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Measurement of Financial Information Manipulation with the Help of Beneish Model: A Research on BIST Manufacturing Industry

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Extensive Summary

Introduction

Financial reports which are provided by publicly traded firms are arranged on an accrual basis except the cash flow statement. According to the accrual-based accounting, the financial position and the financial performance of the business is determined by the period that income and expense factors occurred. This aspect of the accrual-based approach offers an opportunity to make financial information manipulation. However, businesses that follow the international accounting standards can also use the subjective evaluations caused by the principle-based accounting implementations as a tool for accounting manipulation.

In this study, the financial data of 91 manufacturing industry's companies traded on the Istanbul Stock Exchange is used. The studying aims at determining the possibility of these companies doing financial manipulation. The study has tried to obtain more information about the source of the possibility of the financial information manipulation.

Methodology

The Beneish model (1999) is used as a research method. Eight independent variables have been determined for this model. The Beneish Model provides information about the possibility that a company has applied the accounting manipulation in a specific period. Variables of the model are as follows:

- Days' Sales in Receivables Index (DSRI)
- Gross Margin Index (GMI)
- Asset Quality Index (AQI)
- Sales Growth Index (SGI)
- Depreciation Index (DEPI)
- Sales, General and Administrative Expenses Index (SGAI)
- Leverage Index (LVGI)

- Total Accruals to Total Assets (TATA)

These eight variables are transferred to the following model and thus a value that provides information of the possibility about the existence of manipulation is obtained.

M_i= -4,840 + (0,920xDSRI) + (0,528xGMI) + (0,404xAQI) + (0,892xSGI) + (0,115xDEPI) + (-0,172xSGAI) + (4,679xTATA) + (-0,327xLVGI)

In this study, M_i values are calculated with the help of the Beneish Model for each company examined. After, these values are tested for compliance with the normal distribution. Since, it is determined that the M_i values comply with the normal distribution, these values are transformed to standard normal distribution Z_i values. Analyzing the results, it is assessed that the companies of which standard normal distribution transfer values are greater than 0,035 have the possibility of doing accounting manipulation.

In the next step of the study, the validity of the findings is tested with the help of the logistic regression model. Besides; the effect of Beneish model variables on the possibility of accounting manipulation of any company is also investigated.

Findings and Discussions

As a result of this study, in 2014, it is determined that 45 of 91 companies have the possibility of doing financial information manipulation in their financial reports. This result is also analyzed with the Logistic Regression Model. Consequently, it is determined that the results are estimated correctly approximately by the level of 90%.

While applying the Logistic Regression Model, the variables that cause multicollinearity problem have been removed from the Beneish model (1999). Thus, the Logistic Regression Model has been estimated with six variables.

Model's estimated results are as follows:

		Coefficient	Standard Error	Wald Test	Degree of Freedom	Significance Level
Step 1	DSRI	7,770	3,016	6,638	1	,010
	GMI	7,171	2,747	6,816	1	,009
	EQI	5,447	1,697	10,309	1	,001
	DEPI	-,984	1,654	,354	1	,552
	SGAI	-4,687	3,529	1,764	1	,184
	TATA	66,124	16,756	15,573	1	,000
	Sabit	-12,230	6,456	3,588	1	,058
Cox & Snell R-Square= 0,59 ve Nagelkerke R-Square= 0,78						

The variables that are statistically not significant have been discarded from the model. Final model is formed to be able to do coefficient review as follows:

$\ln P_i/(1-P_i) = 7,77DSRI+7,171GMI+5,447EQI+66,124TATA$

According to results of the Logistic Regression Model; it is determined that the variables of "days' sales in receivables index" (DSRI), "gross margin index" (GMI), "asset quality index" (AQI) and "total accruals to total assets" (TATA) have positive effects on the possibility of doing accounting manipulation for any company. In addition to this; it is also determined that total accruals to total assets (TATA) variable has highest impact compared to the other exa