The Intention to Buy: An Empirical Study of the Choice of Goodwill Method under IFRS

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Abstract

As of 1 July 2009, IFRS 3 allows for a policy choice, available on a transaction by transaction basis, to measure NCI at fair value or the proportionate share of net assets (IFRS 3.19), also known as the full and partial goodwill methods. The purpose of this thesis is to analyse the influence of country, industry and topic factors on the choice of goodwill method in European firms. Data consists of 188 hand-collected choices made to account for control acquisitions with remaining NCI effective between 2010 and 2016. Based on univariate and multivariate analyses, we find that country and industry factors do not seem to influence the choice. Instead, our results suggest the influence of transaction-specific topic factors. More specifically, based on a statistically significant relationship between an outstanding option contract and the chosen method, we conclude that acquirers with an intention to buy additional shares from the non-controlling shareholders tend to choose the full goodwill method.

Key words: accounting choice, IFRS policy options, non-controlling interests, goodwill, step acquisitions

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Master Thesis in Accounting and Financial Management, December 2017
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Acknowledgements

We would like to express our gratitude to Professor Walter Schuster who acted as our tutor for this thesis. Thank you for supporting our idea and guiding us along the way.

Furthermore, we would like to thank Associate Professor Per-Olov Edlund. Thank you for showing interest in our area of research and serving as inspiration in statistical application.

We would also like to give a special thanks to Assistant Professor Tomas Hjelström for his valuable input. Lastly, we thank Lave Nilsson and Annahita Nikavar for their assistance in the final review process.

Stockholm, December 2017

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List of Abbreviations

BC	Basis for Conclusions
c.	Approximately
CGU	Cash-Generating Unit
EEA	European Economic Area
EU	European Union
FASB	Financial Accounting Standards Board
FIFO	First-in First-out
GAAP	Generally Accepted Accounting Principles
GW	Goodwill
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IASC	International Standards Committee
IFRS	International Financial Reporting Standards
LIFO	Last-in First-out
M&A	Mergers and Acquisitions
NCI	Non-Controlling Interests
OCI	Other Comprehensive Income
PPA	Purchase Price Allocation
ppt	Percentage points

List of Terms

Term	Definition	Source of Definition
Acquiree	The business or business that the acquirer obtains control of in a business combination.	IFRS 3, Appendix
Acquirer	The entity that obtains control of the acquiree.	IFRS 3, Appendix
Acquisition Date	The date on which the acquirer obtains control of the acquiree.	IFRS 3, Appendix
Business Combination	A transaction or other event in which an acquirer obtains control of one or more businesses.	IFRS 3, Appendix
Complimentary Acquisition	Acquisition where an acquirer already has control from an earlier acquisition and then acquires some or all of the remaining shares in a second step (also called 'step acquisition within the limit of control').	Schuster (2017, p. 131)
Control [of an Investee]	An investor controls an investee when the investor is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee.	IFRS 10, Appendix
Control Acquisition with Remaining NCI	Acquisition that leads to control but where less than 100% of the shares in the acquiree are acquired.	Schuster (2017, p. 131)
Control Acquisition without Remaining NCI	Acquisition that leads to control and where 100% of the shares in the acquiree are acquired.	Schuster (2017, p. 131)
Fair Value	Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.	IFRS 3, Appendix
Goodwill	An asset representing future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognised.	IFRS 3, Appendix
NCI	The equity in a subsidiary not attributable, directly or indirectly, to a parent.	IFRS 3, Appendix

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We use the following terminology:
*'A firm makes a **policy choice** by selecting a particular **option** on a given **topic**'*

Term	Example	Source
Policy Topic	Measurement of NCI (IFRS 3.19).	Stadler and Nobes (2014)
Policy Options	Fair value (the full goodwill method) and the proportionate share of the net assets in the acquiree (partial goodwill method).	Stadler and Nobes (2014)
Policy Choice	The selection between the full goodwill method and partial goodwill method.	Stadler and Nobes (2014)

1 Introduction

'IFRS have historically contained more options than most national GAAPs, because of the negotiations involved in setting standards internationally. [...] Over time, the IASB has removed options, in order to improve comparability. [...] However, the IASB has not been able to avoid adding options, such as that related to IFRS 3.'
(Nobes, 2013, pp. 92-93)

The objective of the IASB is to develop a single set of high quality, understandable and enforceable global accounting standards and to promote the use and rigorous application of those. In addition, the IASB strives to bring about convergence of national accounting standards and the IFRS (Preface to IFRS, Paragraph 6 (a) and (d), 2016).[1]

In the development of a comprehensive set of high quality standards and persuading in excess of 100 countries to adopt them, as well as achieving global acceptance by important non-adopters such as the US, the IASB has been quite successful (Ball, 2006). However, international accounting research suggests that IFRS practices continue to differ between countries (e.g. Kvaal and Nobes, 2010). One source of opportunities for international differences in accounting practice to survive is *overt options in IFRS* (Nobes, 2006). Overt options exist for IFRS policy topics for which there is a possibility for preparers of financial statements to choose among different accounting treatments to account for the same transaction or event. For example, a policy topic with overt options is the presentation of operating flows in the cash flow statement (IAS 7.18). For this policy topic, the policy options are the direct and indirect methods, and the policy choice is the selection made by a particular firm (Stadler and Nobes, 2014).

According to the Preface to IFRS, Paragraph 12, the IASB aims for that like transactions and events are to be accounted for and reported in a like way, and unlike transactions and events to be accounted for and reported differently. Because of the international standard-setting process, the existence of policy options typically implies a history of at least some international variation in pre-IFRS accounting practices (Stadler and Nobes, 2014). Hence, it has been argued that companies are able to continue their pre-IFRS traditions through differing accounting treatments enabled by the policy options (Haller and Wehrfritz, 2013). Accordingly, the IASB has reconsidered, and will continue to reconsider, those transactions and events for which IFRS permits a choice of accounting treatment, with the objective of reducing the number of those choices (Preface to IFRS, Paragraph 12). In line with the IASB's intention not to permit policy options, several have been

[1] The objectives of the IASB are: (a) to develop, in the public interest, a single set of high quality, understandable, enforceable and global accounting standards based on clearly articulated principles. These standards should require high quality, transparent and comparable information in financial statements and other financial reporting to help investors, other participants in the various capital markets of the world and other users of financial information make economic decisions; (d) to promote and facilitate the adoption of IFRS, being the standards and interpretations issued by the IASB, through the convergence of national accounting standards and IFRSs (Preface to IFRS, Paragraph 6).

removed. This is particularly true for policy topics for which the policy choice affects the measurement of components of the financial statements, that is, measurement topics. However, as noted by Nobes (2013), the policy topic on measurement on NCI in IFRS 3 Business Combinations, is one of few remaining measurement topics with overt options in IFRS that the IASB has not been able to remove.

As of 1 July 2009, IFRS 3 allows for an accounting policy choice to measure NCI either at fair value, or the proportionate share of net assets of the acquiree (IFRS 3.19). These two measurement methods are commonly referred to as the full goodwill method and the partial goodwill method. In contrast to policy choices that are applied entity-wide, such as that related to presentation of operating cash flows (IAS 7.18), the choice of goodwill method is available to be made on a transaction by transaction basis. According to the IASB, three main financial statement effects arise from choosing the partial goodwill method over the full goodwill method. Firstly, on initial recognition, the amounts recognised for goodwill and NCI are likely to be lower. Secondly, if a CGU is subsequently impaired, any resulting impairment of goodwill recognised through income is likely to be lower as the goodwill recognised by the CGU is lower. Thirdly, if the acquirer subsequently purchases some (or all) of the shares held by the non-controlling shareholders, the effect on reported equity attributable to the acquirer is likely to be larger (IFRS 3, BC 217-218).

In the light of the IASB's intention not to permit policy options in IFRS, we are interested in how companies do in practice when given the opportunity to choose between two alternative measurement methods. In other words, why do some choose the full goodwill method while others choose the partial goodwill method? Several papers have recorded how companies choose between options on IFRS policy topics, other than between those on IFRS 3.19 (e.g. Kvaal and Nobes 2010; Haller and Wehrfritz, 2013). These papers argue that country factors strongly influence IFRS policy choice and thereby suggest that accounting practices under IFRS are *de facto* not harmonised across countries. Moreover, Jafaar and McLeay (2007) highlight that industry factors can explain accounting choice. In addition, topic factors have been suggested to influence accounting choice on some topics, for example treatment of actuarial gains and losses (Ghicas, 1990). Topic factors are firm factors that are specific to the respective policy topic. As an attempt to provide a more comprehensive view of how different factors influence IFRS policy choice, Stadler and Nobes (2014) reasoned that the influence is determined based on the characteristics of the choice. For example, policy choices that affect important accounting numbers; and where these effects vary materially between firms irrespective of industry, ought to be influenced by topic factors, as opposed to country or industry factors (Stadler and Nobes, 2014).

The purpose of this thesis is to study the choice made between the full and the partial goodwill method to account for control acquisitions with remaining NCI. Given that the literature has identified country, industry and topic factors as potential influential factors on accounting policy

choice, we seek to analyse whether the choice of goodwill method is influenced by any of those three factors. In addition, we are interested in documenting how preparers disclose their choice of goodwill method. We seek to answer the following research question:

'Do country, industry or topic factors influence the choice of goodwill method?'

We hand-collect data from annual reports on the choice of goodwill method made for 188 control acquisitions with remaining NCI. The acquisitions are made by large listed European companies between 1 January 2010 and 31 December 2016. The influence of country, industry and topic factors on the choice of goodwill method is analysed by conducting univariate and multivariate analyses. Country and industry factors are captured by country and industry group variables, while topic factors are captured by defined topic variables. We define topic variables based on the three financial statement effects that arise from choosing one goodwill method over the other. Our results suggest that topic factors tend to influence this particular policy choice, whereas country and industry do not. Thus, contradictory to previous research on other IFRS policy options, international differences do not seem to exist for the policy options in IFRS 3.19. Instead, the influential topic factor relates to the financial statement effect arising from complimentary acquisitions. We find a relationship between the choice of the full goodwill method and the existence of an option contract to purchase additional shares; as well as total share ownership in the acquiree obtained during the examined period. The interpretation is that the intention to buy additional shares, contracted or not, seems to influence the choice of goodwill method. In contrast to Stadler and Nobes (2014), this topic factor was defined based on characteristics specific to the respective transaction, as opposed to the respective firm. Nonetheless, the influence of topic factors on the choice of goodwill method is in line with Stadler and Nobes' (2014) reasoning for *when* topic factors ought to influence accounting choice.

In addition to acknowledging the possibility to study this accounting policy choice in large listed firms on transaction level, as opposed to firm level, our research contributes in several ways. Firstly, we make an empirical contribution in terms of providing a comprehensive view of how the choice of goodwill method differs across countries, industries and time. Accordingly, we provide feedback to standard setters which may be useful when considering which options to permit. Secondly, we extend Stadler and Nobes (2014) by confirming their reasoning for when topic factors ought to influence accounting choice, also for IFRS 3.19. Thirdly, by including characteristics specific to the transaction in the identification of topic factors, we highlight the importance of the acquirer's intention to carry out complimentary acquisitions for the choice of goodwill method. We thereby conclude that the choice tends not to be influenced by the acquirer's country of domicile, industry belonging or characteristics specific to the acquirer itself, but by characteristics of the acquisition.

2 Previous Research and Theoretical Framework

2.1 Previous Research on Accounting Policy Choice

In order to answer our research question, we initially turn to previous research on accounting choice, which has been widely researched in several branches of accounting literature.[2] In general, it is assumed that managers are responsible for making accounting choices for the firm and that their choices are rational (Fields et al., 2001). In the international accounting branch (Section 2.1.1), accounting choice is studied in the context of companies making different choices depending on their country of domicile. For several decades, researchers have recorded pre-IFRS international differences in financial reporting, suggested reasons for them and classified countries into groups (Stadler and Nobes, 2014). In other branches, such as positive accounting theory, studies on accounting choice are typically conducted on companies with the same country of domicile. Hence, country factors are generally not considered. Instead, it is various forms of firm factors that are suggested to influence accounting choice (Section 2.1.2).

2.1.1 International Differences in Accounting Rules and Practices

2.1.1.1 Harmonisation of Accounting

With regards to the recording of international differences in financial reporting, Herrmann and Thomas (1995) studied the extent to which accounting is harmonised for measurement practices among European companies in 1992. Harmonisation is defined as a process involving movement away from total diversity towards a state of harmony, which may include total uniformity (Tay and Parker, 1990). It is a process, as opposed to a state of harmony, that indicates that total uniformity is desirable but not necessary achievable (Emenyonu and Gray, 1996). The literature also differentiates between harmonisation at the level of regulation (*de jure* harmonisation), and the level of practice (*de facto* harmonisation, Tay and Parker, 1990). *De jure* harmonisation implies that preparers of financial statements apply the same set of reporting standards, whereas *de facto* harmonisation implies that the application of those standards is carried out consistently across the preparers. Herrmann and Thomas (1995) found that accounting for some measurement practices (e.g. treatment of translation differences and inventory valuation) were harmonised, while some were not (e.g. accounting for fixed asset valuation and depreciation).

Also in the area of harmonisation, Jafaar and McLeay (2007) studied policy choices on three accounting topics (inventory costing, amortisation of goodwill and depreciation of fixed assets) among companies from 13 countries in the EU in the 1990s. They found that the companies' country of domicile, as well as industry belonging, affected the choices made on the investigated

[2] In this thesis, by 'accounting choice', we refer to the choice of accounting policies in a firm. In other parts of the literature, accounting choice can comprise other types of choices not related to specific policies. For example, the definition of accounting choice in Fields et al. (2001) is broad enough to include both the choice of LIFO vs. FIFO (i.e. policy options) and the choice to structure a lease so that it qualifies for operating lease treatment.

accounting topics, which is inconsistent with harmonised accounting across countries (Jafaar and McLeay, 2007). Furthermore, the authors claim that differences in accounting practices within or between countries may be justifiable when they are caused by differences in underlying economic transactions. For example, in the case of FIFO versus LIFO, the choice may vary dependant on how the firm uses its inventory, which in turn may vary with the industry (Jafaar and McLeay, 2007). Ultimately, they conclude that when studying the level of harmonisation of accounting practices across countries, factors specific to the firm's operating environment may have to be considered.

2.1.1.2 Classification of Accounting

Research focused on suggesting reasons for recorded pre-IFRS international differences of financial reporting, and the classification of such, is typically found in the international accounting classification field. The general notion is that countries make different accounting choices because of different economical and institutional environments suggested to shape accounting rules and practices. In the context of this research, accounting practices are classified into groups, generally based on cultural or institutional factors (i.e. country factors, Nobes, 1998). Although focusing on different country factors, most classification schemes make similar classifications of countries, for example by classifying Germany and the UK on opposite sides. Two international accounting classification schemes often referred to in the literature are those by Gray (1988) and Nobes (1998).

Gray (1988) explores the extent to which international differences in accounting may be explained and predicted by differences in cultural factors. According to Gray (1988), given that Hofstede's (1980) cultural dimensions were correctly identified, they should be applicable on accounting values. For example, one of Hofstede's cultural dimensions is Strong versus Weak Uncertainty Avoidance. A preference for secrecy is argued to be linked to strong uncertainty avoidance, based on a need to restrict information disclosures in order to avoid conflict and to preserve security (Gray, 1988). Thus, applied on accounting, Strong versus Weak Uncertainty Avoidance in Hofstede (1980) translates into Secrecy versus Transparency in Gray (1988). Especially in the matter of disclosure practices, this particular dimension has been used as a proxy in determining whether levels of disclosure can be explained by culture (Zarzeski, 1996).

In contrast to Gray (1988), Nobes (1998) claims that international differences in accounting can be explained by different financing systems across countries. A country's financing system is characterised by the strengths of equity markets and the degrees of cultural dominance within the respective country (Nobes (1998). Based on that different financing systems carry different purposes of financial reporting, and thereby give rise to international differences in accounting, Nobes (1998) suggested two classes of accounting systems: Class A and Class B. Class A is characterised by outsider dominance in combination with strong equity financing. Here, investors require extensive disclosures, where the information should be fair and true in order to serve as a

basis for optimal decision-making. Class B is characterised by insider dominance in combination with strong credit financing, which implies that financial reporting is concerned with prudence and protection of creditors (Nobes, 1998).

Even after long periods of harmonisation and growing convergence in international accounting rules and practices, more recent studies show that the traditional accounting systems persisted at the transition to IFRS (Hellman et al., 2015). Accordingly, accounting practices continue to differ between countries under IFRS (e.g. Kvaal and Nobes, 2010). Hence, although the adoption of IFRS represents *de jure* harmonisation, it does not necessarily imply *de facto* harmonisation. As expressed by Ball (2006, p. 17), *'[...] the notion that uniform standards alone will produce uniform financial reporting seems naïve'*.

2.1.2 The Link between Accounting Choice and Firm Factors

In branches other than international accounting, research on accounting choice is generally about firm factors (Fields et al., 2001). Firm factors are factors that are specific to the respective company, such as size, leverage and profitability. Therefore, the samples in studies of how firm factors are linked to accounting choice tend to comprise companies in a single country, in many cases the US.

The link between accounting choice and firm factors is that a company makes a choice to affect certain accounting numbers, due to various motivations (Fields et al., 2001). For example, positive accounting theory assumes that accounting choice is driven primarily by managerial opportunism and contractual efficiency, respectively (Watts and Zimmerman, 1978, 1986). It is a dominant line of research in the accounting choice literature which seeks to predict how an accounting choice will be made based on observed, real occurrences (Watts and Zimmerman, 1978). Under the opportunistic view, managers are suggested to make accounting choices to maximise their own bonus payments by choosing accounting policies that affect the accounting numbers linked to their bonus plans. This is related to research on earnings management (e.g. Healy, 1985). In the case of efficient contracting, managers are suggested to make accounting choices to maximise the value of the firm (Christie and Zimmerman, 1994).

Positive accounting theory has however been criticised (Hjelström and Schuster, 2011). According to Stadler and Nobes (2014), positive theories can explain why firm factors matter. Indeed, firm factors may be relevant for explaining accounting choice in the sense that a company wants to manage an important accounting number such as earnings. Nevertheless, management may simply choose accounting policies with the hopes of providing the most useful information to investors (Holthausen, 1990). Either way, previous research has proved that there is a link between accounting choice and firm factors. One such study is Ghicas (1990) who, based on US data, analysed determinants of switching between two actuarial cost methods. Switching firms were expected to have higher long-term debt in relation to total tangible assets than non-switching firms,

given that one of the methods given rise to higher total assets in the switch year. The empirical findings suggest financial statement considerations and reduction in pension funding to be the primary reasons for switching (Ghicas, 1990).

2.1.3 Differences in Accounting Practice across Industries

Accounting practices can also differ across industries (e.g. Watts and Zimmerman, 1990). As previously mentioned, Jaafar and McLeay (2007) found some effect of industry on pre-IFRS policies in the 1990s. There are mainly two arguments in support of the influence of industry factors on accounting choice. Firstly, as firms in an industry operate based on similar business models, there may be economical motivations for firms in the same industry to make similar accounting choices (Jafaar and McLeay, 2007). Secondly, companies may use accounting choice to be in line with industry peers, both in terms of the measurement of components in the financial statements, and the presentation of those (Stadler and Nobes, 2014).

2.2 Scope for Accounting Policy Choice under IFRS

Before the transition to IFRS, financial reporting requirements differed across countries, due to country factors such as culture and financing systems. These factors have been suggested to continue to be relevant under IFRS (Ball, 2006). Nobes (2006) identified eight sources of opportunities in IFRS for the survival of international differences in accounting, one of which is *overt policy options*.[3] Overt refers to that there is a choice to be made between two or more alternative policy options, and that the choice is observable. In comparison, *covert options* are options between which no choice is explicitly offered, but where there is a degree of judgement involved (Nobes, 2006). For example, the determination of whether an investor controls an investee in IFRS 10.7 is, in one sense, a choice that the preparer has to make. However, there are no specified options to choose from and instead, a preparer has to apply judgement when making the choice. In most post-IFRS studies, overt policy options have been the options of interest.

2.2.1 Overt Policy Options

The general reason for why policy options exist in the IFRS is the negotiations involved in setting standards internationally (Stadler and Nobes, 2014). This process began already in 1973 when the IASC was formed through an agreement made by professional accountancy bodies from Australia, Canada, France, Germany, Japan, Mexico, the Netherlands, the UK, Ireland, and the US (IASB, 2017). In the early 1990s, international standards included a large amount of options mainly due to that many standards had been written before the publishing of the Framework[4] in 1989

[3] The other seven sources for opportunities for the survival of international differences under IFRS are *Different versions of IFRS*, *Different translations of IFRS*, *Gaps in IFRS*, *Covert options*, *vague criteria and interpretations in IFRS*, *Estimations in IFRS*, *Transitional or first-time adoption issues* and *Imperfect enforcement of IFRS* (Nobes, 2006).

[4] The IFRS Framework describes the basic concepts that underlie the preparation and presentation of financial statements for external users (IAS Plus, 2017).

(Nobes, 2006). In addition, the board of IASC needed a majority of 75 percent of the votes to pass standards (Nobes, 2006). Due to that the members came from diverse backgrounds and were under political pressure, inserting policy options became a way of passing a standard in the board, despite differing opinions among the members (Nobes, 2006). Since then, and perhaps especially since the mandatory adoption requirement of IFRS for listed companies in the EU in 2005, the IASB has worked for the removal of policy options. Removing options from IFRS is in line with the objectives to bring about convergence of national accounting standards and the IFRS, and to require like transactions and events to be accounted for and reported in a like way (Preface to the IFRSs, Paragraph 6 and 12). Previous research on overt policy options suggests that international differences survive under IFRS, even for large companies (Kvaal and Nobes, 2010). According to Kvaal and Nobes (2010, p. 176), *'large companies are probably more attentive than smaller companies to the requirements and expectations of the global investor community [...]. Therefore, international notions about 'best practice' under IFRS will thereby spread more rapidly among the large companies.'* Yet, there is empirical support for that international differences in accounting practice exist between large companies under IFRS (Kvaal and Nobes, 2010).

2.2.1.1 Previous Research on Overt Policy Options

Kvaal and Nobes (2010) analysed the choices made between the overt options for 16 policy topics by IFRS reporters in the largest stock indices of Australia, France, Germany, Spain and the UK in the first year of compulsory IFRS adoption. The 16 topics were all associated with international differences in pre-IFRS reporting. Kvaal and Nobes (2010) found significant evidence of that accounting practices under IFRS are subject to systematic differences across countries. This was argued to be explained by that firms seeks to continue to apply use of their pre-IFRS national accounting practices under IFRS through the use of, for example, overt policy options. Nobes (2011) adds Sweden and the Netherlands to the sample of Kvaal and Nobes (2010) and arrives at the same conclusion. As previously mentioned, overt options are inserted in the standards often due to the negotiation process of setting standards internationally (Nobes, 2006). Consequently, there has typically been some international variation, in either rules or practices in national accounting requirements, on the policy topics that include policy options under IFRS. Hence, perhaps it is not unreasonable that firms tend to choose in line with their pre-IFRS reporting traditions when allowed for (Stadler and Nobes, 2014).

In the context of within and between country comparability of firms' policy choices under IFRS, Cairns et al. (2011) studied the choices made for policy topics that include a fair value option in and between the UK and Australia in 2005. The results suggested a conservative approach and/or lack of incentives to use policy options for fair value measurement among most companies. Moreover, the authors emphasised that the results can be useful for regulators in considering whether and which standards should permit options (Cairns et al., 2011). Also questioning whether IFRS is applied consistently across countries with differing institutional environments, Haller and

Wehrfritz (2013) investigated the policy choices of listed companies in the UK and Germany between 2005 and 2009. In line with Kvaal and Nobes (2010), the results showed that when choosing between IFRS policy options, most firms tended to retain the accounting policies required by national rules. This was suggested to support the notion of that international differences in financial reporting are likely to continue under IFRS (Haller and Wehrfritz, 2013).

In connection to identifying overt policy options as a source for opportunities for international differences in accounting to survive under IFRS, Nobes (2006) provided a list of IFRS policy topics with such options. This list has served as a basis for studying different aspects of international accounting in a post-IFRS context (e.g. Kvaal and Nobes, 2010; Cairns et al., 2011). Policy topics are typically categorised as measurement or presentation topics, based on whether the policy choice affects the measurement of financial statement components (Nobes, 2013). An example of a measurement topic with overt policy options is measurement of investment property (IAS 40.30). The policy choice is made between the options to measure investment property at fair value or at cost, and affects the measurement of an asset. An example of a presentation topic is the presentation of operating flows in the cash flow statement (IAS 7.18). This policy choice is made by selecting to present operating flows according to the direct or indirect method, and does not affect the measurement of cash. Empirically, research shows that systematic differences exist both for presentation and measurement topics (Kvaal and Nobes, 2010). In other words, policy topics with overt options have been argued to serve as a way for international differences to survive under IFRS, regardless of being measurement or presentation topics (Nobes, 2006). However, according to Kvaal and Nobes (2010, p. 185), *'whereas the former [options on presentation topics] are hardly any obstacle to comparability, the latter [options on measurement topics] most likely are'*.

2.2.1.2 Remaining Measurement Topics with Overt Policy Options

In line with the intention not to permit options in accounting treatment, the IASB has, over time, removed policy options in the IFRS, especially on measurement topics (Nobes, 2013). Thus, among the remaining overt policy options, few pertain to measurement topics. The remaining measurement topics in IFRS (as of July 2016), and their options, are:

(1) FIFO or weighted average for the determination of the cost of inventories (IAS 2.25);
(2) Cost or fair value measurement for classes of property, plant and equipment (IAS 16.29);
(3) Entity-wide choice of cost or fair value for measurement of investment property (IAS 40.30);
(4) Option to measure NCI at fair value or the proportionate share of the acquiree's net assets on a transaction by transaction basis (IFRS 3.19); and
(5) Option to designate certain financial assets and liabilities at fair value through profit or loss (IFRS 9.4.1.5 and 9.4.2.2).

Considering the basis of how the choice on each policy topic is allowed to be made, there are some differences. On topic (1), the choice between the two inventory costing methods is allowed to be made based on the nature of inventories. Somewhat similarly, the choice for topic (2) can be made for classes of assets. In other words, the preparer can choose to measure assets in one class at fair value and assets in another class at cost. Dissimilarly, the choice for topic (3) is entity-wide, meaning that the choice of one of the two methods must be applied consistently across all investment property. The choice between the policy options for topic (4) is available to be made on a transaction by transaction basis, and for topic (5), the choice is made for each individual financial instrument. The choice made between the options for topic (3) is entity-wide, meaning that only one option can be chosen for the whole firm. Entity-wide choices can thus be viewed as less flexible in comparison to the other four policy topics mentioned, for which a firm can choose different options for different asset classes, inventories, transactions and financial instruments.

Furthermore, the degree to which firms are allowed to alter between the mentioned policy options can also be considered. For example, reclassifications of financial instruments are constrained by IFRS 9.4.4.[5] For the measurement of NCI, the chosen measurement method cannot be changed. However, for every new control acquisition with remaining NCI, the opposite method can be chosen. For the remaining three topics, changes of policies is regulated in IAS 8.14.[6] According to Stadler and Nobes (2014), accounting policies generally have to be applied consistently over time. As a result, accounting choices tend to be sticky. Empirically, this seems to be true for firms in Australia and the UK, whom made little changes to their accounting policies during the first three years following the mandatory adoption requirement of IFRS in 2005 (Kvaal and Nobes, 2012). However, as not all policy choices are comprised by IAS 8.14, nor applied on the same basis, the assumption of sticky accounting choices does not always hold.

2.2.2 Influential Factors Directed by the Policy Topic

Previous research on overt IFRS policy options suggests that country factors can explain international differences in choices on some policy topics, whereas choices on other topics are driven by industry and firm factors specific to the respective topic (so-called topic factors, Stadler and Nobes, 2014). As a response, Stadler and Nobes (2014) questioned why country factors are particularly influential for choices on some policy topics, and in which contexts industry and topic factors are influential on IFRS policy choice. To answer these questions, they developed hypotheses for when country, industry and topic factors ought to influence accounting choice,

[5] When, and only when, an entity changes its business model for managing financial assets it shall reclassify all affected financial assets in accordance with paragraphs 4.1.1-4.1.4. (IFRS 9.4.4.1). An entity shall not reclassify any financial liability (IFRS 9.4.4.2).

[6] An entity should change an accounting policy only if the change: (a) is required by an IFRS; or (b) results in the financial statements providing reliable and more relevant information about the effects of transactions, other events or conditions on the entity's financial position, financial performance or cash flows (IFRS 8.14).

shown in Table 1. The underlying reasoning was that depending on the characteristics of the policy topic, the influence of one among the three factors ought to be more likely. The hypotheses were tested on the choices made between the policy options for 16 IFRS policy topics.[7]

Table 1 – Reasoning for when Country, Industry and Topic Factors Influence Accounting Policy Choice (Stadler and Nobes, 2014)

Influence	Definition	Example	Policy topic characteristics
Country factors	Shared characteristics within a country	Pre-IFRS national accounting practices, which may largely be based on national requirements	The choice does not affect an important accounting number
Industry factors	Shared characteristics within an industry	Business models that reflect the operating environment of firms in a certain industry	The choice affects an important accounting number; and the effect varies materially between industries
Topic factors	Characteristics specific to the respective policy topic	For the treatment of actuarial gains and losses, a relevant topic factor is the size of a firm's pension asset	The choice affects an important accounting number; and the effect varies materially between firms

Country factors were suggested to influence accounting policy choice because management seeks to continue the same accounting practices as before IFRS. Given that policy options in many cases represent pre-IFRS national practices, this is made possible (Stadler and Nobes, 2014). The influence of country factors was hypothesised to be more likely on policy choices that do not affect an important accounting numbers. An example of a policy topic for which the policy choice does not affect an important accounting number is the presentation of operating flows in the cash flow statement (Stadler and Nobes, 2014). Hence, that policy choice was hypothesised to be influenced by country factors. When a choice does affect an important accounting number, it is suggested to be influenced by either industry or topic factors.

An example of a policy topic on which the choice was hypothesised to be influenced by industry factors in Stadler and Nobes (2014) is inventory costing (IAS 2.25). On this policy topic, the policy options are to assign costs to inventory according to the FIFO principle or weighted average cost. The choice between FIFO and weighted average cost affects important accounting numbers, that is, total assets and earnings. The fact that these effects can vary materially between industries implies that the choice is influenced by industry factors, as opposed to topic factors. The variation between industries depends on that each method is more suitable for certain types of inventory, and that those inventory types can vary between industries. For example, for firms that keep raw materials as inventory, the weighted average cost method may be more appropriate as the inventory components do not have to be separated when assigned costs (Picker et al., 2013, p. 303). As keeping raw material is a shared characteristic among firms in, for example, the manufacturing

[7] The 16 policy topics correspond to the topics tested by Kvaal and Nobes (2014).

industry, the choice of inventory costing method was suggested to be influenced by industry factors in Stadler and Nobes (2014).

Topic factors are firm factors specific to the respective policy topic. In similarity to industry factors, topic factors can be identified based on the characteristics of a firm. However, in contrast to industry factors, such characteristics are shared among firms regardless of industry belonging. An example of such a topic suggested to be influenced by topic factors is the treatment of actuarial gains and losses (IAS 19.3/92).[8] It was hypothesised to be influenced by topic factors because the choice of recognising actuarial gains and losses through OCI or the income statement affects an important accounting number, that is, earnings. In the context of testing the influence of the country and industry factors, countries and industries are used as variables to capture the characteristics shared in a country or an industry. For topic factors, on the other hand, appropriate topic variables have to be defined in order to be able to capture the characteristics of a firm. Hence, for the treatment of actuarial gains and losses, Nobes and Stalder (2014) defined the related topic variable as the size of a firm's pension asset, deflated by total assets. The larger the size of the pension asset, the greater the effect on the income statement. Hence, firms with large pension assets are expected to choose to recognise actuarial gains and losses through OCI, in order to avoid effects on the income statement. Thus, the choice on this policy topic affects earnings, and the effect on earnings varies between firms dependent on the size of the pension asset in the respective firm. Consequently, Stadler and Nobes (2014), hypothesised that the choice ought to be influenced by topic factors. Had the size of a firm's pension asset been a characteristic shared across industries, the choice would instead have been hypothesised to be influenced by industry factors. For example, in some industries, firms tend to share characteristics of firm age and unionisation of the workforce, which in turn can result in differences in corporate pension plans between industries.

Overall, considering the 16 IFRS policy topics collectively, Stadler and Nobes (2014) found that country factors have the strongest influence on choices made, which was in line with previous research (e.g. Kvaal and Nobes, 2010). In addition, in line with one of their hypotheses, country factors were particularly influential on choices that did not affect important accounting numbers.

[8] Option removed as of 2013 (Nobes, 2013).

2.3 Policy Option in IFRS 3 – The Choice of Goodwill Method

2.3.1 Regulatory Background

'The project on determining a new standard on business combinations was conducted jointly by the FASB and the IASB in the hope of achieving convergence on the standard between the two boards. Both boards issued exposure drafts on business combinations, and, in both these documents, the full goodwill method was recommended. However, when the final standards were issued, the FASB standard required the accounting for all business combinations to use the full goodwill method; whereas the IASB standard provided for optional treatments in the measurement of the NCI share of the subsidiary.'

(Picker et al., 2013, p. 948)

Effective from 1 July 2009, IFRS 3 Business Combinations allows for an accounting policy choice, available on a transaction by transaction basis, to measure NCI either at:

(a) fair value, or
(b) the proportionate share of the net fair value of the identifiable net assets of the acquiree (IFRS 3.19).

NCI arise as a component of a business combination in which the acquirer has not acquired all of the shares in the acquiree, in this thesis referred to as a control acquisition with remaining NCI. Measuring NCI at fair value is typically referred to as 'the full goodwill method' whereas the other measurement method is referred to as 'the partial goodwill method' (IFRS 3, BC 205). They tend to be referred to as goodwill methods because the measurement of NCI affects the measurement of goodwill, due to that NCI is part of the determination of goodwill.[9]

In the project of determining on a new standard for business combinations, the IASB concluded that, in principle, an acquirer should measure all components of a business combination, including any NCI in an acquiree, at their acquisition-date fair values (IFRS 3, BC 209). In other words, only the full goodwill method was put forward. However, not all members of the board were of the same opinion. For example, one of the arguments against the full goodwill method was that it may be more costly to measure NCI at fair value, compared to at NCI's share of net assets in the acquiree (IFRS 3, BC 213).[10] In the end, as neither of the two measurement methods was unanimously supported, the option to choose between the methods was added to IFRS 3 (revised).

[9] Goodwill is measured as the difference between: the aggregate of (i) the value of the consideration transferred (generally at fair value); (ii) the amount of any non-controlling interest; and (iii) in a business combination achieved in stages, the acquisition-date fair value of the acquirer's previously-held equity interest in the acquiree, and the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed measured in accordance with IFRS 3 (IFRS 3.32).
[10] See IFRS 3, BC 213 for additional arguments against measuring NCI in an acquiree at fair value.

2.3.2 Financial Statement Effects

When choosing between the two goodwill methods, management has to consider the effects on the financial statements, both current and future (Picker et al., 2013, p. 949). Choosing the partial method over the full method has the following three effects (IFRS 3, BC 217-218):

1) The amounts recognised in a business combination for NCI and goodwill are likely to be lower (and these should be the only two items affected on initial recognition);
2) If a CGU is subsequently impaired, any resulting impairment of goodwill recognised through income is likely to be lower (although it does not affect the impairment loss attributable to the controlling interest);
3) If the acquirer subsequently purchases some (or all) of the shares held by the non-controlling shareholders (i.e. performs a complimentary acquisition), the effect on reported equity attributable to the acquirer is likely to be larger.

The first effect occurs at acquisition date, whereas the other two effects occur in the future, in the events of impairments or complimentary acquisitions. For example, *'if management has future intention to acquire more shares in the subsidiaries (i.e. by acquiring some of the shares held by the NCI), then the potential impact on equity when that acquisition occurs will need to be considered'* (Picker et al., 2013, p. 949).

2.3.2.1 Numerical Examples

In this section, we present a case in which a firm makes a control acquisition with remaining NCI, followed by a complimentary acquisition.[11] More specifically, in Part 1 of the case, we assume that Firm A acquires 80 percent of the shares in Firm B at a price of 80 million EUR. Fair values of identifiable assets and liabilities in Firm B are assumed to equal their book values, implying that the entire value paid in excess of the fair value of the net assets is allocated to goodwill. In Part 2 of the case, Firm A acquires the remaining 20 percent of the shares in Firm B from the non-controlling shareholders at a price of 20 million EUR.

Table 2 – Fair Value of Net Assets in Firm B

(MEUR)	*100%*	*80%*
Fair value of assets	150	120
– Fair value of liabilities	-90	-72
Fair value of net assets	60	48

Below follow numerical examples on how NCI and goodwill are calculated under the full and partial goodwill method for the control acquisition with remaining NCI, respectively, as well as how the complimentary acquisition affects reported equity under each method.

[11] The numerical examples are based on Schuster (2017), pp. 131-153.

2.3.2.1.1 Part 1 – Full Goodwill Method

Under the full goodwill method, goodwill attributable to both the controlling and the non-controlling shareholders is measured. This implies that goodwill is calculated *as if* 100 percent of the shares had been acquired. In other words, when comparing the consideration transferred with the fair value of the net assets, it is done so on a 100 percent basis. Based on the assumption of that prices are proportionate, NCI can be calculated as its share of ownership multiplied with the consideration transferred on a 100 percent basis, in this example equalling 20 million EUR.

Table 3 – Full Goodwill Method

Consideration transferred (100%)	100
– Fair value of total net assets in Firm B	-60
Full goodwill	40
NCI (fair value)	20

However, as the fair values of the acquirer's interest in the acquiree and the NCI might differ on a per-share basis (IFRS 3.B45), the assumption of proportionate prices is often not applicable in practice.[12] According to IFRS 3.B44, acquisition date fair values should be measured on the basis of a quoted price in an active market. If such a price is not available, the acquirer has to use other valuation techniques in accordance with IFRS 13.61-62 to measure NCI (IFRS 3.B44).

2.3.2.1.2 Part 1 – Partial Goodwill Method

Under the partial goodwill method, only the goodwill attributable to the parent is measured and thus, NCI is not assigned a share of goodwill. Instead, NCI is calculated by deducting the, by Firm A, acquired share of the fair value of the total net assets in Firm B.

Table 4 – Partial Goodwill Method

Consideration transferred (80%)	80
– Fair value of net assets acquired by Firm A	-48
Partial goodwill	32
Fair value of total net assets in Firm B	60
– Net assets attributable to Firm A (80%)	-48
NCI (proportionate share of total net assets)	12

As shown in Table 4, the partial goodwill method yields lower amounts of goodwill and NCI compared to the full goodwill method. In principle, this is due to that the NCI are not assigned a share of goodwill. However, as previously mentioned, three different financial statements effects arise from choosing between the two methods. At acquisition date, the first effect arises because

[12] The main difference is likely to be the inclusion of a control premium in the per-share fair value of the acquirer's interest in the acquiree or, conversely, the inclusion of a discount for lack of control (also referred to as a NCI discount) in the per-share fair value of NCI if market participants would take into account such a premium or discount when pricing the NCI (IFRS 3.B45).

of the methods' different values of goodwill and NCI. With regards to different values of goodwill, a subsequent effect arises if Firm A makes impairments in future periods, as the impairment charge is assumed to be different. With regards to different values of NCI, a subsequent effect arises if Firm A acquires shares from the non-controlling shareholders of Firm B. In the context of accounting for such acquisitions, 'the single-date method' (Schuster, 2017, p. 133) is introduced.

2.3.2.1.3 Part 2 – Single-Date Method

The single-date method is based on the view that a complementary acquisition is a transaction between two equity holders that does not affect the value of assets and liabilities (Schuster, 2017, p. 150). According to IFRS 3 (BC 218), the equity of the group is reduced by the difference between the price paid for the additional NCI as at the date of the complimentary acquisition and the recognised value of NCI.[13] Thus, if the partial goodwill method was used to account for the control acquisition with remaining NCI, the reduction in reported equity attributable to the acquirer is likely to be larger (IFRS 3, BC 218). As the single-date method implies that the additional net assets acquired through a complimentary acquisition are measured only at acquisition date, goodwill is unchanged, regardless of the method chosen to account for the control acquisition with remaining NCI (Schuster, 2017, p. 150). Nevertheless, as goodwill is measured on a 100 percent basis under the full goodwill method, the single-date method and the full goodwill method are consistent.

Below follows a numerical example to illustrate Part 2 of the case. The price of 20 million EUR for the NCI implies that there has been no change in the fair value of NCI since the control acquisition with NCI (i.e. the price is held constant).

Table 5 – Single-Date Method

Full Goodwill Method		**Partial Goodwill Method**	
Book value of NCI	20	Book value of NCI	12
– Purchase price of NCI	-20	– Purchase price of NCI	-20
Effect on reported equity	0	Effect on reported equity	-8

In accounting for complimentary acquisitions, the purchase price of the shares acquired from the non-controlling shareholders is compared with the book value of those shares, (i.e. the recognised value of NCI). As NCI is measured differently dependant on which goodwill method was applied at acquisition date, the single date method yields different effects on reported equity. In this numerical example, the reduction in the reported equity is larger with the partial goodwill method, in line with IFRS 3 (BC 218). Moreover, if the price of the shares held by the non-controlling shareholders increases between the two acquisitions, the effect on reported equity will be negative

[13] If the acquirer subsequently purchases some (or all) of the shares held by the non-controlling shareholders, presumable at fair value, subsequent to the control acquisition, the equity of the group is reduced by the NCI's share of any unrecognised changes in the fair value of the net assets of the business, including goodwill (IFRS 3, BC 218).

under both methods. However, the effect will but relatively more negative with the partial method (the opposite in the case of a price decrease).

2.4 Operationalisation of Theory

Previous research suggests that country, industry and topic factors influence accounting policy choice (Kvaal and Nobes, 2010; Jafaar and McLeay, 2007; Ghicas, 1990). Especially in the context of country factors, overt policy options have been identified as providing scope for accounting choice to differ between countries under IFRS. Stadler and Nobes (2014) propose criteria for when each of these factors ought to influence accounting choice. In this section, we apply this reasoning on the choice of goodwill method.

2.4.1 Country Factors

In a majority of previous studies on overt policy options in IFRS, country factors have been shown to have the strongest influence. Typically, this is due to the fact that the options were included because of negotiations in setting standards internationally. In turn, this gives companies the opportunity to continue pre-IFRS national practices under IFRS. Stadler and Nobes (2014) show, however, that country factors are more likely to influence accounting choice on topics that do not affect important accounting numbers. With regards to continuing pre-IFRS accounting practices, it should be said that, in principle, only the partial goodwill method was part of national financial reporting requirements before IFRS. Thus, for the choices for measurement of NCI, there is no clear difference in pre-IFRS traditions across countries. However, due to that differing opinions on the principle of measuring NCI at fair value was the main reason for why the IASB could not decide upon one of the methods, a preference for fair value accounting could perhaps be an argument for the influence of country factors on this policy choice. In other words, a general resistance against fair value accounting among firms in a certain country could potentially result in those firms being more inclined to choose the partial goodwill method (and vice versa).[14] Furthermore, if we find that country factors do affect the choice, we can according to the reasoning of Stadler and Nobes (2014) assume that the choice does not affect important accounting numbers.

2.4.2 Industry Factors

According to Stadler and Nobes (2014), industry factors are shared firm characteristics among firms in the same industry. As previously mentioned, the choice of goodwill method affects the size of goodwill. This firm characteristic (i.e. the size of goodwill) may vary with a firm's M&A activity, given that most acquisitions lead to additional goodwill. The level of M&A activity can be shared within an industry, for example due to different business models or on-going consolidation within an industry. Given preferences for high or low values of goodwill on the balance sheet, firms in more M&A active industries could potentially be more inclined to choose one of the

[14] Fair value preference could be related to different accounting systems as described in Section 2.1.1.2.

methods, dependant on the preference. A potential influence of industry factors on the choice of goodwill method could also be explained by a motivation to be in line with industry peers. Either way, if we find that industry factors do affect the choice, we can, according to the reasoning of Stadler and Nobes (2014), assume that the choice affect important accounting numbers.

2.4.3 Topic Factors

Topic factors are firm factors that are specific to the respective policy topic (Stadler and Nobes, 2014). In the sense of when topic factors influence accounting choice, in similarity to industry factors, topic factors influence choices that affect important accounting numbers. However, in contrast to industry factors, this effect varies between firms, irrespective of whether the firms belong to the same industry (Stadler and Nobes, 2014). Thus, for topic factors to be relevant, they should reflect the effects on accounting numbers. As previously mentioned, countries and industries can be used for capturing, and in turn testing, the respective influence of country and industry factors on accounting choice. As there is a lack of empirical base for topic factors and the choice of goodwill method combined, there are no pre-defined topic factors that could be used for capturing a potential influence on the choice of goodwill method. Consequently, to test the influence of topic factors we are required to define such factors. Based on the link between accounting choice and effects on accounting numbers, we have chosen to define topic factors by considering the three financial statement effects that arise from choosing one goodwill method over the other (i.e. size of goodwill and NCI; impairments; and complimentary acquisitions).

2.4.3.1 Size of Goodwill and NCI

Given the methodology of the respective methods, the size of goodwill and NCI is higher under the full goodwill method. As previously mentioned, the size of goodwill could on the one hand potentially serve as a shared characteristic among firms in M&A active industries. On the other hand, it may be a characteristic that is specific to the firm, irrespective of industry belonging. Moreover, the magnitude of the effects on goodwill and NCI depends on the percentage of shares acquired. For example, if an acquirer has purchased close to a 100 percent of the shares in an acquiree, the differences of the effects on goodwill and NCI will be smaller, had the acquirer purchased a lower percentage of shares. In other words, the effect arising from choosing one method over the other varies with the percentage of shares acquired. Given a preference for the size of goodwill and NCI, management could be more inclined to opt for one of the goodwill methods.

2.4.3.2 Impairment

Following the effect on the size of goodwill, future impairments of a CGU to which goodwill has been allocated, will be larger in absolute terms under the full goodwill method, in comparison to the partial goodwill method. Impairment charges affect operating earnings and thus net income, however, only on a group level. As NCI is assigned a share of goodwill only under the full goodwill

method, the non-controlling shareholders have to bear a part of the impairment charge. In other words, the part of the impairment charge that NCI has to bear fully reflects the difference in impairment charge arising from choosing between the two methods. Thus, the part of the impairment charge that the parent has to bear is the same under both methods. With regards to the effect on net income on group level, management could opt for one of the methods. However, this assumes an anticipated risk of impairments in connection to choosing between the methods.

2.4.3.3 Complimentary Acquisitions

Following the effect on the size of NCI at acquisition date, the event of a complimentary acquisition can affect reported equity. Given the methodology of the single-date method, this effect is likely to be larger under the partial goodwill method than under the full goodwill method. Thus, if management is interested in limiting the effect on reported equity, they could opt for the full goodwill method. In addition, as the single-date method is more consistent with the full goodwill method, management may seek to combine these two methods. However, regardless of what motivates management, this reasoning assumes that management has an intention to acquire additional shares from the non-controlling shareholders in the future, and that the intention is present at acquisition date in connection to when the choice of goodwill method is made.

3 Hypotheses and Delimitations

3.1 Hypotheses

Previous research suggests that accounting policy choice is influenced by country, industry and topic factors. Stadler and Nobes (2014) propose criteria for when each of these factors ought to influence accounting policy choice and test their hypotheses on observable IFRS policy options. However, the policy option in IFRS 3.19 is not comprised by the study. In our view, the essence of Stadler and Nobes (2014) is that the determination of when factors ought to influence accounting choice is dependent on potential effects on important accounting numbers. More specifically, whether the accounting choice affects an important accounting number will determine which among the three factors that ought to influence the choice. With regards to the choice of goodwill method, choosing one method over the other gives rise to effects on, for example, total assets and equity. This directs us to the notion that the choice of goodwill method influences important accounting numbers and thus ought to be influenced by industry or topic factors, as opposed to country factors. Whether the effects vary materially across industries or across firms, irrespective of industry, will determine the influence of industry or topic factors. However, we are unaware of whether the financial statement effects arising from choosing between the two methods are large enough for the reasoning of Stadler and Nobes (2014) to be relevant. In other words, if management is not concerned by the effects, the choice of goodwill method may instead be influenced by country factors. In addition, as previous studies on other overt IFRS policy options have declared that country factors have strong influence on policy choice, we cannot disregard the potential influence of country factors also on the choice of goodwill method.

Withal, the limited empirical base for this particular IFRS policy choice motivates an investigation of the potential influence of country, industry and topic factors on the choice of goodwill method. Our hypotheses are formulated as follows:

H1: Country factors influence the choice of goodwill method.

H2: Industry factors influence the choice of goodwill method.

H3: Topic factors influence the choice of goodwill method.

The formal hypotheses for testing the potential influence of country, industry and topic factors statistically are formulated in Section 4.4.

3.2 Delimitations

We analyse the influence of country, industry and topic factors on the choice of goodwill method. These factors were chosen due to that they have been identified as relevant for explaining accounting choice in previous research. By analysing the influence of country, industry and topic factors, we take a broad approach on a single accounting policy topic.

'The choice of goodwill method' refers to the choice made between the policy options specified in IFRS 3 Business Combinations, Paragraph 19. Thus, the analysis is limited to companies that apply IFRS, as opposed to national GAAP. Following the IFRS scope, the study is also limited in terms of countries. We do not study the choice of goodwill method made by companies with a country of domicile outside the EU, EEA and Switzerland, despite of that there may be other countries in which listed companies apply IFRS. Due to that the policy choice is made only in connection to control acquisitions with remaining NCI, and that it is available to be made on a transaction by transaction basis, the research design is based on transactions as opposed to companies. This set-up implies that we are limited to analysing the financial information of companies who have carried out the relevant acquisitions. Moreover, we have manually collected data from annual reports, as opposed to both annual and quarterly reports due to time constraints. This does not affect the number of transactions collected, but presumable the amount of the information.

Our theoretical framework gives rise to further delimitations. For example, we do not take into account the costs of accounting for each method that potentially arise from reporting processes. Moreover, we do not consider the measurement of goodwill in the sense of being a residual from allocating the purchase price to separately identifiable net assets. In addition, we do not analyse the application of the acquisition method (IFRS 3.4) other than measuring NCI in an acquiree.

Furthermore, there are limitations with respect to the topic factors derived from the three financial statement effects. In terms of the first effect, on size of goodwill and NCI, this will in turn affect the capital base in key ratios such as ROCE and ROE. Such accounting ratios may be part of the company's financial targets. However, in our opinion, in order to study the potential link between the choice of goodwill method and financial targets, there is a need of a stronger theoretical focus on positive accounting theory. This is outside our scope.

The second financial statement effect, that is, impairments, is not translated into a topic factor in our study. Hence, despite of potentially being a relevant topic factor, it is not tested. The reason for not including the future event of impairments as a topic factor is that the reporting for impairments requires that goodwill is allocated to a CGU (IAS 36.80). As we are unable to trace the impairment of goodwill, initially arising from a specific acquisition, in annual reports, we chose to not test the influence of future impairments on the choice of goodwill method.

On a final note, we apply the reasoning by Stadler and Nobes (2014) for developing hypotheses for the influence of country, industry and topic factors with regards to the policy topic for measurement of NCI. In addition to this reasoning, Stadler and Nobes (2014) proposed a framework for understanding management's decision-making on observable accounting choices. However, we do not intend to test if that framework works also for our policy topic. This is due to that one of the underlying assumptions of the framework is that accounting choices are sticky. Sticky refers to that accounting choices generally have to be applied consistently over time. Given that the choice of goodwill method is available to be made on a transaction by transaction basis, it can, in our opinion, not be viewed as a sticky accounting choice. Hence, the framework proposed by Stadler and Nobes (2014) is not fully applicable on our policy choice of interest.

4 Method

4.1 Research Design

We have designed a study that enables us to test our three hypotheses of whether country, industry and topic factors influence the choice of goodwill method made for relevant acquisitions. Those are control acquisitions with remaining NCI and are selected to the sample through a specified selection process. Based on a first sample selection of transactions, we manually collect data on the choice of goodwill method made for each acquisition. We also collect additional data related to the transaction and the acquirer. The data collected is then analysed qualitatively, in the form of describing patterns in how companies have disclosed the chosen method, and quantitatively, in the form of investigating statistically whether country, industry or topic factors influence the choice of goodwill method.

4.2 Sample Selection

4.2.1 Selection of Countries

The first step in the sample selection is to select which countries to include in the study. As our study object is an IFRS policy choice, we seek to select countries in which listed companies are required to apply IFRS since the effectiveness of IFRS 3 (revised). Moreover, as companies only make the choice of goodwill method in reporting periods when control acquisitions with remaining NCI have occurred, we seek to include as many countries as possible in order to arrive at a reasonably large sample size. As all listed companies in the EU are required to apply IFRS, we have chosen to include the 28 EU member states. In addition, we include the non-EU members Norway, Liechtenstein and Iceland which are part of the EEA, in which listed companies are subject to the mandatory IFRS requirement as well. Lastly, in order to increase the first sample selection, we include Switzerland, in which listed companies are allowed to choose between IFRS and US GAAP as their financial reporting standards. Thus, in the selection of transactions, one criterion is that the acquirer has its country of domicile in one of these 32 countries.

4.2.2 Selection of Transactions

As previously mentioned, the choice of goodwill method is made only in connection to control acquisitions with remaining NCI. In addition, it is available to be made on a transaction by transaction basis. Hence, in order to be able to collect information on the goodwill method chosen, we commence by selecting transactions. In line with previous research on overt policy options, we study the choice of goodwill method made by large companies. Studying policy choices in the context of large companies has in previous research been motivated by those companies' economic importance in capital markets (Cairns et al., 2011). We have defined large companies based on

market capitalisation in excess of 1 billion EUR.[15] Moreover, to increase the sample size, we study the choice of goodwill method during multiple years. The first possible year for companies to make this policy choice is prescribed in IFRS 3.64, which states that IFRS 3 (revised) applies to acquisitions made on or after the beginning of the first annual reporting period beginning on or after 1 July 2009. Given that most companies' annual reporting period start on 1 January, we view 2010 as the first possible year to be included in the sample.[16] The last possible year is 2016, as it is the last year for which annual reports are available at the time of the writing of this thesis (Fall 2017). Hence, we include transactions effective between 1 January 2010 and 31 December 2016.

The criteria specified for country, market capitalisation and time period are applied on acquirers conducting control acquisitions with remaining NCI. In terms of share ownership, such acquisitions are viewed as those in which an acquirer has obtained more than 50 percent, and less than 100 percent of the shares in an acquiree. This range of ownership captures transactions that result in control with remaining NCI, which require the need to measure goodwill and NCI. For simplicity, we assume that control is obtained by owning at least 51 percent of the shares. This assumption potentially neglects transactions for which an ownership of 50 percent has led to control. However, as 50 percent share ownership is associated with the set-up of a typical joint venture we decided to only include transactions with ownership correspondent to at least 51 percent. Furthermore, as the choice of goodwill method only is applicable when there is remaining NCI, transactions in which 100 percent of the shares in an acquiree are acquired are excluded.

By inserting the aforementioned criteria into the Thomson Reuters M&A database 'SDC Platinum', we could extract a total of 414 transactions.[17] These were extracted separately for each year to eliminate currency effects on the market capitalisation criterion between years.[18] Data gathered for each transaction was, inter alia, country of domicile of the acquirer, number of shares acquired and total number of shares owned after the acquisition.[19] Control acquisitions with remaining NCI completed between 2010 to 2016 represent c. 12 percent of the total acquisitions, including control acquisitions without remaining NCI. The number of transactions from the first sample selection, before the manual data collection, is presented in Table 6.

[15] This definition corresponds to the Nordic Large Cap and is used in order to include as many transactions as possible, while still be able to refer to the acquirers as large firms. Based on the available input alternatives in SDC, market capitalisation is measured four weeks prior to the announcement of the acquisition.
[16] However, companies with financial years different from calendar years have not been excluded.
[17] At this point, 13 countries had been excluded due to that no transactions with our specified criteria had been carried out by companies in these countries. These were Bulgaria, Croatia, Cyprus, Estonia, Ireland, Iceland, Latvia, Liechtenstein, Lithuania, Malta, Romania, Slovakia and Slovenia.
[18] See Appendix A, Table 22 for list of all transactions extracted per year from SDC.
[19] See Appendix A, Table 19, for the full list of criteria retrieved from SDC.

Table 6 – First Sample Selection

Steps	No. of Transactions
Selection of Transactions	
– Control acquisitions with and without NCI (51-100% of shares owned at acquisition date)	3 387
Excluded:	
– Control acquisitions without remaining NCI (100% of shares owned at acquisition date)	-2 973
Remaining:	
– Control acquisitions with remaining NCI (51-99% of shares owned at acquisition date)	414
Manual Data Collection	
– Excluded transactions (see Section 4.3.1)	-226
Final Sample	**188**

414 control acquisitions with remaining NCI represent the starting point of the manual data collection. Throughout that process, 226 additional transactions were excluded (Section 4.3.1). The final sample consists of 188 transactions which each represents an identified choice of the full or the partial goodwill method. The process of arriving at the final sample is described below.

4.3 Data Collection

Data on the choice of goodwill method, how the choice was disclosed, and some of the topic variables was manually collected from annual reports. Data on other variables included in the analysis was collected via the Thomson Reuters database SDC Platinum, Worldscope and Edgar (further described in Sections 4.4).

4.3.1 Identification of Goodwill Method

4.3.1.1 Scanning of Transactions

The 414 transactions generated by the first part of the sample selection process contained data on the acquirer, the acquiree, the acquisition date as well as the percentage of shares acquired. Based on this information, for each transaction, we searched for the acquirer's annual report in which the acquisition was assumed to have been accounted for according to IFRS 3 (revised).

In order to find the annual report that presumably contained information on the relevant acquisition, we browsed each acquirer's investor relation website. We then scanned the reports to confirm that the data generated by the SDC database was correct, that is, that it was the right acquirer and that the acquisition had in fact taken place.[20] Some acquirers, and consequently annual reports, were not found. In some cases, we found the acquirer and the annual report, but could not identify the transaction referred to in the SDC list. If we did not find the transaction based on the information in the SDC list in the annual report that matched the acquisition date, we searched

[20] In cases where it was evident that data in the SDC list was incorrect, we manually changed the data. Data affected was percentage of shares acquired (three cases) and acquisition date (two cases).

for annual reports in the year before and after (given that the year was comprised by the time period criterion) and repeated the procedure. For the transactions that we did find, we confirmed that the transactions fulfilled the selection criteria described in Section 4.2.

During the scanning process, one transaction was removed due to that it appeared twice in the SDC list. Four transactions were excluded due to that the acquirer did not report in English or a Nordic language, as we could not make a fair judgement of information in languages other than those.[21] Moreover, eight transactions were excluded because the acquirer did not apply IFRS, among which three were acquisitions made by Swiss acquirers. Twelve transactions were excluded as we could not find the annual report, in most cases due to that the acquirer had been acquired by another company. 50 transactions were excluded as they were outside the scope of IFRS 3 (IFRS 3.2).[22] In addition, four transactions were excluded because they were bargain purchases (comprised by IFRS 3.34). In total, 79 transactions were excluded during the scanning process (Table 7).

4.3.1.2 Collecting the Choice

According to IFRS 3.B64, firms are required to disclose the measurement basis for NCI recognised at the acquisition date. Thus, after scanning the transactions, the remaining annual reports ought to contain information on the choice of goodwill method. The first step of the identification of the choice was to read the accounting policies for business combinations. Based on the section concerning IFRS 3.19, we noted whether the acquirer makes the choice on a transaction by transaction basis or has a general policy. If only one of the methods was referred to in this section, we assumed that the acquirer uses that particular method for all transactions. If the policy choice was described to be made on a transaction by transaction basis, we tried to identify the chosen method for the relevant transaction by reading other parts of the annual report. In some cases, the choice was explicitly stated (see Appendix C for a summary of the sentences used by acquirers). If not, we tried to derive the choice based on the transaction's PPA, if disclosed.[23] Choices derived from PPA account for 14 percent of the final sample.

During the process of identifying the chosen goodwill method, additional transactions from our sample were excluded. 44 transactions were excluded as no NCI was recognised because the acquirer had in fact acquired 100 percent of the shares, either at the date specified by the SDC list, or during the remainder of the financial year. However, transactions in which acquirers had reached 100 percent share ownership during the remainder of the financial year, but still disclosed which goodwill method they had used in connection to the control acquisition with remaining NCI, were

[21] By Nordic languages we refer to Swedish, Danish and Norwegian.
[22] Joint ventures (IFRS 3.2(a)); assets that do not constitute a business (IFRS 3.2(b)); common control transaction (IFRS 3.2(c)); or when the acquirer is an investment company applying the right to exempt from IFRS 3 (IFRS 3.2A).
[23] See Section 2.3.2.1 for numerical examples.

not excluded from the sample.[24] 42 transactions were excluded on the basis of that no NCI was measured, despite of that not all shares in the acquiree had been acquired. This was due to that there was a put option contract obliging the parent to purchase the shares held by the non-controlling shareholders. Such option contracts are recognised by crediting liabilities, and on the debit side, some companies choose to debit the NCI balance, while others debit other components of equity. In the former case, no NCI is recognised (EY IFRS Developments, 2012).[25] This was the case for the 42 transactions excluded due to that no NCI was recognised, although not all shares in the acquiree had been acquired.[26] Moreover, 42 additional transactions were excluded due to the lack of information on the chosen method, either in wording or based on a PPA. A common reason for not providing information is that the acquisition was referred to as insignificant, in many cases because the acquiree was small in relation to the acquirer. The implication of excluding those transactions is discussed in Section 6.3. Lastly, for 19 transactions, information regarding the choice was provided, only in a PPA, but we were unable to derive the chosen method.

Table 7 – Final Sample

Sample Selection	No. of Transactions
Selection of Transactions	
Control acquisition with remaining NCI (51-99% of shares owned at acquisition date)	414
Manual Data Collection	
Excluded from Scanning of Transactions:	
– Duplicate	-1
– Reporting language other than English or Nordic	-4
– Reporting standards other than IFRS	-8
– Annual report could not be found	-12
– Not a business combination (outside the scope of IFRS 3)	-50
– Bargain purchases	-4
Excluded from Identification of Policy Choice:	
– Control acquisitions without remaining NCI	-44
– No remaining NCI	-42
– No information (insignificant acquisition)	-42
– Unable to identify the chosen method	-19
Final Sample	**188**

We estimate that we spent on average 30 minutes per transaction for conducting the manual data collection described above. During this process, 147 transactions were excluded in total. Our final

[24] Acquisitions leading to a 100 percent ownership during the same year, were classified as complimentary acquisitions (see Section 4.3.1.2).
[25] For more information, see EFRAG, DI/2012/2, 'Put Option Written on Non-controlling Interests'.
[26] Put options for which other components of equity is debited (as opposed to NCI), implying that NCI is in fact recognised, are included as data on a topic variable. See Section 4.3.2.2 for further details.

sample consists of 188 transactions.[27] After the complete selection process, a total of 17 countries are represented in the sample. These countries, along with the number of transactions per country, are presented in Table 8.[28] The sample selection process implies that the number of transaction in each country, as well as industry, differs. Whether this has implication for how we can draw conclusions from our results will be discussed in Section 6.3.

Table 8 – Number of Transactions per Country in the Sample

Country	N	Country	N	Country	N
Austria (AT)	9	Hungary (HU)	1	Portugal (PT)	1
Belgium (BE)	2	Italy (IT)	9	Spain (ES)	11
Denmark (DK)	2	Luxembourg (LU)	6	Sweden (SE)	8
Finland (FI)	5	Netherlands (NL)	7	Switzerland (CH)	16
France (FR)	42	Norway (NO)	8	United Kingdom (UK)	33
Germany (DE)	21	Poland (PL)	7		

4.3.2 Definition and Collection of Topic Variables

Stadler and Nobes (2014) identify one topic factor for each policy topic based on the accounting numbers affected by the respective choice, as explained in Section 2.2.2. As motivated in Section 2.4.3, we identify topic factors based on the three financial statement effects arising from choosing between the two methods.

Among the three financial statement effects that we deem to be candidates for relevant topic factors related to the choice of goodwill method, we disregard the effect arising from future impairments, as we could not make a robust collection of data on such events. We elaborate on this delimitation in Section 3.2. For the other two potential topic factors (size of goodwill and NCI; and complimentary acquisitions), the defined topic variables aim to reflect the effects on accounting numbers. In other words, we seek to define variables that capture management's considerations in connection to choosing between the methods. This enables us to analyse statistically whether the choice made is influenced by topic factors.

4.3.2.1 Topic Factor I – Size of Goodwill and NCI

For Topic Factor I, we seek to define variables capturing that management would be concerned with the amounts of goodwill and/or NCI recognised on the balance sheet and, in turn, apply this concern on the choice of goodwill method. In addition, as this financial statement effect is larger when the percentage of shares acquired is higher, we seek to define a variable that captures the potential influence of the percentage of shares owned in the acquiree at the acquisition date.

[27] In the final sample, the market capitalisation of the firms included ranged between c. 1,2 billion EUR to c. 170 billion EUR, with median market capitalisation of c. 7,8 billion EUR.
[28] Countries excluded as a result of the manual data collection were Greece and the Czech Republic. Abbreviations for the remaining countries are based on ISO 3166-1 alpha-2 code.

The topic variable for the size of goodwill is defined as goodwill as a share of total assets (*GW/A*). Goodwill is deflated by total assets in order to make the size of goodwill comparable across firms. The topic variable for the size of NCI is defined as equity, including NCI, as a share of total assets (*EQ/A*), that is, solidity. We use solidity as we believe that management would be more concerned with this key ratio in comparison to the size of NCI, given that users of financial information are assumed to be more interested in solidity than the size of NCI as such. However, this assumes that management includes NCI in their definition of solidity. Lastly, we include a variable for the percentage of shares owned in connection to the control acquisition with remaining NCI. This variable is defined as (*Control_Ownership*). All variables are defined in Appendix A, Table 21.

Data on the topic variables (*GW/A)* and (*EQ/A)* was retrieved via the database Worldscope[29] at the opening balances of the financial year including the acquisition date. Opening balances are used because economic factors (influencing accounting choice) are likely to be at their peak during the adoption year (Morris and Gordon, 2006). For (*Control_Ownership)*, data on percentage of shares owned was retrieved from SDC in connection to the selection of transactions (see Section 4.2.2).

4.3.2.2 Topic Factor II – Complimentary Acquisitions

For Topic Factor II, we seek to define variables that captures how management would be concerned with the effect on reported equity arising from a complimentary acquisition. In other words, if the acquirer anticipates that additional shares will be acquired through a complimentary acquisition, the choice of goodwill method will be of higher importance. Accordingly, the variables should reflect the intention to carry out complimentary acquisitions.

The intention to carry out a complimentary acquisition is assumed to be captured by an option contract in connection to the control acquisition with remaining NCI. Such contracts can be of different nature in terms of whether it is the acquirer or a non-controlling shareholder who has the opportunity to purchase or sell the remaining shares currently not held by the acquirer. Common for all contracts is that the two parties have, in some way, contracted on that the remaining shares will be transferred to the acquirer in the future, and that NCI has been measured and recognised in the acquirer's financial statements.[30] For the remainder of this thesis, these are referred to as put option contracts, and the related topic variable is defined as (*Put_Option*). However, the intention to purchase additional shares is not always contracted. In other words, management can have this intention irrespective of a put option contract. Without a contract, the intention is not visible in the financial information at the acquisition date. However, given that we have access to future annual reports, we are able to analyse whether the actual event of a complementary influences the choice of goodwill method. Accordingly, the second topic variable aims to reflect the actual event

[29] See appendix A, Table 21, for definition of the variables and Worldscope codes.
[30] This is the case for which there is a put option contract but where the other components of equity are credited, as opposed to NCI. Hence, this is different from the excluded transactions in the data collection described in Section 4.3.1.2 where NCI was credited and thus not recognised as an effect from a put option contract.

of a complimentary acquisition and is defined as (*Comp_Acq*). The variable captures whether the company has acquired additional shares during the specified time period. Also related to the future event of a complementary acquisition, the third topic is defined as the total percentage of shares owned in the acquiree during the studied time period (*Total_Ownership*). We include two variables reflecting the event of complimentary acquisitions as we seek to analyse whether the magnitude of such an acquisition has any implications. More specifically, we are interested in whether a complimentary acquisition is of importance, regardless of how much the ownership was increased.

The collection of data on *(Put_Option)*, *(Comp_Acq)* and *(Total_Ownership)* was carried out manually alongside the process described in Section 4.3.1.2. With regards to collecting data for (*Put_Option*), we searched for sentences in the annual report stating that there is an outstanding option contract. In order to be classified as a transaction with a put option, the put contract had to be accounted for in the way that results in that NCI is measured and recognised, in accordance with the discussion above. Transactions in connection to which the acquirer does not mention an outstanding option contract were categorised as a not having a put option. With regards to (*Comp_Acq*) and (*Total_Ownership*), we traced the development of each transaction in annual reports issued during the following financial years, limited by the specified time period. More specifically, for each transaction, we tried to detect whether any complimentary acquisitions had been reported in annual reports for the financial years 2011 to 2016. We retrieved the annual report for the last year of the time period and searched for the note on ownership in subsidiaries to see whether this had changed. If so, we continued to search for information on as of when the ownership had changed, how many times and by how much. If no change could be detected, the transaction was classified as a transaction with no complimentary acquisition. A few transactions had been removed from the list of subsidiaries between two years, presumable because the subsidiary had been incorporated into another legal entity or disposed. These were classified as transactions with no complimentary acquisition made.

4.4 Statistical Methods

To test the formulated hypotheses of whether country, industry and topic factors influence the choice of goodwill method (H1-H3), we initially perform univariate analyses for each factor, in line with Stadler and Nobes (2014). The univariate analyses consist of both Z-tests for two proportions and chi-square tests of independence. By performing these two univariate tests on our defined variables, it is possible to report the tendencies of influence for each factor on the choice of goodwill method. However, univariate analyses imply that only the influence of the tested factor is analysed, independent of other potential explanatory factors. Hence, results from the univariate analyses can only be viewed as tendencies, and do not have the ability to explain the choice of goodwill method. Consequently, we also conduct a multivariate analysis in order to test if the significant results from the univariate analysis remain significant, also when controlling for other

factors. As we do not know beforehand which variables will tend to influence the choice of goodwill method, we will use the results from the univariate analyses to evaluate all variables. In this way, we can identify which ought to be further analysed in the multivariate test.

Moreover, we note that given that we study all the transactions that fulfil the specified criteria, our sample is a total investigation of our target population. Correspondingly, it is not a random sample of the target population, but could however be viewed as a random selection in time. Thus, for the following statistical analyses, our sample can be treated as a reasonable approximation of a random selection from a total population, that contains future transactions.

4.4.1 Univariate Analyses

For each factor, we examine the variation of the choice made within and between groups. More specifically, we examine whether all transactions in each group tend to be accounted for with the same method, and whether this tendency differs between groups. This is done by comparing the percentage of the chosen goodwill methods in each country group, industry group and topic factor group. If the percentages across the different groups for a certain factor show a significant trend, it could be due to a systematic influence of that particular factor on the choice of goodwill method. In all univariate analyses, we use the full goodwill method for showing the percentage of transactions for which one of the methods were chosen.

By observing the percentage of transactions per group that have been accounted for with the full goodwill method, we analyse whether there is 'No Variation' or 'Low Variation' within the different groups for each factor, in accordance with Stadler and Nobes (2014). No variation occurs when all transactions in one group have been accounted for in the same way. Low variation occurs when in excess of 90 percent of the transactions in one group have been accounted for in the same way (Stadler and Nobes, 2014). High variation between multiple groups and low variation within one group imply that the varying factor is influential for the policy choice (Stadler and Nobes, 2014). For example, high variation between country groups and low variation within each country group would imply that country factors influence the choice of goodwill method. After calculating the variation within groups, we test whether the indicated variations across groups are statistically significant. This is done through a Z-test for two proportions or a chi-square test of independence, depending on the number of groups, as Z-tests are only applicable on two populations.

4.4.1.1 Groups for Statistical Analyses

4.4.1.1.1 Countries

Due to too few transactions in some of the countries, the 17 countries included in the final sample are divided into seven groups. Countries with less than 15 transactions were merged with other countries, resulting in the creation of new country groups. We grouped countries, to the extent

possible, based on the classification scheme by Gray (1988).[31] The groups are Nordics (NO)[32]; Germanic (DE)[33]; Benelux (BX)[34]; More Developed Latin Europe (LE)[35]; and Other countries (OC)[36]. Switzerland (CH) and United Kingdom (UK) were not merged with other countries as they each had in excess of 15 transactions.

4.4.1.1.2 Industries

The industries are divided into groups based on the first digit of the Industry Classification Benchmark (ICB), in accordance with Stadler and Nobes (2014).[37] The industry codes were retrieved via Worldscope (see Appendix A, Table 21, for Worldscope codes). Although previous studies on overt policy options exclude financial firms, we include acquirers from all industries, for two reasons. Firstly, the choice of goodwill method is made for control acquisitions with remaining NCI. Such acquisitions can be carried out by companies in any industry. Secondly, as one purpose of our thesis is to analyse which method companies have chosen, we are interested also in which method financial firms have chosen. However, to be able to compare our results to those of previous studies on overt options, we conduct a robustness test in which we exclude financial firms (see Section 6.2). Nonetheless, the manual data collection implies that investment companies (included in industry group 8) may represent a relatively large part of excluded transactions, in comparison to other industries (see Section 4.3.1.1).

The final sample includes transactions in nine out of ten industry groups (ICB 1-9). However, as there was only one transaction in Ind9 (Technology), we merged Ind9 and Ind6 (Telecommunication) as the acquirer of the single transaction in Ind9 also operated in telecom. Too few observations could otherwise result in underestimation of the influence of industry factors in the analysis. In addition, the final sample did not include any transactions in Ind0 (Oil and Gas). During the manual data collection, several transactions made by oil and gas firms were excluded as they were not defined as business combinations in accordance with IFRS 3.2(b). Those transactions were instead defined as direct acquisitions of assets, and often referred to as projects.

[31] Hungary and Poland became 'Other Countries' (OC) as they were not comprised by Gray (1988). 'Benelux' was based on geographical proximity. Although part of 'Less Developed Latin' in Gray (1988), Portugal was merged with 'More Developed Latin'.
[32] Denmark, Finland, Norway and Sweden.
[33] Austria and Germany.
[34] Belgium, Netherlands and Luxembourg.
[35] France, Italy, Portugal and Spain.
[36] Hungary and Poland.
[37] Oil and gas (Ind0); Basic materials (Ind1); Industrials (Ind2); Consumer goods (Ind3); Health care (Ind4); Consumer services (Ind5); Telecommunications (Ind6); Utilities (Ind7); Financials (Ind8); Technology (Ind9).

4.4.1.1.3 Topic Factors

Stadler and Nobes (2014) use deciles to divide data on the respective topic variables into ten equal parts. We have grouped data on our defined topic variables differently, for two main reasons. Firstly, as our sample is smaller[38], using deciles would result in too few observations per group, which would have adverse effects on the statistical tests. Secondly, in order to capture topic factor characteristics that have implications for the interpretation of the results, we grouped some of the topic variable data by applying some discretion. This is further elaborated on below.

For data on the first two variables related to Topic Factor I, *(GW/A)* and *(EQ/A)*, we use frequency distributions.[39] By constructing frequency distributions, the data on these variables is divided into five groups, respectively: GW:1-GW:5 and EQ:1-EQ:5. This method allows us to keep extreme values in the analysis, as they will be part of an own group. We can thus analyse whether transactions in a group which are associated with low, medium or high values of *(GW/A)* and *(EQ/A)*, have made a particular choice of goodwill method. In other words, we keep values that differ from the average as these may carry interesting implications on the choice. For the third topic variable related to Topic Factor I, *(Control_Ownership)*, five groups are created. The first group, CO:1, consists of transactions where acquirer owns 51-55 percent of the shares and aims to capture acquisitions where the acquirer has obtained control, but where the NCI holds a relatively large part of the shares in the acquiree. Similarly, the fifth group, CO:5, consists of transactions where the acquirer has purchased 91-99 percent of the shares. This group aims to capture acquisitions where the acquirer has obtained control and where the size of NCI is relatively small. Comparing the choice of goodwill method between transactions where NCI holds large versus small parts of the shares allows us to analyse whether the choice is affected by that the differences in effects on goodwill and NCI are relatively small when almost all of the shares are acquired. For the percentages of shares not covered by CO:1 and CO:5, transactions where the acquirer's share ownership is 56-65 percent are allocated to CO:2; ownership of 66-80 percent to the third group CO:3; and ownership of 81-90 percent to CO:4.

With regards to Topic Factor II and the topic variable *(Put_Option)*, data is divided into two groups based on whether there was a put option written on NCI in connection to the control acquisition with remaining NCI. The first group contains transactions without a put option, Option:No, and the second group contains transactions with an put option, Option:Yes. Data on the topic variable *(Comp_Acq)* also consists of two groups, based on the occurrence of complimentary acquisitions. The first group consists of transactions after which the acquirer has not made any complimentary acquisitions of additional shares, Comp:No. The second group consists of transactions after which

[38] The sample size in Stadler and Nobes (2014) comprised 323 companies.
[39] We grouped the observations within mutually exclusive intervals. The size of the intervals was given to create five groups and the groups consists of difference number of observations depending on the frequency.

the acquirer has made one or more complimentary acquisitions in the acquiree Comp:Yes. For the third topic variable *(Total_Ownership)*, five groups were created in accordance with the discussion for the groups created for *(Control_Ownership)*. The first group, TO:1, consists of transactions where the total percentage of shares owned during the total time period is 51-65 percent. The second group, TO:2, consists of transactions where the total percentage of shares in the acquiree owned during the total time period is between 66-80 percent. For the third and fourth groups, TO:3 and TO:4, the total share ownership is 81-94 percent and 95-99 percent, respectively. Lastly, the fifth group, TO:5, consists of transactions where share ownership of 100 percent is reached at some point during the time period.

4.4.1.2 Z-test of Two Independent Proportions

One way to test whether a factor significantly influences the choice of goodwill, independent from other factors, is to perform a Z-test of two independent proportions and report the corresponding p-values. Z-tests reveal whether there is an influence of a certain factor on the choice of goodwill method, and also if the influence it is more related to the choice of the full goodwill method or the partial goodwill method. However, as the test is only applicable in testing two proportions, it is only conducted with regards to the variables for which data was divided into two groups. Those variables are *(Put_Option)* and *(Comp_Acq)* and relate to Topic Factor II.

Z-tests compare two independent proportions by testing if the proportion (P_x) in one population, compared to the proportion (P_y) in another population, are equal. In our case, the proportion represents the percentage of transactions accounted for using the full goodwill method, whereas the populations are represented by the two groups that we have created for each variable. More specifically, we test the null hypothesis that the population proportion (P_1) for group 1 and (P_2) for group 2 are equal. Z is defined as follows:

$$Z = \frac{(\widehat{p_1} - \widehat{p_2}) - 0}{\sqrt{\frac{\hat{p}_0(1-\hat{p}_0)}{n_1} + \frac{\hat{p}_0(1-\hat{p}_0)}{n_2}}}$$

where $\widehat{p_1}$ and $\widehat{p_2}$ are the estimated proportions for group 1 and group 2, n_1 and n_2 are the two sample sizes and $\hat{p}_0$ is the proportion in the combined sample defined as:

$$\hat{p}_0 = \frac{n_1 * \widehat{p_1} + n_2 * \widehat{p_2}}{n_1 + n_2}$$

4.4.1.3 Chi-Square Test of Independence

Another way of testing whether the respective factor significantly influences the choice of goodwill is by performing a chi-square test of independence and report the corresponding p-values. The chi-square test is the same as the Z-test when there are two populations, but is used to generalise the Z-test to situations with more than two proportions. However, by using the chi-square test, we are only able to tell if there is a potential influence, not if the influence relates to the choice of the

full goodwill method or the partial goodwill method. We perform chi-square tests on all country and industry groups and on the groups created in connection to the topic variables not tested by the Z-test, that is, (*GW/A), (EQ/A), (Control_Ownership)* and *(Total_Ownership).*

The observations for each factor are cross-classified[40] in a contingency table, and therefore the chi-square random variable χ^2 is defined as follows:

$$\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{c}\frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

where O_{ij} is the actual observed frequency count for each observation in *r* (row) and *c* (column). E_{ij} is the expected frequency count for each observation in *r* and *c*, computed as follows:

$$E_{ij} = \frac{R_i \times C_j}{n}$$

where R_i and C_j are the corresponding row and column totals and n is the total sample size.

4.4.1.4 Expectations and Hypotheses for Univariate Analyses

4.4.1.4.1 Z-Test

For *(Put_Option)* and *(Comp_Acq),* we expect that the proportions between the groups for the choice of goodwill method are different, with the difference being P_1-P_2. For *(Put_Option),* we expect that the proportion for the choice of the full goodwill method in group Option:Yes (P_2) is higher, than in group Option:No (P_1). This is motivated that companies, that have a put option to acquire more shares, the probability of choosing the full goodwill method is expected to be higher. This implies that the difference in proportions between Option:No and Option:Yes for choosing the full goodwill method is expected to be negative. For (*Comp_Acq*), we expect that the proportion for the choice of the full goodwill method in group Comp:Yes (P_2) is higher, than in group Comp:No (P_1). Thus, we expect that the proportions between Comp:No and Comp:Yes is negative. To conclude that the difference is statistically significant, we need to reject the null hypothesis for *(Put_Option)* and *(Comp_Acq)*, respectively. That is: H_0: $P_1 - P_2 \geq 0$ against the alternative hypothesis H_1: P_1-$P_2 < 0$. The decision rule is as follows:

$$\text{Reject } H_0 \text{ if: } \frac{(\widehat{p_x} - \widehat{p_y})}{\sqrt{\frac{\bar{p}_0(1-P_0)}{n_x}} + \sqrt{\frac{\bar{p}_0(1-P_0)}{n_y}}} < -z_\alpha$$

4.4.1.4.2 Chi-Square Test

For country groups, industry groups and the groups created for the topic variables related to Topic Factor I, *(GW/A)*, *(EQ/A)* and *(Control_Ownership)*, and to Topic Factor II, *(Total_Ownership),* we expect a relationship between the respective variable and the choice of goodwill method. However, we are not able to test the nature of this relationship, namely, whether the choice of the full or partial goodwill method is more or less likely. To conclude that there is a statistically significant

[40] The cross-classification is based on the number of observations related to each choice (full or partial) in comparison to each group. The choice of goodwill method is stated in the row, while the groups are stated in the columns.

relationship between the tested variable and the choice, we need to reject the hypothesis that there is no relationship. The null hypothesis, for each variable, is thus: H_0: The variable and the choice of goodwill method are independent, against the alternative hypothesis H_1: The variable and the choice of goodwill method are not independent. A test of association at a significance level α is based on the following decision rule:

$$\text{Reject } H_0 \text{ if: } \sum_{i=1}^{r}\sum_{j=1}^{c}\frac{(O_{ij}-E_{ij})^2}{E_{ij}} > \chi^2_{(r-1)*(c-1),\alpha}$$

where (r-1)*(c-1) is the degrees of freedom (DF) and α is the chosen significance level.

Based on results from the univariate analyses, we are able to detect tendencies of influential factors on the choice of goodwill method. To further test the strength of such influential factors, we run a multiple regression model.

4.4.2 Multiple Regression Analysis

Model (1) is a logistic multiple regression developed to further analyse the variables that were shown to influence the choice of goodwill method based on the univariate test results. We use a logit model due to that such models are suggested to be preferred for multivariate analyses with a binary dependent variable and are often used in research of accounting choice for choices made between two specified options (Stone and Rasp, 1991). The alternative linear model has been argued to cause problems with heteroscedasticity (Walkling, 1985).

After performing the univariate analyses for each factor, the results (see Section 5.2.2) showed that the variables related to Topic Factor II tend to influence the choice of goodwill method, which is in support for H3. To test the influence of Topic Factor II in a multivariate analysis, we use the same topic variables which were defined for the univariate analyses. Thus, we include *(Put_Option), (Comp_Acq)* and *(Total_Ownership*) as explanatory variables in a multiple regression model, Model (1), to further test the influence of these three variables. Hence, we continue our analysis by further testing H3 by controlling for other factors. All other variables included in the model are specified in detail in the remainder of this section, under their respective category.

The developed logistic regression follows:

$$\begin{aligned} Prob(CHOICE_i) = {} & \beta_0 + \beta_1(Put\_Option)_i + \beta_2(Comp\_Acq)_i + \beta_3(Total\_Ownership)_i + \beta_4 CH_i + \beta_5 DE_i + \beta_6 LE_i \\ & + \beta_7 NO_i + \beta_8 OC_i + \beta_9 UK_i + \beta_{10} Ind2_i + \beta_{11} Ind3_i + \beta_{12} Ind4_i + \beta_{13} Ind5_i + \beta_{14} Ind6_i + \beta_{15} Ind7_i \\ & + \beta_{16} Ind8_i + \beta_{17} Size_i + \beta_{18} US_i + \beta_{19} Public_i + \gamma_n Year_i + \varepsilon_i \end{aligned}$$

Model (1)

To test H3, the coefficients of interest are β_1, β_2 and β_3. We analyse the individual explanatory power of each variable by running Wald tests which tests whether the explanatory variable coefficient is significantly different from zero:

$$Reject\ H_0\ when: z = \frac{\widehat{\beta_i}}{\sqrt{\widehat{var}(\widehat{\beta_i})}} > z_{\alpha/2} \quad for\ a\ two\text{-}tailed\ test$$

or

$$Reject\ H_0 when: z = \frac{\widehat{\beta_i}}{\sqrt{\widehat{var}(\widehat{\beta_i})}} > z_{\alpha}\ for\ a\ one\text{-}tailed\ test$$

As we are using a logit regression, the coefficients are log-odds which are converted to odds when made exponential. A negative coefficient has odds ratios < 1, implying that the odds of that the event occurs are lower than the baseline. Correspondingly, a positive coefficient has odds ratios > 1, implying that the odds of that the event occurs is higher than the baseline.

4.4.2.1.1 Dependent Variable

The dependent variable, *(Choice)*, is a dummy variable for the choice of the full or the partial goodwill method. The variable takes on the value of 1 if the transaction is accounted for using the full goodwill method, and 0 if the partial goodwill method is used.

4.4.2.1.2 Expectations and Hypotheses for Explanatory Variables

For the explanatory variables *(Put_Option)*, *(Comp_Acq)* and *(Total_Ownership)*, we expect the respective coefficients to have a positive sign. This is because as all three variables are related to complementary acquisitions which, in turn, are assumed to be associated with the full goodwill method. Thus, the null hypotheses for topic variable *(Put_Option); (Comp_Acq);* and *(Total_Ownership)* are: H_0: $\beta_1 \leq 0$; $\beta_2 \leq 0$; $\beta_3 \leq 0$ against the alternative hypotheses H_1: $\beta_1 > 0$; $\beta_2 > 0$; $\beta_3 > 0$.

4.4.2.1.3 Expectations for Control Variables

The model includes control variables to remove the effects from factors that could act as alternative explanations to the explanatory variables. Although country and industry factors were shown not to significantly influence the choice in the univariate analysis, they are still included as control variables to remove the impact of, for example, uneven distributions of transactions from the respective country and industry groups. The variables included for country and industry are dummy variables. For example, the country group *(CH)* take on the value of 1 for all transactions in the *(CH*) group, and the value of 0 for all transactions in other country groups. The country group *(BX)* and industry group *(Ind1)* serve as baselines and are excluded from the regression to avoid multicollinearity, implying that the other groups are compared to the baseline.

We also use the control variable *(Public)*. Given that the valuation of the put option could serve as basis for fair value of NCI in case a quoted price in an active market is not available (IFRS 13.61),

we control for if the shares in the acquiree were traded on a stock exchange at the acquisition date. This relies on that fair value of NCI should at first-hand be based on a quoted price in an active market (IFRS 3.B44). Accordingly, *(Public)* is a dummy variable that take on the value 1 if the shares in the acquiree were listed on a stock exchange at the time of the acquisition. Data for *(Public)* was retrieved from SDC. We expect a positive sign of the coefficient of *(Public)* as we believe that the full goodwill method may be associated with the fact that there is an available source of fair value.

In addition to country, industry and public status of the acquiree, we include two general firm variables as control variables, *(Size)* and *(US)*. The variable *(Size)* is defined as the natural logarithm of market capitalisation in Euro.[41] It is included as it is a firm factor that could be associated with accounting choice in general (Stadler and Nobes, 2014). The variable *(US)* is a dummy variable that take on the value 1 if the acquirer is listed on a stock exchange in the US, as US GAAP does not allow for a policy choice but only for the full goodwill method (SFAS 141(R)). Thus, US common practice may influence accounting practices in European firms that are listed also in the US. Data for *(Size)* has been retrieved via Worldscope (see Appendix A, Table 21). Data for *(US)* has been collected by using the Edgar database. For this control variable, we expect the coefficient to take on a positive sign, as US GAAP only allows for choosing the full goodwill method. For the other control variables, we have no specific expectations about the coefficients' signs as there are no motivated assumptions regarding the association with the full or the partial goodwill method.

The final control variable, *(Year)*, controls for year fixed-effects to eliminate the influence of aggregate time-series trends. Each year is included by adding a year dummy, except for the first year, 2010, which is excluded to avoid multicollinearity in the regression model.

[41] Market capitalisation has been converted into Euros using the FX-rate obtained on each company's financial year-end date. Please note that this data is retrieved from Worldscope and not SDC as in the selection of transactions to the first sample (see Section 4.2.2).

5 Results

In order to give the reader a glimpse of how acquirers write about the choice of goodwill method in their financial reporting in general, we present some disclosure-related findings before the results of the statistical analyses that test H1-H3 (Section 5.2).

5.1 Disclosure-Related Findings

The disclosure-related findings are grouped into three themes: Whether acquirers make use of the possibility to make the choice of goodwill method on a transaction by transaction basis; whether the choice was disclosed in wording or PPA; and different ways of describing each method.

5.1.1 Choice Made per Transaction or One Method for all Transactions

In 56 percent of the transactions, the choice was specific for the particular transaction. Thus, in the given year, the acquirers made use of the possibility to make the choice of goodwill method on transaction by transaction basis. Among the 28 companies that had made multiple acquisitions during the time period, six of these made different choices. For example, Essilor Group had ten transactions in the sample and is thereby the company who was represented through the highest number of acquisitions (scattered over 2010, 2011, 2012 and 2013). Eight of these transactions were accounted for using the partial goodwill method and two using the full goodwill method. Essilor Group provides some reasoning to when they choose each method:

'Since January 1, 2010, the Essilor Group has for the most part applied the so-called 'full goodwill' method when there was an acquisition with minority interests under option. The fair value of the minority interests is determined by estimating the future price to be paid for the minority interests under option. Moreover, when there is an acquisition with no option to redeem minority interests, the Group applies the so-called 'partial goodwill' method.'

Essilor International SA Registration Document 2013, pp. 124-125

The other acquirers, representing 44 percent of the transactions, state that the chosen method was applied on all acquisitions. In those cases, the acquirer generally acknowledged that there is a possibility to make the choice on a transaction by transaction basis, but stated that they apply only one of the methods for the relevant acquisitions. Some stated that only one method was used for all acquisitions that particular year, while others stated that they have not yet made use of the option to measure NCI at fair value.

'The Group continues to measure the non-controlling interest at the proportionate share of the acquiree's identifiable net assets.'

Unibail-Rodamco SE Annual Report 2012, p. 120

5.1.2 Disclosure of the Choice in Wording or Based on the PPA

Acquisitions for which the acquirer disclosed the choice in wording, typically in the note on business combinations, account for 86 percent of the total transactions. If there was no such information in wording, the choice was disclosed through the PPA (as described in Section 4.3.1.2). Correspondingly, these cases account for 14 percent of the total transactions in the sample.

5.1.3 Wording Used to Describe Each Method

5.1.3.1 Full Goodwill Method

Examples of wording used to describe the full goodwill method are: 'full goodwill method'; 'assigning goodwill to NCI'; 'measure NCI at fair value'; 'recognise goodwill related to NCI'; 'goodwill is measured including any recognised NCI'; and 'NCI has been calculated using the fair-value method'. The quote below is an example of the choice of the full goodwill method.

'IFRS 10 and IFRS 3 are mainly based on an entity definition when measuring assets and liabilities in connection with acquisitions which provide control. The one exception is goodwill where there is a use option per acquisition such that companies can choose to recognise only the controlling interest's share or 100%. The Group has chosen to report all assets (including goodwill) at 100% of fair value identified on the date of acquisition for all acquisitions during the period from and including 2010. This implies that non-controlling interests are also allocated a share of goodwill.'

Leroy Seafood Group ASA Annual Report 2016, p. 95

5.1.3.2 Partial Goodwill Method

Examples of sentences used to describe the partial goodwill method are: 'partial goodwill method'; 'proportionate share of the acquiree's identifiable net assets'; 'share of net assets attributable to the NCI'; and 'NCI is valued pro rata according to their interests in the acquiree's identifiable assets'. The below quote is an example of the partial goodwill method.

'Unless otherwise stated, the proportionate equity directly attributable to non-controlling interests is determined at the acquisition date as the share of the fair value of the assets (excluding goodwill) and liabilities attributable to them.'

Volkswagen AG Annual Report 2011, p. 262

A full list of sentences used to describe the chosen goodwill method is included in Appendix C.

5.2 Statistical Results

5.2.1 Descriptive Statistics

The final sample consists of 188 transactions conducted by large listed companies in 17 countries in the EU, EEA and Switzerland. As some of the transactions were carried out by the same acquirer, 144 individual firms are represented in the sample.

As shown in Table 9, the transactions in the sample are quite well-spread across the country groups and industries, with exemptions for Other countries (OC) and Telecommunications (Ind6), with eight and four transactions, respectively. Transactions carried out by acquirers in Consumer services and Financials account for about half of the sample. In terms of country groups, More Developed Latin Europe represents 34 percent of the sample. It can however be noted that it is the country group including the highest number of countries.[42] Moreover, the frequencies of industries are relatively proportional across the country groups. However, about half of the transactions in the UK are carried out by acquirers in Consumer services. In addition, the proportion of Health care firms belonging to the industry group More Developed Latin Europe, is higher compared to the total sample. These examples highlight the importance of also controlling for country and industry in the multivariate analysis.

Table 9 – Country and Industry Groups

		Country Groups								
Ind	**Industry Groups**	BX	CH	DE	LE	NO	OC	UK	∑	%
1	Basic materials	1	0	3	0	4	2	5	**15**	*8%*
2	Industrials	0	6	2	7	4	0	3	**22**	*12%*
3	Consumer goods	1	2	5	10	4	1	2	**25**	*13%*
4	Health care	5	2	0	11	1	0	0	**19**	*10%*
5	Consumer services	5	3	9	12	1	1	17	**48**	*26%*
6	Telecommunications	1	0	0	1	2	0	0	**4**	*2%*
7	Utilities	0	0	1	5	3	1	0	**10**	*5%*
8	Financials	2	3	10	17	4	3	6	**45**	*24%*
∑		**15**	**16**	**30**	**63**	**23**	**8**	**33**	**188**	*100%*
%		*8%*	*9%*	*16%*	*34%*	*12%*	*4%*	*18%*	*100%*	

The table shows the distribution of transactions by country groups and industry groups.

According to Table 10, across the total time period, 31 percent of the transactions were accounted for using the full goodwill method and 69 percent using the partial goodwill method. Apart from year 2012, the choice of the partial goodwill method ranges from 61 to 70 percent with a corresponding range of 30-39 percent for the choice of the full goodwill method. In 2012, the partial goodwill method was used in 91 percent of the transactions and the full goodwill method was used in 9 percent of the transactions.

[42] France, Italy, Portugal and Spain.

As shown in Table 10, the number of sampled transactions differs across the years. For example, transactions in 2010 and 2011 account for c. 41 percent collectively. In comparison, 2016 comprise only eight transactions (c. 4 percent of the sample). Nevertheless, the distribution over time reflects the annual distribution of the transactions in the first sample (see Appendix A, Table 22), implying that the final sample is not biased in this sense. The variation over time highlight a need to control for year fixed-effects in the multiple regression analysis.

Table 10 – Distribution of Transactions and the Choice of Goodwill Method over Time

Year	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**∑**
Full goodwill method								
N	13	12	2	10	9	9	3	**58**
%	*34%*	*30%*	*9%*	*31%*	*38%*	*39%*	*38%*	***31%***
Partial goodwill method								
N	25	28	21	22	15	14	5	**130**
%	*66%*	*70%*	*91%*	*69%*	*63%*	*61%*	*63%*	***69%***
∑	**38**	**40**	**23**	**32**	**24**	**23**	**8**	**188**
%	***20%***	***21%***	***12%***	***17%***	***13%***	***12%***	***4%***	***100%***

The table shows the distribution of the transactions and the percentages of the chosen goodwill methods during the examined time period (2010-2016).

Table 11 shows the summary statistics for the topic variables used in the statistical analyses, as well as summary statistics for the control variables included in the multivariate analysis.

For topic variable (*GW/A*), the number of observations are 185, compared to 188 for the other variables, as data on goodwill was not provided in Worldscope for three firms. The mean and median of the size of goodwill as a share of total assets are 18 percent and 15 percent, respectively. However, the maximum is 65 percent, implying that goodwill accounts for a relatively large share of the balance sheet in some firms. By using frequency distributions, the transactions were grouped with respect to the values of *(GW/A),* implying that acquirers with relatively higher values of the variable are in a separate group. The mean, and median, for (*EQ/A*) is 41 percent, respectively. However, the values range between 4 percent and 95 percent. Firms with low percentage are highly leveraged and are mainly insurance companies, a part of Ind8 (Financials). The observations with values of (*EQ/A*) above the third quartile are exclusively adhering to Ind5 (Consumer services). The means for (*Control_Ownership*) and (*Total_Ownership*) are 70 percent and 79 percent, respectively. Hence, on average, the percentage of shares held at control are 70 percent and increased by 9 ppt during the examined period through complementary acquisitions. The maximum percentage of shares owned in connection to the control acquisitions is 98 percent. In 28 percent of the total transactions, the acquirer has an option to acquire additional shares (*Put_Option*), and 36 percent of the transactions are followed by complementary acquisitions (*Comp_Acq*).

Table 11 – Descriptive Statistics on Included Variables

Variable	Topic Factor	Data	N	Mean	Std Dev	Min	Q1	Median	Q3	Max
GW/A	I	Continuous	185	17,9%	15,5%	0,0%	3,1%	15,1%	31,0%	64,6%
EQ/A	I	Continuous	188	40,7%	19,2%	3,9%	27,7%	41,3%	53,8%	94,9%
Control_Ownership	I	Continuous	188	69,6%	14,7%	51,0%	55,0%	60,0%	80,0%	98,4%
Put_Option	II	Categorical	188	28,2%	45,1%	0	n/a	n/a	n/a	1
Comp_Acq	II	Categorical	188	36,2%	48,2%	0	n/a	n/a	n/a	1
Total_Ownership	II	Continuous	188	78,7%	18,1%	51,0%	65,0%	80,0%	100,0%	100,0%
Control Variables										
Size		Continuous	188	15,6	1,3	12,9	14,5	15,4	15,4	18,8
US		Categorical	188	7,4%	26,3%	0	n/a	n/a	n/a	1
Public		Categorical	188	19,7%	39,9%	0	n/a	n/a	n/a	1

The table reports descriptive statistics of the topic variables used to analyse the influence of topic factor on the choice of goodwill method, as well as the control variables included in the multiple analysis. See Appendix A, Table 21, for definition of all variables and Worldscope codes. 'Topic factor' shows which topic factor each variable relates to. 'Data' shows the type of the data. 'N' represents the number of observations for each variable. Other descriptive statistics in the table are mean, standard deviation ('StdDev'), minimum ('Min'), first quartile ('Q1'), median, third quartile ('Q3') and maximum ('Max'). The means for the binary data are expressed as the percentages of the transactions that adhere to the respective groups (Option:Yes; Comp:Yes; US:Yes; and Public:Yes).

5.2.2 Univariate Analyses

5.2.2.1 Z-Test of Two Independent Proportions

The tables in this section report the results from the Z-tests on the influence of the topic variables (*Put_Option*) and (*Comp_Acq*) on the choice of goodwill method.

5.2.2.1.1 Topic Factor II – Topic Variables (Put_Option) and (Comp_Acq)

According to Panel A, Table 12, the proportions of the groups Option:No and Option:Yes show a trend of that acquirers with an option contract to purchase additional shares in the acquiree tend to use the full goodwill method more frequently, than acquirers without an option contract. This is part of testing H3, namely, that topic factors influence the choice of goodwill method. Panel A, Table 12, shows that 21 percent of the transactions without an option contract were accounted for with the full goodwill method. For the transactions with an option contract, the corresponding proportion is 51 percent. As the reported p-value is 0,000, we can at a 1 percent significance level reject the null hypothesis that the proportion of choosing the full goodwill method for transactions with a put option (compared to transactions without a put option) are equal. Thus, it is statistically significant that acquirers with an option contract to acquire additional shares from the non-controlling shareholders are more likely to use the full goodwill method to account for the control acquisition with remaining NCI. The results for (*Put_Option)* are in support of H3.

Table 12 – Z-Test Results for (*Put_Option*) and (*Comp_Acq*)

Panel A - Topic Variable (Put_Option)

Group	Option:No	Option:Yes	∑	No variation	Low variation	Z-score	p-value
N	135	53	188				
Full goodwill method (%)	21%	55%	31%	0	0	-4,44	0,000

Panel B - Topic Variable (Comp_Acq)

Group	Comp:No	Comp:Yes	∑	No variation	Low variation	Z-score	p-value
N	120	68	188				
Full goodwill method (%)	25%	41%	31%	0	0	-2,31	0,011

This table reports the results of the Z-test which tests the hypothesis that topic factors influence the choice of goodwill method (H3) using topic variable (Put_Option) and (Comp_Acq). N is the total number of transactions per group. Full goodwill method is the percentage of the transactions in the respective group that were accounted for using the full goodwill method. 'No variation' and 'Low variation' indicate the number of groups with no or low within-group variation, respectively. 'No variation' occurs when the choice of the full goodwill method was either 0% or 100% among the transactions in a group. 'Low variation' occurs when the choice of full goodwill method was either 0-10% or 90-100% among the transactions in a group. 'Z-score' and 'p-value' report the Z-score and the corresponding p-value. The null hypothesis is rejected if the p-value is below 0,05 (5% significance level).

Another part of testing H3 is the Z-test for topic variable *(Comp_Acq)*. According to Panel B in Table 12, the proportions for group Comp:No and Comp:Yes show a trend of that acquirers that made one or more complementary acquisitions, tend to use the full goodwill more frequently, than acquirers that did not make any complementary acquisitions. 25 percent of the transactions without any complementary acquisitions are accounted for with the full goodwill method. For the transactions with one or several complementary acquisitions, the corresponding proportion is 41 percent. As the p-value is 0,011, we reject at a 5 percent significance level the null hypothesis that the proportions for the choice of the full goodwill method are equal between acquirers that make complementary acquisitions and acquirers that do not. Thus, it is statistically significant that acquirers in the sample that make one or several complimentary acquisitions are more likely to use the full goodwill method when accounting for the first acquisition. This is evidence in support of H3. However, we note that some of the acquirers in our sample have not been accommodated the same time to carry out complimentary acquisitions, in comparison to others. This could underestimate the influence of complementary acquisitions on the choice of goodwill method and is thus further elaborated on and considered through a robustness test in Section 6.2.

5.2.2.2 Chi-Square Test of Independence

The tables in this section report the results from the chi-square tests on the influence of: country factors; industry factors; Topic Factor I by using the topic variables (*GW/A), (EQ/A), (Control_Ownership)*; as well as Topic Factor II by using the topic variable (*Total_Ownership*).

5.2.2.2.1 Country Factors

Table 13 shows that there is within-group variation in all country groups. This means that there is no utter preference for either of the methods in any of the country groups, given the definitions

of No and Low variation. Moreover, there is no clear trend of the choice of the full goodwill method between the country groups. For example, 50 percent of the transactions in Other countries (OC) are accounted for using the full goodwill method, whereas the corresponding percentage in Switzerland is 13 percent. Given that the p-value is 0,144, we cannot reject the null hypothesis at a 5 percent significance level that country groups and the choice of goodwill method are independent. Hence, H1 is not supported. Although there are differences between the countries, those differences are not statistically significant.

Table 13 – Chi-Square Test Results for Country Groups

Country Group	BX	CH	DE	LE	NO	OC	UK	∑	No variation	Low variation	Chi^2	p-value
N	15	16	30	63	23	8	33	188				
Full goodwill method	47%	13%	27%	24%	43%	50%	36%	31%	0	0	9,56	0,144

This table reports the results of the chi-square test which tests the hypothesis that country factors influence the choice of goodwill method (H1). N is the total number of transactions per group. Full goodwill method is the percentage of the transactions in the respective group that were accounted for using the full goodwill method. 'No variation' and 'Low variation' indicate the number of groups with no or low within-group variation, respectively. 'No variation' occurs when the choice of the full goodwill method was either 0% or 100% among the transactions in a group. 'Low variation' occurs when the choice of full goodwill method was either 0–10% or 90–100% among the transactions in a group. The columns 'Chi^2' and 'p-value' report the Chi^2 statistic and the corresponding p-value. The null hypothesis is rejected if the p-value is below 0,05 (5% significance level).

5.2.2.2.2 Industry Factors

In Table 14, we test the influence of industry factors on the choice of goodwill method (H2). In general, the percentage of transactions accounted for with the full goodwill method is quite evenly distributed across most industry groups. In fact, in most groups, the percentage of the choice of the full goodwill method is close to the total sample average of 31 percent. However, for Ind6 (Telecommunications), this number is 50 percent. In Ind7 (Utilities), only 10 percent of the transactions are accounted for with the full goodwill method, implying Low variation. As the p-value is 0,763, we cannot reject the null hypothesis at a 5 percent significance level that industry factors and the choice of goodwill method are independent. Hence, H2 is not supported. Accordingly, industry factors do not seem to influence the choice.

Table 14 – Chi-Square Test Results for Industry Groups

Industry Group (Ind)	1	2	3	4	5	6	7	8	∑	No variation	Low variation	Chi^2	p-value
N	15	22	25	19	48	4	10	45	188				
Full goodwill method	33%	36%	24%	37%	29%	50%	10%	33%	31%	0	1	4,15	0,763

This table reports the results of the chi-square test which tests the hypothesis that industry factors influence the choice of goodwill method (H2). N is the total number of transactions per group. Full goodwill method is the percentage of the transactions in the respective group that were accounted for using the full goodwill method. 'No variation' and 'Low variation' indicate the number of groups with no or low within-group variation, respectively. 'No variation' occurs when the choice of the full goodwill method was either 0% or 100% among the transactions in a group. 'Low variation' occurs when the choice of full goodwill method was either 0–10% or 90–100% among the transactions in a group. The columns 'Chi^2' and 'p-value' report the Chi^2 statistic and the corresponding p-value. The null hypothesis is rejected if the p-value is below 0,05 (5% significance level).

5.2.2.2.3 Topic Factor I – (GW/A) and (EQ/A)

The topic variables tested under the chi-square tests are *(GW/A), (EQ/A),* (*Control_Ownership)* and (*Total_Ownership)* which are defined to test H3. In this section, we report the results on the variables related to Topic Factor I, *(GW/A)* and *(EQ/A)*.

In Panel A, Table 15, we see that the percentages across the different groups for (*GW/A)* indicate a trend of that firms with higher values of (*GW/A*) tend to use the full goodwill method more frequently. In group GW:1, 26 percent of transactions are accounted for using the full goodwill method, whereas this percentage is 60 percent for GW:5. However, as the p-value is 0,103, we cannot reject the null hypothesis at a 5 percent significance level that *(GW/A)* and the choice of goodwill method are independent. Hence, although there is an observable tendency, the variation is not statistically significant.

Table 15 – Chi-Square Test Results for *(GW/A)* and *(EQ/A)*

Panel A - Topic Variable (GW/A)

GW/A Group	GW:1	GW:2	GW:3	GW:4	GW:5	∑	No variation	Low variation	Chi²	p-value
N	85	42	42	11	5	185	33	185		
Full goodwill method	26%	21%	40%	45%	60%	30%	0	0	7,70	0,103

Panel B - Topic Variable (EQ/A)

EQ/A Group	EQ:1	EQ:2	EQ:3	EQ:4	EQ:5	∑	No variation	Low variation	Chi²	p-value
N	35	55	67	26	5	188	33	188		
Full goodwill method	34%	31%	28%	35%	20%	31%	0	0	0,84	0,933

This table reports the results of the chi-square test which tests the hypothesis that topic factors influence the choice of goodwill method (H3) for topic variable (GW/A and (EQ/A). N is the total number of transactions per group. Full goodwill method is the percentage of the transactions in the respective group that were accounted for using the full goodwill method. 'No variation' and 'Low variation' indicate the number of groups with no or low within-group variation, respectively. 'No variation' occurs when the choice of the full goodwill method was either 0% or 100% among the transactions in a group. 'Low variation' occurs when the choice of full goodwill method was either 0–10% or 90–100% among the transactions in a group. The columns 'Chi²' and 'p-value' report the Chi² statistic and the corresponding p-value. The null hypothesis is rejected if the p-value is below 0,05 (5% significance level).

According to Panel B, Table 15, the percentages across the groups for (*EQ/A)* do not show a clear trend. Acquirers with the highest solidity, represented in group EQ:5, display a slightly lower tendency for the choice of the full goodwill method (20 percent) compared to the other groups. The p-value of 0,933 confirms that the influence of this topic variable is not statistically significant at the 5 percent significance level and we cannot reject the null hypothesis that (*EQ/A*) and the choice of goodwill method are independent.

5.2.2.2.4 Topic Factor II – (Control_Ownership) and (Total_Ownership)

With respect to *(Control_Ownership)*, as showed in Panel A, Table 16, the percentage of transactions that are accounted for using the full goodwill method ranges between 28 percent and 33 percent. This implies that the choice of goodwill method tends not to depend on the percentage of shares

owned at the acquisition date. Acquirers that obtained control by purchasing 51-55 percent of the shares in an acquiree do not tend to make a different choice of goodwill method compared to acquirers that purchased 91-99 percent of the shares. The p-value of 0,965 confirms that this topic variable is not statistically significant at a 5 percent level and we can hence not reject the null hypothesis that *(Control_Ownership)* and the choice are independent.

Table 16 – Chi-Square Test Results for *(Control_Ownership)* and *(Total_Ownership)*

Panel A - Topic variable (Control_Ownership)

C_O Group (%)	**CO:1 51-55**	**CO:2 56-65**	**CO:3 66-80**	**CO:4 81-90**	**CO:5 91-99**	**Σ**	**No variation**	**Low variation**	**Chi²**	**p-value**
N	50	29	67	21	21	188				
Full goodwill method	28%	28%	33%	33%	33%	31%	0	0	0,6	0,965

Panel B - Topic variable (Total_Ownership)

T_O Group (%)	**TO:1 51-65**	**TO:2 66-80**	**TO:3 81-94**	**TO:4 95-99**	**TO:5 100**	**Σ**	**No variation**	**Low variation**	**Chi²**	**p-value**
N	49	54	25	11	49	188				
Full goodwill method	22%	26%	24%	9%	53%	31%	0	1	16,6	0,002

This table reports the results of the chi-square test which tests the hypothesis that topic factors influence the choice of goodwill method (H3) for topic variable (Control_Ownership) and (Total_Ownership). N is the total number of transactions per group. Full goodwill method is the percentage of the transactions in the respective group that were accounted for using the full goodwill method. 'No variation' and 'Low variation' indicate the number of groups with no or low within-group variation, respectively. 'No variation' occurs when the choice of the full goodwill method was either 0% or 100% among the transactions in a group. 'Low variation' occurs when the choice of full goodwill method was either 0–10% or 90–100% among the transactions in a group. The columns 'Chi²' and 'p-value' report the Chi² statistic and the corresponding p-value. The null hypothesis is rejected if the p-value is below 0,05 (5% significance level).

In Panel B, Table 16, we analyse the choice of the full goodwill method in relation to the total ownership obtained during the time period. We see a trend of that acquirers that eventually reached 100 percent share ownership during the period (TO:5), tend to choose the full goodwill method more frequently, than acquirers that did not. This indicates that the relationship between the full goodwill method and total ownership relies on that an acquirer reaches full ownership, as opposed to that non-controlling shareholders continue to hold some shares. For example, for group TO:4, despite of high total ownership (95-99 percent), only 9 percent of the transactions are accounted for with the full goodwill method. Hence, Low variation is recorded for this group. However, this could perhaps be due to the low number of transactions in that group. The indication of that total ownership and the choice of goodwill method are related is confirmed with a p-value of 0,002. We can thereby reject the null hypothesis at a 1 percent significance level. This implies that this topic variable is significantly associated with the choice of goodwill method.

Across all tests, according to the definitions of No and Low variation, no group has No variation and two groups (Ind7 and TO:4)[43] have Low variation. Correspondingly, in almost all groups, there is within-group variation for the choice of goodwill method. We could not reject the null hypotheses for H1 and H2, that is, that country and industry factors influence the choice of goodwill method. However, in two country groups (CH and OC), we saw tendencies of variation. With regards to H3, we could not reject the null hypothesis with regards to any topic variable defined for Topic Factor I. More specifically, the results do not suggest a relationship between the choice of goodwill method and *(GW/A)*; *(EQ/A)*; as well as *(Control_Ownership)*, respectively. However, we were able to reject the null hypothesis for all three topic variables related to Topic Factor II, indicating that (Put_*Option*); (*Comp_Acq*); and (*Total_Ownership*) influence the choice of goodwill method. These results are in support of the hypothesis that topic factors influence the choice of goodwill method (H3), on the basis of that those factors were defined to capture an acquirer's intention to purchase additional or all shares in the acquiree in future periods, as well as the actual event of such acquisitions. In addition, the results from the Z-test regarding *(Put_Option*) and *(Comp_Acq)* suggest that the intention or actual event of complimentary acquisitions is related to the choice of the full goodwill method, in comparison to the partial goodwill method.

In order to strengthen the support for H3, we will test whether the variables defined for Topic Factor II significantly influence the choice of goodwill method when controlling for other factors as described in Section 4.4.

5.2.3 Multiple Regression Analysis

In this section, we report the results from the logistic multiple regression analysis developed to further test the influence of topic factors on the choice of goodwill method (H3).

Table 17 shows the results from Model (1), both for the coefficients as well as the odds ratios. The significant explanatory variables are *(Put_Option)* and *(Total_Ownership),* when reporting a two-tailed significance level. As we have one-tailed hypotheses for both of these variables, we can at a 1 percent significance level reject the null hypotheses that β_1 as well as β_3 are equal to or less than zero. This is in support of that transactions with a put option, or for which the total share ownership is approaching 100 percent eventually, tend to be accounted for with the full goodwill method. As the odds ratio for choosing the full goodwill method is 5,5 for *(Put_Option)* and 1,6 for *(Total_Ownership)*, the likelihood for choosing the full goodwill method when having an option contract is higher. However, we cannot reject the null hypothesis for β_2. This means that the variable related to the actual event of making one or several complimentary acquisitions, *(Comp_Acq)*, does not significantly influence the choice based on the multiple regression. Presumably, the effect of increasing the share ownership is to a large extent captured and thus

[43] Utilities, and Total ownership of 95-99 percent.

explained by the variable (*Total_Ownership*). The strong relationship between *(Comp_Acq)* as well as *(Total_Ownership)* can also be seen in the correlation matrix presented in Appendix A, Table 23. The correlation matrix reports the correlation between all independent variables in the regression analysis. High correlations between the independent variables may cause problems of multicollinearity. However, this does not seem to be a problem in our model. A majority of the correlations are insignificant, and the correlations that are significant are below 0,5. One exception is the high correlation of 0,81 between *(Comp_Acq)* and *(Total_Ownership),* as both variables are related to complementary acquisitions.[44] However, *(Total_Ownership)* also captures the actual percentage obtained in total.

A majority of the control variables (such as country and industry groups) do not have significant explanatory power for the choice of goodwill method, in line with the results from the univariate analyses. However, the coefficients for *(CH)* and *(DE)* are significant at a 5 percent level. This implies that those country groups have a negative relationship with the choice of the full goodwill method. In other words, acquirers in Switzerland, Germany and Austria tend to use the partial goodwill method more frequently, compared to the baseline. We also note that the coefficients for *(NO)*, *(Ind7)* and *(Size)* are significant at a 10 percent level. However, the odds ratio for *(Put_Option*) is the highest out of all variables. This implies that a put option increases the likelihood of choosing the full goodwill method more than, for example, belonging to a specific country group.

In order to evaluate how well the model predicts the choice of goodwill method, the row 'Correctly Classified' in Table 17 shows that the overall rate of correct classification is c. 80% for Model (1). Thus, the variables included seem to contribute to the models relatively high explanatory power.

Altogether, the results from the multiple regression analysis suggest a relationship between *(Put_Option)* and the choice of the full goodwill method, as well as between *(Total_Ownership)* and the choice of the full goodwill method, both at a 1 percent significance level. This is support for H3 and indicate that topic factors influence the choice of goodwill method.

[44] We have also run Model (1) by excluding *(Comp_Acq)*. However, the results were close to being unchanged. The z-statistic for *(Total_Ownership)* was slightly higher, but all significant relationships were the same.

Table 17 – Results of Multiple Logistic Regression Analyses for Model (1)

	Model (1) Choice (Full GW = 1)	
Variables	**Coefficients**	**Odds Ratios**
Put_Option	1,703***	5,492***
	(3,340)	*(3,340)*
Comp_Acq	-0,741	0,477
	-(1,020)	*-(1,020)*
Total_Ownership	0,467**	1,595**
	(1,990)	*(1,990)*
CH	-1,981**	0,138**
	-(2,040)	*-(2,040)*
DE	-0,366**	0,694**
	-(0,590)	*-(0,590)*
LE	0,024	1,024
	(0,480)	*(0,480)*
NO	1,151*	3,162*
	(1,740)	*(1,740)*
OC	1,228	3,415
	(1,350)	*(1,350)*
UK	0,697	2,008
	(1,180)	*(1,180)*
Ind2	0,286	1,332
	(0,310)	*(0,310)*
Ind3	-0,629	0,533
	-(0,680)	*-(0,680)*
Ind4	0,810	2,248
	(0,810)	*(0,810)*
Ind5	-0,438	0,645
	-(0,550)	*-(0,550)*
Ind6	0,504	1,656
	(0,360)	*(0,360)*
Ind7	-2,542*	0,079*
	-(1,900)	*-(1,900)*
Ind8	0,239	1,270
	(0,270)	*(0,270)*
Size	-0,303*	0,739*
	-(1,710)	*-(1,710)*
US	-0,264	0,768
	-(0,370)	*-(0,370)*
Public	0,584	1,793
	(1,140)	*(1,140)*
Intercept	2,183	8,874
	(0,720)	*(0,720)*
No. of observations	188	188
LR chi-2 (25 DF)	56,97†	56,97†
Psuedo R-Squared	24,52%	24,52%
Correctly Classified	80,85%	80,85%
Year FE	Yes	Yes

*This table reports the results from the multiple logistic regression analysis for Model (1). 'Coefficients' include, in the first line, the coefficients for each variable and, in the second line, the z-statistics reported in parenthesis. 'Odds ratios' represents the constant effect for each variable on the likelihood of choosing the full goodwill method, and are calculated by taking the exponent of the coefficients. The stars (*) represent the significance levels. The two-tailed significance levels are: *** = significant at a 1% level, ** = significant at a 5% level, * = significant at a 10% level, and † = (LR) chi-square test significant at a 1% level. The row 'Correctly Classified' shows the overall rate of correct classifications by the model.*

6 Discussion

6.1 Interpretation of Results

The purpose of this thesis is to analyse the influence of country, industry and topic factors on the choice of goodwill method. According to the reasoning of Stadler and Nobes (2014), the choice of goodwill method ought to be influenced by topic factors if it affects important accounting numbers, and if these effects vary materially across firms. On the other hand, previous research on IFRS policy options has declared that country factors have strong influence on IFRS policy choice. Thus, given that previous research has identified that country, industry and topic factors can influence accounting choice, we expected that the choice of goodwill method would be influenced by one or several of these factors.

Based on results obtained through both univariate and multivariate analyses, our findings suggest that topic factors influence the choice of goodwill method. This is in line with the reasoning of Stadler and Nobes (2014) of when topic factors ought to influence accounting choice, and suggests that the choice of goodwill method affects important accounting numbers and that these effects vary between firms. However, the influence of topic factors is supported only in relation to complimentary acquisitions. The results show that the full goodwill method tends to be accounted for more frequently, than the partial goodwill method, when there is an option contract to purchase additional shares or where the acquirer approaches 100 percent ownership during the period. Hence, the support for topic factors being influential on the choice is manifested only for Topic Factor II, as presented in Table 18.

Table 18 – Summary of Influence of Country, Industry and Topic Factors on the Choice of Goodwill Method

Factors	Univariate analyses	Multivariate analysis
Country	Not significant	Controlled for
Industry	Not significant	Controlled for
Topic Factor I		
- Size of goodwill	Not significant	-
- Size of NCI	Not significant	-
- Ownership at control	Not significant	-
Topic Factor II		
- Put option	Significant	Significant
- Complimentary acquisition	Significant	Not significant
- Ownership in total	Significant	Significant

6.1.1 Support for Topic Factor II – The Intention to Buy

From the multiple logistic regression analysis, we find that the variables related to put options and the total share ownership obtained during the period, show significant influence on the choice of goodwill method, also when controlling for other factors.

With regards to the relationship between option contracts and the choice of the full goodwill method, there are two possible interpretations. The first interpretation relates to our initial reasoning for why transactions with put options are more likely to be accounted for with the full goodwill method. This reasoning was based on that an option contract can be viewed as a signal for the purpose to purchase additional shares in the acquiree. The rational for this interpretation is that the full goodwill method yields lower effects on reported equity, compared to the partial method, when purchasing shares from the non-controlling shareholders, as the single date method is used (see Section 2.3.2.1.3 for numerical example). The second interpretation for why acquirers may choose the full goodwill method to account for transactions with option contracts is because the valuation of the put option could serve as basis for fair value of NCI, if a quoted price in an active market is not available (IFRS 13.61). After controlling for if the shares in the acquiree were traded on a stock exchange at the acquisition date in the multiple regression (see Table 17), we conclude that publically traded shares in the acquiree do not seem to be of explanatory nature. This is support for that transactions with put options tend to be accounted for with the full goodwill method, for reasons other than to be able to use the valuation of the option as a basis for fair value of NCI. Hence, we are directed to the interpretation of that acquirers tend to account for transactions with an option contract because of the intention to carry out complimentary acquisitions. However, this interpretation does not limit the fact that the valuation of the put option may be eligible as basis for fair value of NCI and thus relatively more convenient to be combined with the full goodwill method in comparison to the partial goodwill method.

Although weaker than for the put option variable, the multiple regression showed a positive relationship between the total share ownership obtained during the period and the choice of the full goodwill method. Given that the variable related to the actual event of complimentary acquisitions did not show significant influence in the multiple regression, the importance of eventually owning 100 percent of the shares in the acquiree seems higher than simply conducting additional acquisitions. More specifically, *any* increase in share ownership tends not to increase the likeliness of choosing the full goodwill method, but rather share ownerships that approach 100 percent. Correspondingly, we also note that the percentage of shares owned when obtaining control does not necessarily reflect the total ownership that the acquirer seeks to eventually hold. In fact, acquiring companies in steps can be motivated by features of an M&A process, such as keeping previous owners in the company short-term, limited availability of shares or contractual conditions related to the price. Nevertheless, the choice of goodwill method is made in connection to the acquisition date. This implies that for the relationship between total ownership and the

choice of the full goodwill method to be motivated, the acquirer ought to have an intention to increase its ownership in the acquiree at the point in time of when the choice was made. Thus, in our view, the weaker relationship between total ownership and the choice of goodwill method (in comparison to that of the put option and the choice) could be explained by that the intention to acquire additional shares is captured by the put option variable. The explanatory power of the variable for total ownership could be interpreted as that there may be an intention to acquire additional shares that has not been contracted on. These results correspond to the initial motivation for including variables related to the actual event of complimentary acquisitions. However, this interpretation is based on that the put option is assumed to be a proxy for the intention to buy.

6.1.2 Lack of Influence from Firm-Specific Topic Factors

We do not find support for that Topic Factor I influence the choice of goodwill method. To interpret the lack of influence from this topic factor, we turn to how topic variables were defined in Stadler and Nobes (2014). For the choice on each policy topic, Stadler and Nobes (2014) defined a topic variable in the form of a ratio based on the accounting numbers in a firm that were affected by the choice. We choose to refer to these types of topic variables as 'firm-specific topic variables' because they are based on characteristics that relate to the firm. In this study, two out of three variables for Topic Factor I, namely *(GW/A)* and *(EQ/A)*, are based on the accounting numbers in a firm that are affected by the choice of goodwill method. In comparison, *(Control_Ownership)* and all variables related to Topic Factor II were defined based on characteristics that relate to the transaction, as opposed to the firm. We choose to refer to these types of topic variables as 'transaction-specific topic variables'. The results from the univariate analyses suggest that all variables for Topic Factor II influence the choice of goodwill method. All those variables are transaction-specific topic variables. Hence, support for the influence of topic factors on the choice of goodwill method is manifested only through the variables that were defined differently compared to Stadler and Nobes (2014). Ultimately, although our results are in line with the reasoning for when topic factors ought to influence accounting choice, they are contradictory with regards to the definition of topic variables. We believe that this contradiction relates to the fact that the choice of goodwill method is available on a transaction by transaction basis. This will be further elaborated on in Section 6.1.4. Moreover, we note that although defined as a transaction-specific topic variable, *(Control_Ownership)* did not seem to influence the choice of goodwill method. As discussed in Section 2.4.3.1, the percentage of shares owned at control directs the magnitude of the different effects on goodwill and NCI that arise from choosing between the two methods. Hence, the three variables defined for Topic Factor I all relate to that management may consider effects on the balance sheet on initial recognition from choosing between the two methods. Thus, as *(GW/A)* and *(EQ/A)* did not influence the choice, perhaps it is reasonable that (*Control_Ownership)* did neither.

6.1.3 Lack of Support for Country and Industry Factors

Overall, our results suggest that an acquirer's country of domicile and industry do not seem to be of importance for the choice of goodwill method.

With regards to country factors, most country groups exhibited within-group variation in the choice of goodwill method, and thus there was not enough between-group variation for the results to support the influence of country factors. In comparison to previous studies on other overt policy options (e.g. Kvaal and Nobes, 2010; Haller and Wehrfritz, 2011), the fact that country factors do not seem to influence the choice on this policy topic is contradictory. Differences in accounting practice across countries are in previous research claimed to occur because companies are given the possibility to choose the same policy options as under pre-IFRS national requirements. As only the partial goodwill method (or some version of it) was used before IFRS, a possible explanation to why we did not find support for the influence of country factors could relate to the lack of pre-IFRS differences on this particular policy topic. The lack of tendencies of international differences on the choice of goodwill method is favourable, in terms of comparability of financial information across countries. Moreover, previous research shows that the likelihood of international differences can differ depending on the company size. More specifically, the accounting policies of small listed companies vary more between countries (and less within a country) than those of the largest companies (Nobes and Perramon, 2013). The acquirers in our sample have market capitalisations of similar range to firms in other research claiming to study accounting choice in large companies (e.g. Stadler and Nobes, 2014). Accordingly, we believe that our results are comparable to other studies on overt options in the sense of that we are able to comment on international differences in accounting practices across large listed companies.

Within industry groups, there was only some variation in the choice of goodwill method. A possible interpretation is that companies do not tend to choose goodwill method to be in line with industry peers. According to Stadler and Nobes (2014), industry factors are firm factors shared within the same industry. In this study, the potential influence of industry factors on the choice of goodwill method was motivated on the basis of that companies in the same industry ought to share the characteristic of relative size of goodwill. This was one of the firm-specific variables defined for Topic Factor I. Five out of eight of our industry groups were correlated with the relative size of goodwill, suggesting that it could be viewed as a shared firm factor across firms in some industries.[45] Correspondingly, an interpretation of that neither the relative size of goodwill, nor industry factors, tend to influence the choice of goodwill method is that the rationale for their variables relate to the same firm characteristic.

[45] Pearson correlations between *(GW/A)* and industry were significant at a 5 percent level for the following industry groups (industry name, correlation): Ind1 (Basic materials, -0,24), Ind4 (Health care, 0,25), Ind5 (Consumer services, 0,22), Ind7 (Utilities, -0,15) and Ind8 (Financials -0,16).

6.1.4 Implications of the Transaction by Transaction Basis

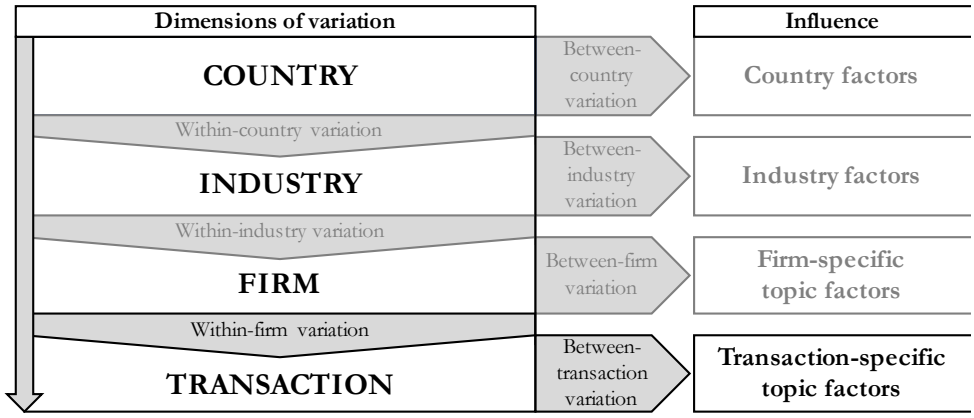
Our results suggest that transaction-specific topic factors tend to influence the choice of goodwill method. Given that the choice of goodwill method is available on a transaction by transaction basis, opposite choices on this policy topic can be made during the same reporting period. According to our disclosure-related findings, 56 percent of the transactions were accounted for with a goodwill method specifically chosen for that transaction (see Section 5.1). This could indicate that choices of goodwill methods could vary within a firm for a particular year, depending on the characteristics of the transactions made during that period. Moreover, the possibility to make the choice of goodwill method on transaction by transaction basis can also give rise to within-firm variation over time. More specifically, although firms choose to apply one of the goodwill methods on all transactions in a given year, they can choose the opposite method in the following period. In our sample, 44 percent of the transactions were accounted for with a general goodwill method chosen for that year. However, as the choice is available to be made on a transaction by transaction basis, this method can be changed the next year if new acquisitions are made. Thus, in our view, the fact that the choice is allowed to be made on a transaction by transaction basis enables within-firm variation both for a given year and over time. Correspondingly, choices that are allowed to be made entity-wide have the possibility to vary only between firms, and not within a firm.

In Section 2.2.1.2, we noted that the basis for which the choices on the remaining measurement topics in IFRS are allowed to be made, differed across topics. As discussed, the topic on measurement of investment property allows for an entity-wide policy choice to measure investment property at fair value or at cost (IAS 40.30). On the other topics, the choices are allowed to be made on a more detailed level than entity-wide, potentially implying that within-firm variation is possible.[46]

Figure 1 illustrates the reasoning for how the basis, on which the choice of goodwill method is allowed to be made, enables within-firm variation and, thus, between-transaction variation. This reasoning is line with the results of that country, industry and firm-specific topic factors seem to be less important in terms of influencing the choice of goodwill method, as opposed to transaction-specific topic factors.[47]

[46] Inventory costing (IAS 2.25), measurement of property, plant and equipment (IAS 16.29) and designation of financial instruments (IFRS 9.4.1.5 and 9.4.2.2).
[47] Characteristics that are specific to the respective transaction, e.g. put option contracts or complimentary acquisition.

Figure 1 – Illustration of Underlying Reasoning for the Influence of Transaction-Specific Topic Factors on the Choice of Goodwill Method



Key: *'Between-country variation' implies that accounting choice is influenced by characteristics shared within a country. 'Within-country variation' enables 'between-industry variation'. Between-industry variation implies that accounting choice is influenced by characteristics shared within an industry. 'Within-industry variation' enables 'between-firm variation'. Between-firm variation implies that accounting choice is influenced by characteristics shared within a firm. 'Within-firm variation' is possible when an accounting choice is allowed to be made on a more detailed level than the firm. The choice of goodwill method is available on a transaction by transaction basis and can vary within a firm, both in a given year and across time. This also implies that 'Between-transaction variation' is possible as a firm can make different accounting choices for different transactions. As our findings suggest, the choice can thus be influenced by characteristics specific for the transaction. Ultimately, when within-firm variation is possible, influential topic factors reflect the basis on which the choice is allowed to be made.*

Moreover, the fact that the choice is available on a transaction by transaction basis could also have implications for the identification of relevant topic factors. In our study, we found that transaction-specific topic factors, and the related transaction-specific topic variables, tended to influence the choice of goodwill method. Those factors and variables reflect the basis on which the choice is allowed to be made, that is, transaction basis. The importance of defining appropriate variables for a policy topic is touched upon in Stadler and Nobes (2014):

> *'A further limitation is that we could have underestimated the influence of topic factors if we did not identify the most appropriate topic variables. that is, that the influence of topic factors could have been underestimated had the chosen topic variables not been properly defined for each topic.'*
>
> Stadler and Nobes (2014), p. 416

As briefly commented on in Section 6.1.2, topic variables in Stadler and Nobes (2014) were firm-specific topic variables. However, choices on some of the policy topics tested in their study are available on a more detailed level than the entity. One of the included measurement topics, for which the choice is available to be made on a basis similar to that of the choice of goodwill method, is designation of financial instruments (IFRS 9.4.1.5 and 9.4.2.2).[48] In Stadler and Nobes (2014), the results for this policy topic was that neither country nor industry factors significantly influenced the choice of designating some financial instruments at fair value. However, topic factors did not

[48] IAS 39.9 in Stadler and Nobes (2014). The defined variable for this topic was 'investments as a share of total assets'.

significantly influence the choice either. Perhaps, as the choice for this policy topic is available on a more detailed level than entity-wide, the results may have been different had the topic variable been related to the specific financial instrument, rather than the firm's accounting ratios. Based on that all topic variables in Stadler and Nobes (2014) were firm-specific, we note that, for identifying the most appropriate topic variables, it may be useful to consider the basis for which policy choices are allowed to be made.

In summary, our results indicate that the choice of goodwill method is influenced by transaction-specific topic factors in terms of the intention to purchase additional shares in the acquiree. However, some uncertainty remains with regards to methodological constraints. In the following section, we perform additional tests to further assess the robustness of the results and thereby strengthen the reliability and validity of those.

6.2 Robustness Tests

Robustness Test I – Excluding Financial Firms

As previously mentioned, we did not exclude any industry groups from our sample as the choice of goodwill method is made by firms regardless of industries. However, in previous research on overt policy options, financial firms tend to be excluded (e.g. Stadler and Nobes (2014). This is typically due to that a policy choice for a comprehensive set of topics is studied, among which several (mainly presentation topics) are not applicable for financial firms. Thus, in order to make our results comparable to previous research on IFRS policy options, we exclude financial firms[49] from our multiple regression analysis (see Appendix B.1, Table 24). This action reduces the sample to 143 transactions. Model (2) shows that the results of (*Put_Option*) do not change, but are rather strengthened as the odds ratio for choosing the full goodwill method increases from c. 5,4 to c. 14,2. For a one-tailed test, we can at a 1 percent significance level reject the null hypothesis that β_1 is equal to or less than zero. However, the coefficient for *(Total_Ownership)* is no longer significant, as *(Put_Option)* captures more of the explanatory power. In addition, the coefficient for country group *(LE)* is now significant at a 5 percent level, while the coefficient for *(DE)* is no longer significant. Altogether, excluding financial firms do not impair the influence of (*Put_Option).*

Robustness Test II – Excluding Transactions in year 2015 and 2016

Data collected on the variables *(Comp_Acq)* and *(Total_Ownership)* relies on our access to future annual reports in which complimentary acquisitions are reported. Acquirers of transactions carried out in more recent years have not been accommodated the same time to carry out complementary acquisitions. Thus, this might underestimate the influence of these two variables. To confirm the results regarding the significance of (*Comp_Acq)* and *(Total_Ownership)* in the univariate as well as the multivariate analyses, we exclude all transactions from year 2015 and 2016. The exclusion of

[49] Financial firms in our sample operate in banking, insurance, real estate and financial services.

the two most recent years are selected based on that the complementary acquisitions in our sample were on average made within two years following the control acquisition with remaining NCI. Excluding year 2015 and 2016 reduces the sample to 157 transactions. The results in the univariate analyses do not change with regards to the relationships between these variables and the choice of goodwill method, which remains significant at the 1 percent level (see Appendix B.2, Table 25 and Table 26). In the multiple regression model, Model (3), *(Comp_Acq)* remains insignificant. Moreover, the variable *(Total_Ownership)* does no longer show the same explanatory power, as it is now significant at ten percent for a one-tailed test. *(Put_Option),* on the other hand, is still significant at a 1 percent level, with an increased odds ratio for choosing the full goodwill method (see Appendix B.2, Table 27). Hence, as other parts of our discussion also point towards that the acquirer's intention to carry out complimentary acquisitions influences the choice, the event of increased ownership (illustrated by *(Comp_Acq)* and *(Total_Ownership)*) may not be as relevant as an option contract to acquire additional shares.

Robustness Test III – Excluding Transactions Made by Essilor Group

As commented on in Section 5.1.1, Essilor Group is represented through the highest number of transactions in the sample. With their ten acquisitions, they account for c. 5 percent of the sample. As Essilor Group's reasoning for their choice of goodwill method is in line with the relationship of the put option and the choice of the full goodwill method in our findings, we seek to confirm that this relationship is not reliant on Essilor's representation in the sample. Accordingly, we exclude transactions made by Essilor in a univariate test (Appendix B.3, Table 28) as well as in a multiple regression (Appendix B.3, Table 29). Excluding Essilor reduces the sample to 178 transactions. The results from a univariate analysis on *(Put_Option)*, as well as from a multiple regression, confirm that the significance for *(Put_Option)* remains. Thus, we conclude that the results are not affected by Essilor Group's representation as an acquirer in the sample.

Robustness Test IV – Exclusion of Chosen Methods Identified Through PPA

In connection to the identification of goodwill method, 14 percent of the transactions were identified from deriving the chosen method based on PPA, as the company had not stated their choice in wording. In the cases where the choice of goodwill method was stated on wording, the risk of error is considered to be low. However, as commented on in Section 6.3, the risk of error is believed to be higher for the transactions identified based on PPA. Therefore, we have as a robustness test excluded all such transactions and run another multiple regression analysis. When doing so, the sample is reduced to 161 transactions. We can confirm that *(Put_Option)* remains significant at a 1 percent level and while *(Total_Ownership)* is now significant at a 5 percent level (one-tailed). Thus, our results hold also when eliminating the risk of error associated with identifying choices in a less reliant way than by wording.

6.3 Limitations

With regards to the reliability of the measurement procedures, it is necessary to consider the level of accuracy for the measurement of the variables included in the study. For example, due to elements of subjective judgment which could not be disregarded, variables with hand-collected data are associated with a risk of error. One such variable is the dependent variable, defined to capture the choice of goodwill method made for each transaction. In the cases where the choice of goodwill method was stated on wording, the risk of error is considered to be low. However, the risk of error is believed to be relatively higher for the transactions identified based on PPA. After excluding transactions associated with any uncertainty about the chosen method, choices identified based on PPA represent 14 percent of the sample. However, we conduct a robustness test for this in Section 6.2. Another potential reliability issue is the identification of option contracts to acquire additional shares. As preparers are not required to disclose whether such contracts exist alongside a specific transaction, there is a risk of that we did not capture transactions with a put option that was not presented in connection to the transaction. We do not know the magnitude of the number of transactions affected by this methodological feature. Other variables with elements of subjective judgment are those defined to capture increased share ownership through complimentary acquisitions. Given that the number of such acquisitions conducted, as well as the percentage of additional shares purchased, were manually collected, there is risk of human error. However, this risk is believed to be low as we have allocated significant time on each transaction.

The validity of the study depends on our ability to draw conclusions from the results of the influence on the choice of goodwill method. On the basis that topic factors had not been previously studied in relation to the choice of goodwill method, we considered the three financial statements effects when identifying topic factors and, correspondingly, topic variables. Accordingly, we need to address whether the topic variables measure what we indent to measure. In particular, we question the validity of using *(GW/A)* and *(EQ/A)* for measuring management's concern of the size of goodwill and NCI when choosing between the two goodwill methods. Although the variables were defined in accordance with Stadler and Nobes (2014), there might be a problem in suggesting that accounting numbers affected by the choice would also explain the choice (also noted by Stadler and Nobes, 2014). In addition, accounting numbers in the chosen ratios are affected by other events in the firm, and may therefore underestimate the influence of management's considerations. A possible solution could have been to use three-year averages for the variables in order to reduce the risk of not capturing this consideration due to one-time events. However, as the underlying reasoning for why topic factors ought to influence accounting choice is based on a motivation to manage accounting numbers for various reasons, the number subject to being managed is the most recent, not the historical average. Another suggestion for increasing the validity of these variables is to qualitatively investigate whether management considers the immediate balance sheet effects when making the choice of goodwill method.

Also on the matter of validity, we may have underestimated the influence of country factors. As our sample consists of transactions for which the acquirer has disclosed information, we have reason to believe that these transactions were of significant nature and hence that they presumably affect the acquirer's accounting numbers. Correspondingly, given our manual data collection of identifying the choice of goodwill method, transactions that did not affect accounting numbers may not have been included in the sample. As country factors are suggested to influence accounting choice when the choice does not affect important accounting numbers (Stadler and Nobes, 2014), we may have underestimated the influence of country factors. The manual data collection also implies that the sample may have been biased, if one of the methods would have been dominantly represented among the excluded transactions. However, we note that excluded transactions were evenly distributed across countries, industries and time. Moreover, we question whether countries and industries were grouped to properly capture the potential influence of country and industry factors. The grouping of countries and industries was required due to statistical reasons. Country groups were created in accordance with an established accounting classification scheme (Gray, 1988) to the extent possible. Industry groups were created in accordance with ICB and intend to capture M&A activity in industries. Given the relatively strong correlations between a majority of the industry groups and the relative size of goodwill (see footnote 45 in Section 6.1.3), we believe that the industry groups are able to capture this activity in an acceptable way.

With regards to the multiple regression analyses, we note that we cannot rule out that other independent variables, currently not included, would explain parts of the variation of the chosen method. However, this thesis does not seek to fully explain all variation in the choice of goodwill method, nor to provide a model for predicting future choices of goodwill method. Rather, our intention is to present tendencies for influence of country, industry and topic factors on the choices made by the companies in our sample.

As for the generalisability of our study, we note that the research design implies that the transactions in the sample were not selected on a random basis. This methodological may limit our ability to generalise outside our sample, even though the findings should be valid for the sample itself. Moreover, as previously mentioned, our results and interpretations cannot be generalised to other IFRS policy topics, as they only provide support for influential factors on the choice of goodwill method. We also want to highlight that the disclosure-related findings (see Section 5.1) only apply to this context. Regardless of the level of generalisability, as this study is a total investigation that map how large listed companies in the EU and EEA have chosen to measure NCI and goodwill following the effectiveness of IFRS 3 (revised), our main intention was not to generalise, but rather to make an empirical contribution. By highlighting one of the few remaining policy options in IFRS, previously given little attention, we extend research on overt policy options and provide feedback on what companies do in practice.

7 Conclusions

In this thesis, we study the choice between the full and the partial goodwill method in IFRS 3.19. Given that this policy choice is available on a transaction by transaction basis, our research design provides a setting for analysing accounting policy choice on transaction level. We use hand-collected data for 188 control acquisitions with remaining NCI conducted by large listed European companies during any of the seven years following the adoption of IFRS 3 (revised). In accordance with Stadler and Nobes (2014), we analyse the influence of country, industry and topic factors on the choice made for each of the 188 acquisitions. We find that topic factors tend to influence the choice, whereas country and industry factors do not. The results confirm the reasoning of Stadler and Nobes (2014) in terms of *when* topic factors ought to influence accounting choice.

The empirics show that for acquisitions effective between 2010 and 2016, 69 percent were accounted for using the partial goodwill method while 31 percent were accounted for using the full goodwill method. This distribution was relatively stable over time. More specifically, in each year, a majority of the transactions were accounted for using the partial goodwill method, which is in line with how NCI and goodwill was measured, in general, prior to IFRS 3 (revised). In addition, we find that the choice of the full goodwill method was particularly associated with transactions for which the acquirer seemed to have an intention to buy additional or all of the shares in the acquiree at a future date. Moreover, the empirical findings suggest that, although some international variation was detected, country and industry factors tend not to influence the choice of goodwill method. Thus, contradictory to findings on other IFRS policy options (Kvaal and Nobes, 2010; Haller and Wehrfritz, 2013; Stadler and Nobes, 2014), international differences in accounting practice do not seem to exist for the policy options in IFRS 3.19.

By providing a comprehensive view of how the distribution of chosen methods differ across countries, industries and time, our thesis contributes to research on IFRS policy options. Based on univariate and multivariate analyses, we show that the choice of goodwill method tends not to be influenced by the acquirer's country of domicile, industry belonging or characteristics specific to the acquirer itself, but by transaction-specific topic factors. Furthermore, the results of that acquirers tend to choose the full goodwill method when there is an intention to purchase additional shares from the non-controlling shareholders are subject to two possible interpretations. On the one hand, the acquirer may make this choice because it seeks to limit the effect on reported equity that could arise from purchasing additional shares in the acquiree. On the other hand, the acquirer may make this choice because of a wish to provide useful information to investors on step acquisitions. In any case, our results are important in terms of providing feedback to standard setters with respect to that the IASB will continue to reconsider those transactions and events for which a choice of accounting treatment is permitted. In addition, given that the revised standard on business combinations started out as a joint project between FASB and IASB, our findings on

how IFRS firms do in practice provide tangible insights for the level of *de facto* comparability between IFRS and US GAAP. Lastly, we highlight the possibility of within-firm variation for a policy choice available on a transaction by transaction basis, contradictory to the IASB's overall intention to not permit choices in accounting treatment. Nevertheless, as noted by Jafaar and McLeay (2007), differences in accounting treatment might be justifiable when they are caused by differences in the economic transactions.

Our results are limited to the information that companies chose to disclose regarding business combinations in general and control acquisitions with remaining NCI in particular. This is mainly of importance for the hand-collected data on outstanding option contracts for which we cannot guarantee that firms who did not state that they had an option contract in connection to the transactions, did in fact have one.

In terms of future research, we suggest the use of qualitative methods to analyse whether the influence of the acquirer's intention to purchase additional shares on the choice of the full goodwill method exist also in real-life discussions. Such studies could also incorporate the role of impairments and the costs of financial reporting when accounting for control acquisitions with remaining NCI. In addition, future studies could evaluate whether our results (both in terms of the distribution of chosen methods and the influence of put option contracts) hold over time as well as in other countries where IFRS is mandatory required, such as Australia and Canada.

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Appendices

Appendix A – Additional Tables

Table 19 – Request Inputs in SDC

Request	Request Description
0	Database: Special Merger Sectors
1	Date Announced: [1/1/1962 to 9/18/2017] (All) (Calendar)
2	Date Effective: [1/1/2010 to 31/12/2016] (Custom) (Calendar)
3	Acquirer Nation: in EU and Schengen
4	Acquirer Public Status: P
5	Percent of Shares Owned after Transaction: 51 to <= 99
6	Percent of Shares Held at Announcement: 0 to <= 50
7	Acquirer Market Value 4 Weeks Prior to Announcement (EUR Mil): [1 000] <= HI

Table 20 – Countries in the Sample and Chosen Methods among the Acquirers in each Country

	Full	Partial	∑
Austria	2	7	**9**
Belgium	1	1	**2**
Denmark	2	0	**2**
Finland	0	5	**5**
France	9	33	**42**
Germany	6	15	**21**
Hungary	0	1	**1**
Italy	2	7	**9**
Luxembourg	4	2	**6**
Netherlands	2	5	**7**
Norway	3	5	**8**
Poland	4	3	**7**
Portugal	0	1	**1**
Spain	4	7	**11**
Sweden	5	3	**8**
Switzerland	2	14	**16**
United Kingdom	12	21	**33**
∑	**58**	**130**	**188**

Table 21 – Variables and Related Definitions, Sources and Worldscope Codes

Variable	Definition	Data Sources	Worldscope Code
Dependent Variable			
Choice	Dummy for the respective choice of goodwill method (Choice of Full Goodwill Method = 1).	Manually collected	
Country and Industry Variables			
Country	Dummy for the respective country: Nordics (NO); Germany (DE); Benelux (BX); More Developed Latin Europe (LE); Other countries (OC); Switzerland (CH); and United Kingdom (UK).	SDC	
Industry	Dummy for the respective industry according to the first digit of the Industry Classification Benchmark: Basic materials (Ind1); Industrials (Ind2); Consumer goods (Ind3); Health care (Ind4); Consumer services (Ind5); Telecommunications (Ind6); Utilities (Ind7) and Financials (Ind8).	Worldscope	WC07040
Topic Variables			
GW/A	Goodwill divided by total assets (opening balance).	Worldscope	WC18280/ WC02999
EQ/A	Equity (including NCI) divided by total assets (opening balance).	Worldscope	(WC03501+ WC03426)/ WC02999
Control_Ownership	Percentage of shares owned in connection to the control acquisition with remaining NCI.	SDC	
Put_Option	Presence of an option contract in connection to the control acquisition with remaining NCI.	Manually collected	
Comp_Acq	The actual event of one or several complimentary acquisitions.	Manually collected	
Total_Ownership	Total percentage of shares owned in each acquiree during the studied time period.	Manually collected	
Control Variables			
Size	Natural logarithm of market capitalization (in Euro; at opening balance).	Worldscope	WC08001
US	Dummy for US listing (20-F filed with the SEC). (US = 1 for US-listed firms).	Edgar	
Public	Dummy for public status of acquiree (Public = 1 if acquiree was public).	SDC	

The table reports the data sources of the variables included in the sample as well as their corresponding Worldscope codes where applicable.

Table 22 – Annual Distribution of Transactions

Year	2010	2011	2012	2013	2014	2015	2016	∑
Panel A – Control acquisitions with and without remaining NCI (share ownership of 51-100% at acquisition date)								
N	571	676	548	475	605	373	139	**3 387**
% per year	*17%*	*20%*	*16%*	*14%*	*18%*	*11%*	*4%*	*100%*
Panel B – Control acquisitions with remaining NCI (share ownership of 51-99% at acquisition date)								
N	83	90	54	62	52	45	17	**403**
% per year	*21%*	*22%*	*13%*	*15%*	*13%*	*11%*	*4%*	*100%*
% of all transactions in panel A	*15%*	*13%*	*10%*	*13%*	*9%*	*12%*	*12%*	*12%*

This table reports number of transactions per year as well as the percentage for control acquisitions extracted from SDC in accordance with the sampling criteria stated in Section 4.2.

Table 23 – Correlations

	P_O	A_A	T_O	BX	CH	DE	LE	NO	OC	UK	Ind1	Ind2	Ind3	Ind4	Ind5	Ind6	Ind7	Ind8	Size	US	Public
P_O	1,00																				
A_A	**0,34**	1,00																			
T_O	**0,33**	**0,81**	1,00																		
BX	**0,16**	**-0,18**	**-0,15**	1,00																	
CH	0,02	0,01	0,09	-0,09	1,00																
DE	-0,05	0,00	0,09	-0,13	-0,13	1,00															
LE	-0,13	-0,06	-0,08	0,06	0,04	0,00	1,00														
NO	-0,09	0,12	0,07	-0,11	-0,11	**-0,16**	**-0,16**	1,00													
OC	-0,02	-0,10	-0,09	-0,06	-0,06	-0,09	0,02	-0,08	1,00												
UK	-0,04	-0,09	-0,08	-0,14	-0,14	**-0,20**	-0,04	**-0,17**	-0,10	1,00											
Ind1	-0,10	0,06	0,09	-0,01	-0,09	0,03	**-0,15**	0,13	0,13	0,12	1,00										
Ind2	0,03	0,00	0,01	-0,11	**0,24**	-0,07	-0,10	0,07	-0,08	-0,04	-0,11	1,00									
Ind3	0,03	0,03	0,03	-0,06	-0,01	0,04	-0,13	0,05	-0,01	-0,10	-0,12	-0,14	1,00								
Ind4	0,06	0,00	-0,03	**0,23**	0,02	**-0,15**	-0,14	-0,07	-0,07	**-0,15**	-0,10	-0,12	-0,13	1,00							
Ind5	0,07	0,07	0,07	0,05	-0,05	0,04	-0,08	**-0,18**	-0,06	**0,28**	**-0,17**	**-0,21**	**-0,23**	**-0,20**	1,00						
Ind6	-0,01	0,04	0,05	0,09	-0,05	-0,06	0,07	**0,17**	-0,03	-0,07	-0,04	-0,05	-0,06	-0,05	-0,09	1,00					
Ind7	0,01	0,02	0,07	-0,07	-0,07	-0,04	-0,07	0,13	0,07	-0,11	-0,07	-0,09	-0,09	-0,08	-0,14	-0,03	1,00				
Ind8	-0,10	**-0,16**	**-0,19**	-0,07	-0,04	0,10	**0,47**	-0,06	0,07	-0,06	**-0,17**	**-0,20**	**-0,22**	**-0,19**	**-0,33**	-0,08	-0,13	1,00			
Size	**-0,16**	-0,07	-0,12	0,00	**0,22**	**-0,15**	0,14	-0,03	-0,06	-0,12	0,08	-0,10	0,10	0,12	**-0,22**	**0,18**	0,00	0,03	1,00		
US	**0,23**	0,08	0,08	-0,01	-0,01	-0,01	0,00	0,08	-0,06	-0,02	-0,01	-0,04	0,07	0,04	0,02	-0,04	0,02	-0,06	-0,09	1,00	
Public	-0,10	0,10	**0,16**	0,10	0,04	0,11	-0,01	0,02	0,09	-0,09	0,00	-0,10	0,08	-0,03	-0,04	0,02	0,06	0,04	0,11	0,01	1,00

This table reports Pearson correlation coefficients for the variables used in the regression. The explanatory topic variables are denoted (P_O) for (Put_Option), (A_A) for (Comp_Acq) as well as (T_O) for (Total_Ownership). Bold numbers indicate statistical significance at the 5% level.

Appendix B – Robustness Tests

B.1 Test I – Multiple Regression Analysis Excluding Financial Firms

Table 24 – Results of Multiple Logistic Regression Analysis for Model (2)

	Model (2) Full Goodwill Method = 1	
Variables	**Coefficients**	**Odd Ratios**
Put_Option	2,654***	14,215***
	(3,650)	*(3,650)*
Comp_Acq	-0,859	0,423
	-(0,920)	*-(0,920)*
Total_Ownership	0,373	1,453
	(1,250)	*(1,250)*
CH	-4,223**	0,015**
	-(2,570)	*-(2,570)*
DE	0,139	1,149
	(0,160)	*(0,160)*
LE	0,519***	1,681***
	(2,830)	*(2,830)*
NO	0,834	2,303
	(0,970)	*(0,970)*
OC	1,092	2,981
	(0,790)	*(0,790)*
UK	1,302*	3,676*
	(1,670)	*(1,670)*
Ind2	0,173	1,188
	(0,170)	*(0,170)*
Ind3	-1,032	0,356
	-(1,080)	*-(1,080)*
Ind4	0,901	2,462
	(0,810)	*(0,810)*
Ind5	-1,158	0,314
	-(1,260)	*-(1,260)*
Ind6	0,130	1,139
	(0,080)	*(0,080)*
Ind7	-2,440*	0,087*
	-(1,750)	*-(1,750)*
Size	-0,018	0,982
	-(0,080)	*-(0,080)*
US	-0,262	0,770
	-(0,280)	*-(0,280)*
Public	0,871	2,389
	(1,280)	*(1,280)*
Intercept	-2,908	0,055
	-(0,730)	*-(0,730)*
No. of observations	143	143
LR chi-2 (24 DF)	64,71†	64,71†
Psuedo R-Squared	37,00%	37,00%
Correctly Classified	81,82%	81,82%
Year FE	Yes	Yes

*This table reports the results from the multiple logistic regression analysis for Model (2). 'Coefficients' include, in the first line, the coefficients for each variable and, in the second line, the z-statistics reported in parenthesis. 'Odd ratios' represents the constant effect for each variable on the likelihood of choosing the full goodwill method, and are calculated by taking the exponent of the coefficients. (*) represent the significance levels. The two-tailed significance levels are: *** = significant at a 1% level, ** = significant at a 5% level, * = significant at a 10% level, † = (LR) hi-square test significant at a 1% level. The row 'Correctly Classified' shows the overall rate of correct classifications.*

Table 24 shows the robustness test for excluding financial firms, motivated in Section 6.2. Model (2) is an adjustment of Model (1), and tests whether the results hold also in the context of excluding all transactions related to *(Ind8)* from the sample.

$$Prob(CHOICE_i) = \beta_0 + \beta_1(Put\_Option)_i + \beta_2(Comp\_Acq)_i + \beta_3(Total\_Ownership)_i + \beta_4 CH_i + \beta_5 DE_i + \beta_6 LE_i + \beta_7 NO_i + \beta_8 OC_i + \beta_9 UK_i + \beta_{10} Ind2_i + \beta_{11} Ind3_i + \beta_{12} Ind4_i + \beta_{13} Ind5_i + \beta_{14} Ind6_i + \beta_{15} Ind7_i + \beta_{16} Size_i + \beta_{17} US_i + \beta_{18} Public_i + \gamma_n Year_i + \varepsilon_i$$

Model (2)

B.2 Test II – Exclusion of Transactions from 2015 and 2016

Table 25 as well as 26 show the robustness tests for the univariate analyses when excluding transaction from year 2015 and 2016, as motivated in Section 6.2. Table 27 show the robustness test for the multiple regression analysis. Model (3) is an adjustment of Model (1), testing whether the results hold also in the context of excluding all transactions in 2015 and 2016 from the sample.

$$Prob(CHOICE_i) = \beta_0 + \beta_1(Put\_Option)_i + \beta_2(Comp\_Acq)_i + \beta_3(Total\_Ownership)_i + \beta_4 CH_i + \beta_5 DE_i + \beta_6 LE_i + \beta_7 NO_i + \beta_8 OC_i + \beta_9 UK_i + \beta_{10} Ind2_i + \beta_{11} Ind3_i + \beta_{12} Ind4_i + \beta_{13} Ind5_i + \beta_{14} Ind6_i + \beta_{15} Ind7_i + \beta_{16} Ind8_i + \beta_{17} Size_i + \beta_{18} US_i + \beta_{19} Public_i + \gamma_n Year_i + \varepsilon_i$$

Model (3)

Table 25 – Chi-Square Test Results for *(Total_Ownership)* excluding 2015 and 2016

T_O Group (%)	TO:1 51-65	TO:2 66-80	TO:3 81-94	TO:4 95-99	TO:5 100	∑	No variation	Low variation	χ^2	p-value
N	41	44	22	7	43	157				
Full goodwill method	20%	23%	23%	14%	51%	29%	0	0	14,0	0,007

This table reports the results of the chi-square test which tests the hypothesis that topic factors influence the choice of goodwill method (H3) topic variable (Control_Ownership) when excluding year 2015 and 2016 from the sample. N is the total number of transactions per group. Full goodwill method is the percentage of the transactions in the respective group that were accounted for using the full goodwill method. 'No variation' and 'Low variation' indicate the number of groups with no or low within-group variation, respectively. 'No variation' occurs when the choice of the full goodwill method was either 0% or 100% among the transactions in a group. 'Low variation' occurs when the choice of full goodwill method was either 0–10% or 90–100% among the transactions in a group. 'Chi^2' and 'p-value' report the Chi^2 statistic and the corresponding p-value. The null hypothesis is rejected if the p-value is below 0,05 (5% significance level).

Table 26 – Z-test Results for *(Comp_Acq)* excluding 2015 and 2016

Group	Comp:No	Comp:Yes	∑	No variation	Low variation	Z-test	p-value
N	98	59	157				
Full goodwill method (%)	22%	41%	29%	0	0	-2,43	0,008

This table reports the results of the Z-test which tests the hypothesis that topic factors influence the choice of goodwill method (H3) topic variable (Comp_Acq) when excluding year 2015 and 2016 from the sample. N is the total number of transactions per group. Full goodwill method is the percentage of the transactions in the respective group that were accounted for using the full goodwill method. 'No variation' and 'Low variation' indicate the number of groups with no or low within-group variation, respectively. 'No variation' occurs when the choice of the full goodwill method was either 0% or 100% among the transactions in a group. Low variation occurs when the choice of full goodwill method was either 0–10% or 90–100% among the transactions in a group. 'Z-score' and 'p-value' report the Z-score and the corresponding p-value. The null hypothesis is rejected if the p-value is below 0,05 (5% significance level).

Table 27 – Results of Multiple Logistic Regression Analyses for Model (3)

	Model (3) Full Goodwill Method = 1	
Variables	**Coefficients**	**Odds Ratios**
Put_Option	1,790***	5,991***
	(3,150)	*(3,150)*
Comp_Acq	-0,588	0,556
	-(0,700)	*-(0,700)*
Total_Ownership	0,408	1,504
	(1,520)	*(1,520)*
CH	-1,463	0,232
	-(1,410)	*-(1,410)*
DE	0,451	1,571
	(0,650)	*(0,650)*
LE	0,000	1,000
	-(0,010)	*-(0,010)*
NO	1,158	3,183
	(1,480)	*(1,480)*
OC	1,729*	5,635*
	(1,800)	*(1,800)*
UK	1,015	2,760
	(1,520)	*(1,520)*
Ind2	0,373	1,452
	(0,380)	*(0,380)*
Ind3	-0,451	0,637
	-(0,480)	*-(0,480)*
Ind4	0,839	2,314
	(0,790)	*(0,790)*
Ind5	-0,315	0,730
	-(0,380)	*-(0,380)*
Ind6	1,977	7,220
	(1,170)	*(1,170)*
Ind7	-0,880	0,415
	-(0,640)	*-(0,640)*
Ind8	-0,103	0,902
	-(0,110)	*-(0,110)*
Size	-0,282	0,754
	-(1,400)	*-(1,400)*
US	-0,149	0,862
	-(0,170)	*-(0,170)*
Public	1,036*	2,818*
	(1,770)	*(1,770)*
Intercept	1,436	4,205
	(0,420)	*(0,420)*
No. of obs.	157	157
LR chi2 (23 DF)	46,14†	46,14†
Psuedo R-Squared	24,30%	24,30%
Correctly Classified	78,98%	78,98%
Year FE	Yes	Yes

*This table reports the results from the multiple logistic regression analysis for Model (3). 'Coefficients' include, in the first line, the coefficients for each variable and, in the second line, the z-statistics reported in parenthesis. 'Odd ratios' represents the constant effect for each variable on the likelihood of choosing the full goodwill method, and are calculated by taking the exponent of the coefficients. (*) represents the significance levels. The two-tailed significance levels are: *** = significant at a 1% level, ** = significant at a 5% level, * = significant at a 10% level, and † = (LR) chi-square test significant at a 1% level. The row 'Correctly Classified' shows the overall rate of correct classifications.*

B.3 Test III – Exclusion of Transactions Made by Essilor Group

Table 28 shows the robustness tests for the univariate analysis when excluding transactions made by Essilor Group, as motivated in Section 6.2. Table 29 show the robustness test in the multiple regression analysis. Model (4) is an adjustment of Model (1), and tests whether the results hold also in the context of excluding all transactions made by Essilor Group from the sample.

$$Prob(CHOICE_i) = \beta_0 + \beta_1(Put\_Option)_i + \beta_2(Comp\_Acq)_i + \beta_3(Total\_Ownership)_i + \beta_4 CH_i + \beta_5 DE_i + \beta_6 LE_i + \beta_7 NO_i + \beta_8 OC_i + \beta_9 UK_i + \beta_{10} Ind2_i + \beta_{11} Ind3_i + \beta_{12} Ind4_i + \beta_{13} Ind5_i + \beta_{14} Ind6_i + \beta_{15} Ind7_i + \beta_{16} Ind8_i + \beta_{17} Size_i + \beta_{18} US_i + \beta_{19} Public_i + \gamma_n Year_i + \varepsilon_i$$

Model (4)

Table 28 – Z-test Results for (*Put_Option*) Excluding Essilor Group

Group	Option:No	Option:Yes	∑	No variation	Low variation	Z-test	p-value
N	127	51	178				
Full goodwill method (%)	23%	53%	31%	0	0	-3,91	0,000

This table reports the results of the Z-test which tests the hypothesis that topic factors influence the choice of goodwill method (H3) topic variable (Put_Option) when excluding Essilor Group from the sample. N is the total number of transactions per group. Full goodwill method is the percentage of the transactions in the respective group that were accounted for using the full goodwill method. 'No variation' and 'Low variation' indicate the number of groups with no or low within-group variation, respectively. 'No variation' occurs when the choice of the full goodwill method was either 0% or 100% among the transactions in a group. 'Low variation' occurs when the choice of full goodwill method was either 0–10% or 90–100% among the transactions in a group. 'Z-score' and 'p-value' report the Z-score and the corresponding p-value. The null hypothesis is rejected if the p-value is below 0,05 (5% significance level).

B.4 Test IV – Exclusion of Chosen Methods Identified Through PPA

Table 30 shows the robustness test for excluding transactions when the choice has been identified through PPA, as motivated in Section 6.2. Model (5) is an adjustment of Model (1), and tests whether the results hold also in this context.

$$Prob(CHOICE_i) = \beta_0 + \beta_1(Put\_Option)_i + \beta_2(Comp\_Acq)_i + \beta_3(Total\_Ownership)_i + \beta_4 CH_i + \beta_5 DE_i + \beta_6 LE_i + \beta_7 NO_i + \beta_8 OC_i + \beta_9 UK_i + \beta_{10} Ind2_i + \beta_{11} Ind3_i + \beta_{12} Ind4_i + \beta_{13} Ind5_i + \beta_{14} Ind6_i + \beta_{15} Ind7_i + \beta_{16} Ind8_i + \beta_{17} Size_i + \beta_{18} US_i + \beta_{19} Public_i + \gamma_n Year_i + \varepsilon_i$$

Model (5)

Table 29 – Results of Multiple Logistic Regression Analyses for Model (4)

	Model (4) Full Goodwill Method = 1	
Variables	**Coefficients**	**Odds Ratios**
Put_Option	1,548***	4,702***
	(2,990)	*(2,990)*
Comp_Acq	-0,966	0,380
	-(1,270)	*-(1,270)*
Total_Ownership	0,544**	1,723**
	(2,200)	*(2,200)*
CH	-1,983**	0,138**
	-(2,040)	*-(2,040)*
DE	-0,369	0,691
	-(0,600)	*-(0,600)*
LE	0,024	1,024
	(0,460)	*(0,460)*
NO	1,167*	3,213*
	(1,760)	*(1,760)*
OC	1,189	3,283
	(1,310)	*(1,310)*
UK	0,646	1,908
	(1,110)	*(1,110)*
Ind2	0,319	1,376
	(0,350)	*(0,350)*
Ind3	-0,539	0,583
	-(0,590)	*-(0,590)*
Ind4	0,981	2,667
	(0,810)	*(0,810)*
Ind5	-0,369	0,692
	-(0,460)	*-(0,460)*
Ind6	0,489	1,630
	(0,350)	*(0,350)*
Ind7	-2,466*	0,085*
	-(1,860)	*-(1,860)*
Ind8	0,243	1,275
	(0,280)	*(0,280)*
Size	-0,297*	0,743*
	-(1,700)	*-(1,700)*
US	-0,546	0,579
	-(0,720)	*-(0,720)*
Public	0,517	1,677
	(1,000)	*(1,000)*
Intercept	2,028	7,596
	(0,670)	*(0,670)*
No. of obs.	178	178
LR chi-2 (25 DF)	51,52†	51,52†
Psuedo R-Squared	23,24%	23,24%
Correctly Classified	81,46%	81,46%
Year FE	Yes	Yes

*This table reports the results from the multiple logistic regression analysis for Model (4). 'Coefficients' include, in the first line, the coefficients for each variable and, in the second line, the z-statistics reported in parenthesis. 'Odd ratios' represents the constant effect for each variable on the likelihood of choosing the full goodwill method, and are calculated by taking the exponent of the coefficients. (*) represents the significance levels. The two-tailed significance levels are: *** = significant at a 1% level, ** = significant at a 5% level, * = significant at a 10% level, † = (LR) chi-square test significant at a 1% level. The row 'Correctly Classified' shows the overall rate of correct classifications.*

Table 30 – Results of Multiple Logistic Regression Analyses for Model (5)

	Model (5) Full Goodwill Method = 1	
Variables	**Coefficients**	**Odds Ratios**
Put_Option	2,021***	7,542***
	(3,370)	*(3,370)*
Comp_Acq	-0,479	0,619
	-(0,610)	*-(0,610)*
Total_Ownership	0,479*	1,614*
	(1,810)	*(1,810)*
CH	-2,929**	0,053**
	-(2,180)	*-(2,180)*
DE	-0,601	0,548
	-(0,830)	*-(0,830)*
LE	0,041	1,042
	(0,680)	*(0,680)*
NO	0,747	2,110
	(0,990)	*(0,990)*
OC	1,539	4,658
	(1,320)	*(1,320)*
UK	0,688	1,991
	(1,030)	*(1,030)*
Ind2	0,137	1,147
	(0,130)	*(0,130)*
Ind3	-0,663	0,515
	-(0,680)	*-(0,680)*
Ind4	0,559	1,748
	(0,530)	*(0,530)*
Ind5	-1,089	0,337
	-(1,220)	*-(1,220)*
Ind6	-0,142	0,868
	-(0,090)	*-(0,090)*
Ind7	-3,025**	0,049**
	-(2,150)	*-(2,150)*
Ind8	-0,519	0,595
	-(0,530)	*-(0,530)*
Size	-0,246	0,782
	-(1,250)	*-(1,250)*
US	-1,165	0,312
	-(1,240)	*-(1,240)*
Public	0,306	1,357
	(0,510)	*(0,510)*
Intercept	1,476	4,375
	(0,430)	*(0,430)*
No. of obs.	161	161
LR chi-2 (25 DF)	56,06†	56,06†
Psuedo R-Squared	28,83%	28,83%
Correctly Classified	81,99%	81,99%
Year FE	Yes	Yes

*This table reports the results from the multiple logistic regression analysis for Model (5). 'Coefficients' include, in the first line, the coefficients for each variable and, in the second line, the z-statistics reported in parenthesis. 'Odd ratios' represents the constant effect for each variable on the likelihood of choosing the full goodwill method, and are calculated by taking the exponent of the coefficients. (*) represents the significance levels. The two-tailed significance levels are: *** = significant at a 1% level, ** = significant at a 5% level, * = significant at a 1% level, † = (LR) chi-square test significant at a 1% level. The row 'Correctly Classified' shows the overall rate of correct classifications.*

Appendix C – List of Sentences Used for Stating the Choice in Wording

Sentences used for full goodwill method
The recognition of goodwill related to [target] for which [acquirer] elected to measure NCI at fair value.
All acquisitions where less than 100% of the voting rights of a company were purchased have been accounted for using the full goodwill method, as permitted by IFRS 3 (revised 2008).
The share of NCI was recognized according to the full goodwill method at the attributable fair value.
The value of the non-controlling interest is based on the fair value of the [target] share at the date of acquisition.
The difference between this value and the minority interests in equity eliminated is posted to goodwill. As a result, the full goodwill method is applied.
Non-controlling interests were recognised at the Acquisition date, based on the above-stated equity value of [target] in accordance with paragraph 19(a) of IFRS 3.
All acquisitions where less than 100% of the voting rights of a company were purchased have been accounted for using the full goodwill method.
The acquisition was accounted for using the "full goodwill approach".
[Acquirer] chose to apply the full goodwill method and therefore recognized non-controlling interests at fair value.
NCI have been provided a share of goodwill.
[Acquirer] has opted to apply the full goodwill method to this business combination.
The acquisition was consolidated in accordance with the full goodwill method.
The Group has elected the full goodwill method on these deals; the non-controlling interests have been in consequence recognised at their fair value against goodwill at acquisition time.
All business combinations that have occurred since 1 January 2009 were accounted for using the acquisition method. Under this method, goodwill is measured as the fair value of the consideration transferred (including the recognition of any part of the business not yet owned (non-controlling interests).
The purchase of 50% of the shares and the transaction with the lenders were treated as a linked transaction and the entire amount of goodwill was disclosed (full goodwill method).
[Acquirer] has used the option to recognize the non-controlling interest in [target] based on fair value.
This resulted in goodwill arising through the transaction based on the full-goodwill method.
[Acquirer] has consolidated [target] under the full goodwill method and performed a preliminary allocation of the purchase price for 100% of [target]. The measurement of NCI at fair value results in an increase in goodwill up to the extent attributable to these interests, thereby leading to the recognition of a "full goodwill".
The Group has elected the full goodwill method on these deals; the non-controlling interests have been in consequence recognised at their fair value against goodwill at acquisition time.
At the time of acquisition, minority interests' shares of acquisitions were measured at their proportionate shares of the total fair values of the acquired entities including goodwill.
The Group has chosen to report all assets (including goodwill) at 100% of fair value identified on the date of acquisition for all acquisitions during the period from and including 2010. This implies that non-controlling interests are also allocated a share of goodwill.
[Acquirer] adopted the criterion of recognising the non-controlling interests associated with the acquisition of [target's] assets at fair value. This fair value was calculated on the basis of the purchase price paid by [acquirer] in the acquisition, using discounted cash flow analysis as the main valuation method.
Since January 1, 2010, the [acquirer] has for the most part applied the so-called "full goodwill" method when there was an acquisition with minority interests under option. Moreover, when there is an acquisition with no option to redeem minority interests, the Group applies the so-called "partial goodwill" method.

Sentences used for partial goodwill method
The non-controlling interests are valued to the proportionate share of the acquiree's identifiable net assets.
NCI in the business acquired are recognised at the proportionate share of the fair value of the underlying net assets.
The non-controlling interest in the acquiree is initially measured at the minority's proportion of the net fair value of the assets, liabilities and contingent liabilities recognised.
Pursuant to IFRS 3 (revised), the Group has chosen the partial goodwill option in reporting the acquisition.
[Acquirer] elected to apply the partial goodwill method in accounting for this acquisition, which means that the minority interests in [target] were not remeasured at fair value.
NCI were measured in proportion to the identifiable net assets of the acquired investment.
The Group has chosen to recognise the non-controlling interest at the proportionate share of the fair value of the net assets of [target] which is in line with accounting policies adopted in prior reporting periods.
This acquisition was recognized using the partial goodwill method. The future acquisition of share capital against which a put option has been granted to minority shareholders, will not generate any additional goodwill. This put option was recognized in liabilities through a reduction in reserves.
Minority interests are measured at the value of the share of the net assets of the acquired company attributable to the minority interest. Non-controlling interests were calculated using the partial goodwill method.
The Group has chosen to recognise the non-controlling interests for this acquisition based on their proportionate share of the identifiable net assets of the acquiree.
Non-controlling interests are disclosed at the proportionate share of the subsidiaries´ net asset.
Pro-rated remasured net assets, without taking into account the pro-rated goodwill.
Minority interests were valued in the amount of their share in the acquiree's restated net assets.
The option to measure the non-controlling interests at fair value (IFRS 3.19) is not applied. Instead, the non-controlling interests are measured at their proportionate share of the [target's] identifiable net assets measured at fair value so that hidden reserves are released with regard to the identifiable assets but a goodwill from non-controlling interests is not recognized.
The provisional value assigned to the goodwill arising on the acquisition was calculated using the partial goodwill method.
The full goodwill method was not applied.
[Acquirer] values non-controlling interests pro rata according to their interests in the acquiree's identifiable assets.
Minority interests are measured at their share of the fair value of the acquiree's identifi able assets and liabilities. However, for each business combination, the Group can elect to measure minority interests at fair value, in which case a proportion of goodwill is allocated to them. To date, the Group has never used this latter option.
The Group has opted for the partial goodwill method for the acquisition.
No goodwill was recognized for non-controlling interests (proportionate share method).
Assessing the noncontrolling interests' use was made through the option under IFRS 3.19 to measure the shares of noncontrolling interests with their corresponding percentages of net assets, excluding the goodwill.
The components of NCI that are present ownership interests and entitle their holders to a proportionate share of the entity's net assets in the event of liquidation, were measured based on the NCI's proportionate share of the fair value of the acquired identifiable net assets. As such, goodwill excludes the goodwill related to the NCI.
In the case of acquisition of non-totalitarian control, the portion of equity of minority interests is determined according to the portion of the fair values attributed assets and liabilities at the date of acquisition of control, excluding any related goodwill (so-called partial goodwill method).
The Group did not opt to disclose goodwill in respect of non-controlling interests.
According to the provisions of IFRS 3, the Group has chosen not to increase the minority interests balance in the corresponding part of the goodwill.

Appendix D – List of All Transactions Included in the Sample and Chosen Methods

Acquirer	Country	Year	Target	Method
A2A SpA	Italy	2016	Linea Group Holding SpA	Partial
Abertis Infraestructuras SA	Spain	2016	A4 Holding SpA	Full
Ackermans & van Haaren NV	Belgium	2013	CFE	Full
Alfa Laval AB	Sweden	2010	Si Fang Stainless Steel Prod	Partial
Alstria Office REIT-AG	Germany	2015	DO Deutsche Office AG	Partial
Altice SA	Luxembourg	2015	Cequel Communications LLC	Full
Amlin PLC	United Kingdom	2014	Leadenhall Capital Partners	Partial
Anglo American PLC	United Kingdom	2012	De Beers SA	Partial
Atlantia SpA	Italy	2010	Triangulo do Sol Auto-Estradas	Partial
AXA SA	France	2014	Seguros Colpatria SA	Partial
Axel Springer SE	Germany	2010	Sohomint GmbH	Partial
Axel Springer SE	Germany	2011	Juno Internet GmbH	Full
Axel Springer SE	Germany	2015	@Leisure Holding BV	Partial
Credito Valtellinese Soc Coop	Italy	2010	Banca della Ciociaria SpA	Full
Banco Bilbao Vizcaya	Spain	2015	Caixa d'Estalvis de Catalunya	Partial
Banco Santander SA	Spain	2013	Financiera El Corte Ingles EFC	Partial
Bank Zachodni WBK SA	Poland	2013	BZ WBK-Aviva TUO SA	Full
Bank Zachodni WBK SA	Poland	2013	BZ WBK-Aviva TOZ SA	Full
Bank Zachodni WBK SA	Poland	2014	Santander Consumer Bank SA	Partial
BNP Paribas SA	France	2014	BGZ SA	Partial
BNP Paribas SA	France	2014	DAB Bank AG	Partial
BPER Banca SpA	Italy	2012	CR Bra SpA	Partial
Brenntag AG	Germany	2011	Zhong Yung Intl Chemical Ltd	Full
Brenntag AG	Germany	2015	Trychem FZE	Partial
Cable & Wireless Commun PLC	United Kingdom	2011	Bahamas Telecommun Co Ltd	Partial
Capgemini SA	France	2010	CPM Braxis SA	Partial
Carillion PLC	United Kingdom	2014	Rokstad Power Corp	Partial
Carlsberg A/S	Denmark	2014	Zatecky Pivovar Spol sro	Full
CNP Assurances SA	France	2014	Santander Consumer-Undi	Partial
Compagnie Financiere Richemont	Switzerland	2010	NET-A-PORTER Ltd	Full
Croda International PLC	United Kingdom	2013	Sichuan Sipo Chemical Co Ltd	Partial
Danone SA	France	2010	Chiquita-trademark	Partial
Danone SA	France	2013	Centrale Laitiere SA	Partial
Danone SA	France	2013	Nurture Inc	Partial
Dechra Pharmaceuticals PLC	United Kingdom	2015	Genera dd	Full
Delta Lloyd NV	Netherlands	2011	FBA Holding BV	Partial
Deutsche Telekom AG	Germany	2013	MetroPCS Communications Inc	Partial
Deutsche Wohnen AG	Germany	2013	GSW Immobilien AG	Full
Dufry AG	Switzerland	2013	Folli Follie SA-Travel Retail	Partial

Acquirer	Country	Year	Target	Method
Ebro Foods SA	Spain	2014	Pastificio Lucio Garofalo SpA	Full
EDP Renovaveis SA	Spain	2010	Italian Wind Srl	Full
Electrolux AB	Sweden	2011	CTI Cia Tecno Industrial SA	Partial
ElringKlinger AG	Germany	2011	Hummel Formen GmbH	Partial
Energie Baden-Wuerttemberg	Germany	2010	Prazska Energetika AS	Partial
ENEA SA	Poland	2015	Lubelski Wegiel Bogdanka SA	Partial
Erste Group Bank AG	Austria	2011	Intermarket Bank AG	Partial
Essilor International SA	France	2010	Eyebiz Pty Ltd	Partial
Essilor International SA	France	2010	DAC Vision SAS	Full
Essilor International SA	France	2011	Unilab Laboratorio de Analises	Full
Essilor International SA	France	2012	Optiben	Partial
Essilor International SA	France	2012	VST Lab	Partial
Essilor International SA	France	2012	Opak Optik	Partial
Essilor International SA	France	2012	Interactif Visuel Systeme SA	Partial
Essilor International SA	France	2013	Megalux SA	Partial
Essilor International SA	France	2013	Isbir Optik Sanayi AS	Partial
Essilor International SA	France	2013	Onbitt Co Ltd	Partial
Eurasian Natural Resources	United Kingdom	2010	Mineracao Peixe Bravo SA	Partial
Eurofins Scientific SE	Luxembourg	2013	mgt-LabMark Evironmental	Full
Eurofins Scientific SE	Luxembourg	2013	Agrisearch Services Pty Ltd	Full
Eurofins Scientific SE	Luxembourg	2015	Bio Access SAS	Full
Euromoney Institutional Invest	United Kingdom	2013	TTI/Vanguard	Partial
Eurosic SA	France	2016	Fonciere De Paris SIIC SA	Full
F Marc de Lacharriere Fimalac	France	2013	Financiere AlloCine SA	Full
Fastighets AB Balder	Sweden	2015	SATO Oyj	Full
Fiat SpA	Italy	2011	Chrysler Group LLC	Full
Fortum Oyj	Finland	2010	Elektrocieplownia Zabrze SA	Partial
Fortum Oyj	Finland	2010	ZEC Bytom SA	Partial
Fortum Oyj	Finland	2016	Ekokem Oyj	Partial
Galp Energia SGPS SA	Portugal	2012	Setgas Soc de Distribuict de G	Partial
Gelsenwasser AG	Germany	2013	P-D ChemiePark Bitterfeld	Partial
Gerresheimer AG	Germany	2012	Triveni Polymers Pvt Ltd	Full
Getin Holding SA	Poland	2010	MW Trade SA	Full
GfK SE	Germany	2011	SirValUse Consulting GmbH	Partial
Glencore International PLC	Switzerland	2012	Samref Overseas SA	Partial
Grifols SA	Spain	2012	Araclon Biotech	Partial
Grifols SA	Spain	2013	Progenika Biopharma SA	Partial
Groupe Bruxelles Lambert SA	Belgium	2011	Imerys SA	Partial
Havas SA	France	2011	HOST	Full
Hays PLC	United Kingdom	2014	Veredus Corp	Full
Heineken NV	Netherlands	2015	Desnoes & Geddes Ltd	Partial
Heineken NV	Netherlands	2015	Pivovarna Lasko dd	Partial

Acquirer	Country	Year	Target	Method
Helvetia Holding AG	Switzerland	2014	Schweizerische Natl-Versicher	Partial
Hikma Pharmaceuticals PLC	United Kingdom	2010	Industries Pharmaceutiques	Partial
Hikma Pharmaceuticals PLC	United Kingdom	2011	Promopharm SA	Partial
Hikma Pharmaceuticals PLC	United Kingdom	2016	EIMC United Pharmaceuticals	Partial
Indra Sistemas SA	Spain	2010	Consulting Outsourcing Mgmt SA	Partial
Indra Sistemas SA	Spain	2011	Visiant Galyleo SpA	Partial
Intermediate Capital Group PLC	United Kingdom	2011	Longbow Real Estate Capital	Full
Intertek Group PLC	United Kingdom	2012	LSI	Partial
Investec PLC	United Kingdom	2010	Leasedirect Finance Ltd	Full
ITV PLC	United Kingdom	2014	Leftfield Entertainment Group	Full
JCDecaux SA	France	2011	MediaKiosk SAS	Partial
Julius Baer Group Ltd	Switzerland	2014	GPS Planejamento Financeiro	Partial
Julius Baer Group Ltd	Switzerland	2016	Kairos Investment Mgmt SpA	Partial
KGHM Polska Miedz SA	Poland	2010	Bipromet SA	Full
KGHM Polska Miedz SA	Poland	2011	NITROERG SA	Partial
Kloeckner & Co SE	Germany	2011	Grupo Frefer Metal Plus	Partial
Boskalis Westminister NV	Netherlands	2010	Smit Internationale NV	Full
Koninklijke Philips NV	Netherlands	2014	General Lighting Co JSC	Partial
Kuehne + Nagel International	Switzerland	2011	Cooltainer Holdings Ltd	Full
KUKA AG	Germany	2014	Swisslog Holding AG	Full
Holcim Ltd	Switzerland	2015	Lafarge SA	Partial
Lenzing AG	Austria	2010	Biocel Paskov AS	Full
Leroy Seafood Group ASA	Norway	2016	HAVFISK ASA	Full
Linde AG	Germany	2011	Linde Uraltekhgaz	Full
LVMH Moet Hennessy Louis	France	2011	Nude Brands Ltd	Partial
LVMH Moet Hennessy Louis	France	2013	Loro Piana SpA	Partial
Mapfre SA	Spain	2011	Middlesea Insurance PLC	Partial
Marine Harvest ASA	Norway	2013	Morpol ASA	Full
Mckesson AG	Germany	2011	Oncoprod Distribuidora	Partial
MITIE Group PLC	United Kingdom	2012	Creativevents Ltd	Partial
Nestle SA	Switzerland	2011	Yinlu Foods Group Co Ltd	Partial
Nestle SA	Switzerland	2011	Hsu Fu Chi International Ltd	Partial
Nexans SA	France	2012	Shandong-Power Cable Unit	Partial
Nokia Oyj	Finland	2016	Alcatel Lucent SA	Partial
Novartis AG	Switzerland	2010	Alcon Inc	Partial
Novartis AG	Switzerland	2011	Zhejiang Tianyuan Bio-pharm Co	Partial
Nutreco NV	Netherlands	2013	Gisis SA	Partial
Olav Thon Eiendomsselskap ASA	Norway	2010	Vestkanten AS	Partial
Old Mutual PLC	United Kingdom	2015	UAP Holdings Ltd	Full
OMV AG	Austria	2010	Petrol Ofisi AS	Partial
Oesterreichische Post AG	Austria	2015	Aktionsfinder GmbH	Partial

Acquirer	Country	Year	Target	Method
Petropavlovsk PLC	United Kingdom	2010	ZRK Omchak	Partial
Prada SpA	Italy	2014	Angelo Marchesi Srl	Partial
Prysmian SpA	Italy	2010	Ravin Cables Ltd	Partial
Qiagen NV	Netherlands	2011	Ipsogen SA	Full
Ratos AB	Sweden	2013	Ledil Oy	Full
Ratos AB	Sweden	2015	TFS Trial Form Support Interna	Full
Rexam PLC	United Kingdom	2015	United Arab Can Mnfg Co	Partial
Rexel SA	France	2011	AD Electronics Pvt Ltd	Full
Rheinmetall AG	Germany	2011	Advanced Design Services GmbH	Partial
Gedeon Richter Plc	Hungary	2014	Next Pharma	Partial
Rio Tinto PLC	United Kingdom	2012	Ivanhoe Mines Ltd	Partial
Rio Tinto PLC	United Kingdom	2012	Richards Bay Minerals	Partial
RTL Group SA	Luxembourg	2013	BroadbandTV Corp	Partial
RTL Group SA	Luxembourg	2014	SpotXchange Inc	Partial
Rubis SCA	France	2015	ERES NV	Partial
Rubis SCA	France	2015	Raffinerie Des Antilles SA	Partial
Sandvik AB	Sweden	2011	Shanghai Jianshe Luqiao	Partial
Schibsted ASA	Norway	2011	ServiceFinder AB	Partial
Seb SA	France	2011	Vietnam Fan JSC	Partial
Societe BIC SA	France	2013	Cello Pens	Partial
SolarWorld AG	Germany	2011	Solarparc AG	Partial
Somfy SA	France	2013	Giga Industria & Comercio	Partial
Sports Direct Intl Plc	United Kingdom	2011	West Coast Capital	Partial
Sports Direct Intl Plc	United Kingdom	2012	Flannels Group Ltd	Partial
Sports Direct Intl Plc	United Kingdom	2013	SIG	Partial
Stolt Nielsen Ltd	United Kingdom	2011	Marstel Holdings Pty Ltd	Full
Stora Enso Oyj	Finland	2011	Inpac International	Partial
Suez Environnement SA	France	2010	Agbar	Partial
Sulzer AG	Switzerland	2015	Saudi Pump Factory Co	Partial
Svenska Cellulosa AB SCA	Sweden	2011	Sante Saglik Hizmetleri	Full
Swisscom AG	Switzerland	2013	CT Cinetrade AG	Partial
Swisscom AG	Switzerland	2013	DL - Groupe GMG SA	Partial
Tamedia AG	Switzerland	2014	Trendsales ApS	Partial
Telecom Italia SpA	Italy	2010	Sofora Telecomunicaciones SA	Partial
Telefonica SA	Spain	2010	Tuenti Technologies SL	Full
Telenor ASA	Norway	2010	Unitech Wireless Ltd	Partial
Teleperformance SE	France	2010	Metis Bilgisayar Sistemleri	Partial
Television Francaise 1 SA	France	2010	TMC Monte Carlo	Partial
Tesco PLC	United Kingdom	2011	Blinkbox Entertainment Ltd	Partial
Trelleborg AB	Sweden	2014	Max Seal Inc	Full
UBM PLC	United Kingdom	2010	Sign China	Full

Acquirer	Country	Year	Target	Method
UBM PLC	United Kingdom	2010	Sienna Interlink	Full
UBM PLC	United Kingdom	2012	EFEM Uluslararasi Fuar ve	Full
Unibail-Rodamco SE	France	2012	Purple Grafton Sarl	Partial
Unilever PLC	United Kingdom	2013	Hindustan Unilever Ltd	Full
Unilever PLC	United Kingdom	2014	Qinyuan Group Co Ltd	Full
Unipol Gruppo Finanziario SpA	Italy	2010	Arca Vita SpA	Partial
Valeo SA	France	2012	Ruby Auto Lighting Systems Co	Partial
Vicat SA	France	2010	Bharathi Cement Corp Ltd	Partial
Vienna Insurance Group AG	Austria	2010	InterAlbanian sh a	Partial
Vienna Insurance Group AG	Austria	2011	Jahorina osiguranje ad	Partial
Vienna Insurance Group AG	Austria	2013	POLISA-ZYCIE SA	Partial
Vienna Insurance Group AG	Austria	2014	Donaris Group SA	Partial
Vilmorin & Cie SA	France	2013	Link Seed(Pty)Ltd	Partial
Virbac SA	France	2012	Centrovet Laboratories Inc	Partial
Vivendi SA	France	2010	GVT	Full
Vivendi SA	France	2015	Dailymotion SA	Full
Volkswagen AG	Germany	2011	MAN SE	Partial
Vonovia	Germany	2015	Gagfah SA	Partial
Wendel SE	France	2015	Constantia Flexibles Group	Full
Wienerberger AG	Austria	2014	Tondach Gleinstaetten AG	Full
William Demant Holding AS	Denmark	2015	Audika SA	Full
WPP PLC	United Kingdom	2012	The PBN Co	Partial
Yara International ASA	Norway	2012	Burrup Holdings Ltd	Partial
Yara International ASA	Norway	2012	Ethiopotash BV	Partial
Yara International ASA	Norway	2014	Galvani Industria Comercio	Full

The table shows one transaction included in the final sample, each on a separate line. 'Acquirer' reports the name of the acquirer of the transaction. 'Country' reports the country of domicile for the acquirer. 'Year' reports the year in which the transaction was effective, that is, the year of the acquisition date. 'Target' reports the name of the acquiree of the transactions. 'Method' reports the goodwill method that was chosen by the acquirer to account for the transaction.