A Risk Assessment of Intangible Asset Valuation: The Post-Hoc Association between Goodwill Impairments and Risk Hazards in Mergers and Acquisitions

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Abstract
We tested whether the change from SFAS 141 to SFAS 141r/ASC 805 had any effect on restatements due to goodwill impairment. Our findings suggest that the implementation of SFAS 141r increased the likelihood of a financial restatement by 2.5 times. Board of Director and Audit Committee involvement in the goodwill impairment decision reduced the likelihood of a restatement occurring. Service industry companies were 3.2 times more likely to restate their assets due to goodwill impairment. Companies who were audited by a Big4 firm reduced the odds of restatement by 47%.

INTRODUCTION

Accounting for goodwill has been an issue that has led to considerable disagreement for the past fifty years. Disputes over goodwill accounting rules provided some of the major causes of failure for both the Committee on Accounting Principles and the Accounting Principles Board (APB). SFAS 142/ASC 350, *Goodwill, and Other Intangible Assets* was issued by the Financial Accounting Standards Board (FASB) in June 2001. It superseded APB Opinion No. 17, *Intangible Assets*. The provisions of this Statement were required to be applied starting with fiscal years beginning after December 15, 2001. SFAS 142/ASC 350, *Goodwill, and Other Intangible Assets* was issued concurrently with SFAS 141/ASC 805, *Business Combinations*, in June 2001. ASC 805 introduced the *purchase method* of accounting.

The confusion over how to interpret and apply these two statements led the FASB to issue SFAS 141(r)/ASC 805, in December 2007. It was released in order to "…improve the relevance, presentational faithfulness, and comparability of the information that a reporting entity provides in its financial reports about a business combination and its effects." SFAS 141(r)/ASC 805 also amended SFAS 142/ASC 350 to provide guidance on the impairment testing of acquired research and development intangible assets and assets that the acquirer did not intend to use. It became effective for "…business combinations for which the acquisition date is on or after the beginning of the first annual reporting period on or after December 15, 2008."

The center of the debate introduced by SFAS 142 was the role of managerial judgment embedded in the statement. Many prior studies such as Ramanna and Watts (2012), Bens et al. (2011), and Li et al. (2011) examined the effect of SFAS 142 by focusing on goodwill impairment. The initial valuation of goodwill in a merger and acquisition has been a material source of restatements (Ramanna and Watts (2012), Bens et al. (2011), and Li et al. (2011).

This paper presents the first attempt to examine whether the change from SFAS 141 to SFAS 141(r)/ASC 805, had an effect on the reported earnings of combined companies when applying SFAS 142/ASC 350 to test for goodwill impairment in the merger and acquisition setting. We investigate the risks hazards associated with managements' estimates of goodwill's in post hoc merger and acquisitions.

We also expand on the literature which investigates corporate governance/audit committee/board involvement by examining the effect of the change from SFAS 141 to SFAS 141(r)/ASC 805 – which requires the immediate expensing of acquisition costs. This in turn provided management with a greater incentive to allocate a greater portion of the purchase price to goodwill instead of intangible assets.

We investigate whether audit committees and the boards of directors participate in the impairment decision process to test for the impairment of intangible assets and goodwill in business combinations under acquisition accounting. We accomplish this by comparing the frequency of impairment under SFAS 142 – using two separate periods: pre SFAS 141r vs. post-SFAS 141r effective dates.

Finally, we investigate the effects of the implementation of SFAS 141r on post merger and acquisition transaction goodwill restatements. This pronouncement required acquisition-related expenses to be recognized immediately and acquisition-related contingencies to be reported on the acquirers' financial statements in the same reporting period in which the transaction occurred.

This manuscript is important for several reasons. First, The Public Company Accounting Oversight Board (PCAOB) continues to ask auditors to increase their risk assessment judgments in high hazard areas such as goodwill impairment (PCAOB, 2010). Second, Christensen et al., (2012) suggest that future research in fair value accounting topics such as goodwill impairment provide a reliable contribution to the incremental knowledge demanded by standard setters and regulators. Finally, this investigation provides important information for accounting (audit) educators. Bell and Griffin, (2012) and PCAOB (2010), emphasize that auditor training should reflect heightened risk assessment that move beyond traditional audit checklist items such as intangible asset valuation.

The paper is organized as follows: section II provides the framework for the study, section III describes the research design, sample selection, and statistical model, section IV presents descriptive statistics and bivariate measures of association, section V presents the logistic regression results, section VI presents a discussion of our results, and section VII concludes the study.

Review of Literature and Framework for Study

Watts (2003) questioned whether the issuance of SFAS 142 was consistent with the accounting principle of conservative reporting when he stated: "Assessing impairment requires valuation of future cash flows. Because those future cash flows are unlikely to be verifiable and contractible as a result, valuation will likely to be manipulated. Conservatism does not allow the use of such measures, SFAS 142 may be an error in judgment by the FASB." While the authors offer an interesting perspective, their research did not identify the specific misjudgments of SFAS 142.

Hayn and Hughes (2006) examined whether financial disclosures on acquired entities allowed investors to predict goodwill impairment. They created a predictive model for goodwill impairment that was based on bankruptcy prediction models.

Hayn and Hughes (2006) also suggested that the ability to predict goodwill impairment based on financial statement information was limited. They opined that the results were troubling because a number of financial statement disclosures do not allow auditors, investors and other users of financial statements to determine effectively whether managements' determinations of the purchase price amounts allocated to goodwill and the subsequent impairment of goodwill which leads to financial statement restatements. The limitation of the model created by Hayn and Hughes (2006) is that it relied on variables such as changes in return on assets, sales and premiums paid in an acquisition. A notable omission was the market capitalization of companies.

Hence, the relationship of market capitalization as it relates to goodwill restatements has yet to be investigated as being a risk hazard. There are mixed findings in prior research on market capitalization as a variable. Majid and Lode (2015), found that market capitalization alone was not a good proxy for goodwill impairment. However, when market capitalization was combined with operating results it became a starting point of reporting goodwill impairment (Majid and Lode, 2015). Accordingly, we propose:

H1: Market capitalization is not a significant risk hazard for goodwill restatements.

Beatty and Weber (2006) predicted that goodwill write-offs in the initial adoption year of SFAS 142 varied based on CEO compensation, CEO reputation, asset-pricing, exchange de-listing concerns, and concerns relating to debt covenant violation. They found evidence to support that a firm's equity market concerns affected their preference for above-the-line vs. below-the-line accounting treatment. They also found evidence to support that a firm's debt is contracting, bonus compensation, turnover, and exchange de-listing incentives affected their decision to accelerate or delay expense recognition. Finally, they found that the probability of taking a write-off is smaller for firms that have bonus compensation plans based on earnings which do not exclude the effects of special items.

Bens et al. (2011) analyzed the information content of goodwill write-offs before and after the adoption of SFAS 142. They extended the expectations model used by Beatty and Weber (2006). Bens et al. found that when firms recorded charges that exceeded the expected amount goodwill impairment, the market's reaction was negative. When firms recorded impairment expenses that were less than expected amounts, there was no market reaction. They postulate that the market may believe that a greater impairment actually occurred, but that management is delaying its recognition.

Lee (2011) found that the ability of goodwill to forecast future cash flows got better after the adoption of SFAS 142. He also found persuasive evidence that the reporting flexibility produced by SFAS 142 was used opportunistically or informatively, in contrast to the prevailing view derived from the opportunistic reporting theory. Lee's results supported the view taken by the FASB that the removal of systematic amortization and the adoption of fair value estimates increased the emblematic believability of goodwill reporting. Andrews, et.al. (2009) and Nguyen (2013), argued that SFAS141(R) would add to the complexity of financial reporting of companies in merger transactions and practitioners would have a difficult time implementing the directive. We propose:

H2: Post SFAS 141 application is not a significant risk hazard in goodwill restatements.

H3: Post SFAS 141 R application is a significant risk factor in goodwill restatements.

Chtourou, Bedard and Coureau (2001) examined whether a firm's corporate governance practices affected the quality of publicly released financial information. In particular, they investigated the relationship between audit committee and board of director characteristics and the level of corporate earnings management as determined by the level of positive and negative discretionary accruals. Their results provided evidence that successful boards and audit committees limit earnings management activities.

Ramanna and Watts (2012) pointed out that the "SFAS 142 approach to goodwill accounting represented a significant innovation over prior practice and standards in that it relies solely on management estimates of goodwill's current value." These management "estimates" of goodwill's current value have subsequently created even more discussion and confusion in the accounting periods that began on December 15, 2001. They go on to state "The current value of goodwill is a function of management's future actions, including managers' conceptualization and implementation of the firm strategy. As such, it is difficult to verify and audit." They also hypothesized that managers will exploit the SFAS 142 impairment test in a manner that coincides with private incentives per agency theory. However, these studies failed to address the influence of the board of director's or audit committee's knowledge or involvement with impairment testing. Accordingly:

H4: The odds of a goodwill restatement are reduced with the board of directors and audit committee participation.

Gu and Lev (2008) found that primary reason of many goodwill write-offs is the overpriced shares acquired by buyers at acquisition. They verified that: "(1) share overpricing is strongly and positively associated with the intensity of corporate acquisitions and the growth of accounting goodwill, (2) share overpricing is negatively related to the post-acquisition share performance of buyers, beyond the overpricing correction, indicating that many of these acquisitions are ill-advised, a prelude to goodwill impairment and, (3) share overpricing is positively related to the frequency and size of goodwill write-offs."

They also showed that share overpricing predicted both goodwill write-offs and their magnitude – "… a finding of practical importance to auditors and investors – and that business acquisitions by overpriced companies – a strategy often recommended by investment bankers and some academics – is by and large a losing proposition for buyers' shareholders."

Li et al. (2011) questioned whether firms that delay taking losses due to goodwill impairment have acted opportunistically. Management's subjective allocation of purchase price between intangible assets and goodwill may lead to opportunities for management to improve their own compensation by purposely managing earnings to have a positive effect on stock price. Their empirical evidence suggested that overpayment for acquired targets could be a potential contributing factor to the subsequent goodwill impairment. They suggested that a future area of research for service companies as an industry, because theory implies their balance sheets should have a greater amount of intangible assets than manufacturers. Accordingly, we test the hypothesis:

H5: ***The odds of a goodwill restatement are greater for service companies than manufacturing companies.***

Erickson, Heitzman and Zhang (2012) examined whether misreporting firms use acquisitions to conceal accounting irregularities. Their results showed that fraud firms were more likely than non-fraud firms to make successful acquisitions during the period of supposed fraud. They also found that fraud firms increased the fraction of total investment expenditures allocated to acquisitions. Misreporting

acquirers were more likely to make diversifying acquisitions and purchase subsidiaries rather than stand-alone firms. These findings are consistent with those of Ramanna and Watts (2012), who conjectured that firms that avoided taking an impairment loss may have acted unscrupulously. The Ramanna and Watts (2012), study was one of the first to tie goodwill impairments with the financial aspects of acquisitions for which goodwill was paid, which in turn, provides an understanding of the causes of goodwill impairment.

Erickson, Heitzman and Zhang (2012) investigated how financial statement misreporting influences merger and acquisition decisions. They analyzed a sample of 283 firms accused of committing accounting fraud by the SEC between 1985 and 2003. They found that fraud firms were more likely than non-fraud firms to acquire another company and are also more likely to acquire firms that have less public information, are harder to value, and have less similar operations. In the same research stream, Davidson (2014) identified audits by Big 4 firms were associated with fewer restatements due to accounting fraud. We use these studies as a basis to include the type of audit firm, Big 4 or not in our model. We test the hypothesis:

H6: The odds of a goodwill restatement are reduced when a Big 4 firm is involved in the restatement process from beginning to end.

In summary, we posit that risk hazards such as post 141r implementation, whether the board and audit committee are involved, if the firm is a service company and if a Big 4 firm participates in the process from beginning to end are associated with goodwill restatements in post mergers and acquisitions.

Research Design, Sample Selection and Model

To test the six hypotheses in this paper, we obtained relevant evidence that is aimed to answer the overarching research investigation. The structure of inquiry in this design that is best positioned to address the hypotheses is archival data on goodwill restatements that include variables identified in our critical review of the prior literature.

Consistent with prior literature (Lobo and Zhao, 2013), we select our restatement data from Audit Analytics for the period of December 31, 1995, thru June 30, 2014. Our final sample consists of 434 observations of goodwill restatements as a result of mergers and acquisitions. We have verified these restatements with secondary data. A news search for each company included in the sample ensued after the Audit Analytics data was collected to cross reference the actual event.

In order to estimate the risks associated with goodwill restatements in merger and acquisition transactions, we use a logistic regression model. This type of model is consistent with the prior literature (Gu and Lev 2008, Ramanna and Watts (2012), Lobo and Zhao, 2013) The binary response variable is GWREST, which equals 1 if goodwill was restated and 0 if not.

The independent variables are defined in order of how they are entered into the model are:

X_1: DollarMarketCap = is a continuous variable.
X_2: post 141 = 1 if restatement period ended after June 30, 2001 and 0 before.
X_3: post141r = 1 if restatement period ended after December 15, 2008 and 0 before.
X_4: BACINV = 1 if the Board of Directors and Audit Committee were involved in making the restatement decision, and 0 if not.
X_5: Service = 1 if a company is restating is a service company and 0 if not.
X_6: Manufacturer = 1 if company restating goodwill is Manufacturer and 0 if not.
X_7: Big4= 1 if Big4 auditor was involved in restatement process from beginning to end and 0 if not.
Sample period included years Arthur Andersen was the auditor in some observations and were conflated into Big4 variable. This variable is also considered a control variable based on Davidson (2014).

We model these risk hazards as follows:

$$GWREST = X_0 + X_1 DollarMarketCap + X_2 post141 + X_3 post141r + X_4 BACINV + X_5 Service$$
$$+X_6 Manufacturer + X_7 Big4$$

Merle et. al. (2012) and Cai et. al. (2015) has suggested future research on goodwill restatements in mergers and acquisitions should identify risk factors to assist auditors in the risk assessment process.

Majid and Lode (2015), suggested market capitalization alone was not a good proxy for goodwill impairment but when combined with operating results it became a starting point of reporting goodwill impairment. It is anticipated that there is no difference among restatements based on DollarMarketCap.

Andrews, et.al. (2009) and Nguyen (2013), argued that SFAS141(R) would add to the complexity of financial reporting of companies in merger transactions and practitioners would have a difficult time implementing the directive. Our model includes post 141 and post 141r. We expect no effect for the post 141 variable but a significant effect for the post 141r.

Corporate governance variables such as board size and audit committee characteristics have been included in prior research (Ramanna and Watts, 2012, Lobo and Zhao, 2013). This research suggests that board and audit committee involvement has the effect of ameliorating private management per agency theory (Ramanna and Watts, 2012, Lobo and Zhao, 2013). We include BACINC and expect board and audit committee participation in a goodwill restatement to be an influential variable.

Prior research suggested that service companies, in theory, should have a greater amount of intangible assets than manufacturers (Gu and Lev, 2008, Li et al. (2011). DiGabriele, (2006, 2007) included these types of dummy variables in probability models. We expect no effect for manufacturers and a highly significant relationship for service companies.

DiGabriele (2013) used the BIG4 variable as a controlling, main effect and moderating variable. We've included BIG4 as a main effect and controlling variable. We expect when a BIG4 firm is involved in the restatement proves from beginning to end to be a significant variable.

Accounting for mergers and acquisition transactions invoke a significant measure of judgment due to the treatment of goodwill and intangible assets (Dao, et. al., 2014). Nguyen (2013), Dao, et. al., (2014) and Davidson (2014) found that merger and acquisition restatements suffered from the misapplication of accounting rules such as 141r. Andrews et al., (2009), Gu and Lev (2008), and Ramanna and Watts (2012) all observed that restatements related to acquisitions and investments more than doubled in the most recent decade. The common errors were improper accounting for intangible assets, particularly the incorrect valuation of goodwill.

Descriptive Analysis & Bivariate Measures of Association

The sample consisted of a total of 434 restatements based on the mispricing of goodwill. The restated period the sample is December 31, 1995, thru June 30, 2014. Overall, 100 of 434 (23%) observations were restated due to goodwill valuation issues. Table 1 contains descriptive statistics for the variables included in the study. Table 2 illustrates bivariate measures of association.

BACINV is defined as either the board and audit committee was involved (1) or not (0). The board and audit committee was involved in 30.65% of the observations of which, 33.83% didn't involve a restatement and 20% included a goodwill restatement. The relationship between restatements due to goodwill and if BACINV is statistically significant (x^2=6.93, 1, N=434, p<.001).

The industry variables manufacturer and service were dichotomized as 1 if and 0 if not. This is based on prior research (DiGabriele, 2006, 2007). Manufacturers represented 33.41% of the sample. When there was no restatement due to goodwill valuation manufacturers were involved 34.13% of the time and 31% when a restatement occurred. There is not a statistically significant relationship between manufacturers and goodwill restatements (x^2=.34, 1, N=434, p=.56) Service companies comprised 27.65% of the sample, which 22.75% were not restated but, 44% were due to goodwill misallocation. This represents a significant relationship between restatements and service companies (x^2= 17.36, 1, N=434, p<.01).

Big 4 firms were involved in the restatement process from beginning to end 37.33% of the time not involved 62.67% of the time. The relationship between goodwill restatements and whether a Big 4 firm

was included in the process from beginning to end was statistically significant ($x^{2=}$ 5.92, 1, N=434, p<.01).

Post 141 observations were represented 87.33% of the sample. This included 87.72% when there was no restatement and 86% when a restatement had taken place. This relationship is not statistically significant ($x^{2=}$ .21, 1, N=434, p=.65). Post 141r observations represent 16.36% of the overall sample of which 13.47% didn't involve a restatement while 26% did. There is a statistically significant association between goodwill restatements subsequent to the effective date of 141r.

The only continuous variable in the model was MarketCap (M=1,430,000, SD= 9,150,000,000). A point biserial correlation was performed to investigate if there is a relationship between MarketCap and goodwill restatements. The result indicates there is not a statistically significant relationship between MarketCap and goodwill restatements (r_{pb}=-.06, p=.24).

Cramer's V was used as a post-test to determine the strength of the associations following the chi-square tests that have determined statistical significance. Longest (2012) suggests the strength of associations between two nominal variables using the absolute value of the Cramer's V statistic is: .01 to .05 negligible, .06 to .10 small, .11 to .15 moderate, .16 to .25 strong, and over .25 is very strong. There is a negligible association between goodwill restatements and the variables manufacturers (V=.-03) and post 141 (V=.-02). A moderate association is between restatements and BACINV (V=-.13) and BIG4 (V=-.12). There are strong associations between goodwill restatements and service companies (V=.20) and post 141r (V=.16).

Logistic Regression
Table 3 illustrates the results of the logistic regression analysis performed to determine which variables were predictive of a goodwill restatement. The model correctly classified 78.24% of the cases based on a predicted probability outcome of greater than 50%. According to Hilbe (2009) the most important goodness of fit statistic for a binary logistic regression is the Hosmer-Lemeshow GOF statistic (H-L GOF). The Pearson goodness (PGOF) of fit test is also recommended by Hilbe (2009). Values of p greater than .05 indicate a well-fitted model for both tests. An additional test for goodness of fit was performed. The receiver operator characteristic or Harrell's C statistic was calculated at .70. Hilbe (2009) suggests a range from .6 to .9 indicates a well-fitted model.

The H-LGOF statistic for 10 groups is, x^2 (432)=11.42, p=.18. Hilbe (2009) recommends 10 groups as the optimal categorization for this test. The PGOF statistic is, x^2 (286)=282.12, p=.55. Both statistics indicates a well-fitted model. MarketCap was the only continuous variable in the model. Logistic models are actually non-linear, however, by the benefit of the link function become linear (Hilbe, 2009).

Continuous variables are tested for the assumption of linearity using the Box-Tidwell test (Hilbe, 2009). This test is performed by adding an interaction term of the continuous variable with its log transformation and includes them in the model. If both terms are statistically significant the assumption of linearity would be violated and increases the likelihood of a type II error. Both variables were not statistically significant. Therefore, MarketCap meets the assumption of linearity (Hilbe, 2009). The model goodness of fit and specifications are all sound.

Four of the predictor variables were statistically significant. The first statistically significant predictor variable was post 141r, Wald (1)= 3.03 p=.001. The odds ratio was 2.5. The coding of the predictor variable (i.e. 0=before effective date of 141r, and 1= after the effect date of 141r) suggested that a restatement due to goodwill impairment after a merger or acquisition which occurred after the effective date of 141r (December 15, 2008) was 2.5 times more likely. This result was consistent with the predicted direction for H3.

The second predictor variable, BACINV, was found to be a statistically significant predictor of restatements, Wald (1) = -2.43, p = .015. The odds ratio for BACINV was .489, bearing in mind the coding of this predictor (i.e. 0= NO board and audit committee involvement and 1= board and audit committee involvement). This finding indicated that board and audit committee involvement reduced the odds of a restatement due to goodwill impairment by 51.1%

The third predictor variable that was statistically significant was for a company to be in the service industry, Wald (1) = 4.21, p=.001. The odds ratio for the Service variable was 3.15. This result signifies the odds are 3.15 times greater that a Service company will have a restatement for goodwill impairment after an acquisition. This result proved to be consistent with the predicted direction of H5.

The final predictor variable that was statistically significant occurred when a BIG4 firm was involved in the restatement both pre 141r and post 141r, Wald(1)= -2.28, p = .028. The odds ratio was .531 (based on the coding 0 = BIG4 not involved in the restatement process and 1 if they were). This implies the odds were reduced by 46.9% when a Big 4 firm was involved post 141r. This result was consistent with the predicted direction of H6.

There were three variables not statistically significant, MarketCap, Manufacturer, and post141. The result is also consistent with the predicted direction of H1 H5.

Greene (2003) recommends when at least one continuous variable is included in a logistic regression model the probability density function should be analyzed at the means of the independent variables. The marginal effects (f(B'x)) for the model were .20.

DISCUSSION

Merle et al. (2012) and Cai et al. (2015) suggested that future research on goodwill restatements in mergers and acquisitions should identify relevant risk factors to assist auditors in the risk assessment process. Fair value accounting and goodwill impairment have been quite controversial for many years. Both practitioners and academics have been debating whether the discretionary decisions made by managers in the use of fair value accounting for financial reporting purposes have been detrimental to the accuracy and reliability of financial statements for the last 15 years. We tested 7 different predictor variables using a logistic regression model to assess the relative riskiness of these measures as a predictor of post-merger and acquisition goodwill impairment.

Our findings provide evidence that the odds of goodwill restatements are a function of certain specific risk hazards. Specifically, the risk factors that we tested were: whether the Board of Directors and Audit Committee participated in the restatement of assets, whether size as measured by market capitalization mattered, whether the company was a manufacturer or service company mattered, whether a Big 4 auditor was involved in the restatement process mattered and whether the restatement of assets due to goodwill impairment occurred before or after the implementation of SFAS 141(R) mattered.

We found support for four of the seven predictor variables tested. The predictor variables: post 141r (X3), BACINV (X4), service industry (X5) and Big4 (X7) were found to be statistically significant indicators of risk hazards for auditors after a merger or acquisition occurred. These risk factors proved important items to consider when a firm restated its assets due to goodwill impairment. Auditors and investment bankers will find these results useful in the context of a merger and acquisition.

We did not, however, find support for three of the seven predictor variables we tested. The predictor variables: DollarMarketCap (X1), pre141r (X2) and Manufacturer (X6) did not provide any statistical evidence of providing auditors with an indication of risk hazards after a merger or acquisition occurred. They did not prove to be reliable indicators of the likelihood of financial restatements due to goodwill impairment after a merger or acquisition occurred.

It appears that company size, based on dollar market capitalization, did not matter. This finding ran counterintuitive to anecdotal expectations, in that most practitioners believe that the managers of smaller companies would have greater incentive(s), or would believe that they would be less likely to be "caught" being overly aggressive in their purchase price allocations of the companies' assets of the firms that they had acquired (Andrews, et. al., 2009)

Post 141 also did not serve as a proxy for the likelihood of a restatement taking place due to goodwill impairment prior to the effective date for 141r. These finding points to the improvement of financial statement disclosures in disclosing information about risk hazards to auditors after 141r was implemented.

Manufacturing companies did not prove to be a good indicator of risk hazard. This finding supports the theory that goodwill impairment will occur less frequently after a merger or acquisition due to the fact that these types of companies often do not own as many intangible assets as service companies.

Auditors, regulators, educators, and financial professionals who provide merger and acquisition advice will all benefit from an increased awareness of the various risk hazards that are embedded in the financial reporting standards for reporting operating results after a merger or acquisition. Our findings point to the increased need for Board of Director and Audit Committee involvement in subjective management decisions pertaining to the allocated values to various asset classes, including goodwill under SFAS 141r. We also found that Big4 auditors played an important role in reducing the frequency of goodwill impairment, which points to the added scrutiny they provide when acquisition accounting methods are applied.

CONCLUSION

This study is important for several reasons. The PCAOB has continued to demand that auditors increase their risk assessment judgments in areas that are considered to be highly hazardous when conducting an audit such as goodwill impairment.

First, we found that the probability of a financial restatement occurring due to goodwill impairment was 2.5 times more likely to occur post 141r. This result can be attributable to the re-allocation of more of the purchase price to be immediately expensed that 141r required.

Second, we found that when the Board of Directors and the Audit Committee were involved in the goodwill impairment decision, the likelihood of a restatement occurring declined by 51.1%. This can be attributed to a number of factors, including the possibility that management compensation may be affected by the write-off of goodwill due to its downward effect on earnings. This factor was found to be an important indicator of a risk hazard for auditors.

The third predictor variable that proved to be an indicator of risk hazard for auditors was the type of industry the company operated in. We found that companies that operated in a service industry were 3.15 times more likely to restate their assets due to goodwill impairment in a reporting period after a merger or acquisition. This finding was not a surprise to us, as service industries often own more intangible assets than manufacturing companies. This fact allows for greater managerial discretion when allocating the purchase price of a company they acquire. Hence, the inaccurate valuation of intangible assets will lead more frequently to goodwill impairment.

The fourth and final predictor variable that appeared to be an indicator of risk hazard for auditors was whether or not a Big4 accounting firm conducted the audit. We found that the companies who were being audited by a Big4 accounting firm had a 46.9% decrease in the odds of a restatement due to goodwill impairment after a merger or acquisition. This reduction in risk hazard proved to be true during both periods; one being prior to 141r and the other being post 141r. One could interpret this result as indicating that Big4 auditors are more skilled in conducting impairment testing.

The second important reason for this study was to provide a coherent contribution to periodic facts requested by standard setters and regulators. We found evidence showing that SFAS 141r led to greater frequency of assets restatements on the balance sheet after a merger or acquisition due to goodwill impairment.

The final important reason for this study was to show that auditor training should utilize greater risk assessment that moves beyond audit checklist items used for intangible asset valuation. Increased training for how to test purchase price allocations are sorely needed, as auditors need to learn and understand the techniques used by business valuation professionals. The goal would be to serve the audit client in a more informed and consistent manner, and thus, save the client excess audit fees that are incurred due to a lack of knowledge of how to verify impairment testing procedures used by the independent valuation expert.

The limitation of the current study is the need to update the model with contemporaneous data. Rules, regulations, and behaviors change over time, and this would suggest a replication of the current study.

Avenues for future research in the area of merger and acquisition accounting include items such as:

1) Determining if there is a relationship between the proportion of the acquisition price allocated to goodwill and subsequent management compensation;

2) Whether we find a difference in the frequency of goodwill impairment after a second, third or more merger and acquisition;

3) Examining if there is any difference in the frequency of goodwill impairment post-merger and acquisition based on which Big4 firm was the company's auditor;

4) Whether a change in auditor affects the frequency of goodwill impairment after a merger or acquisition.

We suspect that future investigations into these types of questions will lead to greater insight into what types of events increase or decrease the likelihood of financial statement restatements, and the relevant risk hazards that arise due to these types of events. Auditors, regulators, educators, investment bankers, along with various classes of investors will all benefit from increased insight into post-merger and acquisition accounting methodologies. Stockholder v. management conflict is alive and well, per Jensen and Meckling's (1976) agency theory.

Table 1.
Descriptive Statistics as a Function of Goodwill Restatments (n=434)

	No Restatment n=334		Restatement n=100		Total Sample n=434	
	f	%	f	%	f	%
Post141	41	12.28	14	14	55	12.67
	293	87.72	86	86	379	87.33
Post 141r	289	86.53	74	74	363	82.64
	45	13.47	26	26	71	16.36
BACINV	221	66.17	80	80	301	69.35
	113	33.83	20	20	133	30.65
Service	258	77.25	56	56	314	72.35
	76	22.75	44	44	120	27.65
Manufacturer	220	65.87	69	69	289	66.59
	114	34.13	31	31	145	33.41
Big4	199	59.58	73	73	272	62.67
	135	40.42	27	27	162	37.33
		M		SD		
MarketCap		1,430,000,000		9,150,000,000		

Table 2. **Measures of Association (Y,X)**

Variable	Pearson Chi2	Cramer's V	Pb Corr	p-value
DollarMarketCap			-0.06	0.24
post 141	0.21	-0.02		0.65
post 141r	11.19	0.16		0.01
BACINC	6.93	-0.13		0.01
Service	17.36	0.20		0.01
Manufactu	0.34	-0.03		0.56
Big4	5.90	-0.12		0.01

Table 3. Results of Logistic regression Analysis (N=434)

Variable	Coef.	Std. Err.	z	exp(B)	p
DollarMarketCap	-0.001	0.001	0.417	1	0.417
post141	-0.233	0.363	-0.641	0.792	0.521
post141r	0.917	0.302	3.03	2.502	0.002
BACINC	-0.714	0.293	-2.43	0.489	0.015
Service	1.147	0.272	4.21	3.149	0.001
Manufacturer	0.333	0.285	1.18	1.395	0.238
Big4	0.631	0.276	-2.28	0.531	0.023
Constant	-1.256	0.349	-3.6	0.284	0.001
f(B'x)	0.2				

Note: The log-likelihood for the basline model was -231.31. The loglikelihood for the model with all predictors was -211.30. The model classified 78.24% of the cases.
Recevier Operator Characteristic, Harrell's C statistic .70
Pearson GOF, x2 (286)=282.12, p=.55
Hosmer-Lemeshow GOF:
10 groups, x2 (432)=11.42, p=.18

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