

An Examination of the Trend of Financial Ratio before and after the U.S. SEC Investigation

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Abstract: This paper focuses on the impact of the U.S. SEC investigation on companies' financial ratios. The sample is 174 companies, public or private, investigated by SEC from Jan 2009 to Jan 2012. Liquidity, solvency, and profitability of those companies before and after SEC investigation will be calculated and compared in order to find out the changes of trend of financial ratios through SEC investigation. Financial situations of companies outside of investigation are also analyzed for comparison purpose.

Keywords: Liquidity, solvency, profitability, SEC investigation, financial ratio, U.S. Securities markets.

I. INTRODUCTION

In each year, many companies and individuals in U.S. were investigated by Securities and Exchange Commissions (SEC). SEC investigations are conducted confidentially in order to protect reputations of companies and individuals investigated if no wrongdoing was found by SEC; however, an investigation becomes public when the SEC files a case in court or through an administrative proceeding. This paper considers only investigated companies released and compares the financial ratios before and after the investigation to find out the trend. The financial ratios of companies outside of investigation are also calculated to be compared with those of investigated companies for further examining what impact does SEC investigation have on companies' reported performance. This paper provides data from Research Insight in order to compare the pre- and post-financial performance of companies through financial management ratios. SPSS is used to analyze independent T test. This paper finds out that SEC investigation does not affect investigated companies' financial situation significantly. Liquidity, profitability, and solvency change in SEC investigation year but are not affected in a long run.

II. LITERATURE REVIEW

The U.S. SEC Investigation:

Under the Securities Act of 1933 and the Securities and Exchange Act of 1934, the Securities and Exchange Commission (SEC) derives its authority to regulate U.S. securities markets from numerous Acts of Congress to ensure the efficient operation of domestic securities markets. The Securities Act of 1933 dealing with the initial public distribution of securities and the Securities Exchange Act of 1934 dealing with the registration of publicly traded securities represent the general framework for disclosure of information on publicly traded firms. (Randolph P. Beatty, 1998)

The general reasons of triggering SEC's attention are various. For example, malfeasance, auditor departure, restatements, or unusual trading would cause SEC's attention; delayed SEC filings, whistle-blower charges, management departures, and routine reviews by SEC could also result in SEC's further investigation (Simi Kedia, 2011). In a study conducted by Kedia-Simi(2011), it also found that SEC is more likely to investigate firms that are located closer to its offices and have received greater media attention (Simi Kedia, 2011). The SEC can get the information above from virtually any public or private information source. Rule 5(a) of the SEC's Rules of Practice describes the official position of the SEC concerning

the mechanisms that trigger an SEC investigation. In addition, SEC staff and self-regulatory organizations such as the NYSE, AMEX, and NASD may uncover information that leads to an SEC investigation (Randolph P. Beatty, 1998). Last, SEC investigations may arise from other governmental agencies, examination of filings with the SEC, information from parties being investigated, newspapers, competitors, dissident shareholders or directors, former employees, or even so-called "friends" (Randolph P. Beatty, 1998).

Market Reaction:

Disclosure of a SEC investigation is always associated with multiple negative economic effects (Randolph P. Beatty, 1998). Wall investigated the average market-adjusted return on the day of 58 companies and the result is negative -2.59% and statistically significant, and the median market-adjusted return was -1.74% and statistically significant. Thus, on average, disclosure of a investigation notice leads to a decline in stock prices (Nelson, 2009).

However, former studies also found that there was no significant difference between the average market-adjusted returns on the day of the disclosure of receipt of a notice for investigations that had been previously disclosed and the market-adjusted returns related to those that had not (Nelson, 2009). Still in the study conducted by Nelson, of the 58 investigations, only 17 (29 percent) resulted in negative and statistically significant declines in the target company's stock price upon disclosure of the Wells notice. Thus, for any individual case, disclosure of a Wells notice may or may not be perceived as significant negative news by market participants (Nelson, 2009).

Why Might Ratio Change after SEC investigation:

From previous studies and practical examinations, disclosure of an SEC investigation always follows with multiple negative effects on financial situation of investigated company, such as a decline in company's stock price and current assets. Why such negative effects happen, or why company's financial ratios changed after disclosure? Most companies received an SEC investigation because they were too aggressive in financial reporting or prepared fraudulent financial reporting, for example, companies may manipulate an extremely high revenue account in income statement by factious sale, which results a violation of federal state laws. While after SEC investigation, companies may become more conservative and therefore the financial ratios of the company would become normal. Moreover, the reputation of investigated company declined, as market participants perceive the disclosure of an informal or formal investigation as a signal of a higher likelihood that the outcome of the investigation will have a material impact on the company (Nelson, 2009). At last, SEC investigation imposes a variety of measurable and significant indirect penalties on investigated company if they were found violation and got sued (Nelson, 2009), and companies have to pay large amounts of money to settle the investigation, both resulting a large financial losses of investigated companies.

III. HYPOTHESIS AND DATA COLLECTION

According to the above discussion, this paper draws the following hypothesis:

Hypothesis: After SEC investigation, the trend of liquidity, solvency, and profitability of a company changes.

Sample:

The sample of this research project is 174 companies that were investigated by SEC during Jan. 2009 and Dec. 2012, and 9068 companies that were not investigated by SEC during Jan. 2009 and Dec. 2012. The 174 investigated companies can be found out from <http://www.sec.gov/divisions/enforce/friactions.shtml>, and the 9068 companies that were not investigated by SEC can be found from *Research Insight*. 57 companies that were investigated by SEC during Jan. 2009 and Dec. 2012 were found out from *Research Insight*. Due to some data of some companies are not available or missing for reason, 32 companies are selected as the sample for investigated companies, and 1831 companies are selected as sample for companies outside of investigation.

Method:

Ratios that reflect liquidity (current ratio), solvency (debt-to-equity ratio), and profitability (ROA) of three years before and three years after the SEC investigation will be used to do the analysis. Independent sample T-test in SPSS is used to analyze the three ratios of investigated companies before and after SEC investigation, and their trends after SEC

investigation are compared with the trends before SEC investigation. In independent sample T-test, ratios from three years pre-SEC investigation is defined as group 0, and ratios from three years post-SEC investigation is defined as group 1. Those ratios in 3 years before SEC investigation are compared with those in 3 years after SEC investigation. The trends of ratio trends are compared individually, and each trend of investigated companies is compared with the corresponding trend of companies outside of investigation for further examining the effects brought by SEC investigation.

IV. RESULTS AND DATA ANALYSIS

Ratios of investigated companies:

Table 1 shows the statistic results of the three ratios. The mean current ratio of group 0 (data before SEC investigation) is 1.79251, and the mean current ratio of group 1 (data after SEC investigation) is 1.93792. Current ratio is improved after SEC investigation. Along with the increase of current ratio, the standard deviation of group 1 is 0.839229, higher than the standard deviation of group 0 —0.680826, which means that the distribution of current ratios among sample companies is less concentrate after investigated by SEC.

The mean debt to equity ratio of group 0 is 131.696511, and the mean current ratio of group 1 is 134.44039. Debt to equity ratio increased after SEC investigation. After SEC investigation, standard deviation for debt to equity rate is increased to 500.423224.

Table1.Group Statistics

	Group	Mean	Std. Deviation	Std. Error Mean
C-Ratio	0	1.79251	.680826	.072992
	1	1.93792	.839229	.089975
D/E	0	131.69651	253.463300	27.174118
	1	134.44039	500.423224	53.651001
ROA	0	1.06959	13.261950	1.421830
	1	3.32326	6.980996	.748441

The mean ROA of group 0 is 13.261950, much higher than the mean ROA of group 1, which is 6.980996. ROA is decreased after SEC investigation, but it is not shown that the ROA is decreased very significantly.

Table2. Independent Samples Test

Levene's Test for Equality of Variances t-test for Equality of Means									
	F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
C-Ratio	3.397	.067	-1.255	172	.211	-.145414	.115859	-.374102	.083275
			-1.255	164.986	.211	-.145414	.115859	-.374171	.083344
D/E	.261	.610	-.046	172	.964	-2.743885	60.140358	-121.452060	115.964290
			-.046	127.400	.964	-2.743885	60.140358	-121.747204	116.259434
ROA	3.796	.053	-1.403	172	.163	-2.253678	1.606787	-5.425239	.917883
			-1.403	130.261	.163	-2.253678	1.606787	-5.432455	.925099

Table 2 shows the results of independent samples test. For current ratio, T-test for equality of means, sigma is 0.211>0.05 under both variance assumed and variance not assumed, so it is clearly that there is no significant statistic difference between the two groups— three years pre-SEC investigation and three years post- SEC investigation.

For debt-to-equity ratio, T-test for equality of means, sigma is 0.964>0.05 under both variance assumed and variance not assumed, so there is no significant statistic difference between group 0 (before SEC investigation) and group 1 (after SEC investigation)

For ROA, T-test for equality of mean, the sigma is $0.163 > 0.05$, in fact, there is no significant difference of ROA between the two groups.

Trend of ratio before and after SEC investigation:

Current Ratio

Table3. Comparison: Descriptive Statistics of Current Ratio

	Year	Minimum	Maximum	Mean	Std. Deviation
Companies Investigated	Y=-3	.796	3.546	1.82538	.697629
	Y=-2	.738	2.822	1.71421	.607920
	Y=-1	.962	4.570	1.83793	.746874
	Y=0	.865	4.987	1.81172	.858735
	Y=1	.532	4.282	1.89407	.879686
	Y=2	.863	4.541	1.99934	.974790
	Y=3	.937	3.141	1.92034	.657984
Companies outside of Investigation	Y=-3	2.299	1760.140	4.00290	32.478571
	Y=-2	5.514	1156.000	3.88521	25.569735
	Y=-1	1.153	751.667	3.46645	14.474792
	Y=0	2.026	2234.000	4.13170	40.310264
	Y=1	1.614	1620.800	3.49389	27.964958
	Y=2	2.061	24108.000	9.21303	376.399665
	Y=3	10.860	4759.400	4.38737	74.802708

From Table 3, the mean current ratio is decreased from 1.82538 in the third year before investigation (year -3) to 1.71421 in the second year before investigation (year -2), but is then increased to 1.83793 in the first year before SEC investigation (year -1). There is no regular pattern in the trend of current ratio in the three years pre-SEC investigation. However, in the SEC investigation year (year 0), then mean current ratio is decreased to 1.81172. But immediately after investigation, the mean current ratio is increased to 1.89407 in the first year after investigation (year 1) and keeps this upstream trend until the end of the second year after SEC investigation (year 2). The increase of mean current ratio stops in the third year after investigation (year 3), in which the mean current ratio is decreased to 1.92034.

If we look into the trend of median current ratio, we can see that the trend of median is not match the trend of mean very well, especially in the second and third year after investigation. For the trend of mean, it goes up first and then goes down, while for the trend of median, it goes down first and then goes up, such absolutely opposite direction is really strange. For further examine the trend of current ratio before and after SEC investigation, we compare the trend of investigated companies with that of companies outside of investigation.

For further examine the trend of current ratio before and after SEC investigation, we compare the trend of companies that were not investigated by SEC. From Table3, we find the trend of mean current ratio of companies outside of investigation does not show much difference from that of investigated companies, especially for the last two years covered in this study, the mean current ratio goes up in the second year after the assumed investigation year and then goes down in the third year after the assumed investigation year. But we should notice that for companies outside of investigation, mean current ratio is increased in the assumed investigation year (year 0), and what is also different from investigated companies is that the trend of median current ratio can match the trend of mean very well, while such match is not shown up in investigated companies' tables.

Debt-to-Equity Ratio:

Table4. Comparison: Descriptive Statistics of Debt-to-Equity Ratio

	Year	Minimum	Maximum	Mean	Std. Deviation
Companies Investigated	Y=-3	2.299	496.070	104.67186	101.629296
	Y=-2	5.514	1411.720	154.66500	276.541916
	Y=-1	1.153	1811.360	135.75266	330.448138
	Y=0	2.026	8837.040	368.64572	1629.945145
	Y=1	1.614	4640.780	227.40141	851.183308
	Y=2	2.061	661.610	88.91528	127.821117
	Y=3	10.860	617.297	87.00448	121.978950
Companies outside of Investigation	Y=-3	.014	5191.090	106.12259	251.301361
	Y=-2	.008	5038.380	104.44291	234.354001
	Y=-1	.009	104098.380	159.85304	2441.856546
	Y=0	.003	10284.100	123.75882	421.891723
	Y=1	.010	22212.170	162.34412	722.834464
	Y=2	.011	216699.990	343.38033	6691.190830
	Y=3	.006	356937.370	391.54904	8554.295098

For debt-to-equity ratio, we can see that from the first year preceding SEC investigation to the investigation year, there is a sharp increase in debt to equity ratio, and right after SEC investigation, the debt to equity ratio immediately goes down until the end of the third year after investigation. Although debt to equity ratio has upstream trend before SEC investigation and downstream after SEC investigation, the overall mean debt to equity ratio for the three years after SEC investigation is higher than the overall mean before SEC investigation, which means companies tend to use higher financial leverage after SEC investigation.

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For comparison purpose, we take into consideration of the trend of debt to equity ratio of companies outside of investigation. From Table 4, we can find that the trend of companies outside of investigation has similar pattern with the trend of investigated companies. From year -3 to year -1, the mean debt to equity ratio increased from 106.12259 to 159.85304, however, mean debt to equity ratio is decreased to 123.75882 in the assumed investigation year. In the following years, mean debt to equity ratio keeps upstream trend. Such similar pattern can be seen from the chart for investigated and companies outside of investigation.

Table5. Comparison: Descriptive Statistics of ROA Ratio

	Year	Minimum	Maximum	Mean	Std. Deviation
Companies Investigated	Y=-3	-75.648	22.472	-2.07779	17.978837
	Y=-2	-28.475	15.899	.44279	10.074450
	Y=-1	-23.442	29.420	4.84376	9.489357
	Y=0	-6.368	16.556	4.26252	5.642155
	Y=1	-15.172	16.954	3.83310	6.927429
	Y=2	-7.562	13.823	3.66121	5.374277
	Y=3	-21.103	19.216	2.47548	8.466397
Companies outside of Investigation	Y=-3	-754.746	68.891	1.93828	21.996781
	Y=-2	-252.714	46.549	2.41079	14.593910
	Y=-1	-219.198	43.858	2.62670	13.660502
	Y=0	-335.553	46.048	2.26271	15.297271
	Y=1	-474.840	38.932	-1.63240	20.688492
	Y=2	-184.622	82.639	-1.13502	15.125308
	Y=3	-264.425	40.779	1.32768	14.134125

If we look into detail of mean ROA through the whole 7 year period, we can find that there is an upstream trend in the three years period before the investigation year: in year -3 (the third year before investigation), the mean ROA is -2.07779, in year -2 (the second year before investigation), the mean ROA is 0.44279, and in year -1 (the first year before investigation) the mean ROA is 4.84376. However, mean ROA decreases a little bit to 4.26252 by the end of the investigation year, and such downstream trend keeps until the end of year 3 (the third year after investigation), with mean ROA of 2.47548. The trend of median ROA matches the trend of mean ROA.

While we look into the trend of mean ROA of companies outside of investigation, we can find a pattern which is similar with the pattern shown by investigated companies. Mean ROA has an upstream trend before the assumed SEC investigation year and then drops down. What is different from investigated companies is that, for companies outside of investigation, such decrease after the assumed SEC investigation year only last one year, and from year 2 (the second year after the assumed investigation year), the mean ROA is increase again.

V. DISCUSSION AND IMPLICATION

Through the analysis, current ratio is decreased in the SEC investigation year. SEC has negative effects on companies' liquidity but such effects are only in short run. Current ratio decreased at the investigation year, then increased at the first and second year after investigation, and decreased again at the third year after investigation. Compared such trend with the trend of companies outside of investigation, we can find that at the assumed investigation year, current ratio is increased, which is different from the trend of investigated companies. But what is the same between investigated and companies outside of investigation is that current ratio both are increased at the second year after the investigation year and then change direction—mean current ratio is decreased in the third year after investigation. SEC investigation may decrease current ratio in the investigation year, and may not affect current ratio in long run.

Debt to equity ratio measures a company's financial leverage. Through the analysis, debt to equity ratio is improved after investigation. In the year of investigation, debt to equity ratio is increased in investigated companies, while decreased in companies outside of investigation. However, for both investigated and companies outside of investigation, debt to equity ratios are both decreased at the third year after investigation year. So in the investigation year, investigated companies tend to use high financial leverage, which means they are more likely to use debt in financing, but SEC won't affect companies' financing method in long run.

ROA is an important ratios to evaluate companies' financial health. Through the analysis of hypothesis 3, the mean ROA after SEC investigation is higher than that before investigation—ROA is improved after SEC investigation. However, the trend of mean ROA is changed. ROA is decreased in the SEC investigation year, and such downstream trend is kept after investigation, while before investigation year, the mean ROA shows an upstream trend. Companies became more conservative as they were trying to decrease ROA.

This research could be implied to predict effects of SEC investigation on investigated companies' financial situation after SEC investigation. In the investigation year, companies' current ratio and ROA is decreased, which means SEC investigation has negative effects on companies liquidity and profitability; from the aspect of companies' solvency situation, companies become more conservative in short term debt financing. However, such negative effect is only short term, in long run, SEC investigation does not have much effects on companies' financial situations. There is no significant difference between financial situations before and after SEC investigation, and companies would improve their liquidity, profitability, and market value and reduce solvency possibility for long run. Such improvement may result from their regular operation of business without the negative effects deriving form SEC investigation in long run.

VI. CONCLUSION

Liquidity, profitability, and solvency are important indicators to evaluate financial situation of a company. SEC investigation could have negative effects on companies' liquidity and profitability in the investigation year, and companies become more conservative in dealing with solvency-related ratios. However, in long run, no significant effects from SEC investigation were found on companies' financial situations. Why SEC investigation did not have significant negative effects on companies? Why investigated companies did not become conservative after being investigated in long run? After checking the investigation cases of the sample companies, such questions can be answered. Most companies

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were investigated by SEC not because they were too aggressive in preparing financial reporting, such as generating fictitious sales, but because they violated other operation issues.

REFERENCES

- [1] Nelson, Dhesi, N. S. , "The conman and the sheriff: SEC jurisdiction and the role of offshore financial centers in modern securities fraud," Texas Law Review, Vol.88, No.6, PP.1345-1380, 2010
- [2] Medical Device Daily, Nelson, C. G, "Disclosures of SEC investigations resulting in wells notices," Securities Litigation Journal, Vol.14, No.144, PP.19-21, 2009.
- [3] Randolph P. Beatty, Howard Bunsis, and John R.M. Hand, "The indirect economic penalties in SEC investigations of underwriters," Journal of Financial Economics, Vol.50, PP. 151-186, July 1998.
- [4] Simi Kedia, Shiva Rajgopal, "Do the SEC's enforcement preferences affect corporate misconduct," Journal of Accounting and Economics, Vol.51, PP. 259-278, Mar 2011.
- [5] Biovail reach \$10M settlement in SEC investigation. MEDICAL DEVICE DAILY™. (TUESDAY, MARCH 25, 2008)