研究テーマ

有価証券報告書の訂正報告書と不適切会計処理

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WHAT TRIGGERS INAPPROPRIATE ACCOUNTING? : EVIDENCE FROM JAPAN

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THE BACKGROUND OF THIS STUDY

- A listed company with a qualified opinion is scarce in Japan. **From 2011 to 2017**, only **three companies** received **qualified** opinions, and **fifteen companies** for **adverse opinions or disclaimers** have been delisted from the stock market.
- **A lot of companies have received unqualified opinions** with no paragraph or unqualified opinions adding explanatory paragraph. Even though audit reports have given the green light to many companies, **the accounting scandals** including but not limited to Olympus Corporation scandal in 2011 **have been uncovered continuously.**

THE PURPOSE OF THIS STUDY

- This study focuses on **the financial condition where the firms stumble into inappropriate accounting.**
- To define the inappropriate accounting in this paper, I search for whether the negative words such as inappropriate accounting or improper accounting are used in the submission reason part of all the amended reports. Companies are supposed to clarify the reason for submitting the amended reports of annual securities reports when their errors or fraudulent financial reporting are unmasked.
- This paper raises the following research questions: **under which condition do the firms stumble into violating GAAP compared to the other firms?** What was the trigger for companies to lead to inadequate accounting? **Was the company affected by the number of subsidiaries in inappropriate accounting?**
- This study gives some valuable insights to information users by investigating amended reports.

PREVIOUS STUDIES

- **Beneish (1999)** is regarded as a pioneer. Beneish (1999) develops a Probit model to predict misstatements by analyzing financial ratio variables. He identifies 74 firms and matches the control sample on industry and year.
- **Dechow et al. (2011)** examines the accounting misstatement extensively and develop a prediction model on misstatements. They used COMPUSTAT data as it is because one of the nine firms' financial data on COMPUSTAT has been updated with restated figures by random selection investigation.
- **Okumura (2014)** comprehensively investigates misstatements and identifies the features of misstatement firms as well as the association with the stock price.
- **Song et al. (2016)** examines the fraud companies in Japan and develops a prediction model, following the analysis procedure by Dechow et al. (2011). Song et al. (2016) analyze a model for predicting accounting fraud, using the original financial data instead of the restated financial figures.

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SAMPLE SELECTION & FEATURES OF DATA

- To define the inappropriate accounting in this paper, I search for whether the **negative words** such as **inappropriate accounting** are used in the submission reason part of all the amended annual securities reports.
- **For the amended reports** of a **yearly** securities report in Japan, I retrieved the data from the **EOL database** of the Pronexus company.
- I retrieved the **consolidated financial data** of all the listing companies in the Tokyo stock exchange from **Nikkei QUICK Astra Manager**, eliminating financial services companies.

Table 1. Firm-years Frequency by industry

Panel 1. Firm-years frequency by GAAP

	Un-consolidated	JGAAP	US-GAAP	IFRS	Total
Fishery, Agriculture & Forestry	0	20	0	0	20
Mining	0	21	0	0	21
Construction	25	425	0	0	450
Foods	57	340	4	4	405
Textiles & Apparels	9	201	4	0	214
Pulp & Paper	0	63	0	0	63
Chemicals	46	628	4	2	680
Pharmaceutical	22	126	0	13	161
Oil and Coal Products	8	35	0	0	43
Rubber Products	4	64	0	0	68
Glass & Ceramics Products	19	122	0	7	148
Iron & Steel	8	146	0	1	155
Nonferrous Metals	16	106	0	0	122
Metal Products	44	238	0	0	282
Machinery	97	609	12	1	719
Electric Appliances	32	702	49	14	797
Transportation Equipment	14	280	7	5	306
Precision Instruments	5	133	0	4	142
Other Products	24	260	0	0	284
Electric Power & Gas	0	84	0	0	84
Land transportation	8	181	0	1	190
Marine transportation	0	44	0	0	44
Air Transportation	3	14	0	0	17
Warehousing & Harbor Transportation Services	9	133	0	0	142
Information & Communications	131	583	15	6	735
Wholesale Trade	48	794	3	18	863
Retail Trade	171	683	0	4	853
Real Estate	25	250	0	3	278
Services	121	627	0	8	756
Others	133	0	0	0	133
(missing)	195	207	0	8	410
No amended reports	1259	7979	95	101	9434
Submitting amended reports	15	138	8	0	161
Total	1274	8117	103	101	9595

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Panel 2. Firm-years frequency of submitting amended reports under JGAAP (continued)

	No amended reports	Submitting amended reports	The number of firms reflecting restated figures	Total
Fishery, Agriculture & Forestry	20	0	-	20
Mining	21	0	-	21
Construction	411	14	(2)	425
Foods	339	1	(1)	340
Textiles & Apparels	194	7	(1)	201
Pulp & Paper	59	4	-	63
Chemicals	620	8	(3)	628
Pharmaceutical	126	0	-	126
Oil and Coal Products	35	0	-	35
Rubber Products	60	4	(3)	64
Glass & Ceramics Products	121	1	-	122
Iron & Steel	142	4	(1)	146
Nonferrous Metals	106	0	-	106
Metal Products	235	3	-	238
Machinery	601	8	(4)	609
Electric Appliances	694	8	(1)	702
Transportation Equipment	273	7	(1)	280
Precision Instruments	132	1	-	133
Other Products	255	5	(2)	260
Electric Power & Gas.	84	0	-	84
Land transportation	176	5	(2)	181
Marine transportation	44	0	-	44
Air Transportation	12	2	(1)	14
Warehousing & Harbor Transportation Services	133	0	-	133
Information & Communications	574	7	(2)	581
Wholesale Trade	[illegible]	[illegible]	(4)	794
Retail Trade	668	15	(2)	683
Real Estate	250	0	-	250
Services	612	15	(4)	627
Others	-	-	-	-
(missing)	205	2	-	207
Total	7979	138	33	8117

Note: The number of ( ) indicates the numbers of firms, which restated their financial statements. This paper treats the first year applying the restated figure in the amended reports as the year of the experimental group

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Table 2. Distribution of firms restating its financial statements by calendar year

year	Firms	Percentage	Cumulative Percentage
2011	8	24.24	24.24
2012	10	30.30	54.55
2013	4	12.12	66.67
2014	11	33.33	100.00
Total	33	100.00	

- **Less than three companies** had submitted the amended reports and restated its financial statements for improper accounting between 2015-2017.
- The social demands had led the Japan Federation of Bar Associations (JFBA) to declare the **"Guidelines for third-party committees in corporate scandals (企業等不祥事における第三者委員会ガイドライン)" in 2010**. This kind of social demands led the companies with scandals to launch the **third-party committee** for the investigation and **delineate the submission reason** in the amended reports **more in detail** than ever before.

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FEATURES OF DATA

- This study mainly focuses **on the first year of companies with restated financial numbers under J-GAAP**, and a sample of 33 companies was selected.
- Nikkei QUICK Astra Manager database **backfills** misstated financial numbers **retroactively.**
- I checked and compared the Nikkei database with the amended reports and found that **some of the financial figures are not fully overwritten retroactively** with restated data of amended reports. I overwrote the old data of four to five companies with restated ones in this case.
- I define 33 companies as state=1 **for the experimental group.**
- **For the control group,** I collect the companies which have never submitted amended reports for GAAP violations. The control sample is matched on **year, industry, and performance (ROA) and the asset size**, using the propensity score matching method.

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- EMPIRICAL RESULTS
- CONCLUSIONS AND LIMITATIONS

EXPLANATORY VARIABLES AND HYPOTHESIS

- This paper benchmarks the financial variables of Beneish (1999) and focuses on the financial condition where the firms stumble into inappropriate accounting.

$$State = \beta_1 + \beta_2 DSRI + \beta_3 GMI + \beta_4 AQI + \beta_5 SGI + \beta_6 DEPI + \beta_7 SGAI + \beta_8 LVGI + \beta_9 TATA + \varepsilon$$

- I make the hypothesis to check whether **the number of subsidiaries** affected the misstatement of inappropriate accounting. According to the Nihon-keizai newspaper (2020/1/24), Tokyo Shoko Research center announced on the 24th that 70 companies disclosed improper accounting in 2019. It exceeded 57 companies in 2016 and became the highest since 2008 when this survey started.

Table 3. Definitions of the Variables

Variable	Definition
DSRI	$\frac{Receivables_t/Sales_t}{Receivables_{t-1}/Sales_{t-1}}$
GMI	$\frac{(Sales_{t-1} - Cost\ of\ goods\ sold_{t-1})/Sales_{t-1}}{(Sales_t - Cost\ of\ goods\ sold_t)/Sales_t}$
AQI	$\frac{1 - (\text{Current assets}_t + PP\&E_t)/Total\ assets_t}{1 - (\text{Current assets}_{t-1} + PP\&E_{t-1})/Total\ assets_{t-1}}$
SGI	$\frac{Sales_t}{Sales_{t-1}}$
DEPI	$\frac{Depreciation_{t-1}/(Depreciation_{t-1} + PP\&E_{t-1})}{Depreciation_t/(Depreciation_t + PP\&E_t)}$
SGAI	$\frac{(Sales,\ general,\ and\ administrative\ expense_t - Depreciation_t)/Sales_t}{(Sales,\ general,\ and\ administrative\ expense_{t-1} - Depreciation_{t-1})/Sales_{t-1}}$
LVGI	$\frac{(LTD_t + Current\ liabilities_t)/Total\ assets_t}{(LTD_{t-1} + Current\ liabilities_{t-1})/Total\ assets_{t-1}}$
TATA	$\frac{(net\ income_t - extraordinary\ gains_t + extraordinary\ losses_t) - operating\ cashflows_t}{Total\ assets_t}$

Note: These financial variables follow Beneish (1999, p.27): DSRI is Day's Sales in Receivable Index. GMI is Gross Margin Index. AQI is Asset Quality Index. SGI is Sales Growth Index. DEPI is DEPreciation Index. SGAI is Sales, General, and Administrative Expense Index. LVGI is LeVeraGe Index. TATA is Total Accruals to Total Assets. This study calculates total accruals based on the Cash flow statement.

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Table 4. Descriptive Statistics Using Restated Data of the Experimental Group

Panel 1. Experimental group using restated financial data (n=33)

Variable	count	mean	s.d.	min	max	median
Log(total assets)	33	10.63	1.344	7.412	13.83	10.81
Log(market value)	32	9.728	1.239	7.430	12.32	9.887
ROA	33	4.063	4.846	-9.168	14.29	3.637
DSRI	33	1.059	0.310	0.748	2.581	0.994
GMI	33	0.975	0.198	0.320	1.629	0.988
AQI	33	0.959	0.163	0.643	1.532	0.945
SGI	33	1.055	0.169	0.620	1.576	1.057
DEPI	33	1.041	0.275	0.775	2.374	0.967
SGAI	33	1.061	0.196	0.716	1.885	1.009
LVGI	33	1.021	0.104	0.805	1.335	1.009
TATA	33	-0.0503	0.113	-0.574	0.122	-0.0285
consol_subsidiary	33	14.76	12.31	1	55	12
pooling_non_consol	33	2.061	2.896	0	12	1

Panel 2. Control group: One to one matching (n=33)

Variable	count	mean	s.d.	min	max	median
Log(total assets)	33	10.75	1.582	6.930	14.59	10.88
Log(market value)	33	9.649	1.698	6.435	13.57	9.757
ROA	33	4.322	4.575	-11.61	20.62	3.927
DSRI	33	1.020	0.189	0.491	1.420	0.991
GMI	33	1.064	0.169	0.895	1.862	1.022
AQI	33	1.001	0.180	0.402	1.366	1.005
SGI	33	1.018	0.110	0.574	1.161	1.017
DEPI	33	1.020	0.116	0.727	1.250	1.014
SGAI	33	1.032	0.131	0.773	1.616	1.005
LVGI	33	1.024	0.180	0.711	1.879	0.979
TATA	33	-0.0311	0.0403	-0.124	0.0710	-0.0243
consol_subsidiary	33	14.30	14.39	1	62	9
pooling_non_consol	33	3.394	5.841	0	24	1

Table 6. Pairwise Correlations Matrix

Panel 1. Experimental group (n=33)

Variables	(DSRI)	(GMI)	(AQI)	(SGI)	(DEPI)	(SGAI)	(LVGI)	(TATA)
DSRI	1.000							
GMI	0.203	1.000						
AQI	-0.030	0.380**	1.000					
SGI	0.136	0.111	0.228	1.000				
DEPI	0.880***	0.000	-0.192	0.240	1.000			
SGAI	-0.295*	-0.042	0.152	-0.008	-0.231	1.000		
LVGI	0.087	0.381**	0.049	0.380**	0.148	0.186	1.000	
TATA	0.311*	0.231	0.345**	-0.008	0.223	-0.219	-0.349**	1.000

Panel 2. Control group: One to one matching (n=33)

Variables	(DSRI)	(GMI)	(AQI)	(SGI)	(DEPI)	(SGAI)	(LVGI)	(TATA)
DSRI	1.000							
GMI	0.507***	1.000						
AQI	0.110	0.211	1.000					
SGI	-0.331*	-0.724***	-0.055	1.000				
DEPI	-0.108	-0.122	-0.056	-0.014	1.000			
SGAI	0.152	0.745***	0.102	-0.643***	-0.138	1.000		
LVGI	0.210	0.220	0.009	-0.053	-0.085	0.036	1.000	
TATA	0.126	0.002	0.362**	0.128	-0.088	0.016	-0.409**	1.000

Table 7. Coefficient and Marginal Effect Posterior Means and Standard Deviations from Probit Model

	One to one matching		2-nearest neighbor matching	
	Coefficient mean/ s.e.	Marginal effect mean/ s.e.	Coefficient mean/ s.e.	Marginal effect mean/ s.e.
DSRI	1.963*	0.783*	1.813*	0.648*
	(1.114)	(0.444)	(0.929)	(0.331)
GMI	-2.818**	-1.123**	-1.678*	-0.600*
	(1.381)	(0.549)	(0.918)	(0.329)
AQI	-0.602	-0.240	0.220	0.079
	(1.064)	(0.424)	(0.924)	(0.330)
SGI	1.440	0.574	0.887	0.317
	(1.466)	(0.584)	(1.026)	(0.366)
DEPI	-1.088	-0.434	-1.003	-0.359
	(1.253)	(0.500)	(1.019)	(0.363)
SGAI	2.547	1.015	0.254	0.091
	(1.589)	(0.632)	(0.549)	(0.196)
LVGI	-0.119	-0.048	0.676	0.241
	(1.283)	(0.511)	(1.116)	(0.398)
TATA	-0.976	-0.389	-2.852	-1.020
	(2.967)	(1.182)	(2.473)	(0.889)
Constant	-1.490		-1.745	
	(2.765)		(1.293)	
Observations	66	66	99	99
Pseudo R^2	0.0841		0.1192	

Note: *** indicates significance at the 1% level; ** indicates significance at the 5% level; * indicates significance at the 10% level. The one-to-one matching method above chooses the nearest neighbor without replacement. The 2-nearest neighbor matching method permits replacement, with two firm/year duplicated observations.

Table 8. Coefficient with Additional Independent Variables from Probit Model

	One to one matching mean/ s.e.		2-nearest neighbor matching mean/ s.e.	
DSRI	1.877*	(1.100)	1.788*	(0.918)
GMI	-2.732**	(1.389)	-1.679*	(0.927)
AQI	-0.330	(1.120)	0.371	(0.955)
SGI	1.284	(1.487)	0.814	(1.057)
DEPI	-0.727	(1.298)	-0.873	(1.025)
SGAI	2.527	(1.580)	0.367	(0.584)
LVGI	0.000	(1.284)	0.715	(1.134)
TATA	-1.138	(2.961)	-2.821	(2.477)
consol_sub	0.016	(0.017)	0.012	(0.013)
pooling_sub	-0.070	(0.056)	-0.062	(0.045)
Constant	-2.122	(2.800)	-2.093	(1.512)
Observations	66		99	
Pseudo R^2	0.1408		0.1021	

Note: *** indicates significance at the 1% level; ** indicates significance at the 5% level; * indicates significance at the 10% level.

EMPIRICAL RESULTS (CONT'D)

- By now, this paper has primarily used the restated data for the experimental group.
- Lastly, I checked whether this model is capable of **predicting inappropriate accounting by using the original financial data** before amended reports.

Table 5. Descriptive Statistics Using the Original data on the Experimental Group

Panel 1. Experimental group using original financial data (n=33)

Variable	count	mean	s.d.	min	max	median
Log(total assets)	33	10.63	1.345	7.346	13.83	10.81
Log(market value)	32	9.728	1.239	7.430	12.32	9.887
ROA	33	4.738	4.583	-9.207	15.07	4.672
DSRI	33	1.076	0.357	0.785	2.910	1.005
GMI	33	0.964	0.216	0.320	1.638	0.986
AQI	33	0.967	0.162	0.677	1.559	0.965
SGI	33	1.065	0.171	0.620	1.583	1.063
DEPI	33	1.053	0.513	0.775	2.626	0.967
SGAI	33	1.059	0.190	0.836	1.848	1.006
LVGI	33	1.008	0.0958	0.806	1.333	1.005
TATA	33	-0.0444	0.104	-0.502	0.122	-0.0281
consol_subsidiary	33	14.76	12.31	1	55	12
pooling_non_consol	33	2.061	2.896	0	12	1

Panel 2. Corresponding control group: One to one matching (n=33)

Variable	count	mean	s.d.	min	max	median
Log(total assets)	33	10.82	1.373	8.595	14.59	10.80
Log(market value)	33	9.758	1.491	7.254	13.57	9.749
ROA	33	4.720	6.040	-11.61	23.12	3.184
DSRI	33	1.030	0.138	0.775	1.420	1.009
GMI	33	1.010	0.221	0.451	1.862	0.978
AQI	33	0.992	0.126	0.513	1.324	0.983
SGI	33	1.071	0.158	0.574	1.552	1.058
DEPI	33	0.989	0.101	0.779	1.190	0.985
SGAI	33	1.020	0.149	0.811	1.616	0.991
LVGI	33	0.986	0.0899	0.716	1.155	0.990
TATA	33	-0.0286	0.0459	-0.183	0.0481	-0.0279
consol_subsidiary	33	18.30	31.30	1	173	8
pooling_non_consol	33	3.212	8.813	0	48	1

Table 9. Coefficient from Probit Model Using the Original Financial data

	One to one matching mean/ s.e.		2-nearest neighbor matching mean/ s.e.	
DSRI	-0.071	(1.136)	0.672	(1.018)
GMI	-1.245	(0.957)	-0.845	(0.770)
AQI	-0.874	(1.257)	-0.288	(0.964)
SGI	-0.596	(1.173)	0.600	(1.013)
DEPI	1.193	(1.292)	0.862	(1.160)
SGAI	1.617	(1.358)	1.328	(0.917)
LVGI	2.013	(2.108)	1.022	(1.572)
TATA	-0.349	(2.680)	-2.319	(2.280)
Constant	-2.104	(2.688)	-3.951	(2.650)
Observations	66		99	
Pseudo R^2	0.0724		0.0851	

Note: *** indicates significance at the 1% level; ** indicates significance at the 5% level; * indicates significance at the 10% level.

➢ it is impossible to predict inappropriate accounting with these financial indicators of this model.

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CONCLUSIONS

- Under which condition do the firms stumble into violating GAAP compared to the other firms?
- The results show that the **increases in DSRI and the decreases of GMI** are strongly associated with the likelihood of manipulating financial numbers, and these are the triggers for companies to make inadequate accounting.
- Secondly, I suspect that companies with lots of subsidiaries might have the problem of internal control, and check whether the **number of subsidiaries** affected the misstatement of inappropriate accounting. In the sample period of 2011-2014, however, there was **not sufficient evidence** to support the hypothesis.
- Lastly, this model **is not capable of predicting inappropriate accounting by using the original financial data before amended reports.**

LIMITATIONS

- This study has several limitations. I matched the control group, which has not submitted the amended reports for improper accounting. However, it cannot deny the possibility of **including GAAP violation companies in the control group** or **excluding GAAP violation companies in the experimental** group because they are **not yet discovered at the moment.** This paper narrows down the experimental sample into 33 companies in the period of 2011-2014, but still leaves the issue of the control group.
- Furthermore, the model in this paper investigates **the financial factors only**; to examine the effect of the non-financial factors such as corporate governance needs further study.

ご清聴ありがとうございました。

2020.11.04. 木曜日 13:35～14:05
会場：九州産業大学1号館7階Ｓ７０１教室