Accounting for Goodwill in Public vs. Private Deals: Evidence from US Mergers and Acquisitions

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ABSTRACT

In 2001, the FASB (Financial Accounting Standard Board) introduced accounting regulations SFAS 141 and SFAS 142 to improve the relevance, representational faithfulness, and comparability of financial reporting. The new standards have profoundly changed the accounting for business combinations and goodwill under US GAAP by requiring reporting entities to no longer amortize goodwill over its expected useful life, but to test for impairment annually. However, the new regulation has met sharp criticism for creating a scope for high levels of managerial discretion which may be exercised opportunistically in the accounting for goodwill. This study examines whether the proportion of purchase price allocated to goodwill differs between public and private acquisitions. We try to answer this question by carrying out a quantitative study on 481 observations, between the period of 2001 to 2005 by studying the relationship between acquirer type (Public vs. Private) and target firm characteristic on goodwill allocated, and we find the following results: 1) Public acquirers allocate higher levels of goodwill in comparison to private acquirers. (2) Market-to-book values of private target firms are not positively correlated with recorded goodwill levels.

Key Words: Goodwill allocation, purchase price allocation, earnings management, public acquirer, private acquirer, target characteristics.
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LIST OF ABBREVIATIONS & ACRONYMS
ASC                   Accounting Standards Codification
ASU                   Accounting Standards Update
AQTYPE                Acquirer Type
DV                    Deal Value
FASB                  Financial Accounting Standards Board
GAAP                  Generally Accepted Accounting Principles
GW_DV                 Dollar Value of Goodwill scaled by Deal Value
IASB                  International Accounting Standards Board
IBBA                  International Business Brokers Association
IFRS                  International Financial Reporting Standards
INTAN_DV              Intangible Assets Scaled by Deal Value
LIAB_DV               Liabilities Scaled by Deal Value
MVIC_B                Market Value of Invested Capital to Book Value
PPA                   Purchase Price Allocation
PPE_DV                Property, Plant & Equipment Scaled by Deal Value
SFAS                  Statement of Financial Accounting Standards
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1. INTRODUCTORY CHAPTER

The purpose of this introductory chapter is to introduce the readers to the main theme of this research by giving an overview of the problem background and theoretical background. We have discussed why we were motivated to choose this topic for our thesis and how this topic is going to bridge a gap in the existing literature of goodwill accounting. Finally, we have explained how our research question is going to fulfill the desired purpose of this research work and provided the outline of this thesis paper.

1.1 Problem Background

The accounting for goodwill has always been a debated and controversial topic for years. With the growing importance of intangible assets, the FASB and IASB felt the need to revise the regulations to convey better information about intangibles. In 2001, the U.S. Financial Accounting Standards (FASB) introduced SFAS 141 “Business Combinations” and SFAS 142 “Goodwill and Other Intangible Assets”. In 2004 the International Accounting Standards Board (IASB) introduced IFRS 3 “Business Combinations” and IAS 36 “Impairment of Assets” (Rev.). Changes in these FASB and IASB standards changed the accounting for goodwill to a great extent, because as per the new rules the amount of goodwill can no longer be amortized, but have to be tested for annual impairment under the new “Impairment Only Approach”. Even though the FASB and IASB made such changes with the intention that the new “impairment only approach” will better reflect the economic impact of acquired goodwill, it has been subject to harsh criticism for being complex, subjective, onerous and costly (Boennen & Glaum, 2014, p. 2).

One of the main criticisms is that the introduction of the impairment of goodwill has introduced increased discretion in the accounting for goodwill, since the impairment tests are based on managers’ subjective expectations, which gives the managers wide room for exercising their discretion opportunistically. Adversaries argued, that compared to amortization method, under the impairment only approach, the acquirers have greater incentives in allocating higher proportions of purchase price paid to goodwill rather than other depreciable assets, because as long as the company can avoid impairment, this cost will never be charged in the income statement which will positively impact the earnings statement in the current and subsequent fiscal years (Boennen & Glaum, 2014, p. 13).

However, whether the public or private acquirers’ record higher portion of purchase price to goodwill is an empirical question, which is searched for in this study. It can be expected that managers will inflate the amount of goodwill more, when they have higher incentives for engaging in earnings management. Previous studies have found that public companies have higher incentives for using discretion in opportunistic way to manage earnings (Beatty & Harris, 1998, p. 302). Another explanation for the difference in allocation of goodwill could be that public and private firms acquire different types of firm with different asset-liability structure, growth potential (Bargeron et al., 2008, p. 376). Thus, finding an answer to the question regarding the different purchase price allocation practices between public and private acquirers can be of vital importance for policy makers, standard setters and also stakeholders.

The introduction of new guidelines regarding the goodwill has created much interest among academic researchers and as a result, a number of studies have been conducted in the last decade about the implications of the new rules. However, we are not aware of any
study that in particular compares the differences in goodwill allocation practices between public and private acquiring firms.

1.2 Subject Choice

We are currently going through a master’s program in Accounting at Umeå University. During our master’s program we had courses in Financial Accounting and Corporate Governance, which introduced us to the concepts of goodwill accounting, business combinations, earnings management, and public vs. private companies’ basic natures. These two courses focused on two different areas of learning, however we were interested in connecting them in our research work in an interesting way. Our supervisor shared with us his knowledge in the area of goodwill accounting, pointing out the possibilities for new research areas which sparked even greater interest to write our thesis within this field.

The topic of goodwill accounting grew our attention, as we came to know that in recent years the intangible assets have started to become a very important and challenging element in business organizations, making up significant portions of a company’s balance sheet. However, this development may go hand in hand with greater incentives for corporate managers to manipulate the amount of goodwill allocated in business combinations. A study performed by “Handelsblatt” focusing on 127 German companies within the capital market, highlights the increasing importance of intangible assets in the last decade. For 26.8% of all companies analysed, the value of the goodwill accounted for more than 50% of the company’s equity. For 17.3% of the companies the ratio of goodwill to fixed assets exceeded 50% (Handelsblatt, 2008, cited in KPMG, 2010).

Going through a Corporate Governance course this semester, we realized how interesting and challenging behavioural and managerial issues in organizations are. Thus, we thought it would be very intriguing to investigate the association between the amount of goodwill allocated and the acquirer type (public vs. private companies). Corporate managers in both public and private companies have to exercise their judgment in allocating a portion of purchase price to goodwill. Exercising managerial discretion can be beneficial as long as it helps to convey important information to the users of financial information such as investors and other stakeholders. However, companies can use their discretion in opportunistic ways too. According to Ramanna (2008, p. 263) the process of goodwill identification is subjective and thus gives the management a wide scope for discretion. Whether public acquirers or private acquirers allocate higher portions of the purchase price to goodwill is sought in this study. We chose this as our subject of study to find out the nature of goodwill allocation by public and private acquirers, based on observations of acquisitions in the US in the period from 2001-2005.

1.3 Theoretical Background

As the FASB changed the regulations regarding “Business Combinations” and “Goodwill and Other Intangible Assets” in 2001, not much research has been published dealing with these specific issues. Thus, research in this field is still scarce which makes it an interesting topic to work with, as there is ample scope to research on something new which has not been explored before. Consequently, this also meant that we have struggled to find many studies that are related with our thesis work. Nonetheless we were able to link relevant and related concepts which helped us to build our hypothesis and to explore our research question.

In 2001, the FASB eliminated the amortization of intangible assets and introduced annual impairment tests. According to SFAS 142, the main motive of the FASB behind changing
the rules for intangible assets and goodwill was the need to make sure that these assets more accurately reflect the underlying economics, so that it improves the decision usefulness of financial statement by the users and thereby improving the user’s ability to assess the firms’ future performance based on the enhanced disclosure requirements about goodwill and intangible assets.

Goodwill arising in business combinations is an important balance sheet item, since in many cases it represents a large item on company's' balance sheets. Therefore, the financial statements and key financial ratios can be very easily affected by changes in accounting choices. The goodwill asset represents the expected future economic benefits that arise with the combination of the firms. In technical terms, the goodwill item on the balance sheet is comprised of intangible assets which are not individually identifiable and therefore cannot be recognized separately in company's’ balance sheets. Goodwill can either be generated internally or externally. Goodwill is generated externally when it arises in the course of business combinations when the consideration transferred exceeds the fair value of the net identifiable assets. Usually, companies are allowed only to recognize goodwill from acquisitions and internally generated goodwill may not be recognized because it might be too difficult to identify and measure (Boennen & Glaum, 2014, p.1). In this study we have focused on the goodwill that arose in a business combination after the introduction of SFAS 141 and SFAS 142, which has eliminated the amortization of goodwill and introduced the annual impairment test.

Even though FASB and IASB requires extensive disclosures on acquisitions and goodwill impairment, empirical studies and reports by supervisory authorities found that in reality the companies' disclosures often do not fulfil these objectives. The financial reporting unit of UK and Germany have pointed out that financial statements are still uninformative concerning goodwill balances and goodwill impairments, and in this regard are often inaccurate or incomplete. The non-compliance with disclosure requirements appears not to be a consequence of random errors but is related to managerial and firm-level incentives (Boennen & Glaum, 2014, p. 17). Since company managers enjoy significant discretion on purchase price allocations as well as on impairment tests, they have strong incentives to engage in earnings management. Under the impairment only approach the managers can manage earnings by allocating higher portions of purchase price to goodwill, compared to other depreciable assets, since as long as the companies can avoid those impairments the cost that portion of the cost of acquisition will never be charged to earnings.

1.4 Related Literature

Within the empirical research on the accounting for goodwill, three main areas of research can be identified. The first stream of research deals with the initial recognition and valuation of goodwill with regard to the purchase price allocation. Another stream of research investigates the nature of goodwill as an asset as for example value relevance studies that try to answer the question of how goodwill balances are valued by investors, and how they are related to the firm’s future cash-flows and earnings. Furthermore, a third, very broad stream of studies inter alia focuses on the subsequent measurement of goodwill and its implications on future impairments, and the relation between goodwill impairments and share prices. In the following, we will briefly present the relevant literature which is of special interest for the purpose of our study.

According to various studies, the “over- allocation” of portion of purchase price to goodwill may arise due to the introduction of the impairment only approach (Boennen &
In this context, studies that investigate the relation between earnings management incentives and the over allocation of parts of the purchase price to goodwill are for instance Shalev et al. (2011) and Detzen & Zülch (2012), which found that higher proportions of the purchase price are allocated in business combinations when the acquiring firm's CEO is entitled to cash bonuses, indicating that CEO's use the discretion opportunistically to earn higher bonuses when their remuneration is dependent on earnings-based formulas.

Li & Sloan (2012, p. 2) carried out a study to find out the impact of SFAS 142 on accounting for goodwill and they found evidence that the new accounting rules for goodwill results in inflated goodwill balances, untimely impairments and increased earnings volatility. They found that management exploits the discretion that is given to them by SFAS 142 to temporarily overstate goodwill. Since there is a possibility that the management can exploit the discretionary power given to them thus it can be an interesting empirical investigation to find out whether public company managers inflate the amount of goodwill in purchase price allocation, compared to private company managers which is sought in this research.

Sundgren (2007, p. 36) pointed out two aspects that can have potential implication on earnings management. He mentioned that lower concentration of ownership in public firms and lower managerial ownership in public firms induces public managers more to engage in earnings management. Warfield et al. (1995, p. 61) carried out a study to find how the level of managerial ownership affects the accounting choices made by managers. They found out that since managers hold less equity in the corporation, incentives arise for them to pursue non-value-maximizing behaviour such as shirking and perquisite taking (Warfield et al. 1995, p. 62). In comparison, in private companies they have higher concentration of ownership and higher managerial ownership, which means that private managers should have lesser incentive to engage in earnings management through goodwill accounting.

Beatty & Harris (1998, p. 299) carried out a study to find out about earnings management of public and private banks where they found significantly greater earnings management occurs in public banks due to greater agency costs and greater information asymmetry in public banks. They mentioned that motivations for earnings management are likely to be much less important for private banks and private banks manage earnings less aggressively (Beatty & Harris, 1998, p. 308). Agency problem and information asymmetry have been identified as main causes behind engaging in earnings management. Beatty & Harris (1998, p. 318) found both information asymmetry and agency problems to be lower in private firms indicating that it results in lower earnings management in private firms as well. Following these theories, it can be expected that the public companies should find it tempting to inflate the amount of goodwill for managing earnings later compared to private companies.

Other than earnings management which can explain the difference in goodwill allocation, another important fact is that public and private firms, basically acquire different types of firm (Bargeron et al., 2008, p. 376). Expected Goodwill can be affected by the target’s “going concern element”, its performance and growth opportunities as a stand-alone entity (Paugam et al., 2015, p.4). Bargeron et al. (2008, p. 381) found in their study that firms acquired by public firms have greater sales growth and employment growth than firms acquired by private firms, which leads to higher goodwill being allocated in public companies. Acquiring different types of targets means that the target characteristics will also differ in synergy, asset-liability structure, operating environment, investment
opportunities & growth. Consequently, these target firm characteristics can also lead to difference in the amount of goodwill recorded and to rule out that possibility we have controlled for the target firm characteristics in our analysis.

1.5 Research Gap & Question

We have reviewed the literature on goodwill accounting, managerial discretion in goodwill accounting, and earnings management in public and private companies. However, we were not able to find any study that in particular investigates the differences in goodwill accounting practices between public and private acquiring firms. This literature gap is very much noticeable as most of the studies focused on the acquisition of public companies. Thus, we found that not much research had been conducted regarding the acquisition of private firms, nor could we find comparative studies that investigate the differences in public and private acquisitions, even though the volume of acquisitions involving the privately held targets far surpasses that of publicly traded firms (Capron & Shen, 2007, p. 891). In general, there is a void of articles that specifically focuses on public vs. private deals when it comes to goodwill accounting. We, therefore, had to refer to studies that were conducted in a similar context. For example, Capron & Shen (2007) carried out a study called “Acquisition of private vs. public firms”. In 2008, Bargeron et al. conducted a study “Why do private acquirers pay so little compared to public acquirers”. However, none of these studies investigated on whether public and private acquirers differ in allocating percentage of purchase to goodwill. This lack of research on the nature of goodwill allocation of public and private firms means that there are many questions left unanswered in the research area of goodwill accounting which deserves major attention. With this thesis paper we will be able to fill in a specific research gap to some extent. Our study will contribute to the goodwill and mergers & acquisition literature by exploring a setting that has not been previously investigated and will help to clarify the nature of goodwill recording by public and private firms in this regard. Our research will also give insight about what factors create such differences.

The gap in the current literature of goodwill accounting has led us form the following research question:

*Does the proportion of purchase price allocated to goodwill differ between public and private acquirer?*

![Figure 1. Types of Acquirer and Types of Target Firm.](image-url)
In this study we investigate whether the proportion of purchase price allocated is affected by the acquirer type, namely public and private firms. In specific, it must be emphasized that in the setting our study, the target of the business combination is always a private company which distinguishes our study from previous research. To our knowledge, no previous studies investigated purchase price allocations only in a setting with private target firms. The graphic above illustrates our research setting.

1.6 Purpose of Study

The purpose of this thesis paper is to explain how public and private firms differ in their nature of allocating goodwill after the introduction of SFAS 141 and SFAS 142. For this purpose, key issues and theories affecting the allocation of purchase price to goodwill is discussed. A number of studies have already explained how managerial discretion and earnings management might increase due to the introduction of impairment only approach. We contribute to this line of research by investigating whether public and private companies use this discretion by allocating more of the purchase price to goodwill.

This thesis paper will help to develop an understanding regarding what drives the public and private companies to allocate goodwill in the way they do. To accomplish this purpose, we have conducted a quantitative empirical study, on US acquisitions of private companies by public and private companies, in the period 2001-2005. From a theoretical perspective our study will help to fill in an existing gap in current goodwill related literature about a certain public vs. private issue which has been unexplored in the past so far. Our thesis can be of interest to capital-market supervisors and to the standard setters since goodwill accounting has always been an area of controversy.

1.7 Outline

The remainder of the thesis is structured as follows. The next section describes the research methodology which focuses on the philosophical issues concerning this research. Section 3 will provide a theoretical background where we have put together various theories and previous research based on which this study is built, such as accounting for goodwill in business combinations, purchase price allocation, nature of goodwill and intangibles, synergy and growth and earnings management. Section 4 provides a discussion of the practical methodology where we have discussed about the sample, the data collection process and about the regression analysis model used in this study. The results of regression and correlation analysis are presented in section 5, while section 6 includes the testing and verification of results. In section 7 a discussion of results, reliability, validity and limitations of this study has been provided. Section 8 concludes this paper by summarizing the findings and suggesting areas for future research.
2.0 METHODOLOGY

In this chapter we focus on the philosophical issues concerning our research and discuss about the methods that were used to conduct this study. Here we have presented the reasons behind our chosen ontological stance, epistemological stance, research approach and research design. Then we progressed on to the discussion about preconception, the choice of theories, literature search, and data collection. Lastly we argued for the ethical considerations of this research.

2.1 Ontology

Saunders et al. (2012, p. 130) defines ontology as a branch which is concerned with the nature of social entities. Whether social entities should be considered as objective entities or should they be considered as social constructions built up from the perceptions and actions of social actors, is the question that ontology tries to find out (Bryman & Bell, 2015, p.32). There are two ontological positions, objectivism and constructionism.

Objectivism is an ontological position which implies that social phenomena confront us as external facts beyond our reach or influence (Bryman & Bell, 2015, p. 32). According to Saunders et al. (2012, p. 131) objectivism is an ontological position where the social entities exist in reality external to and independent of social actors. Whereas Constructionism asserts that social phenomena and their meanings are continually being accomplished by social actors. It implies that social phenomena and categories are not only produced through social interaction but are also in a constant state of revision (Bryman & Bell, 2015, p. 33).

Objectivism is the ontological position in our study, since the topic we are going to investigate is how goodwill allocation differs between public and private acquirer, which is an external fact beyond our reach or influence. We want to analyse in detail the effect of acquirer type (public & private) and other firm characteristics, on the percentage of purchase price allocated to Goodwill. And the amount of goodwill allocated is independent of social actors. We assume that the association of acquirer type (public or private) and goodwill allocation is not produced through the interaction between the social actors, rather they exist independently and can be viewed as tangible objects with standardized rules. Accordingly, objectivism suits best for the purpose of our research.

In contradiction we don’t think that constructionism applies to our study since, constructionism implies that social phenomenon is produced through social interaction, which is not the case in this research. The amount of goodwill allocated is not controlled or influenced by the social actors. We view that the amount of goodwill allocated exists within the organization and is independent of social actors.

2.2 Epistemology

An epistemological issue concerns the question of what is or should be regarded as acceptable knowledge in a discipline (Bryman & Bell, 2015, p. 26). Epistemological stance can be of four types, positivism, interpretivism, realism and pragmatism. Positivism is adopted by those researchers who prefer collecting data of the observable reality, testing hypothesis, search for regularities and causal relationship to create law like generalizations which are value free (Saunders et al., 2012. p. 134). Positivists believe that only phenomena that are observable and measureable can be validly regarded as knowledge. Positivists try to maintain an independent and objective stance (Collis & Hussey, 2014, p. 47). The adversaries of positivism argue that rich insights into the
complex world are lost if such complexity is reduced entirely to a series of law like
generalizations. The term ‘social actors’ is quite significant in an interpretivist study since
the advocates of interpretivism believe that it is necessary for the researcher to understand
differences between humans in our role as social actors (Saunders et al., 2012, p. 137).

The interpretivism paradigm applies in those studies where the social reality is subjective
and knowledge comes as subjective evidence from participants. Interpretivists attempt to
minimize the distance between researcher and that which is researched by interacting with
the phenomena under study (Collis & Hussey, 2014, p. 47). Therefore, interpretivism will
not fit to our research since research on goodwill allocation is not a study of subjective
reality and also we did not collect data as subjective evidence from participants by
interviewing them rather we have collected objective evidence from the deal terms of
acquisition. Pragmatism also does not apply in our study since it is not a mixed method
study.

We believe that our research reflects the philosophy of positivism, since the objects of
our study, such as acquirer type, amount of goodwill, intangibles, growth & synergy, all
have external observable reality and can be measured in numbers. As positivists we
believe that in this study, knowledge can be gained through measurable and observable
facts, without relying on subjective evidences. We, therefore, have collected data, formulated hypothesis and performed statistical analysis to find out causal relationships
between acquirer type and the amount of goodwill allocated. Our aim was to build law
like generalizations which gives signal of our positivist approach. Further, we tried to
conduct our research in a value-free way.

2.3 Research Approach

The approach to a research can be either inductive, deductive or abductive. The inductive
and deductive approach are opposites of one another, while the abductive approach is
proposed as a way of overcoming the limitations associated with deductive and inductive
positions (Bryman & Bell, 2015, p. 27). An inductive approach is about collecting data
to explore a phenomenon, identify themes and patterns in order to generate and build a
theory (Saunders et al., 2012, p. 143-145). The inductive approach is not suitable in our
study since we are not going to build any new conceptual framework and new theory. So
either deductive or abductive approach is more suitable for the purpose of our study.

An abduction starts with a puzzle or surprise and seeks to explain it. Puzzles may arise
when researchers encounter empirical phenomena which existing theory cannot account
abductive reasoning seeks to identify the conditions that would make the phenomenon
less puzzling, turning surprising facts into a matter of course. However, in our research
we are not looking forward to solve any puzzle that the existing theory cannot answer
rather we are simply looking to find answers to our hypothesis which we have built on
already existing theories.

Deductive reasoning occurs when the conclusion is derived logically from a set of
premises, the conclusion being true when all the premises are true. Researchers use
deductive theory when they start with a theory, and then hypothesis are developed to
either verify or falsify the postulated theory (Saunders et al., 2012, pp. 144-146). For the
purpose of our study, a deductive approach applies since we have used existing theories
and models of goodwill accounting to build our research question and subsequently test
our hypotheses.
In the course of our work, we have read existing theories and literature about corporate takeovers, mergers and acquisitions, purchase price allocations, goodwill accounting, earnings management, agency cost, information asymmetry, which gave strong theoretical base to formulate our hypothesis. Our aim in this research is to find out the causal relationship between acquirer type (public or private) and the amount of goodwill recorded, in order to generalize the findings and to empirically test the theoretical models. Thus a deductive approach is more in line with the nature of this research.

2.4 Research Design
A research design can be either quantitative or qualitative. Quantitative research examines the relationship between variables, which are measured numerically and analysed using a range of statistical techniques. Quantitative research is usually associated with a deductive approach where the focus is on using data to test the theory (Saunders et al., 2012, p. 162). In our study the ontological position is objectivism, the epistemological position is positivism and the research approach is deductive. All these standpoints give indication that a quantitative strategy is more suitable than taking a qualitative approach. Thus, we are going to analyse quantitative data by using statistical methods such as regression models in order to find out whether public and private acquirers’ record goodwill differently.

Qualitative research does not emphasize on quantification of data rather it aims at gaining a deeper understanding of the phenomenon to generate theories by taking an inductive approach (Bryman & Bell, 2011, p. 27). The qualitative research is associated with an interpretive philosophy because researchers need to make sense of the subjective and socially constructed meanings expressed about the phenomenon being studied (Saunders et al., 2012, p. 163). In this study we are not aiming at gaining any deeper understanding of any subjective and socially constructed phenomenon. Our study objects are neither socially constructed nor subjective. Thus qualitative research design does not suit in this study.

2.5 Preconceptions
One must be aware of their preconceptions or pre-understandings when conducting research (Saunders et al., 2009, p. 151). Preconceptions are researcher's own thoughts regarding the subject of study. Since preconceptions can have an impact on research it is essential to be aware of them.

We are currently studying at Umeå School of Business and Economics. During our first semester, we took a course in financial accounting that helped us to gain a deeper understanding of goodwill accounting and sparked an interest to gain further knowledge in this particular area. Throughout our course we learned how to conduct the initial recognition for goodwill using the full- and partial-method, as well as the subsequent treatment of goodwill balances such as, for example, how to test for impairment. We also came to know about the evolving standards under FASB and IASB regarding business combinations and goodwill accounting. The constant development of new standards has created significant interest in this area and given its importance, a large number of empirical studies have been conducted on this issue in the past decade. As a result of the growing importance, the recorded goodwill balances in financial statements are always the object of particular scrutiny by regulators, analysts and investors. In our study we wanted to carry out a research that would shed light on goodwill from a different angle. Upon knowing about the fact that no past study has focused on finding out whether public
or private acquirers allocate goodwill differently we became very keen to investigate this particular issue.

Furthermore, in our bachelor and masters courses we have learned about managers’ opportunistic behaviours, information asymmetry and agency cost. Using those concepts, we assumed that public companies might use their substantial discretion to allocate higher proportions of the total purchase consideration to goodwill than private acquirers, as they have higher incentives to do so. Therefore, we thought that combining both the areas, accounting for goodwill and earnings management, would be an interesting object of research.

2.6 Literature Search
A literature review is a critical evaluation of the existing body of knowledge on a topic, which guides the research and demonstrates that relevant literature has been located and analysed (Collis & Hussey, 2014, p. 87). Linking the research of question, findings, and discussion to the existing literature is an important and useful way of demonstrating the credibility of research and the contribution it is making (Bryman & Bell, 2011, p. 27). The literature review also helps to identify what has been already done and where the gap is in existing literature so that the researchers can develop new areas of research based on previous studies.

While searching for literature, we tried to understand the subject of goodwill as a whole and tried to find the topics related to goodwill accounting. We didn’t only stick to our specific research area of purchase price allocation while searching for relevant literature. This helped us to understand the existing body of knowledge more comprehensively, and also gave us a different perspective which finally enabled us to formulate our research question. From the Umeå University Library we had access to the relevant article databases we needed.

We have used various search terms in order to find the articles that were relevant for our thesis, such as, business combinations, merger and acquisition, goodwill accounting, nature of goodwill under acquisition, amortization of goodwill, goodwill impairment, impairment only approach, methods of payment in acquisition, effect of purchase price allocation in goodwill, influence of acquirer type on goodwill, effects of earn outs in acquisition, managers discretion on goodwill, effect of managerial ownership on goodwill, agency cost in public and private companies, information asymmetry in public and private companies.

In order to carry out our research work of this thesis properly, we have used several books and academic articles on research methodology, written especially for business students in order to gain knowledge about research methods, quantitative research, sampling methods, collection of quantitative data and statistical data analysis.

2.7 Choice of Theory
A literature search helps to find out what has already known about the phenomenon and also to identify gaps and deficiencies in knowledge which the study will address (Collis & Hussey, 2014, p. 76). Going through literature review has helped us to acquire extensive knowledge about our research area and also to find the theories that are most relevant for our thesis, which in turn helped us to answer our research question. Researchers who use a deductive approach, start with existing theories and literatures to build the hypotheses to test the postulated theory. Since we have also taken a deductive
approach it is imperative for us to start with an understanding of the existing theories that are related to our work.

As we are investigating how the different acquirer types (public/private) affect the proportion of purchase price allocated to goodwill we thought the best approach is to first understand the concept of goodwill really well by reading the existing literature surrounding goodwill. As a consequence, we discussed how the rise of intangible assets as an important economic resource in the 1990’s led to the changes in the accounting regulations for goodwill, goodwill impairment and business combinations. We believe that understanding the past and present changes in regulations is always necessary as it can shed light on research works. So we discussed the purchase method and pulling of interest method which allowed the amortization of goodwill prior to the introduction of SFAS 141, SFAS 142. Since the nature of goodwill is quite complex we attempted to provide a proper explanation on this matter by concentrating on Johnson and Petrone’s (1998) outlook on goodwill that focused on six components to describe goodwill.

As we are interested in finding out whether private or public managers behave more opportunistically in allocating the amount of goodwill when they acquire a company, we focused on theories concerning agency cost, information asymmetry, managerial ownership, managerial discretion, earnings management and opportunism, which have guided us towards building our hypothesis. As business students we were familiar with these theories for a long time, but being able to integrate these theories to formulate and test our hypothesis was conclusively of great interest to us.

2.8 Ethical Considerations

Ethics are norms or standards of behaviour that guide moral choices about our behaviour and our relationship with others. The goal of ethics in research is to ensure that no one is harmed or suffers adverse consequences from research activities (Cooper & Schindler, 2011, p. 32). In our research we did not carry out any interviews where we could have harmed the participants by disclosing their identity, harming their future opportunities or in any other way. Our study will also not have any negative impact on the society or the companies.

The data collection stage is associated with a range of ethical issues, such as maintaining objectivity, data accuracy and avoiding exercise of subjective selectivity in order to ensure reliability and validity in research. Since a great deal of trust is presented on the researcher's' integrity it's their duty to represent data honestly at the analysis and reporting stage without which the conclusions reached might be distorted (Saunders et al., 2012, p. 241, 245). During our data collection and analysis process we have avoided any kind of manipulation, fabrication and falsification of data that breaches ethical issues.

In case of sampling procedure, ethical issues can arise due to either very small or large sample size (Jones, 2000, p. 152). We have properly considered the statistical power of our sample by being very thoughtful about taking decisions about removing deals before 1st July, 2001 and deal values below 100,000 USD. We did not just pick and remove data to make the results look believable which is unethical, but rather made these choices comparable to similar studies in order to obtain a sample that is free of bias. It is ethically (and vitally) important that valid interpretation is presented of the results of any study (Jones, 2000, p. 153). To make sure that the relationships among goodwill recorded, acquirer type, market to book value tested in the study are all valid and justified, we have always referred to the supporting statistical evidence of previous studies and did not make our own assumptions of causal relationships. We have tried to keep objectivity throughout
the research and presented our data truthfully and transparently without any misinterpretation. To ensure the transparency of our results, we have included all relevant outputs from our statistical analysis in the appendix
3. THEORETICAL FRAMEWORK

In this chapter we present the relevant theories that are related to our research area. First, this chapter will provide an introduction into recent developments in goodwill accounting under US GAAP and in this context discuss the initial recognition of goodwill and its subsequent measurement. Subsequently, theories on earnings management incentives with regard to public and private firms are presented.

3.1. Background

This chapter discusses the treatment of business combinations under U.S GAAP which had been controversial since the 1970s. During the 1990s, analysts and other users of financial statement such as managers frequently noted that intangible assets are an increasingly important economic resource for many companies and account for a significant proportion of the assets acquired in many transactions. This development, as a result, led to the need for better information about intangible assets (FASB, 2001, p. 5). In order to address this issue, the FASB released a statement in 2001 with the objective to improve the relevance, representational faithfulness, and comparability of the information that a reporting entity provides in its financial reports about a business combination and its effects (FASB, 2001, p. 1). The introduction of SFAS 141 “Business Combinations” and SFAS 142 “Goodwill and other Intangible Assets by the FASB in 2001 and IAS36 “Impairment of Assets” by the IASB have profoundly changed the accounting for business combinations and for goodwill under US-GAAP and under IFRS respectively (Boennen & Glaum, 2014, p. 1). Prior to the SFAS 141 and 142, U.S GAAP provided two methods to account for business combinations: The purchase-method and the pooling-of-interests method. The purchase method required capitalizing and amortising acquired goodwill whereas the pooling-of-interests required neither (FASB, 2002, p. 203). Hence, “pooling” did not affect the consolidated earnings in the subsequent periods and therefore had a more favourable impact than the purchase method which required annual amortization. Unless certain statutory criteria were met, firms were mandated to use the purchase method. However, numerous companies engineered deals to qualify for pooling and in fact, the vast majority of large business combinations in the U.S were recorded as “poolings” (Ramanna, 2008, p. 256; Johnson & Petrone, 1998p. 1).

The new standards mandated companies to no longer amortize goodwill over its expected useful life. Instead, the “impairment-only-approach” required companies to test for goodwill impairment annually, or more frequently if events or changes in circumstances indicate that the asset might be impaired (FASB, 2001, p.12). The FASB argued that non-amortization of goodwill coupled with impairment testing is more consistent with the concept of representational faithfulness as discussed in FASB Concepts Statement No.2 “Qualitative Characteristics of Accounting Information”. Thus, the changes will better reflect the underlying economics of those assets and financial statement users will be better able to understand the investment made in those assets and the subsequent performance of those investments. Furthermore, enhanced disclosure requirements about goodwill and intangible assets in the subsequent periods will improve the ability to assess the future profitability and cash flows of the investment (FASB, 2001, p.7).

3.1.1. Purchase Price Allocation

Currently, the Accounting requirements for corporate acquisitions in the US are prescribed in ASC 805 “Business Combinations” (Accounting Standards Codification). The standard ASC 805 10 provides guidance on the acquisition method which has to be
applied in all business combinations (PwC, 2014, chap. 2-2). In a business combination, an entity obtains control over one or more businesses most commonly by purchasing the net assets or the equity interest of a business for some combination of cash, non-cash, equity interests, incurring liabilities (PwC, 2014, chap. 1-13).

The accounting for goodwill begins with the initial valuation and recognition of acquired assets and liabilities. This includes the valuation of intangible assets that were not recorded in the target firms’ financial statements because these intangible assets were per definition internally generated assets such as a customer base or a trained member of staff. The acquirer then allocates the purchase price to the identifiable tangible and intangible assets and liabilities based on their individually estimated fair values. The fair value of an asset (or liability) is the amount at which that asset (or liability) could be bought (or incurred) or sold (or settled) in a current transaction between willing parties, that is, a sale other than a forced or liquidation sale (FASB, 2001, p.13). The difference between the purchase consideration and the fair value of net identifiable assets is then recognized as goodwill. Occasionally, the amount calculated under this approach is negative which means a bargain purchase has occurred. This amount should be immediately recognised by the acquirer in profit & loss since a bargain purchase represents an economic gain (PwC, 2014, chap. 2-36).

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**Figure 2. Purchase Price Allocation Procedures, adapted from Pellens et al. (2008)**

**3.1.2 Subsequent Measurement**

During the 1990s, following the issuance of SFAS 121 “Accounting for the Impairment of Long-Lived Assets” by the FASB an increasing number of companies reported goodwill write-offs, with write offs nearly tripling in the latter part of the decade (Li et al., 2011, p.746). This development called for a change in goodwill accounting practices. In this regard, the introduction of SFAS 142 introduced a new approach for the subsequent treatment of goodwill by abolishing goodwill amortization and requiring goodwill to be tested annually for impairment. Whereas the old standard SFAS 121 required the assessment of the carrying amount of a “long-lived” asset only upon the occurrence of
certain events that indicate that the recoverable amount of an asset may not be recovered, SFAS 142, by contrast requires mandatory annual assessment and additional testing for impairment upon the occurrence of triggering events, thus imposing stricter requirements. In particular, goodwill and intangible assets without a defined life shall not be amortised over its useful life, rather, they must be tested annually for impairment at the “reporting unit” level, or more frequently if events or changes or circumstances indicate that an asset might be impaired. Examples of such events are, unanticipated competition, or the loss of key personnel (FASB, 2001, p.15). At the acquisition date, initially all goodwill acquired in a business combination is allocated to one or more reporting units. A reporting unit is defined as an operating segment or one level below an operating segment (referred to as component). A component qualifies as a reporting unit when it constitutes a business, for which financial information is available, and a management reviews the results of that component. At this “reporting level”, goodwill is then tested for impairment in the following two step process (FASB, 2001, pp.15-16).

![Image](image-url)

**Figure 3. Two-Step Goodwill Impairment under SFAS 142, adapted from Mard et al. (2008)**

By abolishing annual amortization of goodwill and intangible assets with indefinite useful life, the FASB aimed to improve the decision usefulness of financial statements, since in most cases annual amortizations do not adequately reflect the underlying economics of those assets. However, the opinions on whether SFAS 142 has improved the decision usefulness of financial statements are divided. Critics have been pointing out that under the new standard, assessing impairments based on the management's estimates of future cash flows are unlikely to be verifiable and contractible, making SFAS 142 particularly unreliable. They find that managers, on average, exploit the discretion given in the impairment tests in circumstances where they have agency-based motives to do so (Ramanna & Watts, 2012, p.758). Other studies suggest that decision usefulness has increased since the introduction of SFAS 142 (Chalmers et al., 2008). In general, the available evidence shows mixed results and therefore do not allow for an unambiguous answer (Boennen & Glaum, 2014, p.48).

The FASB in statement 141 mandates that acquired intangible asset should be recognised apart from goodwill if it is separable, meaning that, it can be separated or divided from the entity and sold, transferred, licensed, rented or exchanged, regardless of whether the company intends to do so. Subsequently, the acquirers’ management has to estimate the
useful lives of the acquired intangible assets in order to determine if they have to be amortized on an annual basis or are subject to impairment testing similar to goodwill. The FASB stated the useful life of an asset is defined as the period over which an asset is expected to contribute directly or indirectly to future cash-flows. Considering the amortization method, the FASB notes that intangible assets with a definite useful life are subject to annual, straight line amortization over its useful lives unless another method was demonstrated to be more effective (FASB, 2001, p.43). Given the substantial discretion for an acquirer’s management regarding the recognition and measurement of intangible assets and goodwill, their choices in the allocation process described above can significantly impact on the earnings of a firm in the fiscal years subsequent to the acquisition as the following illustrations shows.

Table 1. Implications of PPA on Subsequent Earnings, adapted from Bergholtz & Li (2013)

<table>
<thead>
<tr>
<th></th>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goodwill</td>
<td>800</td>
<td>200</td>
</tr>
<tr>
<td>Intangible Assets</td>
<td>200</td>
<td>800</td>
</tr>
<tr>
<td>Intangibles Total</td>
<td>1000</td>
<td>1000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Annual charge</th>
<th>Annual charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful life 5 years</td>
<td>-40</td>
<td>-160</td>
</tr>
<tr>
<td>Useful life 10 years</td>
<td>-20</td>
<td>-80</td>
</tr>
</tbody>
</table>

We can see that the amortization charges can be significantly higher in subsequent periods depending on the allocation choices to goodwill and intangible assets, and the estimation of useful lives of an asset. If managers are inclined to manage earnings, they may recognise a large amount of the purchase price to goodwill to avoid annual amortization charges since by doing so they can increase current and future earnings as long as goodwill is not written off (Detzen & Zülch, 2012, p.109).

3.2 Theories of Goodwill

Goodwill is defined as an asset representing the future economic benefits arising from other intangible assets acquired in a business combination that are not individually identified and separately recognised. In accounting terms, goodwill is defined as the excess of cost over the assets acquired and liabilities assumed (Johnson & Petrone, 1998, pp.2-3). But the definition is deceptively simple, thus, the complex nature of intangible assets and goodwill requires further explanation. The FASB only provides a rather brief definition by describing intangibles as “…assets that lack physical substance.” The international valuation standards council (IVSC) provide more detailed definition (IVSC, 2011, p. 49):

“…assets that manifest themselves by their economic properties, they do not have physical substance, they grant rights and privileges to their owner; and usually generate income for their owner. Intangible assets can be categorized as arising from Rights, Relationships, Grouped Intangibles, or Intellectual Property.”

In this regard, the FASB provides specific guidance for the identification and valuation of intangible assets. Any asset that is not identified as such falls into the “catch-all” category of goodwill (Mard et al., 2002, p.17).
3.2.1 Conceptual Components of Goodwill

Johnson & Petrone (1998) argue that the total amount recognised as goodwill is affected by six components. In this regard, Mard et. al (2002) emphasized, that the analysis of those components is useful in understanding the nature of goodwill.

i. Excess of the fair values over the book values of the acquiree’s recognized net assets at the date of acquisition

ii. Fair values of other net assets not recognized by the acquired entity at the date of acquisition

iii. Fair value of the “going concern” element of the acquiree’s existing business

iv. Fair value of synergies from combining the acquirers and acquiree’s businesses and net assets

v. Overvaluation of the consideration paid by the acquirer

vi. Over- or underpayment by the acquirer

According to Johnson & Petrone (1998, p.3) components i.) and ii) are conceptually not part of goodwill since they relate to the acquired entity. The first component i) is not an asset but rather reflects gains that were not recognized by the acquired entity on its net assets. As such that component should be part of those assets rather than part of the goodwill. The second component primarily reflect intangible assets that might be recognised as individual assets but is conceptually not part of goodwill. Components v) and vi) relate to the acquirer, but are also not conceptually part of goodwill as they are measurement errors that may result in a loss in the case of overpayment or a gain in the case of underpayment to the acquiring entity. SFAS 141 requires that overpayments must be written-off from acquisition goodwill immediately as it does not represent any future economic benefits acquired, but Lys et. al (2008) found that in practice virtually no company excluded overpayments from acquisition goodwill. In a similar fashion, components i) and ii) may be included in goodwill due to valuation errors since fair values for tangible and especially intangible assets are not available or not sufficiently reliable to justify their recognition (Johnson & Petrone, 1998, p.5; Mard et al., 2002, pp. 79-80).

Johnson & Petrone (1998) suggest that only the components iii) and iv) are conceptually part of the goodwill asset which he refers to as “core goodwill”. The “going-concern” element of core-goodwill represents the ability of an established business to earn, on a stand-alone basis, a higher return than would be expected if the assets and liabilities had to be acquired separately (Johnson & Petrone, 1998, p.4). In other words, it is the value of an established company as an operating whole, rather than merely the value of the collection of its assets and liabilities. Typical examples for the going-concern goodwill are an already existing customer base and trained staff. The second element of “core goodwill” is referred to as combination goodwill. Its value stems from the synergies that result from the combination of the formerly individual (Johnson & Petrone, 1998, p.3)

3.2.3 Goodwill & Synergistic Potentials

In principle, the synergistic potential of the combination goodwill that emerges with the business combination can also be examined in separate components. The acquirer has the opportunity to reduce inefficiencies in the newly acquired company through restructuring measures. In this regard, the acquirer may undertake measures in order to increase the efficiency of existing processes such as the liquidation of non-operating assets or
chancing the financing structure. This is referred to as “restructuring-goodwill”. The “synergy-goodwill” represents the emerging synergies from the pooling of the business activities and the transfer of know-how. For example, an acquirer may integrate units of the newly acquired company into its own value chain which may result in significant networking effects, i.e. economies of scale and scope. Another component which may be less tangible than the aforementioned, is referred to as the “strategy-goodwill”. It inter alia consists of the newly gained access to markets as well as other opportunities and benefits that arise with the acquisition. In practice, business combinations are often justified with the “strategy-goodwill” because certain markets with high entry barriers can only be entered by buying into it (Sellhorn, 2000, cited in Pellens et al., 2008, p.694)

### 3.2.4 Goodwill and Growth Opportunities

Expected Goodwill is affected by the target’s going concern (internally generated) goodwill, reflecting its performance and growth opportunities as a stand-alone entity (Paugam et al. 2015, p. 15). According to Shalev et al. (2013, p. 250) the expansion of customer base is correlated with sales growth. The higher the sales growth of the target company, the more likely it is that the target has a valuable customer base from which the business combination will benefit. Consequently, pre-acquisition sales growth of the target is expected to be negatively correlated with goodwill.

Bugeja & Sinelnikov (2012, p. 398) used the target firms’ growth in the two years preceding the acquisition as a proxy for future growth. They did not find an association between the target company’s growth and acquired goodwill suggesting that acquired goodwill does not seem to capture the future growth potential of the target firm. In order to capture the growth potential of the target firm, they controlled for the target firm’s market to book ratio calculated two months before the takeover announcement.

Bargeron et al. (2008, p. 383) found in their study that firms acquired by public firms have greater sales growth and greater employment growth than firms acquired by private firms. They also have higher R&D expenditures, but there is no difference in the ratio of intangible assets to total assets. Strong demand in the target industry can increase target bargaining power. Targets with growth prospects are more sought after by bidders and may induce some acquirers, especially those seeking to buy growth, to overpay (Capron & Shen, 2007, p. 900). Kooli et al. (2003, cited in Capron & Shen, 2007, p. 900) found that the discount for private firms is lower for targets with high growth potential. Private firms may also have more opportunities to go for an IPO. According to Pagano et al (1998, cited in Capron & Shen, 2007, P. 900) empirical studies have found that the likelihood of an IPO increases with the industry’s market-to-book ratio.

### 3.3 Goodwill Accounting and Earnings Management

#### 3.3.1 Earnings Management Incentives in PPA

Still a relatively young research area, in the past decade, the research on the determinants affecting goodwill allocation has gained importance as intangible assets and goodwill often make up a substantial part of a company’s balance sheet. The purchase price allocation can, therefore, substantially affect the financial statements of a company and its valuation by investors and analysts. Hence, there are strong incentives for corporate managers to manipulate reported earnings and balance sheet figures. The former chairman of the SEC, Arthur Levitt, stated in a series of speeches that earnings management has
become a game of winks and nods among corporate managers, auditors and analysts. Moreover, he noted that those who are operating in the grey area between legitimacy and outright fraught are poisoning the financial reporting process. In the following section we will discuss this common but seldom discussed practice of earnings management, its forms, and underlying motives.

Per definition, managerial discretion is the latitude of action or potential strategic options afforded to executives (Wangrow et al., 2014, p.100). In principal, managerial judgement can be a good thing since financial reports are to convey manager’s information about the firm. They can increase the value of accounting as a form of communication by using their knowledge about the business and its opportunities by selecting reporting methods, estimates, and disclosures that truthfully represent the value of a firm. However, managers’ judgement may also create opportunities for earnings-management, in which managers abuse their discretion to choose accounting methods and estimates that do not accurately reflect the economic value of their firm (Healy & Wahlen, 1999). Another more comprehensive definition by Healy & Wahlen (1999) of earnings-management is as follows:

“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.”

Corporate managers on a daily basis must exercise judgement in financial reporting in a wide variety of matters. Judgement is required, for instance, to estimate numerous future economic events such as expected lives and salvage values assets, estimations for post-employment benefits, just to name a few examples. Especially the purchase price allocation involves substantial discretion. During the purchase price allocation, the acquirer’s management must identify and re-measure at fair values all assets and liabilities of the target company, including contingent liabilities and self-generated intangible assets such as customer lists, brand names and patented or unpatented technology that the target company has not recognised in its own balance sheet. In the course of the PPA sometimes it is not self-evident whether separate identifiable assets exist or not. The management’s decision not to identify an asset will increase the proportion of the purchase price that is allocated to goodwill (Boennen & Glaum, 2014, p.12) Managers have further discretion with regard to the measurement of the fair values of the target’s assets and liabilities at the acquisition date. For some financial assets, liabilities, or commodities observable market prices exist as they are traded on an active market. But for the majority of assets, fair values must be estimated often based on company specific projections about future cash-flows, sales and discount rates, which requires a high degree of judgement by the management (Mard et al., 2002, p.45; Shalev et al., 2013, p.820).

Use of managerial discretion is embedded in the rules for accounting for goodwill and impairment testing. The introduction of the impairment only approach led to a situation in which accounting for goodwill is based on managerial expectations, and the managers’ expectations are by nature subjective, which are therefore hard to verify and to audit. The proper use of managerial discretion is essential in accounting and it’s use of discretion does not necessarily mean that accounting information is distorted, however, in goodwill accounting and impairment tests, there is greater scope for using discretion opportunistically by managers who can use the discretion in their favour rather than focusing on increasing the information value of financial statements. In this case, SFAS
142 will result in aggressive application of historical cost accounting, where the managers will initially overstate assets and later reverse the aggressive accounting through untimely impairments (Li & Sloan, 2012, p. 3).

Prior studies indicate, that in a principal agent setting, opportunistic managers use the discretion given to them to over-allocate parts of acquisition costs to goodwill since recognising more goodwill will reduce the acquirer’s amortization charges in subsequent periods and, ceteris paribus, increase a company’s earnings. As long as the company avoids impairments in the subsequent years, this proportion of the acquisition costs is never charged to earnings. By doing so, they do not only increase current and future earnings but also obtain personal benefits in form of higher bonuses that are often coupled with earnings figures (Shalev et al., 2013).

There are several studies that document that the discretion inherent in accounting for goodwill is used opportunistically despite the extensive disclosure requirements that were imposed on companies by the FASB and IASB (Boennen & Glaum, 2014, p.12). Ramanna & Watts (2012) find that managers might attempt to allocate goodwill to units that are rich in internally generated original goodwill which will act as a buffer against possible future impairment. According to Ramanna and Watts (2012) in the absence of an observable market price for the unit, this estimation is again based on company specific data (expected future cash flows, estimated cost of capital) which is subjective and thus gives management again scope for discretion.

Shalev et al. (2013) found that the amount of goodwill allocated is positively associated with the portion of bonus payments in the remuneration packages of CEO’s. Since CEO’s bonuses are dependent upon earnings and earnings can be brought down by depreciation and amortization, a higher proportion of purchase price is allocated to goodwill. As long as companies can avoid the impairment, the earnings won’t be affected, which will help to ensure higher bonuses for the CEOs’. Li and Sloan (2012, p. 2), in their study, analysed the impact of SFAS 142 on accounting for goodwill and they found evidence that the new accounting rules for goodwill results in inflated goodwill balances, untimely impairments and increased earnings volatility. They found that management exploits the discretion afforded by FAS 142 to temporarily overstate goodwill, earnings and stock prices in the periods following acquisitions.

It appears plausible that under the impairment only approach managers have greater incentives to allocate higher proportions of purchase price paid to goodwill rather than other depreciable assets, since as long as the company can avoid impairments, which they may control to a certain extent, this cost will never be charged in income statement which will increase the earnings in subsequent periods. Thus, it can be generally said that the “truthful” use of managerial discretion leads to a situation where information is better conveyed to stakeholders whereas the opportunistic use of discretion leads to distorted financial information.

3.3.2 Earnings Management in Public vs. Private Firms

Earnings management may arise from two related control difficulties, information asymmetry and agency problems (Beatty & Harris 1998, p. 299). Public and private companies have different incentives for earnings management and prior studies have found mixed result on whether public or private companies engage in earnings management more than one another. Burgstahler et al. (2005) found in their study of several European firms, that private firms are more likely to manage earnings than public firms and argued that strong legal systems are associated with less earnings management
in public companies. A similar result was found by Ball & Shivakumar (2005) who carried out a study in UK firms, where they argued that greater exposure of public firms’ financial reports creates a demand for higher quality reporting and found evidence consistent with this view. Both Ball and Shivakumar (2005) and Burgstahler et al. (2005) found evidence that quality of earnings is higher in public firms than private ones. However, contradictory to these findings, Beatty & Harris (1998) and Beatty et al. (2002) who conducted study on US companies, found that public companies are more likely to manage earnings than private ones.

Beatty & Harris (1998) carried out a study to find out the effects of agency costs and information asymmetry on earnings management of public and private banks. They found significantly greater earnings management for public banks and they attributed this result to greater agency costs and greater information asymmetry in public banks. Beatty & Harris (1998, p. 300) found that incentives for engaging in earnings management is greater for public firms since they have more widely dispersed shareholding and have a heightened focus on share price. Having said that, they also mentioned that it is not the case that private firms will not manage earnings at all. Since earnings is one of the factors that regulators consider in assessing the soundness of the bank, consequently both public and private firms can manage earnings, however, other motivations for earnings management are likely to be much less important for private banks and as a result private banks manage earnings less aggressively (Beatty & Harris 1998, p.312). It can be concluded from the literature review on earnings management that capital market pressure and separation of ownership and control give the management of public firms more incentive than private firms for earnings management. However, analysts’ coverage and managers reputation can also restrict the earnings management more in public companies rather than in private companies (Sundgren, 2007, p.42).

3.3.3.1 Managerial Ownership

Warfield et al. (1995) investigated how the level of managerial ownership affects the accounting choices made by managers. When managers hold less equity in the corporation, incentives arise for managers to pursue non-value-maximizing behaviour such as shirking and perquisite taking (Warfield et al. 1995, p.65). In private firms’ managerial ownership is very high compared to public firms. In a study made by Hamilton (1992, cited in Beatty & Harris 1998, p.302), it was shown that private firms are typically directed, managed and operated by the majority shareholders and the primary means of distributing profits is via salary, as opposed to dividends. Since managers in private companies have higher equity stake, it can be expected that the managers in private companies are less likely to make opportunistic accounting choices like inflating the amount of goodwill to manage earnings in later periods.

3.3.3.2 Agency Problems

Agency problem arises with the separation of ownership and management. Without this separation the agency problem disappears (Thomsen & Conyon 2012, p.12). In public companies the shareholders assign the managers to act on behalf of them. However, the managers can act opportunistically to fulfil their own needs rather than focusing on the shareholders’ interest. Thus it can be expected that earnings management can occur in public companies due to managers acting opportunistically.

However, it is likely that this agency problem is less acute in private companies since typically the majority of the shareholders take part in managing the day-to-day operations in company. The owners/shareholders in private companies depend less on outside
managers to run the business in comparison to public companies, which helps to reduce the agency problem and consequently leads to less earnings management occurring due to agency problem.

In a study conducted by Beatty & Harris (1998, p. 302) they found that agency costs are expected to decrease as managerial ownership increases, and managerial ownership is expected to be higher for private than for public firms. Therefore, the use of accounting-based contracts designed to mitigate agency costs is expected to be greater for public firms, and the extent of earning management designed to circumvent these contracts is also expected to be greater for public firms (Beatty & Harris, 1998, p. 302).

3.3.3.3 Information Asymmetry

Information asymmetry arises when one party has more information than others. In a principal and agent settings information asymmetry occurs when agents have more information of some elements of the situation which is not known to the principal (Thomsen & Conyon, 2012, p. 20). Beatty & Harris (1998, p. 299) defined information asymmetry as managers having a more complete set of information about the firm than shareholders. They found in their research that in relation to private companies, public companies are expected to have greater information asymmetry between managers and investors. They mentioned that since in public companies there is more separation between ownership and management, public companies suffer from greater information asymmetry compared to private firms. In private firms the shareholders who tend to hold a large number of company shares are also the key employees of the firm. As a result, information asymmetry is reduced in private firms because these employee shareholders know directly what would otherwise have to be communicated to them (Beatty & Harris, 1998, p. 302).

3.4 Hypothesis Development

The main hypothesis to be tested in this thesis is whether public or private acquirers allocate different proportions of purchase price to goodwill if the target company they acquire have similar characteristics in terms of growth opportunities and asset-liability structure. Under the impairment only approach, opportunistic managers are expected to use the discretion given to them to over-allocate parts of acquisition costs to goodwill since recognising more goodwill rather than recognizing depreciable or amortizable asset will reduce the acquirer’s depreciation and amortization charges and, ceteris paribus, increase a company’s earnings. As long as the company avoids impairments in the subsequent years, this proportion of the acquisition costs is never charged to earnings. By doing so, they do not only increase current and future earnings but also obtain personal benefits in form of higher bonuses (Shalev et al., 2013; Detzen & Zülch, 2012). However, the question remains whether public or private acquirers use their discretion more to allocate higher goodwill, since both public and private companies engage in earnings management, as earnings essentially reflect the soundness of a company. In this regard, studies have found that public firms, on average, have greater incentives for engaging in earnings management than private firms, due to their higher information asymmetry, higher agency problems, lower managerial ownership and higher stock market pressures. (Beatty and Harris, 1998; Ball & Shivakumar, 2005; Warfield, 1995). Therefore, it can be expected that the public firms are more likely to use their discretionary power to inflate the amount of goodwill in order to inflate earnings in the subsequent fiscal years. We, therefore, hypothesize that the proportion of purchase price allocated to goodwill is higher
for public acquirers due to higher earnings management. Our reasoning is based on the following:

**H10: Public acquirers, on average do not allocate a higher proportion of the purchase price to goodwill than private acquirers.**

**H1A: Public acquirers, on average allocate a higher proportion of purchase price to goodwill than private acquirers.**

The emerging goodwill in an acquisition is essentially a measure of value creation from an efficiency point of view. Goodwill is recognised, as the bidding firm believes that it will earn future ‘surplus’ profits from its investment in the target firms compared to an alternative investment with similar level of risks (Bryer, 1995, p. 286). These ‘surplus’ profits arise for a variety of reasons including good customer relations, good employee relations, acquisition of technical and managerial talent, and monopoly power, which cannot be separately identified and reliably valued (Chauvin & Hirschey, 1994; Tearney, 1973 cited in Bugeja et al., 2015).

We argue that the bidding firm adjusts the purchase consideration to recognise the future synergies, growth opportunities and higher expected future firm performance ensuing from their acquisition which in turn increases the amount of recognized goodwill. Bargeron et al. (2008, p. 383) found in their study that firms acquired by public firms have greater sales growth and greater employment growth than firms acquired by private firms. In line with previous studies we are predicting that the public acquirers seek to buy companies with higher growth compared to private acquirers. We further assume that, strong demand for the target company with high growth, can increase the target's bargaining power, which can in return cause the public acquirers over paying for the acquisition and thus results in high goodwill levels.

To capture the growth opportunity of the target company we used their market value in relation to book value as a proxy, which has been used in the same way in the prior studies (Zhang & Zhang, 2007; Bugeja & Loyeung, 2015). Market to book value can be expected to resemble the going concern, synergy potential and also the internally generated goodwill that is not recorded in the balance sheet of the target company (Detzen & Zülch, 2012; Zhang & Zhang, 2007). This leads us to formulate our sub-hypotheses which tries to answer the question whether market to book values in the target firms are reflected in the recognised goodwill levels of the acquiring firm. We, therefore, hypothesize that market-to-book values are positively correlated with goodwill.

**H20: Market to Book value is not positively correlated to the proportion of purchase price allocated to goodwill.**

**H2A: Market to Book value is positively correlated to the proportion of purchase price allocated to goodwill.**
Research Question

Does the proportion of purchase price allocated to goodwill differ between public and private acquirers?

Main Hypothesis

H10: Public acquirers, on average, do not allocate a higher proportion of the purchase price to goodwill compared to private acquirers.

H1A: Public acquirers, on average, allocate a higher proportion of purchase price to goodwill compared to private acquirers.

Sub Hypothesis

H20: Market to book values do not reflect growth opportunities of the target firm and therefore are not associated with the proportion of purchase price allocated to goodwill.

H2A: Market to book values do reflect growth opportunities of the target firm and therefore are positively associated with the proportion of purchase price allocated to goodwill.

Figure 4. Research Question & Hypotheses
4. PRACTICAL METHODOLOGY

In this chapter we have explained how we have collected the data and selected the sample. We have provided description on the dependent and independent variables used in this study. At the end of this chapter, ordinary least square regression model, regression with binary variable and economic model, which are vital for this study, have been described in detail.

4.1 Data & Sample Description

The required data for our study was provided by the International Business Brokers Association in the U.S (IBBA). The dataset includes information about the acquirer, target, acquisition related information, and the purchase price allocations of all deals of US and international private targets in the period from 2001-2007. Although primary data gathered manually from the financial statement of the firms can be considered as more reliable than a secondary source, in business research it is relatively common to rely on secondary sources such as databases or datasets due to unavailability, cost and time considerations in relation to the benefits. We assessed the quality of the provided data to be high since IBBA is the largest international non-profit association operating exclusively for people and firms engaged in business brokerage and mergers and acquisitions. However, the dataset did not provide all necessary information of deals due to missing or, wrong information, which required the cleaning of the data for the purpose of our analysis.

4.1.1 Data Collection

Our initial sample consisted of 5002 successful business combinations between 2001-2007, of which 2002 were public-private transactions and 3000 were private-private acquisitions. We require that the deals were finalised after 1. July 2001 since SFAS 141 & 142 applied to all business combinations accounting for using the purchase method for which the date of acquisition is July 1 2001 or later (FASB, 2001, p.7) This is in particular important, since with the introduction of the impairment-only approach in SFAS 142, managers have an incentive to allocate high proportions of the purchase price to goodwill rather than to other, depreciable or amortizable assets (Boennen & Glaum, 2014, p.13). We, therefore, removed 1359 deals that were finalised before 1. July 2001 to exclude acquisitions that were accounted for by the old standards.

We further excluded 585 private-private deals below the threshold of 100.000 USD to mitigate statistical noise effects in our analysis since it is to be expected that accounting practices for goodwill are inherently different in very small acquisitions which could potentially bias the results of our study. Of the remaining 2885 observations, we found that in 481 acquisitions goodwill was recognised in the acquirer’s financial statements, which makes up about 17%. Finally, we removed 173 deals due to missing target companies’ financial or other missing information, which resulted in a final sample of 481 deals that were finalised in the period between 1. July 2001 and 30. December 2005. In prior studies financial institutions such as banks and insurance companies were usually
excluded since the financial statements of those companies are quite different from the ones of other companies. However, Detzen & Zülch (2012, p. 118) suggest that the differences in accounting between financial and non-financial firms does not severely affect the results such a studies if the regression model uses a limited extent of variables which rely on accounting figures that are presented differently by financial institutions. Since our regression model does not rely on such figures, and financial institutions account for only a small fraction of our sample we decided not to exclude them from our sample. Table 2 summarizes the sample selection procedures.

4.1.2 Dependent Variable
Previous studies on purchase price allocation defined their dependent variable differently. Shalev (2013) and Detzen & Zülch (2012) investigated the relation between CEO bonus intensity and the ratio of purchase price allocated to goodwill. Therefore, they defined their dependent variable as goodwill plus other intangible assets with indefinite useful lives since indefinite-life intangibles provide a similar incentive for acquirers to over allocate goodwill since they are, similarly to goodwill, also not subject to annual amortization (Detzen & Zülch 2012, p. 112). Shalev (2009) and Bugeja & Loyeung (2015) defined goodwill as the dollar value of the purchase price allocated to goodwill scaled by deal value, i.e. the percentage of the purchase price allocated to goodwill. For the purpose of our study, we chose the latter definition since we are mainly interested in how the actual percentage of purchase price allocated to goodwill is affected by the acquirer type and target firm characteristics. Therefore, we define our dependent variable GW_DV as the dollar value of recorded goodwill scaled by the purchase price.

4.1.3 Independent Variables
While we argue that the acquirer type affects the recognition of goodwill versus other assets and liabilities, the PPA to goodwill is essentially determined by the economic characteristics of the target company, synergy gains of the combination, and other deals characteristics (Shalev et al., 2013, pp.830-831) We, therefore, control for a number of supporting variables in our model to capture the economic determinants of the valuation of goodwill versus other assets.

AQTYPE is a dummy variable which takes the value of 1 if the acquirer is a public company and 0 if the acquirer is a private company. We predict a positive relation between goodwill recorded and AQTYPE since public acquirers, as discussed in our theoretical framework, are likely to have higher incentives to over allocate goodwill in comparison to private acquirers due to earnings management considerations. Furthermore, public companies on average acquirer companies with higher growth

<table>
<thead>
<tr>
<th>Table 2. Sample Selection Procedures</th>
<th>Number of Acquisitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful acquisitions between 2000 - 2007</td>
<td>5002</td>
</tr>
<tr>
<td>Less: Takeovers before 1. July 2001 (SFAS142)</td>
<td>-1559</td>
</tr>
<tr>
<td>Less: Deal value below 300,000 USD</td>
<td>-585</td>
</tr>
<tr>
<td>Less: No goodwill recorded by acquirer</td>
<td>-2404</td>
</tr>
<tr>
<td>Less: Missing target companies' financial information</td>
<td>-173</td>
</tr>
<tr>
<td>Total number of acquisitions used in study</td>
<td>481</td>
</tr>
</tbody>
</table>
opportunities which may also drive up the recognised goodwill levels in a business combination (Bargeron et al., 2008, p. 385).

We further control for target characteristics for the operating environment and investment opportunity sets that are related to the underlying economics. Therefore, we control for target firm’s market to book value prior to the acquisition. The variable MVIC_B represents the estimated price, i.e. market value, of a firm’s core operations over the book values. It, essentially, captures the growth potential of the target firm, and thus describes the ability of the target to earn a higher rate of return on its assembled assets. It also reflects the going concern component of the target firm as a standalone business, i.e. internally generated goodwill (Johnson & Petrone, 1998, p.3). According to Penman (1996), price-to-book ratios are serially correlated with increases in future returns on equity and therefore represent reasonable predictors for future profitability. With regard to the PPA, Detzen & Zülch (2012) argue that the difference between a company’s market over book value is expected to correspond to the degree of the going concern element and synergistic potential, and therefore lead to higher levels of goodwill. Moreover, Zhang & Zhang (2007) suggest, that the market to book value also reflects internally generated rents or goodwill that are not recoded in the balance sheet of the target companies. However, they argue that higher market to book values can also be a cause of unrecognised intangibles that may be identified in the purchase price allocation and therefore lead to lower levels of goodwill. As a consequence, they have no unambiguous prediction for the relation between goodwill and the target’s market-to-book ratio. Previous studies find that market-to-book ratios are rather positively correlated with the proportion of purchase price allocated to goodwill by (Bugeja & Loyeung, 2015; Zhang & Zhang, 2007). In line with these findings, we argue that MVIC_B is positively correlated with GW_DV.

We also control for the economic characteristics of the target firm, namely the asset and liability structure. In the course of the PPA, assets, debt and contingent liabilities of the target company are estimated at their fair values at the sale date and then compared to the cost of acquisition. The residual is then recorded as goodwill. We, therefore, expect a negative association between fixed assets (PPE_DV) recorded in the target since high amounts of tangible assets recorded in the target firm’s balance sheet, on average, might increase the amount of net assets identified in the purchase price allocation and therefore reduce the difference between purchase price and net assets leading to lower goodwill. Furthermore, managers have substantially less discretion in the estimation of the fair values for fixed assets in comparison to intangible assets for example. This means that a high fixed asset base provides less flexibility in terms of earnings management.

Conversely, we predict that the amount of liabilities recorded in the targets balance sheet should be positively associated with goodwill. All variables are extracted from the target firms’ financial statements for the fiscal year prior to the acquisition and scaled by the total purchase price.

4.2 Regression Model Specification

The aim of this study is to analyse the relation between the acquirer type in a business combination and the proportion of purchase price allocated to goodwill. Hence, this study uses a linear regression model to study the relationship between our main variables of interest, acquirer type and goodwill.

However, there are potential problems with a reliance on just a single indicator since one indicator may only capture a portion of the underlying relation or be too general (Bryman
Since the amount of goodwill recorded in the PPA is affected by a number of factors, such as the economic characteristics of the target company, and the expected synergy gains from the business combination, we decided to control for a number of supporting variables in a multiple regression analysis (Shalev et al., 2013, pp.830-831). A multiple regression is more amenable to ceteris paribus analysis since it allows us to explicitly control for other factors that simultaneously affect the dependent variable. If more variables are added to the model that are useful in explaining the dependent variable, more of the variation in y can be explained. Therefore, multiple regression analysis can provide us with a better model to predict the relation between the dependent and independent variables (Woolridge, 2003, p.68).

### 4.2.1 Ordinary Least Squares Regression

The general multiple linear regression model can be written as follows:

\[ y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \cdots + \beta_k x_k + u \]

Where \( \beta_0 \) is the intercept, \( \beta_1 \) is the parameter associated with \( x_1 \), \( \beta_2 \) is the parameter associated with \( x_2 \), and so on. The variable \( u \), which is the error term or disturbance in the relation between \( y \) and \( x \), represent factors other than \( x \) that affect \( y \). In order to obtain the ordinary least squared (OLS) estimates - in the case with independent variables, the equation is (Woolridge, 2003, p. 71):

\[ \hat{y} = \hat{\beta}_0 + \hat{\beta}_1 x_1 + \hat{\beta}_2 x_2 + \hat{\beta}_3 x_3 + \cdots + \hat{\beta}_k x_k \]

The least squares criterion minimizes the sum of squared residuals over all observation, thus:

\[ \sum_{i=1}^{n} (y_i - \hat{\beta}_0 - \hat{\beta}_1 x_{1i} - \cdots - \hat{\beta}_k x_{ki})^2 \]

### 4.2.2 Regression with Binary Variables

The PPA to goodwill can, besides quantitative factors that usually can be measured on a scale, also be affected by qualitative factors. Qualitative factors often come in the form of binary information such as, a person is male or female, or an employee has a college degree or not. In these cases, the relevant information can be captured by using a regression model that defines a binary variable, also known as a dummy-variable (Woolridge, 2003, p. 218).

We, therefore, included binary variables in our regression to capture qualitative factors which may affect the PPA. The motivation for including a qualitative independent variable in a regression is essentially the same as for including additional quantitative independent variables. First, to increase the predictive power of the model by making errors smaller. And second, to avoid a omitted variable bias which means, the assessment of the impact of an independent variable is biased, as a consequence of omitting an independent variable that is related to it (Fox, 1997, p.136). Since our study aims to investigate the relationship between recorded goodwill levels among public and private acquirers, we decided to use a binary variable, since it can show how much, be it more or less, goodwill is allocated by an acquirer in comparison to the other acquirer under the same underlying conditions. We considered partitioning our sample to public and private
acquirers and investigate them separately. This approach would be reasonable, but it has its drawbacks since fitting separate regressions makes it difficult to test for differences between public and private acquirers in goodwill allocation. Moreover, if we can reasonable assume that parallel regressions for public and private acquirers exist, then we can more efficiently estimate the slope by using pooling sample data for both groups (Fox, 1997, 136). Thus, we can formulate the common slope model as:

\[ y = \beta_0 + \beta_i x_i + \gamma D_i + u \]

\[ D_i = \begin{cases} 1 & \text{for public acquirer} \\ 0 & \text{for private acquirer} \end{cases} \]

Where is a dummy-variable regressor or indicator variable is coded 1 for public acquirers and 0 for private acquirers.

4.3 Economic Model

To test our hypothesis, we used the same methodology as previous studies by Shalev et al., 2013), Detzen & Zülch (2012). By analysing this model, we aim to investigate the relation between the acquirer type and the levels of recognised goodwill in a business combination. We estimated the following equation to test our hypotheses:

\[ GW_{DV} = \alpha + \beta \text{AQTYPE} + \beta \text{MCIV}_B + \beta \text{PPE}_DV + \beta \text{LIAB}_DV + \beta \text{INTAN}_DV + \epsilon \]

Since the PPA is essentially determined by the economic characteristics of the target company, synergy gains of the combination, and other deals characteristics, we analyse a number of control variables in our model to capture the economic determinants of the valuation of goodwill versus other assets (Shalev et al., 2013, pp. 830,831).
5. RESULTS

At the beginning of this chapter we have described the descriptive statistics by focusing on the sample distribution over time and sample distribution by membership. Further descriptive statistics of the dependent and independent variables used in the regression model have been explained by public and private acquirer type. Lastly we discussed the pair wise correlation of all the variables and the results obtained from the OLS regression model.

5.1 Descriptive Statistics

Table 3 reports the sample distribution of our sample. Panel A presents the distribution of acquisitions over time subdivided by private and public acquirers. Our sample period is 5 years (July 2001 – December 2005), and the sample shows clusters towards the years 2004 and 2005 which account for around 70% of the sample, which may indicate a general economic trend. Moreover, the sample in the years 2002 and 2003 largely consist of private acquisitions with 84% and 87% respectively, whereas in the years 2001, 2002 and 2005, the sample is relatively evenly distributed between private and public acquisitions. The largest private acquisition in our sample was in 2005 for approximately 2 million USD in the manufacturing sector. The largest acquisition by a public company also occurred in 2005 with a deal value of approximately 4,8 billion USD in the manufacturing sector Panel B reports the distribution of our sample across industries. The classification of the target industry is based on the target firms 2 digit SIC codes. The majority of deals accounting for approximately 38% of our sample, took place in the services sector. The second largest industry sector is Retail Trade (approximately 23%), followed by the manufacturing sector which accounts for around 10% of all acquisitions. Thus, these three sectors alone represent approximately 80% of our total sample. With regard to the acquirer type, it can be seen that acquisitions in the service sector, which
represents the largest “group”, are evenly distributed between private and public acquisitions.

However, it is notable that of the 113 acquisition’s in the industry “Retail Trade”, only 7 acquirers are public firms. Acquisitions in the manufacturing sector are slightly biased towards public acquisitions with 71% accounting for public acquisitions, and 29% for private acquisitions respectively. We will take the potential biases discussed into account at a later time and address them separately when assessing the robustness of our results.

Table 4 presents the descriptive statistics for all variables included in our regression model subdivided by the acquirer type. The average purchase price in the total sample is 64,73 million USD, whereas when subdivided by acquirer type, the deal values averaged 138,61 million USD for public acquirers and 337.358 USD in private acquisitions. Thus, it is noteworthy that the average deal value in public acquisitions is significantly higher than for private acquisitions in our sample. The mean of GW_DV, i.e. the dollar value of goodwill recognised scaled by deal value, in other words the percentage of purchase price allocated to goodwill, is 49% for our total sample, while the median is 48,32%. It is notable that the mean for private acquirers (39%), is lower than for public acquirers (55%). The average market-to-book of the target MVIC_B has a mean value of 4,74 with a median of 3,02. We further note, that public acquirers, on average, seem to acquire companies with higher growth opportunities which can be seen in the higher mean for the

\[
\begin{array}{cccccc}
\text{Panel A: Total Sample Deal/Target Characteristics} \\
\text{Variable} & N & \text{Mean} & \text{Std. Dev.} & \text{Median} & \text{Max.} & \text{Min.} \\
\text{Deal Value} & 481 & 64,733,822 & 303,074,899 & 34,356,000 & 4,815,200,000 & 101,300 \\
\text{Goodwill} & 481 & 28,794,938 & 125,187,132 & 44,718,500 & 2,048,394,000 & 1,000 \\
\text{GW_DV} & 481 & 0,4894 & 0,2639 & 0,4832 & 1,2975 & 0,0001 \\
\text{MVIC_B} & 481 & 4,7404 & 10,9341 & 3,0228 & 78,8584 & 0,0938 \\
\text{PPE_DV} & 481 & 0,1766 & 0,2777 & 0,0793 & 2,6386 & 0,0000 \\
\text{LIAB_DV} & 481 & 0,4753 & 0,2434 & 0,234 & 11,3402 & 0,0000 \\
\text{INTAN_DV} & 481 & 0,1356 & 0,3127 & 0,0000 & 2,5208 & 0,0000 \\
\end{array}
\]

\[
\begin{array}{cccccc}
\text{Panel B: By Acquirer Type} \\
\text{AQTYPE=0=Private Acquirer} \\
\text{Variable} & N & \text{Mean} & \text{Std. Dev.} & \text{Median} & \text{Max.} & \text{Min.} \\
\text{Deal Value} & 257 & 337,358 & 305,509 & 1,037,500 & 1,960,000 & 103,300 \\
\text{Goodwill} & 257 & 142,239 & 193,654 & 88,550,000 & 1,770,000 & 1,000 \\
\text{GW_DV} & 257 & 0,3900 & 0,2542 & 0,4167 & 0,9765 & 0,0001 \\
\text{MVIC_B} & 257 & 5,7491 & 12,1326 & 2,1323 & 78,8584 & 0,0938 \\
\text{PPE_DV} & 257 & 0,2477 & 0,3463 & 0,1192 & 2,6386 & 0,0000 \\
\text{LIAB_DV} & 257 & 0,6017 & 1,4663 & 0,2078 & 11,3402 & 0,0000 \\
\text{INTAN_DV} & 257 & 0,1641 & 0,2737 & 0,0000 & 1,2458 & 0,0000 \\
\end{array}
\]

\[
\begin{array}{cccccc}
\text{AQTYPE=1=Public Acquirer} \\
\text{Variable} & N & \text{Mean} & \text{Std. Dev.} & \text{Median} & \text{Max.} & \text{Min.} \\
\text{Deal Value} & 224 & 138,617,265 & 432,915,410 & 55,263,000 & 4,815,200,000 & 215,730 \\
\text{Goodwill} & 224 & 61,668,793 & 178,048,683 & 58,550,000 & 2,048,394,000 & 22,251 \\
\text{GW_DV} & 224 & 0,5503 & 0,2530 & 0,5539 & 1,2975 & 0,0014 \\
\text{MVIC_B} & 224 & 7,3959 & 10,0447 & 3,8526 & 75,8812 & 0,1665 \\
\text{PPE_DV} & 224 & 0,1297 & 0,2092 & 0,0488 & 1,3983 & 0,0000 \\
\text{LIAB_DV} & 224 & 0,3917 & 0,4703 & 0,2678 & 4,5126 & 0,0035 \\
\text{INTAN_DV} & 224 & 0,1167 & 0,3355 & 0,0000 & 2,5208 & 0,0000 \\
\end{array}
\]
MVIC_B for target firms of public acquirers. Target firms in public acquisitions, on average, have a MVIC_B of 7.39 whereas target firms of private bidders have a lower MVIC_B mean of 5.74. This observation is consistent with prior findings, since firms acquired by private firms have, on average, a significantly lower Tobin’s Q than target firms acquired by public companies. The Tobin’s Q ratio is defined as ratio between the market value of a firm’s assets by the replacement costs whereas the market-to-book ratio is defined as the market value of a firm’s assets divided by the book values. Thus, Tobin’s Q will usually be smaller than market-to-book since the replacement values, as a rule are higher due to inflation. Both, are commonly used as proxies for growth opportunities. A high Tobin’s Q indicates high growth opportunities; a low Tobin’s Q low growth opportunities. Tobin’s Q is essentially quite similar to market-to-book values and commonly used as a proxy for the growth opportunities of a firm (Bargeron et al., 2008, p. 383).

Furthermore, it is noteworthy that the median for INTAN_DV amounts to zero since only around 52% of the acquired target companies had intangible assets recorded on their balance sheet prior to the acquisition. Surprisingly, the mean for intangible assets INTAN_DV and fixed assets PPE_DV (scaled by purchase price) is lower in targets of public acquisitions, suggesting that public acquirers pay more for internally generated growth opportunities which are not captured by the target firms balance sheet. This observation is consistent with the above discussed findings that public acquirers, on average, acquire companies with higher growth opportunities. However, this finding could also be affected due to the fact, that a large number of public acquisitions in this sample took place in the services sector. Service companies, on average, have lower levels of fixed assets and lower leverage in comparison to other industry sectors (CSI Markets, 2015). This, also may explain the lower mean for liabilities (LIAB_DV) when the acquirer is public firm.

5.2 Correlation Analysis

In this section, we discuss the pairwise correlations between our variables since it is useful to have a summary on how two random variables vary with one another. We, therefore investigate the relationship between the dependent and independent variables, but we also examine the relationship among the independent variables themselves. It is important to examine the relationship between the independent variables in order to rule out the presence of multi-collinearity, since its presence may lead to difficulties in testing and interpreting regression coefficients (Tabachnick & Fidell, 2014, p.161). This issue will be addressed separately in chapter 6.1.1.

Table 5 presents the pairwise Pearson correlation matrix for the variables used in our regression model. Consistent with our predictions, our dependent variable GW_DV, is positively correlated with our key variable AQTYPE and the targets growth opportunity set MVIC_B. The positive correlation between MVIC_B and GW_DV is consistent with the notion that the value of the targets investment opportunities is captured by goodwill (Zhang & Zhang, 2007, p.15). There is a negative correlation between the targets’ pre-acquisition fixed assets PPE_DV and GW_DV suggesting that target firms with higher levels of recorded fixed assets are more likely to lead to lower proportions of the purchase price recorded as goodwill. The correlations for LIAB_DV and INTAN_DV, however, are not significant. Interestingly, MVIC_B is negatively correlated with PPE_DV, suggesting that there is an inverse relationship between a firm’s asset base and its growth opportunities in our sample. In other words, target firms with low levels of fixed assets
recorded in their balance sheets, on average, have higher growth opportunities. However, this tendency is rather weak (-0.087).

Table 5. Correlation Matrix & Significance Levels

<table>
<thead>
<tr>
<th></th>
<th>GW_DV</th>
<th>AQTYPE</th>
<th>MVIC_B</th>
<th>PPE_DV</th>
<th>LIAB_DV</th>
<th>INTAN_DV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pearson Correlation</strong></td>
<td>GW_DV</td>
<td>AQTYPE</td>
<td>MVIC_B</td>
<td>PPE_DV</td>
<td>LIAB_DV</td>
<td>INTAN_DV</td>
</tr>
<tr>
<td>GW_DV</td>
<td>1.000</td>
<td>0.296</td>
<td>0.077</td>
<td>-0.337</td>
<td>0.010</td>
<td>-0.037</td>
</tr>
<tr>
<td>AQTYPE</td>
<td>0.296</td>
<td>1.000</td>
<td>0.066</td>
<td>-0.227</td>
<td>0.174</td>
<td>-0.273</td>
</tr>
<tr>
<td>MVIC_B</td>
<td>0.077</td>
<td>0.066</td>
<td>1.000</td>
<td>-0.087</td>
<td>-0.175</td>
<td>-0.060</td>
</tr>
<tr>
<td>PPE_DV</td>
<td>-0.337</td>
<td>-0.227</td>
<td>-0.087</td>
<td>1.000</td>
<td>0.173</td>
<td>0.076</td>
</tr>
<tr>
<td>LIAB_DV</td>
<td>0.010</td>
<td>0.174</td>
<td>-0.175</td>
<td>0.173</td>
<td>1.000</td>
<td>-0.019</td>
</tr>
<tr>
<td>INTAN_DV</td>
<td>-0.037</td>
<td>-0.273</td>
<td>-0.060</td>
<td>0.076</td>
<td>-0.019</td>
<td>1.000</td>
</tr>
<tr>
<td><strong>Significance</strong></td>
<td>GW_DV</td>
<td>AQTYPE</td>
<td>MVIC_B</td>
<td>PPE_DV</td>
<td>LIAB_DV</td>
<td>INTAN_DV</td>
</tr>
<tr>
<td>GW_DV</td>
<td>0.000</td>
<td></td>
<td>0.124</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>AQTYPE</td>
<td>0.090</td>
<td>0.124</td>
<td>0.066</td>
<td>0.001</td>
<td>0.150</td>
<td></td>
</tr>
<tr>
<td>MVIC_B</td>
<td>0.000</td>
<td>0.000</td>
<td>0.066</td>
<td>0.000</td>
<td>0.048</td>
<td></td>
</tr>
<tr>
<td>PPE_DV</td>
<td>0.419</td>
<td>0.000</td>
<td>0.001</td>
<td>0.000</td>
<td>0.337</td>
<td></td>
</tr>
<tr>
<td>LIAB_DV</td>
<td>0.214</td>
<td>0.000</td>
<td>0.150</td>
<td>0.048</td>
<td>0.337</td>
<td></td>
</tr>
<tr>
<td>INTAN_DV</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.337</td>
<td></td>
</tr>
</tbody>
</table>

Note: Table 5 depicts the pairwise Pearson correlation of the variables included in the regression model. The corresponding significance levels are reported below. Bold marked correlations are significant at the 5% level.

It is important to note, that the interpretation of correlation coefficients should be treated with caution, since it can only indicate if an association between two or more variables exists, but it does not explain if one variable has a causal effect on another variable". In order to find out how our explanatory variable affects our dependent variable, we have to put it in context with other independent variables that may also have an impact on the dependent variable to understand the causal relationship. To find out the causal relationship, the notion of ceteris paribus analysis plays an important role, which means “other relevant factors being constant” (Woolridge, 2003, p.13). In analysing how the acquirer type affects the PPA, we are interested in knowing the effect of changing our explanatory variable AQTYPE, while we hold all other factors constant. If other factors are not held constant, we cannot determine the causal effect of AQTYPE on the percentage of purchase price allocated to goodwill. In other words, we investigate how the allocation of purchase price to goodwill differs between private or public acquirers when the target has similar characteristics in terms of market-to-book value and asset/liability structure.

5.3 Regression Analysis

In order to investigate if the acquirer type affects the proportion of purchase price allocated to goodwill, we used the OLS regression model as defined in section 4.1.3. Table 6 reports the ordinary least squares (OLS) estimation of our main regression model.

Our main explanatory variable AQTYPE is statistically significant at the 5% level. Since it is a dummy variable, the interpretation of its coefficient differs from the interpretation of the other variables included in our regression model. The coefficient on AQTYPE is interesting, because it measures the average difference in the proportion of the purchase price allocated to goodwill between public and private acquirers, given the same levels growth opportunities and economic characteristics of the target firm. In other words, this means, that a public acquirer, on average, allocates 12.3% more of the purchase price to goodwill than a private acquirer when the other independent variables are held constant.
It is important to note that, because we controlled for the economic factors of the target company in our regression model, the 12.3% differential in the proportion of purchase price allocated to goodwill cannot be explained by different average levels of growth opportunities (MVIC_B), and the average balance of fixed assets (PPE_DV), intangibles (INTAN_DV) and liabilities (LIAB_DV) between public and private acquisitions. We therefore can conclude than the differential results from, for example, earnings management factors associated with the acquirer types, or associated with factors, that we have not controlled for in our model. We have to keep in mind, that the differential could stem from higher synergistic potential in public acquisitions or acquirer characteristics that we have not controlled for. We will discuss this issue in more detail in section 7.2.

Turning to the target firm’s growth opportunities, as we find a positive coefficient on MVIC_B. Although, the sign on the coefficient is positive as expected, which would mean that the value of the target firms growth opportunities is captured by goodwill, it is statistically not significant.

As predicted, the coefficient on PPE_DV is negative, suggesting that target firms with a higher fixed asset base, on average, lead to lower proportions of purchase price allocated to goodwill. The intuition behind this effect as follows. The purchase price is usually first recorded against the re-evaluated assets and liabilities at fair value. Thus a large fixed asset base should be negatively associated with goodwill (Bugeja & Loyeung, 2015, p.251). Furthermore, managers have significantly less discretion in the valuation of fixed assets, meaning that a proportionally large fixed asset base in relation to the deal value may, on average, drive down the ratio allocated as goodwill. LIAB_DV and INTAN_DV are both statistically not significant. LIAB_DV is of the predicted sign but the p-values for both variables are too high to draw any conclusions.

Table 6. Main Regression Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Predicted Sign</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Stat.</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(Constant)</strong></td>
<td></td>
<td>0.442</td>
<td>0.028</td>
<td>15.724</td>
<td>0.000</td>
</tr>
<tr>
<td>AQTYPE</td>
<td>+</td>
<td>0.123</td>
<td>0.030</td>
<td>4.094</td>
<td>0.000</td>
</tr>
<tr>
<td>MVIC_B</td>
<td>+</td>
<td>0.001</td>
<td>0.001</td>
<td>0.822</td>
<td>0.412</td>
</tr>
<tr>
<td>PPE_DV</td>
<td>-</td>
<td>-0.307</td>
<td>0.060</td>
<td>-5.152</td>
<td>0.000</td>
</tr>
<tr>
<td>LIAB_DV</td>
<td>+</td>
<td>0.012</td>
<td>0.024</td>
<td>0.480</td>
<td>0.631</td>
</tr>
<tr>
<td>INTAN_DV</td>
<td>+/-</td>
<td>0.053</td>
<td>0.055</td>
<td>0.967</td>
<td>0.334</td>
</tr>
</tbody>
</table>

Note: This table presents the results of our main regression model, with the dependent variable measuring the proportion of purchase price allocated to goodwill. Significance denotes p-values for the coefficients.

The adjusted R² is 15.5%, indicating that 15.5% of the total variation in our dependent variable GW_DV can be explained by our independent variables. Thus, the target firms’ economic characteristics can only to a small extent explain the proportion of purchase price allocated to goodwill. Other comparable studies that investigate the over-allocation of purchase price to goodwill, also show relatively low adjusted R² such as for example, Zhang & Zhang (2007) adj. R²= 0.19; Detzen & Zülch (2012) adj. R²= 0.234 for their economic models. However, a low R² does not necessarily mean that the regression model is useless. The OLS estimates can still be reliable estimates of the ceteris paribus effects of the independent variables on the dependent variable. If enough observations are included in the regression, it is possible to precisely estimate partial effects of each
independent variable although we have not controlled for many unobserved factors (Woolridge, 2003, p.196).
6. TESTING & VERIFICATION OF RESULTS

In this section, we discuss whether the assumptions under which the ordinary least squares estimates are unbiased are fulfilled. In this regard, we will test our data for multicollinearity, residual normality and homoscedasticity. Subsequently, we will conduct a number of subsample tests in order to assess whether the results deviate substantially from our main regression.

6.1 Statistical testing of Regression Model

6.1.1 Absence of Multicollinearity

One basic assumption of a multiple linear regression model is that the explanatory variables or the independent variables respectively are not exactly linearly related. If two or more variables are highly or exactly correlated, then not all parameters can be estimated reliably. For instance:

If \( x_3 = 2x_1 + 3x_2 \), then \((\beta_1 + 2\beta_3)\) and \((\beta_2 + 3\beta_3)\) are the estimable linear functions, but cannot be separately estimated. This is referred to as perfect multi-collinearity. When the explanatory variables are highly inter-correlated, the interpretation of the separate effects of the independent variables on the dependent variable becomes difficult (Maddala 2001). Therefore, low inter-correlations between independent variables will lead to less problems in estimating the regression coefficients (Woolridge, 2003, p.99). Since our model includes multiple independent variables, we have to control for the risk of multi-collinearity. In order to address this issue, we computed the variance inflation factors (VIF) for our variables which is a widely used measure for the degree of multi-collinearity of the independent variables in a regression model. In practice, a VIF that exceeds the value of 10 is regarded as a problematic in terms of multi-collinearity (O’Brien, 2007, p.673). Our results show relative low VIF values around 1 which means that we can, with relatively high certainty, exclude the possibility of multi-collinearity among our independent variables.

6.1.2 Residual Normality

OLS regressions are vulnerable for departures from normality. In order to make an assessment whether \( \hat{\beta} \) is a reasonable estimator of \( \beta \), it is necessary to examine if the errors are normally distributed. Violations of normality can result in problems, since the calculation of the confidence intervals and significance tests for the coefficients are based on the assumption that errors are normally distributed. If the distribution of errors significantly deviates from normality, confidence intervals cannot be determined reliably (Woolridge, 2003, pp. 84-88). We saw in, 4.2.1., that the OLS regression chooses estimates for a particular sample so that the residuals average out to zero which means that the sample correlation between each independent variable and the residual is zero. In order to obtain an OLS regression that is unbiased, the error \( u \) should be close to a mean of zero and a standard deviation of 1(Woolridge, 2003, p. 116). We, therefore, plotted the standardised residuals to evaluate this issue and found no evidence for departures from residual normality.

6.1.3 Absence of Heteroscedasticity

The homoscedasticity assumption for an OLS regression requires that the error \( u \), which is conditional on the independent variables, is constant. The assumption fails whenever
the variance of the unobservable changes across different segments of the population (Woolridge, 2003, p.257). In other words, the standard deviation of errors of prediction are approximately equal for all predicted dependent variables. Serious heteroscedasticity can lead to a weakened analysis (although is does not invalidate them), and therefore has to be controlled for. Heteroscedasticity in the data can be visually detected by looking for a systematic pattern in the residuals. Typically, in a residual plot the cluster of point takes a rectangular shape when the data is homoscedastic (Tabachnick & Fidell, 2014, pp.162–163). We visually controlled for a potential inference of the OLS assumptions by plotting the observed residuals against the predicted residuals and found no evidence that heteroscedasticity might be an issue1. In fact, since the residual plot has a fairly rectangular shape with a high concentration of points along the centre, we assume that all OLS assumptions, which are homoscedasticity, linearity and normality are fulfilled (Tabachnick & Fidell, 2014, pp.162–163).

6.2 Subsample Analysis

Since the introduction of SFAS 141&142 there have been numerous examples for its application and companies can use this information to understand the potential accounting implications of any planned acquisitions. However, such an analysis should be viewed with caution since each transaction is unique, and the PPA may not necessarily be consistent for all transactions, be it a transaction within the same industry or not (PwC, 2014). Although the intangible assets identified as part of a transaction within the same industry are likely to be similar, each target firm is unique in its characteristics since different assets may be identified or similar assets have different characteristics such as, for example their useful economic lives, over which they have to be amortised (PwC, 2014, chap.7-1). These factors may lead to significantly different proportions of the purchase price recorded to goodwill across industries.

Since the vast majority of our deals with, on average, very larges deal values took place in the services sectors, it is possible that our results might be biased towards the service industry. In order to verify that our overall results hold, we conduct a subsample analysis, by excluding the transactions from the services sector (SIC 70-89). This reduces our sample to 302 observations of which 172 are private firms and 130 are public firms. The proportion of purchase price allocated to goodwill had a mean approximately 44% in this sample and the deal value averaged 84 million USD. As expected, adj. R² dropped from 15.5% in the original model to 12% in our subsample. We re-run the regression and find that our coefficient on AQTYPE decreases from 0,123 in the main model to 0,113 after the deals from the service sector were removed, indicating that the difference in the proportion of purchase price allocated to goodwill is higher between public and private acquirers in the service industry. In order to verify our assumption, we ran a regression separately for the service industry which consisted of 179 observations of which 85 were private firms and 94 were public firms. We find that AQTYPE is significant at the 5% level, and with a coefficient of 0,138 on AQTYPE higher than in the main regression model which confirmed our assumption2.

Additionally, we investigated the effect of excluding all deals from the manufacturing sector (SIC codes 20-39), which is the second largest industry group after the service industry from our initial sample. After removing 100 deals from the manufacturing sector our subsample consisted of a total of 381 observations of which 228 were private firms

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1 Refer to Appendix A
2 Refer to Appendix B 1)
and 153 were public. For this subsample, we find that after removing the deals from the manufacturing sector the coefficient on AQTYPE increases to 0.151, suggesting that, on average, public acquirers allocate 15% more of the proportion of purchase price to goodwill in relation to private acquirers in this subsample. In this regard, we also analysed a subsample which consisted only of deals that took place in the manufacturing sector. The results indicate that, public acquirers, on average, allocate only 8% more of the purchase price to goodwill in relation to private acquirers in the manufacturing sector. However, the coefficient on AQTYPE was not statistically significant. For the detailed regression output please refer to Appendix B.

After completing a number of tests we can summarize that the results from our main regression model appear to be fairly robust. We observed, that the coefficient on AQTYPE moved in the range of 0.113 – 0.151 depending on the subsample analysed. We furthermore found that the results of our main regression is slightly affected by industry effects after analysing the service- and industry-sector separately. Moreover, the findings indicate that the differences in target firm characteristics may lead to different levels of goodwill recorded across industries.
7. DISCUSSION

In this chapter we discuss the results of the statistical analysis by linking the obtained findings based on the theories we have presented in our theoretical framework. Finally, we will address how this thesis meets the requirements of internal and external validity.

7.1 Discussion of Results

In this study, we investigated whether different acquirer types, namely private and public firms account for goodwill differently in business combinations. We, therefore, analysed a sample of 481 business combinations in the US in the time period of 2001-2005. Based on the findings of previous studies, we formulated one research question, one main hypothesis and one sub hypothesis which were tested in the course of our analysis.

In 2001 the FASB introduced SFAS 141 “Business Combinations” and SFAS 142 “Goodwill and other Intangible Assets” which mandated companies to no longer amortize goodwill on an annual basis but instead test for goodwill impairment annually. FASB’s argument for such change is that on the one side, the new standard will result in improved representational faithfulness, comparability and relevance. On the other side, the new requirements, give certain advantages to the management since they have substantial discretion on when to report goodwill impairment as previous studies have indicated. Adversaries of SFAS 141&142 have argued that this common practice may significantly reduce the decision usefulness of financial statements.

In this context, previous studies suggested that opportunistic managers use their discretion in purchase price allocation to allocate a higher proportion to goodwill rather than any depreciable or amortizable asset since as long as the company avoids impairments in the subsequent years, this proportion of the acquisition costs is never charged to earnings, which not only increases current and future earnings but also helps to obtain personal benefits in form of higher bonuses that are often coupled with earnings figures (Detzen & Zülch, 2012; Shalev et al., 2013).

It is a matter of empirical investigation to find out whether public or private acquirers allocate a higher proportion of the purchase price to goodwill. Since public and private companies vary in their accounting choices, bidding and payment methods, choice of targets etc., thus it can also be expected that they will differ in allocating the portion of total purchase price to goodwill as well. In this regard, Studies in the field of earnings management behaviour have consistently found that public firms have greater incentives for engaging in earnings management than private firms, due to their higher information asymmetry, higher agency problems, lower managerial ownership and higher stock market pressures (Beatty and Harris, 1998; Ball & Shivakumar, 2005; Warfield, 1995). Consequently, it can be expected that the public companies have higher incentives to inflate the amount of goodwill for the purpose of later engaging in earnings management compared to private companies.

Essentially, the amount of goodwill recorded, is dependent on a wide range of factors apart from earnings management. Such factors are new synergies emerging from the business combination, and the target characteristics for the operating environment and investment opportunity sets that are related to the underlying economics. Thus, one could argue the differences in goodwill levels recorded in public and private acquisitions could simply be due to fact that public and private firms acquire different types of target firms with different characteristics. For instance, Bargeron (2008, p. 385) suggested that, on average, public companies acquire companies with higher growth opportunities which,
on average, leads to higher goodwill levels in public deals than in private deals. In order to rule out this possibility, we controlled for the target firm’s characteristics in our regression model. Based on this framework, provided by agency theory and the discretion, inherent in the accounting for goodwill in business combinations we formulated the following research question.

Research Question: Does the proportion of purchase price allocated to goodwill differ between public and private acquirers in a business combination?

In order to investigate whether public acquirers allocate a higher proportion of the purchase price to goodwill in comparison to private acquirers, we constructed a regression model, with the binary explanatory variable AQTYPE, which controls for the target firm’s growth opportunities and asset and liability structure. Based on our theories presented in the framework we hypothesized that the coefficient on AQTYPE should be positive meaning that public acquirers allocate higher proportions of the purchase price to goodwill. We find that the coefficient on AQTYPE is positive and significant at the 5% level. As a consequence, we reject our null hypothesis that public acquirers do not allocate a higher proportion of the purchase price to goodwill in relation to private acquirers. In our main regression model, the coefficient on AQTYPE took a value of 0.123, which suggests that public acquirers, on average, allocate 12.3 percent more of the total purchase price to goodwill than private acquirers. However, we note that this difference may only partially stem from stronger earnings management incentives in public firms since we did not control for differences in acquirer characteristics, or differences in emerging synergies in our regression. Thus we cannot provide an explanation of, how much exactly the difference is explained by earnings management effects. Furthermore, we conducted a number of robustness tests in order to confirm our results. We constructed different subsamples for different industry sectors in which the target firm operates and found that the coefficient on AQTYPE moved in the range of 11.3 to 15.1 percent, strongly suggesting that public companies consistently allocate a higher proportion of the purchase price to goodwill across industries. Thus, we can conclude that although there appear to be differences across industries, in general, higher levels of goodwill are allocated when the acquirer is public, indicating that our results are consistent.

Our second variable of interest, MVIC_B is a proxy for the growth opportunities and investment set in the acquired firm, which, according to conceptual definition of goodwill provided by Johnson & Petrone (1998), should be captured by the goodwill recorded in a business combination. Thus, we would assume a significant positive association between MVIC_B and GW_DV if the accounting for goodwill consistently captures the growth opportunities in the target firm. We find that the coefficient is positive on MVIC_B however it is statistically not significant with a p-value of 0.412. Thus we cannot reject the null hypothesis that MVIC_B is not positively associated with GW_DV. This result is contrary to findings of previous studies which found a significant positive relation between the target’s market to book value and the proportion of purchase price allocated to goodwill in “public-public” acquisitions (Shalev et al., 2013; Detzen & Zülch, 2012; Zhang & Zhang, 2007). However, we also found a recent study which documents that there is no association between the target firms market-to-book value and the level of goodwill recorded in a business combination (Bugeja & Loyeung, 2015).

It is noteworthy that these studies were essentially different in an important point as they required that both acquirer firm and target firm be publicly listed prior to the business combination. This has important implications, since the valuation of a private company inherently differs from the valuation of public companies since their market value is not...
determined by the stock price. The valuation of private firms is based on a number of assumptions, best guess estimates and industry averages, and furthermore lacks transparency since private companies are not required to disclose much information in comparison to public firms. Hence, the valuation based on incomplete and presumed information might lead to MVIC_B that do not correctly or accurately capture the growth opportunity of a firm. We assume that this could explain our insignificant results for MVIC_B since our studies includes only private target companies.

7.2 Reliability

Reliability refers to the extent to which data collection techniques or analysis process will yield consistent findings (Saunders et al., 2009, p. 156). Reliability refers to the accuracy and precision of the measurement and absence of differences in results if the research were repeated (Collis & Hussey, 2014, p.217). The data used in this study is collected from the International Business Brokers Association in the U.S (IBBA) which can be considered as highly reliable since IBBA is the largest international non-profit association operating exclusively for people and firms engaged in business brokerage and mergers and acquisitions. As we have collected data from a credible and reputed source so we believe that the data is reliable and accurate. Survey data from a large well known organization, Government organizations and continued existence of such organizations increase the validity and reliability (Saunders et al., 2009, p. 274).

Since we have used secondary external data it means that our study can be easily replicated by others wanting to conduct a similar study. However, we had to filter the data ourselves to make it useable for our specific research purpose, since in the dataset some of the deal terms were missing. All the assumptions we made for filtering the data and for the analysis part has been explained thoroughly, which would make replication of this study relatively easy.

According to Robson (2002, cited in Saunders et al. 2009, p.156) there are four threats to reliability. Our research work does not face any threat of “subject or participation error”, since the data we collected are about acquisition deal terms which is quantitative and the deal terms are going to be exactly the same at any point of time. So our study passes the stability test as the measure used in this research is stable over time and results relating to that measure for a sample of respondents do not fluctuate (Bryman & Bell, 2011, p. 169). “Subject or participant bias” can occur when the subject of the study is telling what is not on their mind rather what others want them to say (Saunders et al., 2009, p. 156). Our research is also free from this problem as we did not interview anyone who could have been influenced to say something that was not on their mind.

In this study we cleaned filtered the data for the purchase deals that may have created the possibility of the “observer error” in our work. To mitigate this risk, we established strict rules regarding how to filter the data to ensure that both of us did it exactly the same way. For the articles and research papers used in this study we have tried to select renowned and credible authors and journals. “Observer bias” occurs when the data collected is interpreted by co-researchers differently who are conducting the same research (Saunders et al., 2009, p. 156). After cleaning the data, we carried out the regression analysis, thus our interpretation was not affected by our personal interpretation of the collected data. As we have collected data of high quality and conducted the analysis carefully with proper explanations, the reliability of our research appears to be high.
7.3 Internal & External Validity

According to Bryman & Bell (2011), measurement validity is about whether or not a measure of a concept really measures that concept which means that there must be a causal relationship between the variables used in a study to ensure the results are valid (Saunders et al., 2009, p. 157). To conduct our study, we used the same research methodology as previous studies as for example Shalev et. al (2012) and Detzen & Zülch (2014). They found that the variables used in our study are causally linked to goodwill levels, meaning that the requirement of measurement validity should be. Construct validity encourages a researcher to deduce a hypothesis from a theory that is relevant to the concept (Bryman & Bell, 2011, p. 171). However, it appears that we might have an issue with internal validity. In our study we are aiming to make causal inferences whether private or public firms are associated with the practice of allocating higher levels of goodwill. In order to make a causal inference, we are trying to rule out other factors that might affect our dependent variable, by controlling for the target firms’ economic characteristics that essentially affect the amount of goodwill recorded in a transaction. However, we could not control for a number of variables, most importantly the economic characteristics of the acquiring firm and the synergistic potential emerging from the combination of the businesses due to the lack of available data. Thus, we cannot rule out the possibility that our results are affected by the uncontrolled factors. Hence, we assess the possibility that our study is not internally valid, as relatively high. With regard to construct validity, we formulated our hypothesis based on research areas that have already been linked to goodwill accounting in previous studies. We, therefore, assume that our hypotheses are based on theories that are relevant to our concept.

External validity is an important part of a study which is associated with the generalization of the result to the world at large. External validity tries to find out to what extent the findings obtained from a research can be generalized into other settings and other people. This study exclusively focuses on the US market for mergers & acquisitions which makes it questionable whether our study is internationally valid. One problem in terms of generalizability is that business combinations in the US are accounted for by US GAAP whereas in Europe IFRS rules apply. Another problem is that the US merger market (Anglo-Saxon model) is somewhat different with different accounting traditions and capital market institutions. However, on the other hand, it can be argued that the rules for goodwill accounting under US GAAP and IFRS have converged quite a bit since SFAS 141&142 meaning that our findings might be applicable to a IFRS setting as well.

External validity is an important part of a study which is associated with the generalization of the result to the world at large. External validity tries to find out to what extent the findings obtained from a research can be generalized into other settings and other people. We have excluded deals below the threshold of 1 Million to make sure that the accounting practises of small companies does not affect our analysis, which means that our study might not be valid for relatively smaller firms. We have only focused on US acquirers which makes it questionable whether our study is internationally valid. Since in our data set we have US public and US private acquirers, we have focused on US GAAP standards for the treatment of goodwill and intangibles. However, both US GAAP and IFRS have quite similar rule in this regard. So the findings we have come up with under US GAAP can be generalized in the IFRS context as well.
8. CONCLUSION

In this concluding chapter we state our key findings which answers the research question and purpose of our study. Then we discuss how our study has contributed in the theoretical and practical field of knowledge. Finally, we point out some interesting areas of goodwill accounting that may be of interest for future research.

8.1 General Conclusion

The purpose of this study was to find out whether goodwill is accounted for differently by public and private acquirers. To investigate this phenomenon, we have carried out a quantitative study on a sample of 481 business combination deals in the US from 2001 - 2005. Even though the volume of acquisitions involving the privately held targets far surpasses that of publicly traded firms, prior empirical studies focused on purchase price allocation of business combinations, where the targets were mainly public companies. In our study we accounted for only the acquisition of private firms by both public and private acquirers. Furthermore, to the best of our knowledge no study focused on whether public and private acquirers differ in allocating percentage of purchase to goodwill which is answered by our research. After the introduction of SFAS 141 and 142 by FASB in 2001, which prescribed the impairment of goodwill, the level of managerial discretion and incentives for earnings management may have increased and resulted in inflated amounts of goodwill, Studies in the field of earnings management have pointed out that the public companies have higher incentives for engaging in earnings management and from that it can be expected that the public companies will allocate higher amount of goodwill for the purpose of later engaging in earnings management compared to private companies.

The amount of goodwill allocated is influenced by variety of factors, such as earnings management incentives of the acquirer firm, synergy effects of the combined businesses, target company’s investment opportunities and operating environment etc. Since the main aim of this thesis is to examine how much, on average, the proportion of the purchase price allocated to goodwill differs between public and private companies, we used the binary explanatory variable AQTYPE and controlled for the target firm's growth opportunities and asset-liability structure, and we found that public acquirers in comparison to private acquirers, on average, allocate 12,3% more of the total purchase price to goodwill. We also controlled for industry effects since the majority of deals in our sample took place in the service and the manufacturing sector. We find that public acquirers still allocate higher proportions of the purchase price to goodwill, ranging from 15% in the service sector, to 8% in the manufacturing sector. Our results suggest that public acquirers account for goodwill differently than private acquirers. However, due to lack of availability of data, we had to be content with a model that only controls for the target firm's characteristics, and alas could not control for other factors such the earnings management incentives in the acquiring firm or the synergistic potential of the business combination.

Additionally, we investigated if the target firm’s growth opportunities are positively associated with higher goodwill levels. If the purchase price allocation, on average, is conducted in a consistent way by acquiring firms, the allocated goodwill amounts should reflect the growth potential of the target firm. However, we find no association between goodwill levels and the growth opportunities of the target firm, indicating that the PPA is opportunistic and does not reflect the underlying economics of the target firm. As discussed earlier, this result is contradictory to previous studies, which might be due to
the fact that our study only includes private acquisitions whereas prior researchers focused on mostly public acquisitions.

8.2 Theoretical Contributions

This study contributes to the existing literature of goodwill accounting from a different angle, by comparing the goodwill allocating practice of public and private companies. Our study contributes to the existing knowledge of purchase price allocation. To the best of our knowledge this is the first study which focuses on finding out whether public or private companies, on average, allocate higher proportions of the purchase price to goodwill arising from acquisition. Furthermore, this study in particular focuses on the acquisition of only private target firms which distinguishes this study from previous studies that investigated purchase price allocations in acquisitions of public firms by public acquirers.

During our search for literature on goodwill accounting we came to realize that not much attention is devoted to private bidders and there is no such research that specifically focuses on finding out why the goodwill allocating behaviour is different among public and private acquirers. In our study we have addressed this research gap in detail and tried to explain the reasons behind public and private acquirers’ differences in purchase price allocation practices. In our study we have focused on multiple variables, such as acquirer type, target firm’s growth, asset-liability structure to control for the influencing factors that are likely to be associated with the allocation of goodwill. However, we found little evidence to suggest that target firms characteristics are significantly correlated with the proportion of purchase price allocated to goodwill. Our results may indicate that the allocation of the purchase price to goodwill is opportunistic, and support the notion that the recorded goodwill levels do not consistently reflect the target firm’s characteristics and growth opportunities. Our findings may also help in predicting public and private acquirers’ goodwill allocating behaviours in an IFRS environment. Although we conducted our study in the context of US GAAP standards, our results might be transferable to a IFRS setting since accounting regulations on goodwill have increasingly converged during the past decade.

8.3 Practical Contributions

This study contributes to the understanding of goodwill accounting and business combinations by investigating the differences in purchase price allocation practices between public and private acquirers. Our results suggest that public companies, on average, are more likely to record higher proportions of the purchase price to goodwill. In our study we have highlighted how goodwill accounting is subject to managerial discretion. Thus, our study can help the personnel of accounting departments to better understand goodwill accounting which can in return help them in setting up a superior guideline for purchase price allocation practices. Our findings can be of interest to the regulatory body whose aim is to ensure proper goodwill accounting practices and also to the auditors whose duty is to provide an opinion as to whether financial statements give a true and fair view of the net assets, financial position and results of operations. Second, we add to research on the role of external appraisers in fair-value measurement. We believe that our findings have practical implications on research for goodwill impairment as well. Studies of goodwill impairment take the amount of recognized goodwill as given, which is endogenously determined by various factors (Zhang & Zhang, 2007, p. 26). We suggest that only focusing on goodwill impairment alone is not enough, since managerial...
discretion is exercised in accounting for goodwill as well, which is explained in our research.

8.4 Societal Contributions
Goodwill and other intangible assets have become more important recently and as a result it has become vital for the stakeholders to understand how companies generate and record goodwill. The result of our study contributes towards increasing the knowledge of investors and other stakeholders regarding goodwill allocation practices. We have demonstrated how goodwill accounting is strongly associated with discretionary decisions and how managers in public companies might have an interest in recording higher amounts of goodwill compared to private companies’ managers, due to their earnings management incentives.

Thus, this study may help external as well as internal stakeholders to more carefully scrutinize the information regarding goodwill positions provided by financial statements or financial disclosures, which could help to assess the truthfulness of recorded goodwill positions more reliably. This, in particular, is an important concern for all stakeholders since the economic and financial soundness of a company can be very much affected by the recognized goodwill positions in large business combinations. Further, this study might also be of interest especially for non-institutional investors, as they are often not fully aware of the nature of the goodwill asset, and how the choices made in the purchase price allocation can affect the earnings as well as the stock prices in the subsequent fiscal years.

Furthermore, this study may be interesting for the owners or investors of the target firm since in a business combination the owners or investors of the target firm are often compensated in the form of shares of the acquiring company. Thus, the owners and investors of the target firm might have an interest in knowing that under the impairment-only-approach, goodwill-accounting could be influenced by earnings management incentives especially in public acquisitions, and in this regard, whether or not the recorded goodwill levels in the purchase price allocation are reasonable. This knowledge can be of importance for the target firms’ owners and investors as the share price and the performance of the merged company in future periods is affected by the decisions made in the purchase price allocation. As shown earlier, earnings might be inflated though the over-allocation of parts of the acquisition cost to goodwill which might lead to a misrepresentation of the company’s actual capabilities and in turn lead to impairments and linked to that, declines in share prices.

8.5 Limitations and Suggestions for Future Research
During our thesis writing process we have discovered many interesting facts surrounding goodwill accounting which may need further attention. In the following, we list a few ideas that might be of interest for future researchers in the area of goodwill accounting. To conclude we discuss the limitations of this study.

The FASB has introduced a new alternative rule to make it easier for private companies to account for goodwill accounting. Accounting Standards Update (ASU) No. 2014-02 (the alternative) focuses on the needs of private companies, by reducing the cost and complexity of performing the goodwill impairment test for private companies only. The alternative is effective after 15 December 2014. According to the new alternative private companies can elect to amortize goodwill on a straight-line basis over 10 years and perform a simpler one-step impairment test at either the entity level or the reporting unit
level (EY, 2014, pp. 1-3). In our study we have considered deals in the period from 2001-2005 in which testing for impairment was required. However, it would be interesting to investigate the implications of the new regulation on the earnings statements and accounting decisions of private firms since it seems that not much is known about private firms in the context of goodwill accounting.

In addition, it would be interesting to get deeper insight into the process of purchase price allocation practices at first hand, and how these decisions in this process are made in reality. That is, how much discretion do managers actually have during the PPA, and how are auditors and auditing committees involved in these decisions. Most studies are based on archival data which can only provide us with indirect answers. Thus, it would be interesting to conduct a quantitative study in form of a survey or a clinical study in order to gain a deeper understanding. However, we assume that most companies are not so keen to share their earnings management practices in the name of research.

We are aware of the limitations of our study and suggest that future research could investigate the relationship of goodwill and the acquirer type based on a larger sample which includes public and private deals with better comparability. Our final sample consisted of public deals which deal values on average were many times higher than in private deals. We assume that a more homogenous sample in this regard would lead to more consistent results due to the higher comparability of the target firm’s characteristics. Moreover, in our model we could not control for important factors such as synergistic potentials and the acquirer characteristics due to the lack of available data. Thus, our results are likely subject to omitted variable bias, meaning that our OLS estimates may not be consistent and accurate. In this regard, future studies might reproduce this study by using a more sophisticated model with better measures for acquirer and target firm’s growth potential, and synergistic potential of the business combination.

In recent years, an increasing number of private firms have been active in the acquisition market. Though the press has emphasized on the relative importance and growing role of private firms in the takeover market, academic research has devoted little attention to private firms. Public and private companies vary in their nature and thus it can be expected they differ in their accounting decision regarding when to report impairments. It would be interesting to investigate if firm-level and managerial incentives in private and public firm differ when it comes to delay or accelerate impairments.
LIST OF REFERENCES


APPENDIX A – Main Regression

Model Summary

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Model Summary

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a. Predictors: (Constant), INTAN_DV, LLAB_DV, MVIC_B, PPE_DV, AQTYPE
b. Dependent Variable: GW_DV

ANOVA

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a. Dependent Variable: GW_DV
b. Predictors: (Constant), INTAN_DV, LLAB_DV, MVIC_B, PPE_DV, AQTYPE

Coefficients

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a. Dependent Variable: GW_DV
Histogram
Dependent Variable: GW_DV

Mean = 0.01
Std. Dev. = 0.965
N = 293

Scatterplot
Dependent Variable: GW_DV
APPENDIX B – Subsample

1) Subsample 1: Deals from Service Sector Removed

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a. Dependent Variable: GW_DV
b. Predictors: (Constant), ITAN_DV, MVIC_B, AQTYPE, PPE_DV, LIAB_DV

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a. Dependent Variable: GW_DV
2) Subsample 2: Deals from Manufacturing Sector Removed

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a. Predictors: (Constant), ITAN_DV, MVIC_B, AQTYPE, LIAB_DV, PPE_DV  
b. Dependent Variable: GW_DV

### ANOVA

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a. Dependent Variable: GW_DV  
b. Predictors: (Constant), ITAN_DV, MVIC_B, AQTYPE, LIAB_DV, PPE_DV

### Coefficients

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### Coefficients

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