

IS SFAS 142 A GOOD OPPORTUNITY FOR  
FIRMS TO MANAGE EARNINGS?

by

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## ABSTRACT

### IS SFAS 142 A GOOD OPPORTUNITY FOR FIRMS TO MANAGE EARNINGS?

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SFAS 142 eliminates the goodwill amortization and replaces it with an annual impairment test. This new accounting rule also provides the guidelines for firms to report their transition goodwill write-offs through a one-time below-the-line special item. After the one year transition period, any goodwill write-offs would be reported as operating expenses. This study analyzes the goodwill reporting behaviors in firms with in-process research and development (IPR&D firms) and examines whether IPR&D restated firms take advantage of this one-time below-the-line earnings management opportunity during the SFAS 142 transition period. In addition, this study examines the association between IPR&D firms' transition goodwill write-offs and the quality of firms' corporate governance.

This study provides evidence to support that IPR&D restated firms are more likely to take transition goodwill write-offs and take greater amounts of transition goodwill write-offs in the SFAS 142 transition period, compared to IPR&D non-restated firms. However, the reporting strategies of IPR&D restated firms with greater restatement amounts in the late 1990s become conservative when these firms transition to SFAS 142. Furthermore, IPR&D firms' transition goodwill write-offs are constrained by the degree of board independence among their governance factors.

## TABLE OF CONTENTS

ACKNOWLEDGMENTS .....	iii
ABSTRACT .....	v
LIST OF TABLES .....	xi
CHAPTER	PAGE
1. INTRODUCTION .....	1
1.1 Background.....	3
1.2 Motivation.....	6
1.3 Purpose and Research Questions .....	8
1.4 Methodology .....	9
1.5 Originality of the Study .....	10
1.6 Findings of the Study .....	12
1.7 Contributions.....	13
1.8 Limitation of the Study .....	14
1.9 Structure of the Study .....	15
2. INSTITUTIONAL BACKGROUND AND LITERATURE REVIEW.....	16
2.1 The Research Issues of Earnings Management .....	17
2.1.1 The Definition of Earnings Management .....	17

2.1.2 The Motivation of Earnings Management .....	18
2.1.2.1 Capital Market Incentives .....	18
2.1.2.2 Contractual Incentives.....	19
2.1.2.3 Regulatory Motivation .....	20
2.1.3 Major Methods of Earnings Management .....	21
2.1.3.1 Studies on Earnings Management Using the Special Items of Classification .....	21
2.1.3.2 Studies on Big Bath Behavior in Earnings Management.....	23
2.2 Earnings Management through Excessive IPR&D Expensing.....	24
2.2.1 The Development in IPR&D Expensing Accounting .....	24
2.2.2 Recent Literature Review of IPR&D .....	29
2.3 Earnings Management through Goodwill.....	31
2.3.1 The Evolution of Goodwill Accounting .....	31
2.3.2 The Transition Provisions of SFAS 142 .....	33
2.3.3 Criticism on SFAS 142 Goodwill Accounting .....	34
2.3.4 Recent Literature in Goodwill Accounting.....	36
2.4 The Linkage between IPR&D and Goodwill.....	39
2.4.1 Aggressive Reporting with IPR&D Restatements.....	42
2.4.2 Conservative Reporting by IPR&D Expense Restatement Firms....	45
2.5 Summary and Conclusion on Literature Review.....	47
3. HYPOTHESES DEVELOPMENT AND METHODOLOGY .....	48
3.1 Hypotheses Development .....	49
3.1.1 The Restatement and Earnings Management Opportunity	



in SFAS 142.....	49
3.1.2 Major Determinants That Affect Firms' Goodwill Write-offs.....	52
3.1.3 The Effect of Change of Governance on Firms' Goodwill Write-offs.....	58
3.2 Methodology.....	60
3.2.1 Sample Selection Procedure and Data Sources .....	60
3.2.2 Testing Models and Variables Definitions .....	63
3.3 Summary and Conclusion.....	79
4. EMPIRICAL RESULTS AND ANALYSIS.....	81
4.1 Sample Selection and Descriptive Statistics .....	81
4.2 Analysis of Goodwill Write-offs on IPR&D Restated Firms and Non-restated firms.....	84
4.3 Analysis of the Association between Goodwill Write-offs and Firm's Corporate Governance Behavior.....	87
4.4 Analysis of Goodwill Write-offs on the Change of Corporate Governance after IPR&D Restatement Event.....	92
4.5 Conclusion of the Findings.....	95
5. DISCUSSION AND IMPLICATIONS.....	97
5.1 The Purpose and Major Findings of this Research .....	97
5.2 Discussion and Implications of the Study.....	99
5.3 Major Contributions of the Study.....	101
5.4 Limitations and Future Research.....	102
APPENDIX	
A. EMPIRICAL RESULTS OF TABLES .....	104

B. TIMELINE FOR THE EVOLUTION OF GOODWILL ACCOUNTING RULES .....	127
C. A TWO-STEP PROCESS FOR TESTING IMPAIRMENT TEST IN THE SFAS142 PROVISION, WITH AN EXAMPLE OF A TEST OF A HYPOTHETICAL FIRM .....	129
D. RULES ON DEFINING FINANCIAL EXPERTISE .....	132
REFERENCES .....	135
BIOGRAPHICAL INFORMATION .....	147

## LIST OF TABLES

Table	Page
A.1 Examples of Excessive IPR&D Write-offs in the 1990s .....	105
A.2 A Short List of Excessive Goodwill Write-offs during the SFAS 142 Transition Period .....	106
A.3 The Summary of Major Hypotheses H1 and H2.....	107
A.4 The Summary of Hypotheses H3 and H4 and the Predictions for Models ....	108
A.5 The Definitions and Data Sources of the Variables.....	109
A.6 Sample Selection.....	111
A.7 Industry Composition in Sample Firms .....	112
A.8 Descriptive Statistics and T-test for Sample Firms and Control Firms .....	113
A.9 Coefficients and P-value of Pearson Correlation among the Independent Variables.....	115
A.10 Transition Goodwill Write-offs on IPR&D Restated Firms and Non-restated Firms.....	116
A.11 Transition Goodwill Write-offs on Prior IPR&D Restatement Amounts among IPR&D restated Firms.....	118
A.12 Transition Goodwill Write-offs on Firm’s Corporate Governance .....	120
A.13 Transition Goodwill Write-offs on Firm’s Corporate Governance Only for IPR&D Restated Firms .....	122
A.14 T-test Results in the Mean Value Change from Pre to Post Restatements in IPR&D Restated Firms .....	124
A.15 Transition Goodwill Write-offs on Firms’ Change of Corporate Governance from Pre to Post Restatement in IPR&D Restated Firms .....	125

## CHAPTER 1

### INTRODUCTION

In June 2001, FASB issued SFAS 142 “Goodwill and Other Intangible Assets,” which fundamentally changed the accounting treatment of goodwill. SFAS 142 eliminated goodwill amortization and replaced it with an annual impairment test. It also established guidelines for performing and reporting goodwill write-offs. Standard setters believed that by forcing public firms to revalue their existing goodwill through an annual impairment test, the underlying firm value would be fairly reflected in financial statements. It appears that FASB’s recent moves toward fair value accounting are to require companies to make financial reporting more transparent.

It has been pointed out that fair value accounting allows managerial discretion to play a significant role in reporting earnings. Beatty and Weber (2006), Guler (2007), and LaPointe (2005) suggest the new guideline appears to leave too much room for managerial discretion in reporting. An additional issue that pertains primarily to SFAS 142 is that during the transition period of SFAS 142, FASB allows companies to record their impaired goodwill write-offs through a one-time “below-the-line” special item.<sup>1</sup> After the one year transition period, any goodwill write-offs resulting from a firm’s annual impairment test would be reported as “operating expense” above-the-line. It

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<sup>1</sup> Such a “below-the-line” special item refers to out-of-the-ordinary, non-recurring revenues or charges. As an all-inclusive accounting income concept, irregular gains and losses and non-recurring items are separately disclosed just below the operating incomes before income taxes and extraordinary items, and before net incomes. Special item reporting includes discontinued operations, extraordinary item gains and losses, and cumulative effects of accounting changes. In this study of SFAS 142, “below-the-line” applies to the cumulative effects of accounting changes, unless otherwise indicated.

appears that the transitional period creates an additional opportunity for companies with huge amounts of goodwill to take advantage in writing down impairment charges through this one-time exception. By doing so, firms can benefit from higher reported earnings in subsequent years, since most likely these firms will report very little (or even no) goodwill impairment charges as operating expenses following the SFAS 142 transition period in 2002.

Evidence that SFAS 142 allows managers to use the one-time write-off opportunity to aggressively recognize goodwill impairment charges comes from a survey by Huefner and Largay (2005). Huefner and Largay find that more than one-third of the firms they study write down approximately 30 percent of their goodwill when they transition to SFAS 142. Various large and well known companies, such as AOL-Time Warner, Qwest, and Viacom, all report a substantial amount of goodwill impairment losses as a percentage of goodwill during the 2002 transitional period of the new rule.<sup>2</sup> In addition, Sevin and Schroeder (2005) find that smaller firms have more impaired goodwill write-downs than larger firms when transitioning to SFAS 142.

While many companies have had the incentive to take this one time below-the-line goodwill write-off as shown by Huefner and Largay (2005), my interest in this dissertation relates to a specific group of firms that may have had an even greater incentive to use this opportunity for earnings management. This group comprises only of firms that acquired high research and development (hereafter R&D) firms during the mid 1990s, and were subsequently censured by the SEC for accounting treatment related to these acquisitions. The SEC censure required many of these firms to increase the goodwill amounts related to these acquisitions, and hence I view these firms as

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<sup>2</sup> AOL-Time Warner reported \$54.0 billion write-offs, and AT&T reported \$13.1 billion write-offs in the SFAS 142 transitional period. See the Chapter 2 for a more detailed discussion of this point.

having an additional incentive to classify this goodwill as impaired during the SFAS 142 transition year.

### 1.1 Background

The issue of the accounting treatment by acquirers of high-level R&D target firms may date back to the booming years of information technology (IT) during the mid 1990s. Many acquirers paid a great premium for these acquisitions, and they charged the excessive costs as in-process research and development (hereafter IPR&D)<sup>3</sup> instead of reporting it as goodwill. The aggressively excessive IPR&D write-offs by the acquiring firms were pervasive until the SEC scrutiny and restatement enforcement after September 1998. The SEC was concerned about the increasing frequency and magnitude of IPR&D write-offs, and suspected that companies with excessive write-offs might be engaging in earnings manipulation.<sup>4</sup>

The SEC suspected that acquiring firms with excessive IPR&D write-offs would be able to report higher earnings, earnings-per-share, return on assets, and return on equity in the subsequent years. As former SEC Chief Accountant Mr. Lynn Turner pointed out, “corporate earnings are being managed in part by classifying a significant portion of the price of an acquired entity as IPR&D” (Turner, 1998). Former SEC Chairman Arthur Levitt identified IPR&D write-off practices used by companies to manage earnings as “the misuse of acquisition accounting, particularly improper write-offs of acquired in-process research and development, to inappropriately overstate

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<sup>3</sup> IPR&D is the value allocated to incomplete research and development projects in acquisitions treated as purchases, and charged to expense by an acquirer at the acquisition date. In other words, IPR&D has been defined as “cost assigned to assets to be used in a particular R&D project and that have no alternative future use [which] shall be charged to expense at the date of consummation of combination.” (Deng and Lev, 1998)

<sup>4</sup> As an example of this concern, note that during 1996 when Adobe System Inc. acquired Ares Software for a total acquisition cost of \$15.5 million, but Adobe had \$14.7 million in IPR&D write-offs reported. This is approximately 95% of the acquisition cost.

future earnings” (Levitt, 1998). SEC enforcement in late 1998 required that firms with excessive IPR&D write-offs restate a significant amount of the expense back to their books as goodwill arising from the acquisition.

Although the IPR&D restated firms did restate their prior earnings (either voluntarily or prompted by the SEC), these firms carried a significantly higher goodwill (as a percentage of goodwill at acquisition) after the restatements.<sup>5</sup> Firms with higher goodwill on their books have higher operating expenses from amortization or impaired write-offs, regardless of methods used to write down the amount (traditional amortization or impairment test). As a result they show lower financial performance ratios (ROA, ROE) as well as lower EPS.

Therefore, these firms have a strong motivation to write down this “extra” amount of goodwill, if the write-down can escape the eyes of investors or if there are benefits to managerial interests. Otherwise these firms could attempt to minimize the amount to write off. Elliott and Hanna (1996) document that non recurring write-offs do not occur randomly, and managers may use write-offs to accomplish strategic earnings management. Furthermore, firms reporting write-offs currently tend to report additional write-offs also in the future. It is possible that the SFAS 142 transition period in 2002 provides a good opportunity for these IPR&D restated firms to take advantage of the new rule change, since it allows firms to write down their goodwill impairment losses as a one-time “below-the-line” special item. Therefore, one of my research questions for this study is the following: Are IPR&D restated firms likely to engage in earnings management by taking advantage of SFAS 142 transition provision?

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<sup>5</sup> Example: in 1998, Lightbridge announced a restatement of its IPR&D charges for acquisition of Coral Systems in 1997. This revision included a reduction of \$12 million IPR&D charges, from \$16 million to \$4 million, and the difference was allocated to \$5.4 million of existing technology, \$2.5 million to Coral workforce, and \$4.1 million of goodwill. Total goodwill recorded at acquisition was \$10.7 million.

However, various factors may affect a firm's goodwill reporting strategy. One of the determinants is the quality of a firm's governance. Therefore, I study the relationship between the magnitude of the write-offs of goodwill by IPR&D firms and the quality of corporate governance. Prior literature supports the conjecture of a positive association of poor governance and the likelihood of financial restatements. Work from Agrawal and Chadha (2005) and Barber, Kang and Liang (2007) find a higher probability of restatement in firms with poorer governance, and also find a lower probability of restatement when firms' governance factors have improved. These findings suggest that the IPR&D restated firms might be associated with poorer governance than IPR&D non-restated firms. In addition, Moore and Pfeiffer (2006) show that firms with financial restatement do not appear to adopt a more conservative financial reporting strategy after their restatements. Richardson, Tuna, and Wu (2002) also document that capital market pressure acts as a motivating factor for restated firms to continue adopting aggressive accounting practices. Therefore, another research question of my study is the following: Is there an association between IPR&D firms' corporate governance and the amount of goodwill write-offs in SFAS 142? Based on the discussion, this study first conjectures that IPR&D restated firms with poor governance would still take an aggressive reporting strategy in order to write down this "extra" amount of goodwill when transitioning to SFAS 142.

However, an alternative theory suggests that the potential costs of earnings management are very high (Marquardt and Wiedman, 2004). It is conventional wisdom that once a firm has been caught misstating financial statements, the resulting tumult and costs of the restatement (i.e., board oversight, and increased scrutiny from independent auditors) will induce management to reform its financial reporting strategy (Moore and Pfeiffer, 2006). In addition, literature in accounting conservatism also



suggests that the cost of litigation related to violating contracts is very high (Watts, 2003). Having restated their prior earnings once in the late 1990s and having brought in a significant amount of public attention, these IPR&D restated firms would face even higher pressure and incur higher contracting costs if the financial misstatements are detected again, either by the SEC or by investors. As a consequence, the restatements of IPR&D have increased the opportunity costs of monitoring, not to mention the higher probability that their earnings management could be caught again.<sup>6</sup> Ahmed and Duellman (2007) support the proposition that firms with more conservative accounting ought to have higher future profitability and lower likelihood of future special items charge than firms with less conservative accounting. Therefore, an alternative conjecture of this study is that IPR&D restated firms may instead write down fewer amounts of transitional goodwill as “below-the-line” items (i.e., fewer in their special items charges), compared to their counterparts when transitioning to SFAS 142.

This study’s primary focus is to investigate whether IPR&D restated firms take advantage of the SFAS 142 goodwill rule to aggressively (or conservatively) use the transition period loophole to manage their earnings. My second focus is on whether the quality of corporate governance is a determinant of goodwill write-offs by IPR&D firms.

## 1.2 Motivation

Prior literature documents the SEC’s substantial impact on financial reporting related to the IPR&D firms (Dowdell and Press, 2002, 2004; Banyai, 2006). Dowdell and Press (2002, 2004) investigate factors associated with large IPR&D write-offs and test whether firms manage their earnings with IPR&D, as alleged by the SEC. They test

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<sup>6</sup> Knyazeva (2007) provides evidence to show that analysts’ following and business press coverage serve as additional monitoring mechanisms in aligning the managers with shareholders for mitigating agency costs. Such public pressures can act like corporate governance factors in their effects on firm performance, and thus generate less earnings management.

several time periods in the 1990s and find the charges for IPR&D decline permanently after the SEC's scrutiny starting in September of 1998. The restatements reduce IPR&D expenses by an average of 62 percent, and the charges for IPR&D as percentage of purchased assets shrink by more than half in the period following the SEC's guidance. Dowdell and Press document that firms with higher future earnings expectation write off more IPR&D, and they thus conclude that the SEC's investigations and guidance for restatements have significantly reduced the frequency of earnings management.

However, the above studies examine only the period from the mid to late 1990s. During this period the SEC scrutinized earnings management via aggressive IPR&D write-offs. My research extends the literature by providing the linkage between IPR&D restatement and goodwill accounting, i.e., what has been restated from IPR&D could still be written off in the name of goodwill impairment. Furthermore, the above studies focus on activities in the 1990s and neglect the important time frame associated with the SFAS 142 transition period during 2002. This is the time period during which many companies could possibly take advantage of the pronouncement's provision for goodwill impairment write-offs. Therefore, consideration of the time frame motivates this research to further investigate whether big bath earnings management occurs during the regulatory transition period of 2002 due to the issuance of SFAS 142.

Even before SFAS 142, the impairment write-down approach was criticized by former SEC Chief Accountant, Lynn Turner. He suggested that managers were involved in earnings management by questioning the effectiveness of SFAS 121 "Accounting for the Impairment of Long-Lived Assets" and Turner stated:

"... today's US impairment standards are resulting in nothing more than one time big bath charges that lack relevance or reality" (Turner, 2001).

Kinney and Trezevant (1998) argue that the placement of special items in the financial statement is used to manage investors' perceptions. Specifically, the income-decreasing special items are likely to be displayed as separate line items directly in the income statement. This placement appears to be used to emphasize the transitory and income-decreasing nature of the item. However, an income-increasing special item is included in other items, and any explanation is relegated to financial statement footnotes to avoid drawing attention to the item's transitory nature. Therefore, I conjecture that earnings management by IPR&D restated firms is likely to occur, and I expect to observe large transition goodwill impairment write-offs using below-the-line reporting by these firms.

### 1.3 Purpose and Research Questions

Since as argued above, IPR&D restated firms appear to have a greater incentive to write down this "extra" amount of goodwill that was carried back to their books as goodwill after restatements, the extent of goodwill write-down will be associated with various degrees of IPR&D earnings management. The first set of research questions in this study is thus raised: Are IPR&D restated firms likely to engage in earnings management by taking advantage of the SFAS 142 transition provision? Or is there an association between transitional goodwill write-off amounts and IPR&D restated firms' restatement amounts?

The main purpose of this study is to empirically examine the probability of earnings management by firms with IPR&D restatement. I postulate that IPR&D restated firms will take advantage of the new opportunity of using the below-the-line reporting loophole allowed by SFAS 142, and that this will be deployed as a means of earnings management.

Prior literature concludes that firms are likely to use discretionary accounting write-off opportunities to take a big bath when engaging in earning management (Francis, Hanna, and Vincent, 1996; Strong and Myers, 1987; Walsh, Craig, and Clarke, 1991; Zucca and Campbell, 1992). Zucca and Campbell (1992) find that the majority of their assets write-down sample engaged in big bath but not income smoothing. Francis, Hanna, and Vincent (1996) document that the amount of asset write-offs increases with the change of management, larger firm size, and poorer performance. Furthermore, Elliott and Shaw (1988), Murthy and Zimmerman (1993), and Pourciau (1993) all find the effect of management change; the incoming CEOs/managers perform big bath earning management. Consistent with big bath theory, Scott (1991) finds that firms adopting SFAS 87 (employers' accounting for pensions) are those not regulated, having bonus plan, and having earnings decreased from the prior period. Following this discussion in the literature, my second set of research questions is raised: Is there an association between IPR&D firms' corporate governance and the amounts of goodwill write-offs in SFAS 142? Or is there a differential impact on IPR&D restated firms' goodwill write-offs during the SFAS 142 due to the changes in corporate governance following IPR&D restatements? These questions point to another purpose of this study. I also empirically examine whether corporate governance and some management incentives contribute to the reason for IPR&D firms' aggressive (or alternative conservative) earnings management.

#### 1.4 Methodology

The above research questions are examined using the following methodology. Similar to Dowdell and Press (2002, 2004) and Banyai (2006), this study identifies the sample of IPR&D restated and non-restated firms by searching on Lexis-Nexus and 10-

K/10-Q filings during the period 1997-2000. Each IPR&D restated firm is paired with a matching sample of IPR&D non-restated firm, based on its industry and firm size, to examine the transitional impaired goodwill write-offs. My tests include both univariate and multivariate modified logistic and tobit specification models<sup>7</sup> (Riedl, 2004; Beatty and Weber, 2006; LaPointe, 2005; Guler, 2007). These models are performed for the examination of management incentives, and the change of corporate governance factors that may contribute to the firms' write-offs reporting behaviors.

### 1.5 Originality of the Study

This study differs from previous research in several respects: The extant literature regarding IPR&D (Clem et al. 2004, Dowdell and Press, 2002, 2004; Dowdell et al. 2005; Banyl, 2006) is concerned only with the pervasive earnings management of excessive IPR&D write-offs as they pertain to the acquisitions during the mid 1990s. Moreover, all of these studies limit their examinations to the period of SEC's scrutiny in the fall of 1998, including subsequent restatement announcements by the restated firms. However, this neglects consideration of the effects of IPR&D restatements on subsequent goodwill write-offs during the SFAS 142 transition period. My study, however, extends the investigation period to the transition period of SFAS 142 in 2002, when firms were suspected of taking advantage of the transitional provision. The study expects the findings to be able to challenge or help explain the decreasing frequency of earnings management after SEC scrutiny.

From another line of inquiry in the literature, prior research regarding SFAS 142 specifically focuses on the determinants and consequences of managers' reporting

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<sup>7</sup> The tobit specification is developed from Riedl (2004). The following research has revised and applied it. Please see the Chapter 3 methodology section for a more detailed discussion of models.

incentives in adopting the new goodwill accounting rule. The results appear to be significantly different in their impaired goodwill charges (Beatty and Weber, 2006; LaPointe, 2005; Guler, 2007). Because of the uniqueness of IPR&D restated firms--with possible two-directional motivations in goodwill reporting after restatements--this study undertakes an examination of transition goodwill write-offs between restated and non-restated IPR&D firms. The significant characteristic of the IPR&D restated firm is that it has adjusted its excessive IPR&D to the books as “extra” goodwill, while for the IPR&D non-restated firm is that it does not have this “extra” goodwill in its books. Therefore, this study is the first, to the best of my knowledge, to link the IPR&D restatement and the accounting for goodwill impairment during the transition year of SFAS 142.

Jordan and Clark (2004), Sevin and Schroeder (2005), and Huefner and Largay, (2005) all express concerns about huge initial-year goodwill impairment write-offs and the possibility of earnings management via SFAS 142. Their studies compare financial numbers and ratios in 2001 and 2002 pulled from randomly selected sample of impaired and non-impaired companies. In contrast, my study examines the probability of the earnings management of SFAS 142 through a unique and complete set of IPR&D non-restatement and restatement sample during the SFAS 142 transition period. My study also attempts to determine the association of these firms’ goodwill reporting strategies in earnings management with various management incentives and corporate governance factors.

## 1.6 Findings of the Study

From the evidence of test results, the major findings of this study can be summarized as follows.

(1) IPR&D restated firms take advantage of the earnings management opportunity in SFAS 142 below-the-line provision. Thus they remain aggressive and are more likely than IPR&D non-restated firms to report transition goodwill write-offs. Restated firms also take greater amounts of goodwill charges. This evidence also suggests that goodwill write-off behaviors are significantly different between IPR&D restated firms and non-restated firms. Management incentives may remain unchanged even after restatements. As a result these then-aggressive IPR&D restated firms appear still more aggressive in subsequent goodwill reporting.

(2) A negative association is found between the firms' transition goodwill charges (also the likelihood of firms' reporting goodwill charges) and their prior restatement amounts in the late 1990s, suggesting that IPR&D restated firms turn to report their transition goodwill write-offs more conservatively. That is, IPR&D restated firms with greater restatement amounts have written off lesser in subsequent goodwill charges. The reasons for this finding can be attributed to the pressure of public attention after SEC scrutiny and firms' awareness of the possibility of SEC examination.

(3) As to the effects of corporate governance attributes on firms' goodwill reporting, IPR&D restated firms' transitional goodwill write-offs are constrained by the degree of board independence during the SFAS 142 adoption period. Furthermore, IPR&D restated firms' transition goodwill reporting is also constrained by the change of board independence from prior to post IPR&D restatement periods.

## 1.7 Contributions

This research contributes to the extant literature in several ways. First, prior studies investigate either (1) managers' initial motivation to overstate IPR&D at acquisitions, and the reallocation (as a result of SEC enforcement) of IPR&D expense back to goodwill (Dowdell and Press, 2002, 2004; Banyl, 2006), or (2) the effects of managerial reporting incentives in the adoption of SFAS 142 (Beatty and Weber, 2006; Lapointe, 2005; Guler, 2007). However, no study has considered the link between the SEC enforcement of reallocating excessive IPR&D back to goodwill and the reporting incentives afforded by SFAS 142. The results of this study contribute to filling this gap in research.

Second, this study provides empirical evidence to contradict prior earnings management literature (i.e., Dowdell and Press, 2002, 2004) in which the frequencies of earnings management are found to have decreased after SEC scrutiny. Though restated firms engaging in IPR&D earnings management decrease after the involvement of the SEC, IPR&D restated firms still exhibit aggressive reporting behaviors, both in the likelihood and magnitude of goodwill charges. By taking advantage of this loophole opportunity, these firms engage in earnings management again during the transition period in SFAS 142.

Results of this study also help the public to understand IPR&D firms' determination of their transitional goodwill charges in the SFAS 142 adoption period, which may be related to prior IPR&D overstatements. Thus, this study should help policy makers, regulators, and investors to understand the complexity of IPR&D restatement and its effect on future firm performance. In addition, this work also enriches the existing literature by contributing an understanding of how financial reporting is affected by IPR&D firm's corporate governance when employing fair value



accounting under SFAS 142. The study also provides empirical evidence which contradicts FASB's intent of fair value accounting.

Finally, the findings of this study support the FASB's ongoing arguments about capitalizing or expensing IPR&D and conform to academic proposals about the nature of IPR&D; for example, Deng and Lev (2003) propose that IPR&D be capitalized instead of being expensed. The firms' earnings management opportunity -- via expensing IPR&D at acquisition as well as goodwill charges of SFAS 142, which through the reallocation of IPR&D is back to a firm's goodwill in the book -- will completely disappear. This study's findings also provide evidence to support the accounting treatment of capitalizing IPR&D, and are consistent with the conclusions from newly passed FASB 141R<sup>8</sup> and the International Accounting Standards Board (IASB) proposed revision of IFRS 3,<sup>9</sup> both require IPR&D be capitalized.

### 1.8 Limitation of the Study

The study addresses the intention to deploy big bath earnings management in IPR&D firms by taking a one-time charge "below-the-line" reporting opportunity. However, prior literature suggests that various types of earnings management could have occurred simultaneously during the adoption of SFAS 142. The different types of earnings management include real activity earnings management, (i.e., accelerated/reduced R&D expenditure and/or SG&A, or timing the disposal of long-lived assets) (Gunny, 2005), or earnings management by shifting special items from

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<sup>8</sup> After several years pending by FASB, FASB 141R -Business Combination Revised 2007- has been issued on December 4, 2007. The new standard requires the acquiring firms must capitalize IPR&D amounts and subject these amounts to an annual impairment test until the specific projects are completed or abandoned. (FASB 141R)

<sup>9</sup> The recent amendments made by the IASB to accounting for mergers, acquisitions, and similar transactions are under revised IFRS 3 Business Combinations. The revised IFRS 3 emphasis on the IPR&D acquired in a business combination must be capitalized on the balance sheet as an intangible asset. The new revision has taken effective on July 1, 2009. (IASB IFRS 3)

core earnings to non-core earnings (McVay, 2006). These types of earnings management opportunities are not tested in this study.

### 1.9 Structure of the Study

The remainder of this study proceeds as follows: Chapter 2 discusses institutional background and related accounting treatment, and provides a review of relevant earnings management literature. This discussion provides information and supports for the research questions. Chapter 3 develops the research hypotheses and explains the research methodology. Chapter 3 also explains the sample selection procedure. Chapter 4 presents the empirical results and analyzes the findings. Chapter 5 indicates the further of the discussion and concludes the findings of this research.

## CHAPTER 2

### INSTITUTIONAL BACKGROUND AND LITERATURE REVIEW

The main purpose of this thesis is to examine whether IPR&D firms manipulate their earnings by taking advantage of the one-time opportunity in the Statement of Financial Accounting Standards No. 142 as issued by the FASB in 2002. The purpose of this chapter is to provide an overview of the extant earnings management literature, and to present information from the literature in support of this study's research questions. Section one provides an overview of various firms' motivations for earnings management, and briefly explains how firms' earnings might be managed differently, that includes the literature related to big bath and special items earnings management. Section two focuses on earnings management through excessive IPR&D expensing. This expensing of excessive IPR&D may later affect (1) the occurrence of managerial accounting choices when impaired goodwill is written off, and (2) managerial decisions when transitional goodwill below-the-line reporting is allowed, which are in the setting of SFAS 142 transition provisions.<sup>10</sup>

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<sup>10</sup> This study considers the IPR&D firms. I define IPR&D firms as acquirers of high-level R&D targets. These acquirers were then required to expense the cost of projects that had not reached the stage of technological feasibility. Since the determination of technological feasibility is left up to the discretion of the company, managers see a potential to manipulate the amount of expense charged in the acquisition period. Given that the choice of how much of the target IPR&D to expense was left to the managerial discretion of acquirers, some firms abused this discretion. In 1998, the SEC required these firms to restate their financial statements by reducing the IPR&D expense recognized in the acquisition year. As a result, firms show an increase of goodwill in the acquirer's books. I also designate firms that were required by the SEC to restate their financial statements due to excessive IPR&D expensing as IPR&D restated firms and the rest as IPR&D non-restated firms.

This study explains the prior earnings management opportunity for IPR&D restated firms, and demonstrates how SEC scrutiny impacts these firms' subsequent earnings reporting. Specifically, I use this opportunity to link the set of IPR&D firms (and their accounting for goodwill during the acquisition year), to the restatement to goodwill due to SEC enforcement and subsequent write-offs of this goodwill amount (given the opportunity by SFAS 142). In addition, this study tracks any change in corporate governance following the SEC enforcement and considers whether that enforcement had an impact on the subsequent opportunity to write off goodwill. Therefore, section three of this chapter provides literature review for earning management through goodwill, and section four discusses the linkage between IPR&D and goodwill. The last section summarizes prior literature and concludes the main research questions of this study.

## 2.1 The Research Issues of Earnings Management

This section first explains definitions of earnings management from the literature, and then provides an overview of various earnings management motivations. The main focus of this section is the literature on big bath earnings management, and special items earnings management.

### 2.1.1 The Definition of Earnings Management

The most broadly accepted definition of earnings management is from Schipper's paper (1989, p. 92) which defines it as "purposeful intervention in the external financial reporting process with the intent of obtaining some private gains." Healy and Wahlen (1999, p. 368) suggest more specifically that "earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter

financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers”.

Fields, Lys, and Vincent (2001, p. 260) supports this view by stating “earnings management occurs when managers exercise their discretion over accounting numbers with or without restrictions. Such discretion can be either firm value maximizing or opportunistic”. Although these definitions differ in some respects, two basic elements are emphasized: (1) the intention of managers to obtain some benefits, and (2) the view that financial numbers are changed in desired directions for management self-interest.

## 2.1.2 The Motivation of Earnings Management

Earnings management is usually motivated by three primary managerial incentives: (1) capital market, (2) contractual, and (3) regulatory. This section discusses these motivations and shows examples from each category.

### 2.1.2.1 Capital Market Incentives

Recent academic research suggests that capital market incentives can be a strong driving force behind a manager’s attempt to manipulate earnings. The increasing sensitivity of managers to their stock price movements demonstrates the growing importance of capital market incentives in earnings management. Teoh, Welch, and Wong (1998a, and 1998b) make a case for income-increasing earnings management prior to initial public offerings (IPO) and seasoned equity offerings (SEO). By engaging in income-increasing earnings management prior to equity issues, managers can attract favorable prospects, thus obtaining a more favorable price for the newly issued stock. They also document that equity-issuing firms typically have higher earnings prior to

stock issuances, and most of these high earnings are attributable to higher discretionary current accruals.

Another common situation is when an acquiring firm resorts to income-increasing earnings management before the merger agreement. By inflating the stock price around the period of stock-for-stock mergers, it is in the interest of the acquiring firms that the purchase can be made by issuing fewer shares. Erickson and Wang (1999) show that not only are the discretionary accruals significantly positive prior to mergers, but also the degree of income increasing accruals is positively associated with the size of the merger.

#### 2.1.2.2 Contractual Incentives

Many earlier studies in earnings management focus on managerial motivations arising from firms' contracts with other stakeholders. Typically, the terms of these contracts incorporated earnings figures as a key to certain payoffs to the parties involved. Earnings figures also function as a mechanism for monitoring the compliance of contract terms. Managers enjoy a unique position in these contracts -- they are a party to the contract and are perched at a vantage point to influence contractual outcomes by managing reported earnings. Under agency theory, managers can be expected to influence the earnings in a manner that would best serve their self-interest. Watts and Zimmerman (1983) postulate that managers acting to maximize the present value of their wealth would attempt to choose those accounting procedures that would shift earnings to the present period. Watts and Zimmerman (1978) identify managerial incentives which affect accounting choices in the context of bonus schemes, lending agreements, taxes, and political costs. Healy (1985) examines firms' contractual bonus schemes to support the proposition that managers of poorly performing firms will choose income-decreasing accruals if the income for that period is below the amount

required to pay a bonus. By delaying income to a later period, managers will increase their overall wealth.

#### 2.1.2.3 Regulatory Motivation

Another important incentive of earnings management arises from government regulations. These incentives are more pronounced when industries face heavier regulatory burdens. In general, regulators monitor certain accounting figures to ensure firms comply with industry-specific and antitrust regulations. Such monitoring motivates managers to manipulate accruals in the desired direction. Jones (1991) documents that firms undergoing import relief investigations by the US International Trade Commission engage in income-decreasing earnings management so that they can obtain favorable verdicts. Han and Wang (1998) document that petroleum refining firms manage earnings downward around Iraq's invasion of Kuwait to hide excessive profits resulting from a steep surge in oil prices in order to avoid possible regulatory actions against them. These regulatory motivations are stronger when the firms are on the verge of violating the regulations. Moyer (1990) shows that banks manage both loan loss reserves and securities gains to manipulate their earnings. Petroni (1992) also reveals that managers of financially weak property-casualty insurers bias their estimates of claim loss reserves downward and managers of insurers close to receiving regulatory attention understate reserve estimates to an even larger degree. Particularly in line with this stream of research, this study deals with firms' earning management opportunity in the regulatory change of goodwill recognition instituted by SFAS 142.

### 2.1.3 Major Methods of Earnings Management

Researchers have identified various methods that managers utilize to manage their earnings. These methods include: managers manipulating discretionary accruals to smooth incomes (DeFond and Park, 1997; Teoh et al., 1998a); taking big bath write-offs for managing earnings downward (Francis et al., 1996; Abarbanell and Leavy, 2003); downward revisions of managers' earnings guidance to avoid earnings surprises (Matsumoto, 2002; Cotter, Tuna, and Wysocki, 2006); adjusting earnings to beat or meet analysts' forecasts (Bartov, Givoly, and Hayn, 2002; Richardson, Teoh, and Wysocki, 2004; Brown and Caylor, 2005); taking special items to mislead investors (Dechow and Ge, 2006); and adopting real activity earnings management (Roychowdhury, 2007; Gunny, 2005) among others. However, because of their specific relevance to this study, the following literature review focuses only on earnings management by special items and earnings management with big bath accounting.

#### 2.1.3.1 Studies on Earnings Management Using the Special Items Classification

The first stream of literature pertinent to this study focuses on firms that use income statement special items to manipulate earnings. Special items generally result from accrual adjustments from impairments, write-downs or write-offs and restructuring charges (Dechow and Ge, 2006). Hand's (2000) study criticizes the subjective nature of classifying certain costs as special items, and argues whether a discontinued operation is reported as below-the-line (as a discontinued operation) or above-the-line (as a special item) is a matter of subjectivity.<sup>11</sup> The classification itself is made for investors to distinguish from other earnings components, and thus the transitory nature is

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<sup>11</sup> Back in 1973 AICPA issued APB Opinion No.30 to help clarify managerial discretion with regard to extraordinary items (i.e., bond redemption, and cumulative effects of accounting change). Flexibility in reporting also raises a question: Are these items are a signal for managers to send information, or are they another way of manipulation? Therefore prior studies specifically focused on special items have provided different examinations of earnings management in accounting issues (Rees, Gill, and Gore, 1996).



emphasized whenever it is reported following the income from continuing operations or below the line (Fairfield, Sweeney and Yohn, 1996). Kinney and Trezevant (1997) examine the recognition of income from special items with large earnings declines. They find these firms with large earnings change on average recognize significantly negative income from special items. In addition, the placements of such descriptions of special items in the financial statements are used to manage investors' perceptions. Specifically, the income-decreasing special items are likely to be displayed as separate line items (usually as a one-time non-recurring charge), thus this placement appears to be used to emphasize the transitory nature of this cost. However, the income-increasing special item is usually included in other costs, and any explanation is relegated to financial statement footnotes to avoid drawing attention to the transitory nature of this benefit. From these studies, the recognition of special items earnings management is generally driven by (1) items with a discretionary nature, and (2) transitory items involving accounting choices.

Other recent studies provide evidence that firms may commonly use specific accounts to manage earnings. Moehrle (2002) finds firms' that take restructuring charges reverse a portion of those restructuring charge accruals in a later quarter to beat analysts' forecasts and avoid reporting net earnings losses. McVay (2006) finds that managers opportunistically shift expenses from core expenses to special items in order to meet the analysts' forecast earnings benchmark. These studies are consistent with the statement of an increasing number of financial reporting using various special items earnings over time (Elliott and Hanna, 1996; Riedl and Srinivasan, 2005).<sup>12</sup> It appears

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<sup>12</sup> The percentage of firms reporting any special item in a given year is 3% in 1999, 6% for 2000, 49% for 2001, and 54% for 2002 according to Compustat expanded data fields (Riedl and Srinivasan, 2005).

that special items earnings management has raised more attention in accounting research.

#### 2.1.3.2 Studies on Big Bath Behavior in Earnings Management

Another stream of earnings management literature pertinent to this study focuses on big bath behavior. Firms with large profit reducing write-offs and impairments or income-decreasing discretionary accruals' in income statements have long been observed to engage in big bath earnings management (Watts and Zimmerman, 1986). Among many large write-downs in "big bath" studies, some specifically focus on the strong association between large discretionary write-offs and executive turnover (Strong and Meyer, 1987; Elliott and Shaw, 1988; Pourciau, 1993). Strong and Meyer (1987), for example, conjecture that the amount of write-down is established as a reserve account, and that amount can be reversed and taken into earnings in future periods, as needed. They further argue that the incentive for this reserve reversal (especially during executive transition) improves management effectiveness. Their evidence shows that asset write-downs are positively associated with the management change, including below-average financial performance prior to the management change, and improvement in operating performance following the management change. Elliott and Shaw (1988) document that firms disclosing large discretionary write-offs are usually larger, more highly leveraged, and are underperformers within their industry (measured by ROA and ROE). Their findings also support that these firms have lower returns (from three years before through eighteen months after) following their asset write-offs announcements. Similarly, Wolcott (1993) also documents that firms recognizing asset impairments are less profitable, or have lower returns on assets and equity in the write-down year compared to non-write-down firms.

Kirshenheiter and Melumad (2002) develop an alternative financial reporting model that is able to explain that firms with low earnings under-report earnings by the maximum amount possible, thus taking a big bath for different reasons. DeAngelo (1988) finds that when executives are threatened with losing control of the firm in a proxy fight, they may take a big bath to lower earnings in order to encourage the acquiring firm to give up the fight. In addition, Abarbanell and Leavy (2003) find that managers in a firm, which was given a “sell” rating by rating agencies and analysts, are willing to take a big bath in earnings in order for the firm to potentially show a better performance in the future.

## 2.2 Earnings Management through Excessive IPR&D Expensing

Among the firms’ big bath write-downs for earnings management, the case of IPR&D write-offs is of particular interest. IPR&D write-offs were very pervasive during the 1990s. Because the research questions of this study center around IPR&D write-offs, a thorough treatment of this subject is in order. Therefore, this section first provides the background of IPR&D expensing, followed by a subsection that gives an historical account of excessive IPR&D write-offs in the mid-1990s until SEC’s scrutiny and enforcement actions in 1998. A third subsection discusses the impact of IPR&D restatements to the firms and reviews research studies on the effects of the SEC scrutiny.

### 2.2.1 The Development in IPR&D Expensing Accounting

In October 1974, the FASB issued SFAS No. 2. This standard required all R&D costs to be charged to expense when incurred (SFAS No.2, 1974).<sup>13</sup> Shortly thereafter

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<sup>13</sup> SFAS No. 2 states that research and development costs include such costs as: (1) costs of materials, equipment and facilities that have no alternative future uses; (2) salaries, wages and other related costs of personnel engaged in R & D activities; (3) purchased intangibles that have no alternative future uses; (4)

in February 1975, FASB further clarified accounting for incomplete R&D activity at the time of acquisitions. The clarification was necessary as SFAS No. 2 potentially created a problem for an acquiring company purchasing both complete and incomplete R&D projects with significant market value. FASB interpretation No.4 (FIN 4) “*Applicability of FASB Statement No. 2 to Business Combinations Accounted for by the Purchased Method*” provides guidelines for IPR&D expenses by stating “cost assigned to assets to be used in a particular research and development project and that have no alternative future use shall be charged to expense at the date of consummation of combination.” Therefore, prior to the recently issued SFAS 141R,<sup>14</sup> IPR&D cost, such as acquired research and development which had not reached technological feasibility at acquisition or did not have an alternative future use, had to be written off at the time of acquisition.<sup>15</sup>

Beginning in the 1990s, when numerous high technology mergers and acquisitions (M&A) took place, many of the acquirers paid large premiums for acquisitions and charged the excessive costs as IPR&D instead of reporting it as goodwill. The intriguing feature of the accounting treatment of IPR&D lies in the about-face of acquiring firms. These firms first presented financial reports using the fair value of acquired R&D and then immediately expensed it all. This generally leads to reporting heavy losses in the period of acquisition (Deng and Lev, 1998). One should note that during the 1990s many companies considered acquiring another firm for certain desired

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contract services; and (5) a reasonable allocation of indirect costs, except for general and administrative costs, which must be clearly related in order to be included and expensed (SFAS No.2, 1974).

<sup>14</sup> The new pronouncement SFAS 141R that change in capitalizing IPR&D is officially issued in December 2007.

<sup>15</sup> The immediate expensing of acquired R&D was deemed questionable by some Task Force members (Deng and Lev, 1998). In 1987, the AICPA’s Emerging Issues Task Force (EITF) debated whether in a business combination accounted for as a “purchase” a firm should allocate a portion of the purchase price to incomplete R&D projects, and if so, should such values be capitalized or immediately expensed. The Task Force, however, did not reach a consensus on this issue (EITF abstracts, Issue No.86-14).

assets rather than the entire business. However, many of these firms enjoyed added benefits since many of the projects classified as not technologically feasible and then expensed can still be brought to completion, and marketed, providing greater revenues and cash flows in the future. This may create an excuse for the subjective valuation of incomplete R&D projects and for the broad latitude of judgment in projects' alternative future use.

Deng and Lev (1998) examine the immediate expensing of IPR&D activities from 1990 to 1996, and they find an increasing trend in frequency and dollar amounts. It is estimated that only 3 firms wrote off IPR&D as part of their acquisitions during the 1980s, compared to 389 in the 1990s -- with a record high 156 in 1996 alone. MacDonald (1998) reports an estimate that IPR&D expensing reached \$16 billion in 1998. The issue of overstated IPR&D write-off was so significant that *The Wall Street Journal* (MacDonald, 1998) continued revealing some examples of IPR&D write-offs that reached 80%-90% and even up to 100% of the acquired company's purchase price (see examples in Table A.1) (MacDonald, 1998). These unusual examples immediately brought public attention and further suspicion of big bath earnings management.<sup>16</sup> As *The Wall Street Journal* reported the many abuses of IPR&D charges, then SEC Chief Accountant, Mr. Lynn Turner in September 1998 expressed the SEC's concern over the increased frequency and magnitude of incidences of IPR&D write-offs. Furthermore, then SEC Chairman Mr. Arthur Levitt suspected "the numbers game" (earnings manipulation) that some firms with IPR&D charges might be engaging in. This earnings management opportunity is suspected as excessive IPR&D write-offs might allow

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<sup>16</sup> In particular the suspicion is significant when the public compares such the business practice to prior studies that Elliott and Shaw (1988) define big bath as write-offs more than 1% of the book value in assets, or Zucca and Campbell (1992) proxy the big bath behavior for pre-write-down earnings less than expected. The prior evidence shows that the majority of write-downs are results of big bath, and firms use their discretions to manage earnings.

acquiring firms to report higher earnings, EPS, ROA, and ROE during subsequent years (Levitt, 1998). The SEC was concerned that these firms may be using negative accruals and elect to take an immediate earnings ‘bath’ in order to discredit managers in place prior to the acquisition (DeAngelo, 1989).

Following the SEC scrutiny, at least one hundred firms (either voluntarily or after being prompted by SEC) restated their prior earnings in late 1998 and in 1999. Here is one example of a company, SS&C Technologies Inc, which restated its prior IPR&D expenses as a result of SEC scrutiny:

*“April 6, 1999--SS&C Technologies, Inc. (NASDAQ: SSNC) today announced it has completed its previously announced review of the calculation for the in-process research and development (IPR&D) charge it recorded in the first quarter of 1998. As announced in the Company's fourth quarter release, its review of the calculation was a result of the SEC's interest in how these calculations were derived. The analysis that was used incorporated a "stage of completion" methodology to the calculation. As a result of the change, diluted earnings per share increased from the previously announced results of \$ 0.13, to \$ 0.19 for the year.*

*The components of the increase included a reduction of \$ 2.1 million in the IPR&D charge, from \$ 8.0 million to \$ 5.9 million, and an increase in amortization expense of \$ 0.9 million. This resulted in a pretax profit increase of \$ 1.2 million and a net income increase of \$ 0.9 million, or \$ 0.06 per share.*

*The Company also previously announced diluted earnings per share of \$ 0.49 before the IPR&D write-off. This amount has been reduced to \$ 0.45 due to the increased amortization expense as a result of the application of the stage of completion methodology. These results have been filed with the SEC in the Company's 1998 10K filing. The Company will amend its previously filed 10Qs to reflect the new write-off.” (SS&C press release, 4/6/1999).*

It was not uncommon to see such public announcements during this period of heightened interest in IPR&D charges. Shortly following the SEC scrutiny, the impact of the SEC crackdown on the size of IPR&D write-offs in high visibility business acquisition transactions was reported in the Wall Street Journal in 1999 (MacDonald, 1999). The report stated that firms have restated and reduced previously reported

IPR&D charges by about \$5 billion; about half of the \$10 billion under SEC's scrutiny in more than 50 firms. Most importantly, the subsequent earnings effects after these IPR&D restatements raised the interest of many investors and the general public. One of the significant earnings effect examples appears as follows:

*“Lightbridge, Inc. (NASDAQ: LTBG), today announced that it has changed the accounting for its acquisition of Coral Systems, Inc. (Coral) in November 1997. The restatement results in an increase in net income for the fourth quarter 1997 of approximately \$ 11.6 million, or \$ 0.76 per share. In the first through fourth quarter of 1998 the restatement results in a net income decrease of approximately \$ 0.8 million, \$ 0.4 million, \$ 0.4 million and \$ 7.8 million, respectively (or earnings per share decreases of approximately \$ 0.06, \$ 0.03, \$ 0.02 and \$ 0.48 per share, respectively). Lightbridge anticipates that the revised accounting will result in amortization expense of approximately \$ 2.0 million in 1999 and \$ 1.9 million in 2000, approximately equivalent to the effect its original accounting would have had. The restatement is expected to result in increased amortization expense of approximately \$ 1.2 million and \$ 1.0 million in 2001 and 2002, respectively.*

*Under the revised accounting, the value ascribed to the in-process research and development (IPR&D) acquired from Coral was reduced from \$ 16.0 million to \$ 4.0 million. The difference of \$ 12.0 million was allocated to \$ 5.4 million of existing technology and \$ 4.1 million of goodwill, both of which will be amortized principally over a five-year period, as well as \$ 2.5 million to the Coral workforce, which will be amortized over a three-year period. Total goodwill recorded at the acquisition was \$ 10.7 million.” (SEC 8-K EDGAR filing, 2/25/1999; Lightbridge, press release, 2/24/1999).*

During the period of 1998 to 1999, the issue of immediate expensing and overstatement of IPR&D that needed to be restated was a concern to both investors and regulators. Shortly thereafter a new goodwill standard SFAS 142 became effective in 2002. Little attention was paid to the relationship between SFAS 142 and IPR&D. As stated earlier, although the IPR&D restated firms did restate their prior earnings, these firms carried a substantially higher goodwill after restatements. These firms are suspected to have a strong motivation to write down this “extra” amount of goodwill by taking advantage of this transition period in SFAS 142. There is no study addressing the

link between excessive IPR&D expensing, restatement of this expense following SEC scrutiny, and goodwill impairment write-offs due to SFAS 142.

### 2.2.2 Recent Literature Review of IPR&D

The issue of immediate expensing and overstatement of IPR&D became a major focus when the SEC investigated those firms with large IPR&D write-offs. Several studies have been conducted to examine various aspects of this investigation. Deng and Lev (1998) document that the expensing of IPR&D substantially boosts post-acquisition reported profitability in acquiring firms, thus the earnings management exists. In addition, other studies confirm the above finding and emphasize the impacts of the SEC's investigation on the firms.

In an attempt to determine the effect of the SEC's scrutiny during 1998, Dowdell and Press (2002) focus on the firms initial expensing of large amounts of IPR&D. They find IPR&D write-offs shrink by more than half in the period following the SEC's guidance. They therefore assert that firms manage their earnings with IPR&D. Dowdell and Press (2004) document the effect of SEC scrutiny on IPR&D and how it influences firms' financial reporting. The evidence shows that restatements reduced IPR&D expenses by an average of 62 %, and increased pre-tax incomes by 142 %. In particular, the IPR&D expenses shrank 71 % in computer and software firms (SIC 737) in the years following the SEC's guidance. Dowdell, Lim and Press (2005) also support the SEC's concerns about earnings manipulation by showing a negative relation between higher IPR&D charges in the acquirers and lower prior R&D costs in the acquired firms.

Although not the focus of this study, some studies emphasize market reactions to excessive IPR&D big bath write-offs. Clem, Cowan, and Jeffery (2004) document that



the market reacts differently to the possible accounting changes in IPR&D, and the reaction vary by different industry groups. Their findings state it is more pronounced in firms with greater IPR&D charges and software firms while large and experienced acquiring firms might be less affected. Banyu (2006) also examines the market reaction to the IPR&D restatement impact during SEC scrutiny in 1997-1998. Her evidence finds firms' aggressive IPR&D allocations relate to poor future performance. The findings are also consistent with Deng and Lev (1998), who find that IPR&D and goodwill are distinguishable by investors at acquisitions.

In short, prior literature document that IPR&D write-offs shrank significantly after the SEC scrutiny and thus "big bath" earnings management is asserted for the period prior to the SEC scrutiny. Market reactions also support that high tech firms are generally more affected by IPR&D accounting and IPR&D restatements. However, while Deng and Lev (1998) address a call for more IPR&D related research, the issue about pervasive use of IPR&D write-offs by firms to manage earnings also raises a red flag. Elliott and Hanna (1996) argue that a non-recurring write-off does not occur randomly, and managers may use write-offs to accomplish strategic earnings management. In particular, firms reporting write-offs currently tend to report additional write-offs in the future (Elliott and Hanna, 1996). Based on their arguments, this study suspects the excessive IPR&D write-offs from these restated firms could repeat in order to accomplish another strategic earnings management. Therefore, the linkage of the IPR&D write-offs from IPR&D restated firms to their goodwill write-offs in the SFAS 142 transition period deserves serious research. The next section expands the discussion of earnings management through goodwill write-offs.

## 2.3 Earnings Management through Goodwill

As mentioned earlier, goodwill charge reporting “below-the-line” under the SFAS 142 transitional provision is suspected of being a way to earnings management through special items. It is also suspected of being a way to earnings management through “big bath” write-offs, and worthy of more attention. This section first explains how the goodwill accounting evolves over time, and then reviews literature on the SFAS 142 provisions.

### 2.3.1 The Evolution of Goodwill Accounting

Simply defined, goodwill is the difference between the acquisition purchase price and the net value of the assets acquired from a business merger. As Johnson and Petrone (1998) put it, “breaking down a large asset into its constituent parts, and after the acquired net assets are identified and recorded, the remainder is assigned to goodwill.” Thus it is very critical to accurately determine the net value of the acquired company, which includes valuation of assets and liabilities as well as incomplete R&D activity based on the going-concern assumption. The amount of IPR&D is directly related to the allocation of goodwill in acquiring firms because the greater the cost of the acquisition identified as IPR&D, the lesser the amount that will be categorized as goodwill.

Accounting for goodwill was initially prescribed in the Accounting Research Bulletin No. 43, *Restatement and Revision of Accounting Research Bulletins.* Here, goodwill is considered a type of intangible asset with indefinite life.<sup>17</sup> In October 1970, APB No.17, *Intangible Assets*, required acquiring firms using the purchase method to allocate the acquisition price to identifiable intangible and tangible assets. Also,

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<sup>17</sup> Thus goodwill cost is either (1) capitalized until a limit on its useful life or a loss of value was evident, at which time it was amortized or, if worthless, written off as an extraordinary loss; or (2) amortized to expense at managerial discretion even though no present evidence pointed to a limited term of existence or a loss of value (ARB 43, Ch. 5).

goodwill recorded under the purchase method should be amortized systematically over its economic life, but not longer than 40 years.<sup>18</sup> Since that date is indeterminate, the amortization period is still arbitrary (APB 17, para.23).

During the 1990s, substantial purchase premiums in acquisitions were allocated to goodwill due to the bull market, and especially in the information technology industry. With subsequent market downturns, the value of acquired net assets was not worth the value originally estimated. However, goodwill was still recorded on the book at the originally stated amount. Such practices led to criticism of the even systematic amortization of goodwill, which was treated as a “wasting asset,” since investors and managers often questioned the veracity of assumptions not reflecting actual situations.

Effective fiscal year beginning December 16, 2001, SFAS 141 and 142 superseded APB No. 16 and 17. SFAS 141 *Business Combinations* officially eliminated the pooling of interest method and required that all merger transactions be accounted for using the purchase method, thus every merger has the potential to include goodwill. SFAS 142, *Goodwill and Other Intangible Assets*, established a new guideline which eliminates the useful-life amortization method because it did not reflect the underlying economic nature of goodwill. The new rule requires that goodwill impairment testing be performed at least annually to determine the value of goodwill that is impaired. FASB asserts that the new standard will help (1) to provide better balance sheet valuation of goodwill, (2) to remove the arbitrarily determined straight-line amortization from the income statement, and (3) to allow users to better understand expectation about changes

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<sup>18</sup> Internally developed intangible assets are not recognized as an asset on the balance sheet. APB 17 is based on the premise that few intangible assets last forever, although some might seem to last indefinitely. But amortizing goodwill was necessary, because goodwill inevitably disappears at some future date. Since that date is indeterminate, the amortization period is still arbitrary. (APB 17, para.23)

in a company's assets over time, thereby improving their ability to assess future profitability and cash flows (SFAS 142).<sup>19</sup>

### 2.3.2 The Transition Provisions of SFAS 142

The scope of SFAS 142 covers goodwill that an entity recognizes. The entity also must be in accordance with SFAS 141 *Business Combinations*. The FASB expects this refined standard (SFAS 142) to provide a better mapping of goodwill to the operations that produce the appropriate underlying cash flows. Thus goodwill is written down when it is impaired. SFAS 142 also provides for a transition period in financial reporting, to be designated as “the change of accounting principles.” The impairment charges are regarded as loss by “the cumulative effect of change in accounting principles” and are to be treated as a one-time “below-the-line” item. Goodwill impairment loss subsequent to the SFAS 142 transition period is recorded as an “above-the-line” operating expense in calculating net income (SFAS 142). Therefore SFAS 142 requires that a transitional goodwill impairment test be performed in the adoption year (transition period), and an annual impairment test be performed in subsequent years.

The new rule applies a two-step process to write down goodwill. The transitional impairment test is completed in the first interim period. In other words, the first step of the goodwill impairment test should be completed within 6 months (by the end of June 30, 2002). The second step is completed as soon as possible, but no later than one year (SFAS 142). Under the provisions of SFAS 142, the two-step process to test impairment<sup>20</sup> is as follows:

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<sup>19</sup> Early in the proposal revision process, FASB faced many political and industrial influences either from congressmen or various interest groups (Ramanna, 2008). Watts (2003) criticizes that SFAS No. 142 may be an error in judgment by the FASB. Replacement of goodwill amortization with the impairment provisions occurred immediately after investment bankers made a presentation to the FASB. The timing suggests the inclusion/exclusion decisions were a reaction to that lobbying (Watts, 2003).

<sup>20</sup> See appendix C for an example and graphical explanations.

Step (1) involves a comparison of the fair value of the reporting unit to its carrying value. If the fair value exceeds the carrying value, no further test is required. But if the carrying value exceeds its fair value, then the second step is required.

Step (2) entails a calculation of its implied fair value of goodwill by measuring the fair value of net assets, other than goodwill, and subtracting this amount from the fair value of the reporting unit (SFAS 142).

Much management discretion is involved because the allocation of goodwill relies on managers to assign portions of goodwill to appropriate reporting units within the firm<sup>21</sup> (SFAS 142, §30). The following subsection presents additional criticism pertinent to SFAS 142 goodwill reporting.

### 2.3.3 Criticism on SFAS 142 Goodwill Accounting

Although the purpose of FASB 142 is to force firms to systematically reevaluate the fair value of goodwill each year, it is noted that reporting fair value by an impairment test is subject to managers' discretion. Watts and Ramanna (2007) suggest that GAAP allows unverifiable estimates into new goodwill reporting. Assessing impairment requires valuation of future cash flows, which is unverifiable and not contractible in SFAS 142. Thus, it is likely to be manipulated. SFAS 141/142 are examples of "the soft accounting standard generated by standard setters" that will provide incentive for the creation of alternative accounting systems (Watts and Ramanna, 2007).

For example, FASB recommends the use of quoted market prices in active markets to assess the fair value of a reporting unit, if available. If not, the use of a

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<sup>21</sup> A reporting unit is defined as an operating segment in SFAS No. 131, or a business component one level below the segment, provided that management regularly reviews the component's performance (SFAS 142, para.30).

present value technique is suggested (SFAS 142, §23-24). The fair value of the identifiable assets and liabilities are measured in the same way as at the time of acquisition (i.e. capital assets are measured in the same way as at replacement cost). Though independent appraisers review managerial reports and provide their independent opinion during the impairment process, managers still make their own final decision in reporting the fair value. Massoud and Raiborn (2003) maintain that SFAS 142 provides management with significant leeway in making estimation and assumptions with respect to the identity of its reporting units, the allocation of assets, liabilities, forecast of future performance, discount rates, the asset replacement value, net realized value of given assets, and goodwill to reporting units. Wide ranges in estimated values involved in managerial subjectivity not only imply that this new standard is unverifiable but also that it is not convincing about the appropriate fair values.

Another criticism is focused on the evidence of large excessive goodwill write-offs in the transition year that have had a substantial effect on financial statements. Huefner and Largay (2005) analyze 100 public companies with the largest reported goodwill balances. One-third of these 100 companies wrote off about 30% of their goodwill when they transitioned to SFAS 142. The Wall Street Journal also regularly reported these excessive goodwill write-offs to raise public attention in 2002. Table 2 is one example of press coverage in 2002 showing that many well-known companies completed their two-step impairment test in a short time, and reported significant amounts of goodwill write-offs. Many of these companies received much public attention as a result of their large-scale mergers and acquisitions in the 1990s, as well as the huge impaired goodwill write-offs immediately after adoption of SFAS 142.

In summary, after many revised proposals in goodwill accounting, FASB expected SFAS 142 would be a better mapping of goodwill to the firms' operations. However, this new provision was not only criticized as allowing too much managerial discretion in firms' fair value, but also resulted in the opportunity for excessive write-offs as goodwill impairment during the transition period. The literature presented below provides more academic studies which subsequently criticized firms' abuse of the new standard and fair value accounting.

#### 2.3.4 Recent Literature in Goodwill Accounting

Many recent articles on goodwill reporting related to SFAS 142 criticize the FASB's fair value accounting. Some suggest that the political pressure on promulgating SFAS 141 and SFAS 142 may increase the chance to manipulate accounting performance (Anantharaman, 2007; Ramanna, 2008). Others question how the capital market would respond to the implementation of the new standard. Bens, Heltzer, and Segal (2007) and Li, Shroff, and Venkataraman (2006) provide evidence of a negative market reaction to the announcement of goodwill impairment losses, with the results being stronger in highly leveraged firms but no reaction to the elimination of amortization (Zang, 2004). Li, Shroff, and Venkataraman (2006) study the causes and consequence of the firms' announcement of goodwill impairment loss for SFAS 142. They find that investors' and analysts' revision of their expectation downward is associated with the magnitude of impairment loss.<sup>22</sup> In addition, the impairment loss is not only negatively correlated with return performance over the prior two years of loss announcement, but also is negatively associated with post-acquisition return performance. Thus they conclude that impaired firms are more likely to have initially

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<sup>22</sup> Zang (2004) has very similar findings in his dissertation.

overpaid for the target at acquisition made in the prior five years. Bens, Heltzer, and Segal (2007) further point out that the negative reaction for high information asymmetry firms does not persist following the adoption of SFAS 142. Therefore fair value methods are difficult to implement reliably, and thus can reduce the information content of reporting.

Most current research is critical of SFAS 142 because of its reliance on fair value accounting with unverifiable managerial discretion. Studies regarding the big bath examination during the transition period are most observable (Jordan and Clark, 2004; Sevin and Schroeder, 2005). Other research follows the study of the determinants in firms' discretionary reporting in SFAS 142 (Beatty and Weber, 2006; Lapointe, 2005; Phillips, 2005; Guler, 2007). The findings of these studies are discussed in the following.

By examining the pre-and-post SFAS 142 transition period, Jordan and Clark (2004) document that 29% of Fortune 100 firms with goodwill impairment charges have significantly lower reported earnings in 2002 than their counterparts (51 firms) without goodwill write-down. Jordan and Clark's study gives evidence of big bath earnings management and is based on examining firms with similar earnings in 2001. A weakness of their research is that the impairment group had suffered depressed earnings in 2002, while the compared group had not (because the latter didn't report any goodwill impairment loss in 2002). Therefore, it is not surprising that a significant decrease in ROA and Return-on-Sales (ROS) is observed in the finding. Sevin and Schroeder (2005) extend the Jordan and Clark (2004) study by using a randomly selected sample to examine the big bath opportunity for firms reporting goodwill impairment charges in the initial year of SFAS 142. Consistent with prior literature, their results suggest that the adoption of SFAS 142 allows companies to engage in



earnings management. Their finding also indicates that small firms experience a significantly greater negative impact and are much more likely than large firms to take big bath charges.

Studies with a very similar research method are undertaken by Beatty and Weber (2006), Lapointe (2005), and Guler (2007), with different results in terms of determinants between impaired goodwill write-offs and managerial discretion. Lapointe (2005) examines the determinants of transitional goodwill impairment loss reported by Canadian firms under Section 3062 (Section 3062 is consistent with SFAS 142, except transition year loss is charged to equity not net income.) Lapointe's empirical findings show significant association between the impairment losses and managerial reporting incentives and disincentives. This paper suggests that managers' incentives reveal their private information about expected future cash flows. The paper also suggests that high write-offs are more likely in firms with lower ROA/ROE, and with CEO change, but less likely in firms with higher in-the-money exercisable stock options, and widely held companies. Similarly, Beatty and Weber (2006) find that firms' contracting and equity market concerns affect their preference in accounting reporting choices. Their study further documents that debt contracting, bonus plans, management turnover, and exchange delisting incentives would accelerate or delay impairment charge recognition.<sup>23</sup>

Guler (2007) examines corporate governance factors that influence a managers' choice to recognize goodwill impairment under SFAS 142. The findings indicate that the likelihood of recognizing the existing impairment losses significantly decreases

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<sup>23</sup> Beatty and Weber (2006) find when firms are riskier, or when firms have high ERC on above-the-line income, or when firms which are under exchange requirement of a financial-based performance and which do not trigger delisting in future (i.e., NYSE and OTC), they are those likely to take transition goodwill write-offs. Instead they find that firms with binding net-worth covenants, or firms with longer tenured CEOs, or firms that provide compensation plans that do not exclude special items are those likely to delay goodwill write-offs.

when the managers have sizable holdings of in-the-money stock options. But the likelihood significantly increases when firms have stronger corporate governance such as outside directors, outside directors' ownership, number of busy directors, and separation of CEO and Chair titles. The above research is also consistent with Lapoint's study (2005) which suggests that the audit committee with independent directors may constrain managerial goodwill reporting choices in the recognition of existing impairment loss, and write-offs are less likely in firms with higher in-the-money exercisable stock options, and widely held companies. Their studies highlight (1) the importance of corporate boards in the monitoring of discretion allowed by such standards, and (2) that compensation schemes with managerial interests do affect the implementation of standards.

To summarize, recent literature focuses on different forms of reporting incentives and disincentives in response to the SFAS 142 provision which allows managerial discretion in goodwill valuation. It appears that the goodwill impairment approach fails to force firms to be more transparent and reliable with respect to their underlying economic value. Therefore, corporate governance and compensation schemes associated with the managerial reporting incentives and disincentives could affect the recognition of goodwill impairment under SFAS 142. These findings are also consistent with Watts' criticisms (2003) that SFAS 142 allows the managers to make biased determinations in fair value with unverifiable reporting.

#### 2.4 The Linkage between IPR&D and Goodwill

As mentioned in section 2.2 above, the issue of overstated IPR&D expenses was a concern of both investors and regulators during the period of 1998 and 1999. Following the enforcement actions by the SEC in 1998, this issue became less of a concern. These

firms with restatements of IPR&D had not been discussed during the period when a new goodwill standard of SFAS 142 became effective in 2002. Even then little attention was paid to the relationship between acquirers' goodwill write-offs, prior IPP&D allocation, and any restatement. In other words, it appears the public neglected the effect of the IPR&D restatement on goodwill, which was carried over in the firms' financial statements. In particular, the transition period in 2002 was the first time that acquiring firms were required to write down all of their impaired goodwill. Of all the goodwill in the account, the firms' goodwill write-off amounts which have been determined through the impairment test may include some that originally came from the remaining portion of IPR&D allocation at acquisitions, as well as some which were the "extra" goodwill adjusted from the IPR&D restatements. Therefore, the close relationship of IPR&D expense and goodwill could be presented and evidenced by the issuance of SFAS 141R.<sup>24</sup> FASB expects that SFAS 141R and SFAS 142 can better work together to reflect a firm' economic circumstances.

There are other linkages as well. Prior literature provides evidence to assert that big bath firms and IPR&D firms have some common characteristics, such as large firm size, lower than average ROE and ROA, and significant write-off history. Furthermore, big bath earnings management is often observed when firms have poor prior returns and profits, higher management turnover, and higher leverage. Therefore, it is reasonable to ask whether restated IPR&D firms would take a big bath goodwill write-off opportunity to manipulate earnings.

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<sup>24</sup> FASB issued SFAS 141R Business Combination in December 5, 2007, and the new standard took effect for firms with acquisition after December 15, 2008. The most related statement in SFAS 141R is that IPR&D project of the acquirer need to be measured at fair value and recognized as an asset. Such an asset should be accounted for as an indefinite-lived intangible asset, where the asset is not subject to amortization but impairment test until the project has been completed and abandoned. The IPR&D will no longer be expensed at acquisition (SFAS 141R).

This study traces back the restatement activities in IPR&D firms and connects the adjusted goodwill from the allocation of restatement to subsequent SFAS 142 goodwill write-offs behavior. Elliott and Hanna (1996) state that if the write-offs attract more scrutiny from investors, a sequence of write-offs could result in the decline level of accounting earnings. Similarly, their study also supports an argument from Kinney and Trezevant (1997) that the placement of descriptions of special items in the financial statements is used to manage investors' perceptions. Their evidence is among the studies supporting the proposition that IPR&D restated firms could take advantage of the "below-the-line" impaired goodwill write-off opportunity. This is what I propose to test in this dissertation.

IPR&D restated firms take advantage of this SFAS 142 transition provision, allowing "below-the-line" goodwill impairment charges, and avoiding drawing attention to the transitory nature of special items. Kinney and Trezevant (1997) suggest that the earnings effect of special items is less highly correlated with economic circumstances than are changes in total accruals. Furthermore, a recent study from McVay (2006) supports this conclusion. Her paper proposes that classification shifting is one type of earnings management vehicle, and that the evidence is consistent with managers opportunistically shifting expenses from core expenses (cost of goods sold and selling, general, and administrative expenses) to special items. This vertical movement of expenses does not change bottom-line earnings, but overstates a firm's core earnings. Thus, it is reasonable to suspect that IPR&D restated firms may use this SFAS 142 transition reporting opportunity and take an aggressive reporting strategy to write off more impaired goodwill. This implies the opportunity for firms to engage in earnings management may not simply be a reflection of economic circumstances. That also suggests this research is interesting to empirically test.

In summary, many studies argue against the managerial discretion inherent in the new SFAS 142 standard, but none have been found to explore the cause and consequence of such discretion in the magnitude of goodwill impairment write-offs by IPR&D firms. Conjectures outlined in Chapter 1 suggest that the firm's corporate governance may affect the financial reporting strategy, and thus firms may report differently in goodwill charges. This section on the linkage between IPR&D and goodwill further discusses whether the governance factors contribute to the various financial reporting strategies and impact the goodwill write-off amounts. I present aggressive or conservative financial reporting as related to firms' corporate governance quality following SEC enforcement, and how each strategy would affect the levels of transition goodwill write-offs.

#### 2.4.1 Aggressive Reporting with IPR&D Restatements

Will firms best benefit from acting as opportunists even though there exists earnings management opportunity during SFAS 142? There could be cost-benefit rationales preventing some firms from acting as opportunists. Earlier in Chapter 1, this study proposes two alternative competing goodwill write-off behaviors due to SEC enforcement and potential scrutiny. This section provides support as to why governance factors might affect the restated firms' financial reporting, and how they might continue to impact firms' SFAS 142 impaired goodwill charges. This section attempts to build a theoretical foundation for hypotheses development with two directional interpretations.

Do firms have a higher probability of restatements when their corporate governance is weak? Agrawal and Chadha (2005) find the probability of restatement is higher when the CEO belongs to a founding family, but lower when there exist independent directors with financial expertise and audit committees. These relationships

are statistically significant, large in magnitude, and robust to alternative specifications. The evidence is consistent with the idea that better corporate governance provides an oversight of a firm's financial reporting practices. (Guler, 2007; Lapoint, 2005)

Baber, Kang and Liang (2007) consider the association between accounting restatements and external corporate governance measures in terms of statutory and corporate charter provisions that limit shareholders' participation in the governance process. Their findings indicate strong external governance (fewer restrictions on shareholder rights) is associated with relatively low probabilities of accounting restatement. Their results are robust even when they consider both alternative external governance measures and various internal governance characteristics frequently imposed by regulators and monitored by stakeholders as indicators of effective corporate governance. Hence, existing empirical evidence is ambiguous regarding whether external governance encourages or discourages the incidence of accounting restatement.

Another measure of external governance is the relationship of institutional ownership and institutional investors to the occurrence of restatements. Hribar, Jenkins, and Wang (2006) examine how institutional investors respond to accounting restatements and find that transient institutional investors, defined as institutions with shorter investment horizons and higher portfolio turnover, significantly reduce their holdings in a restating firm at least one quarter prior to the quarter of the restatement. Thus, their study suggests that the sophistication of institutional investors enables them to anticipate potential accounting problems and adjust their holdings downwards prior to the restatement. Also, Burns, Kedia, and Lipson (2006) find a positive relationship between ownership by institutions with active strategies and short investment horizons (transient institutions) and the occurrence and magnitude of financial restatements.

The above literature all supports the proposition that poor corporate governance may increase the occurrence of financial restatements. Thus, I infer firms that restated their earnings before, such as IPR&D restated firms, were poorer in corporate governance than IPR&D non-restated firms. Furthermore, a subsequent concern is whether the restated firms with poorer governance would take an alternative strategy to report their financial numbers.

Conventional wisdom suggests that the restated firms, together with significant stock price declines and other adverse consequences, will reform their financial reporting policies. However, in their examination of the impact of financial statement restatements on firms' financial reporting strategies, Moore and Pfeiffer (2005) conjecture that the continuing importance of stock-based compensation, organizational responses to crisis, and the risk-return tradeoffs of restatement all suggest it is possible that management' incentives are relatively unchanged in the aftermath of a restatement.<sup>25</sup> Their evidence suggests that insufficient changes exist in the financial reporting environment (i.e., securities regulators, boards of directors, independent auditors, the security markets themselves, and firms' internal corporate governance mechanisms). They also find that firms do not appear to adopt a more conservative financial reporting strategy after a restatement. Richardson, Tuna, and Wu (2002) find restating firms attempt to maintain a string of consecutive positive earnings growth and consecutive positive earnings surprises; therefore their study documents that capital market pressure acts as a motivating factor for restated firms to continue to adopt aggressive accounting policies. Their conclusion is consistent with the proposition that big bath firms in general benefit from subsequent earnings growth. In conclusion, prior

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<sup>25</sup> Moore and Pfeiffer (2005) use threat rigidity theory (1981) from organizational theory to explain how organizations respond to crises. The paper also applies the residual total accruals, the working capital, pattern in earnings growth, and pattern in analysts forecast surprises to proxy for firms' aggressive reporting; the findings of accounting aggressiveness remains unchanged after a restatement.

literature supports the conjecture that IPR&D restated firms with poor governance would still perform reporting aggressively after restatements. Furthermore, when the restated firms adopts aggressive accounting reporting during the SFAS 142 transitional goodwill write-off period, big bath earnings management may be observed in these opportunists.

#### 2.4.2 Conservative Reporting by IPR&D Expense Restatement Firms

In contrast to the above conjecture about the impact of governance on the firms' aggressive strategy, other researchers have proposed an alternative view regarding the impact of public attention on firm's financial reporting strategy. In particular, accounting conservatism may still play a significant role in financial reporting. Watts (2003) argues that conservatism helps in corporate governance and specifically in monitoring firms' investment policies. He also states that conservatism will exist because contracting and shareholder litigation are important even in the absence of formal contractual use of financial statements. Furthermore, other supporters maintain conservatism is a constraint of earnings management because the potential cost of earning management is very high (Marquardt and Wiedman, 2004; Richardson, Tuna and Wu, 2002). Many studies show the potential high costs of financial restatements. This cost appears not only in the consequence of being detected, but in the penalty exacted by the market due to the SEC investigation (Dechow, Sloan and Sweeny, 1995), in the loss of the reputation (Teoh, Rao, and Wong, 1998a), and in the high costs of earnings restatement, as well as the subsequent litigation risk (Palmrose and Scholz, 2004). Thus, I expect that less earnings management will be observed in firms with conservative reporting strategy.



Since the write-offs of SFAS 142 are also related to below-the-line earnings, does a firm's conservative reporting strategy prevent the firm from reporting earnings as special items? Ahmed and Duellman (2007) hypothesize that if conservatism reduces managers' ex ante incentives to take on negative NPV projects and improves the ex post monitoring of investments, firms with more conservative accounting ought to have higher future profitability and lower likelihood (and magnitude) of future special items charges than firms with less conservative accounting. Their findings are consistent with the hypothesis that conservatism mitigates agency problems associated with managers' investment decisions, as predicted by Watts (2003) and Ball and Shivakumar (2005).

From the above arguments, it is questionable whether managers are willing to take such risks to manage their earnings, especially when some firms had been under SEC scrutiny or even prompted to restate their prior released earnings.<sup>26</sup> To some extent IPR&D restated firms could be expected to adopt conservatism in reporting as they are well publicized firms after restatements and the monitoring mechanism from the analysts and media coverage should constrain their reporting strategy.<sup>27</sup> Thus, there is support for the alternative conjecture that IPR&D restated firms may write down less transitional goodwill as "below-the-line" items (and less in special items charge), compared to their counterparts when transitioning to SFAS 142.

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<sup>26</sup> The SEC is likely to undertake investigation only for firms where the probability of success for a restatement is fairly high (Dechow, Sloan, and Sweeny, 1995). Therefore, it is reasonable to assume that earnings restatement firms can be characterized as firms who knowingly and intentionally engaged in earnings manipulation (Richardson, Tuna, and Wu, 2002).

<sup>27</sup> Knyazeva (2007) provides evidence to show that analysts' following and business press coverage serve as additional monitoring mechanisms in aligning the managers with shareholders for mitigating agency costs. Such public pressures can act like corporate governance factors in their effects on firm performance and thus generate less earnings management.

## 2.5 Summary and Conclusion on Literature Review

In summary, recent literature supports the hypotheses that various earnings management opportunities exist with respect to firms with excessive IPR&D write-offs, as well as firms with huge goodwill impairment charges while SFAS 142 transition provisions allow below-the-line reporting. Though IPR&D restated firms have restated their earnings during SEC scrutiny, and then reallocated the restatement amounts back to goodwill, prior studies appear to pay no attention on the association between the IPR&D restatements and subsequent goodwill write-off. In addition, the related studies have not linked IPR&D restatements to SFAS 142 transitional goodwill charges. This study is the first to empirically examine the earnings management opportunity in SFAS 142 transitional goodwill write-offs among IPR&D firms. Furthermore, this study also discusses possible explanations of corporate reporting strategies which affect the firm's subsequent financial reporting behaviors. An aggressive reporting strategy may be associated with poor corporate governance, while a conservative reporting strategy may be associated with pressure from public attention after IPR&D restatement.

In short, this chapter not only provides the necessary institutional knowledge in excessive IPR&D big bath and transitional goodwill write-offs earnings management, but also reviews the literature pertinent to the incentives and disincentives for managers' discretion in goodwill reporting. In addition, this chapter reviews the literature on the corporate governance factors influencing restated firm's financial reporting strategies. The next chapter will further develop the hypotheses, and present research methodology to test the proposed hypotheses.

## CHAPTER 3

### HYPOTHESES DEVELOPMENT AND METHODOLOGY

In Chapter 2 it was shown that there are studies that separately examine managers' discretion in goodwill reporting and IPR&D earnings management opportunities. However, the linkage of IPR&D restatements during SEC scrutiny and the transitional goodwill write-offs in SFAS 142 has never been explored. Thus the question whether IPR&D restated firms would take advantage of the one-time only below-the-line reporting in goodwill provisions to manipulate earnings remains unanswered. To explore this issue, my study raises several research questions: (1) Do IPR&D restated firms engage in earnings management by taking advantage of the transitional provisions of SFAS 142? (2) Is there an association between goodwill write-off amounts in the transition period and restatement amounts due to IPR&D write-offs? (3) Would the firm's corporate governance affect the goodwill write-offs when the IPR&D firm transitions to SFAS 142? This chapter presents the methodology to empirically answer these research questions and is organized as follows: Section 3.1 develops four testable hypotheses and section 3.2 addresses the data collection and sample selection procedures. Section 3.3 summarizes and concludes the chapter. The final testing results are presented in the next chapter.

### 3.1 Hypotheses Development

#### 3.1.1 The Restatement and Earnings Management Opportunity in SFAS 142

The first research question concerns whether IPR&D restated firms engage in earnings management by taking advantage of the transitional provisions of SFAS 142, which allows firms to report initial impaired goodwill below-the-line. If the restated firms take advantage of this loophole, their impaired goodwill write-offs would be greater than those in IPR&D non-restated firms. IPR&D non-restated firms provide a proper benchmark because of their similarity in all firm characteristics except the absence of restatements. This benchmark comparison effectively captures the difference in goodwill write-off behavior between the subject group and its comparable matched sample. If goodwill write-offs in IPR&D restated firms are reported significantly higher (or lower) than those of IPR&D non-restated firms, then a significant positive (or negative) association can be established between restatement and goodwill impairment. This discussion leads to the first hypothesis:

H 1: *Ceteris paribus, IPR&D restated firm will have a greater (or less) amount goodwill write-off during the SFAS 142 transition period than IPR&D non-restated firms.*

The result of the first hypothesis yields two possible outcomes and corresponding interpretations. If IPR&D restated firms report larger write-offs than IPR&D non-restated firms, these larger write-offs should suggest that restated firms take advantage of the SFAS 142 provisions and are more aggressive in financial reporting behavior. On the other hand, if the reported goodwill write-offs from IPR&D restated firms are smaller than non-restated firms, these smaller write-offs should suggest that IPR&D restated firms have become more conservative in their reporting practices following the

SEC enforcement. It is interesting to investigate what motivates IPR&D restated firms to exhibit their different goodwill write-off behaviors, i.e., either aggressively or conservatively. In particular, IPR&D restated firms have a track record of taking advantage of IPR&D accounting treatment with excessive write-offs in the mid-1990s, with the intent to manipulate earnings downward to benefit financial results in subsequent periods. Thus, these IPR&D restated firms were on average considered more aggressive in financial reporting. Prior literature suggests that the level of aggressive strategy in IPR&D restated firms may be proxy from firms' prior behaviors, such as the magnitude of restated amounts, the frequency of their prior M&A activities, and prior R&D costs etc. (Dowdell, Lim, and Press, 2005). Thus the restated amount could serve as an indicator of aggressive behavior in expensing IPR&D by restated firms. For example, the firm with high IPR&D write-offs (and therefore a high level of aggressiveness) in a 1996 acquisition would be expected to continue to be just as aggressive with high restatement amounts during SEC scrutiny. Therefore, the higher amounts of earnings restatements that IPR&D restated firms have to restate, the more aggressive the firms are in nature. Furthermore, Moore and Pfeiffer (2005) support the proposition that management reporting incentives are relatively unchanged after a restatement. Thus restated firms can be expected to continue to adopt aggressive financial reporting strategies after their restatements. If this conjecture holds, then the more aggressive a firm is in its corporate reporting strategy as exhibited in the IPR&D write-offs and subsequent restatements, the greater write-offs in impaired goodwill it is expected to report during SFAS 142 transition period. There should be a positive association between IPR&D restated amounts and goodwill write-offs.

On the other hand, the IPR&D restated firms could become very conservative in corporate reporting after their IPR&D restatements due to continued SEC scrutiny.

When IPR&D firms have been caught misstating financial statements, the following assumptions are reasonable: (1) Subsequent public attention and press coverage serve as additional monitoring mechanisms (Knyezeva, 2007), and (2) the restatements induce management to reformulate a firm's financial reporting strategy under the increased costs resulting from restatements, such as board oversight, and increased scrutiny from independent auditors. The potential costs for IPR&D restated firms with the intent to engage in earnings management again with the SFAS 142 provisions should be even higher (Marquardt and Wiedman, 2004; Palmrose and Scholz, 2004; Teoh, Rao, and Wong, 1998). In addition, Ahmed and Duellman (2007) document that firms with more conservative accounting have higher future profitability and lower likelihood (magnitude) of future special items charges. This line of reasoning leads to the conjecture that IPR&D restated firms will become more conservative, and that their transitional "below-the-line" goodwill write-offs would not be out of line. If this conjecture holds, then there will be a negative association between IPR&D restated amounts and goodwill write-offs.

To sum up, the transitional goodwill impairment amounts are positively or negatively associated with the amounts of their respective previous IPR&D restatement amounts depends on whether these firms continue to be aggressive or become conservative. The hypothesis to check these IPR&D restated firms' accounting behaviors can be stated as follows.

H2: *Ceteris paribus, firms' impaired goodwill write-offs during the SFAS 142 transition period are positive (or negative) associated with the amounts of IPR&D restatements in IPR&D restated firms.*

### 3.1.2 Major Determinants That Affect Firms' Goodwill Write-offs: Exploratory Investigation

As discussed in Chapters 1 and 2, there is considerable room in managerial discretion that managers may use in the reporting of goodwill impairment. In particular, financial reporting in the year 2002 is the first time that firms follow this new standard under the transitional provisions of SFAS 142. Given the two possible interpretations supporting H1 and H2, the IPR&D restated firms may still be aggressive in reporting post restatements, or may reform to be more conservative following their restatements. However, what are the attributes pertinent to firm reporting that may change from pre- to post- restatements? How do these factors affect a firm's reporting strategy? To explore these questions, this study is also interested in the determinants that may drive the transitional goodwill write-off by IPR&D firms.

Prior literature indicates that weak corporate governance is associated with financial restatements (including frauds) and accounting irregularities (Beasley, 1996; Dechow, Sloan, and Sweeney 1996; DeFond and Jiambalvo, 1994; Larker, Richardson and Tuna 2007). Agrawal and Chadha (2005) find that the monitoring mechanism plays a role by showing evidence of greater likelihood of restatements when CEOs are from the founding family. They also find that the presence of independent directors with financial expertise reduces the likelihood of restatements. In the case of IPR&D firms, firms with weak corporate governance might be linked to misstatement of IPR&D expenses followed by restatements after SEC scrutiny. If there is an improvement in corporate governance post restatements, these restated firms should be constrained in the financial reporting by the respective oversight mechanism. On the other hand, if there is no improvement in corporate governance following the restatements, firms could continue to be aggressive in their reporting practice. In addition, studies from Beatty and Weber (2006) and Lapointe (2006) point out that managerial reporting

discretion is the major determinant in the magnitude of reporting transitional goodwill write-offs under SFAS 142. Therefore, managerial discretion is narrower and firms are more conservative if the managers of IPR&D restated firms are subsequently constrained by strong corporate governance, which results in a lower magnitude of goodwill write-offs when transitioning to SFAS 142. In contrast, a greater amount of goodwill write-offs would be observed if managers continue to have a high degree of managerial discretion due to weak corporate governance in IPR&D restated firms.

Major attributes of audit committees and other boards of directors are commonly recognized as barometers of the effectiveness of corporate governance mechanism (Cohen, Krishnamoorthy, and Wright 2004, p.92). Klein (2002) states that the audit committee (AC thereafter) provides the oversight responsibility for a firm's financial reporting process. The Blue Ribbon Committee Report (BRC, 1999) points out that the audit committee is the "ultimate monitor" of the financial accounting reporting system (NYSE and NASD 1999, 7). In addition, Fama and Jensen (1983) state that a major function of the board of directors (BOD or board thereafter) is to alleviate agency problems by facilitating managers to report unbiased accounting information to shareholders and creditors. They emphasize that the BOD plays a proactive monitoring role in a firm's financial reporting (Klein 1998). Therefore, this study emphasizes the role of the audit committee and other board structures to proxy for a restated firm's corporate governance when a firm transitions to SFAS 142, which is also similar to the findings from Guler (2007) and LaPointe (2006). Guler (2007) finds that corporate financial reporting behaviors are constrained by the oversight role of boards and Lapointe's (2006) findings also indicate that internal monitoring by the audit committee and other board of directors in corporate governance also affected transition goodwill write-offs. To conclude the above discussion, this study postulates that the audit



committee and other board's governance in IPR&D restated firms will be associated with firms' goodwill reporting strategy.

As to the board's governance structure, the first set of attributes to emphasize in this study is those of the audit committee (AC thereafter) in the board. Two measures have been used to represent the extent of the influence of AC attributes.

(a) Audit committee independence

The independence of the audit committee<sup>28</sup> is identified as one of the primary constraints on opportunistic management behavior with regard to financial reporting (Abbott et al, 2000; Klein, 2002; LaPointe, 2006). In particular, Mr. Arthur Levitt, former Chairman of the SEC, identifies a "qualified, committed, independent and tough-minded audit committee as the most reliable guardians of the public interest" when it comes to dealing with earnings management (Levitt, 1998). Therefore, independence is considered to be an essential characteristic for the AC to fulfill its oversight responsibility.

(b) Audit committee financial expertise

In addition, an audit committee member with financial literacy gives directors the expertise to critically assess the valuation methods and decisions that managers have made. Prior studies assert that an audit committee member with financial expertise<sup>29</sup> is

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<sup>28</sup> In this study, the definition of independence of board of directors follows Klein (1998, 2002). In short, according to Klein, audit committee members are not considered independent if they are current employees, or former employees who have been employed within the last three years, or have cross-compensated committee links, or are immediate family members of executive officers. Beginning in December 1999, the SEC and major stock exchange require listed firms to maintain audit committees with at least three directors, "all of whom have no relationship to the company that may interfere with the exercise of their independence from management and the company( NYSE Listed Company Manual §303.01[B][2][a]).

<sup>29</sup> Section 407 of SOX in 2003 requires the SEC to adopt rules mandating that the audit committee must comprise at least one member who is a financial expert or otherwise to disclose reasons for not adopting this requirement. However, the definition of financial expertise in audit committee members is very

better able to constrain managerial opportunism (Klein 2002; Xie et al. 2003; Bedard et al. 2004). Therefore, audit committee members with financial expertise also play a significant role in managerial financial reporting strategy. In short, the AC attributes of independence and financial expertise can constrain managerial discretion and monitor firm reporting.<sup>30</sup>

Also relevant to the oversight function that the audit committee could play post restatements, this study is interested in examining whether restated firms apply aggressive (or conservative) reporting strategies during the SFAS 142 transition period. Based on the above discussion, it is expected that goodwill write-offs would be negatively associated with the audit committee independence and the ratio of audit committee members with financial expertise.

In terms of other attributes of the board's governance structure, various measures have been used to represent the magnitude of board governance (Brown and Caylor, 2006; Larcker, Richardson and Tuna, 2007). Some attributes of board governance, such as bylaws, are less likely than others to change over time. These variables are not included in this research because they do not impact how the changes in governance affect IPR&D restated firms' reporting strategies right after their IPR&D restatements. Factors that can be easily switched and have immediate effects in a shorter horizon include the BOD structure and BOD monitoring. These factors can be proxy by board size, board independence, CEO/Chairman duality, and CEO change. These measures are explained in more detail below.

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inconclusive. The NYSE and NASDAQ allow listing firms with a broader definition for financial experts (NASD 1999). This study follows DeFond, Hann, and Hu (2005) in their definition, using restrictively-defined financial expertise. See appendix 3 for the details of these definitions.

<sup>30</sup> Some studies document that the frequency of audit committee meetings annually could be one of the monitoring mechanisms (Anderson et al., 2004;Carcello et al., 2006) However, as an empirical measurement, there are very few firms that disclose the frequency of audit committee meetings in annual reporting prior to SOX in 2002.

(c) Board size

Among the many studies that examine the relationship of board size and corporate performance, Yermack (1996) finds that a smaller board is positively associated with firm market values (proxy by Tobin's Q). However, several subsequent studies find contradicting results. For example, Dalton et al. (1999) find a positive relation between board size and firm performance. Kiel and Nicholson, (2003) find that a larger board is able to better review management decisions and thus is more vigilant against agency problems. Cheng (2008) states that a larger board makes less extreme decisions, and thus is related to lower variability of corporate performance. Further studies by John and Senbet (1998), Monks and Minow (1995), and Klein (2002) all support the findings that the board size increases their monitoring capacity; thus it is expected that the increase of a board's size reduces managerial discretion and improves the restated firms' reporting.

(d) Board independence

Prior literature states that independent boards protect shareholders when agency problems exist (Brickley and James 1987; Weisbach, 1988). Klein (2002) and Peasnell et al. (2000) provide further evidence that an increase in the number of outside independent board members provides greater monitoring and can reduce the earnings management (by discretionary accruals) and improve the reporting quality. In addition, outside independent board members enhance monitoring functions and yield a direct impact on shareholders' perception of the firm's financial reporting integrity (Lawler et al. 2002). Specifically, Frankle, McVay, and Soliman (2007) find that board independence constrains opportunism in the disclosure of street exclusions (the difference between street core earnings and GAAP earnings). Since transition goodwill

write-offs are reported below-the-line as transitory and not as core earnings, it is expected that the more independent the board becomes, the fewer the transition goodwill write-offs will be. This implies a negative association between board independence and magnitude for transitional goodwill write-offs.

(e) CEO duality

CEO duality refers to having the same person serving both as the CEO and Chairman of the Board. Such duality is not recommended by the Cadbury Committee Report (1992). Fama and Jensen (1983) state CEO duality signals the absence of separate decision control and management, and that such board is not effective in monitoring. This duality may result in constraining board independence and impairing the board's oversight and governance role, which is the ground base in agency theory (Millstein, 1992; Brickley et al. 1994; Gul and Leung, 2004). Therefore, from the perspective of effective monitoring of management, it is expected that the absence of CEO duality is associated with smaller amounts of transitional goodwill write-offs.

(f) CEO change

Prior literature states that incoming CEOs manage accruals to decrease earnings in the year of management change in order to blame the outgoing management for any past problems. Such accruals management also shows a revival of earning increases in the future years (Pourciau, 1993; Walsh et al. 1991). New management also has an incentive to take as many write-offs and expenses as possible. This presents an opportunity for a turnaround, having "cleared the decks," and makes way for improved earnings in the subsequent year (Francis et al., 1996).

Furthermore, evidence shows that a new CEO can be expected to change the firm's strategic focus (Francis et al., 1996) or exercise greater scrutiny over existing

assets, resulting in impairment write-offs (Boone and Raman, 2007). A new CEO may be tempted to take all potential charges to earnings and attribute them to the previous administration with the intent of improving the firm's reported performance going forward (Boone and Raman, 2007). Therefore, the above discussion leads to the expectation that the change of CEO will cause more transitional goodwill write-offs. The above discussion leads to the following hypothesis:

H3: *Ceteris paribus, restated firms' impaired goodwill write-offs are negatively associated with the governance level of IPR&D restated firms when transitioning to SFAS 142.*

### 3.1.3 The Effect of Change of Governance on Firms' Goodwill Write-offs: Exploratory Investigation

Prior literature documents the positive association of poor governance and the likelihood of financial restatements, and how it lowers the chance of restatement as the firm's governance improves (Agrawal and Chadha, 2005; Barber, Kang and Liang, 2007; Burns, Kedia, and Lipson, 2006). In other words, without a strong internal and external corporate governance mechanism to oversee firms' financial reporting practices, firms would be more aggressive in reporting and more likely to violate the GAAP standards. As a result, firms experience SEC (or auditors) mandatory financial restatements. IPR&D restated firms are a good example of firms that aggressively overstated IPR&D write-offs and are subsequently pressured by the SEC to revise their prior aggressive strategy. Accordingly, these restated firms' governance mechanism in general is inferred to be weak and insufficient.

These well publicized IPR&D restated firms certainly would face greater pressure from regulators and analysts, as well as from shareholders, and incur higher contracting costs post restatements. Meanwhile, IPR&D restatements have increased firms' opportunity costs and have increased the probability that the firms' earnings reporting

will be scrutinized again. Thus, the board of directors including the audit committee of these restated firms should have intent to constrain managerial discretion for better corporate governance and perform a better monitoring role in the firms' financial reporting. If this conjecture holds, the restated firms should reform themselves for better corporate governance in order to adopt a more conservative financial reporting strategy, which would result in fewer transitional goodwill charges.

However, it is possible that these firms may continue to be aggressive in their accounting choices, as documented in Moore and Pfeiffer (2005). Their governance may continue to be poor, i.e., the audit committee oversight and the board monitoring are unchanged and may not constrain the firms' financial reporting. In this case, these firms will continue to pursue an aggressive reporting strategy.

The above discussion suggests that the change of governance can potentially be the key component that will inherently change the degree of monitoring and corporate oversight in firms, and finally result in the change of IPR&D restated firms' reporting strategy. Note that transitional goodwill reporting reflects the firms' reporting strategy and managerial discretion, which are directly constrained by corporate governance. Therefore, if IPR&D restated firms' corporate governance has not changed much after restatement, their management discretionary reporting will likely remain unconstrained. Their aggressive reporting practice may continue thus yielding higher transitional goodwill charges. On the other hand, if restated firm's corporate governance has improved post restatement, it is more likely that the firms will follow conservative reporting and as a result will report lower amounts of transitional goodwill write-offs. There should be a negative association between the magnitude of transitional goodwill write-offs and the change of corporate governance in IPR&D restated firms from pre to post IPR&D restatements. The above discussion leads to the following hypothesis:

H4: *Ceteris paribus, the amount of impaired goodwill write-offs by the IPR&D restated firm is negatively associated with the change of these firms' corporate governance from pre to post IPR&D restatements.*

## 3.2 Methodology

This section presents the methodology employed in this study. Specifically, it will address (1) the sample selection procedure and the data sources, and (2) the appropriate statistical testing models and the definition of variables.

### 3.2.1 Sample Selection Procedure and Data Sources

This study follows several approaches to collecting and sampling the data, which includes IPR&D restated and non-restated firms. To identify the IPR&D restated firms, I began by collecting sample firms from the Government Accountability Office (GAO) report that covers the restatement information from January 1997 through July 2002 (GAO-03-138). The GAO report identifies 35 firms as IPR&D restatement firms, all of which have restatements announced before the year of 2000. To expand the sample size, I collected additional sample firms by performing a search on *Lexis-Nexis*, *PRWires*, and *ProQuest* news source databases during the period of January 1997-December 2000. This sample period was chosen because the restatement announcements (apparently) ended before 2000, but particularly concentrated in late 1998 and early 1999 immediately after the SEC initiates its investigations. Additional searches were also performed with more general internet search engine (for example, Google, Yahoo!) to find restated firms that appear in related press releases and corporate announcements during this period. Next, I cross checked the accuracy and detailed restatement information using the SEC EDGAR database for the firms' Form-10K, Form-10Q,

Form-10K (A), and Form-10Q (A). To be included in the sample, IPR&D restated firms must meet the following criteria:

- (1) The firm must have acquired another company and must use the purchase method of accounting.
- (2) Part of the purchase price must have been initially allocated to IPR&D.
- (3) The firm must have initially announced an amount allocated to IPR&D, which was subsequently revised.

Keywords for searching such as “in-process research,” “purchased research,” “acquired research,” and “restate” as well as combinations of these keywords were used on these databases to identify firms that restated IPR&D.<sup>31</sup> This study’s IPR&D restated firms sample selection procedure is qualitatively similar to Dowdell and Press (2002, 2004), Palmrose, Richardson and Scholz (2004), and Banyi (2006). Compared to Dowdell and Press (2002, 2004) with 71 IPR&D restated firms, Banyi (2006) with 99 IPR&D restated firms and 377 IPR&D non-restated firms, this study employs a total of 72 usable IPR&D restated sample firms.<sup>32</sup>

To identify the IPR&D non-restated firms, this study searched with the above same keywords on Form-10K, Form-10Q of the SEC EDGAR database and on *Lexis-Nexis*, *PRWires*, and *ProQuest* news sources to verify firms reporting IPR&D write-offs during the same period 1997-2000. Then, IPR&D restated firms were eliminated from the possible IPR&D non-restated sample. This study also searched for a list of IPR&D

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<sup>31</sup> Because firms have reported IPR&D in different ways, it is necessary to perform the search using various keywords. The key words included “acquired research,” or “acquired technology,” or “purchased research,” or “purchased technology,” or “process research,” or “process technology,” or “research in process,” or “technology in process,” or “incomplete research,” or “incomplete technology,” within 30 words of “restat, revis, adjust, amend, error, or SEC.” Banyi (2006) finds IPR&D listed separately in the income statement, included in SG&A expense, included in “special items,” and, in a few cases, included in research and development.

<sup>32</sup> Due to subsequent data availability, merger events, and etc., the 72 usable sample firms are reduced to 45 as the final testing sample. The detailed sample selection for IPR&D restated and IPR&D non-restated sample firms is summarized in Table A.6 and narrative in section 4.1.



firms from *Compustat* with data #388 (in-process research and development) but also excluded duplicated IPR&D firms. The identified IPR&D non-restated firms also need to meet the purchase method and IPR&D allocation criteria but are not required to restate their financial statements. Based on the above procedure, this study is able to identify a sample of 313 usable IPR&D non-restated firms. A one-to-one matching procedure is then performed on these non-restated firms to identify the matching sample.

The one-to-one matching procedure was performed by first searching for the same or similar industry (from 4-digit SIC code, then 3-digit if not available, in this order) to obtain correspondent IPR&D non-restated firms. If there were multiple IPR&D non-restated firms available, then the one with closest firm size (proxy by the total assets in *Compustat*) was selected. This matching procedure was to ensure that the final sample of IPR&D restated and non-restated firms were recognized as firms with in the closest industry and similar firm size, except for the difference in their prior IPR&D restatement history. Based on the above matching procedure, this study deploys the final sample with 45 IPR&D restated firms matched with another 45 IPR&D non-restated firms.

Firm specific accounting and financial reporting data for both IPR&D restated firms and non-restated firms were collected from *Compustat*. Corporate governance and compensation information were collected from the *ExecuComp* database. Since *ExecuComp* only tracked a fraction of publicly traded firms (S&P 1500), it did not contain enough information for all of the firms in the sample. Therefore, remaining data for sample companies not included in *Compustat* and *ExecuComp* were manually collected from the SEC Form-14A Proxy Statements, SEC Form-10K, and 10-Q, SEC

Form-10K (A) and 10-Q (A) filings. The various database and resources for collecting each variable is detailed in Table 3.2.

### 3.2.2 Testing Models and Variables Definitions

#### (1) Testing for H1

H1 attempts to answer whether the goodwill write-offs during the transition year are different between the restatement and non-restatement firms. Similar to Beatty and Weber (2006), the following statistical model (1-1) and (1-2) will be used to examine H1.

$$WO = \beta_0 + \beta_1 IPRD\_restated + \sum \beta_k (Control\_Variables) \dots \dots \dots (1-1)$$

$$WO\% = \beta_0 + \beta_1 IPRD\_restated + \sum \beta_k (Control\_Variables) \dots \dots \dots (1-2)$$

Where:

**WO** = a dichotomous variable for the reporting a firm's transitional goodwill write-offs; equals one if non-zero positive goodwill impairment write-off is reported, zero otherwise.

**WO%** = the transitional goodwill impairment write-offs as a percentage of goodwill amount in the beginning of year.

**IPRD\_restated** = an indicator variable; equals one when a firm is IPR&D restated firm; zero otherwise.

**Control variables** =  $f$  (firm size, leverage ratio, market-to-book ratio, CEO tenure, segment, bath variable, firms' listing, CEO's bonus plan, and SFAS 121\_Effect)

Model (1-1) is a logistic model and model (1-2) is a tobit model. Following Reidle (2004), Beatty and Weber (2006), and Guler (2007), this study applies both the logistic model and tobit specification model to capture the difference of the goodwill write-off behavior during the SFAS 142 transition year. The logistic model is used in this test to

capture the decision on whether IPR&D firms have determined to take goodwill write-offs and reported the charges during the transition period. The result of the logistic test presents the probability (likelihood) for IPR&D firms to take goodwill write-offs. The tobit model applies well in the design for testing this dependent variable because of the unique characteristic of goodwill impairment, which has write-down but no write-up opportunity. Greene (2003) points out that the tobit model is appropriate when data are censored.<sup>33</sup> Furthermore, the goodwill write-offs are censored at zero because the provisions of SFAS 142 only allow the recognition of goodwill write-downs instead of recording any increase of economic value in goodwill.

Similar to Beatty and Weber's (2006) study, this study identifies the dependent variable WO in the logistic model (1-1) as an indicator variable. WO is set to one when IPR&D firms have determined and reported their impaired goodwill write-offs during the adoption of SFAS 142, and zero otherwise. For the dependent variable in the tobit model (1-2), this study further uses firm's impaired goodwill write-offs. However, test results can be biased from the tobit regression (1-2) when the absolute amounts of goodwill write-offs are applied. Instead, the magnitude of impaired goodwill write-offs employed in the test should be adjusted by the initial goodwill in each firm accordingly. Therefore, the variable of goodwill write-off WO% is presented as the dollar value of goodwill write-offs divided by the beginning goodwill amount in the year (*Compustat* data #183 divided by *Compustat* data #204).<sup>34</sup> In addition, to differentiate whether a firm is a restated or non-restated firm, this study uses an indicator variable IPRD\_restated. It is assigned a value one if the firm has restated their prior IPR&D

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<sup>33</sup> Reidle (2004, p.828) also explains the reason why the tobit specification model is better than a two-stage least square (2SLS) model. A two-stage model assumes that the first-stage captures the firm's decision in write-offs and the second-stage captures the write-off amounts. However, the tobit model assumes these two choices for firms are simultaneous, but not consequent.

<sup>34</sup> *Compustat* data #183 are the cumulative effects of accounting changes. Data #204 are goodwill. All *Compustat* data numbers used in this study are detailed in Table A.3.

expenses; and zero otherwise. As section 3.1 stated, the prediction is that there is a correlation between IPR&D restated firms and goodwill write-offs. The estimated coefficient for  $\beta_1$  of IPRD\_restated provides a clue to the IPR&D reporting behavior. A significantly positive coefficient in the logistic model (1-1) will indicate that IPR&D restated firms are more likely to report goodwill write-offs than IPR&D non-restated firms. Also, a significantly positive value in the tobit model (1-2) will indicate that IPR&D restated firms report goodwill write-off amounts significantly greater than those amounts by their counterparts, suggesting that the IPR&D restated firms adopt an aggressive reporting strategy. On the other hand, a significantly negative  $\beta_1$  value will suggest that IPR&D restated firms generally are conservative in reporting.

Following Beatty and Weber (2006), the statistical models also control for various factors such as firm characteristics, the firm's economic/reporting environment, the firm's growth options that could affect the firm's write-off behavior (as prior literature has suggested). These control variables consist of firm size, leverage ratio, market-to-book ratio, CEO tenure, number of segments, a big bath variable, firms' exchange listing, the CEO's bonus plan, and the effect from SFAS 121.<sup>35</sup>

The first set of control variables consist of size and leverage, which are designed to capture the firm characteristics. The IPR&D restated firms are usually medium to small size firms, which should be comparable to the matched samples in IPR&D non-restated firms from the matching procedure. Firm size also captures various firm characteristics such as political costs (Watt and Zimmerman, 1987); and therefore should be included as a control variable. Consistent with other research, the firm size is measured by the logarithm of lagged market value (or at the beginning of that year).

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<sup>35</sup> Prior literature has pointed out that the association of managerial compensation and non-recurring charge is inconclusive and unclear (Dechow et al. 1994; Chen and Lee, 1995; Riedl 2004). Therefore this study ignores compensation variables as control variables.

Size is measured by market value of the firm (*Compustat* data #199\* *Compustat* data #25).<sup>36</sup> Since the size effect from literature is inconclusive, this study does not have a specific directional prediction for the Size variable.

Furthermore, prior literature suggests that leverage ratios of firms are related to their accounting reporting choices (Gul and Tsui, 2001; Beatty and Weber, 2006; Frankle et al. 2008). Higher debt reliance (leverage) increases monitoring over management, and should decrease management capacity to alter accounting earnings (Daniels, 1995). Higher debt ratio should also motivate managers to report higher earnings to be in compliance with debt covenants. Therefore, it is expected that the higher the leverage ratio, the smaller the goodwill impairment write-offs, which yield a negative prediction. The leverage ratio is measured by the amounts of debt divided by total assets (**LEV** is calculated as *Compustat* [data #9+data#34]/data #6).<sup>37</sup>

The second set of control variables consist of CEO tenure, the CEO earnings-based bonus plan, segment, and firm listing, which are designed to capture the economic and reporting environment of firms. It is commonly noted that the CEO plays a significant role in determining the firm's amounts of impaired goodwill, due in part to the allocations ascribed to each component of asset in the original acquisition decision. The longer the tenure the CEO, the more likely this CEO would have made the original acquisition and allocation decision (back in the 1990s). Tenure is measured in term of the number of years in this position. Thus, the expectation is that a longer CEO tenure should be associated with a smaller amount of impaired goodwill write-offs because the CEO desires to defend the original acquisition decision. This variable is very similar to CEO turnover effect.

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<sup>36</sup>  $\text{Compustat Log (data\#199*data \#25)} = \text{Log (fiscal year end closing price*outstanding common stock)}$

<sup>37</sup>  $\text{Compustat [data \#9+data\#34]/data \#6} = [\text{total long-term debts} + \text{current liability}]/\text{total assets}$

The variable **LIST** is employed to capture the exchange effect. Beatty and Weber (2006) argue that firms in exchanges with a financial-based listing requirement (e.g., AMEX and NASDAQ) are less likely to take goodwill write-offs than firms in exchanges with objective financial listing requirements (e.g., NYSE and OTC). In addition, firms with expected write-offs that may cause them to violate the listing requirements are less likely to take more goodwill write-offs. The indicator variable **LIST** is assigned a value one if a firm is listed in AMEX and NASDAQ, and a value zero if a firm is listed in NYSE and OTC. This variable **LIST** is expected to be negatively associated with goodwill write-offs.

The variable **Segment** is designed to capture the segment effect which follows the SFAS 142 guideline. Firms with only one segment are more likely to determine whether the firm will pass or fail the first step of the two-step write-off process as mandated by the guideline of SFAS 142.<sup>38</sup> That is because one-segment firms are generally those firms with single reporting unit. In contrast, firms with multiple segments are usually more complicated in their financial reporting decisions. This segment variable, **Segment**, is set to one for a firm with only a single segment, and zero otherwise. There is no specific prediction for the sign of this **Segment** variable because the firm's decision on impaired goodwill write-offs can be either way.

The variable **Bath** is designed to capture the effect that firms' earnings are unexpectedly high or unexpectedly low, which is similar to the variable used in Bartov (1993), Francis et al. (1996), and Riedl (2004). Larger earnings surprise reduces the inferred precision of earnings, and thus dampens the firm valuation. Therefore, the **Bath** is proxy for the firm's big bath earnings reporting, and is measured by "the change of a

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<sup>38</sup> Detailed guidelines for two-step goodwill impairment write-offs in SFAS142 are more fully discussed in section 2.3.

firm's pre-write-off earnings from t-1 to t, and the amount is divided by a firm's total assets at the end of t-1, when this change amount is below the median of non-zero negative values of this variable for all other firms  $\Delta(\text{data \# 178}/\text{data \#6})$ ; and zero otherwise." The bath variable, **Bath**, is used when a firm's pre-write-off earnings are below its respective median that managers are more likely to engage in big bath behaviors.

Firms with earnings-based bonus plans may also affect managers' preference for below-the-line or above-the-line accounting choices (Beatty and Weber, 2006). Gaver and Gaver (1998) find that firms manage their reporting of some of their expenses depending on whether the bonus plan is based on incomes from continuing operation (above-the-line) or net incomes (below-the-line). They suggest that firms that base their bonus payouts on the incomes from continuing operations are more likely to increase their below-the-line write-offs since it has no impact on their bonus payouts. Following this line of reasoning, this study hypothesizes that transition year write-offs are more likely be smaller if firms base their bonus payouts on net incomes. The indicator variable, **BonusPlan**, is set to one for a firm if the bonus plan is based on net incomes; and zero otherwise. Therefore, a negative association is predicted.

This study uses market to book ratio, **MTB**, as the measure of a firm's growth options (**MTB** is calculated as  $\text{Compustat} [\text{data\#6}-\text{data\#60}+\text{data \#199}*\text{data\#25}]/\text{data\#6}$ ).<sup>39</sup> Beatty and Weber (2006) argue that firms with many growth options will be less likely to take large goodwill write-offs. Since the first step of the goodwill impairment test in SFAS 142 is to determine the market value and the book value of the reporting unit, firms with greater growth options (higher **MTB**) are less likely to have

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<sup>39</sup>  $\text{Compustat} [\text{data\#6}-\text{data\#60}+\text{data \#199}*\text{data\#25}]/\text{data\#6} = [\text{total assets}-\text{total common equity} + \text{fiscal year end closing price} * \text{outstanding common shares}]/\text{total assets}$

impaired goodwill. Therefore, a negative association is expected. Similar to prior research (Francis et al. 1996) this study also considers a firm's history for taking prior write-offs since prior evidence indicates that firms recording write-offs are more likely to record additional future write-offs.

**SFAS 121\_Effect** is a dichotomous variable that controls for firm's long-lived assets write down activities (including goodwill and intangible assets) under SFAS 121 in the year prior to the adoption of SFAS 142.<sup>40</sup> This variable is set to one if the firm has undertaken any long-lived assets write down activities, and the amounts are reported in *Compustat* (data #380 and data #381)<sup>41</sup> or proxy statement; and zero otherwise.

To conclude the above discussion of variables, this study applies these constructs to design the following complete regression models (1-3) and (1-4) to examine the goodwill write-offs between IPR&D restated and non-restated firms.

$$WO = \beta_0 + \beta_1 IPRD\_restated + \beta_2 Size + \beta_3 LEV + \beta_4 MTB + \beta_5 Tenure + \beta_6 Segment + \beta_7 Bath + \beta_8 LIST + \beta_9 BonusPlan + \beta_{10} SFAS121\_Effect \dots \dots \dots (1-3)$$

$$WO\% = \beta_0 + \beta_1 IPRD\_restated + \beta_2 Size + \beta_3 LEV + \beta_4 MTB + \beta_5 Tenure + \beta_6 Segment + \beta_7 Bath + \beta_8 LIST + \beta_9 BonusPlan + \beta_{10} SFAS121\_Effect \dots \dots \dots (1-4)$$

Where:

**WO** = a dichotomous variable for the reporting a firm's transitional goodwill write-offs; equals one if non-zero positive goodwill impairment write-off is reported, and zero otherwise.

**WO%** = the firm's transitional goodwill write-offs as a percentage of goodwill amount in the beginning of transition year.

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<sup>40</sup> After December 2001, SFAS 121 is replaced by SFAS 144, a new accounting rule for impairment or disposal of long-lived assets except intangible assets. Firms follow the new accounting rule change in SFAS 141 in business combinations and recognize intangible assets. Firms follow another accounting rule change for goodwill and other intangibles in SFAS 142.

<sup>41</sup> Compustat data #380 and #381 represent a firm's pretax write-downs.



**IPRD\_Restated** = a dichotomous variable of IPR&D restated firms or IPR&D non-restated firms; equals one if a firm is IPR&D restated firm; zero if non-restated firm.

**Size** = the logarithm of market value of equity at the end of year.

**LEV** = the leverage ratio; the ratio of the firm's total liability divided by total assets at the end of year.

**MTB** = the market to book ratio; the ratio of the market value of the firm's assets divided by the book value of the firm's assets at the end of year.

**Tenure** = the numbers of years that CEO serves in the position as CEO.

**Segment** = a dichotomous variable; equals one if a firm has only one business segment at the year end; zero otherwise.

**Bath** = the reporting of a firm taking big bath ; measured by the change of a firm's pre-write-off earnings from t-1 to t, divided by its total assets at the end of t-1, when this change is below the median of non-zero negative values of this variable; zero otherwise.

**LIST** = a dichotomous variable; equals one if the firm is listed in AMEX or NASDAQ exchange at the end of year; zero otherwise.

**Bonus\_Plan** = a dichotomous variable; equals one if a firm discloses the existence of an earnings-based bonus plan that does not exclude special items in the proxy statement in the year prior to SFAS 142 transition year ; zero otherwise.

**SFAS121\_Effect** = a dichotomous variable for the reporting of SFAS 121 write-downs; equals one if a firm has long-lived assets write-downs reported by SFAS 121 in the year prior to SFAS 142 transition year; zero otherwise.

## (2)Testing for H2

H2 is developed to determine whether the prior IPR&D restated firms' restated amounts are associated with their respective SFAS 142 transition goodwill write-offs. Similar to the rationale in testing for H1, I apply a logistic model (2-1) and a tobit model (2-2) to examine H2. Note that the testing sample for the models (2-1) and (2-2) will reduce in half since it only includes IPR&D restated firms.

$$WO = \beta_0 + \beta_1 Amt\_restated + \sum \beta_k (Control\_Variables) \dots \dots \dots (2-1)$$

$$WO\% = \beta_0 + \beta_1 Amt\_restated + \sum \beta_k (Control\_Variables) \dots \dots \dots (2-2)$$

Where:

**WO** = a dichotomous variable for the reporting a firm’s transitional goodwill write-offs; equals one if non-zero positive goodwill impairment write-off is reported, and zero otherwise.

**WO%** = the transitional goodwill impairment write-offs as a percentage of goodwill amount in the beginning of year.

**Amt\_restated** = the IPR&D restated amounts from IPR&D restated firm, scaled by the firm’s total assets in the beginning of the year.

**Control variables** = *f* (firm size, leverage ratio, market-to-book ratio, CEO tenure, segment, bath variable, firms’ listing, CEO’s bonus plan, and SFAS 121\_Effect)

Another measuring variable to be considered is the IPR&D restated amount, **Amt\_restated**. This variable is measured from the amounts that the firm has restated in its prior IPR&D write-offs, scaled by the firm’s total assets in the beginning of the year (Restated amounts/*Compustat* data# 6). Similarly, dependent variables are still the goodwill write-offs (WO and WO%) which are the same as models (1-1) and (1-2).

Another control variable **Prompter** indicates the reason for the IPR&D restatement. It equals one if the IPR&D firm restates under SEC enforcement, and equals zero if a firm restates voluntarily and offers disclosure in its SEC filings. As explained in section 3.1, this study uses the sub-sample (only includes IPR&D restated firms) for H2 testing; I hypothesize a positive association between IPR&D restated amounts and goodwill write-offs. Since the control variables in model (2-1) are identical to model (1-3), the predictions for each control variable are also the same. By applying these constructs, this study uses the following complete models (2-3) and (2-4) to examine the association between goodwill write-offs and IPR&D restated amounts.

$$WO = \beta_0 + \beta_1 Amt\_restated + \beta_2 Size + \beta_3 LEV + \beta_4 MTB + \beta_5 Tenure + \beta_6 Segment + \beta_7 Bath + \beta_8 LIST + \beta_9 BonusPlan + \beta_{10} PRompter + \beta_{11} SFAS121\_Effect \dots \dots \dots (2-3)$$

$$WO\% = \beta_0 + \beta_1 Amt\_restated + \beta_2 Size + \beta_3 LEV + \beta_4 MTB + \beta_5 Tenure + \beta_6 Segment + \beta_7 Bath + \beta_8 LIST + \beta_9 BonusPlan + \beta_{10} PRompter + \beta_{11} SFAS121\_Effect \dots \dots \dots (2-4)$$

Where:

**WO** = a dichotomous variable for the reporting a firm’s transitional goodwill write-offs; equals one if non-zero positive goodwill impairment write-off is reported, and zero otherwise.

**WO%** = the transitional goodwill impairment write-offs as a percentage of goodwill amount in the beginning of year.

**Amt\_restated** = the restated amounts that IPR&D restated firm has restated from its prior IPR&D write-offs divided by total assets in the beginning of the year.

**Prompter** = a dichotomous variable for the reason of IPR&D restated firm’s restating its prior earnings; equals one if pressed and enforced by SEC, and zero otherwise (i.e., if voluntarily restated).

All of the other variables are defined as the same as in the model (1-3).

### (3) Testing for H3

H3 is developed to determine whether IPR&D restated firms’ corporate governance is associated with the goodwill write-offs behavior when transitioning to SFAS 142. As mentioned earlier in H3, this study proposes that the audit committee structure and the other board’s governance in IPR&D firms will be associated with the firm’s goodwill reporting strategy. Following similar rationale from prior research models (1-1) and (2-1), this study uses the logistic model (3-1) and the tobit model (3-2) to examine their relation.

$$WO = f(\text{AuditCom}, \text{BoardGOV}, \text{Control\_Variables}) \dots (3-1)$$

$$WO\% = f(\text{AuditCom}, \text{BoardGOV}, \text{Control\_Variables}) \dots (3-2)$$

Where:

**WO** = a dichotomous variable for the reporting a firm's transitional goodwill write-offs; equals one if non-zero positive goodwill impairment write-off is reported, and zero otherwise.

**WO%** = the transitional goodwill impairment write-offs as a percentage of goodwill amount in the beginning of year.

**AuditCom** = attributes of audit committee governance.

**BoardGov** = attributes of other board governance.

**Control variables** =  $f$  (firm size, leverage ratio, market-to-book ratio, CEO tenure, segment, bath variable, firms' listing, CEO's bonus plan, and SFAS 121\_Effect)

In this study, audit committee independence, **Ind\_Audit**, and the ratio of audit committee members with financial expertise,<sup>42</sup> **Audit\_FIN**, are used as proxies for a firm's audit committee structure. Independent audit committee, **Audit\_All**, as an indicator variable, equals one when all AC members are independent; and zero otherwise. The other variable, **Audit\_FIN** is expressed in terms of the number of the audit committee members with financial expertise as a percentage of the total audit committee. Following the arguments that a more independent audit committee provides better oversights (Klein, 2002; Xie et al. 2003), and that more financial experts in the audit committee provide a better quality of financial reporting (Carcello et al., 2006) as well as reduce financial reporting problems (Agrawal and Chadha, 2005; DeZort et al.,

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<sup>42</sup> This study follows the definition of the audit committee members with financial expertise from DeFond, Hann, and Hu (2005). Financial experts are the audit committee members with CPA designations, or with CFO professional finance oversight background serving in the audit committee. See Appendix D for more details.

2002), it is expected that both variables are negatively associated with the transitional goodwill write-offs.

As explained in Section 3.1, another four variables (board size, independent board, CEO duality, and CEO change) are used as proxies for other aspect of board governance structure. (1) Board size, **Board\_Size**, is the total number of board members, and is expected to be negatively associated with goodwill write-offs. (2) Board independence, **Ind\_BOD**, is measured as the ratio of the number of independent board members to total numbers on the board of directors. Since the transition goodwill write-offs are reported below-the-line and are not reported in core earnings, it is expected that a higher degree of board independence will decrease the write-offs, suggesting a negative association. (3) Based on the literature of effective monitoring, I hypothesize that a firm with CEO duality lacks effective monitoring and thus will report more in goodwill write-offs. The measure of duality, **Dual**, is an indicator variable, and equals one if the CEO and Chairman of BOD is the same person; zero otherwise. A positive association is expected. (4) Prior research suggests that incoming/new CEOs usually clear the decks and take big bath. It is expected that firms with the recent change of CEO/management will report more transition goodwill write-offs. Management change, **MGT\_CH**, is also an indicator variable, and equals one if there are changes of management in two years prior to SFAS 142; zero otherwise. Similarly, CEO/management change should positively associate with goodwill write-offs.

Since the control variables in model (3-1) are identical as in model (1-3), it is expected the prediction for each control variables are also the same. Table 3-3 presents the detailed predictions for each variable as a summary of the above discussion. In addition, the study applies the governance constructs and the following complete

logistic and tobit models (3-3) and (3-4) are used to examine the association of goodwill write-offs and corporate governance among IPR&D firms.

$$\begin{aligned}
 WO = & \beta_0 + \beta_1 IPRD\_restated + \beta_2 Audit\_All + \beta_3 Audit\_FIN + \beta_4 Board\_size \\
 & + \beta_5 Ind\_Board + \beta_6 Dual + \beta_7 MGT\_CH + \beta_8 Size + \beta_9 LEV + \beta_{10} MTB \\
 & + \beta_{11} Tenure + \beta_{12} Segment + \beta_{13} Bath + \beta_{14} LIST + \beta_{15} BonusPlan \\
 & + \beta_{16} SFAS121\_Effect \dots \dots \dots (3-3)
 \end{aligned}$$

$$\begin{aligned}
 WO\% = & \beta_0 + \beta_1 IPRD\_restated + \beta_2 Audit\_All + \beta_3 Audit\_FIN + \beta_4 Board\_size \\
 & + \beta_5 Ind\_Board + \beta_6 Dual + \beta_7 MGT\_CH + \beta_8 Size + \beta_9 LEV + \beta_{10} MTB \\
 & + \beta_{11} Tenure + \beta_{12} Segment + \beta_{13} Bath + \beta_{14} LIST + \beta_{15} BonusPlan \\
 & + \beta_{16} SFAS121\_Effect \dots \dots \dots (3-4)
 \end{aligned}$$

Where:

**WO** = a dichotomous variable for the reporting a firm’s transitional goodwill write-offs; equals one if non-zero positive goodwill impairment write-off is reported, zero otherwise.

**WO%** = the transitional goodwill impairment write-offs as a percentage of goodwill amount in the beginning of year.

**Audit\_All** = a dichotomous variable for the audit committee independence of a firm; equals one if all audit committee members are independent; zero otherwise.

**Audit\_Fin** = the number of the audit committee members with financial expertise as a percentage of the total audit committee.

**Board\_size** = the total number of board of director members.

**Ind\_Board** = the ratio of the number of independent board members to the total numbers on board of directors.

**Dual** = a dichotomous variable for a firm with CEO/Chairman duality; equals one if CEO and Chairman of BOD is the same person; zero otherwise.

**MGT\_CH** = a dichotomous variable for a firm’s recent management change; equals one if there are changes of top compensated management in two years prior to SFAS 142; zero otherwise.

All of the other variables are defined as the same as in the model (1-3).

(4) Testing for H4

H4 is developed to examine whether the changes of corporate governance following the restatement are associated with goodwill write-offs in IPR&D restated firms. Following similar rationale from models (3-1) and (3-2), this study uses the logistic model (4-1) and the tobit model (4-2) to examine their relation.

$$WO = \beta_0 + \beta_1 \Delta Ind\_Audit + \beta_2 \Delta Audit\_Fin + \beta_3 \Delta BOD\_Size + \beta_4 \Delta Ind\_BOD + \beta_5 \Delta MGT\_Ch + \sum \beta_k (Control\_Variables) \dots \dots \dots (4-1)$$

$$WO\% = \beta_0 + \beta_1 \Delta Ind\_Audit + \beta_2 \Delta Audit\_Fin + \beta_3 \Delta BOD\_Size + \beta_4 \Delta Ind\_BOD + \beta_5 \Delta MGT\_Ch + \sum \beta_k (Control\_Variables) \dots \dots \dots (4-2)$$

Where:

**WO** = a dichotomous variable for the reporting a firm’s transitional goodwill write-offs; equals one if non-zero positive goodwill impairment write-off is reported, zero otherwise.

**WO%** = the transitional goodwill impairment write-offs as a percentage of goodwill amounts in the beginning of year.

**Δ Ind\_Audit** = the change of audit committee independence in a firm from pre-to-post IPR&D restatement; measured by the ratio of a firm’s independence in the audit committee prior to restatement subtracted from the ratio of a firm’s independence in the audit committee post restatement.

**Δ Audit\_Fin** = the change of the ratio in the audit committee with financial expertise from pre-to-post IPR&D restatement; measured by the ratio of financial experts in the audit committee prior to restatement subtracted from the ratio of financial experts in the audit committee post restatement.

**Δ BOD\_Size** = the change in the board size from pre-to-post IPR&D restatement; measured by the board size prior to restatement subtracted from the board size post restatement .

$\Delta \text{Ind\_BOD}$  = the change of board independence in a firm from pre-to-post IPR&D restatement; measured by the ratio of a firm's board independence prior to restatement subtracted from the ratio of a firm's board independence post restatement.

$\Delta \text{MGT\_Ch}$  = the change in a firm's recent management turnover; equals one for a firm with top compensated CEO/CFO changes during prior two years; zero otherwise.

**Control variables** =  $f$  (firm size, leverage ratio, market-to-book ratio, CEO tenure, segment, bath variable, firms' listing, CEO's bonus plan, and SFAS121\_Effect)

The corporate governance measures for H4 are very similar to the measures used in H3 except that the focus for H4 is the change in corporate governance level after the firm's IPR&D restatements. The measure of the change in each governance variable is computed by the governance level in the year prior to IPR&D restatement subtracted from the governance level in the year post IPR&D restatement. For example:  $\Delta \text{Ind\_Audit}$  is computed by the ratio of audit committee independence from the year prior to IPR&D restatement subtracted from the ratio of audit committee independence from the year post IPR&D restatement. That computation can be expressed as a formula:

$$\Delta \text{Ind\_Aud}_i = \text{Ind\_Aud}_{i,t=1999} - \text{Ind\_Aud}_{i,t=1997}$$

, given the firm "  $i$  " with its IPR&D restatement year in 1998. Consistently,  $\Delta \text{BOD\_Size}$  is also computed by the size of BOD from the year prior to restatement subtracted from the size of BOD in the year post IPR&D restatement. All other governance variables are computed in the same fashion and the change of governance measures from pre to post IPR&D restatements are applied in the models (4-1) and (4-2).

Since the control variables in model (4-2) are identical to model (1-2), when testing H4 the predictions for each control variables are also the same. The following complete logistic model (4-3) and tobit model (4-4) are used to examine the association in the change of restated firm's governance and their goodwill write-offs.



$$\begin{aligned}
WO = & \beta_0 + \beta_1 \Delta Ind\_Audit + \beta_2 \Delta Audit\_Fin + \beta_3 \Delta BOD\_Size + \beta_4 \Delta Ind\_BOD \\
& + \beta_5 \Delta MGT\_CH + \beta_6 Size + \beta_7 LEV + \beta_8 MTB + \beta_9 Tenure + \beta_{10} Segment \\
& + \beta_{11} Bath + \beta_{12} LIST + \beta_{13} BonusPlan \dots \dots \dots (4-3)
\end{aligned}$$

$$\begin{aligned}
WO\% = & \beta_0 + \beta_1 \Delta Ind\_Audit + \beta_2 \Delta Audit\_Fin + \beta_3 \Delta BOD\_Size + \beta_4 \Delta Ind\_BOD \\
& + \beta_5 \Delta MGT\_CH + \beta_6 Size + \beta_7 LEV + \beta_8 MTB + \beta_9 Tenure + \beta_{10} Segment \\
& + \beta_{11} Bath + \beta_{12} LIST + \beta_{13} BonusPlan \dots \dots \dots (4-4)
\end{aligned}$$

Where:

**WO** = a dichotomous variable for the reporting a firm’s transitional goodwill write-offs; equals one if non-zero positive goodwill impairment write-off is reported, zero otherwise.

**WO%** = the transitional goodwill impairment write-offs as a percentage of goodwill amounts in the beginning of year.

**Δ Ind\_Audit** = the change of audit committee independence in a firm from pre-to-post IPR&D restatement; measured by the ratio of a firm’s independence in audit committee prior to restatement subtracted from the ratio of a firm’s independence in audit committee post restatement.

**Δ Audit\_Fin** = the change of the ratio in the audit committee with financial expertise from pre-to-post IPR&D restatement; measured by the ratio of financial experts in the audit committee prior to restatement subtracted from the ratio of financial experts in the audit committee post restatement.

**Δ BOD\_Size** = the change of the board size from pre-to-post IPR&D restatement; measured by the board size prior to restatement subtracted from the board size post restatement.

**Δ Ind\_BOD** = the change of the board independence in a firm from pre-to-post IPR&D restatement; measured by the ratio of a firm’s board independence prior to restatement subtracted from the ratio of a firm’s board independence post restatement.

**Δ MGT\_CH** = the change for a firm’s recent management turnover; equals one for firms with top compensated CEO/CFO changes during prior two years; zero otherwise.

All of the other variables are defined as the same as in the model (1-3).

### 3.3 Summary and Conclusion

In an attempt to answer the research questions raised in this study regarding the SFAS 142 transitional goodwill impairment write-off, this chapter has developed four testable hypotheses, and designed an appropriate research methodology to empirically examine these hypotheses.

The first set of hypotheses is proposed to examine IPR&D firms' aggressive or conservative reporting behaviors by the difference of transition goodwill write-offs between the sample and control group. The first hypothesis examines whether transition goodwill write-off behaviors are significantly different between IPR&D restated firms and IPR&D non-restated firms, with a result that IPR&D restated firms have greater (or lesser) likelihood and greater (or fewer) write-offs than IPR&D non-restated firms during SFAS 142 transition period. To understand how restated firms' prior reporting strategies affects subsequent goodwill reporting, this study further examines whether the greater likelihood and the greater amounts of transition goodwill write-offs are associated with a higher degree of prior restatement amounts in IPR&D restated firms. A positive association will be found if a firm performs goodwill reporting more aggressively when transitioning to SFAS 142; whereas a negative association indicates a firm performs goodwill reporting more conservatively.

This study then proposes the second set of hypotheses to examine how the corporate governance factors constrain IPR&D firms' reporting on their impaired goodwill write-offs during the SFAS 142 adoption period. A third hypothesis is proposed to examine the association between impaired goodwill write-offs and the governance of IPR&D firms in the transition year. A fourth hypothesis examines the association between IPR&D restated firms' transition goodwill write-offs and the change of corporate governance following firms' IPR&D restatements. It is expected

that the write-offs would be negatively associated with firms' corporate governance when transitioning to SFAS 142, and negatively associated with the change of restated firms' corporate governance from pre-to-post restatements. A summary of these hypotheses and corresponding predictions are presented in Table A.3 and Table A.4.

In Chapter 3 above, the data collection sources and sample selection procedure are discussed, and the matching sample criteria are detailed. All variables used in the logistic and the tobit models are defined,<sup>43</sup> and the predictions for the corresponding statistical testing are also discussed. Chapter 4 presents the empirical testing results and findings, and Chapter 5 concludes with a discussion of the findings and implications of the results.

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<sup>43</sup> Table A.5 provides data sources and brief definitions for the variables used in the models.

## CHAPTER 4

### EMPIRICAL RESULTS AND ANALYSIS

In this chapter the sample selection and descriptive statistics are presented. Next, empirical testing results for each hypothesis on firms' transition goodwill write-off behavior are presented and analyzed. These hypotheses deal with the difference in goodwill write-offs of IPR&D restated firms and non-restated firms, the relationship between firms' goodwill write-offs and their corporate governance, and how the restated firms' write-offs are affected by the change of corporate governance before and after IPR&D restatement in the late 1990s. Finally, the findings of the testing results are summarized at the end of this chapter.

#### 4.1 Sample Selection and Descriptive Statistics

Based on the sampling process described in section 3.2, this study identifies 88 possible sample firms that announced (and were involved with) IPR&D restatements for the testing period. These include 35 firms that are identified from the GAO report (GAO\_03\_395R) and an additional 53 firms from various press release documents discovered in the *Lexis-Nexis* database search. Since this research also identifies each firm's actual restated amounts, I manually retrieve each individual SEC 10-K, 10-K (A), 10-Q, and 10-Q (A) filings for these 88 possible sample firms. I then verify whether they have actually restated their prior earnings due to IPR&D overstatement

events, either as a result of SEC enforcement or voluntarily (prompter of their restatements). Sixteen firms are eliminated for lack of evidence of restatements taking place. Thus, the usable IPR&D restated firms number 72, after the above verification. This sample size appears consistent with Palmrose, Richardson, and Scholz study (2004) which has 75 sample firms, Dowdell and Press studies (2002, 2004) which have 71 sample firms, and Banyi study (2006) which has 99 firms in a similar search period. However, this study's sample firms are significantly further reduced for the following reasons: firm's subsequent (1999-2002) merger and acquisition activities (13 firms), the unavailability of firm's financial data (6 firms), the elimination of ADRs and foreign companies (5 firms), the elimination of a financial institution (1 firm), and the elimination of private companies (2 firms). The final sample includes 45 IPR&D restated firms. The sample selection procedure is summarized in Table A.6.

As explained in section 3.2, the control sample for IPR&D non-restated firms are retrieved from the aforementioned *Lexis-Nexis* keyword searches, and 202 IPR&D non-restated companies are identified from press release documents. An additional 217 firms are retrieved via *Compustat* (from firms with data #388 in-process research and development). Both procedures are performed as text searches because prior research indicates that *Compustat* does not contain a complete set of IPR&D firms before the year 2000 (Banyi, 2006). In the preliminary sample of 419 firms, 99 firms are eliminated as duplicates in the above searches, and 7 foreign companies are also eliminated. The available control sample consists of 313 IPR&D non-restated firms.

Following the sample selection, a one-to-one matching procedure is performed: firms are first sorted by industry using the 4-digit SIC code and then by the 3-digit SIC code in this order. If multiple control firms are found within the same industry, a second matching criterion is used to select by closest firm size, as measured by total assets at

the beginning of the year (*Compustat* data #6). Ultimately, the final sample prepared consists of 45 IPR&D restated firms and another 45 IPR&D non-restated control firms, which represent a similar industry and are of a similar firm size.

The sampling method is summarized in Table 4.1. The distribution of sample firms across industries is presented in Table 4.2. The 45 sample firms are distributed across 9 two-digit industry SIC classifications. The three industry groups which contain the highest proportion of sample firms are: business services (SIC 73, 46.6%), industry machinery and computer equipment (SIC 35, 15.5%), and electrical and electronic equipment (SIC 36, 11.1%). The control sample has the same industry distribution due to the one-to-one match procedure. This distribution indicates that IPR&D firms are most concentrated in information technology manufacturing and its related services, as well as some chemicals and medical instrument related business.

Table A.8 presents descriptive statistics and t-test results for all sample firms and control firms. The descriptive statistics in variables for all firms are presented in panel A. In panel B, results of t-test on the difference of mean value in variables show that firm characteristics of control firms are very similar to those in sample firms, except for the variable, **WO%**. The mean values are 0.17 and 0.07 for **WO%**, for sample firms and control firms respectively. As a result, the difference of mean value in **WO%** is 0.10 (t-statistic is 1.75, and p-value is 0.0835), and the result is significantly different at a 10% level. Therefore, the control firms are properly represented as a good benchmark. Although not significant, the mean values for **WO** are 0.28 and 0.15 for sample and control firms as well. Both the mean values of **WO** and **WO%** appear to be larger in sample firms. This fact may imply that sample firms (IPR&D restated firms) are more likely to take goodwill charges when SFAS 142 is implemented. Lastly, coefficients of a Pearson correlation among independent variables are provided in Table

A.9. This result indicates there is no multicollinearity issue among these variables. Note that in this study the IPR&D restated sample is with a small sample size of 45 firms, however this testing sample is a statistically representative of the entire population of IPR&D restated firms. For this reason, my testing results are not expected to be overstated.

#### 4.2 Analysis of Goodwill Write-offs on IPR&D Restated Firms and Non-restated Firms

In this study, the first set of statistical tests is designed to examine the difference in transition goodwill write-off behaviors between the sample and the control group. The first hypothesis (H1) postulates that the transitional goodwill write-offs from IPR&D restated firms will be different from IPR&D non-restated firms. If IPR&D restated firms are comparably more aggressive during the SFAS 142 transition period (writing off more in their impaired goodwill than the control peers), the corresponding coefficient will be significant and positive. If these restated firms are more conservative, the result will be significantly negative. As described in section 3.2.2, testing on the logistic model (1-3) and the tobit model (1-4) is performed, and the empirical results are summarized in Table A.10.

The result obtained from the logistic model (1-3) shows a positive coefficient of 1.183 (z-value 1.82) on **Restate** variable at a 5% significant level. Similarly, the result from the tobit model (1-4) presents 0.424 in coefficient (t-value 1.90) on **Restate** variable, also at a 5% significant level. Both of these empirical results support the expectation that IPR&D restated firms behave differently in their goodwill write-offs from their control peers. In addition, **MTB** and **Leverage** are two control variables, with coefficients of -1.035 (z-value -2.46) and -6.202 (z-value -2.50) in the logistic model, and -0.406 (t-value -2.72) and -1.925 (t-value -2.26) in the tobit model, which

are significant and consistent with prior literature prediction. Another result with significance in a control variable is **SFAS\_121\_ effect**, with a coefficient of 1.128 (z-value 1.73) at a 10% significant level in the logistic model. Evidence from testing models (1-3) and (1-4) indicate that on average IPR&D restated firms are more likely to take goodwill charges, taking greater charges on their transition goodwill than their counterpart during the adoption of SFAS 142. The results are also consistent with the descriptive statistics in Table A.8 stating that more IPR&D restated firms report impaired goodwill write-offs than their peers. (Thirteen firms contain non-zero write-off amounts in IPR&D restated firms, and only seven firms contain non-zero write-off amounts in IPR&D non-restated firms.) This result from H1 suggests that firms with prior IPR&D write-offs are more likely to be those with greater subsequent transition goodwill write-offs. This finding is also consistent with findings in Elliott and Hanna (1996) who show non-recurring write-off does not occur randomly and that prior write-off firms tend to report additional write-off in the future. Overall, this study's first hypothesis is supported by the above results.<sup>44</sup> IPR&D restated firms more aggressively perform goodwill write-offs than IPR&D non-restated firms during the adoption year, and the transitional provisions in SFAS 142 appear to provide an earnings management opportunity for IPR&D restated firms.

Since IPR&D restated firms have a track record of taking advantage of IPR&D accounting opportunities with excessive IPR&D write-offs in the 1990s, the following proposition further examines what causes differences among IPR&D restated firms in determining the amounts of their goodwill charges under the SFAS 142 reporting. Prior studies indicate that firms' restated amounts could represent the degree of aggressive

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<sup>44</sup> This study also performs a non-parametric binomial test, and the results from this exact test are qualitatively similar to the results from above mentioned Table A.10.



behavior in expensing IPR&D by these restated firms (Dowdell and Press, 2002 and 2004). The greater amounts in restatement could potentially indicate the greater goodwill amounts which were allocated back. This is the basis of the study's second hypothesis (H2), which examines the association of higher restatement amounts during the SEC scrutiny with subsequent transition goodwill write-offs among IPR&D restated firms. If these firms exhibit aggressive behavior in SFAS 142 transitional goodwill reporting, I expect a significantly positive coefficient between a firm's goodwill write-off and its restatement amount. Conversely, if these firms become more conservative in subsequent goodwill reporting, a negative coefficient will be expected.

The testing results reveal IPR&D restated firms with greater prior restatements become more conservative in subsequent transition goodwill reporting. The empirical results for H2 are presented in Table A.11. The empirical results from the logistic model (2-3) and the tobit model (2-4) show negative coefficients of -9.069 (z-value -1.67) and -2.393 (t-value -1.83) on the restatement amounts both at a 5% significant level, which indicate that previously aggressive firms are now less likely to report their subsequent goodwill write offs. It also indicates these previously aggressive firms are now reporting smaller transitional goodwill charges during their SFAS 142 transition. Furthermore, three control variables-- **leverage**, **CEO tenure**, and the **CEO bonus plan**—are also significant and negatively associated with goodwill write-offs. Their coefficients are -10.025 (z-value-2.11), -0.258 (z-value -1.92), and -3.003 (z-value -1.93) in the logistic model, and -1.997 (t-value -1.92), -0.069 (t-value -2.23), and -0.628 (t-value -2.01) in the tobit model, all significant at least a 5% significance level. Possible explanations for firms with a higher degree of aggressive restatements subsequently undertaking more conservative reporting for their smaller impaired goodwill write-offs include the following: firms are aware of the higher costs of

potential restatements (Marquardt and Wiedman, 2004), firms are aware of the cost of loss of their reputation (Teoh et al. 1998a), firms are aware of the penalty extracted by the market after the SEC investigation (Dechow, Sloan and Sweeny, 1995), and firms feel the consequence of the public's watchful eyes while under the scrutiny of SEC examination. No matter what the reason, it appears that restated firms face pressure and are cautioned not to perform aggressively again. Since H2 hypothesizes that there will be a significantly positive (or negative) association between IPR&D restated amounts and subsequent goodwill write offs, the testing results support H2: the evidence suggests that a more conservative goodwill reporting strategy is pursued by firms with greater IPR&D restatements.

To sum up the findings in section 4.2, it appears the IPR&D restated firms are more likely to take advantage of this one-time below-the-line rule change reporting opportunity and take greater amounts of goodwill charges to manage earnings, when compared to IPR&D non-restated firms. However, IPR&D restated firms are also likely to adopt a more conservative strategy when compared to their prior IPR&D restatements in the late 1990s.

#### 4.3 Analysis of the Association between Goodwill Write-offs and Firm's Corporate Governance Behavior

To investigate IPR&D firms' goodwill reporting within the discrepancy stated above in section 4.2 (i.e., restated firms are more aggressive to non-restated peers, but they become conservative in post IPR&D restatements), this study further examines corporate governance factors to see whether these factors may constrain the firms' subsequent financial reporting. Therefore, the second set of hypotheses focuses on the level of firms' governance, the change of governance levels after restatements, and how these will affect firms' subsequent transition goodwill charges. The third hypothesis

(H3) is proposed to examine whether the effect of corporate governance constrains the IPR&D firms' goodwill write-off behavior. If so, transition goodwill write-offs are expected to be negatively associated with the firms' corporate governance.

Six variables, **BOD\_Size**, **BOD\_Ind**, **Aud\_Fin**, **Aud\_All**, **MGT\_CH**, and **Duality** are used to measure the relationship of firms' corporate governance and goodwill write-offs in models (3-3) and (3-4), and their empirical test results are summarized in Table A.12. Two out of the six corporate governance measures, **BOD\_Ind** and **Aud\_Fin**, are statistically significant. Their coefficients are -7.124 (z-value -2.37) and 3.805 (z-value 2.06) in the logistic model significant at least at a 5% level, respectively; the coefficients are -1.581 (t-value -2.23) and 0.977 (t-value 2.44) in the tobit model also at least a 5% significant level. Furthermore, the coefficients of several control variables are worth noticing. The corresponding coefficients for **Restate**, **SFAS\_121\_effect**, **MTB**, **leverage**, and **CEO tenure** in the logistic model are 1.334 (z-value 1.71), 2.434 (z-value 2.53), -1.604 (z-value -2.91), and -7.263 (z-value -2.64), respectively. Similarly, the corresponding coefficients in the tobit model for the above variables are 0.385 (t-value 1.88), 0.625 (t-value 2.62), -0.453 (t-value -3.25), and -1.701 (t-value -2.32), respectively, all significant at least at a 10% level. The evidence shows that the above control variables are all significantly associated with goodwill write-offs, and that they are consistent with the expected signs.<sup>45</sup>

As previously stated, the board independence variable, **BOD\_Ind**, has a significant and negative association with firms' impaired goodwill write-offs, and the coefficients are -7.124 (z-value -2.37) in the logistic model and -1.581 (t-value -2.23) in the tobit model. This indicates that the higher the degree of the board independence, the

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<sup>45</sup> This study also has attempted to test the logistic and the tobit models with interactions between indicator variable, Restate, and various governance measures. However, testing of this design has produced several multi-collinearity problems.

less likely (logistic) and the lesser amounts (tobit) would be reported in the firm's transition goodwill charges. This evidence is also consistent with results in prior studies which find that board independence may constrain the firm's opportunism in earnings management (Klein, 2002; Peasnell et al, 2000).

Results in Table A.12 show another governance measure, **Aud\_Fin**, is also significant at a 5% and a 1% level, respectively. But the coefficients of 3.805 (with z-value 2.06 in the logistic model) and 0.977 (with t-value 2.44 in the tobit model) with positive values, are not consistent with my hypothesized negative association. This finding with the positive association indicates that firms with a higher ratio of accounting/financial expertise in their audit committees are more likely be firms reporting transition goodwill write-offs (the logistic model), and also be firms taking greater transition goodwill write-offs (the tobit model).

The goodwill reporting in transition period under SFAS 142 is reflected in FASB's new rule, whereas each firm is allowed to report this one-time exception below-the-line special item under current GAAP provision. However, only a limited number of firms determine they need to take goodwill charges during their transition test.<sup>46</sup> These firms have evaluated their existing goodwill amounts by the two-step fair value method, and have found it necessary to write down certain amounts of goodwill under SFAS 142. Accounting and financial experts in the audit committees might be more supportive of a decision in which the CEO/CFO of the firm determines to write down a higher percent, or write down higher amounts of goodwill all at once in the transition period. However, they might not support other decisions where the firm has to report various goodwill write-offs over many years as operating expenses (above-the-

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<sup>46</sup> My sample's results indicate approximately 28% of IPR&D restated firms and 20% of IPR&D non restated firms have determined to report transition goodwill write-offs during SFAS 142.

line reporting) after SFAS 142. After all, the accounting and financial experts in the audit committee is to oversee firm's financial reporting accurately following current GAAP and help avoid any potential violations in future. To have greater transition goodwill charges (in the transition period) not only meets the guidelines in GAAP, but also avoids the possibility of a firm having to write down goodwill many times, and reduces any suspicion of in overstated earnings in future.

Results in Table A.12 (tests for H3) and Table A.10 (tests for H1) indicate that **Restate**, **MTB**, and **Leverage** are significant in both models. The former variable has a positive sign at a 10% significance level, while the latter two control variables have negative signs at a 1% significance level.<sup>47</sup> The evidence suggests the following: (1) IPR&D firms with lower growth potential (proxy by **MTB**) are more likely to determine to take transition goodwill impairments. These firms may also take greater amounts in transition goodwill write-offs. (2) IPR&D firms with higher leverage ratio (proxy by **Leverage**) may constrain themselves in goodwill write-offs because firms take great amounts of write-offs may result in violating the debt covenants. (3) The goodwill write-off behavior is still different between IPR&D restated firms and non-restated firms (proxy by **Restate**). In addition, **SFAS 121\_Effect** and **Tenure** in Table A.12 are also significant in both models<sup>48</sup> (the coefficients are 2.434 and 0.625 for the former; and the coefficients are -0.211 and -0.518 for the latter). This explains two possible outcomes: (1) if the firms have undertaken any long-lived assets write-down

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<sup>47</sup> **Restate** is with coefficients of 1.183 (z-value 1.82 in logistic) and 0.424 (t-value 1.90 in tobit) in Table A.10, and 1.334 (z-value 1.71 in logistic) and 0.385 (t-value 1.88 in tobit) in Table A.12, respectively. Similarly, **MTB** is with coefficients of -1.035 (z-value -2.46 in the logistic) and -0.406 (t-value -2.72 in the tobit) in Table A.10, and -1.604 (z-value -2.91 in the logistic) and -0.453 (t-value -3.25 in the tobit) in Table A.12. **Leverage** is with coefficients of -6.202 (z-value -2.50 in the logistic) and -1.925 (t-value -2.26 in the tobit) in Table A.10, and -7.263 (z-value -2.64 in the logistic) and -1.701 (t-value -2.32 in the tobit) in Table A.12.

<sup>48</sup> In Table A.12, the coefficients for **SFAS\_121\_Effect** are 2.434 (z-value 2.53) and 0.625 (t-value 2.62) in the logistic and the tobit model both with p-value of 0.011, respectively; while the coefficients for **Tenure** are -0.211(z-value -1.73) and -0.518 (t-value -1.72) both with p-value of 0.04.

prior to the accounting rule change, there is a tendency to take write-off during this transition test, and on average the firms also take greater amounts of write-offs; and (2) the longer the CEO has served in that position, the less likely the firm is to take goodwill write-offs, and the less amounts the firm takes in impaired goodwill charges. Because the longer the tenure of the CEO, the more likely this CEO would have involved with the original acquisition and allocation decisions in that the management desires to defend, and thus the longer CEO **Tenure** is associated with a smaller amount of goodwill write-offs.

The result in **MGT\_Ch** is not supported by a significantly negative association with goodwill write-offs (coefficient of -1.546 with z-value -1.20 in the logistic model and coefficient of -0.411 with t-value -1.24 in the tobit model) as a positive association stated from prior big bath earnings management studies. One possible explanation could be that here this variable is measured by management change during the two years prior to firms' adoption of SFAS 142, instead of one year prior, and that may take away some significance. Another possible reason could be the existence of a bath control variable **Bath** in the models (3-3) and (3-4) that constrains **MGT\_CH**, a similar big bath possibility.<sup>49</sup>

To analyze in detail whether the six governance variables are able to constrain transition goodwill reporting, this study further conducts a test on 45 IPR&D restated firms, testing a similar model (3-5) to verify the difference of corporate governance effects.<sup>50</sup> Based on the results from Table A.13 for additional exploration in H3, **BOD\_Ind** is the only governance measure that is significant and negatively associated

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<sup>49</sup> This study also tests the same models (3-3) and (3-4) without the **Bath** control variable. The results show that coefficients of **MGT\_Ch** are negative, and marginal significant at a 10% level in both models.

<sup>50</sup> To distinguish the differences of firms' transition goodwill reporting behavior among IPR&D firms, this study further performs the model (3-5). The only difference between model (3-4) in Table A.12 and model (3-5) in Table A.13 is the existence of the variable IPR&D Restated for the latter. Because of that difference, it is conducted with the sample for 45 IPR&D restated firms.

with the sample firms' goodwill write-offs. The coefficients are -1.890 (t-value -1.87) and -2.452 (t-value -2.42) both at a 5% significant level, respectively. That is consistent with the results in Table A.12 that show BOD independence constrains firms' transition goodwill charges. Note that the coefficients of **Aud\_Fin** are no longer significant for the IPR&D restated reduced sample in Table 4.8 (coefficient of 0.883 with t-value 1.18 and coefficient of 0.657 with t-value 0.99 both in the tobit models). In other words, the power of significance on **Aud\_Fin** in Table A.12 (coefficient 3.805 in the logistic model and coefficient 0.997 in the tobit model at least a 5% significance level) is declining and driven away. Therefore, from the above evidence I suspect that finance/accounting experts in the IPR&D restated firms' audit committees do not encourage transition goodwill write-offs reporting. In particular (as stated in section 4.2), these IPR&D restated firms may be much concerned about their high publicity and about pressure from SEC investigation since prior IPR&D restatements.

#### 4.4 Analysis of Goodwill Write-offs on the Change of Corporate Governance after IPR&D Restatement Event

To continue with the relationship between firms' governance factors and subsequent transition goodwill write-off behaviors, this study examines the effect of change in restated firms' governance after IPR&D restatements. First, this study tests whether the IPR&D restated firms have changed their corporate governance level and exhibited significant differences in the mean values from prior to post IPR&D restatement periods. To examine the restated firms' change of corporate governance level during the period of one year prior to and one year post the IPR&D restatement, I perform a t-test for their mean value difference. The results are provided in Table A.14.

The variables in Table A.14 are the same as in previous models except the variable indicating the accounting /finance experts in the audit committee. Although this

study applies a narrow definition for accounting/finance expertise, which only includes the AC members with CPA designation, or with professional accounting or chief financial officers experience, I also include a broader definition in accounting/finance expertise, which is applied by the SEC and major stock exchanges, for additional investigations. **AUD\_ACCT\_r** is the ratio of the audit committee members who are finance/accounting experts as that expertise is defined by DeFond, Hann, and Xu (2005); while **AUD\_SEC\_r** is a similar ratio in the audit committee but computed by the broader definition from the SEC and stock exchanges.<sup>51</sup> The results in Table A.14 indicate that **AUD\_size**, **BOD\_Ind\_r**, and **AUD\_Ind\_r** are three corporate governance variables with significant improvement in their mean values between the pre and post periods. Such change is reflected by the t-test coefficients of 0.37 (t-value 2.25), 0.10 (t-value 2.00) and 0.17 (t-value 2.37), which are all significant at a 5% level. However, it is surprising to observe that the above two measures related to the ratio of a firm's AC finance/accounting experts do not significantly change from pre to post period. This result is the same as that the mean value changes of the rest of governance variables are not significant in Table A.14. Possibly, the evidence reveals the fact that some public firms do not take the effectiveness of the audit committee into consideration until the importance of AC effectiveness is advised by the Blue Ribbon Committee report (BRC, 1999), and following a regulatory change in national exchanges in NASDAQ and NYSE after 2000.

Next this study examines whether the impaired goodwill write-off behaviors in IPR&D restated firms are influenced by the change of their corporate governance from pre-to-post IPR&D restatements periods. It is also postulated that the improvement in

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<sup>51</sup> More detailed discussion of the definitions for finance and accounting expertise in a firm's audit committee is included in Appendix D.



firms' governance constrains the firms' future earning management opportunism, thus the change of restated firms' governance level from pre-to-post IPR&D restatements will be negatively associated with subsequent transition goodwill write-offs. The empirical results for testing models (4-3) and (4-4) are summarized in Table A.15.

The regression result is similar to the mean difference in t-test from Table A.14. SFAS 142 transition goodwill charges have a negative relationship with the change of BOD independence,  $\Delta\_BOD\_Ind$ , where the coefficients are -64.271 (z-value -1.65) and -11.345 (t-value -2.09) both at a 5% significance level in the logistic and the tobit model, respectively. However,  $\Delta\_BOD\_Ind$  is the only corporate governance variable that retains a negative impact on restated firms' subsequent goodwill write-offs. Consistently, this evidence supports the finding that the degree of BOD independence is the key driving force for IPR&D firms to constrain their subsequent impaired goodwill reporting during the SFAS 142 transition test.  $\Delta\_AUD\_Ind$  is significant in the result of the tobit model, with a positive coefficient of 4.248 (t-value 2.24) at a 5% significance level, the sign is opposite of the initial negative sign prediction. Similarly, the variable  $\Delta\_AUD\_Ind$  is also significant at a 10% level in the logistic model (coefficient is 26.015 with z-value of 1.45). The result also appears to contradict the observation from a previous t-test of mean value change (coefficient 0.17 with t-value 2.37 at a 5% significance level) in Table A.14. The variation may come from several firms with extreme values in the sample,<sup>52</sup> or it also may derive from five missing sample firms

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<sup>52</sup> From the data observation of governance variables for change of board independence ratio  $\Delta\_BOD\_Ind$  and the change of audit committee independence ratio  $\Delta\_AUD\_Ind$ , there is a mix of mostly positive values and some significant negative values, while a firm's independence improvement over time results in a positive value, and a firm's independence deterioration results in a negative value. Several firms may show extreme change in their board structure and their audit committee structure during the late 1990s, and as a result these extreme values may influence the coefficients in the regression model. Ex: Extreme values in the coefficient of -64.271 in the logistic model (4-3); the coefficient of -11.345 in the tobit model (4-4).

without public available data<sup>53</sup> so that the pattern of negative association in the regression is significantly impacted.

#### 4.5 Conclusion of the Findings

To conclude, the empirical results of the tests can be summarized as follows:

(1) Since the transition provision of SFAS 142 creates the earnings management opportunity for IPR&D firms, there is evidence supporting the finding that on average IPR&D restated firms are more likely to write off goodwill as impairment during the transition period. Furthermore, restated firms also have taken greater amounts of goodwill charges than their IPR&D non-restated control peers at the same time. This finding is similar to the statement from Moore and Pfeiffer (2005) who find that the restated firm's management incentive may remain unchanged even after restatements. As a result, these then-aggressive IPR&D restated firms appear to be still more aggressive in subsequent goodwill reporting.

(2) However, when this study considers the financial reporting time horizon among IPR&D restated firms, there is a negative association with the firms' subsequent transition goodwill write-offs during the SFAS 142 adoption year and their prior restatement amounts in the late 1990s. This finding indicates that IPR&D restated firms with greater restatement amounts become more conservative in subsequent goodwill reporting. This change may have resulted from the pressure of public attention after SEC scrutiny and the restated firms' alertness to the possibility of SEC examination.

(3) IPR&D firms' transition goodwill write-offs are constrained by the degree of board independence among their governance factors. In particular, this study

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<sup>53</sup>The observations for testing model (4-3) and model (4-4) in Table A.15 remain only 40 IPR&D restated firms. The proxy statements for five firms in the sample are no longer publicly available, either from the firm's website or the SEC's EDGAR database.

consistently supports this finding with evidence for the IPR&D restated firms, regardless of the time period in question: whether during the SFAS 142 adoption period, or through the change of governance level from prior to post IPR&D restatement periods. Board independence is the only governance measure in this study that is significantly negatively associated with IPR&D firms' transition goodwill reporting.

## CHAPTER 5

### DISCUSSION AND IMPLICATIONS

In this chapter, I begin by summarizing this dissertation's research questions and restate the purposes of this research. Next, I review the research results and discuss the implications of the study's findings. The contributions of this study are then presented, followed by a discussion of the limitations of my research and suggestions for future research.

#### 5.1 The Purpose and Major Findings of this Research

As stated in Chapter 1, it appears that IPR&D restated firms have a compelling incentive to write down extra amounts of goodwill carried back to their books as goodwill after restatements in the late 1990s. It is suspected that the extent of goodwill write-down can be correlated with various degrees of IPR&D earnings management. Thus, two sets of research questions are raised. The first set of questions asks the following: Do firms' transitional goodwill write-offs during the SFAS 142 perform differently between IPR&D restated firms and their peers? And is there an association between IPR&D restated firms' prior restatement amounts and their subsequent transition goodwill write-offs? The second set of questions asks: Is there an association between IPR&D firms' corporate governance and their goodwill write-offs? And is there any impact on IPRD restated firms' goodwill write offs due to changes in their corporate governance after IPR&D restatements?

The main purpose of this research is to empirically examine the probability of earnings management by firms with IPR&D restatements. I postulate that IPR&D restated firms take great advantage of the new opportunity afforded in using the below-the-line reporting loophole allowed by SFAS 142, and that earnings management is taking place. Another purpose of this research is to empirically examine whether management incentives and corporate governance factors contribute to the reasons for firms' aggressive (or alternatively conservative) earnings management.

From the evidence of test results for the four proposed hypotheses, the major findings of this study can be summarized as follows:

(1) This study finds that IPR&D restated firms take advantage of the earnings management opportunity in the SFAS 142 below-the-line provision; thus they remain aggressive and are more likely than IPR&D non-restated firms to report transition goodwill write-offs. Restated firms also take greater amounts of goodwill charges. This evidence also supports the finding that firms' goodwill write-off behaviors are significantly different between IPR&D restated firms and non-restated firms. Management incentive may remain unchanged even after restatements. As a result these then-aggressive IPR&D restated firms appear still more aggressive in subsequent goodwill reporting.

(2) This study also examines the reporting strategies of IPR&D restated firms from the IPR&D restatement period to the SFAS 142 transition period. A negative association is found between restated firms' transition goodwill charges (also the likelihood of firms' reporting goodwill charges) and prior restatement amounts in the late 1990s. This suggests that IPR&D restated firms become to report their transition goodwill write-offs more conservatively. That is, IPR&D restated firms with greater restatement amounts write off lesser amounts in subsequent goodwill charges. The

reasons for this finding can be attributed to the pressure of public attention after SEC scrutiny and firms' awareness of the possibility of SEC examination.

(3) Finally as to the effects of corporate governance attributes on firms' goodwill reporting, this study finds that IPR&D restated firms' transition goodwill write-offs are constrained by the degree of board independence during the SFAS 142 adoption period. Further evidence shows that IPR&D restated firms' transition goodwill reporting is also constrained by the change of board independence from pre-to-post IPR&D restatement periods.

## 5.2 Discussion and Implications of the Study

In this section, I discuss several research issues and their implications for this study.

(1) IPR&D restatements are unique from other types of restatements: This study's IPR&D restated sample is highly concentrated in IT services and IT manufacturing industries. This concentration is consistent with the surge in merger and acquisition activities by small-to-mid-sized technology firms in the late 1990s. The sample distribution is also unique compared to most accounting restatement studies; however the distribution is similar to that of prior IPR&D studies (Dowdell and Press 2004, Banyi 2006). In addition, Palmrose, Richardson, and Scholz (2004) point out that IPR&D restatement induces little market response, which is one exception from other types of restatements. Thus, restatements in IPR&D restated firms overall are unique in some firm characteristics from other types of restatements, such as a high frequency of occurrence during late 1998 and 1999 with an income-increasing restatement activity, and a high concentration of industry clustering. It is expected that the evidence in this

study may support an additional research perspective from which to discuss the consequences of accounting restatements.

(2) This study adds to the research on earnings management by regulatory motivation: Using firms with IPR&D restatements involved from SEC scrutiny, this study examines consequences in the adoption of below-the-line transitional provision on these firms' goodwill reporting during the period of rule change in SFAS 142. The research results support the finding that IPR&D restated firms maintain aggressive reporting in subsequent impaired goodwill write-offs due to the loophole opportunity of SFAS 142, and therefore earnings management is taking place. This research is an example of various regulatory changes pertinent to firms' earnings management motivations, and as a result this study should contribute to the accounting literature by providing a unique case in earnings management.

(3) Some implication of these findings for accounting regulatory agencies: Prior studies have shown that IPR&D restated firms attempt to take big bath write-offs from IPR&D expenses resulting from prior merger and acquisition, but that this practice was detected and remedied by SEC scrutiny (Dowdell and Press, 2004). However, the finding of this study supports a finding that once the loophole opportunity from SFAS 142 appears, these IPR&D restated firms are more likely to take this earnings management opportunity and also take greater amounts of below-the-line transition goodwill write-offs. The evidence appears to suggest that accounting regulators (SEC, FASB) need to be more cautious in creating transitional provisions in order to avoid other loophole opportunities in future accounting rules.

McVay (2006) suggests that engaging in earnings management by classification shifting of special items does not change the firms' bottom-line earnings, but instead overstates their core earnings. My study suggests that firm's reporting of transition

goodwill charges is not simply a reflection of economic circumstances. Both IPR&D restated and non-restated firms face the same circumstance in that the provisions of SFAS 142 allow any firm not to delay recognition of goodwill impairments as subsequent operating expenses. However IPR&D restated firms behave differently than non-restated peers in their transition goodwill reporting. This goodwill earnings management opportunity can be subject to management discretion. Thus, FASB's purpose of ensuring fair value accounting and making firms' financial reporting more transparent does not seem to be reflected in the results of this research. This study also supports a criticism of the SFAS 142 reported by other researchers such as Beatty and Weber (2006), and Watts and Ramanna (2007), which states that the determination of a firm's goodwill write-off leaves too much room on managerial discretion and thus does not truly reflect a firm's economic value.

### 5.3 Major Contributions of the Study

This research makes a major contribution to the extant literature in several areas. First, this research serves to link two research streams:

- Managers' initial motivation to overstate IPR&D at acquisitions, and the reallocation ( as a result of SEC enforcement) of IPR&D expense back to goodwill (Dowdell and Press, 2002, 2004; Banyai, 2006).

- The effects of managerial reporting incentives in the adoption of SFAS 142.

Since no prior study has established the link between the firms' reallocation of excessive IPR&D back to goodwill and firms' goodwill reporting incentives afforded by SFAS 142, this study fills this gap between these two lines of research.

This study also provides empirical evidence to contradict prior earnings management literature (for example, Dowdell and Press, 2002, 2004), in which the



frequency of earnings management is found to have decreased after SEC scrutiny. Though firms engaging in IPR&D earnings management decrease their activities after the involvement of regulators, IPR&D restated firms continue to exhibit more aggressive reporting behavior (both in likelihood and amount) than their non-restated counterparts, thereby taking advantage of the new reporting loophole to engage earnings management in writing off goodwill charges during the SFAS 142 transition period. This result indicates that the restated firm's earnings management is simply presented in another way.

In addition, results of this study can help the public to understand IPR&D firms' determination of their transitional goodwill charges in the SFAS 142 adoption period, which may be related to prior IPR&D overstatements. Thus, this study should help policy makers, regulators, and investors to understand the complexity of IPR&D restatement and its effects on future firm performance. Finally, this work enriches the existing literature with new understanding of how IPR&D firms' reporting strategy is affected by their corporate governance under SFAS 142.

#### 5.4 Limitations and Future Research

This study addresses earnings management by IPR&D restated firms taking a one-time "below-the-line" charge reporting opportunity. The major limitation of this study is that the findings are based on the small sample available for empirical testing. In addition, numerous proxies are used for measuring a firm's corporate governance, including the audit committee and other board attributes. Another limitation might be small number of governance attributes chosen as most relevant to this research for empirical examination. Researchers can apply other governance indices or governance measures to examine whether a similar effect holds true in future research.

Future studies also can extend the examination in this study by applying the interaction terms between restatement variables and governance variables in both the logistic and the tobit models. This kind of research design should make the models more complete, and thus may increase the power of hypotheses testing. However, if the sample size is small, continued concern is warranted when this kind of testing is applied.

Another suggestion for further research is to address the sample size concern by including all of the 313 collected IPR&D non-restated firms in the empirical examinations, instead of using the one-to-one match control sample. The expanded sample treatment may provide the research with stronger validity, although data collection for the governance variables and related bonus information from various data sources would involve considerable additional time.

APPENDIX A

EMPIRICAL RESULTS OF TABLES

**Table A.1****Examples of Excessive IPR&D Write-offs in the 1990s**

Acquiring company	Acquired company	Year	Total acquisition (millions)	Amount in R&D written off (millions)	% of price
Adobe Systems	Ares Software	1996	\$ 15.5	\$14.7	95%
3Com	Axon Networks	1996	\$ 55.3	\$52.4	80%
Individual, Inc	FreeLoader	1996	\$ 39.9	\$35.6	89%
Cisco Systems	Lightstream	1995	\$120.5	\$95.8	80%
H&R Block	Spry	1995	\$106.4	\$83.5	78%
Lotus Development	Edge Research	1994	\$ 5.4	\$ 5.4	100%
Intersoly	Q+E software	1994	\$ 33.7	\$32.0	95%
Sphinx Pharmaceutical	Genesis Pharmaceutical	1993	\$ 3.8	\$3.8	100%

Source: R.G. Associates, *The Wall Street Journal* (1996/12/2)

**Table A.2****A Short List of Excessive Goodwill Write-offs during the SFAS 142 Transition Period**

Company	Amount write-off	Reported in/on
AOL Time Warner	\$ 54.0 billion	USA today; April 5, 2002
Clear Channel	\$ 16.8 billion	WSJ; May 8, 2002
AT&T	\$ 13.1 billion	WSJ; July 24, 2002
Blockbuster Inc	\$ 1.8 billion	WSJ; April 25, 2002
Boeing Co.	\$ 1.8 billion	WSJ; April 18, 2002
Liberty Media Corp.	\$ 1.8 billion	WSJ; May 22, 2002
Viacom Inc	\$ 1.5 billion	WSJ; April 26, 2002
Coca-Cola Co.	\$926.0 million	WSJ; April 17, 2002
Verizon Communications	\$500.0 million	WSJ; April 24, 2002
Best Buy	\$348.0 million	WSJ; Sep 6, 2002
USA Networks Inc.	\$310.6 million	WSJ; April 25, 2002
Borg-Warner Inc	\$269.0 million	WSJ; April 23, 2002
Dana Corp.	\$220.0 million	WSJ; April 18, 2002
AT&T Wireless Services	\$166.0 million	WSJ; April 24, 2002
Conseco	\$ 35.5 million	WSJ; May 2, 2002

*(The Wall Street Journal; Massoud and Raiborn, 2003)*

**Table A.3**

**The Summary of Major Hypotheses H1 and H2**

	<b>H1:</b> The association between transition goodwill write-offs and IPR&D restated firms	<b>H2:</b> The association between transition goodwill write-offs and prior restatement amounts in IPR&D restated firms
	for IPR&D restated firms in models (1-3) and (1-4)	for IPR&D restated amounts in models (2-3) and (2-4)
	Coefficient prediction	Coefficient prediction
If aggressive reporting holds	$\beta_1$ (+) positive	$\beta_1$ (+) positive
If conservative reporting holds	$\beta_1$ (-) negative	$\beta_1$ (-) negative

**Table A.4**

**The Summary of Hypotheses H3 and H4 and the Predictions for Models**

<b>H3:</b> The association between transition goodwill write-off and the degree of corporate governance			<b>H4:</b> The association between transition goodwill write-off and the change of corporate governance after restatement		
for IPR&D restated firms in model (3-3) and (3-4)			for IPR&D restated firms in model (4-3) and (4-4)		
Variable	Coefficients	Prediction	Variable	Coefficients	Prediction
Ind_Audit	$\beta_2$	negative(-)	$\Delta$ Ind_Audit	$\beta_2$	negative(-)
Audit_Expertise	$\beta_3$	negative(-)	$\Delta$ Audit_Expertise	$\beta_3$	negative(-)
Board_size	$\beta_4$	negative(-)	$\Delta$ Board_size	$\beta_4$	negative(-)
Ind_Board	$\beta_5$	negative(-)	$\Delta$ Ind_Board	$\beta_5$	negative(-)
Dual	$\beta_6$	positive (+)	$\Delta$ Dual	$\beta_6$	positive (+)
MGT_CH	$\beta_7$	positive (+)	$\Delta$ MGT_CH	$\beta_7$	positive (+)

Control variable	Coefficient prediction	Control variable	Coefficient prediction	Control variable	Coefficient prediction
Size	(+/-)	Prompter	(+/-)	Bath	negative(-)
LEV	negative(-)	Tenure	negative(-)	LIST	negative(-)
MTB	negative(-)	Segment	(+/-)	BonusPlan	negative(-)

**Table A.5**

**The Definitions and Data Sources of the Variables**

Variables	Definitions	Data resources
WO%	The transitional goodwill impairment write-offs as a percentage of goodwill amounts in the beginning of year.	Compustat (data# 183/data#204) = <b>(cumulative effect of accounting changes /goodwill)</b>
WO	A dichotomous variable for the reporting of firm's transitional goodwill write-offs; equals one if non-zero positive goodwill impairment write-off is reported, zero otherwise.	SEC Form-10K, Compustat (data# 183), <b>(cumulative effect of accounting changes)</b>
IPRD_restate	A dichotomous variable of IPR&D restated firms or IPR&D non-restated firms; equal one if the firm is IPR&D restated firm; zero if non-restated firm.	GAO report, Lexis –Nexus, PRWire news library etc.
Amt_restated	The restated amounts that IPR&D restated firms have restated from their prior IPR&D write-offs divided by total assets in the beginning of the year.	SEC Form-10K(A), Form-10Q(A)
Size	The logarithm of market value of equity at the end of year.	Compustat Log (data#199*data #25) = Log ( <b>fiscal year end closing price * outstanding common stock</b> )
Tenure	The length of years that CEO serves in the same position as CEO.	ExceuComp and Proxy statements
LIST	A dichotomous variable equal one if the firms is listed in AMEX or Nasdaq exchange at the end of year; equal zero otherwise.	SEC Form-10K and Compustat
SFAS121_Effect	A dichotomous variable for the reporting of SFAS 121 write-downs; equals one if a firm has long-lived assets write-downs reported by SFAS 121 in the year prior to SFAS 142 transition year; zero otherwise.	SEC Form-10K and Compustat data#380 ( <b>Write down pretax</b> )
BonusPlan	A dichotomous variable equal one if the firm's proxy statement in prior year discloses the existence of an earnings-based bonus plan that does not exclude special items; zero otherwise.	Proxy statements
MTB	Market to book ratio; the ratio of the market value of the firm's assets divided by the book value of the firm's assets in the end of year.	Compustat [data#6-data#60+data #199*data#25]/ data#6 = <b>[total assets-total common equity + fiscal year end closing price *outstanding common shares]/total assets</b>
Lev	The leverage ratio; the ratio of the firm's total liability divided by total assets at the end of year.	Compustat [data #9+data#34]/data #6 = <b>[total long-term debts + current liability]/total assets</b>



**Table A.5 – continued**

Variables	Definitions	Data resources
Segment	A dichotomous variable equal one if the firm has only one business segment at the year end; zero otherwise.	Compustat in segment
Bath <sub>t</sub>	The proxy for big bath reporting; equal one when the change is negative in firms' pre-write-off earnings from t-1 to t, divided by total assets at the year end of t-1, when this change is below the median of non-zero negative values of this variables; equal zero otherwise.	Compustat [data #178 (t-1) - data #178 (t)] / data #6 = [ <b>operating incomes after depreciation (t-1) - operating incomes after depreciation (t)</b> ] / total assets
Prompter	A dichotomous variable equal one if the reason of IPR&D restatement is pressed and enforced by SEC; zero if a firm restated voluntarily.	Proxy statements
MGT_CH	A dichotomous variable equal one if there is the change for firms with top compensated CEO/CFO changes during prior two years; zero otherwise.	ExceuComp, Form -10K and Proxy statements
Ind_Audit	A dichotomous variable equal one if the audit committee members are all independent; equal zero if not all of audit committee is independent.	Proxy statements
Audit_Expertise	The number of audit committee members with financial expertise as a percentage of total audit committee.	Proxy statements
Board_size	The number of members in board of directors.	Proxy statements
Ind_Board	The percentage of the number of independent board of directors to the overall board of directors.	Proxy statements
Dual	A dichotomous variable equals one if the firm has the same person serves as CEO and chairman of board at the same time; zero otherwise.	ExceuComp and proxy statements
MGT_CH	A dichotomous variable equal one if there is the change for firms with top compensated CEO/CFO changes during prior two years; zero otherwise.	ExceuComp and proxy statements

**Table A.6**  
**Sample Selection**

**Sample selection structures**

<b>Panel A: Testing sample</b>	<b>Number</b>
Total press release documents retrieved from Lexis-Nexis database by the search string in section 3.2.1	1,465
Less: documents that do not pertain to IPR&D restatement events or are duplicate restatement events	1,412
Total possible sample available from press releases*	53
Add: sample firms in GAO report 03_395R	35
Total possible sample available	<b>88</b>
Less: firms had announcements but did not actually restate their IPR&D expenses by verifying corresponding SEC's 10-K and 10-Q filings	16
Total usable IPR&D restatements firms during 1997/1/1--2000/12/31	<b>72</b>
Less: ADRs and foreign firms	5
Less: firms in financial industry (SIC= 6000--6999)	1
Less: firms have been acquired or merged prior to 2002/12/31	13
Less: firms go private or go bankruptcy prior to 2002/12/31	2
Less: firms without sufficient public available financial information	6
Final testing sample firm with IPR&D restatement <b>(IPR&amp;D restated firms)</b>	<b>45</b>

<b>Panel B: Control sample</b>	<b>Number</b>
Total press releases documents retrieved from <i>Lexis-Nexis</i> database by the search string in section 3.2.1	1,465
Less: documents that do not pertain to IPR&D events or are duplicate events	1,210
Less: total IPR&D restatement sample available from press releases	53
Total IPR&D non-restated firms available from press release	202
Add: additional firms from <i>Compustat</i> reporting with data #308 (in-process research and development) during 1997/1/1--2000/12/31	217
Less: duplicate firms from results in <i>Compustat</i> and <i>Lexis-Nexis</i>	99
Less: ADRs and foreign firms	7
Final control sample firms available	313
Final control sample firms after one to one matching with IPRD restatement <b>(IPR&amp;D non restated firms)</b>	<b>45</b>

\*press release results exclude those duplicate firms that also report from GAO report 03\_395R.

**Table A.7**  
**Industry Composition in Sample Firms**

<b>SIC</b>	<b>Industry Description</b>	<b>N</b>	<b>Percent</b>
28	Chemicals and Allied Products	3	6.6%
35	Industrial and Commercial Machinery and Computer Equipment	7	15.5%
36	Electrical and Electronic Equipment except Computers	5	11.1%
37	Transportation Equipment	1	2.2%
38	Instruments and Related Products	4	8.8%
39	Miscellaneous Manufacturing	1	2.2%
48	Communications	2	4.4%
73	Business Services	21	46.6%
99	Other non Classified	1	2.2%
<b>Total</b>		<b>45*</b>	<b>100%**</b>

\*Control firms have the same industry composition \*\* rounded total

**Table A.8**  
**Descriptive Statistics and T-test for Sample Firms and Control Firms**

Panel A: All firms

Variables	Obs	Mean	Std. Dev.	Min	Max	25%	50%	75%
Leverage	90	0.17	0.19	0	0.89	0	0.12	0.29
Lnsiz	90	6.67	2.22	0	11.63	5.03	6.42	8.27
MTB	90	2.12	1.27	0.63	6.78	1.24	1.67	2.71
WO	90	0.22	0.42	0	1	0	0	0
WO%	90	0.12	0.28	0	1	0	0	0
Restate	90	0.5	0.50	0	1	0	0.5	1
List	90	0.80	0.40	0	1	1	1	1
SFAS_121Effect	90	0.43	0.49	0	1	0	0	1
Tenure	90	5.46	5.16	0.1	21	1.58	3	8
Dual	90	0.60	0.49	0	1	0	1	1
Segment	90	0.29	0.46	0	1	0	0	1
Bonus	90	0.53	0.50	0	1	0	1	1
Bath	90	0.25	0.67	0	5.11	0	0.03	0.17
BOD_Independent_ratio	90	0.59	0.18	0.12	0.90	0.50	0.62	0.71
Aud_Independent_All	90	0.71	0.45	0	1	0	1	1
Aud_Fin	90	0.15	0.22	0	1	0	0	0.3
Mgt_Ch	90	0.71	0.46	0	1	0	1	1
Amt%	45	0.16	0.18	0.00	0.84	0.25	0.08	0.20
Prompter	45	0.67	0.47	0	1	0	1	1

**Table A.8 – continued**

Panel B

Variables	Period	Mean	Std Dev	N	Mean Difference	T-statistic	P-value
<b>Leverage</b>	sample	0.19	0.23	45	0.04	0.98	0.3291
	control	0.15	0.15	45			
<b>LnSize</b>	sample	6.57	2.60	45	-0.21	-0.45	0.6532
	control	6.78	1.76	45			
<b>MTB</b>	sample	1.91	1.11	45	-0.42	-1.56	0.1206
	control	2.32	1.41	45			
<b>WO</b>	sample	0.28	0.45	45	0.13	1.52	0.1311
	control	0.15	0.36	45			
<b>WO%</b>	sample	0.17	0.32	45	0.10*	1.75	0.0835
	control	0.07	0.21	45			
<b>LIST</b>	sample	0.84	0.36	45	0.09	1.05	0.2971
	control	0.75	0.43	45			
<b>SFAS121_Effect</b>	sample	0.40	0.49	45	-0.06	-0.63	0.5287
	control	0.46	0.50	45			
<b>Tenure</b>	sample	5.25	5.11	45	-0.39	-0.36	0.7201
	control	5.65	5.26	45			
<b>Dual</b>	sample	0.57	0.50	45	-0.04	-0.42	0.6712
	control	0.62	0.49	45			
<b>Segment</b>	sample	0.22	0.42	45	-0.13	-1.39	0.1665
	control	0.35	0.48	45			
<b>Bonus</b>	sample	0.60	0.49	45	0.13	1.26	0.2092
	control	0.47	0.50	45			
<b>Bath</b>	sample	0.27	0.56	45	0.06	0.42	0.6708
	control	0.21	0.77	45			
<b>BOD_Ind_Ratio</b>	sample	0.58	0.17	45	-0.01	-0.36	0.7228
	control	0.59	0.19	45			
<b>Aud_Ind_All</b>	sample	0.66	0.47	45	-0.09	-0.92	0.3578
	control	0.75	0.43	45			
<b>Aud_Fin</b>	sample	0.16	0.24	45	0.03	0.58	0.5603
	control	0.13	0.20	45			
<b>Mgt_Ch</b>	sample	0.73	0.44	45	0.04	0.46	0.6463
	control	0.68	0.46	45			

\*, \*\*, \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively. All of the p-values are reported in two-tailed.

**Table A.9**  
**Coefficients and P-Value of Pearson Correlation among the Independent Variables**

	Leverage	LnSize	MTB	List	SFAS121	Tenure	Segment	Bonus	Bath	Amt	Prompter	Duality	BOD_size	BOD_Ind	Aud_All	Aud_Fin	Mgt_Ch
Leverage	1.000																
LnSize	0.289 0.005	1.000															
MTB	-0.032 0.765	0.037 0.723	1.000														
List	-0.142 0.182	-0.541 0.000	0.053 0.618	1.000													
SFAS121	0.239 0.023	0.046 0.666	-0.076 0.478	-0.123 0.246	1.000												
Tenure	-0.126 0.237	0.026 0.804	-0.057 0.593	0.043 0.686	0.003 0.773	1.000											
Segment	-0.350 0.000	-0.408 0.000	-0.085 0.4223	0.318 0.002	0.036 0.734	0.034 0.752	1.000										
Bonus	0.026 0.804	0.169 0.109	-0.057 0.593	-0.189 0.074	-0.036 0.736	-0.211 0.046	-0.288 0.006	1.000									
Bath	0.040 0.705	-0.019 0.859	-0.055 0.604	-0.085 0.426	-0.113 0.291	-0.145 0.172	0.043 0.688	-0.078 0.466	1.000								
Amt	0.205 0.178	-0.118 0.440	0.307 0.039	0.185 0.224	-0.210 0.166	-0.294 0.050	0.075 0.625	0.188 0.215	-0.101 0.510	1.000							
Prompter	0.038 0.802	0.230 0.128	0.001 0.994	-0.173 0.254	-0.192 0.253	-0.114 0.455	-0.189 0.214	0.000 1.000	0.000 1.000	-0.113 0.462	1.000						
Duality	0.078 0.467	0.184 0.083	0.132 0.215	-0.125 0.241	-0.109 0.303	0.252 0.016	-0.030 0.778	0.009 0.932	0.059 0.578	-0.037 0.807	0.254 0.092	1.000					
BOD_size	0.301 0.004	0.500 0.000	0.002 0.987	-0.376 0.000	0.152 0.153	-0.084 0.430	-0.397 0.000	0.205 0.053	-0.090 0.398	-0.031 0.837	0.099 0.515	0.029 0.781	1.000				
BOD_Ind	0.046 0.663	0.237 0.024	-0.082 0.442	-0.281 0.007	0.185 0.081	0.016 0.883	0.007 0.947	0.177 0.095	0.070 0.509	-0.322 0.031	0.182 0.231	0.204 0.054	0.135 0.206	1.000			
Aud_All	0.031 0.770	0.094 0.379	0.034 0.748	-0.073 0.491	0.063 0.557	0.022 0.835	0.082 0.443	0.043 0.690	0.064 0.548	-0.119 0.434	-0.200 0.187	0.030 0.778	0.064 0.547	0.574 0.000	1.000		
Aud_Fin	-0.144 0.174	-0.124 0.243	0.088 0.411	0.043 0.689	-0.129 0.222	-0.059 0.580	0.038 0.720	0.038 0.720	0.179 0.091	0.077 0.614	-0.082 0.593	-0.051 0.637	-0.007 0.947	-0.076 0.474	-0.024 0.825	1.000	
Mgt_Ch	0.183 0.084	0.006 0.950	-0.083 0.439	-0.074 0.491	0.112 0.293	-0.473 0.000	0.082 0.444	0.092 0.389	0.225 0.033	0.122 0.425	0.107 0.486	-0.020 0.852	-0.054 0.616	0.139 0.192	0.135 0.206	0.082 0.439	1.000

**Table A.10**  
**Transition Goodwill Write-offs on IPR&D Restated Firms and Non-restated Firms**

This table summarizes the results of the logistic model (1-3) and the tobit model (1-4) for testing the first hypothesis H1. Testing variables is *Restate* and all other control variables are defined in details in Table A.5.

H1	Logistic Model			Tobit Model	
		Dependent variable = WO		Dependent variable = WO%	
Variable	Prediction	Coefficient	Z statistic (p-value)	Coefficient	T-statistic (p-value)
Intercept	?	-1.064	-0.49 (0.622)	-0.202	-0.25 (0.800)
Restate	+/-	1.183	1.82** (0.034)	0.424	1.90** (0.030)
SFAS121_Effect	?	1.128	1.73* (0.084)	0.339	1.48 (0.143)
Size	?	0.334	1.76* (0.079)	0.087	1.33 (0.187)
MTB	-	-1.035	-2.46*** (0.007)	-0.406	-2.72*** (0.004)
Leverage	-	-6.202	-2.50*** (0.006)	-1.925	-2.26** (0.013)
List	-	-0.622	-0.72 (0.237)	-0.256	-0.82 (0.206)
Tenure	-	-0.077	-1.26 (0.103)	-0.029	-1.32* (0.095)
Bonus	-	-0.765	-1.14 (0.126)	-0.208	-0.88 (0.191)
Segment	?	0.221	-0.26 (0.792)	0.064	0.22 (0.830)
Bath	-	0.659	0.89 (0.188)	0.285	1.09 (0.140)
No of obs		90		90	
Pr> chi <sup>2</sup>		0.0089		0.0077	
Pesdo R <sup>2</sup>		0.2471		0.2213	

\*, \*\*, \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively. All the p-values are reported in one-tailed if directional prediction, otherwise reported in two-tailed.

**Table A.10 – continued**

$$WO = \beta_0 + \beta_1 IPRD\_restated + \beta_2 Size + \beta_3 LEV + \beta_4 MTB + \beta_5 Tenure + \beta_6 Segment + \beta_7 Bath + \beta_8 LIST + \beta_9 BonusPlan + \beta_{10} SFAS121\_Effect \dots \dots \dots (1 - 3)$$

$$WO\% = \beta_0 + \beta_1 IPRD\_restated + \beta_2 Size + \beta_3 LEV + \beta_4 MTB + \beta_5 Tenure + \beta_6 Segment + \beta_7 Bath + \beta_8 LIST + \beta_9 BonusPlan + \beta_{10} SFAS121\_Effect \dots \dots \dots (1 - 4)$$

**Where:**

**WO**= a dichotomous variable for the reporting of the firm’s transitional goodwill write-offs; equals one if non-zero positive goodwill impairment write-off is reported, zero otherwise.

**WO%**= the firm’s transitional goodwill write-offs as a percentage of goodwill amount in the beginning of transition year.

**IPRD\_Restated**= a dichotomous variable of IPR&D restated firms or IPR&D non-restated firms; equals one if a firm is IPR&D restated firm; zero if non-restated firm.

**Size**= the logarithm of market value of equity at the end of year.

**LEV**= the leverage ratio; the ratio of the firm’s total liability divided by total assets at the end of year.

**MTB**= the market to book ratio; the ratio of the market value of the firm’s assets divided by the book value of the firm’s assets at the end of year.

**Tenure**= the length of years that CEO serves in the same position as CEO.

**Segment**= a dichotomous variable; equals one if a firm has only one business segment at the year end; zero otherwise.

**Bath**= the reporting of a firm taking big bath ; measured by the change of a firm’s pre-write-off earnings from t-1 to t, divided by its total assets at the end of t-1, when this change is below the median of non-zero negative values of this variable; zero otherwise.

**LIST**= a dichotomous variable; equals one if the firm is listed in AMEX or Nasdaq exchange at the end of year; zero otherwise.

**BonusPlan**= a dichotomous variable; equals one if a firm discloses the existence of an earnings-based bonus plan that does not exclude special items in the proxy statement in the year prior to SFAS 142 transition year ; zero otherwise.

**SFAS121\_Effect**= a dichotomous variable for the reporting of SFAS 121 write-downs; equals one if a firm has long-lived assets write-downs reported by SFAS 121 in the year prior to SFAS 142 transition year; zero otherwise.



**Table A.11**  
**Transition Goodwill Write-offs on Prior IPR&D Restatement Amounts among IPR&D Restated Firms**

This table summarizes the results of the logistic model (2-3) and the tobit model (2-4) for testing the second hypothesis H2. Testing variable is *Restat\_Amt* and all other control variables are the same as Table A.10, where they are defined in details in Table A.5.

H2	Variable	Prediction	Logistic Model		Tobit Model	
			Dependent variable = WO		Dependent variable = WO%	
			Coefficient	Wald Z-statistic (p-value)	Coefficient	T-statistic (p-value)
	Intercept	?	3.982	0.94 (0.349)	1.335	1.19 (0.241)
	Restate_Amt	+/-	-9.069	-1.67** (0.047)	-2.393	-1.83** (0.038)
	Prompter	?	-2.539	-1.61 (0.108)	-0.595	-1.63 (0.112)
	SFAS121_Effect	?	1.139	0.87 (0.386)	-0.010	-0.03 (0.975)
	Size	?	0.679	1.95* (0.051)	0.099	1.54 (0.134)
	MTB	-	0.858	-1.38* (0.084)	-0.221	-1.49* (0.073)
	Leverage	-	-10.025	-2.11** (0.017)	-1.997	-1.92** (0.032)
	List	-	-1.474	-0.96 (0.168)	0.348	-0.85 (0.201)
	Tenure	-	-0.258	-1.92** (0.027)	-0.069	-2.23** (0.016)
	Bonus	-	-3.003	-1.93** (0.027)	-0.628	-2.01** (0.026)
	Segment	?	-0.401	-0.27 (0.789)	0.144	0.38 (0.707)
	Bath	-	0.227	0.14 (0.442)	0.799	0.22 (0.413)
	No of obs		45		45	
	Pr> chi <sup>2</sup>		0.0051		0.0233	
	Pesdo R <sup>2</sup>		0.4934		0.3467	

\*, \*\*, \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively. All the p-values are reported in one-tailed if directional prediction, otherwise reported in two-tailed.

**Table A.11 – continued**

$$WO = \beta_0 + \beta_1 Amt\_restated + \beta_2 Size + \beta_3 LEV + \beta_4 MTB + \beta_5 Tenure + \beta_6 Segment + \beta_7 Bath + \beta_8 LIST + \beta_9 BonusPlan + \beta_{10} PRompter + \beta_{11} SFAS121\_Effect \dots \dots \dots (2 - 3)$$

$$WO\% = \beta_0 + \beta_1 Amt\_restated + \beta_2 Size + \beta_3 LEV + \beta_4 MTB + \beta_5 Tenure + \beta_6 Segment + \beta_7 Bath + \beta_8 LIST + \beta_9 BonusPlan + \beta_{10} PRompter + \beta_{11} SFAS121\_Effect \dots \dots \dots (2 - 4)$$

**Where:**

**Amt\_restated** = the IPR&D restated amounts from IPR&D restated firm, scaled by the firm's total assets in the beginning of the year

**Prompter**= a dichotomous variable for the reason of IPR&D restated firm's restating its prior earnings; equals one if pressed and enforced by SEC, zero otherwise (i.e. if voluntarily restated).

**Table A.12**  
**Transition Goodwill Write-offs on Firm's Corporate Governance**

This table summarizes the results of the logistic model (3-3) and the tobit model (3-4) for testing the third hypothesis H3. Testing variables are governance measures *Duality*, *BOD\_size*, *BOD\_Ind*, *Aud\_All*, *Aud\_Fin*, *MGT\_Ch* and all other control variables are the same as Table A.10, where they are defined in details in Table A.5.

H3	Variable	Prediction	Logistic Model		Tobit Model	
			Coefficient	Z-statistic (p-value)	Coefficient	T-statistic (p-value)
	Intercept	?	3.937	1.16 (0.246)	0.865	0.97 (0.335)
	Duality	+	1.150	1.28 (0.101)	0.279	1.28 (0.101)
	BOD_size	-	-0.143	-0.71 (0.240)	-0.019	-0.36 (0.359)
	BOD_Ind	-	-7.124	-2.37*** (0.009)	-1.581	-2.23** (0.014)
	Aud_All	-	0.956	1.00 (0.159)	0.238	0.93 (0.177)
	Aud_Fin	-	3.805	2.06** (0.020)	0.977	2.44*** (0.008)
	MGT_Ch	+	-1.546	-1.20 (0.115)	-0.411	-1.24 (0.109)
	Restate	?	1.334	1.71* (0.087)	0.385	1.88* (0.064)
	SFAS121_Effect	?	2.434	2.53** (0.011)	0.625	2.62** (0.011)
	Size	?	0.501	1.99** (0.047)	0.087	1.33 (0.189)
	MTB	-	-1.604	-2.91*** (0.002)	-0.453	-3.25*** (0.001)
	Leverage	-	-7.263	-2.64*** (0.004)	-1.701	-2.32** (0.011)
	List	-	-1.773	-1.42* (0.078)	-0.489	-1.52* (0.066)
	Tenure	-	-0.211	-1.73** (0.041)	-0.518	-1.72** (0.044)
	Bonus	-	-0.295	-0.38 (0.350)	-0.067	-0.32 (0.377)
	Segment	?	-0.626	-0.63 (0.531)	-0.006	-0.02 (0.981)
	Bath	-	0.328	0.40 (0.344)	0.229	0.97 (0.167)
	No of obs		90		90	
	Pr> chi <sup>2</sup>		0.0020		0.0013	
	Pesdo R <sup>2</sup>		0.3892		0.3548	

\*, \*\*, \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively. All the p-values are reported in one-tailed if directional prediction, otherwise reported in two-tailed.

**Table A.12 – continued**

$$\begin{aligned} WO = & \beta_0 + \beta_1 IPRD\_restated + \beta_2 Audit\_All + \beta_3 Audit\_FIN + \beta_4 Board\_size \\ & + \beta_5 Ind\_Board + \beta_6 Dual + \beta_7 MGT\_CH + \beta_8 Size + \beta_9 LEV + \beta_{10} MTB + \\ & + \beta_{11} Tenure + \beta_{12} Segment + \beta_{13} Bath + \beta_{14} LIST + \beta_{15} BonusPlan + \beta_{16} SFAS121\_Effect... \\ & .....(3 - 3) \end{aligned}$$

$$\begin{aligned} WO\% = & \beta_0 + \beta_1 IPRD\_restated + \beta_2 Audit\_All + \beta_3 Audit\_FIN + \beta_4 Board\_size \\ & + \beta_5 Ind\_Board + \beta_6 Dual + \beta_7 MGT\_CH + \beta_8 Size + \beta_9 LEV + \beta_{10} MTB + \\ & + \beta_{11} Tenure + \beta_{12} Segment + \beta_{13} Bath + \beta_{14} LIST + \beta_{15} BonusPlan + \beta_{16} SFAS121\_Effect... \\ & .....(3 - 4) \end{aligned}$$

**Where:**

**Audit\_All**= a dichotomous variable for audit committee independence of a firm; equals one if the audit committee members are all independent; zero otherwise.

**Audit\_Fin**= the number of audit committee members with financial expertise as a percentage of total audit committee

**Board\_size**= the total number of board of director members.

**Ind\_Board**= the ratio of the number of independent board members to total numbers in board of directors.

**Dual**= a dichotomous variable for a firm with CEO/chairman duality; equals one if CEO and chairman of BOD is the same person; zero otherwise.

**MGT\_CH** = a dichotomous variable for a firm's recent management change; equals one if there are changes of top compensated management in two years prior to SFAS 142; zero otherwise

**Table A.13**  
**Transition Goodwill Write-offs on Firm's Corporate Governance Only for IPR&D Restated Firms**

This table summarizes the results of the logistic model (3-5) and the tobit model (3-6) for testing the third hypothesis H3. Testing variables are governance measures *Duality*, *BOD\_size*, *BOD\_Ind*, *Aud\_All*, *Aud\_Fin*, *MGT\_Ch* and all other control variables are the same as Table A.10, where they are defined in details in Table A.5.

H3--additional Variable	Prediction	Tobit Model		Tobit Model	
		Dependent variable = WO%		Dependent variable = WO%	
		Coefficient	T-statistic (p-value)	Coefficient	T-statistic (p-value)
Intercept	?	1.592	1.05 (0.302)	3.262	1.98* (0.058)
Duality	+	0.298	1.07 (0.147)	0.264	1.11 (0.138)
BOD_size	-	-0.071	-0.92 (0.183)	-0.045	-0.90 (0.188)
BOD_Ind	-	-1.890	-1.87** (0.036)	-2.452	-2.42** (0.011)
Aud_All	-	0.521	1.40 (0.085)	0.645	1.74 (0.046)
Aud_Fin	-	0.883	1.18 (0.121)	0.657	0.99 (0.165)
MGT_Ch	+	-0.364	-0.72 (0.239)	-0.540	-1.24 (0.113)
Amt	?	-	-	-3.432	-2.59 (0.015)**
Prompter	?	-	-	-0.569	-1.70 (0.101)
SFAS121_Effect	?	0.559	1.66 (0.107)	0.065	0.21 (0.836)
Size	?	0.135	1.50 (0.144)	0.095	1.64 (0.112)
MTB	-	-0.342	-1.83** (0.039)	-0.263	-2.03** (0.025)
Leverage	-	-1.833	-1.75** (0.045)	-1.564	-2.09** (0.023)
List	-	-0.626	-1.22 (0.115)	-0.659	-1.37* (0.091)
Tenure	-	-0.072	-1.63* (0.056)	-0.107	-2.44** (0.011)
Bonus	-	-0.559	-1.76** (0.044)	-0.694	-2.26** (0.016)
Segment	?	0.244	0.68 (0.501)	0.114	0.40 (0.696)
Bath	-	0.151	0.46 (0.323)	0.132	0.42 (0.337)
No of obs		45		45	
Pr> chi <sup>2</sup>		0.0358		0.0041	
Pesdo R <sup>2</sup>		0.4104		0.5688	

\*, \*\*, \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively. All of the p-values are reported in one-tailed if directional prediction, otherwise reported in two-tailed.

**Table A.13 – continued**

$$\begin{aligned}
 WO\% = & \beta_0 + \beta_1 \text{Audit\_All} + \beta_2 \text{Audit\_FIN} + \beta_3 \text{Board\_size} + \beta_4 \text{Ind\_Board} + \beta_5 \text{Dual} + \beta_6 \text{MGT\_CH} \\
 & + \beta_7 \text{Size} + \beta_8 \text{LEV} + \beta_9 \text{MTB} + \beta_{10} \text{Tenure} + \beta_{11} \text{Segment} + \beta_{12} \text{Bath} + \beta_{13} \text{LIST} + \beta_{14} \text{BonusPlan} \\
 & + \beta_{15} \text{SFAS121\_Effect} \dots \dots \dots (3-5)
 \end{aligned}$$

$$\begin{aligned}
 WO\% = & \beta_0 + \beta_1 \text{Audit\_All} + \beta_2 \text{Audit\_FIN} + \beta_3 \text{Board\_size} + \beta_4 \text{Ind\_Board} + \beta_5 \text{Dual} + \beta_6 \text{MGT\_CH} \\
 & + \beta_7 \text{Re state\_Amt} + \beta_8 \text{Pr ompter} + \beta_9 \text{Size} + \beta_{10} \text{LEV} + \beta_{11} \text{MTB} + \beta_{12} \text{Tenure} + \beta_{13} \text{Segment} + \beta_{14} \text{Bath} \\
 & + \beta_{15} \text{LIST} + \beta_{16} \text{BonusPlan} + \beta_{17} \text{SFAS121\_Effect} \dots \dots \dots (3-6)
 \end{aligned}$$

**Table A.14**  
**T-test Results in the Mean Value Change from Pre to Post Restatements in IPR&D**  
**Restated Sample Firms**

This table summarizes the results of two-sided T-test for testing the mean value change of corporate governance from pre to post IPR&D restatements periods. Testing variables are governance measures: *Duality*, *BOD\_size*, *Aud\_size*, *BOD\_Ind*, *Aud\_Ind*, *Aud\_All*, *Aud\_ACCT\_r*, *Aud\_SEC\_r*, *MGT\_Ch*.

Variable	Period	Mean	Std Dev	N	Mean Difference	T-statistic	P-value
<b>Duality</b>	Pre	0.65	0.48	43	-0.01	-0.14	0.8871
	Post	0.64	0.49	44			
<b>BOD_size</b>	Pre	6.79	2.72	43	0.36	0.69	0.4896
	Post	7.15	2.21	44			
<b>AUD_size</b>	Pre	2.51	0.76	43	0.37**	2.25	0.0267
	Post	2.88	0.76	43			
<b>BOD_Ind_r</b>	Pre	0.45	0.27	43	0.10**	2.00	0.0483
	Post	0.55	0.19	44			
<b>AUD_Ind_r</b>	Pre	0.68	0.39	43	0.17**	2.37	0.0203
	Post	0.85	0.26	42			
<b>AUD_ALL</b>	Pre	0.53	0.50	43	0.18*	1.72	0.0898
	Post	0.71	0.46	42			
<b>AUD_ACCT_r</b>	Pre	0.14	0.27	42	0.00	0.05	0.9535
	Post	0.15	0.22	43			
<b>AUD_SEC_r</b>	Pre	0.36	0.34	42	0.06	0.94	0.3517
	Post	0.43	0.25	43			
<b>MGT_Ch</b>	Pre	0.64	0.48	42	-0.03	-0.27	0.7824
	Post	0.61	0.49	44			

\*, \*\*, \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively. All of the p-values are reported in two-tailed. Total sample size is 45, but there exists several missing firms due to some data are not public available.

**Table A.15**  
**Transition Goodwill Write-offs on Firm's Change of Corporate Governance from Pre to Post Restatement in IPR&D Restated Firms**

This table summarizes the results of the logistic model (4-3) and the tobit model (4-4) for testing the fourth hypothesis H4. Testing variables are change of governance measures  $\Delta\_Duality$ ,  $\Delta\_BOD\_size$ ,  $\Delta\_BOD\_Ind$ ,  $\Delta\_Aud\_Ind$ ,  $\Delta\_Aud\_Fin$ ,  $\Delta\_MGT\_Ch$  and all other control variables are the same as Table A.10, where they are defined in details in Table A.5.

H4	Logistic Model			Tobit Model	
	Prediction	Dependent variable = WO		Dependent variable = WO%	
Variable		Coefficient	Z-statistic (p-value)	Coefficient	T statistic (p-value)
Intercept	?	16.345	1.34 (0.180)	3.514	1.89* (0.070)
$\Delta\_Duality$	+	-11.982	-1.27 (0.103)	-2.092	-1.70* (0.051)
$\Delta\_BOD\_size$	-	1.448	1.11 (0.134)	0.181	0.87 (0.195)
$\Delta\_BOD\_Ind$	-	-64.271	-1.65** (0.049)	-11.345	-2.09** (0.023)
$\Delta\_Aud\_Ind$	-	26.015	1.45* (0.073)	4.248	2.24** (0.017)
$\Delta\_Aud\_Fin$	-	17.169	1.04 (0.149)	2.935	1.28 (0.106)
$\Delta\_MGT\_Ch$	+	7.413	0.94 (0.174)	1.145	1.08 (0.145)
Size	?	0.716	0.73 (0.464)	0.072	0.81 (0.425)
MTB	-	-2.949	-1.48* (0.070)	-0.534	-2.14** (0.021)
Leverage	-	-22.953	-1.28* (0.100)	-3.344	-1.35* (0.094)
List	-	-8.706	-1.10 (0.135)	-1.595	-1.77** (0.044)
Tenure	-	-0.631	-1.08 (0.141)	-0.123	-1.91** (0.033)
Bonus	-	-14.443	-1.57* (0.058)	-2.770	-2.22** (0.018)
Segment	?	3.329	0.46 (0.648)	0.643	0.96 (0.345)
Bath	-	-0.544	-0.18 (0.430)	-0.087	-0.21 (0.418)
No of obs		40		40	
Pr> chi <sup>2</sup>		0.0123		0.0041	
Pesdo R <sup>2</sup>		0.6327		0.6105	

\*, \*\*, \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively. Total restated firm sample size is 45, but there exists several missing firms due to some data are not public available. All the p-values are reported in one-tailed if directional prediction, otherwise reported in two-tailed.



**Table A.15 - continued**

$$\begin{aligned}
 WO = & \beta_0 + \beta_1 \Delta Ind\_Audit + \beta_2 \Delta Audit\_Fin + \beta_3 \Delta BOD\_Size + \beta_4 \Delta Ind\_BOD \\
 & + \beta_5 \Delta MGT\_CH + \beta_6 Size + \beta_7 LEV + \beta_8 MTB + \beta_9 Tenure + \beta_{10} Segment + \beta_{11} Bath \\
 & + \beta_{12} LIST + \beta_{13} BonusPlan \dots \dots \dots (4 - 3)
 \end{aligned}$$

$$\begin{aligned}
 WO\% = & \beta_0 + \beta_1 \Delta Ind\_Audit + \beta_2 \Delta Audit\_Fin + \beta_3 \Delta BOD\_Size + \beta_4 \Delta Ind\_BOD \\
 & + \beta_5 \Delta MGT\_CH + \beta_6 Size + \beta_7 LEV + \beta_8 MTB + \beta_9 Tenure + \beta_{10} Segment + \beta_{11} Bath \\
 & + \beta_{12} LIST + \beta_{13} BonusPlan \dots \dots \dots (4 - 4)
 \end{aligned}$$

**Where:**

$\Delta$  **Ind\_Audit**= the change of audit committee independence in a firm from pre-to-post IPR&D restatement; measured by the ratio of a firm's independence in audit committee prior to restatement subtract from the ratio of a firm's independence in audit committee post to restatement.

$$(i.e: \Delta Ind\_Aud_i = Ind\_Aud_{i,t=1999} - Ind\_Aud_{i,t=1997})$$

$\Delta$  **Audit\_Fin**= the change of the ratio in audit committee with financial expertise from pre-to-post IPR&D restatement; measured by the ratio of financial experts in audit committee prior to restatement subtract from the ratio of financial experts in audit committee post to restatement.

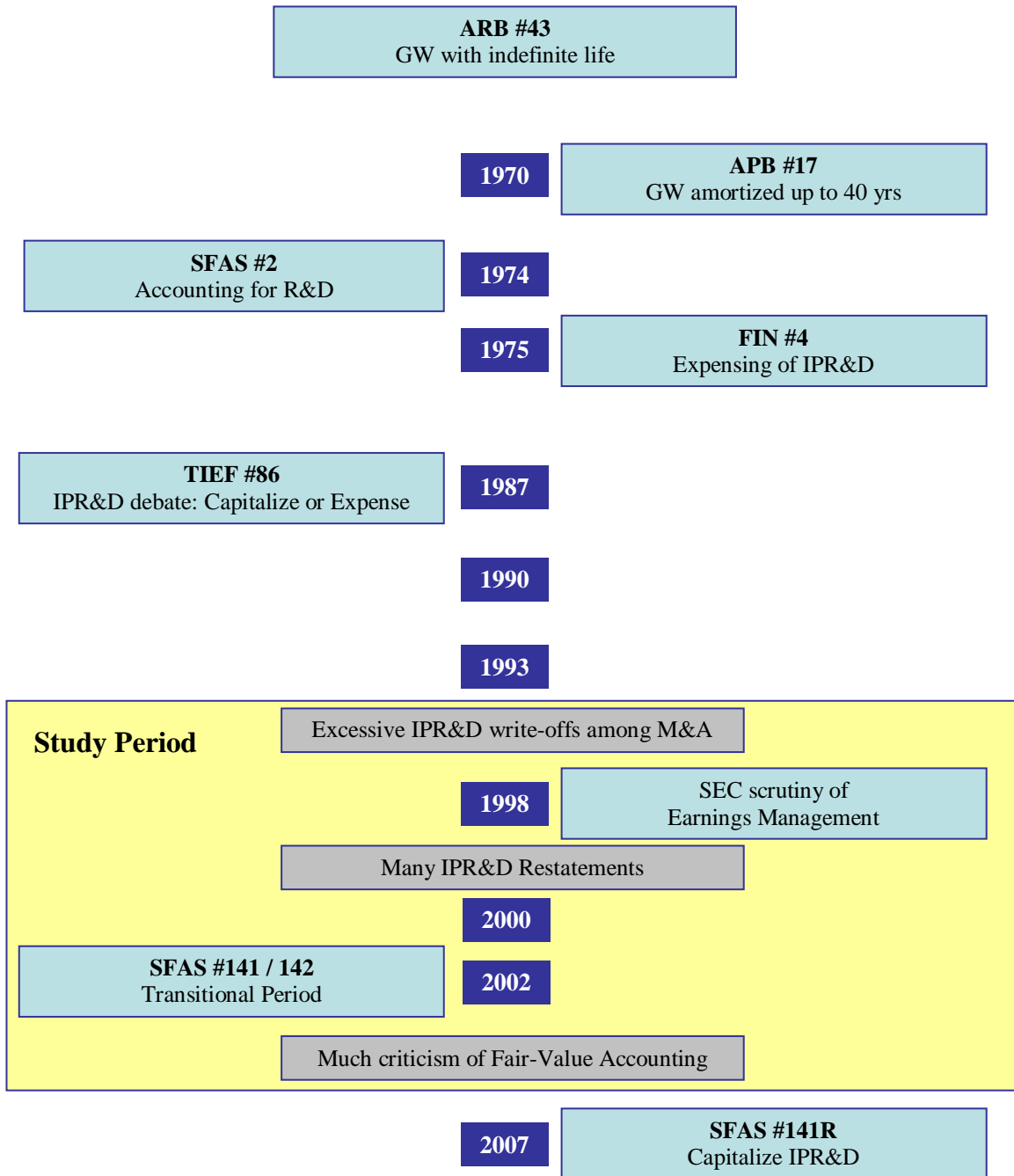
$\Delta$  **BOD\_Size**= the change of the board size from pre-to-post IPR&D restatement; measured by the board size prior to restatement subtract from the board size post to restatement .

$\Delta$  **Ind\_BOD**= the change of board independence in a firm from pre-to-post IPR&D restatement; measured by the ratio of a firm's board independence prior to restatement subtract from the ratio of a firm's board independence post to restatement.

$\Delta$  **MGT\_Ch**= the change for a firm's recent management turnover; equals one for firms with top compensated CEO/CFO changes during prior two years; zero otherwise.

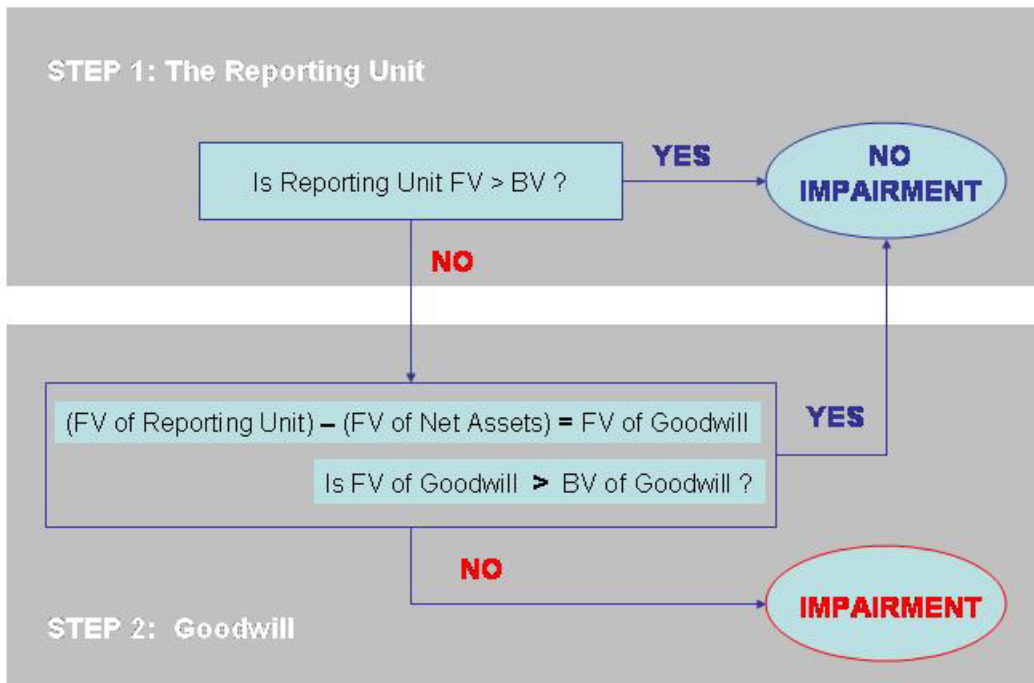
APPENDIX B

TIMELINE FOR THE EVOLUTION OF GOODWILL ACCOUNTING RULES



## APPENDIX C

A TWO-STEP PROCESS FOR TESTING IMPAIRMENT TEST IN THE SFAS 142  
PROVISION, WITH AN EXAMPLE OF A TEST OF A HYPOTHETICAL FIRM.



	Unit A	Unit B	Unit C
<b>A) Balance Sheet Information</b>			
Current Assets	\$100	\$250	\$450
Fixed Assets	\$500	\$550	\$750
Goodwill	<u>\$150</u>	<u>\$100</u>	<u>\$350</u>
Total Assets and Book Value of Equity	<u>\$750</u>	<u>\$900</u>	<u>\$1 550</u>
<b>B) Fair Value Information</b>			
The fair value of each reporting unit was established using the discounted cash flows method			
	<u>\$800</u>	<u>\$850</u>	<u>\$1 250</u>
<b>C) The Impairment Test</b>			
<b>Step 1 : The Reporting Unit</b>			
<i>Compare the book value of the reporting unit to its established fair value</i>			
Established fair value of reporting unit	\$800	\$850	\$1 250
Book value of reporting unit	<u>\$750</u>	<u>\$900</u>	<u>\$1 550</u>
Difference	<u>\$50</u>	<u>-\$50</u>	<u>-\$300</u>
Conclusion	No impairment	Go to step 2	Go to step 2
<b>Step 2 : Goodwill</b>			
<i>Calculate the implied fair value of goodwill</i>			
Fair value of reporting unit		\$850	\$1 250
Fair value of net assets other than goodwill (as established)		<u>\$750</u>	<u>\$1 050</u>
Implied fair value of goodwill		<u>\$100</u>	<u>\$200</u>
<i>Compare the book value of goodwill to its implied fair value</i>			
Implied fair value of goodwill		\$100	\$200
Book value of goodwill		<u>\$100</u>	<u>\$350</u>
Difference		<u>\$0</u>	<u>-\$150</u>
Conclusion		No impairment	Impairment loss

Note: This hypothetical example is extracted from Lapoint (2005).

APPENDIX D  
RULES ON DEFINING FINANCIAL EXPERTISE

## **(I) SEC rule on the definition of financial expertise**

“Disclosure required by Section 406 and 407 of the Sarbanes-Oxley Act of 2002.”

SEC Release Nos. 33-8177; 34-47235; File No. S7-40-02 dated January 23, 2003

The final rules define an audit committee financial expert as a person who has the following attributes:

- An understanding of generally accepted accounting principles and financial statements.
- The ability to assess the general application of such principles in connection with the accounting for estimates, accruals and reserves;
- Experience preparing, auditing, analyzing or evaluating financial statements that present a breadth and level of complexity of accounting issues that are generally comparable to the breadth and complexity of issues that can reasonably be expected to be raised by the registrant’s financial statements, or experience actively supervising one or more persons engaged in such activities;
- An understanding of internal controls and procedures for financial reporting; and
- An understanding of audit committee functions.

Under the final rules, a person must have acquired such attributes through any one or more of the following:

- Education and experience as a principal financial officer, principal accounting officer, controller, public accountant or auditor or experience in one or more positions that involve the performance of similar function;
- Experience actively supervising a principal financial officer, principal accounting officer, controller, public accountant, auditor or person performing similar function;
- Experience overseeing or assessing the performance of companies or public accountants with respect to the preparation, auditing or evaluation of financial statements; or
- Other relevant experience.

## **(II) NYSE listing requirement on the definition of financial expertise (literacy)**

“NYSE listing manual” Section 303A.07 Audit Committee additional requirements

- (a) The audit committee must have a minimum of three members.



Commentary:

Each member of the audit committee must be financial literate; as such qualification is interpreted by the listed company's board in its business judgment, or must become financially literate within a reasonable period of time after his or her appointment to the audit committee. In addition, at least one member of the audit committee must have accounting or related financial management expertise, as the listed company's board interprets such qualification in its business judgment. While the Exchange does not require that a listed company's audit committee include a person who satisfies the definition of audit committee financial expert set out in Item 401(h) of Regulation S-K, a board may presume that such a person has accounting or related financial management expertise.

**(III) NASDAQ listing requirement on the definition of financial expertise (sophistication)**

“NASDAQ Manual” Section 4350(d) (2) Audit Committee Composition

Each issuer must have, and certify that it has and will continue to have, an audit committee of at least three members, each of whom must : (1) be independent as defined under Rule 4200(a)(15); meet the criteria for independence set forth in Rule 10A-3(b)(1) under the Act (subject to the exemptions provides in Rule 10A-3 (c)); not have participated in the preparation of the financial statements of the company or any current subsidiary of the company at a time during the past three years; and (iv) be able to read and understand fundamental financial statements, including a company's balance sheet, income statement, and cash flow statement. Additionally, each issuer must certify that it has, and will continue to have, at least one member of the audit committee who has past employment experience in finance or accounting, requisite professional certification in accounting, or any other comparable experience or background which results in the individual's financial sophistication, including being or having been a chief executive officer, chief financial officer, or other senior officer with financial oversight responsibilities.

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