국제회계연구 제28집
Korea International Accounting Review Vol.28 (pp. 119－138)
2009. 12. 31 2009년 12월 31일

논문접수 : 2009. 09. 02
논문수정 : 2009. 12. 07
게재확정 : 2009. 12. 09

SFAS No. 131하에서 분기별 사업부문정보공시와 재무분석가의 이익예측 오차

조 중 석 *

< 국문초록 >

본 연구는 미국의 SFAS No. 131하에서의 분기별 사업부문정보공시가 자본시장에 미치는 영향을 조사하였다. Barron and Kile (1999)의 연구를 따라 재무분석가의 연간 및 분기 이익예측치의 분산도 및 오차를 재무분석가의 속성으로 사용하였다. 실증검증 결과, 재무제표 이용자의 주장과는 달리 새로운 분기별 사업부문정보공시는 재무분석가의 속성을 향상시키지는 못하는 것을 나타났다. 즉, 분기별 사업부문정보 자율공시기업의 경우 SFAS No. 131 도입이후 재무분석가의 이익예측 오차가 감소하는 것을 발견하였다. 하지만, 사전기대(ex ante)한 바와 다르게 분기별 사업부문정보 공시를 자율적으로 하지 않는 기업에 대한 재무분석가의 이익예측치 분산도 및 오차가 자율공시기업에 비하여 SFAS No. 131 도입이전 및 이후 모두에서 적은 것으로 나타났다.

한편, 본 연구의 결과는 미국 데이터를 이용한 결과이지만 상대적으로 사업부문정보공시에 대한 연구가 미흡한 우리나라의 사업부문정보공시와 관련하여 제시하는 바가 크다 할 것이다.

주제어 : SFAS No. 131, 부문공시, 재무분석가, 이익예측

* 한양대학교 경영대학 조교수

Analysts' Earnings Forecast Error under SFAS No. 131's Interim Segment Reporting Requirement

Cho, Joong-Seok *

< Abstract >

This study empirically investigates the market reaction to the SFAS No. 131 interim period financial report. Following Barron and Kile (1999), I use the forecast dispersion and error in analysts' earnings forecasts as properties of analysts' annual and quarterly earnings forecasts.

My study reports that the SFAS No. 131 interim period financial report is not accompanied by the significant market reaction. Unlike financial statement users' contention, my study shows that the new requirements of interim segment reporting do not improve properties of analysts' earnings forecasts.

With the relatively smaller sample size of the nondiscloser sample (n=22 for annual earnings forecasts), the power of the test results is very low. And maybe financial analysts need some time to digest the new information from the mandated requirements of interim segment reporting and reflect their understanding in their earnings forecasts. To provide more unambiguous conclusions, more powerful tests are required.

Key Words : SFAS No. 131, Segment, Analysts' Forecasts

*Assistant Professor, School of Business Administration, Hanyang University

Ⅰ. INTRODUCTION

In this study, I investigate the effect of implementation of SFAS No. 131 on the U.S. companies' information environments.[1] Specifically, using analysts' earnings forecast properties, I study the market's reaction to interim financial statements before and after adoption of SFAS No. 131.

The Financial Accounting Standard Board (FASB) issued SFAS No. 131, *Disclosures about Segments of an Enterprise and Related Information*, effective for all fiscal years commencing after December 15th, 1997. Under SFAS No. 131, firms are required to disclose segment information for interim periods (quarterly segment reporting) to shareholders. This provision was cited as one of the most important improvements needed by the AICPA Special Committee on Financial Reporting (SFASNo.131,¶50). Financial statement users contended that, to be timely, segment information is needed more often than annually and that the difficulties of preparing it on an interim basis could be overcome (SFASNo.131,¶98). In its 1993 position paper, the Association for Investment Management and Research (AIMR) emphasized that "segment data is vital, essential, fundamental, indispensable, and integral to the investment analysis process" and "without desegregation, there is no sensible way to predict the overall amounts, timing, or risks of a complete enterprise's future cashflows. There is little dispute over the analytical usefulness of disaggregated financial data."

A commitment to increased levels of disclosure reduces the possibility of information asymmetries arising either between the firm and its shareholders or among potential buyers and sellers of firm shares. Disclosure of segment information for interim periods requirement under

1) SFAS No. 131 also changed the way companies defined segments, which could affect companies' information environments (Berger and Hann 2003; Botosan and Harris 2005; Ettredge et al. 2005). In this study, I examine the effect of the disclosure frequency (annual versus quarterly segment reporting) change, which is required by interim segment reporting requirements under SFAS No. 131. I examine the sensitivity of results to changes in reported segment as part of the analysis reported below. The results from these sensitivity tests result in similar references.

SFAS No. 131 could reduce information asymmetry between management and investors. However, as reported by Botosan and Harris (2000), if many multi-segment firms consistently have disclosed their interim period information before adopting of SFAS No. 131, the new requirement's effect may be limited and the effect will possibly differ based on whether or not the firm previously provided segment information.

To test whether the release of SEC mandated interim financial reports has different information content from that under pre-SFAS No. 131 requirements, I investigate properties of analysts' earnings forecasts. Because financial analysts play an important information intermediary role and have been demanding better segment information, I use the forecast accuracy of individual analysts following a firm as a measure for overall information of interim period segment information disclosure. If analysts view disclosure of interim segment information as useful information, one would anticipate such disclosures to be associated with properties of analysts' earnings forecasts.

For these tests, I hand-collect segment disclosure information from firms' quarterly reports. Following Botosan and Harris (2000), if a firm reported sales and/or operating profits by business segment in its 10Qs in the pre-SFAS No. 131 period, it is classified as a voluntary segment discloser (hereafter, a voluntary discloser). If the firm provided no business segment data in its 10Qs during the same time period, it is classified as a nonvoluntary segment discloser (hereafter, nonvoluntary discloser).

I investigate whether the interim period segment disclosure affects analysts' earnings forecasts. Following Barron and Kile (1999), I use the forecast dispersion and error in analysts' earnings forecasts as properties of analysts' annual earnings forecasts. I find that the adoption of SFAS No. 131 decreases analysts' error for voluntary disclosers. However, I find that both before and after adoption of SFAS No. 131, analysts' annual earnings forecasts for nonvoluntary disclosers are associated with less dispersion and error and the difference between these two disclosers are significantly different.

Similar to the annual earnings forecast test, the quarterly earnings forecast tests indicate that both before and after adoption of SFAS No. 131, analysts' quarterly earnings forecasts for nonvoluntary disclosers are

associated with less dispersion and error and the adoption of SFAS No. 131 does not affect the difference between the two discloser groups in properties of analysts' earnings forecasts.

This is one of my series research on the effect of the interim segment reports on the financial market. Especially, this study focuses on the effect of the interim reports on the analysts' forecast. This study contributes to the literature on disclosure. My study also shows that the new requirements of interim segment reporting do not improve properties of analysts' earnings forecasts. My results are inconsistent with financial statement users' contention that segment information is needed on a more timely basis than annually (SFAS No. 131, ¶ 98). However, I cannot conclusively argue from these findings that the adoption of the quarterly segment information disclosure does not communicate relevant information to investors. Especially, this research is conducted mainly as a descriptive analysis. Therefore, to induce more conclusive conclusions, more powerful tests are required.

The remainder of this study is organized as follows. Section Ⅱ describes data and sample selection. Section Ⅲ provides the empirical analysis and results. Section Ⅳ offers some concluding comments.

Ⅱ. DATA and SAMPLS SELECTION

Segment data are obtained from the 2003 Compustat Industry Segment database. Following previous research, the sample is restricted to those firms with data on Compustat's Industry Segment (CIS) file (active and research) that have consolidated sales of at least $20 million and industry segment data available, and have no reported segments in the financial services industry (Standard Industrial Classification (SIC) 6000 to 6999) or in the regulated utilities industry (SIC 4900 to 4999) (also excluding ADRs). From the CIS file, I obtain data on segment information, the number of reported segments for each firm, and SIC codes assigned to each segment. Earnings forecasts and analyst following are collected from the 2003

I/B/E/S summary and detail file.

Regarding voluntarily disclosing segment data in firms' quarterly reports, I examine 10Qs on Lexis/Nexis. Following Botosan and Harris (2000), if a firm reported sales and/or operating profits by business segment in the pre-SFAS No.131 period, it is classified as a voluntary discloser. If a firm provided no business segment data in its 10Qs, it is classified as a nondiscloser.

Firm-level accounting data are collected from the 2003 Compustat Annual Industrial, Research, and Full Coverage files. Stock returns are collected from the 2003 Center for Research in Security Prices (CRSP) database. To avoid the effects of extreme observations, all data are winsorized at the 1 and 99 percent levels. Table 1 describes the composition of segment disclosure based on (fiscal) year 1997 Compustat and 10Qs.[2)]

<Table 1> Segment Disclosure Composition (Fiscal year 1997)

# of Segment	Frequency (A)	Percent (A/B)	Nonvoluntary discloser(C)	% of nonvoluntary discloser (C/A)
2	391	60.25%	53	13.55%
3	172	26.50%	14	8.14%
4	57	8.78%	2	3.51%
5	20	3.08%	2	10.00%
6	7	1.08%	0	0.00%
7	1	0.15%	0	0.00%
8	1	0.15%	1	100.00%
Total	649 (B)		72	11.09%

Variable Definition:

Voluntary disclosers: voluntary interim segment disclosers (if a firm reported sales and/or operating profits by business segment in its 10Qs in the pre-SFAS No. 131 period).

Nonvoluntary disclosers: interim segment nondisclosers.

Descriptive statistics for voluntary and nonvoluntary disclosers are provided in Table 2. Voluntary disclosers have a larger market value of firm equity (p-value = 0.0178), firm asset size (p-value <0.0001), sales (p-value = 0.0013), and a higher stock price (p-value = 0.0686).[3)]

2) Year 1997 and 1998 means firms' fiscal years.

3) All results are based on Wilcoxon Rank Sum test for median(for fiscal year 1997). The t-test results are identical. In addition, these results are almost identical for fiscal year 1998.

<Table 2> Sample Descriptive Statistics (Fiscal year 1997)

Panel A: Descriptive Statistics

1. Before SFAS No. 131(Fiscal year 1997)

VARIABLE	Voluntary					Nonvoluntary				
	Mean	Median	Std.dev	Min	Max	Mean	Median	Std.dev	Min	Max
MVAL	3672	639	9745.12	15.54	72478	2770	353	9675.33	16.84	74287
ASSET	3010	788	5759.08	40.58	30966.00	1469	338	3811.74	40.58	27544.00
SALES	3121	874	7247	34	17958	1745	452	4700	36	35764
PRICE	30.88	26.75	22.10	2.08	114.40	25.99	21.31	20.05	1.88	104.50
BM	0.4310	0.3787	0.3423	-2.0110	2.1194	0.4826	0.4127	0.3674	-0.3860	1.9770

2. After SFAS No. 131(Fiscal year 1998)

VARIABLE	Voluntary					Nonvoluntary				
	Mean	Median	Std.dev	Min	Max	Mean	Median	Std.dev	Min	Max
MVAL	3845	454	11025	16.84	73842	2895	200	10230.64	16.84	74175
ASSET	3078	763	5725.62	42.80	31466.00	1620	337	4340.57	39.82	30046.00
SALES	3250	959	7818	11	37634	2129	598	5338	67	37154
PRICE	25.62	20.28	20.90	1.92	104.50	21.71	16.94	17.80	1.75	91.06
BM	0.4839	0.4943	2.1231	-43.44	10.7546	0.5563	0.4436	0.5117	-1.0669	2.0879

Panel B: Difference Analysis

VARIABLE	Before SFAS No. 131		After SFAS No. 131	
	t-statistics	Wilcoxon rank sum test	t-statistics	Wilcoxon rank sum test
MVAL	-0.74	-2.40**	-0.68	-2.10**
ASSET	-2.21**	-4.04***	-2.54**	-3.71***
SALES	-2.17**	-3.22***	-1.46	-2.62***
PRICE	-1.78*	-1.85*	-1.69*	-1.30
BM	1.18	0.54	0.63	-0.74

Variable Definition:

***/**/* Significant at 1%/5%/10% level or better using a t-statistics (Wilcox Rank Sum test) for means (medians), two-tailed.

MVAL: market value of firm's equity at the fiscal year end (millions).

ASSET: firm asset size at the fiscal year end (millions).

SALES: firm sales in the fiscal year (millions).

PRICE: stock price at the fiscal year end.

BM: book to market ratio at the fiscal year end.

III. EMPIRICAL ANALYSIS AND RESULTS

SFAS No. 131 was issued by the Financial Accounting Standard Board (FASB) in June 1997 in response to alleged deficiencies in SFAS No. 14. SFAS No. 14 was most widely criticized for its loose definition of "industry," which allowed managers of diversified firms to report all operations "as being in a single, very broadly defined industry segment" (SFAS No. 131, ¶ 58).

The Association for Investment Management Research (AIMR) took the lead in criticizing the vagueness of the SFAS No. 14 industry definition of business segments (Ettredge et al. 2002). The AIMR claimed that the industry approach allowed some companies to lump dissimilar business units together and so provided managers with the freedom to arbitrarily avoid disclosing disaggregated information. In its 1993 position paper, the AIMR requested that financial statement information be disaggregated to a much greater degree and more information be provided for segments. Specifically, the AIMR recommended that firms establish segments for disclosure purpose using the "management approach" so that the segments correspond to how the business are internally organized and managed. Financial statement users contended that, to be timely, segment information is needed more often than annually and that the difficulties of preparing it on an interim basis could be overcome (AIMR 1993).

Lang and Lundholm (1996) study the relation between corporate disclosure quality and properties of analysts' information. They show that the more informative disclosures firms provide, the more accurate analyst forecasts of earnings, the less dispersion among individual analyst forecasts,

and the less volatility in forecast revisions. Barron and Kile (1999) test the relation between analysts' earnings forecast errors and Management Discussion and Analysis (MD & A) and find that the higher MD & A rating the less error and dispersion in analysts' earnings forecasts. Hope (2003) investigates the relation between the level of accounting policy disclosure and properties of analysts' earnings forecasts and find that they are negatively associated.

To test whether the interim period segment disclosure affects analysts' earnings forecast, I investigate properties of analysts' earnings forecasts. Using this test I examine the association between properties of analysts' earnings forecasts and firm's segment disclosure practices. Following Barron and Kile (1999), I use the forecast dispersion and error in individual analysts' earnings forecasts as properties of analysts' earnings forecasts.

Forecast dispersion (DISPERSION), the first property of analysts' earnings forecasts, is defined as follows:

$$DISPERSION=[(1/J)\sum(FORECAST_j-MEAN))^2]^{1/2}/Abs(MEAN) \quad (5),$$

where $FORECAST_j$ denotes analyst j's one year forecast of earnings per share (EPS) recorded by I/B/E/S between 15 and 75 days following the release of the previous annual financial statement and MEAN indicates analysts' annual mean earnings forecast.[4] So, DISPERSION is defined as standard deviation in analysts' earnings forecast scaled by the absolute value of mean forecast.

ERROR, the second property of analysts' earnings forecasts, is defined as the standard deviation of the difference between individual analysts' earnings forecasts and actual earnings scaled by the absolute actual earnings:

$$ERROR=[(1/J)\sum(FORECAST_j-EPS_i)^2]^{1/2}/Abs(EPS_i) \quad (6),$$

where EPS_i denotes the firmi's annual primary earnings-per-share

4) For both DISPERSION and ERROR measures, in case of quarterly earnings forecasts, I use quarterly EPS forecasts released between 15 days following the release of the previous quarter's financial statement and the corresponding quarter's earnings announcement.

forecasts between 15 and 75 days following the release of previous annual financial statement.

To test the association between the interim period segment disclosure and properties of analysts' earnings forecasts, I collect individual analysts' earnings forecasts (annual and quarterly) from the I/B/E/S. To be included in my study, firms are required to have at least two I/B/E/S earnings forecasts to calculate the standard deviation. For the annual earnings forecast test, my study is conducted on 251 firms (229 voluntary interim segment disclosers and 22 nondisclosers). For the quarterly earnings forecast test, 523 firm-quarterly earnings forecasts are studied (493 voluntary interim segment disclosers and 30 nondisclosers).[5)]

Table 3 (and Figure 1 and Figure 4) reports the univariate comparison. First, I investigate the annual earnings forecasts. Panel A shows the results of comparing the number of analysts following and properties of analysts' earnings forecasts for each discloser, respectively. For voluntary disclosers, there is no change in the median value (8) of the number of analysts following. For nonvoluntary disclosers, the number decreases from 6 to 5. However, the change is not statistically significant.[6)] For voluntary disclosers, both the DISPERSION and ERROR measures decrease and only the ERROR measure for voluntary disclosers is significant (p-value = 0.0816). For nonvoluntary disclosers, the DISPERSION measure slightly increases and the ERROR measure decreases. However, both are not significant (for DISPERSION, p-value=0.9532 and for ERROR, p-value=0.8053).

As we can see from Panel B, before the adoption of SFAS No. 131 the DISPERSION and ERROR measures between voluntary disclosers and nonvoluntary disclosers are significantly different (for both, p-value < 0.0001). After the adoption of SFAS No. 131 the DISPERSION and ERROR measures between voluntary disclosers and nonvoluntary disclosers are still significantly different (for DISPERSION, p-value < 0.0001 and for error p-value = 0.0188).

In summary, I find that the adoption of SFAS No. 131 decreases analysts' error (ERROR) for voluntary disclosers. However, contrary to

5) Due to analysts' earnings forecast requirement, the sample size is different from that of table 1.

6) Due to the relatively small sample size of nonvoluntary disclosers, all remaining test results are based on non-parametric Wilcoxon Rank Sum test. However, parametric t-test results are very similar.

financial statement users' contention that segment information is needed more timely than annually (SFAS No. 131, ¶ 98), I find that both before and after adoption of SFAS No. 131, analysts' annual earnings forecasts for nonvoluntary are associated with less dispersion and error and the differences between these two disclosers are significantly different.

I also investigate properties of individual analysts' quarterly earnings forecasts. Panel C and D of Table 1 present combined (the first through third) quarterly earnings forecast test results and Panel E and Panel F show each quarterly earnings forecast test results. As Panel C (and Figure 2 and Figure 5) shows, after the adoption of SFAS No. 131 the DISPERSION and ERROR measures for voluntary disclosers increase significantly (for both, p-value < 0.0001). For nonvoluntary disclosers, however, both measures are insignificant (for DISPERTION, p-value=0.2606 and for ERROR, p-value=0.4732). Panel D shows that, like annual earnings forecasts, both after and before the adoption of SFAS No. 131 the DISPERSION and ERROR measures for voluntary and nonvoluntary disclosers are significantly different (for both, p-value < 0.0001) and analysts' quarterly earnings forecasts for nonvoluntary disclosers are less disperse and erroneous.

As the next step, I investigate each quarter, respectively. Panel E of Table 3 (and Figure 3 and Figure 6) shows that for voluntary disclosers the third quarter's DISPERSION and ERROR measures increase significantly (for both, p-value < 0.0001) and in the fourth quarter, the ERROR measure increases significantly (p-value=0.0494). For nonvoluntary disclosers, only the increase in the first quarter's ERROR measure is significant (p-value=0.0601).

Panel F compares the difference between voluntary and nonvoluntary disclosers before and after adoption of SFAS No. 131. For all quarters, regardless of the adoption itself, analysts' earnings forecasts for nonvoluntary disclosers are associated with less error and less dispersion. In the first quarter, before the adoption earnings forecasts for nonvoluntary disclosers are significantly less dispersed and erroneous (for DISPERSION, p-value=0.0131 and for ERROR, p-value < 0.0001). After the adoption, differences in earnings forecasts for voluntary and nonvoluntary disclosers are not significant (for DISPERSION, p-value=0.1084 and for ERROR,

p-value < 0.1300). In the second quarter, for both before and after the adoption, earnings forecasts for nonvoluntary disclosers are significantly less dispersed and erroneous. The fourth quarter results are similar to those of the second quarter (the only difference is that before the adoption the difference in DISPERSION is not significant.). Unlike other quarters, in the third quarter, differences in both earnings forecast properties for before and after the adoption are not significant.

Similar to the annual earnings forecast test, from the quarterly earnings forecast test I find that both before and after adoption of SFAS No. 131, analysts' quarterly earnings forecasts for nonvoluntary are associated with less dispersion and error and the adoption of SFAS No. 131 does not affect the difference between two disclosers in properties of analysts' earnings forecasts. Instead, I find that properties of analysts' quarterly earnings forecasts for voluntary disclosers somewhat deteriorate after the adoption.

<Table 3> Earnings Forecast Error Analysis

Panel A: Voluntary vs. Nonvoluntary (Annual Earnings Forecasts)

		PRE SFAS 131			POST SFAS 131			
DISPERSION								Wilcoxon Rank
	N	Mean	Median	N	Mean	Medain	t-statistics	Sum Test
Voluntary	229	0.1369	0.0324	229	0.2263	0.0311	1.74*	-0.4180
Nonvoluntary	22	0.1051	0.0134	22	0.0660	0.0134	-0.53	0.0587
ERROR								Wilcoxon Rank
	N	Mean	Median	N	Mean	Medain	t-statistics	Sum Test
Voluntary	229	0.4222	0.1223	229	0.4200	0.1119	-0.03	-1.7416*
Nonvoluntary	22	0.1414	0.0460	22	0.4676	0.0325	1.07	-0.2465
No.of Analysts								Wilcoxon Rank
	N	Mean	Median	N	Mean	Medain	t-statistics	Sum Test
Voluntary	229	9.7162	8.0000	229	10.5502	8.0000	1.05	0.8598
Nonvoluntary	22	8.0909	6.0000	22	7.0455	5.0000	-0.62	-0.4603

Panel B: Difference between Voluntary vs. Nonvoluntary Disclosers before and after SFAS No. 131 (Annual Earnings Forecasts)

	t-statistics	Wilcoxon Rank Sum Test
DISPERSION		
PRE SFAS 131	-0.37	-2.8776***
POST SFAS 131	-2.90***	-2.6425***
ERROR		
PRE SFAS 131	-3.73***	-3.0975***
POST SFAS 131	0.15	-2.3492**
No.of Analysts		
PRE SFAS 131	-1.17	-0.5859
POST SFAS 131	-2.81***	-1.4859

Panel C: Voluntary vs. Nonvoluntary (Quarterly Earnings Forecasts)

		PRE SFAS 131			POST SFAS 131			
DISPERSION								Wilcoxon Rank
	N	Mean	Median	N	Mean	Medain	t-statistics	Sum Test
Voluntary	493	0.1441	0.0368	493	0.2099	0.0492	2.17**	3.1783***
Nonvoluntary	30	0.1474	0.0176	30	0.0807	0.0197	-0.54	1.1249
ERROR								Wilcoxon Rank
	N	Mean	Median	N	Mean	Medain	t-statistics	Sum Test
Voluntary	493	0.2174	0.0781	493	0.2958	0.0917	2.30**	2.9410***
Nonvoluntary	30	0.0904	0.0284	30	0.1422	0.0340	0.67	0.7172

Panel D: Difference between Voluntary vs. Nonvoluntary Disclosers before and after SFAS No. 131 (Quarterly Earnings Forecasts)

	t-statistics	Wilcoxon Rank Sum Test
DISPERSION		
PRE SFAS 131	0.03	-3.6900***
POST SFAS 131	-3.05***	-3.0924***
ERROR		
PRE SFAS 131	-2.89***	-4.0709***
POST SFAS 131	-2.13**	-3.8058***

Panel E: Voluntary vs. Nonvoluntary for Each Quareter (Quarterly Earnings Forecasts)

PERIOD	PRE SFAS 131			POST SFAS 131				
1st quarter)								
DISPERSION								Wilcoxon Rank
	N	Mean	Median	N	Mean	Median	t-statistics	Sum Test
Voluntary	150	0.1158	0.0403	150	0.1617	0.0381	1.02	-0.7795
Nonvoluntary	5	0.0106	0.0071	5	0.0318	0.0172	1.06	0.5238
ERROR								Wilcoxon Rank
	N	Mean	Median	N	Mean	Median	t-statistics	Sum Test
Voluntary	150	0.1798	0.0808	150	0.2415	0.0821	1.28	0.1691
Nonvoluntary	5	0.0140	0.0101	5	0.0558	0.0385	1.56	1.8800*
2nd quarter)								
DISPERSION								Wilcoxon Rank
	N	Mean	Median	N	Mean	Median	t-statistics	Sum Test
Voluntary	153	0.1460	0.0352	153	0.1708	0.0492	0.47	1.5598
Nonvoluntary	11	0.3479	0.0124	11	0.1134	0.0194	0.70	0.8546
ERROR								Wilcoxon Rank
	N	Mean	Median	N	Mean	Median	t-statistics	Sum Test
Voluntary	153	0.2131	0.0777	153	0.2164	0.0850	0.06	0.9117
Nonvoluntary	11	0.1515	0.0267	11	0.2325	0.0290	0.40	0.1970
3rd quarter)								
DISPERSION								Wilcoxon Rank
	N	Mean	Median	N	Mean	Median	t-statistics	Sum Test
Voluntary	154	0.1841	0.0398	154	0.3084	0.0740	1.91*	2.7989***
Nonvoluntary	10	0.0496	0.0233	10	0.0978	0.0262	0.95	0.7181
ERROR								Wilcoxon Rank
	N	Mean	Median	N	Mean	Median	t-statistics	Sum Test
Voluntary	154	0.2812	0.0814	154	0.4355	0.1410	2.04**	3.1251***
Nonvoluntary	10	0.0912	0.0432	10	0.1386	0.0477	0.73	0.5669
4th quarter)								
DISPERSION								Wilcoxon Rank
	N	Mean	Median	N	Mean	Median	t-statistics	Sum Test
Voluntary	36	0.0834	0.0243	36	0.1556	0.0273	0.87	1.4442
Nonvoluntary	4	0.0118	0.0067	4	0.0094	0.0074	-0.27	0.0000
ERROR								Wilcoxon Rank
	N	Mean	Median	N	Mean	Median	t-statistics	Sum Test
Voluntary	36	0.1201	0.0494	36	0.2474	0.0781	1.59	1.9653**
Nonvoluntary	4	0.0161	0.0147	4	0.0109	0.0104	-0.56	0.2904

Panel F: Difference between Voluntary vs. Nonvoluntary Disclosers before and after SFAS No. 131 for Each Quarter (Quarterly Earnings Forecasts)

PERIOD		t-statistics	Wilcoxon Rank Sum Test
1st quarter)			
	DISPERSION		
	PRE SFAS 131	-3.99***	-2.4818**
	POST SFAS 131	-3.13***	-1.6053
	ERROR		
	PRE SFAS 131	-5.50***	-3.1396***
	POST SFAS 131	-3.86***	-1.5141
2nd quarter)			
	DISPERSION		
	PRE SFAS 131	0.62	-2.4521**
	POST SFAS 131	-0.59	-1.7718*
	ERROR		
	PRE SFAS 131	-0.60	-1.7322*
	POST SFAS 131	0.11	-2.2745**
3rd quarter)			
	DISPERSION		
	PRE SFAS 131	-2.67***	-1.2549
	POST SFAS 131	-3.22***	-1.1855
	ERROR		
	PRE SFAS 131	-2.88***	-1.4466
	POST SFAS 131	-3.98***	-1.5222
4th quarter)			
	DISPERSION		
	PRE SFAS 131	-1.88**	-1.0202
	POST SFAS 131	-1.98*	-2.1199**
	ERROR		
	PRE SFAS 131	-2.76***	-2.1870**
	POST SFAS 131	-3.31***	-2.9981***

Variable Definition:

***/**/* Significant at 1%/5%/10% level or better using a t-statistics (Wilcox Rank Sum test) for means (medians), two tailed.

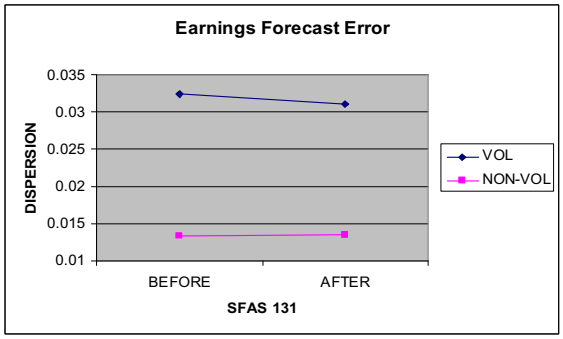
DISPERSION: the standard deviation in analysts' earnings forecast scaled by the absolute value of mean forecast (a detailed explanation in the text).

ERROR: the standard deviation of the difference between individual analysts' earnings forecasts and actual earnings scaled by the absolute actual earnings.

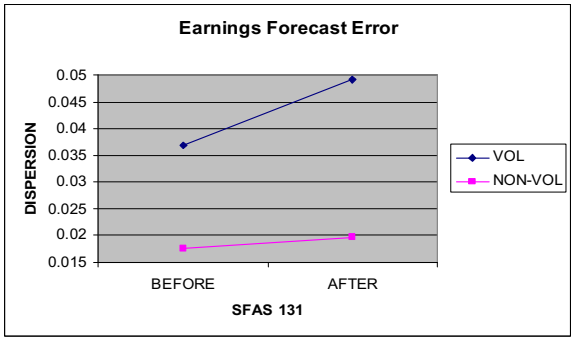
PRE SFAS131: year 1997.

POST SFAS131: year 1998.

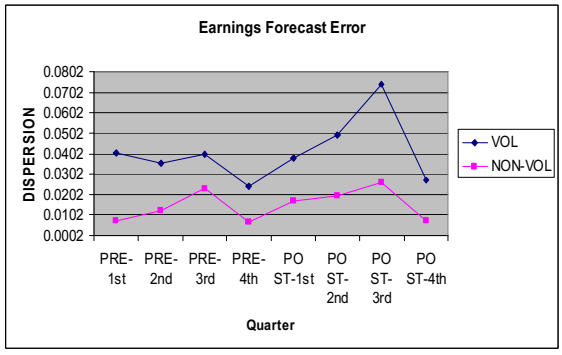
<Figure 1> Dispersion (Annual Earnings Forecasts)



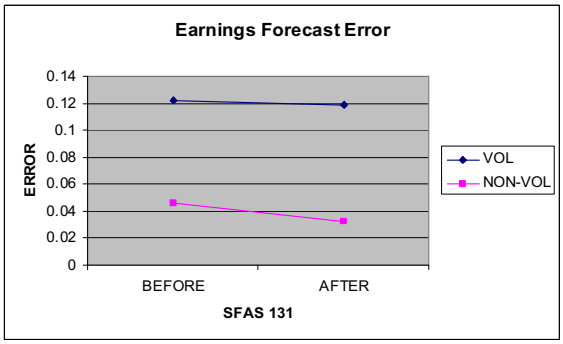
<Figure 2> DISPERSION (Quarterly Earnings Forecasts Combined)



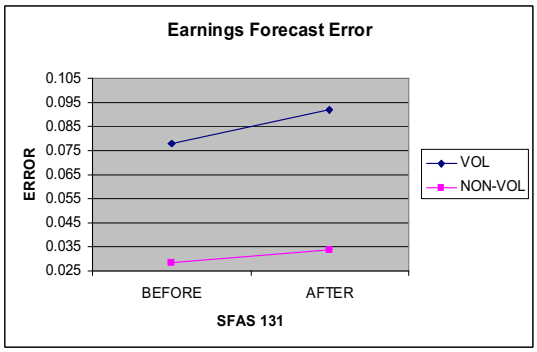
<Figure 3> DISPERSION (Each Quarterly Earnings Forecasts)



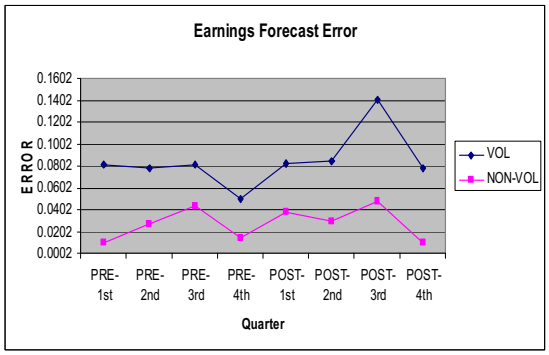
<Figure 4> ERROR (Annual Earnings Forecasts)



<Figure 5> ERROR (Quarterly Earnings Forecasts Combined)



<Figure 6> ERROR (Each Quarterly Earnings Forecasts)



Variable Definition:

VOL: voluntary interim segment disclosers.

NON-VOL: nonvoluntary interim segment disclosers.
BEFORE: pre-SFAS No. 131 (Year 1997).
AFTER: post-SFAS No. 131 (Year 1998)
PRE-1st: the first quarter of year 1997.
PRE-2nd: the second quarter of year 1997.
PRE-3rd: the third quarter of year 1997.
POST-1st: the first quarter of year 1998.
POST-2nd: the second quarter of year 1998.
POST-3rd: the third quarter of year 1998.

Ⅳ. CONCLUSION

I examine the effect of implementation of SFAS No. 131 on companies' information environments by assessing the effect of interim period segment information disclosure.

Using individual analysts' earnings forecasts, I investigate DISPERSION and ERROR, two properties of analysts' annual and quarterly earnings forecasts. For annual earnings forecasts, I find that the adoption of SFAS No. 131 decreases analysts' error (ERROR measure) for voluntary disclosers. However, contrary to financial statement users' contention that the need of more frequent segment information, I find that both before and after adoption of SFAS No. 131, analysts' annual earnings forecasts for nonvoluntary are associated with less dispersion and error and the difference between these two discloser are significantly different. Similar to the annual earnings forecast test, from the quarterly earnings forecast test I find that for both before and after adoption of SFAS No. 131 analysts' quarterly earnings forecasts for nonvoluntary are associated with less dispersion and error and the adoption of SFAS No. 131 does not affect the difference between two disclosers in properties of analysts' earnings forecasts. Instead, I find that properties of analysts' quarterly earnings forecasts for voluntary disclosers somewhat deteriorate after the adoption.

This study empirically investigates the market reaction to the SFAS No. 131 interim period financial report. My study reports that the SFAS No. 131 interim period financial report is not accompanied by the significant market

reaction. Unlike financial statement users' contention, my study shows that the new requirements of interim segment reporting do not improve properties of analysts' earnings forecasts. I cannot conclusively argue from these findings that the adoption of the quarterly segment information disclosure does not communicate relevant information to investors.

With the relatively smaller sample size of the nondiscloser sample (n=22 for annual earnings forecasts), the power of the test results is very low. And maybe financial analysts need some time to digest the new information from the mandated requirements of interim segment reporting and reflect their understanding in their earnings forecasts. To provide more unambiguous conclusions, more powerful tests are required.

Currently, the KASB (Korea Accounting Standard Board) and the KAI(Korea Accounting Institute) study as mid- and long-term subjects how to modify the current segment disclosure requirements in Korean GAAP. Under SFAS No. 131 firms are required to disclose not newly generated information but information, which was kept inside firms under SFAS No. 14(which is similar to current Korean rules). This study, can provide insights on the direction for that effort.

REFERENCES

American Institute of Certified Public Accountants (AICPA), Improving business, 1994 reporting: A customer Focus, Report on the AICPA Special Committee on Financial Reporting ("Jenkins Committee"), New York, NY: AICPA.

Association for Investment Management and Research (AIMR), Financial reporting in the 1990s and beyond: A position paper of the Association for Investment Management and Research, Prepared by Peter H. Knutson, Charlottesville, VA: AIMR. 1993.

Barron, Orie. and C. Kile, "MD &A quality as measured by the SEC and analysts' earnings forecasts", *Contemporary Accounting Research* 16, 1999: 75-109.

Berger, P. and R. Hann, "The impact of SFAS No. 131 on information and Monitoring", *Journal of Accounting Research* 41(2), 2003: 163-223.

Botosan, C. and M. Harris, "Motivations for a change in disclosure frequency and

its consequences: An examination of voluntary quarterly segment disclosures", *Journal of Accounting Research* 40, 2000: 21-40.

Botosan, C. and M. Harris, "Managers' Motives to Withhold Segment Disclosures and the Effect of SFAS No. 131 on Analysts' Information Environment", *The Accounting Review* 80(3), 2005.

Ettredge, M., S. Kwon and D Smith, "Proprietary costs, cross-segment profit smoothing, and the impact of SFAS No. 131", Working paper, Iowa State University. 2002.

Ettredge, M. and P. Zarowin, "The Impact of SFAS No. 131 Business Segment Data on the Market's Ability to Anticipate Future Earnings", *The Accounting Review* 80(3), 2005.

Hope, O., "Accounting policy disclosures and analysts' forecasts", *Contemporary Accounting Research* 20, 2003: 295-321.

Lang, M. and R. Lundholm, 1993, "Cross-sectional determinants of analyst ratings of corporate disclosures", *Journal of Accounting Research* 31, 1993: 246-271.