

# Prospect Theory, Mental Accounting, and Timing of Restatement Disclosure

Qiongyao Zhang  
Robert Morris University

Chenchen Huang  
State University of New York-Buffalo State

## ABSTRACT

Accounting restatement is a form of information disclosure that is often income decreasing in nature and consequently causes negative market reactions. Research on restatement disclosure has generated significant findings on determinants and consequences of restatement disclosure choices. This paper adds to the restatement disclosure literature by investigating the timing of restatement disclosure through the lens of prospect theory and mental accounting theory. The findings suggest that timing (or not) the restatement announcement on the same day as the periodic filing provides a significant alternative explanation for the market reaction to restatement announcements, when firm characteristics and restatement characteristics are controlled. The findings also provide evidence for the argument that management is actively managing the timing of restatement disclosure.

Keywords: prospect theory, mental accounting, restatement, disclosure, timing

Copyright statement: Authors retain the copyright to the manuscripts published in AABRI journals. Please see the AABRI Copyright Policy at <http://www.aabri.com/copyright.html>

## INTRODUCTION

Restatements occur when a firm decides that it must restate previously issued financial statements. Accounting research on restatements has generated a rich body of literature because restatements have legal, regulatory and market ramifications that highlight accounting's primary function of providing useful information to various users. The determinants of restatements are also important because they shed light on important aspects of the firms and their management. When a firm issues a restatement, often the competence of its management, the reliability of its internal control, the effectiveness of its corporate governance, and the dependability of its audits are called into question. Consequently, management has incentives to control restatement disclosures, even if the regulatory body (e.g., SEC 2004) has tried to promote more transparency and greater timeliness in restatement disclosures.

Prior research finds that firms strategically disclose restatements by delaying announcements (Hong et al., 2000; Kothari, Shu, & Wysocki. 2005), mixing restatements with earnings news (Sharp, 2007), or failing to notify investors in 8-K filings (Myers, Scholz, & Sharp, 2013). Myers, Scholz, and Sharp posit that separate 8-K filings are the most transparent format of disclosure, followed by amendments (10-K/A and 10-Q/A) and periodic earnings reports (10-K and 10-Q), and the stock market should react differently to the three venues. Their hypothesis is partially supported by more negative market reactions to 8-K filings of restatements, but there are no differences between market reactions to amended filings and to periodic filings. Myers, Scholz, and Sharp, furthermore, caution that among the 1,082 8-K filings that they analyze, only 53% provide definite earning impact on previously announced financial statements, while 47% provide estimated value or do not provide information on earnings impact. Their content analysis of 8-K filings casts doubts upon their argument that 8-K filings are the most transparent venue of restatement disclosures.

Because of the mixed results generated by analyzing restatement disclosure venues and the uncertainty of transparency of restatement disclosure venues, this paper utilizes prospect theory and the mental accounting framework to examine the timing of different restatement disclosures and their market reactions. Particularly, this paper focuses on the timing of restatement disclosures and periodic filings. In restatement disclosure practice, some restatements are announced on the same day as periodic earnings reports, while others are announced on a different day. This study reports that market's negative reaction is less severe to an income-decreasing restatement announcement on the same day as a periodic filing, than to an income-decreasing restatement announced separated on a different day. This study also finds some evidence that management tends to separately announce an income-decreasing restatement announcement on a different day from a periodic filing with good earnings news.

Kahneman and Tversky's (1979) prospect theory argues that people gain utility not from the absolute levels of wealth, but from gains and losses of wealth. People tend to be loss averse because people are more sensitive to losses than to gains. Since gains and losses are both measured against reference points, people's degree of loss aversion become dependent on prior gains and losses. The value function in prospect theory is an S-shaped curve that is convex (loss loving) in the domain of losses and concave (loss averse) in the domain of gains. The question remains how people decide and measure losses and gains. Are people loss averse over their total wealth or over different accounts of wealth? For example, do investors decide their losses or gains on the total portfolio or individual stocks?

The mental accounting framework (Thaler, 1980) suggests a system of understanding which gains and losses investors pay attention to. Experimental and empirical evidence suggests that investors use a narrow framing and evaluate the losses and gains of individual stocks. Mental accounting attempts to understand how investors set reference points for deciding gains and losses of individual stocks. Combined with prospect theory, mental accounting describes how people evaluate their financial transactions and set up reference points for deciding gains and losses.

Prospect theory and mental accounting are the theoretical foundation of this study. Ideas of prospect theory and mental accounting guide the development of research hypotheses and the analysis of findings. This study contributes to the restatement disclosure literature by providing an alternative angle to understand market reactions to restatement announcements and management decision-making of restatement disclosures. In broader practical terms, management can use findings in this study to better align their restatement disclosure practices with their goals.

The next section of the paper lays out the literature review, followed by the hypotheses, a description of the sample and data, and the results of hypothesis testing. The last section concludes the paper with a summary and discusses findings of this study.

## LITERATURE REVIEW

A substantial body of accounting literature concentrates on accounting restatements. Unsurprisingly, restatement studies are often intertwined with disclosure studies. Clearly the decision to restate, the timing of restatement announcement, the disclosure venues of restatement, and its content quality are all part of the overall disclosure strategies and practices of firms. Empirical evidence suggests that managers hold back and strategically control the release of bad news, as compared to good news (Bagnoli, Clement, & Watts, 2005; Healy & Palepu, 2001; Patell & Wolfson, 1982). About 66 percent of the CFOs surveyed by Graham, Harvey, and Rajgopal (2005) agree with the idea of delaying bad news, hoping that the firm's status will improve before the next information announcement or the delay will give them more time to analyze and interpret. Nevertheless, when the bad news is not material, the management does not hesitate to disclose them voluntarily (Heitzman, Wasley, & Zimmerman, 2010). Researchers also find that management coordinates the timing of good and bad news disclosures so that they can be mixed together (Aboody & Kasznik, 2000; Lansford, 2006). Managers may wait for opportunities to coordinate a restatement announcement with other events, such as corporate events that directly affect the wealth of the manager (Aboody & Kasznik, 2000; Ertimur, Sletten, & Sunder, 2013), and the announcement of a restatement by an industry peer (Tse & Tucker, 2006).

Management's manipulation of timing of information disclosure is explained by Kothari, Shu, and Wysocki (2008) as an effort to control and smooth stock-price reactions. They document that stock-price reactions are consistent with the controlled release of good news and bad news by managers. Alternatively, public disclosure of a restatement may be delayed because managers are concerned about the potential damage of restatement to their career and/or reputation (Desai, Hogan, & Wilkins, 2006; Skinner 1994). In addition, managers might be motivated to promptly disclose bad news because litigation risk may rise if investors perceive excessively delay of releasing bad news (Field, Lowry, & Shu, 2005; Kasznik & Lev, 1995;

Skinner 1994); and cost of capital may be lowered by reducing information asymmetry through timely disclosure (Botosan, 1997; Botosan and Plumlee, 2002).

Empirical studies focusing on the determinants of restatements have identified management compensation schemes, financial constraints, and weak corporate governance as viable predictors of restatements. Burns and Kedia (2006) suggest that CEO's option portfolio's sensitivity to stock price is strongly connected to the tendency to misreporting financial results. Firms constrained by financial conditions and arrangements such as debt covenants or recently raised funds through external financing are more likely to restate (Efendi, Srivastava, & Swanson, 2007). In addition, they find that firms whose CEO and board chair are served by the same person are more likely to issue restatements.

An active line of empirical research on accounting restatements has documented strong market reactions to restatements (e.g., Dechow, Hutton, & Sloan, 1996; Richardson, Tuna, & Wu, 2002). Palmrose, Richardson, and Scholz (2004) show that income-decreasing restatements have significantly greater impact on stock price than neutral or income-increasing restatements. Firms' spreads increase around restatements (Anderson & Yohn, 2002). In the month immediately following a restatement, the cost of equity capital increases between 7 and 19% for the firm (Hribar and Jenkins, 2004). Restatement firms are found to lose information content in their earnings announcement around restatements (Wilson, 2008). There are also stock price declines in peer firms after statements (Gleason, Jenkins, & Johnson, 2008).

The releasing choices of restatement announcement carry important consequences. Swanson, Tse, and Wynalda (2007) state that the magnitude of cumulative abnormal return surrounding restatement is more likely related to managerial choice on disclosure format than to the severity of restatement. Similarly, Files and Swanson (2009) show evidence that restatement's placement in the financial statements can affect investors' reaction, while Hirshleifer and Teoh (2003) notice that restatement announcement disclosed as a part of earnings news or in the footnote makes a difference. Gordon, Henry, Peytcheva, and Sun (2013) suggest that restatements with an officers' quote will cause a less negative market reduction due to reduced information asymmetry.

The consequences of restatements for the managers are well documented but remain somewhat mixed in the literature. Desai, Hogan, and Wilkins (2006) indicate that restating firms have a higher (60%) chance of a turnover of at least one top manager than comparable peers (35%) within two years of the restatement. Furthermore, the displaced managers of restatement firms have poorer subsequent employment prospects than their displaced counterparts in control firms; thus, the reputational damage to the displaced manager is significant. After separating intentional restatements from unintentional restatements, there is a clear connection between intentional restatements and CEO/CFO turnover (Hennes, Leone, & Miller, 2006; Leone & Liu, 2010). Similarly, outside directors in restatement firms, especially those on the audit committee, experience significant penalties in the labor market (Srinivasan, 2005). Collins, Masli, Reitenga, and Sanchez (2005) report, however, that only about half of misreporting firms punish their executives.

Restatements are found to be related to litigation risks. Loss causation is a crucial element in securities class action law suits (Bliss, Partnoy, & Furchtgott, 2018). Because income-decreasing restatements are generally 'corrective actions' that proceed stock price drops, restatements could prompt litigations (Francis, Philbrick, & Schipper, 1994; Johnson, Nelson, & Pritchard, 2006). Some studies, however, find evidence that some restatement disclosure practices might deter litigation. First, some disclosure practices might attenuate the stock price

decline. Second, some disclosure practices confound the facts about the cause of the stock price decline by compounding restatement with other information disclosures (Bliss, Partnoy, & Furchtgott, 2018).

Prospect theory and mental accounting have been used in understanding investor behaviors in various areas of finance and accounting research. The main idea of loss aversion and narrow framing, as proposed by prospect theory and mental accounting, provides a useful behavioral economics perspective of understanding investors, especially retail investors' evaluation of stock investments. Burgstahler and Dichev (1997) find that in a large set of U.S. firms, few firms report small losses while many firms report small positive earnings. Burgstahler and Dichev argue that firms that have a small loss manipulate accruals and cash flows to show a small positive earning, because investors would have a strong reaction to a small loss. Barberis and Huang (2001) apply ideas of prospect theory and mental accounting in understanding equilibrium firm-level stock returns. Their modeling research shows that the approach that assumes investors are loss averse over the narrow framing of individual stocks provides a better explanation for the cross-section stock return, than an alternative approach that assumes investors employ a broader framing of their stock portfolio. Choi, Laibson, and Madrian (2009) study investors' asset allocation decisions and document evidence that investors often make decisions about individual accounts in their portfolio in a narrow framing that they do not consider their other accounts, which is consistent with the predictions of mental accounting. Grinblatt and Han (2005) employ prospect theory and mental accounting to explain momentum (spread convergence). The spread between the fundamental value of a stock and its equilibrium price, and stock price under reaction to information, are partially caused by some investors who hold on to their losing stocks. Those investors' behavior can be explained by prospect theory and mental accounting.

## **HYPOTHESES**

Following the line of research on applying prospect theory and mental accounting in studying stock investor behaviors, this study utilizes the ideas of loss aversion and narrow framing in understanding different stock market reactions to different timing of restatement disclosures. Thaler (1985) suggests that consumers use different coding in processing joint outcomes of two events (both could be either a gain or a loss). Two gains could be segregated; while two losses could be integrated. The mixed result of one gain and one loss is harder to decide- integration is probably preferred because the gain offsets the loss, but the separation of a gain fits the 'silver lining' principle, which makes intuitive sense. Income-decreasing restatements are the focus of this study, which narrows down the joint outcomes to two scenarios: incoming-decreasing restatements and negative periodic earnings reports, and income-decreasing restatements and good periodic earnings reports. Consequently, the following hypotheses are proposed.

H1a: the stock market reaction to an income-decreasing restatement that is disclosed on the same day as a bad periodic earnings announcement is less negative than an income-decreasing restatement on a separate day from a bad periodic earnings announcement.

H1b: the stock market reaction to an income-decreasing restatement that is disclosed on the same day as a good periodic earnings announcement is less negative than an income-decreasing restatement on a separate day from a good periodic earnings announcement.

Part of management's control of restatement disclosure could be manipulating the timing of income-decreasing restatement disclosures. According to the 'silver lining' principle, management will separate an income-decreasing restatement from a good periodic earnings announcement. This leads to the following hypothesis:

H2: an income-decreasing restatement is more likely to be announced on a separate day from a good periodic earnings announcement than on the same day as a good periodic earnings announcement.

## RESEARCH DESIGN

The sample is taken from the Audit and Analytics database (AA). Restatements issued from January 1, 2000 to December 31, 2013 are included in the original data set. This original data set is merged with Compustat and CRSP to include firm information and stock prices. Furthermore, those observations in AA with the missing value of the variable containing aggregate income change caused by restatement are removed, because an upward or downward sign of aggregate income change is needed in this study. This process generates a total sample size of 4,377 as indicated in Table 1 (Appendix)

To test hypothesis H1a and H1b, an ordinary least square (OLS) regression model is employed, as stated in Equation (1):

$$\begin{aligned} \text{CAR} = & \text{Intercept} + \beta_1 \text{NI\_Increase} + \beta_2 \text{Inter\_Same\_NI\_Increase} + \\ & \beta_3 \text{Inter\_Same\_NI\_Decrease} + \beta_4 \text{Effect\_Dummy} + \beta_5 \text{Restat\_Impact} + \\ & \beta_6 \text{Disclosure\_Period\_Yr} + \beta_7 \text{Disclosure\_Lag\_Yr} + \beta_8 \text{LEV} + \beta_9 \text{ROA} + \beta_{10} \text{EARN\_Var} + \\ & \beta_{11} \text{MB} + \beta_{12} \text{LOGTA} + \varepsilon \end{aligned} \quad (1)$$

The dependent variable in equation (1), CAR, is the buy-and-hold abnormal returns in the three-day window beginning on the day before restatement announcement date. The Capital Asset Pricing Model (Jensen, Black, & Scholes, 1972) is used to calculate the abnormal return, which is then annualized with 252 trading days in a year. Daily return of a stock is regressed on the market return to generate the specific beta for each stock, and the beta is used to calculate the excess return.

The independent variables include both restatement characteristics ( $\beta_1 - \beta_7$ ) and firm characteristics ( $\beta_8 - \beta_{12}$ ). The sub-sample of income-decreasing restatements is the focus of this study. NI\_Increase equals 1 if the net income reported in the current periodic filing increases over the same period of last year (Ball and Brown, 1968). The indicator variable NI\_Increase is expected to have a positive sign. Effect\_Dummy equals 1 if the restatement is income decreasing. The sign of Effect\_Dummy is expected to be negative. Restat\_Impact measures the absolute value of the accumulative impact of the restatement on the net income. Restat\_Impact is expected to have a negative sign. Disclosure\_Period\_Yr measures the length of the period that is covered by the restatement, and it is expected to move in the opposite direction of CAR. Disclosure\_Lag\_Yr indicates the time period between the end of the restated year and the date of restatement announcement. Disclosure\_Lag\_Yr is expected to have a negative sign. For the five firm characteristics (leverage, return on assets, earnings variance, market-to-book ratio, and total assets), no signs are expected. See the variable definitions in the appendix for a complete list of variables and their definitions.

Inter\_Same\_NI\_Increase and Inter\_Same\_NI\_Decrease are the main focus of equation (1). Both are indicator variables that measure the interaction between timing of restatement and earnings news in the periodic filings. Inter\_Same\_NI\_Increase equals 1 if a restatement is announced on the same day as a good periodic filing. According to Hypothesis 1a, Inter\_Same\_NI\_Increase has a positive sign. Inter\_Same\_NI\_Decrease equals 1 if a restatement is announced on the same day as a negative periodic filing. Based on Hypothesis 1b, Inter\_Same\_NI\_Decrease has a positive sign.

To test hypothesis H2, a logistic model is proposed to discern determinants of restatement disclosure timing, as stated in equation (2).

$$\text{Same\_Day} = \text{Intercept} + \beta_1 \text{NI\_Increase} + \beta_2 \text{Effect\_Dummy} + \beta_3 \text{Restat\_Impact} + \beta_4 \text{Disclosure\_Period\_Yr} + \beta_5 \text{Disclosure\_Lag\_Yr} + \beta_6 \text{LEV} + \beta_7 \text{ROA} + \beta_8 \text{EARN\_Var} + \beta_9 \text{MB} + \beta_{10} \text{LOGTA} + \varepsilon \quad (2)$$

The dependent variable Same\_Day is an indicator variable that equals 1 when an income-decreasing restatement is announced on the same day as a periodic filing. Independent variables in equation (2) belong to two groups. One group includes restatement characteristics ( $\beta_1 - \beta_5$ ); the other group includes firm characteristics ( $\beta_6 - \beta_{10}$ ).

Managers have some room for maneuver in controlling the timing of restatement disclosure. Enhanced transparency and timeliness of restatement disclosure are promoted by laws and regulatory bodies. For example, Section 409 of the Sarbanes-Oxley Act of 2002 ('Real Time Issuer Disclosures') requires firms to disclose timelier and more accurately. The SEC issued *Final Rule: Additional Form 8-K Disclosure Requirements and Acceleration of Filing Date* (SEC 2004) requires firms to disclose "on a rapid and current basis" of a material change. The rule also requires companies to notify investors of a forthcoming restatement within four business days of management's none-reliance judgment, even if the exact impact of the restatement has not been determined. However, the SEC has not published any additional clarification on the ruling (Johnson, 2009). As a result, managers still have some freedom in deciding the timing of restatement disclosure.

Managers have motivations to control the timing of restatement disclosure. On the one hand, timely disclosure could reduce information asymmetry (Skinner 1994), cost of capital (Botosan 1997; Hribar & Jenkins, 2004) and litigation risks (Kasznik & Lev, 1995). On the other hand, severe restatements could cause huge market drop (Kothari, Shu, & Wysocki, 2008), executive turnover (Hennes, Leone, & Miller, 2008), and continuous labor market penalties (Desai, Hogan, & Wilkins, 2006), which gives CEOs incentives to delay, hide or even never announce restatements. According to prospect theory and mental accounting, management might take advantage of the 'silver lining' effect and separately announce an income-decreasing restatement and a periodic filing with good earnings news.

## Descriptive Statistics

Table 2 (Appendix) presents the descriptive statistics for our full restatement sample. As Panel A shows, Effect\_Dummy has a mean of 0.84, indicating that 84% of restatements in the sample have a negative impact on net income. The average impact of restatement on income (Restat\_Impact) is 1.04 times of earnings prior to restatement fiscal year. This number is bigger than that of Myers, Scholz, and Sharp (2013) for the following reason. Myers, Scholz, and Sharp investigate the determinants of disclosure venues. Specifically, they find corporate governance, external auditor monitoring, and analysts following could affect disclosure choices. This study

does not include analysts following because I/B/E/S database has a strong bias toward big firms, but restating firms are usually small. Not merging restatement sample with I/B/E/S variables saves a lot of smaller firms in this sample. Consequently, the average assets are 6824.04 million, less than that of Myers, Scholz, and Sharp.

Restatements in this sample on average cover a period of 1.95 years. The lag between the last day of the restated period and the restatement disclosure date is 0.61 years on average. About 50% of the periodic filings have good earnings news. Twenty-seven percent of the restatements are disclosed on the same day as a periodic filing. Firm characteristic variables are also summarized in Panel A.

Panel B shows the correlation between some selected variables. CAR has significant correlations with NI\_Increase, Inter\_Same\_NI\_Increase, Effect\_Dummy, Restat\_Impact, Disclosure\_Lag\_Yr, and ROA, based on Pearson correlation. Only Effect\_Dummy has a strong correlation with CAR if Spearman correlation is used as indicated in Table 3 (Appendix)

Table 3 compares the distribution of same day disclosure and different day disclosure by the whole sample, periodic filings with good earnings, and periodic filings with bad earnings respectively. Panel A shows that for the whole sample, there are significant differences (P-Value<0.1) in Disclosure\_Period\_Yr, Disclosure\_Lag\_Yr, LEV, ROA, LOGTA, and CAR between the same day disclosure of restatement and periodic filing and the different day disclosure. Panel B indicates that for those periodic filing with good earnings news (earnings is better than the same period last year), same day disclosure with restatement announcements and different day disclosure with restatement announcements generate significant differences (P-Value<0.05) in the following variables: Disclosure\_Period\_Yr, Disclosure\_Lag\_Yr, LEV, ROA, LOGTA, and CAR. Panel C shows that for bad earnings news, the two groups (same day disclosure with restatement announcements and different day disclosure with restatement announcements) have significant differences (P-Value < 0.05) in the following variables: Disclosure\_Lag\_Yr, LEV, ROA, and LOGTA.

## Multivariate Results

Table 4 presents the results of regression analysis investigating how restatement characteristics and firm characteristics affect CAR. Consistent with Hypothesis H1a, Inter\_Same\_NI\_Decrease has a significant positive impact on CAR. Compared with income-decreasing restatements that are disclosed on a different day than a bad periodic filing, income-decreasing restatements that are disclosed on the same day as a periodic filing with a bad earnings announcement cause a significantly milder decline in stock price as captured in CAR. As predicted by Hypothesis H1b, Inter\_Same\_NI\_Increase has a significant positive impact on CAR. Compared with income-decreasing restatements that are disclosed on a different day than a good periodic filing, income-decreasing restatements that are disclosed on the same day as a periodic filing with a good earnings announcement lead to a significantly smaller stock price decline as measured by CAR. Effect\_Dummy has significant negative impact on CAR; this result is consistent with the restatement literature. When a restatement decreases income, the stock market reacts negatively to its disclosure. The gap between the end of the restated period and the restatement disclosure date has a significant negative impact on CAR. The longer the gap is, the greater the decline in stock price is. Total assets of the firm have a significant positive impact on stock price as indicated in Table 4 (Appendix)



Table 5 summarizes the results of the logit model examining restatement disclosure timing. As predicted by Hypothesis H2, NI\_Increase has significant negative impact on Same\_Day. When the periodic filing has good earnings news, management is more likely to disclose an income-decreasing restatement on a different day. This find provides direct evidence that management manipulates the timing of restatement disclosure to its advantage. Another variable in equation (2) that has a significant impact is LOGTA. The greater the total assets of a firm, the less likely that an increase-decreasing restatement is announced on the same day as a periodic filing with good earnings news. This finding suggests that bigger firms are more adept at taking advantage of the “silver lining” effect as indicated in Table 5 (Appendix)

Table 6 lists the results of testing the determinants of litigation risk after a restatement disclosure. The dependent variable is an indicator variable, which equals to 1 if a lawsuit follows a restatement and 0 otherwise as indicated in Table 6 (Appendix)

Table 6 lists the results of testing the determinants of litigation risk. The result shows that CAR, the lag between the end of restated period and restatement announcement, and leverage have significant negative impact on (decrease) litigation risk. Income-decreasing restatement announcements, the length of the restated period, and total assets have significant positive impact on (increase) litigation risk. The timing of restatement announcement, as measured in the variable Same\_Day, however, does not have a significant impact on litigation risk.

## CONCLUSION

In summary, this study applies ideas of prospect theory and mental accounting in understanding the timing of restatement disclosure, market reactions, and management choices. Research hypotheses are supported by the data. The stock market reacts less negatively to income-decreasing restatement announcements when they are disclosed on the same day as a periodic filing, either with good earnings news or bad earnings news. This provides a behavior economics explanation for the spread between a stock’s fundamental value and its equilibrium price right after a restatement announcement. There is some evidence that management is actively using the “silver lining” effect to time the release of income-decreasing restatements.

The seemingly contradiction between the results of H1b and H2 could be explained by different time frames. The CAR in testing H1b represents a three-day narrow window of abnormal return. H1b suggests that there is a temporary stock price advantage of timing an income-decreasing restatement announcement on the same day as a periodic filing with good earnings news. That price advantage, however, tends to disappear over time in a phenomenon called spread convergence (Grinblatt & Han, 2005). If the management is familiar with the short-term nature of the advantage, or they have an extended time frame in mind, they might instead separate those two announcements to harvest the ‘silver lining’ effect.

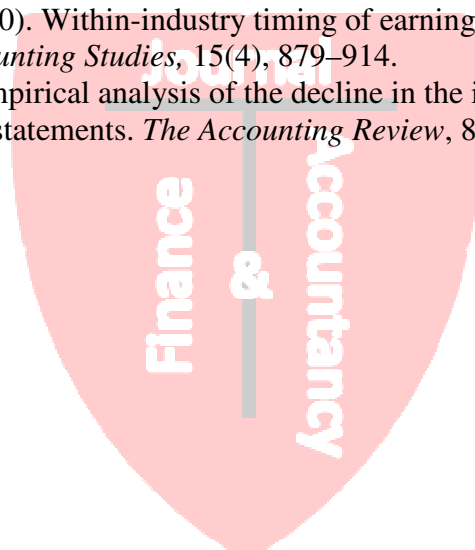
The findings on litigation risk suggests that negative stock reactions are a strong determinant, which is consistent with the literature. While Bliss, Partnoy, and Furchtgott (2018) find some evidence of the impact of compounding restatement announcements with other information announcements on litigation risk of securities class action lawsuit cases in the jurisdiction of eighth and ninth circuits of the U.S. Courts of Appeals, the timing of restatement announcements is not a significant determinant in this study. Their study, however, measures litigation risk by additional variables of dismissal rates and settlement amounts, which are not included in this study.

## REFERENCES

- Aboody, D., & Kasznik, R. (2000). CEO stock option awards and the timing of corporate voluntary disclosures. *Journal of Accounting and Economics* 29, 73-100.
- Anderson, K., & Yohn, T. (2002) The effect of 10-K restatements on firm value, information asymmetries, and investors' reliance on earnings. Working paper, Georgetown University
- Ball, R., & Brown, P. (1968) An empirical evaluation of accounting income numbers. *Journal of Accounting Research* 6, 159-178.
- Bagnoli, M., Clement, M., & Watts, S.G. (2005). Around-the-clock media coverage and the timing of earnings announcements. Working paper. The University of Texas at Austin.
- Barberis, N., & Huang, M. (2001). Mental accounting, loss aversion, and individual stock returns. *The Journal of Finance*, 56(4), 1247-1292.
- Bliss, B. A., Partnoy, F., & Furchtgott, M. (2018). Information bundling and securities litigation. *Journal of Accounting and Economics*, 65(1), 61-84.
- Botosan, C.A. (1997). Disclosure level and the cost of equity capital. *The Accounting Review* 72(3), 323-349.
- Botosan, C.A., & Plumlee, M.A. (2002). A re-examination of disclosure level and expected cost of equity capital. *Journal of Accounting Research*, 40(1), 21-40.
- Burgstahler, D., & Dichev, I. (1997). Earnings management to avoid earnings decreases and losses. *Journal of accounting and economics*, 24(1), 99-126.
- Burns, N., & Kedia, S. (2006). The impact of performance-based compensation on misreporting. *Journal of Financial Economics* 79, 35-67.
- Choi, J. J., Laibson, D., & Madrian, B. C. (2009). Mental accounting in portfolio choice: Evidence from a flypaper effect. *American Economic Review*, 99(5), 2085-95.
- Collins, D., Masli, A., Reitenga, A. L., & Sanchez, J. M. (2009). Earnings restatements, the Sarbanes-Oxley Act, and the disciplining of chief financial officers. *Journal of Accounting, Auditing & Finance* 24(1), 1-34.
- Dechow, P. M., Hutton, A. P., & Sloan, R. G. (1996). Economic consequences of accounting for stock based compensation. *Journal of Accounting Research* 34, 1-20.
- Desai, H., Hogan, C.E., & Wilkins, M.S. (2006). The reputational penalty for aggressive accounting: earnings restatements and management turnover. *The Accounting Review*, 81(1), 83-112.
- Efendi, J., Srivastava, A., & Swanson, E. P. (2007). Why do corporate managers misstate financial statements? The role of option compensation and other factors. *Journal of Financial Economics* 85(3), 667-708.
- Ertimur, Y., Sletten, E., & Sunder, J. (2013). Large Shareholders and Disclosure Strategies: Evidence from IPO Lockup Expirations. Working Paper. SSRN.
- Field, L., Lowry, M., & Shu, S. (2005). Does disclosure deter or trigger litigation?. *Journal of Accounting and Economics*, 39(3), 487-507.
- Files, R. & Swanson, E. P. (2009). Stealth disclosure of accounting restatements. *The Accounting Review* 84(5), 1495-1520.
- Francis, J., Philbrick, D., & Schipper, K. (1994). Shareholder litigation and corporate disclosures. *Journal of accounting research*, 137-164.
- Gleason, C. A., Jenkins, N. T., & Johnson, W. B. (2008). The contagion effects of accounting restatements. *The Accounting Review*, 83(1), 83-110.

- Gorden, E., Henry, E., Peytcheva, M., & Sun, L. (2013). Discretionary disclosure and the market reaction to restatements. *Review of Quantitative Finance and Accounting*. 41, 75-110
- Graham, J.R., Harvey, C.R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40, 3-73.
- Grinblatt, M., & Han, B. (2005). Prospect theory, mental accounting, and momentum. *Journal of financial economics*, 78(2), 311-339.
- Healy, P.M., & Palepu, K.G. (2001). Information asymmetry, corporate disclosure, and the capital markets: a review of the empirical disclosure literature. *Journal of Accounting and Economics* 31, 405-440.
- Heitzman, S., Wasley, C., & Zimmerman, J. (2010). The joint effects of materiality thresholds and voluntary disclosure incentives on firms' disclosure decisions. *Journal of Accounting and Economics* 49(1-2), 109–132.
- Hennes, K. M., Leone, A. J., & Miller, B. P. (2008). The importance of distinguishing errors from irregularities in restatement research: The case of restatements and CEO/CFO turnover. *The Accounting Review* 83, 1487–1520.
- Hirshleifer, D. & Teoh. S. H. (2003). Limited attention, information disclosure, and financial reporting. *Journal of Accounting and Economics* 36(1-3), 337–386.
- Hong, H., Lim, T., & Stein, J. C. (2000). Bad news travels slowly: Size, analyst coverage, and the profitability of momentum strategies. *The Journal of Finance*, 55(1), 265-295.
- Hribar, P., & Jenkins. N. T. (2004). The Effect of Accounting Restatements on Earnings Revisions and the Estimated Cost of Capital. *Review of Accounting Studies*. 9(2-3), 337-356.
- Jensen, M. C., Black, F., & Scholes, M. S. (1972). The capital asset pricing model: Some empirical tests.
- Johnson, S. (2009). Mixed signals: A new reason to revisit materiality. CFO.com.
- Johnson, M. F., Nelson, K. K., & Pritchard, A. C. (2006). Do the merits matter more? The impact of the Private Securities Litigation Reform Act. *The Journal of Law, Economics, & Organization*, 23(3), 627-652.
- Kahneman, D., & Tversky, A. (1979), Prospect theory: An analysis of decision under risk, *Econometrica* 47, 263-291.
- Kaszniak, R., & Lev. B. (1995). To warn or not to warn: management disclosures in the face of an earnings surprise. *The Accounting Review* 70(1), 113-134.
- Kothari, S. P., Shu, S., & Wysocki. P. (2008). Do managers withhold bad news? *Journal of Accounting Research* 47 (1), 241–276.
- Lansford, B.N. (2006). Strategic coordination of good and bad news disclosures: the case of voluntary patent disclosures and negative earnings surprises. Working paper. Northwestern University.
- Leone, A. J., & Liu, M. (2010). Accounting irregularities and executive turnover in founder-managed firms. *The Accounting Review*, 85(1), 287-314.
- Myers, L., Scholz, S., & Sharp. N. (2013). Restating under the radar? Determinants of restatement disclosure choices and the related market reactions. Working paper. SSRN.
- Palmrose, Z-V., Richardson, V. J. & Scholz. S. (2004). Determinants of market reactions to restatement announcements. *Journal of Accounting and Economics* 37 (1), 59-89.
- Patell, J.M. & Wolfson. M.A. (1982). Good news, bad news, and the intraday timing of corporate disclosures. *The Accounting Review* Vol. 57(3), 509-527.

- Richardson, S., Tuna, I., & Wu, M. (2002). Predicting Earnings Management: The Case of Earnings Restatements. Working paper, University of Pennsylvania.
- Securities and Exchange Commission (SEC). 2004. Final Rule: Additional Form 8-K Disclosure Requirements and Acceleration of Filing Date. Washington, DC: Govt. Printing Office.
- Sharp, N. 2007. SEC Regulation and the Strategic Disclosure of Accounting Restatements. Working paper, University of Texas at Austin
- Skinner, D.J., (1994). Why firms voluntarily disclose bad news. *Journal of Accounting Research* 32, 38–60.
- Srinivasan, S. (2005). Consequences of financial reporting failure for outside directors: Evidence from accounting restatements and audit committee members. *Journal of Accounting Research*, 43(2), 291-334.
- Swanson, E., Tse., S., & Wyalda, R. (2007). Stealth Disclosure of Accounting Irregularity: Is Silence Golden? Working paper, Texas A&M University.
- Thaler, R. (1980), Toward a positive theory of consumer choice. *Journal of Economic Behavior and Organization* 1, 39-60
- Thaler, R. (1985). Mental Accounting and Consumer Choice. *Marketing Science*. 4 (3), 199-214.
- Tse, S., & Tucker. J. W. (2010). Within-industry timing of earnings warnings: Do managers herd? *Review of Accounting Studies*, 15(4), 879–914.
- Wilson, W. M. (2008). An empirical analysis of the decline in the information content of earnings following restatements. *The Accounting Review*, 83(2), 519-548.



**APPENDIX****Variable Definitions**

---

CAR	=	The buy-and-hold abnormal returns in the three-day window beginning on the day before restatement announcement date;
Disclosure_Lag_Yr	=	The time period between the end of the restated period and the restatement disclosure date;
Disclosure_Period_Yr	=	The total number of misstated years that needs correction by restatements;
EARN_Var	=	The standard deviation of the firm's income before extraordinary items for a period of three years before the year of the restatement announcement;
Effect_Dummy	=	An indicator variable that equals 1 if the restatement had negative impact on net income;
Inter_Same_NI_Decrease	=	An indicator variable that equals 1 if the restatement was announced on the same as a bad periodic filing;
Inter_Same_NI_Increase	=	An indicator variable that equals 1 if the restatement was announced on the same as a good periodic filing;
LEV	=	The financial leverage, calculated as long-term debt and current liabilities scaled by total assets, for the last annual filing before the restatement announcement;
LOGTA	=	The natural log of total assets, as reported for the last fiscal year before the restatement announcement;
MB	=	The market-to-book ratio, as the market value of equity divided by the book value of equity, for the last fiscal year before the restatement announcement;
NI_Increase	=	An indicator variable that equals 1 if the net income of the current period is greater than the same period of last year;
Restat_Impact	=	The absolute value of the cumulative impact of the restatement on net income, scaled by net income of the last fiscal year before the restatement announcement;
ROA	=	Return on assets, as income before extraordinary items scaled by total assets, for the last fiscal year before the restatement announcement;
Same_Day	=	An indicator variable that equals 1 if the restatement was announced on the same as a periodic filing.

Table 1: Sample Selection

	Number of Observations
Restatements in AA from Jan. 1, 2000 to Dec. 31, 2013	13,443
Less: Firms without Compustat	9,104
Less: Firms without CRSP	6,411
Less: Firms without some missing variables	2,034
Final sample:	<u>4,377</u>

Table 2: Descriptive Statistics for the Restatement Sample

Panel A. Univariate Statistics for Continuous Variables

Variables	Mean	Median	Lower Quantile	Upper Quantile	Std. Dev.
Effect_Dummy	0.84	1.00	1.00	1.00	
Restat_Impact	1.04	0.07	0.00	0.30	9.25
Disclosure_Period_Yr	1.95	1.26	0.75	2.75	1.83
Disclosure_Lag_Yr	0.61	0.44	0.34	0.85	0.50
NI_Increase	0.50	1.00	0.00	1.00	0.50
Same_Day	0.27	0.00	0.00	1.00	0.44
LEV	0.49	0.20	0.03	0.41	4.99
ROA	-0.23	0.00	-0.16	0.04	0.67
MB	0.07	0.29	0.19	0.50	1.01
MEAN_VAR	78.18	8.14	2.23	33.81	308.48
LOGTA	5.58	5.69	3.94	7.24	2.54
CAR	-0.01	-0.01	-0.05	0.02	0.15

Panel B. Sample Correlations between Selected Variables (Pearson Above/Spearman Below)

	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)
1)		0.03*	0.04*	-0.01	-0.03*	-0.11*	-0.01	0.06*	0.02	0.04*	0.02	0.00	0.07*
2)	0.00		0.28*	-0.46*	0.00	-0.07*	-0.04*	0.06*	0.03*	-0.05*	0.04*	-0.01	-0.01
3)	0.00	0.36*		-0.31*	0.01	0.01	-0.02*	0.06*	0.02*	-0.05*	-0.02*	-0.04*	-0.04*
4)	0.00	-0.36*	-1.00*		0.00	0.03*	0.01	0.01	0.01	-0.01	-0.03*	-0.01	-0.03*
5)	-0.02*	0.00	0.01	-0.01		-0.07*	0.02	0.04*	0.02	0.00	-0.05*	0.00	-0.05*
6)	-0.01	0.01	0.00	0.00	0.01		0.24*	-0.11*	-0.03*	-0.06*	-0.13*	0.01	-0.12*
7)	0.02	-0.09*	-0.04*	0.04*	0.01	0.04*		-0.02	-0.02	0.16*	0.15*	0.10*	0.22*
8)	0.01	0.08*	0.09*	-0.08*	0.05*	0.03*	-0.09*		0.05*	-0.09*	-0.07*	-0.06*	-0.12*
9)	-0.01	0.05*	0.03*	-0.03*	0.02	0.00	-0.06*	0.05*		-0.14*	0.10*	-0.29*	0.08*
10)	0.02	-0.03*	-0.03*	0.03*	-0.02	0.02	0.13*	-0.07*	-0.32*		0.16*	0.17*	0.43*
11)	0.00	-0.01	-0.01	0.01	-0.04*	-0.01	0.05*	0.00	-0.01	0.05		0.06*	0.75*
12)	0.00	-0.03*	-0.02	0.02	-0.01	0.00	0.02	-0.01	-0.06*	0.06*	0.00		0.08*
13)	0.00	-0.01*	-0.07*	0.07*	-0.05*	0.01	0.23*	-0.10*	-0.27*	0.50*	0.36*	0.03*	

Note: asterisks indicate P-value<0.05

- 1) CAR
- 2) NI\_Increase
- 3) Inter\_Same\_NI\_Increase
- 4) Inter\_Same\_NI\_Decrease
- 5) Effect\_Dummy
- 6) Restat\_Impact
- 7) Disclosure\_Period\_Yr
- 8) Disclosure\_Lag\_Yr
- 9) LEV
- 10) ROA
- 11) EARN\_Var
- 12) MB
- 13) LOGTA

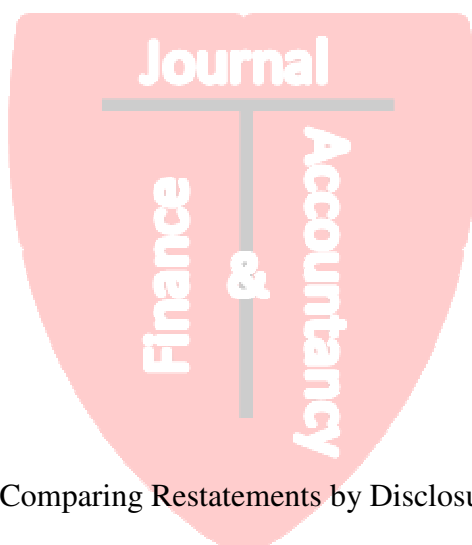


Table 3: Univariate Statistics Comparing Restatements by Disclosure Timing

Panel A. Fall Sample

	Different day / All earnings News	Same day / All earnings News	T-stat differ.	P-Value
Effect	0.85	0.86	-1.34	0.18
Restat_Impact	1.15	0.86	1.01	0.31
Disclosure_Period_Yr	1.78	1.71	1.86	0.06
Disclosure_lag_Yr	0.64	0.72	-6.02	<.01
LEV	0.39	0.47	-3.69	0.00
ROA	-0.21	-0.28	4.47	<.01
MB	1.78	0.86	0.79	0.43
EARN_VAR	82.22	72.87	1.14	0.25
LOGTA	5.13	4.65	6.47	<.01
CAR	-0.02	-0.01	-1.72	0.09

## Panel B. Sub Sample Only Including Good Earnings News

	Different day / Good earnings News	Same day / Good earnings News	T-stat differ.	P-Value
Effect	0.85	0.86	-0.50	0.62
Restat_Impact	1.11	0.76	0.68	0.49
Disclosure_Period_Yr	1.91	1.78	2.00	0.05
Disclosure_lag_Yr	0.63	0.69	-2.91	0.00
LEV	0.37	0.44	-2.42	0.02
ROA	-0.22	-0.28	2.64	0.01
MB	1.73	0.62	0.92	0.36
EARN_VAR	93.31	85.32	0.65	0.52
LOGTA	5.35	4.84	4.83	<.01
CAR	-0.01	0.00	-2.79	0.01

## Panel C. Sub Sample Only Including Bad Earnings News

	Different day / Bad earnings News	Same day / Bad earnings News	T-stat differ.	P-Value
Effect	0.85	0.86	-0.84	0.40
Restat_Impact	1.14	0.98	0.56	0.58
Disclosure_Period_Yr	1.81	1.73	1.36	0.17
Disclosure_lag_Yr	0.60	0.70	-4.97	<.01
LEV	0.37	0.44	-2.42	0.02
ROA	-0.18	0.27	3.79	0.00
MB	2.45	1.75	0.39	0.70
EARN_VAR	70.97	63.57	0.64	0.52
LOGTA	5.07	4.61	4.29	<.01
CAR	-0.02	-0.02	-0.02	0.99



Table 4: Determinants of CAR around Restatement

Variable	Prediction	Coefficient	T-stat	P-Value
Intercept		-0.0274	-4.23	<.01
NI_increase	+	0.0000	-0.08	0.93
Inter_Same_NI_Increase	+	0.0072	2.11	0.04
Inter_Same_NI_Decrease	+	0.0071	2.09	0.04
Effect_Dummy	-	-0.0116	-3.07	0.00
Restat_Impact	-	-0.0001	-0.88	0.38
Disclosure_Period_Yr	-	-0.0011	-1.45	0.15
Disclosure_Lag_Yr	-	0.0147	4.59	<.01
LEV	?	0.0014	0.25	0.80
ROA	?	0.0025	0.53	0.59
EARN_var	?	0.0000	-1.27	0.20
MB	?	0.0000	-0.39	0.70
LOGTA	?	0.0024	2.8	0.01
Sample Size	4,365			
Adjusted R-square	0.93%			
F-Value	4.43			

Table 5: Logit Model of Determinants of Restatement Disclosure Timing

Variable	Coefficient	T-stat	P-Value
Intercept	0.3006	11.19	<.01
NI_Increase	-0.0001	-2.79	0.01
Effect_Dummy	0.0082	0.5	0.62
Restat_Impact	-0.0004	-0.65	0.51
Disclosure_Period_Yr	0.0022	0.66	0.51
Disclosure_Lag_Yr	0.0099	0.73	0.47
LEV	-0.0060	-0.28	0.78
ROA	-0.0294	-1.61	0.11
EARN_Var	0.0000	0.83	0.41
MB	-0.0001	-0.23	0.81
LOGTA	-0.0104	-2.93	0.00
Sample Size	4694		
Adjusted R-square	0.37%		
F-Value	2.76		

Note: The logistic model in Table 5 examines the determinants of the choice to announce a restatement in the same day as periodic earnings reports.

Table 6: Logit Model of Determinants of Securities Class Action Lawsuits

Variable	Coefficient	T-stat	P-Value
Intercept	0.0834	2.83	<.01
NI_Increase	0.0000	-0.39	0.69
Same_Day	-0.0005	-0.04	0.97
Effect_dummy	0.0459	2.66	0.01
Restat_impact	-0.0001	-0.14	0.89
Disclosure_Period_yr	0.0142	4.05	<.01
Disclosure_lag_yr	-0.0763	-5.22	<.01
CAR	-0.4008	-5.81	<.01
LEV	-0.0879	-3.39	<.01
ROA	-0.0084	-0.39	0.70
EARN_Var	0.0000	1.45	0.15
MB	0.0003	0.92	0.36
LOGTA	0.0292	7.63	<.01
Sample Size	4,365		
Adjusted R-square	4.38%		
F-Value	17.66		

Note: The logistic model in Table 6 examines the determinants of shareholders file securities class action lawsuits.