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# The information content of SFAS No 131 interim segment reporting

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This study empirically investigates the effect of implementation of SFAS No.131 on companies' information environments by assessing the effect of interim period financial reports. Especially, using Beaver's information content measures, it investigates the market's reaction to interim period financial reporting under SFAS No.131.

The empirical results of the information content test show that the adoption of SFAS No.131 does not affect the market's reaction. For the volume reaction test, no difference was found in the reaction to the interim financial statement filing for both voluntary and nonvoluntary dislosers. This result gives evidence that the information content of the new requirements of interim financial reporting is not significantly different from that under the previous requirements.

**JEL Classifications:** M16, M41, M48

**Keywords:** Accounting standards, SFAS No.131, information contents, economic affects, U.S.A.

## Introduction

This study investigates the effect of implementation of SFAS No.131 on companies' information environments.<sup>1</sup> Specifically, using Beaver's information content measures, it examines 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 (SFAS No. 131, p.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 (SFAS No.131, p.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 cash flows. 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

<sup>1</sup> 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). This study examines the effect of the disclosure frequency (annual versus quarterly segment reporting) change, which is required by interim segment reporting requirements under SFAS No. 131. The paper explores 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.

buyers and sellers of firm shares. Disclosure of segment information for interim periods requirement under 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, the difference in volume variability surrounding the release of quarterly reports (10 Qs) is examined using the abnormal trading volume (V-Statistics). This metric is developed by Beaver (1968) and revised by others. The assumption underlying these metrics is that if an information release (such as earnings) has information content, then new information will induce changes in volume from which investors trade.

For this test, segment disclosure information from firms' quarterly reports was collected. Following Botosan and Harris (2000), if a firm reported sales and/or operating profits by business segment in its 10-Qs 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 10-Qs during the same time period, it is classified as a nonvoluntary segment discloser (hereafter, nonvoluntary discloser).

The empirical results of the information content test shows that the adoption of SFAS No.131 doesn't affect the investor's volume reaction. The volume reaction test shows that the reaction to the interim financial statement filing decreases (not significantly) for both voluntary and nonvoluntary disclosers. No difference between these two disclosers was found for both before and after the adoption. This result gives evidence that the information content of the new requirements of interim financial reporting is not significantly different from that under the previous requirements.

This study contributes to the literature on disclosure. The empirical investigation of market reaction to SFAS No.131 interim period financial reports shows that the adoption of SFAS No.131 does not significantly affect investors' volume reaction. The results reported here indicate that SFAS No.131 interim period financial reports are not accompanied by significant market reaction, from which the inference may be drawn that the content of the newly required interim financial statements does not significantly differ from that the under previous requirements.

The remainder of this chapter describes data and sample selection; provides the empirical analysis and results; and offers some concluding comments.

## **Data and sample 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 USD 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). Data on segment information, the number of reported segments for each firm, and SIC codes assigned to each segment were obtained from the CIS file.

10-Qs on Lexis/Nexis was examined as regards voluntarily disclosing segment data in firms' quarterly reports. 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 10-Qs, 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 year 1997 Compustat and 10-Qs.

TABLE 1. SEGMENT DISCLOSURE COMPOSITION (FISCAL YEAR 1997)

N 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%

Note: Voluntary - voluntary interim segment disclosers. Nonvoluntary - interim segment nondisclosers.

TABLE 2. SAMPLE DESCRIPTIVE STATISTICS (FISCAL YEAR 1997)

Variable	Sample			Sample			Wilcoxon	
	N	Mean	Median	N	Mean	Median	t-statistics	Rank Sum Test
VOLUME	577	256071	54900	72	163510	33056	-0.83	-0.52
MVAL	577	3672	639	72	2770	353	-0,74	-2.40**
ASSET	577	3010	788	72	1469	338	-2.21**	-4.04***
SALES	577	3121	874	72	1745	452	-2.17**	-3.22***
PRICE	577	30,88	26,75	72	25.99	21.31	-1.78*	-1.85*
BM	539	0.4310	0.3787	70	0.4826	0.4127	1.18	0.54
BETA	471	0.8832	0.8593	60	0.8752	0.7827	-0.12	-0.51
EPS	552	-2.9169	1.3250	70	1.1929	1.3100	0,92	-0.65
SEG. #	577	2.6153	2.0000	72	2.4167	2.0000	-1.69*	-2.47**

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

VOLUME: the daily turnover median.

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

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

SALES: the firm sales at the fiscal-year end (millions).

PRICE: the stock price at the fiscal-year end.

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

BETA: the beta estimate via the market model based on a minimum 30 daily return observations over twelve-month period.

EPS: EPS (Basic) - exclude extra items (dollar and cent).

SEG. #: the number of segments.

Voluntary: voluntary interim segment disclosers. Nonvoluntary: 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). In addition, it shows that voluntary disclosers have more segments ( $p$ -value = 0.0136).<sup>1</sup>

## Empirical analysis and results

SFAS No.131, “Disclosures about Segments of an Enterprise and Related Information,” is effective for all fiscal years commencing after December 15th, 1997. Under SFAS No.131, firms are required to disclose segment information for interim periods to shareholders, which was listed as among the most important improvements needed by the AICPA Special Committee on Financial Reporting. Financial statement users also contended that segment information is needed more often than annually (SFAS 131, p.98).

To test whether the release of SEC mandated interim financial reports has different information content from that of the pre-SFAS No.131, the difference in volume variability surrounding the release of quarterly reports (10 Qs) is examined using the abnormal trading volume (V-Statistics). This metric is developed by Beaver (1968) and revised by others. The assumption underlying these metrics is that if information release has information content, then new information will induce new price equilibrium and/or trading.

Many studies have used this statistics to study value relevance (the usefulness and timeliness) of accounting information. Pattel (1976) studies information content of management forecasts based on a variant of Beaver’s Statistic and shows that these disclosures are accompanied by market adjustments. Atiase and Bamber (1994) find that the magnitude of trading volume reaction is an increasing function of both the magnitude of the associated price reaction and the level of predisclosure information asymmetry.

A three-day window centered on the date of interim financial statement filing is used to capture the trading volume in response to the filing.<sup>2</sup> To estimate firm-specific parameters of return and volume measures, one year of data ending on the month prior to the filing is used.

To test the information content of the interim financial statements, the abnormal trading volume (V-statistic) is used. Following Landsman and Maydew (2001), this measure is defined as follows:

$$V_{i,t} = \alpha_i + \beta_i V_{mt} + e_{it} \quad (1)$$

then,

$$V_{i,t^*} = V_{i,t} - \tilde{\alpha}_i - \tilde{\beta}_i V_{mt} \quad (2)$$

where:

$t^*$  = the three-day event window;  $V_{i,t}$  = shares of firm  $i$  traded during day  $t$  / shares outstanding of firm  $i$  during day  $t$ ;  $V_{mt}$  = total shares traded among all firms during day  $t$  / total shares outstanding among all firms during day  $t$ ;  $e_{it}$  = error term;  $\tilde{\alpha}_i$  and  $\tilde{\beta}_i$  = firm specific estimates from the market model.

For the first through third quarter combined period, Panel A of Table 3 (see Appendix and Figure 1) indicates that the V-statistic for both voluntary and nonvoluntary disclosers

<sup>1</sup> All results are based on Wilcoxon Rank Sum test for medians. The t-test results are identical.

<sup>2</sup> I use a three-day window (centered on the filing day) sum as V-Statistics (Vsum3). I also use 1) the maximum value of those measures in the three-day window (Vmax3) the sum and the maximum value of those measures in the five-day window (Vmax5 and Vsum5), and 3) the sum and the maximum value of those measures in the three-day window (two day prior to the filing day and the filing day, Vmax2 and Vsum2). These results are presented in an appendix and are very similar.

decreases from pre- to post-SFAS No.131. However, the Wilcoxon Rank Sum Test shows that these decreases are not statistically significant.

In Panel B (see Appendix), it is tested whether the difference in the adoption of SFAS No.131 results in different information content of the interim financial statements. For both before and after the adoption, the volume reaction to the nonvoluntary disclosers' interim financial statement is bigger than that to the voluntary disclosers. The difference between voluntary and nonvoluntary disclosers is not significant for both before and after the adoption of SFAS No.131 (for pre SFAS No. 131,  $p$ -value=0.8166 and for post SFAS No.131,  $p$ -value=0.5309).

In Panel C (and Figure 2, see Appendix), the effect of the adoption on each quarter is examined. For nonvoluntary disclosers, the impact of the adoption is not material or significant for each quarter, respectively. For voluntary disclosers, it is found that the  $V$ -statistic decreases significantly in the third quarter ( $p$ -value=0.0187).

In Panel D (see Appendix), it is tested whether information content differences between voluntary and nonvoluntary disclosers changes by the adoption of SFAS No.131 for each quarter. Before the adoption, for each quarter the reaction to nonvoluntary disclosers' interim financial statement is always bigger. But, there is no statistical difference between voluntary and nonvoluntary disclosers. After the adoption of SFAS No.131, the reaction to voluntary disclosers' is bigger in the first and second quarter. However, there is no statistical difference in the volume reaction to the interim financial statement filings between voluntary and nonvoluntary disclosers, either.

The volume reaction test shows that the reaction to the interim financial statement filing decreases (not significantly) for both voluntary and nonvoluntary disclosers. No difference between these two disclosers is found for both before and after the adoption.

## Conclusion

The paper investigates the effect of implementation of SFAS No.131 on companies' information environments by assessing the effect of interim period financial reports. Especially, the market's reaction to interim period financial reporting under SFAS No. 131 is examined using Beaver's information content measures. The empirical results of the information content test show that the adoption of SFAS No.131 does not affect the market's reaction. No difference in the reaction to the interim financial statement filing for both voluntary and nonvoluntary disclosers is found for the volume reaction test. Unlike financial statement users' contention, this result gives evidence that the information content of the new requirements of interim financial reporting is not significantly different from that under the previous requirements.

With the relatively smaller sample size of the nondiscloser sample, the power of the test results is very relatively low so that one cannot conclusively argue from these findings that the adoption of the quarterly segment information disclosure does not communicate relevant information to investors. And maybe the market needs some time to digest the new information from the mandated requirements of interim segment reporting and reflect its understanding. To provide more unambiguous conclusions, more powerful tests are required.

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## Appendix

TABLE 3. VOLUME REACTION ANALYSIS

Panel A. Voluntary vs. Nonvoluntary for the first through third quarter combined

	PRE SFAS 131		POST SFAS 131			
<b>Voluntary</b>						
(N=1242)	Mean	Median	Mean	Median	t-statistics	Wilcoxon Rank Sum Test
Vmax5	0.0046	0.0023	0.0043	0.0023	-1.11	-1.0113
Vsum5	0.0119	0.0065	0.0112	0.0063	-1.12	-0.9560
Vmax3	0.0042	0.0021	0.0037	0.0019	-1.86*	-1.7110*
Vsum3	0.0074	0.0037	0.0067	0.0036	-1.78*	-1.3173
Vmax2	0.0041	0.0020	0.0038	0.0020	-1.31	-0.0338
Vsum2	0.0074	0.0038	0.0068	0.0037	-1.26	-0.0702
<b>Nonvoluntary</b>						
(N=133)	Mean	Median	Mean	Median	t-statistics	Wilcoxon Rank Sum Test
Vmax5	0.0059	0.0027	0.0059	0.0021	-0.06	-0.8432
Vsum5	0.1488	0.0069	0.0151	0.0064	0.09	-0.1761
Vmax3	0.0049	0.0022	0.0054	0.0020	0.43	-0.5882
Vsum3	0.0088	0.0039	0.0095	0.0037	0.38	-0.1658
Vmax2	0.0055	0.0022	0.0053	0.0019	-0.17	-0.8002
Vsum2	0.0098	0.0037	0.0096	0.0036	-0.08	-0.4662

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

PRE SFAS131: year 1997.

POST SFAS131: year 1998.

Vmax: Maximum value of V-Statistics in an event window (a detailed explanation in the text).

Vsum: Sum value of V-Statistics in an event window (a detailed explanation in the text).

Voluntary: voluntary interim segment disclosers. Nonvoluntary: interim segment nondisclosers.

Panel B. Difference between voluntary and nonvoluntary disclosers before and after SFAS No. 131 for the first through third quarter combined

	t-statistics	Wilcoxon Rank Sum Test
Vmax5		
PRE SFAS 131	1.57	0.7339
POST SFAS 131	1.85*	-0.0939
Vsum5		
PRE SFAS 131	1.43	0.2607
POST SFAS 131	1.91*	0.5288
Vmax3		
PRE SFAS 131	1.07	0.4035
POST SFAS 131	2.09**	0.3781
Vsum3		
PRE SFAS 131	1.14	0.2320
POST SFAS 131	2.10**	0.6267
Vmax2		
PRE SFAS 131	1.65	1.0097
POST SFAS 131	1.85*	-0.0923
Vsum2		
PRE SFAS 131	1.68*	0.7777
POST SFAS 131	2.00**	0.1332



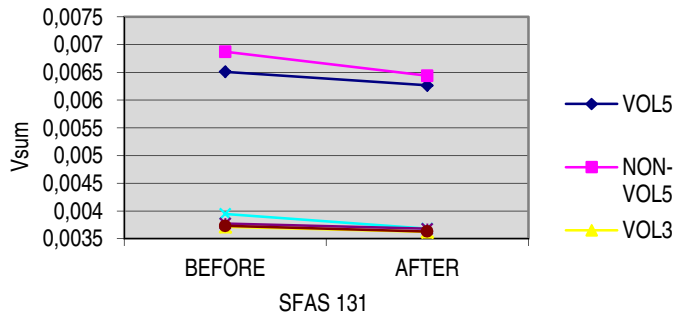
## Panel C. Voluntary vs. Nonvoluntary for each quarter

PERIOD	PRE SFAS 131		POST SFAS 131				
1st quarter:							
Voluntary							
(N=428)	Mean	Median	Mean	Median	t-statistics	Wilcoxon Rank Sum Test	
Vmax5	0.0045	0.0024	0.0046	0.0025	0.30		0.4547
Vsum5	0.0113	0.0065	0.0115	0.0066	0.21		0.3915
Vmax3	0.0042	0.0021	0.0040	0.0023	-0.64		0.3630
Vsum3	0.0073	0.0037	0.0067	0.0040	-0.83		0.3897
Vmax2	0.0041	0.0021	0.0040	0.0022	-0.27		0.8423
Vsum2	0.0071	0.0040	0.0069	0.0040	-0.17		0.6678
Nonvoluntary							
(N=47)	Mean	Median	Mean	Median	t-statistics	Wilcoxon Rank Sum Test	
Vmax5	0.0057	0.0031	0.0069	0.0030	0.55		-0.1248
Vsum5	0.0129	0.0071	0.0183	0.0077	1.14		0.1286
Vmax3	0.0039	0.0025	0.0064	0.0026	1.49		0.1361
Vsum3	0.0069	0.0039	0.0115	0.0040	1.57		0.1210
Vmax2	0.0057	0.0031	0.0054	0.0025	-0.12		-0.5898
Vsum2	0.0096	0.0050	0.0102	0.0041	0.20		-0.7033
2nd quarter:							
Voluntary							
(N=445)	Mean	Median	Mean	Median	t-statistics	Wilcoxon Rank Sum Test	
Vmax5	0.0045	0.0023	0.0043	0.0023	-0.37		-0.3231
Vsum5	0.0119	0.0065	0.0114	0.0066	-0.44		0.2871
Vmax3	0.0039	0.0019	0.0038	0.0019	-0.17		-0.6904
Vsum3	0.0071	0.0037	0.0069	0.0037	-0.35		0.4591
Vmax2	0.0040	0.0020	0.0038	0.0021	-0.44		0.3701
Vsum2	0.0075	0.0036	0.0070	0.0037	-0.70		0.3219
Nonvoluntary							
(N=45)	Mean	Median	Mean	Median	t-statistics	Wilcoxon Rank Sum Test	
Vmax5	0.0061	0.0023	0.0045	0.0016	-0.83		-1.2589
Vsum5	0.0165	0.0067	0.0129	0.0051	-0.69		-0.9442
Vmax3	0.0053	0.0021	0.0042	0.0015	-0.70		-1.5171
Vsum3	0.0100	0.0039	0.0079	0.0033	-0.66		-0.9442
Vmax2	0.0556	0.0020	0.0044	0.0015	-0.63		-0.6658
Vsum2	0.0102	0.0032	0.0083	0.0031	-0.55		-0.5810
3rd quarter:							
Voluntary							
(N=369)	Mean	Median	Mean	Median	t-statistics	Wilcoxon Rank Sum Test	
Vmax5	0.0049	0.0023	0.0039	0.0020	-1.92*		-1.9846**
Vsum5	0.0125	0.0065	0.0105	0.0057	-1.68*		-1.9021*
Vmax3	0.0045	0.0021	0.0034	0.0016	-2.46**		-2.7877***
Vsum3	0.0079	0.0038	0.0063	0.0031	-1.89*		-2.3507**
Vmax2	0.0044	0.0021	0.0036	0.0018	-1.55		-1.3586
Vsum2	0.0076	0.0037	0.0065	0.0034	-1.29		-1.2417
Nonvoluntary							
(N=41)	Mean	Median	Mean	Median	t-statistics	Wilcoxon Rank Sum Test	
Vmax5	0.0060	0.0023	0.0062	0.0021	0.08		-0.3849
Vsum5	0.0154	0.0067	0.0140	0.0065	-0.26		-0.4962
Vmax3	0.0057	0.0018	0.0055	0.0021	-0.12		0.1716
Vsum3	0.0097	0.0040	0.0091	0.0036	-0.18		-0.6260
Vmax2	0.0051	0.0018	0.0060	0.0019	0.46		0.3756
Vsum2	0.0095	0.0039	0.0103	0.0039	0.21		-0.1855

Panel D. Difference between voluntary and nonvoluntary disclosers  
before and after SFAS No. 131 for each quarter

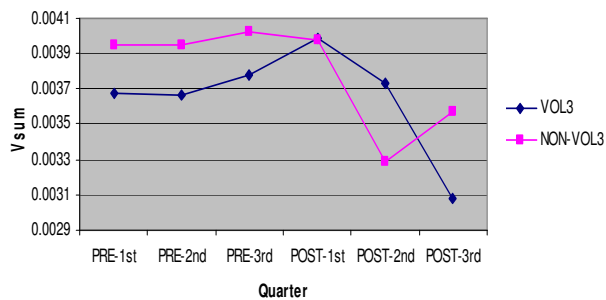
PERIOD		t-statistics	Wilcoxon Rank Sum Test
1st quarter:	Vmax5		
	PRE SFAS 131	0.89	0.8391
	POST SFAS 131	1.42	0.9639
	Vsum5		
	PRE SFAS 131	0.62	0.8872
	POST SFAS 131	1.69*	0.9113
	Vmax3		
	PRE SFAS 131	-0.37	0.3431
	POST SFAS 131	1.65	0.6331
	Vsum3		
	PRE SFAS 131	-0.24	0.6208
	POST SFAS 131	1.80*	-0.5972
	Vmax2		
	PRE SFAS 131	1.18	1.5986
	POST SFAS 131	1.10	0.6241
Vsum2			
PRE SFAS 131	1.20	1.6820*	
POST SFAS 131	1.35	0.5805	
2nd quarter:	Vmax5		
	PRE SFAS 131	1.07	0.1431
	POST SFAS 131	0.20	1.4527
	Vsum5		
	PRE SFAS 131	1.12	0.0895
	POST SFAS 131	0.46	-1.0468
	Vmax3		
	PRE SFAS 131	1.16	0.5137
	POST SFAS 131	0.33	-1.2732
	Vsum3		
	PRE SFAS 131	1.17	0.2834
	POST SFAS 131	0.50	-0.8473
	Vmax2		
	PRE SFAS 131	1.05	0.2690
	POST SFAS 131	0.47	-1.2572
Vsum2			
PRE SFAS 131	0.99	-0.4054	
POST SFAS 131	0.63	-1.2268	
3rd quarter:	Vmax5		
	PRE SFAS 131	0.72	-0.2112
	POST SFAS 131	1.42	0.5272
	Vsum5		
	PRE SFAS 131	0.68	0.5772
	POST SFAS 131	1.03	1.1141
	Vmax3		
	PRE SFAS 131	0.83	-0.1994
	POST SFAS 131	1.48	1.2940
	Vsum3		
	PRE SFAS 131	0.71	0.6293
	POST SFAS 131	1.20	1.4496
	Vmax2		
	PRE SFAS 131	0.62	-0.2890
	POST SFAS 131	1.53	0.4077
Vsum2			
PRE SFAS 131	0.73	0.0847	
POST SFAS 131	1.41	0.8314	

FIGURE 1. VOLUME REACTION (FOR QUARTERS COMBINED)



Note: Vsum - Sum value of V-Statistics in an event window (a detailed explanation in the text).  
 BEFORE - pre-SFAS No. 131 (Year 1997).  
 AFTER - post-SFAS No. 131 (Year 1998).  
 VOL5 - voluntary interim segment disclosers in a five-day window.  
 NON-VOL5 - nonvoluntary interim segment disclosers in a five-day window.  
 VOL3 - voluntary interim segment disclosers in a three-day window.  
 NON-VOL3 - nonvoluntary interim segment disclosers in a three-day window.  
 VOL2 - voluntary interim segment disclosers in a two-day prior to and the filing day window.  
 NON-VOL2 - nonvoluntary interim segment disclosers in a two-day prior to and the filing day window.

FIGURE 2. VOLUME REACTION (FOR EACH QUARTER)



Note: Vsum - Sum value of V-Statistics in an event window (a detailed explanation in the text).  
 BEFORE - pre-SFAS No. 131 (Year 1997).  
 AFTER - post-SFAS No. 131 (Year 1998).  
 VOL5 - voluntary interim segment disclosers in a five-day window.  
 NON-VOL5 - nonvoluntary interim segment disclosers in a five-day window.  
 VOL3 - voluntary interim segment disclosers in a three-day window.  
 NON-VOL3 - nonvoluntary interim segment disclosers in a three-day window.  
 VOL2 - voluntary interim segment disclosers in a two-day prior to and the filing day window.  
 NON-VOL2 - nonvoluntary interim segment disclosers in a two-day prior to and the filing day window.