash flows. Below is the regression equation:

$$FEL_t = \beta_0 + \beta_1 \Delta LTD_t + \beta_2 \text{Cash Flow LTD}_t + \varepsilon_t \dots \dots \dots \text{(Equation 2)}$$

All the variables are divided by the average of total assets in order to apply equal weight among companies. Residual error (ε_t) refers to FEL changes which are not caused by long term debt (LTD) and Cash Flow. It is apparently a management action/earnings management which determines the level of FEL to subsequently impact on earnings. The greater the residual error (ε_t), the greater management actions to influence the FEL in the income statement. Thus, it can be hypothesized that the residual error (ε_t) FEL models simply can be used to detect the presence of earnings management.

4. Research Methods

The unit analysis of this research is the financial statements of public companies listed on Indonesia Stock Exchange (IDX). The research instrument is observation done to each public company financial statements to determine the amount of assets, long term debt, cash flow for repayment or from long term debt, foreign exchange losses and the amount of operating income. The data consist of statements of financial

position, income statement and cash flow statement. The unit of analysis was chosen because it requires data of financial statement which is published without any confidentiality. Besides, the public company financial statements were also audited by public accountants, which makes this report a source of reliable data.

This research applies a quantitative approach using secondary data of financial statements. This approach was selected to fit the aim of this study i.e. to develop model of management's actions to affect earnings by FEL account and then use these models to prove that the actions will occur along with the expanding of long term debt (LTD) and decreasing operating income.

The population of this research was 200 public companies; which consists of 50 companies with the largest market capitalization, 50 of the most active companies based on trading volume, 50 of the most active companies based on the trading value and 50 of the most active companies by frequency trading. This selection is based on statistical reports of IDX 2013. The selection of this population is based on the arguments that the market capitalization of the company indicates size of the company, and this variable has a significant effect on earnings management (Siregar and Utama, 2006), while the activities of public company definitely will catch many investors' attention of the market. The sample selection is done by purposive sampling with these following criteria: a) the company is not classified in financial industry of banking & financial institution, since such industry has different characteristics from other industries in general; b) the company uses the reporting currency of dollars; c) the company reports long-term debt (LTD) or FEL; d) the financial statement data are completely available in IDX website 2009-2013; and e) the company does not change the reporting entity.

FEL model is analyzed by using sample data from 2009 to 2013. During those years, Rupiah has been depreciated 27% against the US dollar (USD lowest selling rate Rp 9.682, and the highest rate Rp. 12.331; (www.bi.go.id). Depreciation of the Rupiah is also the pressure for managers who have liabilities in foreign currencies, especially in the USD, since the company must recognize FEL.

The variables used in this research are FEL (Foreign Exchange Gain/Loss), change of long term debt (LTD), and cash flow from LTD. Since the amount of cash flow from financing activities includes the amount of the cash flows from equity transactions. In this study, the determination of LTD Cash Flows is manually calculated by identifying amount that is only associated to LTD. The data analysis was conducted by multiple regressions. The model's ability to explain variables is indicated from R^2 , the results of significance test (F test) and the direction of the relationship is defined in equation (2) above.

5. Result and Discussion

From the population of 200 companies, 87 companies have met all four-population criteria. They include 27 banks and financial institutions, 13 companies using the reporting currency of USD, 18 companies not reporting LTD or FEL, 12 companies not completely preparing their financial statements for the period 2009-2013 in website IDX, and 1 company changing its reporting entity. Finally, there are only 42 companies meeting the research sample's criteria.

To test whether FEL model could be used to predict the earnings management by FEL, this research used the financial statement data during 2009 - 2013 (5 years) of 42 companies, thus it turns to be 210 financial statements. Three companies did not have financial statements completely in IDX website (Tower Bersama Infrastructure Tbk, PP (Persero) Tbk, Langgeng Makmur Industri Tbk) in 2008, so the final sample processed was 207 financial statements. Results of regression to equation (2) above used the data from company financial statements, showing the results of R^2 11.0%, the value of F 12.998 with the P value of 0.000. This means other variables of Long Term Debt and Cash Flow Long Term Debt (ΔLTD_t and Cash Flow LTD) still exist, but the P values indicate that these variables significantly affect FEL.

T test results are as follows:

Table 4. Result of $FEL_{i,t} = \beta_0 + \beta_1 \Delta LTD_{i,t} + \beta_2 \text{Cash Flow LTD}_{i,t}$

	Constanta (β_0)	Coefficient $\Delta LTD_{i,t}(\beta_1)$	Coefficient Cash Flow LTD _{i,t} (β_2)
Coefficient	- 0,001	0,153	0,125
t value	- 0,963	5,006	4,145
p value	0,337	0,000	0,000

Source: Regression result

Table 4 points out that the ability of LTD changes and cash flows of LTD explain that FEL is 11.0%. This also indicates that there are other variables besides FEL and LTD cash flows which influence FEL. Other variables that might influence are the monetary assets and short-term monetary liabilities expressed in foreign currency. The results also show that, either simultaneously or partially; the changes of LTD and cash flows of LTD affect the FEL (p-value <0.05). Therefore, the model of FEL (2) can be used to predict earnings management by using FEL (EM_{FEL}).

After knowing the ability of FEL model, we tested this model to each company using data in 2008-2013. We required the data in 2008 to calculate ΔLTD in 2009. The regression results of each company using the 2008-2013 financial statement data of each company are presented in Table 5.

Table 5. Regression: $FEL_t = \beta_0 + \beta_1 \Delta LTD_t + \beta_2 \text{cash flowLTD}_t$ each company .

No	Companies	R ²	Constant (β_0)	Coefficient $\Delta LTD_t(\beta_1)$	Coefficient of Cash flow LTD (β_2)
1	Astra International Tbk	92,6%	0,000	0,121*	0,146**
2	HM Sampoerna Tbk	4,9%	0,000	0,117	0,122
3	Telekomunikasi Indonesia (Perseroan) Tbk	80,7%	-0,004	0,089	0,272
4	Semen Indonesia (Perseroan) Tbk	8,7%	0,001	-0,030	-0,037
5	United Tractors Tbk	93,0%	-0,01**	0,705**	0,685**
6	Indofood CBP Sukses Makmur Tbk	47,5%	-0,002	0,654	0,609
7	Indofood Sukses Makmur Tbk	98,5%	0,003*	0,381*	0,279
8	Charoen Pokphand Indonesia Tbk	99,8%	-0,002*	2,666***	2,748***
9	XL Axiata Tbk	82,8%	0,002	0,190	0,060
10	Media Nusantara Citra Tbk	97,6%	0,002	1,267**	1,182**
11	Elang Mahkota Teknologi Tbk	82,0%	0,003	-0,118	0,254
12	Sarana Menara Nusantara Tbk	92,4%	-0,028	1,292**	1,141**
13	Tower Bersama Infrastructure Tbk	12,7%	0,035	-0,069	-0,015
14	Global Mediacom Tbk	63,0%	-0,008	0,567	0,001
15	Mayora Indah Tbk	93,0%	-0,003	8,087**	8,038*
16	Bumi Serpong Damai Tbk	53,3%	0,000	0,047	0,117
17	Lippo Karawaci Tbk	57,7%	0,003	-0,042	0,058
18	Indosat Tbk	97,4%	-0,011**	0,039	0,277**
19	SMART Tbk	18,5%	0,005	-0,068	0,096
20	Astra Otoparts Tbk	94,9%	0,000	-1,541**	-1,556**
21	AKR Corporindo Tbk	62,9%	-0,018*	-0,323	-0,311
22	Holcim Indonesia Tbk	59,1%	-0,010	0,376	0,458
23	Nusantara Infrastructure Tbk	79,7%	0,001	0,006	-0,177
24	Alam Sutera Realty Tbk	100,0%	0,000	0,306***	0,317***
25	Bakrieland Development Tbk	83,9%	0,001	-0,016	-0,105
26	Pakuwon Jati Tbk	62,4%	0,004	-0,069	-0,190
27	Kawasan Industri Jababeka Tbk	98,4%	-0,001	0,983**	0,942***
28	Modernland Realty Tbk	86,0%	0,001	-0,398	-0,323
29	Bakrie Telecom Tbk	97,1%	0,017	1,048**	1,104**
30	Exploitasi Energi Indonesia Tbk	31,8%	-1,664E-5	-0,040	-0,040
31	PP (Persero) Tbk	15,3%	-0,001	-0,069	-0,050
32	Sierad Produce Tbk	56,9%	-0,006	0,035	-0,036
33	Nusa Konstruksi Enjiniring Tbk	35,4%	0,000	0,116	0,097
34	Ciputra Development Tbk	94,8%	0,010**	-0,266	-0,053
35	Matahari Putra Prima Tbk	84,1%	9,745E-6	-0,007*	-0,006*
36	Indomobil Sukses Internasional Tbk	90,9%	-0,006	0,074*	0,007
37	Wijaya Karya (Persero) Tbk	19,3%	-0,002	0,061	0,022
38	Adhi Karya (Persero) Tbk	90,1%	-0,001	-0,178	-0,076
39	Summarecon Agung Tbk	45,2%	-0,001	-0,054	-0,061
40	Surya Semesta Internusa Tbk	25,1%	-0,005	0,361	0,349
41	Aneka Tambang (Persero) Tbk	68,0%	0,009	-0,228	-0,163
42	Langgeng Makmur Industri Tbk	81,7%	0,043	-0,481	0,001

Notes: * sig 0,1, ** sig 0,05, ***sig 0,01

Table 5 reveals mixed results when the current FEL model is applied to each company. However, in average it shows high level of R². Furthermore, the coefficients in Table 2 are used to calculate the residual errors value of (ϵ_t) FEL models, as a proxy of earnings management by using FEL (EM_{FEL}).

The Proxy of earnings management from FEL can be used to test some hypotheses based on "positive accounting theory" (Watt and Zimmerman, 1990), such as:

- Companies that have large portion of LTD tend to use FEL as a means of earnings management to avoid breaching debt covenants in the agreement.
- Companies with a poor operating profit use FEL as a means of earnings management to meet the net income target.

6. Conclusion and Limitations.

This research proves that the model of FEL (equation 2) can predict earnings management using foreign exchange losses (EM_{FEL}). This model explains that FEL is a function of changes in long-term debt (ΔLTD) and cash flows from long-term debt or used to repay long-term debt (LTD Cash Flow). Therefore, normal FEL can be predicted by using ΔLTD and Cash Flow LTD. However, the value of the residual error of the model shows that FEL is not caused by ΔLTD and Cash Flow LTD. Such FEL is an indication of earnings management performed by manager to utilize the profit/loss on foreign exchange transaction.

To test whether managers have performed such earnings management, this research uses two hypotheses of positive accounting theory (PAT), i.e. the bonus plan hypothesis and the debt covenant hypothesis.

According to bonus plan hypothesis, if the manager's performance is measured by using a net profit figure, the manager will perform earnings management that magnifies the net income. When the operating profit is lower, the manager will do an earnings management to increase net income, one of which is by lowering the foreign exchange losses. There is a relationship between the decline in operating profit to foreign exchange losses.

The debt covenant hypothesis explains that manager would avoid the violation of covenants in debt agreements (debt contract) because those will lead to sanctions from the creditor. Thus, an earnings management can be used as a management tool to reduce the possibility of violations of covenants in debt agreements. In another words, a company with a high long-term debt would put pressures on manager to manage earnings. The higher the amount of long-term debt, the higher possibility of managers to do an earnings management (to increases net income as well as to lower the foreign exchange losses). In other words, there is a negative correlation between the magnitude of long-term debt and foreign exchange losses.

The model proposed in this study has limitations; i.e. 1] it needs information of FEL, changes in long-term debt (Δ LTD) and cash flows from long-term debt or used to repay long-term debt (LTD Cash Flow) that must be presented and disclosed in financial statements, 2] this study only proposed new model, which can be applied for further research.

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