Financial Restatements and Their Impact on Stock Prices: Evidence from the US Financial Markets

Mohammad G. Robbani
Sekhar Anantharaman
Alabama A&M University

Rafiqul Bhuyan
California State University-Sacramento

Abstract

In this paper, we examine both short-term and long-term reactions of stock prices after restatement of earnings by the public companies. We analyze a sample of companies that have restated earnings. In order to accomplish our objective, we utilize the standard event study methodology. Our results indicate that the market usually perceives restatement of earnings negatively. This is evident from the fact that both upward and downward restatements show a negative impact on the stock price. In general, the impact of the restatement announcements is significant for all the prediction intervals. However, the short-term reaction is more pronounced compared to long-term reaction. The negative impact is much higher for those reasons that are directly related to the earnings management than those that do not involve any active earnings management.

1. Introduction

The corporate scandals and financial irregularities that exploded during 2001 to 2002 have been a stunning surprise to academicians, practitioners, and market participants on the Wall Street. Many of the public companies that overstated their financial statements in the past to offer a rosy outlook for their businesses, like Enron, WorldCom, Tyco, Adelphia, and many others, subsequently have come out to confess and restate their previously announced quarterly reports. As a result, investors become concerned about the accuracy of financial statements and accounting practices causing a melt down in investors' confidence on Wall Street firms since 2001. Restoring investors' trust since then has become quite a challenge for all public corporations. The aftermath impact of the restatement on underlying firm's stock prices and its peers has been devastating.

Restatement announcements and the media's continuous coverage of these high-profile companies have also brought the attention of regulatory agencies like the Securities and Exchange Commission (SEC) and Justice Department. For example, the SEC initiated formal investigation and produced many reports, the United States General Accounting Office (GAO) produced a thorough investigative report, and United States Congress conducted a formal hearing on the same subject. All these reports and hearings finally produced The Sarbanes-Oxley Act of 2002.[1] The Act addresses many concerns, including how to strengthen corporate governance and improve transparency and accountability to ensure the accuracy and integrity of financial reporting systems. On the academic side, there have been some published and unpublished papers on the accounting

[1] It was passed by Congress on July 30, 2002.

restatements during recent years. Studies by Richardson, Tuna and Wu (2002), Palmrose, Richardson and Scholz (2004), and Wu (2002) investigate the recent phenomenon of financial restatements.

Most of the published research, among others, relating to the stock price reaction on the announcement of accounting earnings find that the market is semi-strong form efficient, e.g., Ball and Brown (1968), Brown (1978), Watts (1978), and Fried and Givoly (1982). In addition to earnings announcement studies, many other studies attempt to analyze the stock price reaction to earnings announcement from different perspectives, for example, dividend announcement (Aharony and Dotan, 1980; and Kane, Lee and Marcus, 1984), timing of the earnings announcement (Chen and Mohan, 1994 and Chambers and Penman, 1984), speed of the price adjustment (Defeo, 1986), variation in stock price response when earnings are announced during trading and non-trading hours (Francis, Pagach and Stephan, 1992), and existence of options market (Jennings and Starks, 1986).

In this study, we attempt to study the impact of restatement of financial statements on short-term and long-term stock price movements. We identify some factors for which financial statements are restated and study the stock price reaction corresponding to those factors. Impact on the stock price can also be related to the traditional asset pricing model that explains that the price of a security is the present value of the relevant expected future cash flows. If the expectation about the future cash flow changes, because of the restatement, given the required rate of return on the security remains the same, the present value of the security would also have to change in order to incorporate the corrected financial information.

In a semi-strong form efficient market hypothesis, financial market is assumed to quickly identify the reasons of restatement and value the underlying securities accordingly. However, in practice, this information may not be as transparent as the efficient market expects to be and, as a result, initially the security may be under-valued or over-valued. Subsequently, there may be correction of this mistake in the security market.

Our analysis shows that there has been statistically significant negative market reaction for the whole sample. However, when we analyze the sub-sample based on reasons for restatements, we find that reasons that relate to the change, reclassify or restate any revenue or cost have significant negative impact on stock price compared to reasons that relate to some other factors. We also find that during the short-term period (for example, one week, one month and three months), the reaction is stronger compared to long-term period (six months and one year). For the purpose of analyzing stock price reaction, we adjust our sample stock prices for over all market movement.

The rest of the study is organized as follows. Section 2 presents a brief discussion on the relevant research studies that have been published on the earnings restatements. Section 3 identifies probable reasons for restating financial statements. Section 4 focuses on the data sources and the econometric methods applied in this study. Section 5 discusses the results and section 6 concludes the paper.

2. Literature Review

With the advent of a number of high profile recent accounting scandals, the interest in academic studies has increased significantly. This is evident from many studies

that are being published in academic journals and presented in professional conferences.[2] However, restatements of financial statements by corporations are not anything new. Several studies in the past investigated this issue from different perspective. DeFond and Jiambalvo (1991) study the incidences and circumstances of accounting errors made by 41 firms. Comparing to a control group of firms, they find that there is a significantly higher motivation of overstatement. They also find that erroneous statements are less for large firms. Kinney and McDaniel (1989) analyze the economic characteristics of firms that have corrected previously reported earnings. Their analysis shows that restatements are more prevalent for smaller and less profitable firms compared to large and stable firms.

One of the most recent studies published by Palmrose, Richardson and Scholz (2004) investigates the short-term market reaction to restatement announcements by 403 firms. This study finds that the average abnormal return is about -9% over a 2-day period during the announcement of restatements. Negative reactions are more prevalent for those firms whose restatements involve fraudulent activity either by management or the auditor of the restated firms.

3. Probable Reasons for Restating Financial Statements:

We hypothesize that stock prices adjust when unexpected changes in earnings are announced. These earning announcements convey information to the market and market forms expectations related to the future performance of the firm. Similarly, when a firm restates its previously announced earnings, it means that something has changed in its financial condition and as a result, it may change the investors' expectation on the future performance of the firm. In order to have a thorough and in depth understanding of the financial restatements and their impacts, we identify some common reasons for restating earnings. We categorize these reasons as to analyze their impacts in our research. The common reasons are as follows:

(1) Upward or downward revenue recognition: Corporations often restate their financial statements to recognize the previously improper accounting of revenues. It may also include the revenue that were questionable or misreported revenues.

(2) Mergers and acquisitions: Financial statements that did not properly account for mergers and acquisitions or did not account at all may be restated by corporations.

(3) Restructuring of assets or liabilities: These types of restatements are made when assets or liabilities are improperly valued. These may include any errors in valuation of investments, inventory or other fixed assets, goodwill as well as liabilities.

(4) Reclassification of accounting items: Accounting items that were improperly classified should be reclassified in a restated financial statement. Examples of improper classification of accounting items may include treatment of leased assets as permanent fixed assets, debt payments classified as investments, etc.

(5) Improper cost accounting used: Restatements are also made to rectify the improper cost accounting method used for any cost items. This may include the instances when cost or expenses are improperly recognized, when expenses are improperly capitalized, when tax liabilities or income tax reserves are improperly treated, etc.

[2] For example, see the number of research papers presented at the 2005 American Accounting Association meeting in San Francisco. The 2005 meeting had a theme that recognizes the effect of Sarbanes-Oxley Act. The theme was "The Sarbanes-Oxley Act: A Three-Year Retrospective."

(6) Improper valuation of in-process research and development: In case of acquisition, the value of ongoing research and development of the acquired company may not be estimated properly. Companies may recognize in-process research and development by restating their financial statements.

(7) Related party transactions: Restatements are made to correct any transaction with a related party or special entity that was not adequately disclosed or properly accounted for in the financial statements.

(8) *Securities related*: Restatements that are made to correct the improper accounting of derivatives, warrants, stock options and convertible securities fall under this category.

(9) Others: Any restatements that are not covered under the above reasons fall under this category. Some examples of such restatements may include inadequate loan loss reserves, inadequate loan write-offs, restatements due to fraud, and other unclassified accounting irregularities.[3]

4. Data and Methodology

Data

The sample consists of all firms that publicly announced the restatement of their previously announced financial statements during January 1997 through June 2002. There were 919 financial statement restatements announced by 845 public corporations during the same time period.[4] We then retrieved stock prices of these companies for one year surrounding the restatement announcement dates. To analyze the market reaction, we selected only 689 out of 919 restatement announcements. The reasons to exclude the remaining 230 restatements are that either some of those stocks are not listed in the AMEX, NASDAQ, or NYSE, or there are missing data for the relevant time period because of trading suspensions, bankruptcies, or mergers.

When we group our initial overall sample (919 companies) by reasons, we find that approximately 40% of the companies restated their financial statements because of revenue recognition. The second highest number of companies (about 14%) restated because of improper cost accounting method used to classify any cost or expense item. Table 1 shows the distribution of restated companies by reasons. This table presents the reasons (with the corresponding number and percentage of restatements) that were stated by the companies when announcements were made about the financial statements restatements. Restatements that did not have any specific reasons mentioned were grouped into "Others" category.

[3] Restatements announcements that were made due to stock splits, changes in accounting principles, and non-corrective restatements are excluded from our list.

[4] The list of the restated firms' names have been collected from GAO (2002). The researchers at GAO compiled this list from online database Lexis-Nexis. Out of 919 restatement announcements, nine firms announced three earnings restatements and 53 firms announced two restatements during the sample period.

Table 1
Reasons of Restatement

Reasons	Number of Restatements	Percent
Upward or downward revenue recognition	355	38.63
Mergers and acquisitions	57	6.20
Restructuring of assets or liabilities	125	13.60
Reclassification accounting items	35	3.81
Improper cost accounting used	129	14.04
Improper valuation of in-process research and development	34	3.70
Related party transactions	29	3.16
Securities related	54	5.88
Others	101	10.99
Total	**919**	**100.00**

We also group our overall sample in terms of the year of restatement announcement, exchange listing, and prompter of restatement. Table 2 shows the distribution of restatement companies by year and exchange listing. Nasdaq accounts for the highest number of restatements of all the exchanges (about 55.4% of all restatements). The second highest number of restatements came from companies listed in NYSE. AMEX accounts for the lowest restatements (5.1%). In terms of restatement by year, the highest number of restatements was made during 2001 (225 out of 919)[5] and the lowest number of restatement announcements was made during 1997 (only 92 out of 919).

Table 2
Companies Restating by Year and Exchange Listing

Year/Exchange	Number of Restatements				
	AMEX	NASDAQ	NYSE	OTC	Total
1997	2	61	21	8	**92**
1998	11	66	19	6	**102**
1999	9	99	50	17	**175**
2000	10	116	49	25	**200**
2001	8	113	80	24	**225**
2002	7	54	53	11	**125**
Total	**47 (5.1%)**	**509 (55.4%)**	**272 (29.6%)**	**91 (9.9%)**	**919 (100%)**

A number of parties can initiate the restatement of financial statements, such as, the company itself, its auditor, SEC, or other external parties. Table 3 presents the distribution of the initiators of restatement. Restatements of financial statements are

[5] Our data only includes restatement announcements made only up to June 30, 2002. If we had included all the restatements for full year of 2002, at this rate, total number of restatements would have been approximately 250. That would make the year 2002 as the highest number of announcements year.

prompted by different groups related to the company. Table 3 shows the number and percentage of restatements that were prompted by these groups. In our sample, the highest number of restatement decisions came from the company itself (375 out of 919) and the second highest came from the SEC (119 out of 919). Company's auditor initiated 69 restatements during this period of time. Restatements initiated by the company itself, company's auditor and jointly by company and auditor account for about 49% of all restatements made during the sample period. There are a large number of restatements which did not indicate which party initiated the restatement. We categorize this as 'unknown' group and this group accounts for about 35% of the whole sample. There are some restatement initiations that came from other external parties, such as, SEC, FASB, IRS, and Nasdaq. Restatement initiations made by all these external parties are categorized into 'external' group and it accounts for the remaining 16% of all restatements.

Table 3
Restatement by Prompter

Prompter	Number of Restatements	Percent*
Auditor	69	8
Company	375	41
Company/Auditor	6	-
Company with FASB or SEC	13	-
FASB	2	-
IRS	1	-
SEC	119	13
FASB/SEC	1	-
SEC/Auditor	3	-
External	5	-
Unknown	322	35.0
Total	**919**	**100**

*Percentages that are less than one are not reported. As a result, the total does not add to 100%.

Empirical Methodology

To detect any systematic changes in the stock prices of restated firms, a standard event study methodology, as used in Brown and Warner (1985) and Patell (1976), is applied. To estimate the parameters of market models, stock returns for a period of one year prior to announcement date are used.[6] Based on the parameters estimated for this period, abnormal performances for each stock are estimated for various short-term and long-term time intervals. We estimate the abnormal performance of the restated firms for the following time intervals: (1) -1 to +50 days, (2) -2 to +50 days, (3) -1 to +100 days, (4) -2 to +100 days, (5) -1 to +200 days, (6) -2 to +200 days, (7) -1 to +300 days, (8) -2 to +300 days, (9) 1

[6] To avoid any contamination on the estimation of market parameters by any market expectation about the possible restateement, this one-year period ends two months before the announcement date.

to +400 days, (10) -2 to +400 days, (11) -1 to +500 days, and (12) -2 to +500 days relative to announcement day.[7]

We estimate the cumulative average abnormal returns (CAAR) under three estimation techniques: (1) unadjusted CAARs, (2) CAARs adjusted for the overall market behavior and (3) CAARs adjusted for the systematic risk of the respective firms. To adjust for the market behavior, we used the return from S&P 500 index for the corresponding periods as the proxy for the market return. To adjust for the systematic risk, we estimate the betas for all firms by using one-year daily returns preceding the restatement announcement date. For this purpose, again we used daily returns from S&P 500 index as the market return.

In order to estimate the abnormal return and cumulative abnormal return we apply the standard event study methodology as suggested by Brown (1978) and Brown and Warner (1980).

5. Empirical Results

Our preliminary results show that, in general, the market reaction to the restatements of financial statements is significantly negative meaning that the stock prices of restating firms decreased because of the restatement announcements. These reactions are robust even when the returns were adjusted for both market and risk behavior. Of course, market-adjusted and risk-adjusted abnormal returns are somewhat lower than the unadjusted return. However, the extent of negative reactions varies depending on the reasons of restatement.

Table 4
Market reaction to the stock prices of all restating companies

Time Intervals Relative to the Restatement Announcement Date	Unadjusted CAAR		Market Adjusted CAAR		Risk Adjusted CAAR		% of Announcements with Negative CAAR
	CAAR (%)	P-Value	CAAR (%)	P-Value	CAAR (%)	P-Value	
Day -1 to Day +50	-20.12	0.00	-14.21	0.00	-8.36	0.00	95.8
Day -2 to Day +50	-21.58	0.00	-15.01	0.00	-9.21	0.00	95.6
Day -1 to Day +100	-15.36	0.00	-11.54	0.00	-7.76	0.00	94.1
Day -2 to Day +100	-15.92	0.00	-12.31	0.00	-8.35	0.00	94.0
Day -1 to Day +200	-11.62	0.00	-8.23	0.00	-6.74	0.00	93.5
Day -2 to Day +200	-12.38	0.00	-8.53	0.00	-7.59	0.00	93.2
Day -1 to Day +300	-10.25	0.00	-8.32	0.00	-5.64	0.01	91.1
Day -2 to Day +300	-10.69	0.00	-6.54	0.00	-6.31	0.01	91.1
Day -1 to Day +400	-9.37	0.00	-6.11	0.00	-4.01	0.02	89.3
Day -2 to Day +400	-9.74	0.00	-7.01	0.00	-4.56	0.02	89.1
Day -1 to Day +500	-7.58	0.00	-5.44	0.00	-3.45	0.03	85.6
Day -2 to Day +500	-7.89	0.00	-5.63	0.00	-3.87	0.03	85.4

[7] We have also studied various other time intervals. For the sake of space, those results are not reported here. However, the results from those time intervals are very similar to those that are reported here.

In Table 4, the market reaction is expressed in cumulative average return (in %) for different time intervals relative to the restatement announcements. Unadjusted cumulative average abnormal return (CAAR) is simply the daily price change adjusted for dividend over the specified time intervals, market-adjusted CAAR is the excess return over the return of S&P 500 index during the specified time intervals, and the risk-adjusted CAAR is the excess return adjusted for the market model: $R_{it} = \alpha_i + \beta_i R_{mt}$. For the full sample, the cumulative average abnormal returns are significantly negative for all time intervals. The unadjusted CAARs range from -20.12% to -7.58% as the prediction periods change from 52 days to 502 days. Results in table 4 provide a clear picture that as the prediction period increases, the value of CAARs increase, even though the significance level stays at less than 1% level. We also estimate the market adjusted and risk-adjusted CAARs. These CAARs are lower compared to the unadjusted CAARs, but are high to any measure of comparisons and are highly significant.

Table 4 also reports the percent of restatement announcements that have negative CAARs for each of the prediction period. The overwhelming majority of the restatement announcements are followed by negative market reactions. This simply confirms the view that investors, in general, perceive any accounting restatements as a sign of weakness from the part of the company. Of course, the restatements that did not have any effect on the company's previously announced earnings or balance sheets had either positive or no effect on the stock prices.

Table 5
Market Reaction to the stock prices of firms that restated financial statements for various reasons

Reasons for Restatements	Range of Unadjusted CAAR (%)	Range of Market Adjusted CAAR (%)	Range of Risk Adjusted CAAR (%)
Upward or downward revenue recognition	-28.67 to -12.95	-20.68 to -10.21	-25.36 to -13.46
Mergers and acquisitions	-3.68 to -0.57*	-2.52 to -0.21*	-1.14* to -0.11*
Restructuring of assets or liabilities	-12.23 to – 2.53	-11.48 to -3.29	-10.32 to -2.87
Reclassification accounting items	-14.62 to – 3.29	-11.75 to -3.58	-10.45 to -3.91
Improper cost accounting used	-13.47 to -4.83	-10.38 to –3.96	-9.65 to -3.76
Improper valuation of in-process research and development	-6.35 to 0.64*	-4.51 to 0.22*	-6.38 to 0.15*
Related party transactions	-4.27 to -0.35*	-2.93 to -0.63*	-4.23 to -0.49*
Improper Securities transactions	-9.38 to -6.85	-8.69 to -5.72	-9.46 to -5.37
Others	-6.25 to -0.92*	-6.49 to -0.53*	-5.65 to -0.26*

* CAARs at the higher end of the range are not significant at any conventional level of significance.

Table 5 presents the summarized CAARs for all the reasons listed in table 1 and for all the prediction intervals under three different estimation techniques.[8] The magnitude of CAARs for most of the reasons stated companies that announced restatements is very dramatic. For example, the reaction for upward or downward revenue recognition ranges from -28.67% to -13.46% and are significant at less than 1%. The CAARs are not very high for the sub-samples of companies that announced restatements because of mergers and acquisitions, improper valuation of research and development, and third party related transactions for the longer time intervals. For these sub-samples, the negative CAARs are significant for the short-term prediction periods only. For longer-term prediction periods, CAARs are negative but not significant at 1% or 5% level. For all other stated reasons, the CAARs are negative and strongly significant for all the prediction periods.

7. Conclusions

We analyze a total of 689 financial restatements made by about 845 US Public corporations that are listed in the AMEX, NASDAQ, and NYSE to investigate their impacts on stock prices. Our empirical analysis indicates that the market usually perceives restatement of earnings negatively. This is evident from the fact that both upward and downward restatements show a negative impact on the stock prices of the restated companies. In general, the impact of the restatement announcements is significant for all the prediction intervals. However, the short-term reaction is more pronounced compared to long-term reaction. The negative impact is much higher for those reasons that are directly related to the earnings management than those that do not involve any active management from the part of the companies.

[8] The detailed results for each of these reasons are not presented to save space.

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