

THE DELAY IN RECOGNIZING GOODWILL IMPAIRMENT:  
FLAWED AUDIT METHODOLOGY  
OR INSUFFICIENT EFFORT?

by

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## ABSTRACT

In this study I examine whether the delay in recognizing goodwill impairment is associated with an audit process failure. Prior research finds that economic indicators of goodwill impairment precede the actual recognition of impairment by at least three years (Hayn and Hughes, 2006; Li et al., 2011; Ramanna and Watts, 2012; Li and Sloan, 2014). Griffith et al. (2015) suggest that auditors' inability to properly audit fair value estimates (i.e., an audit process failure) is potentially the result of the auditor using a flawed methodology and/or an overreliance on management assertions (i.e., inadequate effort). I explore which of these is main explanation for the delay in recognizing goodwill impairment. Using a logistic model, I identify unrecognized goodwill impairment companies (UGI) and match them with companies that had no unrecognized goodwill impairment (NGI) and companies that recognized goodwill impairment (IMP). Utilizing fees as a proxy for audit effort, I provide evidence that auditors put forth more effort to test UGI companies for impairment when compared to NGI companies. This is consistent with auditors putting forth more effort when indicators of impairment are present. On the other hand, I find that auditors put forth the same level of effort for UGI and IMP companies. This is inconsistent with the expectation of increased effort due to the potential for material misstatement and increase litigation risk to the auditor since no impairment is recognized by UGI companies. Combined with Griffith et al., I infer that both a flawed methodology and insufficient audit effort contribute to the delay in recognizing goodwill impairment.

## DEDICATION

This dissertation is dedicated to my family and friends. Without their support this research would not have been possible.

## LIST OF ABBREVIATIONS AND SYMBOLS

PCAOB	Public Company Accounting Oversight Board
SEC	Securities and Exchange Commission
CRSP	The Center for Research in Security Prices
Coef	Coefficient
t-stat	Computed value of $t$ test
Norm. Diff.	Normalized difference
$\geq$	Greater than or equal to
$>$	Greater than
$<$	Less than

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## CHAPTER I

### INTRODUCTION

Prior research suggests that auditors implement a methodology that does not allow for a critical examination of fair value estimates (e.g., Hackenbrack and Nelson 1996; Johnstone et al. 2001; Kadous 2003; Christensen et al. 2012; Griffith et al. 2015). This same literature suggests that auditors over-rely on management's assertions regarding accounts that use fair value, such as goodwill. Further complicating the auditing of fair value estimates, the Public Company Accounting Oversight Board (hereafter, PCAOB) has expressed concern that when auditing such estimates, auditors fail to fully implement their chosen methodology (Church and Shefchik, 2012). Given these concerns it is not surprising that prior research provides compelling evidence that in certain circumstances the accounting recognition of impaired goodwill is delayed for up to four years resulting in financial statements that are likely to be materially misstated (Hayn and Hughes, 2006; Li et al., 2011; Ramanna and Watts, 2012; Li and Sloan, 2014). The purpose of this study is to empirically examine two competing explanations suggested by the prior literature for the delayed recognition of goodwill impairment, a flawed audit methodology or insufficient audit effort (Griffith et al. 2015).

I focus on audit process quality for three reasons. First, Griffith et al. (2015) suggest that audit failures with respect to accounts using fair value estimates, such as goodwill, are the result of an audit process failure, wherein the auditor implements a flawed methodology or fails to put forth the necessary effort to test the fair value estimate. Second, both the PCAOB and the Securities and Exchange Commission (hereafter, SEC) have expressed concerns that in some

situations audit fees may be too low, indicating that auditors are not performing sufficient work given the complexity and risk associated with certain transactions and events (Knechel et al., 2013). Third, as shown in their inspection reports (PCAOB, 2012), the PCAOB is at least equally concerned with audit process quality (i.e., auditors performing all of the proper procedures) as they are with audit output quality (i.e., financial statements being free of material error).

Griffith et al. (2015) interview 24 experienced auditors to investigate the process that auditors employ when auditing complex fair value estimates such as goodwill. Their investigation suggests two alternative explanations for the failure of auditors to require management to recognize the impairment of goodwill when it is impaired. First, auditors fail to follow a methodology that allows for a critical examination of the overall estimate. Although auditors claim to engage in good-faith attempts (i.e., effort) to critically analyze fair value estimates, Griffith et al. report that auditors fail to fully implement the prescribed methodology to audit these estimates. Specifically, the auditor implements a piecemeal approach to assess each individual input for the estimate, but fails to assess the overall appropriateness of the model. Importantly, they note that auditors fail to notice inconsistencies (i.e., evidence of impairment) among the fair value estimate and other internal data and external conditions suggesting the audit methodology they follow is potentially flawed resulting in a misallocation of effort.

Although GAAP deficiencies (i.e., material misstatements) are routinely identified in the PCAOB inspection process, the overwhelming majority of the deficiencies identified concern issues associated with the improper implementation of audit procedures (i.e., audit process quality). By providing standards and methods for audit testing and then ensuring that auditors are applying those specific methods, the PCAOB is potentially creating an environment wherein auditors are less likely to be skeptical of management assertions regarding accounting estimates

(Griffith et al., 2015). Said another way, auditors are able to fulfill their responsibility for testing fair value estimates by completing only those specific procedures outlined in the standards (i.e., the focus of PCAOB inspections). In this case, if there is an audit output failure (i.e., materially misstated financial statement), it is not audit effort that is the issue it is the chosen audit method that is flawed.

Second, Griffith et al. (2015) report that auditors over-rely on management assertions. A potential consequence of auditor over-reliance on management assertions is that they fail to expend the time and effort necessary to critically challenge management's assumptions. Consistent with this notion, Griffith et al. report the problems that their auditor interviewees identified indicate an over-reliance on management assertions, and that such over-reliance is corroborated by their analysis of PCAOB inspection reports. In particular, Griffith et al. report that auditors sometimes fail to fully understand the estimation model, fail to adequately test the underlying assumptions used in the model, and fail to consider the controls over the data and management's estimation process. Taken together, the findings of Griffith et al. (2015) suggest the possibility that the failure to recognize goodwill impairment in a timely manner is due to either a flaw in the method used by auditors in testing fair value estimates or insufficient effort to challenge management's assertions.

When evaluating fair value estimates, auditors are required to obtain an understanding of how management developed the estimates (PCAOB 2003a). AU 328 indicates that for fair value measurements such as goodwill, auditors must understand the method or model as well as management's reasons for using the particular method and/or model (PCAOB 2003b). Based on their understanding of management's process, auditors then can choose to use one or more of three approaches to assess the reasonableness of management's estimates. Specifically, auditors

may: (1) review and test management's process for generating estimates, (2) develop their own independent estimate, and/or (3) review subsequent events or transactions that are related to the estimates (PCAOB 2003a, 2003b). Regardless of the method of choice, the clear inference from these standards is that evidence of impaired goodwill should heighten the scrutiny of auditors leading to enhanced audit effort.

In the context of goodwill, there are three scenarios associated with the extent to which goodwill is impaired and whether or not impairment is recognized. Each scenario has a corresponding level of risk that should have a direct impact on the level of auditor effort. Risk is assumed to be lowest when there is no evidence of goodwill impairment and no impairment is recognized in the financial statements (i.e., the evidence and recognition of impairment are aligned). The level of risk is higher when a goodwill impairment loss is actually recognized in the financial statements. The recognition of an impairment implies that there is evidence of goodwill impairment and that management acknowledges the evidence. Once again, the evidence and recognition of impairment are aligned. Finally, risk is highest when there is evidence of impairment but no impairment is recognized in the financial statements (i.e., the evidence and recognition are not aligned). As risk increases, it is reasonable to expect that the auditor will increase the level of effort put forth in order to test for impairment.

To ascertain whether the delay in recognizing goodwill impairment is the result of auditor over-reliance on management's assertions regarding fair value estimates I begin by examining audit effort related to recognized goodwill impairments (i.e., goodwill impairments recognized on the income statement). To assess whether auditors exert more effort in testing goodwill I use audit fees as a proxy for audit effort consistent with a number of studies in the prior literature (e.g., Gul, 2006; Srinidhi and Gul, 2007; Rice and Weber, 2012; Lobo and Zhoa, 2013). This

initial test between impairment companies (IMP) and non-impairment companies (NO\_IMP) establishes a baseline expectation of audit effort, confirms the ability of the model to capture incremental effort with respect to goodwill impairments, and expands on the results found in prior research (Jarva, 2014).

Next, I examine the amount of incremental effort that auditors exert in testing goodwill for companies where evidence of goodwill impairment exists but impairment is not recognized in the current financial statements. I refer to companies in this condition as unrecognized impairment companies (UGI). I identify unrecognized goodwill impairment using a logistic regression model following Ayers et al. (2014) and Francis et al. (1996) to assess the likelihood that a company will recognize goodwill impairment based on certain economic indicators and company characteristics found in the prior literature (Ramanna and Watts, 2012; AbuGhazaleh et al. 2011; Beatty and Weber 2006; Francis and Yu 2009; Gu and Lev 2011; Hayn and Hughes 2006).

Using Compustat, CRSP, and Audit Analytics data from 2003 to 2014, I report the following key results. First, I find that auditors exert more effort, as suggested by higher fees, for companies that recognize a goodwill impairment than matched firms with goodwill but no recognized impairment. This result is consistent with the expectation that auditors will increase effort when confronted with impaired goodwill. It is also consistent with the requirements of the applicable standards regarding the auditing of fair value estimates.

Second, I find that auditors exert more effort for companies with unrecognized goodwill impairment (UGI) than companies with goodwill and no recognized or unrecognized impairment (NGI). This result is consistent with Griffith et al. (2015) where they suggest that auditors make “good-faith attempts to engage in skeptical analysis of estimates”. Finally, I find no difference in

audit fees for impairment companies (IMP) and unrecognized impairment companies (UGI). This is consistent with auditors putting forth the same level of effort when indicators of impairment are present regardless of whether impairment is actually recognized.

I believe that my study is the first that examines audit effort where evidence of an impaired asset exists (in this case goodwill) but there is no loss recognition in the financial statements. My findings indicate that the problems that arise in auditing fair value estimates may in part be due to insufficient effort. If risk is truly highest for firms where the evidence of impairment and financial reporting are misaligned, I would expect to find evidence of greater effort for unrecognized impairment companies compared to impairment companies. My evidence is inconsistent with this expectation. Thus, while I find additional audit effort for unrecognized impairment companies given the risk of material misstatement it may not be sufficient. Combined with the findings of Griffith et al. (2015), I infer that a flawed audit methodology is the most likely explanation for the delayed recognition of goodwill impairment, but insufficient audit effort may also contribute if auditors ignore the increased risk associated with the delay.

The remainder of this paper is organized as follows. Section 2 reviews the prior literature and Section 3 develops the hypotheses. Section 4 outlines the research design while Section 5 discusses the sample selection. Section 6 provides a discussion of the results. Concluding remarks are provided in Section 7. The remainder of this paper is organized as follows. Section 2 reviews the prior literature and Section 3 develops the hypotheses. Section 4 outlines the research design while Section 5 discusses the sample selection. Section 6 provides a discussion of the results, and concluding remarks are provided in Section 7.

## CHAPTER II

### BACKGROUND

#### Accounting for Goodwill Impairments

When enacting SFAS 142 in 2001, one of the FASB's stated goals was to make it so that "...financial statement users will be better able to understand the investments made in those assets and the subsequent performance of those investments" (FASB, 2001).<sup>1</sup> SFAS 142 resulted in three major changes in the accounting for goodwill. First, goodwill is required to be tested for impairment at least annually rather than when circumstances indicate that goodwill is not fully recoverable.<sup>2</sup> Second, the systematic amortization of goodwill over 40 years (AICPA, 1970) has been eliminated, in part due to prior research which found that this annual charge provided financial statement users with no new information (Moehrle et al., 2001). Without this annual write-off the book value of goodwill remains high, resulting in an increased likelihood of impairment (Johnson et al, 2015).

Finally, goodwill is tested for impairment using fair value estimates instead of the previously used undiscounted cash flows. In estimating the fair value of goodwill, management has the opportunity to employ discretion when determining the inputs used, which affords management some control over when to recognize goodwill impairment. Unlike some other fair

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<sup>1</sup> In 2009, the FASB renamed SFAS 142 as Accounting Standards Codification 350.

<sup>2</sup> The FASB has issued Accounting Standards Update No. 2011-08, *Testing Goodwill for Impairment* (FASB, 2011), which allows companies to perform a qualitative assessment of the fair value of the reporting unit prior to performing the two-step test outlined in SFAS 142. The enactment of this option does not affect the overall purpose of this research but provides additional motivation to assess the amount of effort auditors exert in testing for unrecognized impairment and whether management discretion impairs audit quality.

value accounts, goodwill cannot be adjusted upward which means that any downward adjustment is permanent. In addition, goodwill is a reflection of expected future cash flows, and impairment conveys negative information about the expected future performance of the company. Because goodwill is not recoverable and impairment sends a negative signal to the market, management has an incentive to defer the recognition of goodwill impairment. Understanding this should elicit a heightened awareness in auditors when auditing goodwill and other accounts that use fair value estimates in order to perform a high quality audit.

### Auditing of Fair Value Estimates

DeAngelo (1981) defines audit quality as ‘‘the market assessed joint probability that an auditor will both discover a breach in a client’s accounting system and report the breach.’’ Knechel et al. (2013) decomposes the definition of audit quality into two components: (1) the likelihood that an auditor discovers existing misstatements and (2) appropriately acts on the discovery. They suggest that the first component depends on an auditor’s competence and level of effort while the latter relates to an auditor’s objectivity, professional skepticism, and independence. These two components imply that different aspects of the audit can influence overall audit quality. Discovering a misstatement requires that the appropriate methodology and effort be effectively utilized in the audit process (i.e., audit process quality) while reporting a misstatement requires an auditor to take appropriate action (i.e., audit outcome quality).

AU 342 and 328 provides auditors the procedures that they must follow when auditing accounting estimates (PCAOB 2003a, 2003b).<sup>3</sup> AU 342 first requires auditors to identify all material accounting estimates made by management (PCAOB 2003a). Next, auditors must obtain

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<sup>3</sup> The PCAOB adopted the pre-existing standard on auditing fair values, AU 328 (which incorporates SAS No. 101 [AICPA 2003]), ‘‘Auditing Fair Value Measurements and Disclosures’’ as part of AU 342.

an understanding of how management developed the estimates (PCAOB 2003a). While AU 342 does not elaborate on how to obtain this understanding, AU 328 indicates that for fair value measurements, auditors must understand the method or model as well as management's reasons for using it (PCAOB 2003b).

Based on their understanding of management's methodology, auditors then use one or more of three possible approaches to evaluate the reasonableness of management's estimates. Auditors may: (1) review and test management's process for generating estimates, (2) develop an independent expectation for the estimate, and/or (3) review subsequent events or transactions that are related to the estimates (PCAOB 2003a; 2003b). Griffith et al. (2015) note that while neither standard advocates one method over any other, AU 328 provides 14 paragraphs of detailed guidance on reviewing and testing management's process, one paragraph on developing an independent expectation, and two paragraphs on reviewing subsequent events. Griffith et al (2014, 857) further suggest that auditors choose the first method (i.e., review and test management's process for generating estimates) because it has the most detail (i.e., 14 paragraphs) and provides a "checklist" for them to follow.<sup>4</sup>

The first method is to review and test management's process for determining the estimate (PCAOB 2003a). Griffith et al. (2015) condense the procedures for this method into five main steps: "test controls over preparation of the estimates; test the relevance, reliability and sufficiency of the data used in the model; test the accuracy of the computations made in using the model; evaluate the appropriateness of the assumptions used; and, finally, consider whether any

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<sup>4</sup> However, in the paragraph for the second method listed in AU 328 (i.e., developing an independent expectation for the estimate) references the auditor back to 11 of the paragraphs used in the first method. Thus, the level of detail provided in the second method is not much different than the first method.

relevant factors are missing from the model.” Auditors are allowed to use any combination of these steps to provide sufficient evidence that the estimate is reasonable.

The second allowable method for assessing the reasonableness of that fair value estimate is for the auditor to develop an independent expectation of the estimate (AU 328; AU 342; PCAOB 2003a). One way to do this is by using management’s assumptions. In this case, the auditor must follow most of the procedures used to review and test management’s assumptions. The other option is for the auditor to develop his or her own assumptions and compare them with management’s. Once again the auditor must still understand management’s assumptions in order to make an accurate comparison. For fair values, AU 328 explicitly requires that the auditor “takes into consideration all significant variables” (PCAOB 2003b). On the other hand, AU 342 provides minimal direction about how to develop an independent expectation (PCAOB 2003a).

Finally, auditors may evaluate the estimate by reviewing subsequent events or transactions (PCAOB 2003a). The auditor uses this evidence to assess the reasonableness of the estimate at the balance sheet date, not at the date of the event. Thus, even if the event shows that a significant change in the assumptions has occurred, the auditor should determine if the change was present at the end of the fiscal period. After using one or more of these three methods to evaluate the reasonableness of the estimate, the final step in auditing fair value estimates requires the auditor to consider whether there is a misstatement of the estimate that requires adjustment given its materiality relative to the financial statements taken as a whole (PCAOB 2003a; 2003b).

Even with the guidance from the PCAOB, Griffith et al. (2015) still report that auditors do not perform all of the procedures provided in the standards. This is further evidenced by comments from the PCAOB in their inspection reports. For example, Church and Shefchik

(2012) analyze the PCAOB inspection reports from 2005–2010 and find that comments related to deficiencies in auditing fair value estimates are generally concerned with the auditor failing to fully implement the methodology chosen. In the report on the 2010 annual inspections, the PCAOB itself stated:

The deficiencies do not mean the issuer's financial statements were materially misstated or that the issuer's internal controls were inadequate. Generally, the deficiencies related to execution issues on the part of individual engagement teams where those teams did not meet the requirements of the firms' methodologies (PCAOB, 2012).

The details provided in the standards and the PCAOB's comments indicate that audit process quality is their major concern in relation to fair value estimates. If the auditor does not fully implement a proper methodology or fails to put forth enough effort, then the overall audit quality may be hampered.

#### Audit Fees and Effort

Knechel et al. (2013) note that the degree of client complexity and risk significantly influence audit quality in terms of (1) the planned extent or hours of testing (O'Keefe et al., 1994; Caramanis and Lennox, 2008), (2) the nature of planned testing (Hackenbrack and Knechel, 1997), and (3) the personnel assigned to the audit (Johnstone and Bedard, 2001). For example, the acceptance of higher-risk clients is facilitated by employing the use of audit staff with greater expertise (Johnstone and Bedard, 2001) and auditor specialists (Johnstone and Bedard, 2003). Each of these factors is associated with effort and has a direct effect on audit fees.

Numerous studies suggest that audit fees proxy for audit effort (Gul, 2006; Srinidhi and Gul, 2007; Rice and Weber, 2012; Lobo and Zhou, 2013). Consistent with this notion, both the PCAOB and the SEC have expressed concerns over low audit fees which may indicate that

auditors are not performing sufficient work given the circumstances (Knechel et al., 2013). If audit process quality is a function of the due diligence that auditors put into performing an audit task in order to identify material misstatements, then audit fees are an appropriate measure of the effort the auditor exerts in performing test work (Lobo and Zhao, 2013). Prior research reports that lower auditor effort that is not supported by underlying client characteristics (e.g., lower client risk) adversely affects audit quality (Lambert et al. 2011; Lopez and Peters 2012).

## CHAPTER III

### HYPOTHESIS DEVELOPMENT

Griffith et al. (2015) find that the vast majority of auditors choose to review and test management's estimates.<sup>5</sup> For this method, AU 328 specifically states that assumptions are interdependent, such that one assumption may be reasonable by itself, but when combined with other assumptions it may be unreasonable (PCAOB, 2003b). However, Griffith et al. report that auditors review and test management's estimates in a piecemeal manner, meaning that they test each assumption to determine reasonableness, but do not test whether all of the assumptions or the end result is reasonable given the circumstances. Even if auditors are found to increase their effort, this piecemeal approach may result in delayed impairment recognition and materially misstated financial statements. Griffith et al. suggest that while auditors make a good faith effort to assess the quality of fair value estimates their methods are not fully consistent with auditing standards. In other words, auditors put forth the necessary effort to test fair value estimates, but they implement a flawed methodology.

On the other hand, Griffith et al. (2015) find that on average auditors only perform 1.8 of the 5 steps recommended for testing management's estimates.<sup>6</sup> Failure to implement all (or even

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<sup>5</sup> Griffith et al. (2015) suggest that this is most likely because the level of detail outlined in the standards makes this appear to be the most acceptable method. Although the PCAOB does not recommend one method over another, AU 328 contains 14 paragraphs for reviewing and testing management's estimates, 1 paragraph for developing an expectation, and 2 paragraphs for reviewing subsequent events (PCAOB, 2003b). In their analysis of PCAOB reports that identify problems with auditing accounting estimates, Griffith et al. (2015) note that the PCAOB focuses their comments on having the auditor correct their mistake in the application of the method chosen rather than suggesting the use of an alternative method.

<sup>6</sup> In reviewing AU 328, Griffith et al. (2015) identify five main steps to be performed in reviewing and testing management's estimates. The auditors they interviewed identified four of the five steps, but also presented a fifth

a majority) of the steps for testing fair value estimates may be an indication of insufficient effort. Griffith et al. suggest that auditors over-rely on management assertions which also indicates that auditors may not put forth sufficient effort to critically analyze management's fair value estimates. This suggests that the delay in the recognition of goodwill impairment may be a direct result of the auditor's failure to put forth sufficient effort to test the fair value estimates of management.

Whether the delay in recognizing a goodwill impairment is a direct result of an audit process failure (i.e., implementing a flawed audit methodology or not putting forth enough audit effort to verify non-impairment) is the focus of this paper. Although archival data does not contain data related to audit methodology, I can assess auditor effort in relation to goodwill testing. If auditors put forth a heightened level of effort then a flawed methodology is the most likely explanation for a delay in recognizing impaired goodwill.

### Goodwill Impairment and Audit Effort

In a business acquisition for which the acquisition price exceeds the fair value of the acquired entity, goodwill is recognized and assigned to a reporting unit. After the acquisition, SFAS 142 requires that goodwill be annually tested for impairment using a two-step process. The first step is to compare the fair value of the reporting unit to the carrying value of the net assets.<sup>7</sup> If the fair value of the reporting unit exceeds its carrying amount then no impairment is

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that is not found in the standard. However, when questioning the auditors they found that the number of steps performed by the auditor ranged from 0 to 4 (out of 5) with a mean of 1.8 and a median of 2.

<sup>7</sup> Fair value of the reporting unit may be estimated using one of three methods. The preferred method is to use quoted market prices related to the reporting unit. If quoted prices are not available then the price of similar assets and liabilities may be used. If neither of those options are available then one of two valuation techniques must be used. The first valuation method uses the present value of future cash flows. When cash flows are not available without excess cost or effort, then reasonable and supportable assumptions may be used. The other valuation option is to use earnings or revenue multiples from a different reporting unit with similar operations and a known multiple.

recognized. However, if the fair value of the reporting unit is below the carrying amount, then impairment exists and the company must determine the amount of impairment loss by calculating the amount of implied goodwill. The estimated fair value of the reporting unit is compared to the estimated fair value of the identifiable assets and the residual amount is implied goodwill. If implied goodwill is less than the carrying value of goodwill, then the difference between the carrying value and the implied value of goodwill is recognized as an impairment (FASB, 2001).

Because of the audit procedures required by AU 342 and 328 for auditing fair value estimates along with the specific requirements of SFAS 142, the auditor is likely to do more testing to provide assurance that the amount of the recognized impairment is accurate. This leads to my first hypothesis stated in the alternative form:

H1: Companies that recognize goodwill impairments will have significantly higher audit fees than companies that have goodwill but do not recognize goodwill impairment.

A recent study by Jarva (2014) finds that impairment companies pay higher fees than non-impairment companies. I expand upon his findings in three important ways. First, Jarva includes observations from the initial adoption year of SFAS 142. Because of this his evidence of higher fees for impairment firms is potentially driven by the increased cost of the auditor implementing the standard for the first time or increased costs due to the company's desire to record an impairment below the line as allowed with the initial adoption of SFAS 142 (FASB, 2001). Second, Jarva only uses firms with more than \$10 million in goodwill and material impairments that are in excess of 1 percent of total assets or more than \$10 million. I use all firms with goodwill and any amount of impairment which provides for increased generalizability to the entire population of impairment firms and allows increased similarities between matched

firms. Finally, Jarva uses a matching model that only considers impairment characteristics, whereas I utilize a model that incorporates impairment and fee characteristics. This allows for a better match between companies that have similar characteristics from the auditor perspective thereby ensuring that the difference in fees is directly related to the company recognizing goodwill impairment and not some other unobservable audit characteristic.

#### Delayed Recognition of Goodwill Impairment and Audit Effort

Although an auditor may engage in more work to verify the amount of impairment that is being recognized, it does not necessarily follow that an auditor will engage in the same level of work when indicators of impairment are present, but no impairment is recognized. In fact, the PCAOB has expressed concern that auditors do not fully implement the chosen methodology outlined in the standards when performing test work (PCAOB, 2012). This emphasis on following the procedures outlined in the standards followed by inspections to ensure proper application has potentially fostered an environment where auditors are less likely to think independently and skeptically analyze management's assumptions (Griffith et al. 2015). The ultimate result from this is that auditors will simply complete the procedures outlined in the chosen methodology to pass a PCAOB inspection without putting forth the effort to effectively analyze management's assumptions. This is of further concern when considering the different incentives regarding the financial statements for auditors and management.

Penno and Watts (1991) explain that an audit involves an inherent conflict between managers who attempt to maximize an investor's perceived value of the company and auditors who attempt to minimize the investor's valuation error. In a recent survey about the challenges that managers face when recognizing an impairment, Holtzman and Sinnett (2009) find that

“auditor issues” was the biggest problem. Ayres et al. (2014) provide further evidence of tension between managers and auditors. They find that when a goodwill impairment is recorded, the client is more likely to switch auditors the next year. Given the heightened level of discretion afforded to management with SFAS 142 and the tension between management and the auditor regarding goodwill impairment, the auditor has a difficult task to maintain client relations while assuming an acceptable level of risk associated with the audit.

Griffith et al. (2015) report that auditors claim to engage in good-faith attempts (i.e., more effort) to critically analyze fair value estimates. However, they also find that auditors fail to fully implement the self-selected methodology to audit accounting estimates, and that auditors do not critically examine the overall estimate. Taken together, this suggests that when unrecognized goodwill impairment is present, it is reasonable to expect auditors to perform more work and engage in a “good-faith attempt” to critically assess the evidence of goodwill impairment relative to a firm where no evidence of impairment exists. This leads to my second hypothesis in alternative form:

H2: Companies with unrecognized goodwill impairment will have significantly higher audit fees than companies that have goodwill but no unrecognized goodwill impairment.

Relative to goodwill recognition, there are three scenarios and corresponding risk levels associated with the evidence of goodwill impairment (i.e., indicators that impairment exists) and whether the impairment is recognized. In the first scenario, there is no evidence of impairment and impairment is not recognized. Risk is assumed to be lowest when no evidence of goodwill impairment exists (e.g., market-to-book > 1, recognizes profits, etc.) and no impairment is recognized in the financial statements since the evidence and recognition are aligned. In this scenario, audit effort regarding testing of goodwill should be relatively low.

The second scenario is when impairment is recognized in the financial statements. In this condition, evidence of goodwill impairment exists, management acknowledges the evidence, and an amount is recognized as a goodwill impairment charge. One potential disagreement between the auditor and management is the amount of the impairment charge to be recognized. Because impairment is actually recognized, evidence of impairment must be present, thereby indicating that the evidence and recognition are aligned. Although the evidence and recognition are in agreement, risk in this scenario is likely to be higher because the amount of the impairment loss is uncertain. Since auditors know of the risk associated with testing goodwill for impairment and should respond accordingly, it is likely that the auditor will put forth more effort to skeptically analyze management's assertions about the magnitude of the goodwill impairment.

The final scenario occurs when there is evidence of goodwill impairment (e.g., market-to-book < 1, recognizes losses, etc.) but no impairment is recognized (i.e., unrecognized impairment). The highest level of risk is present in this scenario because the evidence and financial statement recognition conflict. Goodwill research has identified this situation as an indication of a delay in recognizing impairment (Hayn and Hughes, 2006; Li et al., 2011; Ramanna and Watts, 2012; Li and Sloan, 2014). In this scenario, audit effort for testing goodwill should be at its highest level if auditors are responding to the risk inherent in the conflict between the evidence and management's assertions.

Considering the levels of risk associated with recognizing goodwill impairment, there are some potential factors that may affect the level of effort association with the last scenario related to unrecognized impairment. First, if auditors put forth the maximum amount of effort to assess the amount of impairment for companies that actually recognize impairment, then there is no

option to increase effort even more when unrecognized impairment is present. This would result in no difference in the level of effort between these two scenarios.

The second factor came about with the issuance of Accounting Standards Update No. 2011-08, *Testing Goodwill for Impairment* (FASB, 2011). ASU 2011-08 allows companies to perform a qualitative assessment (i.e., “more likely than not”) of the fair value of the reporting unit prior to performing the two-step test outlined in SFAS 142. Even though the qualitative assessment must be made annually, it affords management even more discretion in determining goodwill impairment and may create another hurdle for auditors when testing for impairment. In other words, if management says that there is no impairment, the auditor must first convince management that there is evidence of impairment in order for management to be willing to pay for the additional work to test goodwill. Therefore, this update may cause auditors to be more concerned with recognizing the correct amount of impairment rather than testing for whether impairment is present. From this it seems likely that when there is unrecognized impairment, it may be because auditors rely more on management’s assertions for the valuation of goodwill as suggested by Griffith et al. (2015). The ultimate result being that auditors put forth less effort when there is unrecognized impairment.

Considering the risk involved with testing goodwill and the audit task of providing assurance, one would expect the level of audit effort on a company with unrecognized goodwill impairment to be at least equal to the effort expended on a company that actually recognizes goodwill impairment. In fact, given the conflict in the evidence and recognition it seems reasonable to expect a higher level of effort in this condition. On the other hand, if the auditor truly over-relies on management assertions regarding fair value estimates, we should find

evidence of lower effort for unrecognized impairment companies relative to impairment companies. This leads to the following non-directional hypothesis in alternative form:

H3: Companies with unrecognized goodwill impairment will have significantly different audit fees than companies that recognize goodwill impairment.

## CHAPTER IV

### RESEARCH DESIGN

#### Test of Goodwill Impairment (Unrecognized Impairment) and Audit Effort

Based on their interviews with 24 auditors, Griffith et al. (2015) suggest that the delay in impairment recognition may be the result of an audit process failure (i.e., either a flawed methodology or insufficient effort). Since a flawed methodology is not susceptible to archival methods, I focus my empirical analyses on the effort portion of the audit process and infer a flawed methodology is the explanation for delayed goodwill impairment if I find evidence of incremental audit effort. Consistent with prior research I use audit fees as a proxy for audit effort (Gul, 2006; Srinidhi and Gul, 2007; Rice and Weber, 2012; Lobo and Zhoa, 2013). In general, prior research has found that audit fees are composed of two major components: audit effort and risk premiums (Pratt and Stice, 1994; Houston et al., 1999; Johnstone and Bedard, 2001).

Hay et al. (2006) summarize the variables used in prior research regarding the audit fee model and why some variables are more useful than others in explaining audit fees. In their analysis, they separate the variables into different categories (or constructs) based on the information provided by each specific variable. The fee model used by Lobo and Zhao (2013) incorporates many of these factors including controls for size and complexity, risk and performance, and auditor attributes. Their model also accounts for the two major components of fees by including variables representing audit effort and risk.

Given that the focus of this study is companies with impaired goodwill it is possible that these companies will be associated with increased business risk. Thus, any increase in audit fees

may be reflective of an increase in audit effort relating to goodwill impairment and/or the auditor charging more per hour to compensate for the increased business risk (i.e., a risk premium). Prior research suggests that audit firms increase effort when confronted by increased business risk rather than charging a risk premium. For example, Bell et al. (2001) report that auditors assign more hours to an engagement when there is increased business risk rather than charge a risk premium. Although Bell et al. (2008) find that auditors charge a fee premium for high risk clients in the first year of an engagement, they also report that since the adoption of the business risk audit approach auditors tend to allocate more resources to the audit (i.e., increased effort) when there is an increase in business risk. Overall, the result of these studies are consistent with the suggestion in Griffith et al. (2015) that increases in audit fees are most likely a reflection of increased audit effort and not risk premiums. In an effort to reduce the disparity in business risk that may be associated with a recognized (unrecognized) impairment I use propensity score matching.

Armstrong et al. (2010) state that propensity score matching minimizes the variability of the control variables and maximizes the variation in the causal variables. In other words, by using propensity score matching I will compare the differences in audit fees of companies that are similar in all respects except with regard to the variables of interest (i.e., whether they recognize a goodwill impairment or have an unrecognized goodwill impairment). Because their model includes variables from many different audit fee constructs, I utilize the Lobo and Zhao (2013) model for matching my observations as well as testing whether auditors increase audit effort when impairment is present.

The test for H1 utilizes a two-step process. First, I match impairment companies with non-impairment companies based on a propensity score model. The propensity score model

could use two different sets of variables. The first are variables that prior research has identified as indicators of impairment. This propensity score would provide the likelihood that impairment would be recorded based on the economic condition of the company. The second set of variables are the ones used to test for the difference in fees. This score provides the likelihood that an auditor would require impairment to be recognized considering many factors that are considered in the planning of the audit. Since I am interested in the fee differential for auditors and in an effort to minimize the differential impact of the control variables on fees, I use the fee variables to reduce the variability in the audit conditions between impairment and non-impairment companies. When matching is complete, the company characteristics that the auditors use to assess fees for the matched observations should be similar. Thus, I will be able to assess whether there is any incremental difference in fees associated with recognizing impairment (or unrecognized impairment). The model to be used for matching is as follows:

$$\begin{aligned}
 IMP &= \alpha_0 + \alpha_1 ROA + \alpha_2 LOSS + \alpha_3 LEV + \alpha_4 INV + \alpha_5 REC \\
 &+ \alpha_6 SEGMENT + \alpha_7 PENSION + \alpha_8 SIZE + \alpha_9 MTB + \alpha_{10} MERGER \\
 &+ \alpha_{11} RET + \alpha_{12} BIG4 + \alpha_{13} GC + \alpha_{14} DEC + \alpha_{15} SPECIALIST \\
 &+ \alpha_{16} NEWAUD + \varepsilon
 \end{aligned} \tag{1}$$

*IMP* is equal to 1 if the company recognized goodwill impairment in year *t* and 0 otherwise.

Table 1, presents definitions of the independent variables.

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**TABLE 1****Variable Definitions**

	<b>Description (Compustat mnemonic in parenthesis)</b>
<i>ASSETS</i>	= Total assets (in millions) at the end of year $t$ ;
<i>AUDITFEES</i>	= Total audit fees paid (in millions) in year $t$ ;
<i>BIG4</i>	= 1 if company is audited by one of the Big 4 accounting firms in year $t$ , 0 otherwise;
<i>DEC</i>	= 1 if the client has a December year-end for year $t$ , 0 otherwise;
<i>EBITDA_CH</i>	= Change in the company's EBITDA from $t-1$ to $t$ scaled by the market value of equity in year $t$ . Market value of equity is the stock price times the number of shares outstanding at the end of year $t$ ( $PRCC\_F * CSHO$ );
<i>FEES</i>	= Natural log of audit fees in year $t$ ( $AUDIT\_FEES$ );
<i>GC</i>	= 1 if the client receives a going concern audit opinion for year $t$ , 0 otherwise;
<i>IMP</i>	= 1 if the firm recognized an impairment in year $t$ ( $GDWLIP < 0$ ), 0 otherwise;
<i>IMP5</i>	= The number of times the company recognized a goodwill impairment from year $t-5$ to year $t-1$ divided by the number of years counted;
<i>INT_PCT</i>	= Pre-impairment percentage of a company's assets that are composed of goodwill in year $t$ ( $[GDLW - GDWLIP]/[AT - GDWLIP]$ );
<i>INV</i>	= Inventory divided by total assets in year $t$ ( $INVT/AT$ );
<i>LEV</i>	= Total short- and long-term debt divided by pre-impairment book value of equity in year $t$ ( $[DLTT + DLC]/[CEQ - GDWLIP]$ );
<i>LOSS</i>	= 1 if $ROA < 0$ in year $t$ , 0 otherwise;
<i>MERGER</i>	= 1 if the company had a merger that contributed to sales in year $t$ ( $AQS > 0$ );
<i>MKT_IMP_IND</i>	= 1 if the company's market-to-book ratio is $< 1$ in year $t$ , 0 otherwise;
<i>MKT_IMP_PCT</i>	= Percentage of goodwill that appears to be impaired. Estimated as the difference between the company's book value of assets and market value of assets divided by the amount of goodwill in year $t$ ( $[AT - \{AT - CEQ + MVE\}]/GDWL$ ). Limited to values between 0 and 1;

**TABLE 1 (continued)**

	<b>Description (Compustat mnemonic in parenthesis)</b>
<i>MTB</i>	= Market value of assets divided by the pre-impairment book value of assets at the end of year $t$ ( $[AT - CEQ + MVE] / [AT - GDWLIP]$ );
<i>MTB5</i>	= Mean change in market-to-book ratio for available years from $t-5$ to year $t-1$ ;
<i>NEWAUD</i>	= 1 if the company has engaged auditor for no more than three years, 0 otherwise;
<i>NO_IMP</i>	= 1 if the company did not recognize a goodwill impairment and does not have unrecognized goodwill impairment in year $t$ , 0 otherwise;
<i>PENSION</i>	= 1 if the client has pension or retirement expense ( $XPR_t > 0$ ), 0 otherwise;
<i>REC</i>	= Receivables divided by total assets in year $t$ ( $RECT/AT$ );
<i>RET</i>	= Company's buy-and-hold stock return in year $t$ ;
<i>RET5</i>	= Company's buy-and-hold stock return for available years from $t-5$ to year $t-1$ ;
<i>ROA</i>	= Return-on-assets ratio in year $t$ ( $PI - GDWLIP/AT$ );
<i>ROA5</i>	= Mean change in return-on-assets ratio for available years from $t-5$ to year $t-1$ ;
<i>SEGMENT</i>	= Natural log of the total number of segments in year $t$ ;
<i>SIZE</i>	= Natural log of total assets in year $t$ ( $AT$ );
<i>SPECIALIST</i>	= 1 if the company's auditor is paid 30 percent or more of total industry audit fees, 0 otherwise;
<i>STDEV</i>	= Standard deviation of the company's monthly stock return in year $t$ ;
<i>SWITCH</i>	= 1 if the company switched auditors in year $t+1$ , 0 otherwise;
<i>UGI</i>	= 1 if the company has an unrecognized goodwill impairment in year $t$ , 0 otherwise. The likelihood of recognizing goodwill impairment is calculated for each observation. Observations with a likelihood score $\geq 0.5$ are identified as having unrecognized goodwill impairment.

Second, I estimate the fee model using the matched observations to determine whether auditors engage in more work to test for impairment. The fee model is as follows:

$$\begin{aligned}
 FEES = & \beta_0 + \beta_1 IMP + \beta_2 ROA + \beta_3 LOSS + \beta_4 LEV + \beta_5 INV + \beta_6 REC \\
 & + \beta_7 SEGMENT + \beta_8 PENSION + \beta_9 SIZE + \beta_{10} MTB + \beta_{11} MERGER \\
 & + \beta_{12} RET + \beta_{13} BIG4 + \beta_{14} GC + \beta_{15} DEC + \beta_{16} SPECIALIST \\
 & + \beta_{17} NEWAUD + \varepsilon
 \end{aligned} \tag{2}$$

*FEES* is the natural log of audit fees in year *t*. Table 1, presents definitions of the independent variables. If auditors put forth more effort in order to test and provide assurance that goodwill is impaired, then  $\beta_1$  should be positive and significant.

To test H2 and H3 I follow the same two-step process used for H1. First, I match unrecognized goodwill impairment companies (UGI) with no impairment companies (H2) and impairment companies (H3) by using UGI as my independent variable. Then I estimate the fee model using UGI in place of IMP. In both tests,  $\beta_1$  will indicate whether there is a difference in effort between companies with unrecognized impairment and companies that do or do not recognized goodwill impairment.

### Identifying Unrecognized Impairment Companies

While identifying goodwill impairment companies is straight forward (i.e., goodwill impairment is recognized on Compustat), the empirical tests of H2 and H3 are more complex because I need to identify companies that have unrecognized impairment (i.e., impaired goodwill but do not recognize the impairment in their financial statements). The prior literature primarily focuses on the market-to-book ratio being less than 1 as the primary indication of whether a company has impaired goodwill (e.g., Hayn and Hughes, 2006; Li et al., 2011; Ramanna and Watts, 2012; Li and Sloan, 2014). However, a review of descriptive statistics for my sample of impairment companies reveals that a market-to-book ratio less than 1 is not a strong indicator of

impaired goodwill. In fact, my evidence suggests that goodwill impairment companies have both mean and median market-to-book ratios in excess of 1 (see Table 3, Panel C). Thus, a model that better captures all of the factors associated with impairment is necessary.

For this study, I utilize a logistic model to determine the likelihood of goodwill impairment. Prior research has identified many different variables that are related to goodwill impairments (Ramanna and Watts, 2012; AbuGhazaleh et al., 2011; Beatty and Weber, 2006; Francis and Yu, 2009; Gu and Lev, 2011; Hayn and Hughes, 2006). A recent study by Ayres et al. (2014) has incorporated these variables into a goodwill impairment likelihood model. However, their model does not include prior period indicators of impairment that are associated with the delay in recognizing impairment. Therefore, I modify the model from Ayres et al. (2014) to include variables that incorporate performance and impairment recognition for the prior five years as identified by Francis et al (1996). The likelihood model is as follows:

$$\begin{aligned}
 IMP &= \gamma_0 + \gamma_1 MTB + \gamma_2 MTB5 + \gamma_3 MKT\_IMP\_IND + \gamma_4 MKT\_IMP\_PCT \\
 &+ \gamma_5 INT\_PCT + \gamma_6 IMP5 + \gamma_7 LOSS + \gamma_8 ROA + \gamma_9 ROA5 + \gamma_{10} LEV \\
 &+ \gamma_{11} MERGER + \gamma_{12} \Delta EBITDA + \gamma_{13} SIZE + \gamma_{14} SEGMENT \\
 &+ \gamma_{15} RET + \gamma_{16} RET5 + \gamma_{17} STDEV + \gamma_{18} BIG4 + \gamma_{19} SPECIALIST \\
 &+ \delta_k INDUSTRY + \lambda_j YEAR + \varepsilon
 \end{aligned} \tag{3}$$

*IMP* is equal to 1 if the company recognized goodwill impairment in year *t* (*GDWLIP* < 0) and 0 otherwise. Table 1, presents definitions of the independent variables.

I estimate Model (3) using all observations to determine the likelihood of goodwill impairment for each observation. Non-impairment observations with a likelihood of recognizing impairment that is greater than or equal to 0.5 are identified as unrecognized impairment companies. This is consistent with the more-likely-than-not qualitative threshold in ASU 2011-08 that companies initially use to assess goodwill for impairment (FASB, 2011). While this

threshold may not identify all companies that have unrecognized impairment, those that are identified will have the highest likelihood of having unrecognized impairment.

Next, I match unrecognized impairment companies to two other sets of companies. The first set is composed of companies that do not recognize goodwill impairment and have no evidence that impairment exists. The second set is composed of companies that recognized goodwill impairment. I do this by using Model (1) with UGI as the dependent variable to obtain propensity scores for matching. Finally, as indicated previously, I test H2 and H3 using Model (2) to determine whether auditors do more work to test for impairment when indicators suggest that goodwill is impaired.

## CHAPTER V

### SAMPLE SELECTION

The objective of this study is to test whether auditors put forth more effort to test for goodwill impairment especially when failing to do so could result in a material misstatement of the financial statements. My sample identifies all company years when SFAS 142 was in effect. Although companies were required to adopt SFAS 142 in 2002, they had the option that year to recognize goodwill impairment below-the-line as a change in accounting principle. Since these transitional impairments provide different information than an impairment recognized in any other year, I start with the following year such that the sample period runs from 2003 – 2014. All financial information comes from the Compustat annual file, return information comes from the Center of Research and Security Prices (CRSP) database, and auditor and audit fees data comes from Audit Analytics.

The initial sample contains 39,503 company-year observations, wherein 5,135 recognize goodwill impairment and 34,368 do not recognize goodwill impairment. I first remove observations that have book value of equity less than zero (1,289).<sup>8</sup> Next, I remove observations that do not have CRSP data to estimate returns (1,904). Finally, observations with missing regression variables (13,051) are removed from the sample. The final sample is composed of 23,259 company-year observations with goodwill on the balance sheet, of which 3,125 recognize

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<sup>8</sup> I eliminate observations with negative values of book value of equity to avoid including negative values of the market-to-book ratio in the empirical tests that follow.

a goodwill impairment and 20,134 do not recognize goodwill impairment. Table 2 summarizes the sample selection process.<sup>9</sup>

**TABLE 2**

**Sample Selection**

	<b>Total</b>	<b>No Impairment</b>	<b>Impairment</b>
Observations with goodwill (2003-2014)	39,503	34,368	5,135
Less:			
Observations in financial distress	(1,289)	(1,022)	(267)
Observations without CRSP data for returns	(1,904)	(1,712)	(192)
Observations without regression variables	(13,051)	(11,500)	(1,551)
Final sample	23,259	20,134	3,125

Table 3, Panel A, provides descriptive statistics for the full sample of observations. Approximately 13.4 percent of the sample recognize a goodwill impairment. The median firm in the sample has \$893.1 million in total assets and pays \$1.2 million in audit fees during the year. Further consideration of the auditor variables reveals that 83 percent of companies use a Big 4 auditor, 7.6 percent use an auditor that is a specialist in their industry, and 17.7 percent of the companies engage their auditor for three years or less. Finally, 20.9 percent of the companies recognize a loss and average buy-and-hold returns of 18.2 percent.

<sup>9</sup> All of the continuous variables used in the regressions have been winsorized at the 1 and 99 percent levels. In addition, standard errors in all regression models are clustered at the firm and time level.

**TABLE 3****Descriptive Statistics****Panel A: Full Sample**

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Q1</b>	<b>Median</b>	<b>Q3</b>	<b>Stdev</b>
<i>IMP</i>	23,259	0.134	0.000	0.000	0.000	0.341
<i>AUDITFEES</i> †	23,259	3.132	0.551	1.235	2.862	6.635
<i>ROA</i>	23,259	0.055	0.011	0.062	0.118	0.122
<i>LOSS</i>	23,259	0.209	0.000	0.000	0.000	0.407
<i>LEV</i>	23,259	0.789	0.049	0.346	0.800	1.567
<i>INV</i>	23,259	0.102	0.004	0.067	0.158	0.116
<i>REC</i>	23,259	0.156	0.075	0.133	0.205	0.115
<i>SEGMENT</i>	23,259	0.395	0.000	0.000	0.693	0.496
<i>PENSION</i>	23,259	0.813	1.000	1.000	1.000	0.390
<i>ASSETS</i> †	23,259	11,998.167	227.652	893.063	3,848.200	74,015.690
<i>MTB</i>	23,259	1.795	1.129	1.468	2.069	1.037
<i>MERGER</i>	23,259	0.132	0.000	0.000	0.000	0.339
<i>RET</i>	23,259	0.182	-0.149	0.115	0.394	0.553
<i>BIG4</i>	23,259	0.830	1.000	1.000	1.000	0.376
<i>GC</i>	23,259	0.010	0.000	0.000	0.000	0.101
<i>DEC</i>	23,259	0.690	0.000	1.000	1.000	0.462
<i>SPECIALIST</i>	23,259	0.076	0.000	0.000	0.000	0.264
<i>NEWAUD</i>	23,259	0.177	0.000	0.000	0.000	0.382

Variable definitions are provide in Table 1.

† Reported in millions

TABLE 3 (continued)

Panel B: Comparison of Non-Impairment and Impairment Companies

Variable	IMP = 0 Mean	IMP = 1 Mean	Diff	t-stat		Norm. Diff.	
<i>AUDITFEES</i> <sup>†</sup>	2.954	4.281	-1.326	-10.421	**	0.483	^
<i>MKT_IMP_PCT</i>	0.075	0.219	-0.144	-27.808	**	0.257	^
<i>ROA</i>	0.063	0.002	0.061	26.259	**	-0.173	
<i>LOSS</i>	0.180	0.397	-0.217	-28.184	**	0.328	^
<i>LEV</i>	0.775	0.878	-0.102	-3.396	**	0.082	
<i>INV</i>	0.100	0.112	-0.012	-5.393	**	0.035	
<i>REC</i>	0.156	0.152	0.004	1.891		-0.012	
<i>SEGMENT</i>	0.384	0.462	-0.078	-8.189	**	0.109	
<i>PENSION</i>	0.815	0.798	0.017	2.311	*	-0.028	
<i>ASSETS</i> <sup>†</sup>	11,532.596	14,997.784	-3,465.188	-2.435	*	12.303	^
<i>MTB</i>	1.864	1.346	0.519	26.388	**	-0.553	^
<i>MERGER</i>	0.137	0.102	0.034	5.290	**	-0.061	
<i>RET</i>	0.219	-0.058	0.277	26.384	**	-0.374	^
<i>BIG4</i>	0.830	0.828	0.002	0.281		-0.003	
<i>GC</i>	0.008	0.028	-0.020	-10.157	**	0.056	
<i>DEC</i>	0.689	0.699	-0.010	-1.110		0.015	
<i>SPECIALIST</i>	0.076	0.076	-0.001	-0.111		0.001	
<i>NEWAUD</i>	0.176	0.186	-0.010	-1.376		0.016	
n	20,134	3,125					

Variable definitions are provide in Table 1.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

^ indicates that the normalized difference is greater than the acceptable balance of 0.25.

† Reported in millions

A comparison of the means between impairment and non-impairment observations is presented in Table 3, Panel B. The first two columns report the variable means for the non-impairment and impairment samples, respectively. In addition to t-tests, I also report the normalized differences, as defined in Imbens and Rubin (1997) as the difference in the means of the two samples divided by the average of the within-group standard deviations. The normalized differences are invariant to sample sizes, which makes them more reliable when assessing covariate balance. A normalized difference with an absolute value of 0.25 or less indicates an acceptable balance (Jayaraman and Milbourn, 2015).

It appears that the two samples are different in almost every variable, which prompts the use of matched samples in further tests to remove the variability between impairment and non-impairment companies. Impairment companies pay higher audit fees (4.281 versus 2.954) and have a higher proportion of goodwill that appears to be impaired (21.9 percent versus 7.5 percent) than non-impairment companies. Although the normalized difference for *ROA* indicates that the two groups are no different, impairment companies are more likely to recognize a loss (39.7 percent) than non-impairment companies (18.0 percent). In addition, impairment companies have more assets (15.0 billion versus 11.5 billion), a lower market-to-book value (1.35 versus 1.86), and lower market returns (-5.8 percent versus 21.9 percent) than non-impairment companies. In all other instances, the normalized differences indicate that impairment and non-impairment companies are similar. In fact, other than fees, all variables directly related to the audit or auditor (*BIG4*, *GC*, *SPECIALIST*, and *NEWAUD*) are not different between the two groups of companies.

## CHAPTER VI

### RESULTS

#### Analysis of Goodwill Impairment and Audit Effort

Table 4, Panel A, presents the results of estimating Model (1). This model employs *IMP* as the dependent variable to obtain a propensity score that is used to match impairment and non-impairment observations. Overall, the direction and significance of follows the expectations from prior research. *ROA* is significantly negative, which indicates that the higher (lower) the income, the less (more) likely a company is to impair goodwill. The coefficient on *LOSS* is positive suggesting that companies that recognize a loss are even more likely to impair goodwill. In addition, *INV*, *SEGMENT*, *SIZE*, and *GC* are associated with a higher likelihood of recognizing impairment while *MTB*, *MERGER*, and *RET* are associated with a decreased likelihood of recognizing impairment. *LEV*, *REC*, *PENSION*, *BIG4*, *DEC*, *SPECIALIST*, and *NEWAUD* have an insignificant association with a company recognizing impairment.

The matched sample of impairment and non-impairment companies contains 6,250 observations. Table 4, Panel B, presents the test of means between the match set. Based on the t-test, *FEES*, *LOSS*, and *MTB* appear to significantly differ between the impairment and non-impairment companies. However, none of the normalized differences exceed 0.25, which indicates that there is an acceptable balance and no difference between the two conditions.

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**TABLE 4****Impairment vs. Non-Impairment Companies****Panel A: Likelihood Model for Recognizing Goodwill Impairment**

	<u>Coef. Est.</u>	<u>z-stat</u>	
<i>INTERCEPT</i>	-1.727	-5.149	**
<i>ROA</i>	-1.461	-3.389	**
<i>LOSS</i>	0.778	17.589	**
<i>LEV</i>	-0.023	-1.804	
<i>INV</i>	0.759	2.974	**
<i>REC</i>	-0.220	-1.069	
<i>SEGMENT</i>	0.302	4.329	**
<i>PENSION</i>	0.031	0.517	
<i>SIZE</i>	0.063	2.083	*
<i>MTB</i>	-0.676	-6.466	**
<i>MERGER</i>	-0.275	-3.885	**
<i>RET</i>	-0.739	-2.475	*
<i>BIG4</i>	0.228	1.722	
<i>GC</i>	0.585	2.814	**
<i>DEC</i>	0.031	0.369	
<i>SPECIALIST</i>	0.037	0.313	
<i>NEWAUD</i>	0.026	0.490	
n		23,259	
Pseudo R <sup>2</sup>		0.082	

Variable definitions are provide in Table 1.

Standard errors are clustered at the firm and time level.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

TABLE 4 (continued)

Panel B: Comparison of Matched Sample

Variable	IMP = 0 Mean	IMP = 1 Mean	Diff	t-stat		Norm. Diff.
<i>FEES</i>	14.107	14.308	-0.201	-6.102	**	0.176
<i>ROA</i>	0.000	0.002	-0.002	-0.523		0.005
<i>LOSS</i>	0.428	0.397	0.030	2.442	*	-0.043
<i>LEV</i>	0.886	0.878	0.009	0.215		-0.007
<i>INV</i>	0.112	0.112	0.000	0.088		-0.001
<i>REC</i>	0.152	0.152	0.000	-0.007		0.000
<i>SEGMENT</i>	0.454	0.462	-0.009	-0.657		0.012
<i>PENSION</i>	0.792	0.798	-0.006	-0.595		0.010
<i>SIZE</i>	6.469	6.458	0.011	0.196		-0.007
<i>MTB</i>	1.406	1.346	0.060	3.456	**	-0.072
<i>MERGER</i>	0.108	0.102	0.005	0.660		-0.009
<i>RET</i>	-0.046	-0.058	0.012	0.914		-0.016
<i>BIG4</i>	0.833	0.828	0.005	0.506		-0.008
<i>GC</i>	0.028	0.028	0.001	0.230		-0.002
<i>DEC</i>	0.679	0.699	-0.020	-1.694		0.029
<i>SPECIALIST</i>	0.070	0.076	-0.006	-0.874		0.011
<i>NEWAUD</i>	0.188	0.186	0.002	0.162		-0.003
n	3,125	3,125				

Variable definitions are provide in Table 1.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

^ indicates that the normalized difference is greater than the acceptable balance of 0.25.

TABLE 4 (continued)

Panel C: Association between Audit Fees and Recognizing Goodwill Impairment

	Coef. Est.	t-stat	
<i>INTERCEPT</i>	10.366	81.336	**
<i>IMP</i>	0.188	5.256	**
<i>ROA</i>	-0.681	-5.108	**
<i>LOSS</i>	0.097	4.478	**
<i>LEV</i>	0.060	5.351	**
<i>INV</i>	0.141	1.141	
<i>REC</i>	1.212	9.531	**
<i>SEGMENT</i>	0.197	9.069	**
<i>PENSION</i>	0.116	3.840	**
<i>SIZE</i>	0.524	34.527	**
<i>MTB</i>	-0.321	-16.133	**
<i>MERGER</i>	0.040	1.487	
<i>RET</i>	-0.247	-2.995	**
<i>BIG4</i>	0.301	4.402	**
<i>GC</i>	0.219	3.732	**
<i>DEC</i>	0.082	1.389	
<i>SPECIALIST</i>	-0.102	-2.541	*
<i>NEWAUD</i>	0.044	0.847	
n		6,250	
R <sup>2</sup>		0.782	

Variable definitions are provide in Table 1.

Standard errors are clustered at the firm and time level.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

Table 4, Panel C, presents the empirical test of H1 which utilizes Model (2) and estimates the differential amount of audit effort when a company recognizes a goodwill impairment. The coefficient of 0.188 on *IMP* is positive and significant (two-tailed p-value < 0.01) indicating that auditors do more work for companies that recognize goodwill impairment. These results support the expectation in H1 that audit fees are higher for companies that recognize a goodwill impairment.

The coefficients for the control variables are consistent with prior research. *ROA* is negative and significant while *LOSS* is positive and significant indicating that auditors do more work when a company recognizes a loss. Consistent with prior research, *LEV*, *REC*, *SEGMENT*, *PENSION*, and *SIZE* have positive and significant coefficients indicating that as the complexity of the company increases, the auditor engages in more audit work. The negative coefficients on *MTB* and *RET* indicate that a company will pay lower fees when the market value of the company increases. The coefficient for *GC* is positive and significant, which suggests that auditors do more work when the ability of the company to continue is questionable. From the results, it also appears that a company will pay higher fees to engage a Big 4 auditor, but when the auditor is an industry specialist the company will pay less in fees.

#### Analysis of Unrecognized Goodwill Impairment and Non-Impairment

The first method I use to identify unrecognized impairment companies implements a logistic regression model from Ayres et al. (2014) and Francis et al. (1996) that incorporates company characteristics associated with recognizing goodwill impairment. Any non-impairment observation with a likelihood  $\geq 0.5$  is considered to have unrecognized goodwill impairment. The results of the logistic model are presented in Table 5. The negative coefficient on *MTB* and

the positive coefficient on *MKT\_IMP\_IND* indicate that when market value exceeds book value, the company is less likely to impair goodwill. *INT\_PCT* and *IMP5* have positive and significant coefficients which indicate that a company is more likely to recognize goodwill impairment as the proportion of goodwill to total assets increases and when an impairment has been recognized in prior year. The coefficient on *EBITDA\_CH* is negative while the coefficient on *LOSS* is positive indicating that a company is more likely to impair goodwill when the company has a decrease in earnings from the prior year or recognized a loss in the current year. *RET* has a negative coefficient which shows that a goodwill impairment is less likely when the market value of the company increases. The other control variables are consistent with prior research. Using this approach, I identify 325 non-impairment companies as having unrecognized impairment.

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**TABLE 5****Likelihood Model for Recognizing Goodwill Impairment**

	<u>Coef. Est.</u>	<u>z-stat</u>	
<i>INTERCEPT</i>	-3.432	-20.075	**
<i>MTB</i>	-0.407	-7.519	**
<i>MTB5</i>	0.007	0.392	
<i>MKT_IMP_IND</i>	0.473	3.992	**
<i>MKT_IMP_PCT</i>	0.110	0.851	
<i>INT_PCT</i>	1.674	8.685	**
<i>IMP5</i>	2.698	25.270	**
<i>LOSS</i>	0.480	6.863	**
<i>ROA</i>	-0.713	-1.813	
<i>ROA5</i>	-0.727	-1.042	
<i>LEV</i>	-0.041	-3.326	**
<i>MERGER</i>	-0.304	-5.987	**
<i>EBITDA_CH</i>	-2.154	-10.833	**
<i>SIZE</i>	0.088	4.541	**
<i>SEGMENT</i>	0.283	3.848	**
<i>RET</i>	-0.701	-4.004	**
<i>RET5</i>	-0.006	-0.598	
<i>STDEV</i>	4.452	6.945	**
<i>BIG4</i>	0.221	2.268	*
<i>SPECIALIST</i>	0.268	2.504	*
n		23,259	
Pseudo R <sup>2</sup>		0.130	

Variable definitions are provide in Table 1.

Standard errors are clustered at the firm and time level.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

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Table 6 reports the results for the comparison of audit fees between unrecognized impairment (UGI) and no unrecognized impairment companies (NGI). Panel A presents the results of the propensity score models used to obtain the matched sample. Consistent with prior results, *ROA*, *MTB*, and *RET* are negative and significant, while *LOSS* is positive and significant. The comparison of means between unrecognized impairment companies and no impairment companies is reported in Table 6, Panel B. The only variable that is significantly different (two-tailed p-value < 0.05 or better) is *FEES* which was not included in the matching model. The difference in *FEES* provides univariate evidence that audit fees and therefore effort will be different between the matched observations. This suggests that the sample is equally similar in all aspects used for matching and ultimately in the regression to test the difference in effort.

Panel C of Table 6 presents the association between audit fees and unrecognized impairment. The coefficient on *UGI* is positive and significant. These results support the expectation of H2 that auditors will put forth more effort, as proxied by audit fees, for companies with unrecognized goodwill impairment than for companies with no unrecognized impairment.

---

**TABLE 6****Unrecognized Impairment vs. No Impairment Companies****Panel A: Likelihood Model for Unrecognized Goodwill Impairment**

	<u>Coef. Est.</u>	<u>z-stat</u>	
<i>INTERCEPT</i>	-2.488	-6.161	**
<i>ROA</i>	-5.323	-8.068	**
<i>LOSS</i>	2.050	12.667	**
<i>LEV</i>	0.014	0.440	
<i>INV</i>	-0.559	-1.275	
<i>REC</i>	0.611	1.721	
<i>SEGMENT</i>	0.785	6.978	**
<i>PENSION</i>	-0.460	-3.075	**
<i>SIZE</i>	0.259	6.674	**
<i>MTB</i>	-3.644	-8.773	**
<i>MERGER</i>	-0.926	-4.359	**
<i>RET</i>	-1.987	-5.176	**
<i>BIG4</i>	0.189	1.219	
<i>GC</i>	-0.321	-0.621	
<i>DEC</i>	-0.117	-0.773	
<i>SPECIALIST</i>	-0.113	-0.471	
<i>NEWAUD</i>	0.171	0.762	
n		20,134	
Pseudo R <sup>2</sup>		0.063	

Variable definitions are provide in Table 1.

Standard errors are clustered at the firm and time level.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

**TABLE 6 (continued)****Panel B: Comparison of Matched Samples**

<b>Variable</b>	<b>UGI</b>	<b>NO_IMP</b>	<b>Diff</b>	<b>t-stat</b>		<b>Norm. Diff.</b>
	<b>Mean</b>	<b>Mean</b>				
<i>FEES</i>	14.254	13.945	0.309	2.750	**	0.259 ^
<i>ROA</i>	-0.078	-0.082	0.003	0.328		0.009
<i>LOSS</i>	0.772	0.775	-0.003	-0.094		-0.005
<i>LEV</i>	1.171	1.116	0.055	0.344		0.038
<i>INV</i>	0.099	0.097	0.002	0.245		0.007
<i>REC</i>	0.157	0.143	0.015	1.523		0.042
<i>SEGMENT</i>	0.495	0.455	0.040	0.965		0.055
<i>PENSION</i>	0.674	0.671	0.003	0.083		0.004
<i>SIZE</i>	5.700	5.781	-0.081	-0.441		-0.053
<i>MTB</i>	1.017	1.032	-0.015	-0.718		-0.029
<i>MERGER</i>	0.062	0.083	-0.022	-1.059		-0.042
<i>RET</i>	-0.308	-0.306	-0.002	-0.066		-0.003
<i>BIG4</i>	0.757	0.769	-0.012	-0.368		-0.019
<i>GC</i>	0.028	0.037	-0.009	-0.665		-0.022
<i>DEC</i>	0.686	0.692	-0.006	-0.169		-0.009
<i>SPECIALIST</i>	0.052	0.065	-0.012	-0.668		-0.025
<i>NEWAUD</i>	0.234	0.249	-0.015	-0.458		-0.024
n	325	325				

Variable definitions are provide in Table 1.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

^ indicates that the normalized difference is greater than the acceptable balance of 0.25.

**TABLE 6 (continued)**

**Panel C: Association Between Audit Fees and Unrecognized Goodwill Impairment**

	Coef. Est.	t-stat	
<i>INTERCEPT</i>	10.428	52.354	**
<i>UGI</i>	0.325	5.461	**
<i>ROA</i>	-0.184	-0.890	
<i>LOSS</i>	0.018	0.361	
<i>LEV</i>	0.045	3.916	**
<i>INV</i>	0.557	2.489	*
<i>REC</i>	1.306	5.425	**
<i>SEGMENT</i>	0.098	1.635	
<i>PENSION</i>	0.099	1.829	
<i>SIZE</i>	0.544	29.746	**
<i>MTB</i>	-0.461	-3.687	**
<i>MERGER</i>	-0.149	-1.445	
<i>RET</i>	-0.317	-2.073	*
<i>BIG4</i>	0.306	3.409	**
<i>GC</i>	0.313	1.975	*
<i>DEC</i>	0.076	0.842	
<i>SPECIALIST</i>	-0.070	-1.008	
<i>NEWAUD</i>	0.154	3.312	**
n		650	
R <sup>2</sup>		0.837	

Variable definitions are provide in Table 1.

Standard errors are clustered at the firm and time level.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

## Analysis of Unrecognized Goodwill Impairment and Recognized Impairment

Table 7, Panel A, reports the results of the propensity score model used to create the matched sample of companies with unrecognized impairment (*UGI*) to companies that recognized impairment (*IMP*). Once again, *ROA* and *MTB* are negative and significant while *LOSS* is positive and significant indicating that as the company loses value recognizing goodwill impairment is less likely. *PENSION* is also negative and significant. This is an indication that companies with pensions are more likely to recognize a goodwill impairment. The comparison of means for the matched sample is reported in Table 7, Panel B. The sample appears to be equally similar in all aspects that were used for matching. In fact, the univariate test of *FEES* indicates that there is no difference in the audit fees for the matched sample. Panel C of Table 7 presents the empirical test of H3. The coefficient on *UGI* is not significantly different from zero suggesting that audit fees for companies with unrecognized impairment are not different from companies that recognized goodwill impairment.

Griffith et al. (2015) report that auditors claim to make a good faith effort to test fair value estimates. My evidence is consistent with auditors putting forth more effort when evidence of impairment exists even when the firm does not recognize an impairment. In fact, I find that the level of effort auditors put forth for unrecognized impairment firms is no different than the level of effort they put forth for impairment firms. However, the audit risk scenarios for a conflict between evidence of impairment and the financial reporting suggests that *UGI* companies should have greater audit effort than impairment companies. Overall, my evidence suggests that insufficient effort potentially explains, at least in part, the delay in recognizing goodwill impairment. In conjunction with the findings of Griffith et al., I infer that in addition to

insufficient effort, the use of a flawed audit methodology is also a primary explanation for the delay in recognizing goodwill impairment.

**TABLE 7**

**Unrecognized Impairment vs. Impairment Companies**

**Panel A: Likelihood Model for Unrecognized Goodwill Impairment**

	Coef. Est.	z-stat	
<i>INTERCEPT</i>	-1.653	-5.385	**
<i>ROA</i>	-2.266	-4.025	**
<i>LOSS</i>	1.204	7.446	**
<i>LEV</i>	0.099	3.678	**
<i>INV</i>	-1.637	-2.875	**
<i>REC</i>	0.518	1.632	
<i>SEGMENT</i>	0.345	2.523	*
<i>PENSION</i>	-0.479	-3.803	**
<i>SIZE</i>	0.114	3.558	**
<i>MTB</i>	-1.475	-6.180	**
<i>MERGER</i>	-0.348	-1.614	
<i>RET</i>	-0.350	-1.670	
<i>BIG4</i>	-0.126	-0.800	
<i>GC</i>	-0.711	-1.350	
<i>DEC</i>	-0.262	-1.533	
<i>SPECIALIST</i>	-0.266	-1.154	
<i>NEWAUD</i>	0.058	0.333	
n		3,450	
Pseudo R <sup>2</sup>		0.087	

Variable definitions are provide in Table 1.

Standard errors are clustered at the firm and time level.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

TABLE 7 (continued)

Panel B: Comparison of Matched Samples

Variable	UGI	IMP	Diff	t-stat	Norm. Diff.
	Mean	Mean			
<i>FEES</i>	14.254	14.095	0.159	1.395	0.132
<i>ROA</i>	-0.078	-0.076	-0.003	-0.280	-0.008
<i>LOSS</i>	0.772	0.778	-0.006	-0.188	-0.010
<i>LEV</i>	1.171	1.078	0.093	0.588	0.065
<i>INV</i>	0.099	0.093	0.006	0.626	0.017
<i>REC</i>	0.157	0.153	0.005	0.456	0.013
<i>SEGMENT</i>	0.495	0.462	0.033	0.790	0.045
<i>PENSION</i>	0.674	0.689	-0.015	-0.420	-0.023
<i>SIZE</i>	5.700	5.533	0.167	0.918	0.110
<i>MTB</i>	1.017	1.003	0.013	0.622	0.026
<i>MERGER</i>	0.062	0.049	0.012	0.685	0.026
<i>RET</i>	-0.308	-0.316	0.008	0.241	0.012
<i>BIG4</i>	0.757	0.748	0.009	0.272	0.014
<i>GC</i>	0.028	0.018	0.009	0.783	0.024
<i>DEC</i>	0.686	0.692	-0.006	-0.169	-0.009
<i>SPECIALIST</i>	0.052	0.037	0.015	0.949	0.034
<i>NEWAUD</i>	0.234	0.277	-0.043	-1.259	-0.065
n	325	325			

Variable definitions are provide in Table 1.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

^ indicates that the normalized difference is greater than the acceptable balance of 0.25.

TABLE 7 (continued)

Panel C: Association Between Audit Fees and Expected Goodwill Impairment

	Coef. Est.	t-stat	
<i>INTERCEPT</i>	10.516	40.266	**
<i>UGI</i>	0.075	1.082	
<i>ROA</i>	0.421	1.173	
<i>LOSS</i>	0.207	2.988	**
<i>LEV</i>	0.047	3.552	**
<i>INV</i>	0.132	0.313	
<i>REC</i>	0.888	2.734	**
<i>SEGMENT</i>	0.200	3.107	**
<i>PENSION</i>	0.133	2.737	**
<i>SIZE</i>	0.524	20.521	**
<i>MTB</i>	-0.359	-3.075	**
<i>MERGER</i>	-0.240	-2.200	*
<i>RET</i>	-0.300	-2.146	*
<i>BIG4</i>	0.452	5.012	**
<i>GC</i>	0.366	1.611	
<i>DEC</i>	0.060	0.798	
<i>SPECIALIST</i>	-0.154	-1.798	
<i>NEWAUD</i>	0.229	4.033	**
n		650	
R <sup>2</sup>		0.818	

Variable definitions are provide in Table 1.

Standard errors are clustered at the firm and time level.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

## Auditor Switches

Prior research has found that there is significant tension between auditors and clients with regard to recognizing goodwill impairment (Ayres et al., 2014). More specifically, Ayres et al. report that clients are more likely to switch auditors the year after recognizing a goodwill impairment. This suggests that auditors put forth more effort so that an impairment is recognized even though they may lose the client in the following year. However, for those companies where impairment is not recognized, it is possible that the auditor did not put forth more effort necessary thereby resulting in an unrecognized goodwill impairment and potentially a material misstatement.

Given the tension between clients and auditors in relation to recognizing goodwill impairment, there is potential that my results are driven by the auditor's willingness to put strain on the auditor-client relationship. To assess this concern, I test the difference in auditor switching between my matched samples to determine whether the tension over recognizing a goodwill impairment is different for companies with unrecognized goodwill impairment. Table 8 reports the results of these tests. Panel A and Panel B present the results for the difference in impairment and non-impairment for all observation and the matched sample, respectively. Consistent with Ayres et al., I find that companies that recognize impairment are more likely to switch auditors in the following year in both samples.

Table 8, Panels C and D report the comparison of auditor switches between companies with unrecognized goodwill impairment (UGI) and companies with goodwill that do not recognize and do not have unrecognized impairment (NGI) and impairment companies (IMP). I find that UGI companies are more likely to switch auditors than NGI companies. This indicates that auditors are willing to put additional strain on the auditor-client relationship to test/negotiate

with management about recognizing goodwill impairment. On the other hand, I find no difference in the number of auditor switches between UGI and IMP companies. If the client-auditor tension is truly a result of auditors increasing effort to encourage management to recognize a goodwill impairment, then these results are consistent with the expectation of auditors to increase effort when the risk of material misstatement increases.

---

**TABLE 8****Auditor Switches****Panel A: All Observations**

	<u>IMP = 0</u>	<u>IMP = 1</u>			
	Mean	Mean	Diff	t-stat	
<i>SWITCH</i>	0.053	0.080	-0.027	-6.162	**
n	20,134	3,125			

**Panel B: Impairment Matched Sample**

	<u>IMP = 0</u>	<u>IMP = 1</u>			
	Mean	Mean	Diff	t-stat	
<i>SWITCH</i>	0.063	0.080	-0.017	-2.603	**
n	3,125	3,125			

**Panel C: Unrecognized Impairment vs. No Unrecognized Impairment**

	<u>UGI</u>	<u>NGI</u>			
	Mean	Mean	Diff	t-stat	
<i>SWITCH</i>	0.108	0.052	0.055	2.612	**
n	325	325			

**Panel D: Unrecognized Impairment vs. Impairment**

	<u>UGI</u>	<u>IMP</u>			
	Mean	Mean	Diff	t-stat	
<i>SWITCH</i>	0.108	0.126	-0.018	-0.732	
n	325	325			

Variable definitions are provide in Table 1.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

---

## Predicted Goodwill Impairment

In an effort to validate the logistic model I use to identify unrecognized goodwill impairment firms, I use the model to assess the difference in the predicted amount of goodwill for the impairment and unrecognized impairment observations in the sample. To do this I replace *IMP* in Model (3) with the amount of goodwill impairment recognized divided by total assets. Next, I fit the model using only the observations that recognized goodwill impairment. Then I use the results to obtain the predicted amount of impairment for both the impairment (*IMP*) and unrecognized impairment observations (*UGI*). Finally, I test the difference between predicted values. The results of these tests are reported in Table 9.

The predicted impairment for *UGI* companies is tested against the actual (Panel A) and predicted (Panel B) goodwill impairment for *IMP* companies. In both tests I find that there is no difference. These results suggest that the model is good at identifying the amount of goodwill impairment that is expected to be recognized and provides some validation of using the variables in the logistic model to estimate the likelihood of impairment.

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**TABLE 9****Predicted Goodwill Impairment****Panel A: Unrecognized Impairment vs. Actual Impairment**

	<u>UGI</u>	<u>IMP - Actual</u>		
	Mean	Mean	Diff	t-stat
<i>PRED_GWI</i>	0.097	0.087	0.010	1.454
n	325	325		

**Panel B: Unrecognized Impairment vs. Predicted Impairment**

	<u>UGI</u>	<u>IMP</u>		
	Mean	Mean	Diff	t-stat
<i>PRED_GWI</i>	0.097	0.092	0.005	0.877
n	325	325		

Variable definitions are provide in Table 1.

\* and \*\* indicate significance at the 0.05 and 0.01 levels, respectively.

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## CHAPTER VII

### CONCLUSION

Prior research reports that auditors do not fully implement the methods recommended for testing fair value estimates (PCAOB, 2012) and over-rely on management's fair value assertions (Griffith et al., 2015). In addition, the prior literature reports that goodwill impairment recognition is delayed by up to four years (Hayn and Hughes, 2006; Li et al., 2011; Ramanna and Watts, 2012; Li and Sloan, 2014). This study is unique because it investigates the manner in which the audit process (i.e., flawed methodology or insufficient effort) relates to the delay in recognizing impairment.

Utilizing audit fees as a proxy for audit effort and a matched sample of impairment companies and non-impairment companies, I find that auditors put forth more effort when impairment is recognized than when it is not recognized. This result corroborates prior research (Jarva, 2014) and provides more robust evidence that auditors do more work when goodwill impairment is recognized. Next, I match unrecognized impairment companies with non-impairment, and find that auditors put forth significantly more effort when impairment is unrecognized. This indicates that auditors engage in more work to assess at least some of the indicators of impairment. Lastly, I match unrecognized impairment companies with impairment companies and find that auditor effort is not significantly different. While the effort in both cases is the same, the risk of material misstatement due to the conflict between the evidence of impairment and the recognition of impairment suggests that auditors are putting forth an insufficient amount of effort in these cases.

This study makes two contributions to prior research. First, I provide a large sample test of the flawed methodology or insufficient effort explanations that Griffith et al. (2015) identify as reasons for an auditor's failure to properly audit fair value estimates. I find that auditors put forth more effort to test goodwill for impairment when it is unrecognized than when it is not recognized. In addition, auditors put forth substantially the same amount of effort when impairment is unrecognized than when impairment is actually recognized. This supports the findings of Griffith et al. (2015) wherein auditors state that they put forth a good faith effort to test fair value estimates. However, this evidence also indicates that given the heightened level of risk due to the conflict between the evidence and recognition of goodwill impairment, auditors may still over-rely on management's assumptions and fail to put forth enough effort to test goodwill for impairment.

Second, I provide a new model for identifying unrecognized goodwill impairment. Prior research has typically relied on a single measure, such as  $MTB < 1$  for one or more years, as a means to identifying unrecognized impairment. However, this is limited in that it only considers one aspect of the company's overall financial situation. I utilize many factors both from the current year and prior years that are highly correlated with recognizing impairment to identify unrecognized impairment companies.

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