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Abstract

This master thesis researches the determinants of voluntary adoption of International Financial Reporting Standards (IFRS) or simplified IFRS by private Norwegian firms. We hypothesize that Ownership structure, Choice of auditor, Leverage, Growth and Size are key determinants that influence the choice of accounting language. This thesis employs a multi-period logistic regression analysis using a sample of 43,373 observations to investigate the hypotheses simultaneously.

The results indicate that having a big five auditor and to be larger in size will increase the likelihood of a private Norwegian company to adopt IFRS or simplified IFRS, while having international owners, being more leveraged and a higher growth rate are found to be not significant in the main analysis.

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1.0 Introduction

The widespread IFRS adoption has significantly influenced the practices of financial reporting over the years, and there is now over 144 jurisdictions that has fully embraced the IFRS framework (Eroglu, 2022). However, the country specific policies around the world regarding IFRS implementation for unlisted companies is a subject of ongoing debate (Bassemir, 2017). In Norway, unlisted companies have the option to select their preferred accounting language, either IFRS, simplified IFRS or Norwegian Generally Accepted Accounting Principles (NGAAP). This opportunity of choice creates a need for understanding the firm specific factors when choosing their accounting language. Stakeholders such as investors, owners, management, employees and the government have all a vested interest in understanding the key firm specific factors behind a firm's reporting choice, which also makes this study relevant to multiple parties.

This master thesis aims to examine the key determinants of adopting IFRS or simplified IFRS for private Norwegian companies. The adoption of IFRS has become a prominent topic in accounting research due to its increasing global influence on financial reporting practices. While there are several studies that have explored the determinants of IFRS adoption, there is limited research conducted on the voluntary adoption of IFRS, particularly in the context of Norway. Private companies play a significant role in the Norwegian economy, thus creating a need to understand their firm specific factors when adopting IFRS or simplified IFRS.

When permitted by national law, the option of implementing IFRS or simplified IFRS also in consolidated financial statements allows managers to select their preferred implementation strategy and to apply IFRS only if the benefits outweigh the costs, making unlisted firms an ideal setting to investigate voluntary IFRS adoption. Therefore, this study aims to contribute to the existing literature by conducting research in the Norwegian context, where unlisted firms are permitted to prepare financial statements in their preferred accounting language. By addressing the research question: *“What are the key determinants of adopting IFRS or simplified IFRS for private Norwegian firms?”* We aim to build upon the previous literature conducted in the European Union (EU) and similar countries. We hypothesize that factors such as international owners, having a Big Five auditor,

a higher leverage, a higher growth rate and being larger in size will increase the probability of unlisted Norwegian firms adopting IFRS or simplified IFRS.

2.0 Institutional background

To provide a background for our research topic, we need to delve into the institutional details. Section 2.1, 2.2 and 2.3 outlines the basic principles of NGAAP and IFRS, as well as some of the current practices of the Norwegian accounting legislation, and section 2.4 will outline key differences between the two accounting languages.

2.1 NGAAP

The Norwegian accounting regulations are covered in the Accounting act of 1998 (rskl.). These standards confirm the established accounting principles that have been developed within the Norwegian accounting community and are referred to as NGAAP.

To ensure that the financial statements are understood by all stakeholders, a standardized accounting language is necessary. In Norway, the development of this language has resulted in five different accounting languages. However, the use of multiple accounting languages can sometimes create confusion for users, as the same financial transactions may be reported differently depending on the language used, leading to discrepancies in values. Therefore, it is important to understand both the specific accounting language being employed and the reasons for why it is used.

NGAAP are the accounting standards used by most entities in Norway for the preparation and presentation of financial statements. They are developed and maintained by the Norwegian Auditing and Accounting Standards Board (NAASB), which is a private foundation with the mandate to set accounting standards in Norway (Norsk Regnskapsstiftelse, n.d.).

The accounting legislation comprises the legal provisions regulating the design and operation of an accounting system, including the requirements for record-keeping,

document maintenance, measurement principles, and content of annual financial statements. The main focus for Norwegian accounting rules is results-oriented, with a primary focus on accurately presenting the financial result for the period. In order to provide the best possible information about the period's revenues, expenses, and results, NGAAP is based on a set of principles explained in the Accounting act §§ 4-1 – 4-4. The key principles are:

1. *The principle of transaction*: Transactions shall be recorded at the value of the consideration at the time of the transaction.
2. *Recognition principle*: Revenue shall be recognized when it is earned.
3. *Matching principle*: Expenses shall be recognized in the same period as the associated revenue.
4. *Principle of prudence*: Unrealized losses shall be recognized.

2.2 IFRS

IFRS are a set of accounting standards developed by the International Accounting Standards Board (IASB). They provide a common language for businesses to communicate their financial performance and position to stakeholders and are used by more than 160 countries worldwide (IFRS Foundation, n.d.). IFRS are designed to be applied on a consistent basis by all entities, regardless of their size or industry. However, they also provide flexibility in certain areas, allowing entities to use professional judgment in the application of the standards (IFRS Foundation, 2022).

IFRS also aims to provide decision-relevant information to financial statement users, which aligns with NGAAP. However, IFRS is primarily focused on the balance sheet. The IASB has developed a conceptual framework to address the fact that various accounting issues often have different possible solutions in practice. The purpose of this framework is to establish common guidelines for standard-setting (Kvifte & Johnsen, 2008).

The conceptual framework for financial reporting is called "Conceptual Framework for Financial Reporting" (IASB 2018). In brief, the IASB's framework consists of eight chapters that cover the following topics:

- *The objective of general purpose financial reporting:* The chapter gives the objective of the framework, namely giving useful financial information to the users.
- *The qualitative characteristics of useful financial information:* The chapter gives instructions on relevant information, material items and that the financial information need to provide a faithful representation.
- *Description of the reporting entity and its boundary:* The chapter gives clarification of what the financial report should include, how to address going concern assumption, determination of the reporting period, and other related boundaries.
- *Definitions of an asset, a liability, equity, income and expenses and guidance supporting these definitions:* The chapter gives definitions of the different aspects of both the balance sheet and income statement.
- *Criteria for including assets and liabilities in financial statements (recognition) and guidance on when to remove them (derecognition):* The chapter gives instructions for how recognition refers to recording something, while derecognition involves removing something from the financial statements.
- *Measurement bases and guidance on when to use them:* The chapter discusses three ways to measure value: fair value, value in use, and recoverable amount.
- *Concepts and guidance on presentation and disclosure:* The chapter gives guidelines on how information should be presented in financial statements.
- *Concepts relating to capital and capital maintenance:* Explanation of the concept of capital and its maintenance.

2.3 Accounting regulation in Norway

As of January 1, 2005, there are two separate pieces of legislation governing accounting practices in Norway: The Bookkeeping Act and the Accounts Act. The Bookkeeping Act outlines the requirements for maintaining accurate and organized financial records, including which principles must be followed. The Accounts Act, on the other hand, specifies the requirements for the preparation of annual financial statements, including what information must be included and which principles must

be followed. Together, these laws provide the framework for proper financial reporting (Langli, 2022).

On the same day that the Bookkeeping Act went into effect, IFRS became mandatory for the consolidated financial statements of listed companies in the EU. As a non-member of the EU, Norway is not directly subject to this requirement. However, through its participation in the European Economic Area (EEA) Agreement, Norway has agreed to adopt IFRS in the consolidated financial statements of listed companies as of the regulation (EC) No 1606/2002. To facilitate the adoption of these standards, a Norwegian translation of IFRS was created and adopted as a regulation (Langli, 2022).

In addition to these requirements, non-listed companies were given the option to use either NGAAP, IFRS or simplified IFRS. This was permitted by the Norwegian government after determining that in certain circumstances it could be more cost-effective (Langli, 2022). It is worth noting two additional details, the first is that it was possible for a company to use IFRS in its consolidated financial statements, while using NGAAP in its individual financial statements. The second is that the 2005 requirement to use full IFRS only applied to listed companies with consolidated financial statements. However, effective as of January 1, 2011, the Norwegian Parliament determined that all companies with listed securities must apply IFRS. This includes companies that do not prepare consolidated financial statements. The adoption of IFRS by all listed companies in Norway represents a significant expansion of the scope of the 2005 requirement.

As previously mentioned, certain entities are required to maintain books of account in accordance with the Norwegian legislation of bkfl. §§ 1 and 2. For the purposes of our research, the focus will only be on those businesses who are legally required to prepare annual financial statements. In the following table, we will present the various companies that are required to prepare financial statements and which current accounting language they must follow.

Table 1: Accounting language (Langli, 2022)

Required to prepare financial statements	Accounting Language
Listed companies that prepare consolidated financial statements	Full IFRS in consolidated statements. IFRS, simplified IFRS or NGAAP in the Separate financial statements
Listed companies that do not prepare consolidated financial statements	IFRS
Companies that do not satisfy the requirements of be a small company, and that are not listed	IFRS, simplified IFRS or NGAAP
Companies that meet the requirements of being a small entity	IFRS, simplified IFRS, NGAAP or NGAAP for small entities
Non-profit organizations	IFRS, simplified IFRS, NGAAP, NGAAP for small entities or NGAAP for non-profit organizations.

The existence of multiple accounting languages, specifically five, creates challenges for users seeking to compare financial statements from different organizations.

2.4 Differences between NGAAP and IFRS

Since our study aim to examine the voluntary adoption of IFRS in Norway it is also essential to understand the differences between NGAAP and IFRS. From the previous sections we have seen that both accounting languages have the same goal, namely give the users of the books the most relevant and reliable information possible. Determining the precise rules that govern how accounts are maintained involves considering how to achieve this goal with respect to revenue, costs, assets, and liabilities. Although both NGAAP and IFRS frequently arrive at the same accounting-related conclusions, users of the accounting standards may still notice variations. The primary causes of these deviations are the absence of definitions for assets and liabilities in NGAAP and the frequency with which accounting principles permit the new measurement of previously accounted-for assets or liabilities in IFRS (Langli, 2022).

According to Langli (2022) and Gjerde et al., (2008), the most significant differences between NGAAP and IFRS are attributed to the principle of measurements. As an example, one of these differences could be the value of a tangible asset. In NGAAP this is recognized at historical cost, but in IFRS it is recognized at fair value. Another example is research and development (R&D) where NGAAP gives the option for it to be recognized as an intangible asset, but in IFRS the expenses should be recorded when incurred. The full list of the key differences are summarized in table 2.

Table 2: Differences between NGAAP and IFRS

	NGAAP	IFRS
Periodic maintenance	Classified as debt	Not allowed to be recognized
Value of tangible assets	Historical cost	Fair value
Goodwill	Amortized over best estimate of useful life	Tested annually for impairment
R&D	Option of recognizing as intangible asset	When expenses incurred
Financial instruments	Financial assets and debt are measured at cost	Fair value, and amortized cost
Investment properties	Historical cost	Fair value

3.0 Literature review

The possible opportunities and challenges of adopting IFRS or simplified IFRS are highlighted and discussed in the first portion of our literature review. This section highlights important research findings that have influenced our knowledge of the worldwide effects of IFRS adoption and provides helpful context for whether or not companies should be driven to adopt IFRS. The second section analyzes previous research on the determinants that influence the voluntary adoption of IFRS.

3.1 IFRS adoption: opportunities and challenges

IFRS adoption has been heavily discussed and researched in recent years, specifically in the context of companies operating in the EU. Its adoption is related to many opportunities and challenges. In this section we will go through the potential benefits and associated costs and complexities of IFRS adoption that may be important and relevant for private companies in a Norwegian context. By synthesizing the findings of various studies on the topic, this section aims to better understand key factors to consider when evaluating the opportunities and challenges of adopting IFRS.

3.1.1 Transparency and Comparability

Regulation (EC) No 1606/2002 of The European Parliament and of the Council of 19 July 2002 on the application of international accounting standards is the EU regulation which mandates the use of IFRS for all companies listed on EU-regulated markets and allows the voluntary adoption for private companies. The objective of the regulation is to provide common accounting standards in the EU to better synchronize financial information provided by companies operating in the region, and to secure enhanced comparability and transparency. Furthermore, it also aims to improve the efficiency of the financial markets.

Increased comparability and transparency have shown itself to be very useful for consolidated financial reports. Müller (2014), who investigated the effects mandatory IFRS adoption has on quality of financial disclosures by measuring value relevance, finds that IFRS adoption increases accounting quality for consolidated financial reports for listed companies. His approach was to use an empirical association study, where the sample stretched from 2003 to 2008 including the 100 largest companies for each of the largest stock exchanges in Europe: Frankfurt, London, and Paris. This impact is also concluded by several other studies (Barth et al., 2007; Bartov et al., 2005; Jermakowicz et al., 2007; Paananen & Lin, 2009). Moreover, Müller (2014) also finds that the quality of transparency of the financial statements gains an increase in quality, showing fulfillment of the goal of the EU Regulation No 1606/2002.

On the other hand, Nobes & Stadler (2015) finds that in spite of adopting IFRS, accounting practices still are subject to national differences, which could potentially threaten EU's goal of full comparability. The authors further explains that these results may be attributed to several different factors, such as legal frameworks, cultural differences, and the influence by local accounting bodies. In the period 2005-2011, they analyzed the largest firms in Austria, China, France, Germany, Hong Kong, UK, South Africa, Spain, and Switzerland, and found that IFRS policy changes were rare.

3.1.2 Cross-border Investments

Another potential benefit for private Norwegian companies adopting IFRS or simplified IFRS are more cross-border investments. Although there are potential national differences in IFRS accounting, many will see greater differences between IFRS and NGAAP, meaning that adoption of IFRS or any variants would lead to more comparability and transparency. In turn, this could lead to more cross-border investments and collaborations, a clear benefit for those who seek internationalization of their business. This is also one of the emphasizes in Regulation No 1606/2002, which states that achieving convergence between accounting standards is crucial for improved competitiveness of the European capital market. Thus, adoption of IFRS or simplified IFRS can contribute to more cross-border investments.

Bae et al. (2008) supports this, as they examine the impact of differences in international accounting standards on foreign analyst behavior and accuracy, using a sample of 43,968 individual forecasts for 6,169 firms in 49 countries, in the years 1998-2004. Firstly, they find that since the comparability between different GAAPs can be low, it is related to a higher economic cost. Then, their results show that firms adopting IFRS saw an increase in foreign analyst coverage, indicating more interest from international investors. DeFond et al. (2011) supports this, finding that the increased uniformity among financial reports by adopting IFRS increases comparability, as well as IFRS rules contributing to more transparency in reporting. This results in greater attraction of cross-border investments. Their sample was based on observations of 14 different EU-countries in the period 2003-2004 including 5,460 firm-year observations. In addition, their findings are

consistent with previous research such as Yu (2010) and Bae et al. (2008), finding that IFRS adoption increases foreign investors.

3.1.3 Costs of capital

Lower cost of capital is another potential benefit of IFRS adoption. Several studies have examined how cost of capital is affected by IFRS adoption, providing evidence that it can lead to lower cost of both equity capital and debt financing.

Li (2010) finds that mandatory IFRS adoption lowers the cost of equity for companies operating inside the EU when investigating 1,084 EU-firms during the period from 1995-2006. Here, they regressed the cost of equity capital using indicator variables for adoption and time period, including interactions between them. The results support the conception that IFRS adoption can increase the efficiency of capital allocation by lowering the cost of equity. Similarly, Orgaz-Guerrero et al. (2014) finds that Spanish listed firms significantly reduced their cost of equity capital after adopting IFRS, when using the country-level sample of 28 firm-year observations.

Furthermore, Florou and Kosi (2015) examined the effects IFRS adoption has on debt financing in 35 countries in the years 2000-2007, with a difference-in-difference research design and a probit regression. They discovered that after adoption, firms experienced lower bond yields and loan spreads. These findings suggest that the cost of debt financing can be reduced by adopting IFRS. On the other side, Moscariello et al. (2014) finds that the cost of debt is only partially positively affected by the IFRS adoption when looking at 88 listed United Kingdom (UK) companies and 74 from Italy, suggesting that national differences may alter the results.

3.1.4 Challenges

IFRS adoption also has some possible implementation costs and challenges. These should not be underestimated and may include costs such as staff training, implementation of new systems, change and increased cost of auditor, higher complexity and more. These challenges should be acknowledged by firms wishing

to adopt IFRS voluntarily, so that they evaluate their capacity to manage them effectively.

Ramanna and Sletten (2009) analyzed IFRS adoption by looking at 102 non-EU countries using hazard model analyses to test determinants of IFRS adoption. They find that in the case where local governance institutions are of high quality, the expected benefits of IFRS adoption start to diminish, and represent higher opportunity and switching costs. According to De George et al. (2013), one of the highly discussed adoption costs is audit fees. In their study, they show that both smaller and larger firms experience an increase in audit fees, whereas smaller firms on average have a significantly higher increase in percentage compared to larger firms. In addition, firms with higher audit complexity also experience higher compliance costs associated with the adoption of IFRS.

Another key challenge of IFRS adoption is the complexity compared to some national accounting standards. The principle-based approach of the IFRS framework requires comprehensive competence of the principles and their application in diverse business situations (Jermakowicz et al., 2007). This may be more burdensome for firms that are used to a more rule-based approach, as in Norway, since it necessitates a shift in mindset and competence. IFRS demands a deep understanding of the accounting treatments, disclosures, and presentation requirements, making it demanding to adopt (Nobes, 2013).

In conclusion, IFRS or simplified IFRS adoption has several potential opportunities and challenges for private Norwegian companies. The potential benefits include improved comparability and transparency, attracting more foreign investors and achieving a lower cost of capital. However, these findings are not uniform for all countries or context. On the other hand, challenges of adoption may include expensive implementation cost, increased complexity, and a need for more competency in the firm, and for auditors and accountants. This may also lead to higher costs before, during and after the implementation of IFRS.

3.2 Determinants of adopting IFRS

Bassemir (2017) aimed to explore the voluntary adoption of IFRS among private firms in Germany. Using a multi-period logistic regression, the study analyzed the choice between national GAAP and IFRS for the consolidated financial statements of approximately 3,000 German private firms over a period of 13 years (1998-2010), representing more than 14,000 firm-years. The findings of the study suggest that the expected net benefits of IFRS adoption vary significantly among private firms and are influenced by various factors, including financing needs, governance systems, and organizational and informational complexity. The study further reveals that private firms who adopt IFRS tend to have more growth opportunities, be more leveraged and seek to raise external capital through public bonds or equity, be registered as a stock corporation, have private equity involvement, have more international sales and operations, employ a Big Five auditor, and be in the high-tech industry sector.

Andre et al. (2012) conducted a study to investigate the determinants of voluntary adoption of IFRS for medium-to-large unlisted firms in the UK. The study analyzed a sample of 8,417 firms, including 287 IFRS firms and 8,130 non-IFRS firms, in the year 2009 using univariate and multivariate analyses. The results suggest that internationality, leverage, firm size, and auditor reputation are significant determinants of IFRS adoption. In contrast to Bassemir (2017), the study finds that other firm characteristics such as profitability, capital intensity, industry, growth, ownership structure, and employee productivity do not significantly influence the decision to adopt IFRS.

Matonti and Iuliano (2014) examined the determinants of voluntary adoption of IFRS by private firms in Italy. The study employed a logistic regression model on a sample of 46,184 firms, of which 479 had changed to IFRS voluntarily. The results indicate that firms were more likely to adopt IFRS when they had dispersed ownership, foreign shareholders, and high leverage. Moreover, the study reveals that private subsidiary firms were more likely to adopt IFRS when their parent company was already using IFRS.

The study conducted by Yang (2014) contributes to the existing literature on the determinants of voluntary adoption of IFRS among unlisted firms, with a specific

focus on the UK and Germany. The research utilized logistic regression analysis to identify factors that influence the decision of unlisted firms to adopt IFRS. The results of the study show that the adoption of IFRS by unlisted firms is significantly influenced by firm size, leverage, legal form, profitability, industry, and the institutional environment of the country. Interestingly, the study finds that the impact of country-level institutional factors on IFRS adoption is not significant.

In a similar vein, Fabio (2018) examines the factors associated with the adoption of IFRS by unlisted companies in Italy. The research analyzed a sample of 2,915 companies, of which 233 firms prepared financial statements in IFRS at the end of 2015. Using logistic regression analysis, the study finds that firm size, foreign ownership, and capital intensity are significant determinants of IFRS adoption among unlisted firms in Italy. The research also highlights that leveraged companies in Italy are more likely to adopt IFRS. Additionally, the study investigates the unexpected phenomenon of companies adopting IFRS during financial distress and finds that independent companies may do so due to financial and economic challenges.

Chung and Park (2017) investigates the relationship between industry-level comparability and the voluntary adoption of IFRS by unlisted firms in Korea. They used a sample of 12,554 unlisted firms audited by external auditors where 6% voluntarily adopted IFRS in 2011. They used a probit model which they adopted by Andre et al. (2012). The empirical results of this study show that unlisted firms in industries with a higher proportion of listed firms tend to adopt IFRS voluntarily. Following the adoption of IFRS, these unlisted firms seem to attract more investment in the public debt market. This study highlights the importance of industry-level comparability in the voluntary adoption of IFRS by unlisted firms.

This literature review shows that there have been several studies on voluntary adoption. They have been carried out in Germany, Korea, Italy and the UK, and as a summary from the literature, the studies by André et al. (2012), Bassemir (2017), Chung and Park (2017), Fabio (2018), Matonti and Iuliano (2012), and Yang (2014) have found both similarities and differences in the determinants that influence the voluntary adoption of IFRS by private firms. Some of the key similarities are

Leverage, Firm Size, Ownership, Growth and Auditor. The similarities are summarized in table 3.

Table 3 - Summary of Determinants of IFRS Adoption

Determinants	Authors
Leverage	André et al. (2012), Bassemir (2017), Fabio (2018), Matonti and Iuliano (2012) Yang (2014)
Firm Size	André et al. (2012), Fabio (2018), Yang (2014)
Internationality/Ownership	André et al. (2012), Fabio (2018), Matonti and Iuliano (2012)
Growth	Bassemir (2017)
Auditor	André et al. (2012), Bassemir (2017)

The studies suggest that determinants that influence the decision to adopt IFRS vary by country and firm characteristics. These studies provide some findings on the matter. However, it would be beneficial to conduct further research on the subject in order to gain a more comprehensive understanding of the factors that influence the adoption and implementation of IFRS or simplified IFRS in Norway specifically.

4.0 Research question & hypotheses

In our literature review, we find evidence of different determinants for companies in the EU and more who change from their local GAAP to IFRS. However, little evidence is provided for Norway specifically. Therefore, it is interesting to widen the scope of the current knowledge by expanding outside the EU, as the Norwegian setting might yield different results. Although Norway is not a member of the EU, it is part of the EEA, thereby aligning its regulations more closely with those of the EU. Thus, creating a unique interplay between national and international standards, making Norway a case of interest. Therefore, understanding the specific factors that

influence the adoption and implementation of IFRS in Norway can provide valuable insights for both Norway and other countries who are considering or have chosen to adopt IFRS. Thus, the purpose of this research paper is to analyze and identify the key determinants for private Norwegian firms. Our research question is as follows:

“What are the key determinants of adopting IFRS or simplified IFRS for private Norwegian firms?”

As stated, there is a limited amount of research that specifically focuses on private Norwegian firms. This lack of literature on the topic makes this research question important as it helps to understand the determinants of private Norwegian firms who adopt IFRS or simplified IFRS and any differences from different contexts. Furthermore, this research is interesting as it highlights the specific determinants for the adoption of IFRS or simplified IFRS in the Norwegian context and how it compares to the international perspective. This information is valuable for investors, stakeholders, regulators and practitioners as they will have a better understanding of the reporting choices made by private Norwegian firms. Additionally, this research also adds to the knowledge of the accounting field by filling the gap in the literature of IFRS adoption in Norway.

Based on the previous research outlined in the literature review, our hypotheses for the Norwegian context will be formulated. Specifically, we are targeting determinants that have been frequent in prior studies.

4.1 Hypotheses development

In the following section we will present our hypotheses and their justification. Our hypotheses are developed on the basis of firm-specific factors identified in the literature review.

4.1.1 Ownership structure

Previous studies have found ownership structure to be significant (Bassemir, 2017) and not significant (André et al., 2012) in the voluntarily adoption of IFRS. We

have observed that certain studies indicate that organizations with dispersed ownership are more likely to implement IFRS (Matonti & Iuliano, 2012). There are just over 8,000 firms in Norway that have foreign-owned daughter firms (SSB, n.d.), suggesting that there is a high prevalence of foreign owned firms in the private sector. Furthermore, given prior research has indicated that ownership structure might have an impact on financial reporting decisions, it may be relevant to examine ownership structure in relation to the adoption of IFRS or simplified IFRS for private Norwegian firms. Consequently, comprehension of the link between ownership structure and IFRS adoption can shed light on the drivers behind the choice of accounting language. Furthermore, we believe that there is a higher probability of voluntary adoption of IFRS or simplified IFRS by a private Norwegian firm if they have international owners. This is because it could be difficult and costly for a foreign owner to have a full understanding of NGAAP, and it would be reasonable to suspect that foreign owners would prefer their owned firms to be compliant with IFRS. It is therefore an intriguing variable to investigate using the following hypothesis:

H1: Private Norwegian firms with international owners are more likely to adopt IFRS or simplified IFRS.

4.1.2 Leverage

Prior research argues that leverage plays a significant role in the adoption of a different accounting language (André et al., 2012; Bassemir, 2017; Fabio, 2018; Matonti & Iuliano, 2012; Yang, 2014). Prior research on voluntary IFRS adoption presents mixed arguments and evidence regarding the role of leverage. For unlisted firms, higher leverage is expected to be associated with more voluntary information disclosure, as these firms may prefer easier access to international creditors to receive better financing terms through the use of IFRS, which becomes more beneficial as leverage level increases. Matonti and Iuliano (2014) argue that higher leverage increases the likelihood of IFRS adoption, which is compatible with the arguments of Andre et al (2012). We expect that a higher leverage suggests that firms are more likely to adopt IFRS or simplified IFRS as these may prefer easier access to foreign creditors. Therefore, our hypothesis regarding leverage is:

H2: Private Norwegian firms with a higher leverage are more likely to adopt IFRS or simplified IFRS.

4.1.3 Size

In the literature review we have shown that firm size matters in the change of accounting language (André et al., 2012; Fabio, 2018; Yang, 2014). Firm size is an important factor in financial reporting, as larger firms tend to have more complex operations and transactions, and therefore may have different reporting needs compared to smaller firms. In the context of IFRS adoption, larger firms may have more resources to adopt and implement the new standards, whereas smaller firms may face more challenges in terms of costs and resources. Therefore, examining the relationship between firm size and IFRS adoption can provide insights into the factors that influence the adoption decision for private Norwegian companies. We believe that firm size will have a positive influence on the adoption of IFRS or simplified IFRS, because larger firms tend to have more resources to be able to make the switch. Thus, our thesis hypothesis related to size are:

H3: The voluntary adoption of IFRS or simplified IFRS by private Norwegian firms is positively associated with firm size.

4.1.4 Auditor

In prior research, there have been several who have investigated the effect of auditor choice (André et al., 2012; Bassemir, 2017). In Norway we separate auditing firms from the largest called the “Big five” and the rest as “non-Big five”. Where the big five refers to KPMG, Deloitte, Ernst & Young (EY), PriceWaterhouse Coopers (PwC) and BDO. This is a view both we and The Norwegian Institute of Public Accountants share (Revisorforeningen, n.d.). We believe that the choice of auditor will positively influence the adoption of IFRS or simplified IRFS, because it is reasonable to believe that the big five auditing firms have a higher level of expertise and experience with the shift, and with IFRS. Furthermore, we aim to confirm that it is the choice of a big five auditor that influences the switch to IFRS or simplified IFRS, rather than firms seeking a big five auditor after the IFRS adoption, to avoid bias. Hence, our hypothesis is as follows:

H4: Private Norwegian firms with a Big Five auditor are more likely to adopt IFRS or simplified IFRS.

4.1.5 Growth

From previous research, growth has been argued to be an determinant in the decision process (André et al., 2012; Bassemir, 2017; Francis et al., 2008). Firms with growth opportunities are more likely to be seeking financing, and hence are more likely to adopt IFRS. We posit that growth is an indication that firms would want to prepare for the future, such as getting listed, being acquired, or exploring new markets, consequently making them more likely to adopt IFRS. Therefore, our hypothesis is as follows:

H5: Private Norwegian firms with a higher growth level are more likely to adopt IFRS or simplified IFRS.

5.0 Research methodology, Data & Regression

This chapter's goal is to describe the techniques used to evaluate the thesis' hypotheses. The best way to address the study hypotheses is by critically evaluating and discussing the methodologies and guiding concepts that were employed. Furthermore, we will delve into our sample selection, our chosen model with variable descriptions, followed by descriptive statistics and correlation matrix.

5.1 Research methodology

5.1.1 Quantitative method

In this section of the thesis, we will examine how quantitative research methodology is employed to investigate our research question and hypotheses. We believe that this approach is the most suitable for our study as it allows for the collection and analysis of numerical data to understand and explain our research question in an objective manner.

Quantitative research is one of the three main research approaches, alongside qualitative and mixed methods (Williams, 2007). According to Leedy and Ormrod (2015), quantitative research is a method of empirical investigation that centers on the collection and analysis of numerical data to understand and explain phenomena of interest. It often includes the measurement of one or more variables through the use of standardized instruments or techniques such as questionnaires, tests, and physical measurement tools. The ultimate goal of quantitative research is to objectively measure and analyze the relationships between variables using statistical techniques, drawing conclusions about underlying patterns and trends in the data. This approach is particularly useful for testing hypotheses and making predictions about a phenomena that can be objectively measured.

5.1.2 Research design

To research the determinants of private Norwegian firms changing from NGAAP to IFRS or simplified IFRS, a quantitative approach is fitting. Then, the next step is to identify the suitable data that includes information on the characteristics of private Norwegian firms that have made the switch to IFRS or simplified IFRS, and the data collection. There are two types of data, primary and secondary. Primary data comes directly from the original source, while secondary data is usually derived from the primary data. Primary data can be interviews, surveys and other direct sources, while secondary data are research articles, books, and data previously gathered for other purposes (Leedy & Ormrod, 2015).

The use of secondary data is a useful approach for investigating Norwegian private firms change from NGAAP to IFRS or simplified IFRS. One of the main benefits of using secondary data is that it is readily available and often easier to obtain than primary data. Secondary data is a viable source of data for our research paper, as it is available from Brønnøysundregisteret and Centre for Corporate Governance Research (CCGR). This includes financial statements and other information such as accounting language, making it very useful.

To summarize, the research design involves utilizing a quantitative approach by analyzing a suitable dataset and reviewing the literature on the topic. By using a combination of secondary data and statistical tools, this research aims to identify

the factors that influence private Norwegian firms to switch from NGAAP to IFRS or simplified IFRS.

5.1.3 Validity

According to Leedy and Ormrod (2015) “The internal validity of a research study is the extent to which its design and the data it yields allow the researcher to draw accurate conclusions about cause-and-effect and other relationships” (p. 103). It is important to ensure the validity of the study by carefully considering the data collection methods and data analysis techniques. Applying appropriate statistical tests and techniques can help to ensure that the findings of the study accurately reflect the relationships between variables. Ensuring the validity of the research is crucial for ensuring the trustworthiness and credibility of the findings, and ultimately for advancing our understanding of the topic of interest. By using data from Brønøysundregisteret and CCGR we improve the internal validity of the paper.

5.1.4 Novelty

As stated by Cohen (2017), novelty is something difficult to strictly define, however it is clear that novelty means good research. This can be evaluated by considering the extent to which the research fills a gap in the existing literature or advances our understanding of a particular topic in a meaningful way. Therefore, our research will have novelty as it contributes to the current research in the field.

5.2 Data & regression

5.2.1 Sample selection

The data utilized in our study was obtained from the two previously mentioned primary sources: CCGR and Brønøysundregistrene. It contains data from Norwegian firms that spans the years from 2005 to 2020. In section 2.0 institutional background, we identified that firms in Norway who are unlisted, does have the choice of adopting IFRS or simplified IFRS. Therefore, we have excluded every firm that is listed, as well as firms that operate within banking and finance. Additionally, to maintain consistency in our analysis, we chose to exclude the

separated financial statements and subsidiaries controlled by listed firms, to focus solely on consolidated financial statements. We would also like to disclose that firms that experienced either a merger or bankruptcy during the specified time period have not been removed from our dataset to avoid survivorship bias.

Overall, these requirements result in a full sample of 7,162 individual firms and are comprised of 344 IFRS firms (5%) and 6,818 Norwegian GAAP firms (95%), with a total of 43,374 firm-year observations. Furthermore, to address potential outliers in our sample, we have utilized winsorization at a 1% level for all our numerical variables. This results in replacing the outliers with values within the acceptable range of the 1st to 99th percentile. Additionally, we have compared IFRS and NGAAP firms for each year in the dataset, which is summarized in Appendix 1 table 4. The two years with the biggest numbers of IFRS adopters are 2013 and 2015, with 65 firms adopting IFRS in 2015 and 28 in 2014.

5.2.2 Regression & Model

To investigate our hypotheses, we are going to use a multi-period logistic regression, as our dataset contains firm specific information over several time periods. Logistic regression is chosen as our model as we will look at a binary variable, in this case 0 (not IFRS) and 1(IFRS or simplified IFRS). Furthermore, a logistic regression model is used to make a prediction about the probability of something occurring based on the values of the predictor values (Stock & Watson, 2019). Based on our literature review, there is no doubt that a logistic regression is the preferred model, as it was used by Bassemir (2017), Chung and Park (2017), Fabio (2018), and Matonti and Iuliano (2012). However, all of them but Bassemir (2017) looks at only one year. Both we and Bassemir (2017) use a dataset with a span of several years, therefore the chosen model is a multi-period logistic regression. Furthermore, another reasoning behind a multi-period logistic regression is that using a panel dataset allows us to obtain a significantly higher number of observations compared to cross sectional data.

Further on, we need to control for unobserved heterogeneity across the firms in their choice of accounting language. Thus, using fixed effects (Gormley & Matsa, 2014). Therefore, we will first test our hypotheses with random effects, to account for

unobserved heterogeneity across the firms that are constant over time (Larsen et al., 2000). Secondly, we will test our hypotheses using fixed effects to capture the unobserved heterogeneity. Lastly, we will perform a Hausman test on our random effects model against our fixed effects model (Baltagi, 2014). Our models are specified below, Model 1 for random effects, and model 2 for fixed effects. The models used will test all hypotheses simultaneously.

Model 1 – Random effects

$$\begin{aligned} \text{Prob} (IFRS_{i,t}=1) = & \alpha + \beta_1 INTOWN_{i,t} + \beta_2 AUDIT_{i,t-1} + \beta_3 LEV_{i,t} + \\ & \beta_4 GROWTH_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 MANU_{i,t} + \beta_7 INFCOM_{i,t} + \beta_8 AGE_{i,t} + U_i + \\ & \varepsilon_{i,t} \end{aligned}$$

Model 2- Fixed effect

$$\begin{aligned} \text{Prob} (IFRS_{i,t}=1) = & \alpha_i + \beta_1 INTOWN_{i,t} + \beta_2 AUDIT_{i,t-1} + \beta_3 LEV_{i,t} + \\ & \beta_4 GROWTH_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 AGE_{i,t} + \varepsilon_{i,t} \end{aligned}$$

All variables are defined in table 6 and in section 5.2.3.

5.2.3 Variables

Dependent variable

Our main variable IFRS, a binary variable, which is equal to one in the year the firm has adopted IFRS or simplified IFRS and zero otherwise. That is, all firms that use IFRS or simplified IFRS are coded as zero in every year except the year of adoption, while firms that never use IFRS are zero in every year. After the adoption year, observation of that firm is excluded from the dataset. We want to investigate the key determinants of the firms in their adoption year, thus removing firms after their adoption year. Furthermore, Bassemir (2017) points out that firms are able to switch back from IFRS and back again to IFRS (this also accounts for Norway), which the multi period logistic regression are capable of handling, but this does not occur in our data.

Test variables

The variable for international owners (*INTOWN*) is a dummy variable taking the value one if a firm has one or more international owners. To further specify, the ownership variable is calculated using ultimate ownership as provided from CCGR. Furthermore, auditor (*AUDIT*) is a dummy variable that takes the value one if a firm was being audited by a big five auditor in the prior year and zero otherwise. For the observations of 2005, we have assumed that last year's auditor is the same as the auditor in 2005. Leverage (*LEV*) is calculated by dividing total debt by total assets. Growth (*GROWTH*) is calculated by taking the difference between a firm's revenue in year t and the revenue at time $t-1$, divided by the revenue at time $t-1$. For measuring firm size (*SIZE*), revenue is used. *SIZE* is calculated by taking the natural logarithm of a firm's revenue in NOK.

Control variables

To control for the age effect on a firm, the variable *AGE* is used. This is calculated by taking the difference between the foundation year (given by CCGR) and the year of the observation. As an additional control variable, we are going to test for the industry sector. In the literature review we have seen that all the articles have looked at industry. Bassemir (2017), Chung and Park (2017), and Yang (2014) has all found that the industry of the firm have been positively significant in the voluntary adoption of IFRS, while André et al. (2012), Fabio (2018), and Matonti and Iuliano (2012) has found it to not be significant. All but Bassemir (2017) and Chung and Park (2017) has looked at the manufacturing industry, both as a way to increase comparability with prior research, but also because it was found as the highest number of IFRS adopters. From our industry analysis, shown in Appendix 1 table 5, we have seen that the highest number of IFRS adopters per industry is Information and Communications (46), as well as Manufacturing (43), we will include both of these industries in our model. Information and communications will be used as it is the highest number of adopters, and manufacturing as it is the second highest number as well as in sync with previous literature.

A summary of our variables, including the dependent variable, test variables and control variables are synthesized in table 6. The error term from both models captures the unobserved factors that cannot be explained by the variables that are included in the models. Furthermore, from model 1, α represents the intercept, and

U_i represents the individual-specific effects that could influence the adoption for each observation. In model 2, α_i represent the fixed effect. We have also excluded the control variables for industry in model 2 as industry will usually remain constant over time, thus the fixed effects model would not predict this.

Table 6: Variable definitions

Variable	Definition
<i>Dependent Variable</i>	
$IFRS_{i,t}$	= 1 if a firm i has adopted IFRS or simplified IFRS in year t , 0 otherwise.
<i>Test Variables</i>	
$INTOWN_{i,t}$	= 1 if firm i has one or more international ultimate owners in year t , 0 otherwise.
$AUDIT_{i,t-1}$	= 1 if firm i is audited by a big five auditor in year $t-1$, 0 otherwise.
$LEV_{i,t}$	= Total liabilities $_{i,t}$ /Total assets $_{i,t}$
$GROWTH_{i,t}$	= (Revenue $_{i,t}$ – Revenue $_{i,t-1}$)/Revenue $_{i,t-1}$
$SIZE_{i,t}$	= Natural logarithm of revenue for firm i in year t
<i>Control Variables</i>	
$MANU_{i,t}$	= 1 if firm i is in the manufacturing industry in year t , 0 otherwise.
$INFCOM_{i,t}$	= 1 if firm i is in the information & communication industry in year t , 0 otherwise.
$AGE_{i,t}$	= Foundation year $_i$ – year of observation $_{i,t}$

Table 6. Note: U_i = represent the individual-specific effects that could influence the adoption for each observation. $\varepsilon_{i,t}$ = The error term for each observation at time t . α = the intercept. α_i = represent the fixed effect.

5.2.4 Descriptive statistics

In table 7 we present the descriptive statistics of our variables. The number of observations for our variables in the final sample is 43,373. The first variable of interest is *IFRS*. The mean value is 0.01, with a median value of 0. This is as expected as there is a low percentage of IFRS or simplified IFRS adopters, and in sync with our constraint of removing the IFRS firms after the adoption year.

Moving on to *INTOWN* which has a mean value of 0.07, with a standard deviation of 0.26. This indicates that 7% of our sample has international owners. For the next variable *AUDIT*, the mean value is 0.56, with a standard deviation of 0.50. This indicates quite a high number of firms having a Big Five auditor (56%) but this is as expected since these mainly controls the market for auditing. Furthermore, the variable *LEV* has a mean value of 0.41, accompanied by a standard deviation of 0.29 and a median of 0.39. The min is 0 and the max is 1.08. This indicates that our sample has a mean leverage of 0.41. The variable *GROWTH* has a mean value of 0.11, with a standard deviation of 0.48, indicating that the sample has a mean of 11% growth. For the variable *SIZE*, the mean value is 18.98, with a standard deviation of 1.29 and a median of 18.87. Moving over to the control variables, *MANU* has a mean of 0.19, with a standard deviation of 0.40 and the variable *INFCOM* has a mean of 0.06, with a standard deviation of 0.25. This indicates that 19% of the companies are in the manufacturing industry and 6% are in the information and communication industry. The final variable is *AGE* and has a mean value of 18.90 and ranges from 1.00 to 158, giving us a variety in the number of years a firm has existed.

Table 7: Descriptive statistics

Variable	Obs.	Mean	Sd	Min	Max	P10	Median	P90
<i>IFRS</i>	43,373	0.01	0.09	0.00	1.00	0.00	0.00	0.00
<i>INTOWN</i>	43,373	0.07	0.26	0.00	1.00	0.00	0.00	0.00
<i>AUDIT</i>	43,373	0.56	0.50	0.00	1.00	0.00	1.00	1.00
<i>LEV</i>	43,373	0.41	0.29	0.00	1.08	0.01	0.39	0.81
<i>GROWTH</i>	43,373	0.11	0.48	-0.80	3.44	-0.19	0.02	0.37
<i>SIZE</i>	43,373	18.98	1.29	14.60	22.52	17.74	18.87	20.61
<i>MANU</i>	43,373	0.19	0.40	0.00	1.00	0.00	0.00	1.00
<i>INFCOM</i>	43,373	0.06	0.25	0.00	1.00	0.00	0.00	0.00
<i>AGE</i>	43,373	18.90	18.00	1.00	158.00	4.00	14.00	38.00

Table 7. Note: This table presents the descriptive statistics. See table 6 for variable definitions.

5.2.5 Correlation matrix

In table 8, we present our correlation matrix. There is a weak positive correlation (0.1156) between *SIZE* and *AUDIT*, suggesting that there is a slight association between the size of a company and having a Big Five auditor. There is also a weak positive correlation between *SIZE* and *GROWTH* (0.1067), suggesting that size also has an association with the growth of a company. Further on, there is a weak negative correlation between *INFCOM* and *MANU* (-0.1290), while *MANU* has a

weak positive correlation with *AGE* (0.0961). This indicates that a firm being in the manufacturing industry has a slight negative association with being in the information and communication industry, although it has a positive association with the age of the firm. The last two of the higher correlations are the association between *INTOWN* and the variables *LEV* and *INFCOM*. *INTOWN* has a weak positive correlation with *LEV* (0.0988) and with *INFCOM* (0.0958). The correlations presented are the relatively strong correlations and are all significant. The full correlation matrix is presented in table 8. We also want to note that the strength of these correlations is considered weak to moderate.

Table 8: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) <i>IFRS</i>	1								
(2) <i>INTOWN</i>	0.0809**	1							
(3) <i>AUDIT</i>	0.0339**	0.0730**	1						
(4) <i>LEV</i>	0.0215**	0.0988**	0.0491**	1					
(5) <i>GROWTH</i>	0.0201**	0.0159**	0	0.0217**	1				
(6) <i>SIZE</i>	0.0679**	0.0646**	0.1156**	0.0028	0.1067**	1			
(7) <i>MANU</i>	-0.0144**	0.0289**	0.0299**	-0.0111*	-0.0185**	0.0691**	1		
(8) <i>INFCOM</i>	0.0285**	0.0958**	0.0135**	-0.0064	0.0202**	-0.0564**	-0.1290**	1	
(9) <i>AGE</i>	-0.0207**	-0.0056	0.0085	0.0515**	-0.0490**	0.0591**	0.0961**	-0.0389	1

Table 8, Note: This table presents the correlation among the variables. Stars indicate statistical significance: *P<0.1; **P<0.05; ***<0.01. See table 6 for variable definitions.

6.0 Empirical Results

In this section, we will first present our main findings and then relate them to our hypotheses and previous research. The main purpose of our analysis is to find the key determinants of voluntary IFRS or simplified IFRS adoption by private Norwegian companies.

6.1 Regression results

We start our analysis by testing our five hypotheses by performing the logistic regression model, controlling for industry, and firm age. Table 9 presents the two results for our models. The full list of variable explanations is in table 6. We also performed a VIF-test, see Appendix 1 table 10, to test for multicollinearity. As

highlighted by Marcoulides and Raykov (2019), there are certain benchmarks that signal severe multicollinearity, such as a VIF above 10. Yet, a VIF exceeding 5 could also suggest significant multicollinearity, necessitating a thorough review of the predictors involved. All our recorded values were below 1.1, suggesting a low correlation.

Table 9: Multi-Period Logistic Regression for the Full Sample

<i>Variable</i>	Model 1	Model 2
<i>INTOWN</i>	0.0191*** (0.0019)	0.0019 (0.0020)
<i>AUDIT</i>	0.0046*** (0.0010)	0.0034** (0.0011)
<i>LEV</i>	0.0008 (0.0020)	0.0002 (0.0023)
<i>GROWTH</i>	-0.0013 (0.0008)	-0.0007 (0.0008)
<i>SIZE</i>	0.0074*** (0.0005)	0.0037*** (0.0007)
<i>MANU</i>	-0.0066** (0.0023)	
<i>INFCOM</i>	0.0159*** (0.0033)	
<i>AGE</i>	-0.0001 (0.00005)	0.0010*** (0.0001)
<i>Constant</i>	-0.1277*** (0.0097)	
<i>FE</i>	NO	YES
<i>Observations</i>	43,373	43,373
<i>R2</i>	0.0148	0.0050
<i>Adjusted R2</i>	0.0146	-0.1919
<i>F Statistic</i>	389.6848***	30.5980*** (<i>df</i> = 6; 36,205)

Table 9. Note: This table report the estimates of two multi-period logistic models for the full sample of private Norwegian firmss. Model 1 is a random effects logistic model, while Model 2 is a firm fixed effect logistic model. After the IFRS adoption year, observations are excluded from the estimation. The continuous variables are winzORIZED at a one percent level. For the variable definitions, see table 6. Robust standard errors are adjusted for clustering on firms. Z-statistics are presented in parentheses. Stars indicate statistical significance: *P<0.1; **P<0.05; ***<0.01.

As shown in table 9, we can see from Model 1 that *INTOWN*, *AUDIT* and *SIZE* are the significant test variables at a 1% level. *INFCOM* is the only significant control variable at a 1% level, while *MANU* is at a 5% level. R^2 is 0.0148, adjusted R^2 is 0.0146 and F-statistics is 389.6848 and significant at a 1% level. The number of firm-year observations used in the regression is 43,373.

Over to model 2, the firm fixed effects model. Here, *AUDIT* is significant at a 5% level and *SIZE* is significant at a 1% level, together with *AGE* as the significant control variable at a 1% level. No other variables are significant at any level in this regression. As expected, the R^2 is low due to the fact that IFRS is 0 in all years but the adoption year. The R^2 is 0.0050 and adj. R^2 is -0.1919. Similar to model 1, the F-statistic is significant at a 1% level and has a value of 30.5980.

To decide which model is the best predictor of IFRS or simplified IFRS adoption, we executed a Hausman test. According to Baltagi (2014), the test evaluates the correlation between the unobserved individual effects and the explanatory variables. He continues, if the null hypothesis, which posits that there is no correlation between individual effects and independent variables, turns out to be true, the random effects estimator becomes more efficient as it incorporates both within and between variation in the data. Conversely, if the null hypothesis is dismissed, the fixed effects estimator is favored as it maintains consistency irrespective of the correlation, thanks to its exclusive use of within variation. As such, the Hausman Test is an essential instrument in choosing the best fitting estimator for inference. We tested model 1 together with 2, where the results in Appendix 1 table 11 show $p < 0.05$, indicating the preferred model is a fixed effects model, our model 2. Both models have an R^2 and adj. R^2 close to zero. For the first model, R^2 and adj. R^2 are very close (0.0148 and 0.0146), an indication that the

model does not include any unnecessary predictors. However, R^2 and adj. R^2 in model 2 are lower and differ more from one another (0.0050 and -0.1919). As these are logistic regression models, they do not aim to explain the variance of the variables, as in linear regression, but to predict the binary outcome. Therefore, we do not regard these to be of high importance for the fitness of our model. Since the Hausman test indicates that the fixed effects model is the most appropriate, we chose model 2 as our main model.

6.2 Hypotheses and previous research

H1: Private Norwegian firms with international owners are more likely to adopt IFRS or simplified IFRS.

In testing hypothesis 1, we look at the coefficient for *INTOWN*, the dummy variable for international owners. In model 1, the results show that its coefficient has a positive relationship with *IFRS* and is significant at a 1% level, however in model 2 it is not significant. Given model 2 is our preferred model and *INTOWN* is not significant, we reject H1. Bassemir (2017), Fabio (2018) and Matonti and Iuliano (2012) investigated ownerships' relationship with IFRS adoption. They all found that foreign owners were a statistically significant variable. Bassemir (2017) and Fabio (2018) found it to be positively related to IFRS adoption, however Matonti and Iuliano (2012) found it to have a negative relation. The significance of their measures of internationality is a direct contradiction to our results.

H2: Private Norwegian firms with a higher leverage are more likely to adopt IFRS or simplified IFRS.

We are using *LEV* to test hypothesis 2. *LEV* is positively related to IFRS in both models, however in neither of the two is *LEV* significant. This indicates that leverage is not a determinant of IFRS or simplified IFRS adoption, thus we reject H2. Leverage is researched by André et al. (2012), Bassemir (2017), Matonti and Iuliano (2012) and Yang (2014). They find that leverage has a statistically significant and positive impact on IFRS adoption, which contradicts our results.

H3: The voluntary adoption of IFRS or simplified IFRS by private Norwegian firms is positively associated with firm size.

SIZE is used as the test variable for hypothesis 3. From table 9 model 2, we see that the coefficient is positively related to *IFRS*. *SIZE* is significant at a 1% level in both model estimations. This indicates that hypotheses 3 is correct. Firm size is also a variable tested by André et al. (2012), Bassemir (2017), Fabio (2018) and Yang (2014). They all find it to have a positive coefficient and to be statistically significant. These results are in accordance with our model.

H4: Private Norwegian firms with a Big Five auditor are more likely to adopt IFRS or simplified IFRS.

To test hypothesis 4, we use the dummy variable *AUDIT*. As seen in table 9, it is significant at a 5% level with a positive coefficient of 0.0034. Therefore, we confirm the hypothesis. This is also supported by model 1, where it is significant at a 1% level. André et al. (2012) and Bassemir (2017) estimated Big Five (four) to be significant, both with positive coefficients. This is in accordance with both our model results.

H5: Private Norwegian firms with a higher growth level are more likely to adopt IFRS or simplified IFRS.

GROWTH is the variable of interest when evaluating hypothesis 5. As we can see from table 9, they both are insignificant, and have negative coefficients. In model 2 we see that *GROWTH* is negatively related by 0.0007 to *IFRS*. We reject hypotheses 5. Similar hypotheses have also been tested by André et al. (2012), Bassemir (2017) and Francis et al. (2008). André et al. (2012) did not find the variable to be significant when looking at growth in total assets, while Bassemir (2017) found a positive coefficient for sales growth, which is significant at a 1% level in seven of his eight models. Francis et al. (2008) hypothesis is different from ours, whereas in their research, they look at growth opportunities, instead of recent growth. They find in one of their models that growth opportunities are significant at a 10% level. The results from previous research are mixed and do not correlate with our results.

6.3 Sensitivity analysis

The findings in this study are both coherent and not coherent with other studies' findings, as we rejected three out of five hypotheses. These variations could derive from numerous factors, including different samples, national differences, variation in methodological approaches, different definitions of variables, other control variables and time periods. Consequently, executing a sensitivity analysis can be useful for testing our results' robustness, improve correlation with previous research, handling its uncertainty, and improving the validity of our results. In the forthcoming analysis, we will primarily investigate three aspects. The first being changing the operationalization of the variables *SIZE* and *GROWTH* to be based on total assets instead of revenue. Secondly, we will conduct our original regression model analysis with lagged variables for one to three years. This is due to the decision-making regarding IFRS adoption, as some companies are likely to make the decision upwards to several years before the actual switch of accounting language, as discussed by Bassemir (2017). In addition, we will conduct a single year logistic regression based on the year 2020, similarly to other studies (André et al., 2012; Fabio, 2018; Matonti & Iuliano, 2012).

6.3.1 Model with Total Assets as Operationalization of *GROWTH* and *SIZE*

**Table 12: Sensitivity Analysis:
Multi-Period Logit Regression
using Total Assets to Measure
GROWTH and *SIZE***

<i>Variable</i>	Model 3
<i>INTOWN</i>	0.0019 (0.0020)
<i>AUDIT</i>	0.0036*** (0.0011)
<i>LEV</i>	-0.0006 (0.0023)
<i>GROWTH</i>	0.0124*** (0.0017)
<i>SIZE</i>	0.0043*** (0.0011)
<i>AGE</i>	0.0010*** (0.00001)
<i>FE</i>	YES
<i>Observations</i>	43,373
<i>R2</i>	0.0072
<i>Adjusted R2</i>	-0.1893
<i>F Statistic</i>	43.9215*** (<i>df</i> = 8; 40590)

Table 12. Note: This table report the estimates of one multi-period logistic model for the full sample of private Norwegian firms. Model 3 is a firm fixed effects logistic model. After the IFRS adoption year, observations are excluded from the estimation. The continuous variables are winzorized at a one percent level. For the variable definitions, see table 6. Robust standard errors are adjusted for clustering on firms. Z-statistics are presented in parentheses. Stars indicate statistical significance: *P<0.1; **P<0.05; ***<0.01.

When replacing revenue with total assets when calculating *GROWTH* and *SIZE*, we see in table 12 that both *GROWTH* and *SIZE* are significant at a 1% level and are positively correlated with IFRS adoption. This is in contrast to our original model (2) in table 9, where only *SIZE* is significant. Model 3 includes 43,373 firm-year observations, has a significant F-statistics of 43,9215 on a 1% level and has R² of 0.0072 and adj. R² of -0.1893, which is similar to the original model. These results suggest that we can accept H5 if we operationalize *GROWTH* with total assets instead of revenues. In addition, H3 can still be accepted with these results, suggesting that firms, when operationalizing with total assets, are more likely to adopt IFRS or simplified IFRS.

6.3.2 Lagged variables

We continue to use model 2 from table 9 as our base model, thus continuing using a fixed effects model. In our original model we investigate the determinants of adoption firms in the switch year, meaning we are using IFRS-based data. Since many firms might decide several years in advance to switch to IFRS or simplified IFRS, their decision might be based on the firm determinants at the time of the decision. Thus, we analyze three new models, using lagged variables for one, two and three years.

Table 13: Sensitivity Analysis : Multi-Period Logit Regression for the Full Sample with Lagged Variables

<i>Variable</i>	Model 4 (1-year lag)	Model 5 (2-year lag)	Model 6 (3-year lag)
<i>INTOWN</i>	-0.0013 (0.0023)	-0.0017 (0.0025)	-0.0019 (0.0028)
<i>AUDIT</i>	0.0010 (0.0016)	0.0028* (0.0012)	0.0020 (0.0013)
<i>LEV</i>	0.0047 (0.0026)	0.0053 (0.0029)	0.0029 (0.0035)
<i>GROWTH</i>	-0.0012 (0.0009)	-0.0025** (0.0010)	0.0028** (0.0011)
<i>SIZE</i>	0.0039*** (0.0009)	0.0035*** (0.0010)	0.0027* (0.0010)
<i>AGE</i>	0.0010*** (0.0001)	0.0011*** (0.0001)	0.0011*** (0.0002)
<i>FE</i>	YES	YES	YES
<i>Observations</i>	34,836	28,867	23,943
<i>R2</i>	0.0044	0.0049	0.0052
<i>Adjusted R2</i>	-0.2014	-0.2148	-0.2140
<i>F Statistic</i>	21.1657*** (<i>df</i> = 6;	19.4915*** (<i>df</i> = 6;	17.2214*** (<i>df</i> = 6; 19,618)

Table 13. Note: This table report the estimates of three multi-period logistic models for the full sample of private Norwegian firms, using fixed effects and lagged variables. After the IFRS adoption year, observations are excluded from the estimation. The continuous variables are winzORIZED at a one percent level. For the variable definitions, see table 6. Robust standard errors are adjusted for clustering on firms. Z-statistics are presented in parentheses. Stars indicate statistical significance: *P<0.1; **P<0.05; ***<0.01.

The results are shown in table 13. In model 4, where the variables are lagged one year, it is notable that we have few significant variable coefficients. *SIZE* continues to be significant at a 1% level and is the only test variable significant on that level. The differences in the control variable are minor and there is no change in significance. Over to model 5 and 6, the variables are lagged two and three years respectively. Both models are similar, as *GROWTH* and *SIZE* are the significant test variables. Again, we see that *GROWTH* becomes significant when altering our model. In model 5, *GROWTH* is significant at a 5% level and is negatively associated with IFRS and simplified IFRS adoption, and *SIZE* is positively related and is significant at a 1% level. *AUDIT* is significant at a 10% level. In model 6, both *GROWTH* and *SIZE* have positive coefficients and are significant, at a 5% level and 10% level.

All models have significant F-statistics and similar R^2 and adj. R^2 . It is important to note that the sample size is smaller in the lagged models (34,836, 28,867 and 23,943 firm-year observations) in contrast to model 2 with 43,373 firm-year observations. As a result, our lagged models indicate that the significant result of *SIZE* is robust. It also suggests that our results may be outcomes of particular model specifications.

6.3.3 Single-Year Logistic Regression

To further investigate the robustness of our results, and to provide an analysis similar to other studies (André et al., 2012; Fabio, 2018; Matonti & Iuliano, 2012), we investigated the key determinants of IFRS or simplified IFRS adoption through the use of a single-year logistic regression model, see table 14. Model 7 displays the results we obtained from 2020. The model includes 2,568 observations of

individual firms, which is significantly lower than the other previous models. Here, *AUDIT* continues to be significant, as the only test-variable, but at a 10% level. *INFCOM* is the only control variable significant and is at a 10% level.

The results of this single-year regression further indicate the robustness of *AUDIT* but does not provide any further results to accept more hypotheses.

**Table 14: Sensitivity
Analysis: Single-Period Logit
Regression 2020**

<i>Variable</i>	Model 7
<i>INTOWN</i>	1.1735 (0.6966)
<i>AUDIT</i>	2.0894* (1.0416)
<i>LEV</i>	-0.5418 (1.1732)
<i>GROWTH</i>	0.2854 (0.4441)
<i>SIZE</i>	0.0179 (0.1869)
<i>MANU</i>	-0.1228 (0.7941)
<i>INFCOM</i>	1.6072* (0.6653)
<i>AGE</i>	-0.0067 (0.0176)
<i>Constant</i>	0-72302 (3.7453)
<i>Observations</i>	2,568
<i>Log Likelihood</i>	-82.7779
<i>Akaike Inf. Crit.</i>	183.5557

Table 14. Note: This table report the estimates of a single-period logistic model for the full sample of private Norwegian companies, for 2020. The continuous variables are winzorized at a two percent level. For the variable definitions, see table 6. Robust standard errors are adjusted for clustering on firms. Z-statistics are presented in parentheses. Stars indicate statistical significance: *P<0.1; **P<0.05; ***<0.01.

7. Discussion, Limitations & Further Research

The empirical results from our analysis indicated that firm size and having a Big Five auditor positively influenced IFRS or simplified IFRS adoption. The analysis could not confirm the hypotheses related to international owners, leverage, and growth level. In the sensitivity analysis however, we found that the hypothesis regarding growth level is indicated to be accepted, and that the results of leverage and international owners being insignificant is robust.

Our findings resonate with some aspects of previous research, particularly regarding firm size and the presence of a Big Five auditor. These findings align with prior studies such as André et al. (2012) and Bassemir (2017), which also identified firm size and having a Big Five auditor as significant determinants of IFRS adoption. This consistency suggests that these factors may be universally significant across different contexts. However, our study also found contrasting results on international ownership and leverage, which were not confirmed as significant determinants of IFRS adoption. This contrasts with some previous research that found these factors to be significant (André et al., 2012; Bassemir, 2017; Fabio, 2018; Matonti & Iuliano, 2012; Yang, 2014). These differences could be due to the specific context of private Norwegian firms, the time period of the study, or the specific operationalization of these variables in this study. Also, we only investigated consolidated financial statements, whereas some previous research used individual financial statements (André et al., 2012; Fabio, 2018; Matonti & Iuliano, 2012), which may have added to the differences with other research.

The insignificance of some of our variables in our analysis could be due to this study's limitations. Our sample, criteria, assumptions, coding, and data cleaning could all be a potential bias which can lead to a limited generalization of our results. Different operationalization of variables could also change the results. We see such an example in our sensitivity analysis of *SIZE* and *GROWTH*, where *GROWTH* became significant when operationalizing the variable with total assets instead of revenue. In addition, the choice of both control and test variables could also affect our results. We selected the variables based on previous research, however there could be other influential factors that we did not include. By not including these, we might have missed important determinants of IFRS or simplified IFRS adoption.

Furthermore, this study focused on the Norwegian context, which might limit the generalizability to other countries. Different legal, economic and cultural environments might result in different adoption decisions, implying that our results may not hold in different settings. This is partly confirmed by the results in our analysis. Lastly, our study assumes that the decision to adopt IFRS or simplified IFRS is made the same year as the switch or with a one to three-year lag. This may in turn not capture the possible long-term strategic planning involved in such a substantial business decision.

These limitations also provide opportunities for further research. As mentioned, we focused on consolidated financial statements, while it could be interesting to investigate individual financial statements. This could result in different findings and may be more similar to what other studies have found. In addition, investigating more variables could also be of interest, such as profitability (Yang, 2014) or foreign sales as a variable for internationality (Bassemir, 2017). It could also be interesting to do an industry-specific analysis as the different industries may have unique characteristics, especially in regard to the differences in financial statements cross industries, as well as stakeholders, which all can influence the choice of adoption.

8. Conclusion

This research was conducted with the aim of understanding the key determinants of voluntary adoption of IFRS or simplified IFRS by private Norwegian firms. Five hypotheses were developed to examine the impact of international owners, leverage, firm size, the presence of a Big Five auditor, and the level of growth on IFRS or simplified IFRS adoption.

The empirical results obtained from our logistic regression models reveal some interesting trends. While international owners, having a Big Five auditor, and firm size were significant variables in model 1, the fixed effects model (model 2), chosen as our primary model based on the Hausman test, retained only firm size as significant at a 1% level, and having a big five auditor significant at a 5% level. Therefore, only the hypotheses related to firm size (H3) and having a Big Five auditor (H4) were confirmed. Notably, our main analysis could not confirm the

hypotheses related to international owners (H1), leverage (H2), and growth level (H5).

The results of our study align partially with some previous research but are in contrast with others. For instance, our findings on firm size and having a Big Five auditor align with prior studies like André et al. (2012) and Bassemir (2017). However, we found contrasting results on international ownership and leverage.

In our sensitivity analysis, we conducted additional tests by operationalizing *SIZE* and *GROWTH* based on total assets instead of revenues and considering lagged variables. This adjustment in the operationalization led to a significant impact of *GROWTH* on IFRS or simplified IFRS adoption, indicating the acceptance of H5 under this condition. The results of the lagged variables suggested that the significant result of *SIZE* is robust, while the significance of *AUDIT* depends on the model specification. In model 7, the single-year logistic regression, we continue to find *AUDIT* as significant, only at a 10% level.

In conclusion, our findings provide a new perspective on the determinants of voluntary IFRS or simplified IFRS adoption in the context of private Norwegian firms. Specifically, the study highlights the positive relationship of firm size, growth and having a Big Five auditor with IFRS or simplified IFRS adoption, while indicating a lack of influence of international owners, leverage, and growth level under the specified operationalization. However, the robustness tests underscore the sensitivity of these findings to the choice of operationalization and model specification.

Our study encourages future research to delve deeper into the determinants of IFRS or simplified IFRS adoption by considering other factors, conducting studies in other contexts, or considering different time periods. While our study provides valuable insights, it is based on a specific sample of Norwegian firms over a specific period, which necessitates caution in generalizing the results. Our work serves as a useful foundation for further studies and a benchmark for comparison with future research on IFRS or simplified IFRS adoption determinants.

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Appendix

Appendix 1: Tables

Table 4: IFRS Firms per Year

Year	NGAAP	IFRS	% of IFRS
2005	2,046	8	0,39 %
2006	2,239	7	0,31 %
2007	2,393	13	0,54 %
2008	2,524	25	0,99 %
2009	2,639	24	0,91 %
2010	2,679	18	0,67 %
2011	2,707	12	0,44 %
2012	2,798	15	0,54 %
2013	2,906	28	0,96 %
2014	2,992	26	0,87 %
2015	3,056	65	2,13 %
2016	3,125	24	0,77 %
2017	2,349	19	0,81 %
2018	3,283	34	1,04 %
2019	2,938	11	0,37 %
2020	2,563	15	0,59 %

Table 4. Note: This table displays the number of individual firms using NGAAP and IFRS or simplified IFRS, in addition to the percentage of IFRS firms, for year t.

Table 5: IFRS Firms per Industry

Industry	Number of Firms	IFRS Firms
Information and communication	593	49
Manufacturing	1,296	45
Wholesale and retail	1,552	44
Professional Scientific, and technical Services	498	38
Transportation and Storage	515	33
Construction	1,010	30
Real Estate Activities	916	27
Mining and Quarrying	166	26
Electricity and Gas	173	24
Business support	124	11
Accommodation and food service	142	5
Agriculture, forestry and fishing	224	4
Water, Sewerage and Waste management	55	4
Health and Social Services	33	2
Education	17	1
Other	69	0
Entertainment	29	0
Total	7,412	343

Table 5. Note: This table displays the number of individual firms in each industry. Some firms have switched industries, causing the total count to exceed the actual sample size of 7,162 firms.

Table 10: VIF - Test

Variable	Model 1
<i>INTOWN</i>	1.010318
<i>AUDIT</i>	1.008763
<i>LEV</i>	1.005153
<i>GROWTH</i>	1.054014
<i>SIZE</i>	1.072232
<i>MANU</i>	1.028061
<i>INFCOM</i>	1.025687
<i>AGE</i>	1.023065

Table 10. Note: This table presents the results of the VIF-test. See table 6 for variable definitions.

Table 11: Hausman - Test

Model	chisq	df	p-value
<i>1 vs. 2</i>	1264.4	6	<2.2e-16

Table 11. Note: This table presents the results from the Hausman-test.

Appendix 2: R-code

```
rm(list=ls())
```

```
old_names <- names(SA)
```

```
correct_names <- c("ID",  
                  "YR",  
                  "CUR",  
                  "Ent_typ",  
                  "Rev",  
                  "OOR",  
                  "TOR",  
                  "TFA",  
                  "TCA",  
                  "NO_Employ_1",  
                  "LEV",  
                  "Ent_typ_C",  
                  "Rev_C",  
                  "OOR_C",  
                  "TOR_C",  
                  "TFA_C_Slett",  
                  "TFA_C",  
                  "TCA_C",  
                  "NO_Employ_C",  
                  "LEV_C",  
                  "CONAM_listed",  
                  "CONAM",  
                  "NO_Employ_2",  
                  "Auditor_NAME",  
                  "FUY",  
                  "LIST_Oslo",  
                  "LIST_Oslo_ax",  
                  "NO_OWN_D",  
                  "NO_OWN_UNSPECIFIED_D",  
                  "NO_OWN_INSTITUTIONAL_D",
```

"NO_OWN_PERSONAL_D",
"NO_OWN_STATE_D",
"NO_OWN_INTERNATIONAL_D",
"NO_OWN_INDUSTRIAL",
"GID_U",
"PARENT_U",
"SUB_U",
"JC_U",
"ASSOCIATED_U",
"INDEPENDENT_U", "OI",
"OI_C",
"CONVERT_LOAN",
"BONDS",
"LIABIL_TO_FINANICAL",
"SUBORDINATED_LOAN_CAP",
"LONG-T_LIAB-GROUP",
"OLT_LIABIL",
"TOLT_LIABIL",
"CONVERT_SHORT_LOAN",
"Certificate_LOAN",
"LIABL_SHORT_TO_FINANCIAL",
"REMUNARTION",
"CONVERT_LOAN_C",
"BONDS_C",
"LIABIL_TO_FINANICAL_C",
"SUBORDINATED_LOAN_CAP_C",
"LONG-T_LIAB-GROUP_C",
"OLT_LIABIL_C",
"TOLT_LIABIL_C",
"CONVERT_SHORT_LOAN_C",
"Certificate_LOAN_C",
"LIABL_SHORT_TO_FINANCIAL_C",
"BANK_CONNECT",
"LO_UNSPECIFIED_D",
"LO_INSTITUTIONAL_D",

```

"LO_PERSONAL_D",
"LO_STATE_D",
"LO_INTERNATIONAL_D",
"LO_INDUSTRIAL_D",
"NO_OWN_U",
"NO_OWN_UNSPECIFIED_U",
"NO_OWN_INSTITUTIONAL_U",
"NO_OWN_PERSONAL_U",
"NO_OWN_MALE_U",
"NO_OWN_FEMALE_U",
"NO_OWN_STATE_U",
"NO_OWN_INTERNATIONAL_U",
"NO_OWN_INDUSTRIAL_U",
"RANK_1_U",
"RANK_2_U",
"RANK_3_U",
"RANK_4_U",
"RANK_5_U",
"SW_U1_O")

```

```
names(SA) <- correct_names
```

```
#Cleaning the dataset
```

```
#Removing incorrect year
```

```
SA_subset <- SA[!(SA$YR >= 2000 & SA$YR <= 2004), ]
```

```
#Removing quatos from enterprise type and auditor
```

```
SA_subset$Ent_typ <- gsub("'", "", SA_subset$Ent_typ)
```

```
SA_subset$Ent_typ_C <- gsub("'", "", SA_subset$Ent_typ_C)
```

```
SA_subset$Auditor_NAME <- gsub("'", "", SA_subset$Auditor_NAME)
```

```
unique(SA_subset$Ent_typ)
```

```
keep_Enterprise_Type <- c("AS")
```

```
SA_subset <- SA_subset[SA_subset$Ent_typ %in% keep_Enterprise_Type, ]
```

```
unique(SA_subset$Ent_typ_C)
```

```
#Removing unnesecasy variables
```

```
vars_to_remove <- c("Rev",  
                    "TFA",  
                    "TCA",  
                    "LEV",  
                    "CUR",  
                    "OOR",  
                    "TOR",  
                    "NO_Employ_1",  
                    "OOR_C",  
                    "TOR_C",  
                    "TFA_C_Slett",  
                    "CONAM_listed",  
                    "LIST_Oslo",  
                    "LIST_Oslo_ax",  
                    "NO_OWN_D",  
                    "NO_OWN_UNSPECIFIED_D",  
                    "NO_OWN_INSTITUTIONAL_D",  
                    "NO_OWN_PERSONAL_D",  
                    "NO_OWN_STATE_D",  
                    "NO_OWN_INTERNATIONAL_D",  
                    "NO_OWN_INDUSTRIAL",  
                    "JC_U",  
                    "ASSOCIATED_U",  
                    "INDEPENDENT_U",  
                    "OI",  
                    "OI_C",  
                    "CONVERT_LOAN",  
                    "BONDS",  
                    "LIABIL_TO_FINANICAL",  
                    "SUBORDINATED_LOAN_CAP",  
                    "LONG-T_LIAB-GROUP",
```

```
"OLT_LIABIL",  
"TOLT_LIABIL",  
"CONVERT_SHORT_LOAN",  
"Certificate_LOAN",  
"LIABL_SHORT_TO_FINANCIAL",  
"REMUNARTION",  
"CONVERT_LOAN_C",  
"BONDS_C",  
"LIABIL_TO_FINANICAL_C",  
"SUBORDINATED_LOAN_CAP_C",  
"LONG-T_LIAB-GROUP_C",  
"OLT_LIABIL_C",  
"BANK_CONNECT",  
"LO_INSTITUTIONAL_D",  
"LO_PERSONAL_D",  
"LO_STATE_D",  
"LO_INDUSTRIAL_D",  
"NO_OWN_U",  
"NO_OWN_UNSPECIFIED_U",  
"NO_OWN_INSTITUTIONAL_U",  
"NO_OWN_PERSONAL_U",  
"NO_OWN_MALE_U",  
"NO_OWN_FEMALE_U",  
"NO_OWN_STATE_U",  
"NO_OWN_INDUSTRIAL_U",  
"RANK_1_U",  
"RANK_2_U",  
"RANK_3_U",  
"RANK_4_U",  
"RANK_5_U",  
"SW_UI_O")
```

```
SA_subset <- SA_subset[, !(names(SA_subset) %in% vars_to_remove)]
```

```
#Adding extra variables
```



```

Extra_variable <- c("ID", "YR", "TP", "TCL")

names(Gjeldsdata) <- Extra_variable

names(Gjeldsdata_V2) <- Extra_variable

Gjeldsdata_V2 <- Gjeldsdata_V2[!(Gjeldsdata_V2$YR <= 2017), ]

#Merge 1
SA_subset <- merge(SA_subset, Gjeldsdata, by = c("ID", "YR"), all.x = TRUE)
SA_subset <- merge(SA_subset, Gjeldsdata_V2, by = c("ID", "YR"), all.x =
TRUE)

#Removing Consolidated NA Numbers
SA_Consolidated <- SA_subset[!is.na(SA_subset$Rev_C), ]

#Adding the sample
Merged_Consolidated <- merge(SA_Consolidated, endelig_utvalg, by = "ID",
all.x = TRUE)

# Create a new variable that is equal to 1 if IFRS_YEAR is equal to YR, and 0
otherwise
Merged_Consolidated$IFRS_MATCH <- ifelse(Merged_Consolidated$YR ==
Merged_Consolidated$IFRS_YEAR, 1, 0)
Merged_Consolidated$IFRS <-
ifelse(is.na(Merged_Consolidated$IFRS_MATCH), 0,
Merged_Consolidated$IFRS_MATCH)

#Exclude subsidiaries with listed ultimate ownership
values_to_exclude <- c(810090812, 811413682, 812206222, 814520242,
816521432, 817244742, 819731322, 830357432, 843045472, 864234232,
882757692, 882811972, 883077172, 883603362, 883742192, 886581432,
886582412, 888571302, 910253158, 910261525, 910686909, 910747711,
911044110, 911382008, 911750961, 911772191, 914348803, 914594685,

```

914713196, 914769922, 914778271, 914864445, 915315577, 915929265,
916203829, 916235291, 916300484, 916882173, 917103801, 919160675,
920237126, 920639674, 921526121, 922493626, 923609016, 927124238,
928613941, 928661881, 929897404, 929975200, 930357618, 930686344,
930776793, 931693670, 932142104, 933739384, 933921875, 934010388,
934021592, 934382404, 935349230, 935487242, 935590221, 936656013,
937895321, 937917376, 938702675, 938803595, 938992185, 942593821,
943753709, 944536949, 944575618, 945883294, 946598038, 950293225,
953049724, 953299216, 953531305, 953935996, 959033560, 960514718,
960666682, 961095026, 961682169, 962007465, 963929196, 964118191,
964922292, 965646019, 965662952, 965920358, 966011726, 966343478,
967598593, 974345315, 974442167, 974529459, 975350940, 976094875,
976201280, 976605713, 976695372, 976769643, 976793315, 976800842,
976846923, 976929284, 977037093, 977258561, 977321484, 977388287,
977473799, 979165285, 979312520, 979380593, 979441002, 979561296,
979734344, 979867654, 979938799, 980040461, 980044750, 980170225,
980213250, 980247899, 980250547, 980489876, 980747026, 980832708,
981119487, 981119509, 981135245, 981276957, 981953134, 982161061,
982214521, 982246822, 982315700, 982463718, 982579201, 982582709,
982769221, 982904420, 982985110, 983218180, 983259197, 983268617,
983268633, 983462014, 983466141, 983644600, 983732437, 983860516,
983892876, 984032773, 984162014, 984195486, 984371918, 984487819,
984495978, 984648820, 984851006, 984861060, 985012059, 985140421,
985140464, 985220492, 985279721, 985459614, 985728720, 985770964,
985955107, 986144706, 986228608, 986308067, 986529551, 986813098,
986942785, 987358920, 987470569, 987727713, 987778490, 987904275,
987919175, 987933372, 987974532, 987989297, 988051314, 988228397,
988247006, 988257133, 988264091, 988384135, 988387665, 988571326,
988603228, 988603252, 988622036, 988671258, 988788945, 988862703,
989183001, 989183613, 989217259)

Replace "merged_data_Consolidated"

```
Merged_Consolidated <- Merged_Consolidated[!(Merged_Consolidated$GID_U  
%in% c(values_to_exclude)), ]
```

```

##Adding industry
##Import industry codes
Bransjekodenav <- names(bransjekoder)
bransjekode_korret <- c("ID", "YR", "foform", "ind_h2", "ind_h3", "numind",
"ind_hng")
names(bransjekoder) <- bransjekode_korret

# Perform the merge
Final_data <- merge(Merged_Consolidated, bransjekoder, by = c("ID", "YR"),
all.x = TRUE)

#Delting IFRS firms after the year of switch
# Create a new dataset where IFRS == 1
library(dplyr)
switched_df <- Final_data %>%
  filter(IFRS == 1) %>%
  group_by(ID) %>%
  summarise(Switch_Year = min(YR))

Final_data <- left_join(Final_data, switched_df, by = "ID")

Final_data_filtered <- Final_data %>%
  filter(is.na(Switch_Year) | YR <= Switch_Year)

Final_data_filtered <- Final_data_filtered %>% select(-Switch_Year)

Final_data <- Final_data_filtered

##CLEANING DONE##

#Firm Age
Final_data <- Final_data %>%
  mutate(FIRM_AGE = YR - FUY)

Final_data$FIRM_AGE <- Final_data$FIRM_AGE + 1

```

```

#International
Final_data$OS_INT <- ifelse(Final_data$NO_OWN_INTERNATIONAL_U > 0,
1, 0)
Final_data$OS_INT <- as.factor(Final_data$OS_INT)

#Auditor
Auditors <- unique(Final_data$Auditor_NAME)
Final_data$BIG_FIVE <- ifelse(grepl("ERNST & YOUNG AS|DELOITTE
STATSAUTORISERTE REVISOR AS|DELOITTE AS|BDO AS|KPMG
AS|PRICEWATERHOUSECOOPERS AS", Final_data$Auditor_NAME), 1, 0)
Final_data$BIG_FIVE <- as.factor(Final_data$BIG_FIVE)

Final_data <- Final_data[order(Final_data$ID, Final_data$YR), ]

Final_data$BIG_FIVE_LAG <- NA

for (i in 2:nrow(Final_data)) {
  if (Final_data$ID[i] == Final_data$ID[i-1]) {
    Final_data$BIG_FIVE_LAG[i] <- ifelse(Final_data$BIG_FIVE[i-1] == 1, 1, 0)
  }
}

Final_data <- Final_data[order(Final_data$ID, Final_data$YR), ]

Final_data$BIG_FIVE_LAG[is.na(Final_data$BIG_FIVE_LAG)] <-
Final_data$BIG_FIVE == 1

#Growth in revenue
Final_data <- Final_data %>%
  arrange(ID, YR) %>%
  group_by(ID) %>%
  mutate(GROWTH_R = c(0, diff(Rev_C)/head(Rev_C, -1)))

#Growth in TA

```

```

#Making TA
Final_data$TA_C <- Final_data$TFA_C + Final_data$TCA_C

#Growth in TA
Final_data <- Final_data %>%
  arrange(ID, YR) %>%
  group_by(ID) %>%
  mutate(GROWTH_TA = c(0, diff(TA_C)/head(TA_C, -1)))

#SIZE in Revenue
#Make them log
Final_data$LN_REV_C <- log(ifelse(Final_data$Rev_C > 0, Final_data$Rev_C,
NA))

#SIZE in TA
#Make it Log
Final_data$LN_TA_C <- log(ifelse(Final_data$TA_C > 0, Final_data$TA_C,
NA))

#Making Leverage
Final_data$TP.x[is.na(Final_data$TP.x)] <- 0
Final_data$TCL.x[is.na(Final_data$TCL.x)] <- 0
Final_data$TP.y[is.na(Final_data$TP.y)] <- 0
Final_data$TCL.y[is.na(Final_data$TCL.y)] <- 0

Final_data$TD <- Final_data$TOLT_LIABIL_C + Final_data$TP.x +
Final_data$TP.y + Final_data$TCL.x + Final_data$TCL.y

Final_data$LEV <- Final_data$TD / Final_data$TA_C

#Industry
library(tidyr)

Final_data <- Final_data %>%
  arrange(ID, YR) %>%

```

```

group_by(ID) %>%
fill(ind_h2, .direction = "down") %>%
ungroup()

Final_data <- Final_data %>%
  arrange(ID, YR) %>%
  group_by(ID) %>%
  fill(ind_hng, .direction = "down") %>%
  ungroup()

#Removing finance and insurance
Final_data <- Final_data[Final_data$ind_hng != 11, ]

# Create the MANUFACTURING dummy variable
Final_data <- Final_data %>%
  mutate(MANUFACTURING = ifelse(ind_hng == 3, 1, 0))%>%
  replace_na(list(MANUFACTURING = 0))

#Create dummy for information
Final_data <- Final_data %>%
  mutate(INFCOM = ifelse(ind_hng == 10, 1, 0))%>%
  replace_na(list(INFCOM = 0))

Final_data$MANUFACTURING <- as.factor(Final_data$MANUFACTURING)
Final_data$INFCOM <- as.factor(Final_data$INFCOM)

#Removing Inf values
Final_data <- Final_data[is.finite(Final_data$GROWTH_R), ]
Final_data <- Final_data[is.finite(Final_data$GROWTH_TA), ]
Final_data <- Final_data[is.finite(Final_data$LN_REV_C), ]
Final_data <- Final_data[is.finite(Final_data$LN_TA_C), ]
Final_data <- Final_data[is.finite(Final_data$LEV), ]

#winzorizing
#Winzorize LN_REV_C

```

```
lower_threshold <- quantile(Final_data$LN_REV_C, 0.01, na.rm = TRUE)
upper_threshold <- quantile(Final_data$LN_REV_C, 0.99, na.rm = TRUE)
Final_data$LN_REV_C_W <- ifelse(Final_data$LN_REV_C < lower_threshold,
lower_threshold, Final_data$LN_REV_C)
Final_data$LN_REV_C_W <- ifelse(Final_data$LN_REV_C_W >
upper_threshold, upper_threshold, Final_data$LN_REV_C_W)
```

```
# Winsorize LN_TA_C
```

```
lower_threshold <- quantile(Final_data$LN_TA_C, 0.01, na.rm = TRUE)
upper_threshold <- quantile(Final_data$LN_TA_C, 0.99, na.rm = TRUE)
Final_data$LN_TA_C_W <- ifelse(Final_data$LN_TA_C < lower_threshold,
lower_threshold, Final_data$LN_TA_C)
Final_data$LN_TA_C_W <- ifelse(Final_data$LN_TA_C_W > upper_threshold,
upper_threshold, Final_data$LN_TA_C_W)
```

```
# Winsorize GROWTH_R
```

```
lower_threshold <- quantile(Final_data$GROWTH_R, 0.01, na.rm = TRUE)
upper_threshold <- quantile(Final_data$GROWTH_R, 0.99, na.rm = TRUE)
Final_data$GROWTH_R_W <- ifelse(Final_data$GROWTH_R <
lower_threshold, lower_threshold, Final_data$GROWTH_R)
Final_data$GROWTH_R_W <- ifelse(Final_data$GROWTH_R_W >
upper_threshold, upper_threshold, Final_data$GROWTH_R_W)
```

```
# Winsorize GROWTH_TA
```

```
lower_threshold <- quantile(Final_data$GROWTH_TA, 0.01, na.rm = TRUE)
upper_threshold <- quantile(Final_data$GROWTH_TA, 0.99, na.rm = TRUE)
Final_data$GROWTH_TA_W <- ifelse(Final_data$GROWTH_TA <
lower_threshold, lower_threshold, Final_data$GROWTH_TA)
Final_data$GROWTH_TA_W <- ifelse(Final_data$GROWTH_TA_W >
upper_threshold, upper_threshold, Final_data$GROWTH_TA_W)
```

```
# Winsorize LEV
```

```
lower_threshold <- quantile(Final_data$LEV, 0.01, na.rm = TRUE)
upper_threshold <- quantile(Final_data$LEV, 0.99, na.rm = TRUE)
```

```

Final_data$LEV_W <- ifelse(Final_data$LEV < lower_threshold,
lower_threshold, Final_data$LEV)
Final_data$LEV_W <- ifelse(Final_data$LEV_W > upper_threshold,
upper_threshold, Final_data$LEV_W)

#Removing NA in FIRM_AGE
Final_data <- Final_data[!is.na(Final_data$FIRM_AGE), ]

##Making it a paneldataset
library(plm)

panel_data <- pdata.frame(Final_data, index = c("ID", "YR"))

#Fixing dummy
panel_data$OS_INT <- ifelse(panel_data$OS_INT == 1, 1, 0)
panel_data$MANUFACTURING <- ifelse(panel_data$MANUFACTURING ==
1, 1, 0)
panel_data$INFCOM <- ifelse(panel_data$INFCOM == 1, 1, 0)

#Models
# Load required packages
library(plm)

#model_1_RA
model_1_RA <- plm(IFRS ~ OS_INT + BIG_FIVE_LAG + LEV_W +
GROWTH_R_W +
LN_REV_C_W + MANUFACTURING + INFCOM + FIRM_AGE,
data = panel_data, model = "random", effect = "individual", index =
c("ID", "YR"))

summary(model_1_RA)

#Fixed effect
model_2_FE <- plm(IFRS ~ OS_INT + BIG_FIVE_LAG + LEV_W +
GROWTH_R_W +

```



```

        LN_REV_C_W + FIRM_AGE,
        data = panel_data, model = "within", effect = "individual", index =
c("ID", "YR"))

summary(model_2_FE)
#Tables

library(stargazer)

stargazer(model_1_RA, model_2_FE, type = "text",
          title = "IFRS Adoption Factors - Multi-Period Logistic Regressions for the
Full Sample (Total Assets)",
          align = TRUE,
          star.cutoffs = c(0.05,0.01,0.001),
          digits = 4,
          dep.var.labels.include = TRUE,
          dep.var.caption="Dependent variable:",
          dep.var.labels="Adoption of IFRS",
          intercept.bottom = FALSE)

##Multicollinarty

library(car)

vif(model_1_RA)

# Hausman test
hausman_test <- phtest(model_1_RA, model_2_FE)

print(hausman_test)

#Table descriptive statistics
if (!require(psych)) {
  install.packages("psych")
}

```

```

library(psych)

vars_of_interest <- c("IFRS", "OS_INT", "BIG_FIVE_LAG", "LEV_W",
"GROWTH_R_W",
"LN_REV_C_W", "MANUFACTURING", "INFCOM",
"FIRM_AGE")

# Subset the data
subset_data <- panel_data[, vars_of_interest]

quantiles <- c(0.1, 0.9)
desc_stats <- psych::describe(subset_data, quant = quantiles)
print(desc_stats)

#Industry
firm_counts <- panel_data %>%
  distinct(ID, ind_hng, IFRS) %>%
  group_by(ind_hng) %>%
  summarise(Unique_Firms = n(), IFRS_Count = sum(IFRS == 1))

print(firm_counts)

#Number of firms
unique_firms <- length(unique(panel_data$ID[Final_data$IFRS == 1]))

print(unique_firms)

# Count the number of IFRS firms for each year
IFRS_counts <- table(panel_data$YR[Final_data$IFRS == 1])

print(IFRS_counts)

# Count the number of NGAAP firms for each year
NGAAP_counts <- table(panel_data$YR[Final_data$IFRS == 0])

```

```
print(NGAAP_counts)
```

```
##CORRELATION
```

```
if (!require(psych)) {  
  install.packages("psych")  
}
```

```
if (!require(knitr)) {  
  install.packages("knitr")  
}
```

```
if (!require(kableExtra)) {  
  install.packages("kableExtra")  
}
```

```
library(psych)  
library(knitr)  
library(kableExtra)
```

```
numeric_data <- sapply(panel_data[,c("IFRS", "OS_INT", "BIG_FIVE_LAG",  
  "LEV_W", "GROWTH_R_W",  
    "LN_REV_C_W", "MANUFACTURING", "INFCOM",  
  "FIRM_AGE")], as.numeric)
```

```
correlation_result <- psych::corr.test(numeric_data)
```

```
get_correlation_value <- function(i, j) {  
  value <- correlation_result$r[i, j]  
  p_value <- correlation_result$p[i, j]
```

```
  if (p_value < 0.01) {  
    return(paste0(round(value, 4), "**"))  
  } else if (p_value < 0.05) {
```

```

    return(paste0(round(value, 4), "*"))
  } else {
    return(round(value, 4))
  }
}

correlation_matrix <- matrix(nrow = 9, ncol = 9)
for (i in 1:9) {
  for (j in 1:9) {
    correlation_matrix[i, j] <- get_correlation_value(i, j)
  }
}

correlation_df <- as.data.frame(correlation_matrix)
names(correlation_df) <- c("IFRS", "OS_INT", "BIG_FIVE_LAG", "LEV_W",
"GROWTH_R_W", "LN_REV_C_W", "MANUFACTURING", "INFCOM",
"FIRM_AGE")
rownames(correlation_df) <- c("IFRS", "OS_INT", "BIG_FIVE_LAG",
"LEV_W", "GROWTH_R_W", "LN_REV_C_W", "MANUFACTURING",
"INFCOM", "FIRM_AGE")

html_table <- kable(correlation_df, "html") %>%
  kable_styling("striped", full_width = F)

cat(html_table, file = "correlation_table.html")

###SENSITIVITY ANALYSIS

##Single-year regression using Final_data
Final_data_2020 <- subset(Final_data, YR == 2020)

model_2020 <- glm(IFRS ~ OS_INT + BIG_FIVE_LAG + LEV_W +
GROWTH_R_W + LN_REV_C_W + MANUFACTURING + INFCOM +
FIRM_AGE,

```

```

data = Final_data_2020, family = binomial)

summary(model_2020)

stargazer(model_2020, type = "text",
           title = "IFRS Adoption Factors - Logistic Regression for the Full Sample
(2020)",
           align = TRUE,
           star.cutoffs = c(0.05,0.01,0.001),
           digits = 4,
           dep.var.labels.include = TRUE,
           dep.var.caption="Dependent variable:",
           dep.var.labels="Adoption of IFRS",
           intercept.bottom = FALSE)

#TOTAL ASSET MODEL
library(plm)
FE_model_TA <- plm(IFRS ~ OS_INT + BIG_FIVE_LAG + LEV_W +
GROWTH_TA_W +
                LN_TA_C_W + FIRM_AGE,
                data = panel_data, model = "within", effect = "individual", index =
c("ID", "YR"))

summary(FE_model_TA)

library(stargazer)

stargazer(FE_model_TA, type = "text",
           title = "IFRS Adoption Factors - Multi-Period Logistic Regressions for the
Full Sample (Total Assets)",
           align = TRUE,
           star.cutoffs = c(0.05,0.01,0.001),
           digits = 4,

```

```
dep.var.labels.include = TRUE,  
dep.var.caption="Dependent variable:",  
dep.var.labels="Adoption of IFRS",  
intercept.bottom = FALSE)
```

```
#Lagged models
```

```
library(tidyverse)
```

```
library(dplyr)
```

```
panel_data <- panel_data %>% arrange(ID, YR)
```

```
# Create 1-year lagged variables
```

```
panel_data$OS_INT_lag <- plm::lag(panel_data$OS_INT, 1)
```

```
panel_data$LEV_W_lag <- plm::lag(panel_data$LEV_W, 1)
```

```
panel_data$GROWTH_R_W_lag <- plm::lag(panel_data$GROWTH_R_W, 1)
```

```
panel_data$LN_REV_C_W_lag <- plm::lag(panel_data$LN_REV_C_W, 1)
```

```
panel_data$FIRM_AGE_lag <- plm::lag(panel_data$FIRM_AGE, 1)
```

```
# Create 2-year lagged variables
```

```
panel_data$OS_INT_lag2 <- plm::lag(panel_data$OS_INT, 2)
```

```
panel_data$LEV_W_lag2 <- plm::lag(panel_data$LEV_W, 2)
```

```
panel_data$GROWTH_R_W_lag2 <- plm::lag(panel_data$GROWTH_R_W, 2)
```

```
panel_data$LN_REV_C_W_lag2 <- plm::lag(panel_data$LN_REV_C_W, 2)
```

```
panel_data$FIRM_AGE_lag2 <- plm::lag(panel_data$FIRM_AGE, 2)
```

```
panel_data$BIG_FIVE_lag2 <- plm::lag(panel_data$BIG_FIVE_LAG, 2)
```

```
# Create 3-year lagged variables
```

```
panel_data$OS_INT_lag3 <- plm::lag(panel_data$OS_INT, 3)
```

```
panel_data$LEV_W_lag3 <- plm::lag(panel_data$LEV_W, 3)
```

```
panel_data$GROWTH_R_W_lag3 <- plm::lag(panel_data$GROWTH_R_W, 3)
```

```
panel_data$LN_REV_C_W_lag3 <- plm::lag(panel_data$LN_REV_C_W, 3)
```

```
panel_data$FIRM_AGE_lag3 <- plm::lag(panel_data$FIRM_AGE, 3)
```

```
panel_data$BIG_FIVE_lag3 <- plm::lag(panel_data$BIG_FIVE_LAG, 3)
```

```

#Fixed effects model with 1-year lagged variables
FE_model_lag <- plm(IFRS ~ OS_INT_lag + BIG_FIVE_LAG + LEV_W_lag +
  GROWTH_R_W_lag +
    LN_REV_C_W_lag + FIRM_AGE_lag,
  data = panel_data, model = "within", effect = "individual", index =
  c("ID", "YR"))

# Fixed effects model with 2-year lagged variables
FE_model_lag2 <- plm(IFRS ~ OS_INT_lag2 + BIG_FIVE_lag2 + LEV_W_lag2
  + GROWTH_R_W_lag2 +
    LN_REV_C_W_lag2 + FIRM_AGE_lag2,
  data = panel_data, model = "within", effect = "individual", index =
  c("ID", "YR"))

# Fixed effects model with 3-year lagged variables
FE_model_lag3 <- plm(IFRS ~ OS_INT_lag3 + BIG_FIVE_lag3 + LEV_W_lag3
  + GROWTH_R_W_lag3 +
    LN_REV_C_W_lag3 + FIRM_AGE_lag3,
  data = panel_data, model = "within", effect = "individual", index =
  c("ID", "YR"))

summary(FE_model_2_lag)
summary(FE_model_2_lag2)
summary(FE_model_2_lag3)

# Load the required libraries
library(stargazer)

# Model with 1-year lagged variables
stargazer(FE_model_2_lag, type = "text",
  title = "IFRS Adoption Factors - Multi-Period Logistic Regressions for the
  Full Sample (1-Year Lagged Variables)",
  align = TRUE,
  star.cutoffs = c(0.05,0.01,0.001),

```

```
digits = 4,  
dep.var.labels.include = TRUE,  
dep.var.caption="Dependent variable:",  
dep.var.labels="Adoption of IFRS",  
intercept.bottom = FALSE)
```

```
# Model with 2-year lagged variables
```

```
stargazer(FE_model_2_lag2, type = "text",  
          title = "IFRS Adoption Factors - Multi-Period Logistic Regressions for the  
Full Sample (2-Year Lagged Variables)",  
          align = TRUE,  
          star.cutoffs = c(0.05,0.01,0.001),  
          digits = 4,  
          dep.var.labels.include = TRUE,  
          dep.var.caption="Dependent variable:",  
          dep.var.labels="Adoption of IFRS",  
          intercept.bottom = FALSE)
```

```
# Model with 3-year lagged variables
```

```
stargazer(FE_model_2_lag3, type = "text",  
          title = "IFRS Adoption Factors - Multi-Period Logistic Regressions for the  
Full Sample (3-Year Lagged Variables)",  
          align = TRUE,  
          star.cutoffs = c(0.05,0.01,0.001),  
          digits = 4,  
          dep.var.labels.include = TRUE,  
          dep.var.caption="Dependent variable:",  
          dep.var.labels="Adoption of IFRS",  
          intercept.bottom = FALSE)
```


Appendix 3: Preliminary Thesis

Preliminary Master Thesis

- Key determinants of adopting IFRS or simplified IFRS for private Norwegian companies -

Examination code:

GRA 19702 – Master Thesis

Hand-in date:

16.01.2023

Supervisor:

John Christian Langli

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1.0 Introduction

This research paper aims to examine the key determinants of adopting International Financial Reporting Standards (IFRS) or simplified IFRS for private Norwegian companies. The study seeks to contribute the understanding of why private Norwegian companies adopt IFRS (and simplified IFRS) and any differences from the findings of other countries.

The regulations governing annual financial reporting have been established by regulatory authorities in order to facilitate the efficient and effective use of various accounting tools. To ensure that the financial statements are understood by all stakeholders, a standardized accounting language is necessary. In Norway, the development of this language has resulted in the creation of five different accounting languages. However, the use of multiple accounting languages can sometimes create confusion for users, as the same financial transactions may be reported differently depending on the language used, leading to discrepancies in values. Therefore, it is important to understand both the specific accounting language being employed and the reasons for why it is used.

As of January 1, 2005, there are two separate pieces of legislation governing accounting practices in Norway: The Bookkeeping Act and the Accounts Act. The Bookkeeping Act outlines the requirements for maintaining accurate and organized financial records, including which principles must be followed. The Accounts Act, on the other hand, specifies the requirements for the preparation of annual financial statements, including what information must be included and which principles must be followed. Together, these laws provide the framework for proper financial reporting (Langli, 2022).

On the same day that the Bookkeeping Act went into effect, IFRS became mandatory for the consolidated financial statements of listed companies in the European Union (EU). As a non-member of the EU, Norway is not directly subject to this requirement. However, through its participation in the European Economic Area (EEA) Agreement, Norway has agreed to adopt IFRS in the consolidated financial statements of listed companies as of the regulation (EC) No 1606/2002.

To facilitate the adoption of these standards, a Norwegian translation of IFRS was created and adopted as a regulation (Langli, 2022).

In addition to the requirements for listed companies, non-listed companies in Norway have the option to use simplified IFRS. It is also possible for a company to use IFRS in its consolidated financial statements and Norwegian Generally Accepted Accounting Principles (NGAAP) in its individual financial statements. The Norwegian government determined that allowing the use of simplified IFRS and NGAAP in certain circumstances would be more cost-effective (Langli, 2022). It is worth noting that the requirement to use full IFRS applied only to listed companies with consolidated financial statements when the law went into effect in 2005. However, effective January 1, 2011, the Norwegian Parliament determined that all companies with listed securities must apply IFRS. This includes companies that do not prepare consolidated financial statements. The adoption of IFRS by all listed companies in Norway represents a significant expansion of the scope of the previous requirement.

2.0 Theoretic background

2.1 IFRS

IFRS are a set of accounting standards developed by the International Accounting Standards Board (IASB). They provide a common language for businesses to communicate their financial performance and position to stakeholders and are used by more than 160 countries around the world (IFRS Foundation, n.d.).

IFRS are designed to be applied on a consistent basis by all entities, regardless of their size or industry. However, they also provide flexibility in certain areas, allowing entities to use professional judgment in the application of the standards (IFRS Foundation, 2022).

2.2 NGAAP

NGAAP are the accounting standards used by entities in Norway for the preparation and presentation of financial statements. They are developed and maintained by the Norwegian Auditing and Accounting Standards Board

(NAASB), which is a private foundation with the mandate to set accounting standards in Norway (Norsk Regnskapsstiftelse, n.d.)

The accounting legislation comprises the legal provisions regulating the design and operation of an accounting system, including the requirements for record-keeping, document maintenance, measurement principles, and content of annual financial statements. As previously mentioned, certain entities are required to maintain books of account in accordance with the Norwegian legislation of bkfl. §§ 1 and 2. For the purposes of our research, the focus will only be on those businesses who are legally required to prepare annual financial statements.

In the following table, we will present the various companies that are required to prepare financial statements and which current accounting language they must follow.

Required to prepare financial statements	Accounting Language
Listed companies that prepare consolidated financial statements	Full IFRS in consolidated statements. IFRS, simplified IFRS or NGAAP in the Separate financial statements
Listed companies that do not prepare consolidated financial statements	IFRS
Companies that do not satisfy the demands to be a small company, and that are not listed	IFRS, simplified IFRS or NGAAP
Companies that to meet the requirements to being a small entity	IFRS, simplified IFRS, NGAAP or NGAAP for small entities
Non-profit organizations	IFRS, simplified IFRS, NGAAP, NGAAP for small entities or NGAAP for nonprofit organizations.

Table 1 - Accounting language (Langli, 2022)

The existence of multiple accounting languages, specifically five, creates challenges for users seeking to compare financial statements from different organizations. This issue forms the central focus of our study. Specifically, we aim to examine the motivations behind companies that choose to transition from their current accounting language to IFRS (and simplified IFRS), despite having the option to continue using their current accounting language.

3.0 Literature review

In this section, we will discuss the previous literature that we find relevant to our paper, specifically research on the reasons for private firms to adopt IFRS.

Bassemir (2017) investigated whether private firms in Germany voluntarily adopt IFRS and, if so, what factors may influence their decision to do so. They suggest that the expected net benefits of IFRS adoption vary substantially among private firms and are influenced by factors such as financing needs, governance system, and organizational and informational complexity. The study finds that private firms that use IFRS tend to have more growth opportunities, be more leveraged, be externally rated, seek to raise external capital through public bonds or equity, be registered as a stock corporation, have private equity involvement, have more international sales and operations, and have a Big Five auditor.

Andre et al. (2012) investigated the determinants of voluntary adoption of IFRS for medium-to-large unlisted firms in the UK. They suggest that internationality, leverage, firm size, and auditor reputation are significant determinants of IFRS adoption. On the contrary to Bassemir (2017), they suggest that other firm characteristics such as profitability, capital intensity, industry, growth, ownership structure, and employee productivity do not appear to play a significant role in the decision.

To further build on these, Matonti and Iuliano (2014) examined the determinants of voluntary adoption of IFRS by private firms in Italy. This study found that firms were more likely to adopt IFRS when they had dispersed ownership, foreign shareholders, and high leverage. Additionally, the study found that private subsidiary firms were more likely to adopt IFRS when their parent company was already using IFRS.

The study by Yang (2014) adds to the literature on the determinants of voluntary adoption of IFRS by unlisted firms, specifically in the UK and Germany. The research found that firm size, leverage, legal form, profitability, and the country's institutional environment were all contributing factors to unlisted firms' adoption of IFRS. The results also indicated that the country's institutional environment does not significantly impact the influence of firm-level factors on IFRS adoption.

Fabio (2018) examines the factors associated with the adoption of IFRS by unlisted companies in Italy. The research finds that firm size, foreign ownership, and capital intensity are significant factors in the adoption of IFRS. The study also finds that leveraged companies in Italy are more likely to adopt IFRS. Additionally, the research explores the unusual phenomenon of companies adopting IFRS when in financial distress and finds that independent companies may do so due to financial and economic distress. These findings have implications for regulators and practitioners, particularly for managers considering the adoption of IFRS.

Chung and Park (2017) investigates the relationship between industry-level comparability and the voluntary adoption of IFRS by unlisted firms in Korea. The empirical results of this study show that unlisted firms in industries with a higher proportion of listed firms tend to adopt IFRS voluntarily. Following the adoption of IFRS, these unlisted firms seem to attract more investment in the public debt market. This study highlights the importance of industry-level comparability in the voluntary adoption of IFRS by unlisted firms.

There has also been conducted a master thesis study on the matter, done by Eide (2020). The main focus of this study is to explore the voluntary adoption of IFRS among unlisted companies in Norway. This study indicates that firm size by employees, firm size by turnover, industry type, and auditor type are statistically significant. Specifically, larger companies operating in the oil & gas, telecommunication & information, financial & insurance industries, and those audited by "Big Five" firms (particularly EY and Deloitte) are significantly more likely to adopt IFRS voluntarily.

As can be seen from the literature review, voluntary adoption has been the subject of numerous studies. They have been carried out in Germany, Korea, Italy, the UK, and one Master's thesis in Norway, and as a summery from the literature on the matter, the studies by (André et al., 2012; Bassemir, 2017; Chung & Park, 2017; Eide, 2020; Fabio, 2018; Matonti & Iuliano, 2012; Yang, 2014) have found some similarities and differences in the factors that influence the voluntary adoption of IFRS by private firms. The similarities are summarized in the table below:

Factor	Authors
Leverage	(André et al., 2012; Bassemir, 2017; Fabio, 2018; Matonti & Iuliano, 2012; Yang, 2014)
Firm Size	(André et al., 2012; Eide, 2020; Fabio, 2018; Yang, 2014)
Internationality/Ownership	(André et al., 2012; Fabio, 2018; Matonti & Iuliano, 2012)
Growth	(Bassemir, 2017)
Auditor	(André et al., 2012; Bassemir, 2017; Eide, 2020)

Table 2 - Similarities of determinants

The studies suggest that factors that influence the decision to adopt IFRS vary by country and firm characteristics. Regulators and practitioners should consider these factors when making decisions regarding IFRS adoption. Furthermore, Eide (2020) found that firm size by employees, firm size by turnover, industry type, and auditor type are statistically significantly related to the voluntary adoption of IFRS by Norwegian unlisted companies. This study provides some initial findings on the matter, however, more research could be done to further explore the issue and understand the factors that influence the decision to adopt IFRS in Norway.

4.0 Research question & hypotheses

From our literature review, we find evidence of different determinants for why companies in the EU and more change from their own General Accepted Accounting Principles (GAAP) to IFRS. However, little evidence is provided for Norway specifically, which can differ in several ways from EU countries. Therefore, it is interesting to widen the scope of the current knowledge by expanding outside the EU, as the Norwegian setting might yield different results. Norway is a wealthy oil nation with a small and open economy, making it unique compared to other EU countries. Therefore, understanding the specific factors that influence the adoption and implementation of IFRS in Norway can provide valuable insights for both Norway and other countries that are considering or have chosen to adopt IFRS. So, it would be beneficial to conduct further research on the subject in order to gain a more comprehensive understanding of the factors that influence the adoption and implementation of IFRS in Norway specifically.

Thus, the purpose of this research paper is to analyze and identify the key determinants for private Norwegian companies, and to achieve an understanding of why a company should voluntary adopt IFRS or simplified IFRS. Our research question is as follows:

“What are the key determinants of adopting IFRS or simplified IFRS for private Norwegian companies?”

As stated, there is a limited amount of research that specifically focuses on private Norwegian companies. This lack of literature on the topic makes this research question important as it helps to understand the motivations of private Norwegian companies for the adoption of IFRS (or simplified IFRS) and any differences from the findings of other countries. Furthermore, this research is interesting as it highlights the specific reasons for the adoption of IFRS in the Norwegian context and how it compares to the international perspective. This information is valuable for investors, stakeholders, regulators and practitioners as they will have a better understanding of the reporting choices made by private Norwegian companies. Additionally, this research also adds to the knowledge of the accounting field by filling the gap in the literature of IFRS adoption in Norway.

Based on the previous research outlined in the literature review, our hypotheses for the Norwegian context has been formulated. Specifically, we are targeting determinants that have been frequent in prior studies.

H1: Ownership structure is related to the adopting of IFRS and simplified IFRS by private Norwegian firms.

H2: Leverage is related to the adopting of IFRS and simplified IFRS by private Norwegian firms.

H3: Firms size by revenue is related to the adopting IFRS and simplified IFRS by private Norwegian firms.

H4: Firm size by total assets is related to the adopting of IFRS and simplified IFRS by private Norwegian firms.

H5: Firm size by employees is related to the adopting of IFRS and simplified IFRS by private Norwegian firms.

H6: Choice of auditor is related to the adopting of IFRS and simplified IFRS by private Norwegian firms.

H7: Growth is related to the adopting of IFRS and simplified IFRS by private Norwegian firms.

4.0 Research methodology

4.1 Quantitative method

In this section of the thesis, we will examine how a quantitative research methodology is employed to investigate our research question and hypotheses. We believe that this approach is the most suitable for our study as it allows for the collection and analysis of numerical data to understand and explain our research question in an objective manner.

Quantitative research is one of the three main research approaches, alongside qualitative and mixed methods (Williams, 2007). According to Leedy & Ormrod (2015), quantitative research is a method of empirical investigation that centers on the collection and analysis of numerical data to understand and explain phenomena of interest. It often includes the measurement of one or more variables through the use of standardized instruments or techniques such as questionnaires, tests, and physical measurement tools. The ultimate goal of quantitative research is to objectively measure and analyze the relationships between variables using

statistical techniques, drawing conclusions about underlying patterns and trends in the data. This approach is particularly useful for testing hypotheses and making predictions about phenomena that can be objectively measured.

4.2 Research design

To research the determinants of why private Norwegian companies changing from NGAAP to IFRS (and simplified IFRS), a quantitative approach is fitting. Then, the next step is to identify the suitable data that includes information on the characteristics of private Norwegian companies that have made the switch to IFRS (or simplified IFRS), and the data collection. There are two types of data, primary and secondary. Primary data is coming directly from the original source, while secondary data is usually derived from the primary data. Primary data can be interviews, surveys and other direct sources, while secondary data are research articles, books, and data previously gathered for other purposes (Leedy & Ormrod, 2015).

The use of secondary data is a useful approach for investigating why Norwegian private companies change from NGAAP to IFRS (or simplified IFRS). One of the main benefits of using secondary data is that it is readily available and often easier to obtain than primary data. Secondary data is a viable source of data for our research paper, as it is available from Brønnøysundregisteret. This includes financial statements and other information such as accounting language, making it very useful.

Once the dataset has been identified, statistical tools such as regressions analysis will be used to identify any patterns or trends that might suggest certain determinants of the switch to IFRS (or simplified IFRS). We will stratify the sample by the different variables identified in the literature review, such as leverage or company size, to see if these determinants are more important for some companies than others.

To summarize, the research design involves utilizing a quantitative approach by analyzing a suitable dataset and reviewing the literature on the topic. By using a combination of secondary data and statistical tools, this research aims to identify

the factors that influence private Norwegian companies to switch from Norwegian NGAAP to IFRS (or simplified IFRS).

4.3 Validity

According to Leedy & Ormrod (2015), “The internal validity of a research study is the extent to which its design and the data it yields allow the researcher to draw accurate conclusions about cause-and-effect and other relationships”. It is important to ensure the validity of the study by carefully considering the data collection methods and data analysis techniques. Applying appropriate statistical tests and techniques can help to ensure that the findings of the study accurately reflect the relationships between variables. Ensuring the validity of the research is crucial for ensuring the trustworthiness and credibility of the findings, and ultimately for advancing our understanding of the topic of interest. By using data from Brønnøysundregisteret we improve the internal validity of the paper.

4.4 Novelty

As stated by Cohen (2017), novelty is something difficult to strictly define, however it is clear that novelty means good research. This can be evaluated by considering the extent to which the research fills a gap in the existing literature or advances our understanding of a particular topic in a meaningful way. Therefore, our research will have novelty as it contributes to the current research on the field.

5.0 A plan for data collection and thesis progression

We have already received parts of our data from Brønnøysundregisteret and will start collecting more when we have processed it. We need to retrieve which companies that has adopted IFRS (or simplified IFRS), and then we can access more data on this population from brrg.no. We assume this will be completed by the middle of February. Then we can start the data processing of the entire dataset. In the meantime, we will complete most of the writing of the introductions, research question, methodology and theory. By the end of March, we should have managed to complete the statistical analysis, and can start to further analyze our findings, before finishing the thesis within the deadline.

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