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Master Thesis

- The Effects on the Financial Statement of an adoption of IFRS from NGAAP -

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Abstract

Previous research has been done on the effects of the mandatory transition to International Financial Reporting Standard for listed companies in the EU/EEA in 2005. This thesis wants to provide an updated view of the transition effects in Norway, focusing on where in the financial statement the effect of transitioning from Norwegian Generally Accepted Accounting Principles to International Financial Reportin Standard occurs, how financial metrics are affected, how significant the effect is, and if there are differences between industries. Using data provided by Brønnøysundregisteret, we have an overview of the choice of the accounting standard for all organization numbers from 2005 to 2021. We collected reconciliation statements from companies transitioning to International Financial Reporting Standard in 2020 and 2021 using this information. To test the significance of the results, we applied the Wilcoxon test. Our findings show that the change in non-current liability, operating profit, net financial income, and results are statistically significant at conventional levels. The findings are essential from the user's perspective, as they contribute to more knowledge about whether and when to consider reporting language.

Contents

1.0 Introduction

This thesis explores the impact of the transition from Norwegian generally accepted accounting principles (NGAAP) to International Financial Reporting Standards (IFRS) on companies' financial statements. The research questions for the thesis are: "Where in the financial statement does the effect of transitioning from NGAAP to IFRS occur, how significant are the effect, how are financial metrics affected, and are there differences between industries?". Our findings show that certain balance sheet items adjust according to measurement and valuation differences between NGAAP and IFRS, and there are industry-specific changes. Our analysis of the transition effect from NGAAP to IFRS is an updated contribution to the literature, as previous literature primarily focused on the mandatory transition to IFRS in 2005. We look at companies transitioning to IFRS 2020 and 2021. Further, we distinguished between companies that switched to IFRS voluntarily and those required to adopt IFRS mandatory. The findings are essential for the user's perspective, as it contributes to more knowledge about how important it is to take reporting language into account. Accounting data is easily available on webpages, where ratios and credit scores are computed. Users might use the numbers and figures without considering which reporting language firms use. This thesis will provide insight into whether and when it is important to consider reporting language.

The study identifies the areas of the financial statements where changes occur and quantifies the magnitude of these changes using descriptive and quantitative analysis. Further, the factors that influence the extent and direction of the changes in financial statements resulting from the transition to IFRS are analyzed. In addition, the transition's effect on financial ratios is important for stakeholders. Furthermore, looking at industry-specific effects and companies that switch voluntarily to IFRS is interesting because some or more industries may experience a positive trend by switching, and they can choose when they switch to IFRS. Some Norwegian companies in the Real Estate industry that have chosen to switch to IFRS or simplified IFRS have justified the transition because assessing the assets at fair value is considered to increase the information value in the accounts. The transition to IFRS or simplified IFRS can, in such cases, be more expensive because there is often little IFRS competence in the companies in the first place. Some have experienced that they have not fully grasped the consequences of a different

accounting regime than what they are used to (Myrbakken & Haakanes, 2018, p. 900).

Businesses considering changing their accounting standard should carefully assess the consequences. Therefore, it is important to have up-to-date literature and research. One of the elements that should be included in the assessment is comparability. Consistent application of principles is important to be able to compare accounts over time and between companies (Myrbakken & Haakanes, 2018, p.899). Changes in accounting principles weaken comparability over time.

The intention when a company chooses to switch to IFRS should be that IFRS is to be applied permanently, particularly if the switch entails changes in the accounting principles used. In some industries, it may be desirable to switch to IFRS accounting in order to achieve comparability within the industry, for example, in industries where accounting users need to compare companies across national borders. In an industry with many listed companies, users may similarly desire that non-listed companies prepare their accounts according to IFRS or simplified IFRS (Myrbakken & Haakanes, 2018, p. 900).

Voluntary use of IFRS may have its background in a wish or a requirement from a foreign investor or foreign bank connection. Another reason could be that the company is planning an imminent listing on the stock exchange and will prepare the accounting for it. (Myrbakken & Haakanes, 2018, p. 900).

Although companies consolidated annual accounts will be the primary source of information for knowledge, users may need to see the company accounts in context. The use of different principles in the different accounts can obscure the information. The risk of error also increases when different principles are used because there is more to keep track of (Myrbakken & Haakanes, 2018, p. 900).

2.0 Theoretical Framework and Literature Review

2.1 Institutional Framework

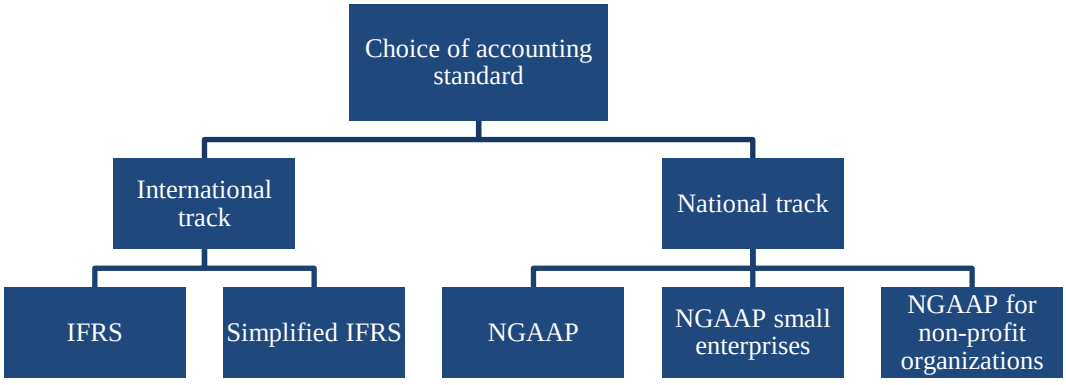
2.1.1 Background

Accounting is the art of communicating financial information about a business entity to user such as shareholders and managers, and the communication is generally in the form of financial statements which shows economic resources. The

art lies in selecting the information which is relevant to the user and is reliable (Elliott & Elliott, 2019, p. 3). An accounting standard is a recommendation on how accounting matters should be treated (Langli, 2018, p. 61). Accounting standards are needed to define the way in which accounting numbers are presented in financial statements, so that their measurement and presentation are less subjective (Elliott & Elliott, 2019, p. 136).

In Norway, we have a two-track system for financial reporting, an international track, and a national track. The two-track system shows that the reporting entity can choose to report in accordance with NGAAP or IFRS (Langli, 2022, p. 33), see Figure 1.

Figure 1. Two main tracks and five alternative accounting standards in Norway



Notes. Two-track model (Langli, 2022, p. 32)

The primary purpose of the Norwegian Accounting Standards Board (NASB), established in 1989, is to compose reporting standards (Kvaal, 2012). NASB was tasked to define sound accounting principles aligned with the accounting law (NOU 2015: 10, 2015, p. 349). As a result, NGAAP was developed based on Norwegian reporting standards. When there is a need for new standards and statements in the bookkeeping area, NASB will set up working groups to look at this. NASB will also maintain current standards and statements when necessary (Pedersen & Hoff, 2019, p. 323).

IFRS is a set of accounting standards developed by the International Accounting Standards Board (IASB) that provides a common language for businesses to report their financial results. IFRS aims to develop high-quality, understandable, enforceable, globally accepted accounting and sustainability disclosure standards

(IFRS, 2023n). During the last twenty years, a significant number of international accounting standards (IAS/IFRS) have been prepared (Kristoffersen, 2008, p. 15).

From the financial year 2005, all listed companies in the EU must prepare their financial statements according to the same regulations, "IFRS as adopted by the EU". The EU has adopted the standards that IFRS creates, and the term "IFRS as adopted by the EU" is therefore used to distinguish between IFRS established by the IASB. Thus, listed companies in the EU/EEA countries follow "IFRS as adopted by the EU". Due to the EEA agreement, "IFRS as adopted by the EU", was introduced in Norway (Langli, 2018, p. 47).

Companies that have issued listed securities must report in accordance with IFRS. Issued listed securities can be shares, bonds, and other securities. Other companies have the freedom to choose between three standards. Small companies can report according to simplified or full IFRS, NGAAP, or NGAAP for small enterprises. Medium-sized and large companies not listed can choose between simplified and full IFRS and NGAAP. In summary, there are two main tracks for financial reporting in Norway. Either the company uses Norwegian or international rules (Langli, 2022, p. 33).

If a company chooses the IFRS track, then it can choose between IFRS or simplified IFRS. Simplified IFRS is placed in the international track because simplified IFRS is based on full IFRS. The advantage of this system is that both directions can be rationalized, and there is no requirement for NGAAP to be adjusted and updated when changes are made to IFRS standards (Kvifte & Brandsås, 2010, p. 58).

Simplified IFRS is a special Norwegian standard prepared by Norwegian authorities (Langli, 2022, p. 32). Simplified IFRS was introduced so that listed entities that wanted to report their company accounts as closely as possible to the consolidated accounts could do so with certain simplifications. In practice, very few companies have chosen to report according to IFRS or simplified IFRS (Kvifte & Brandsås, 2010, p. 55), see Table 1.

Table 1 shows the development of the chosen accounting standard in Norway from 2005 to 2021, with data from Brønnøysundregisteret (Brreg). The table is sorted on IFRS and NGAAP as standards, with associated subgroups.

Table 1. Development of choice of reporting language in Norway

	IFRS								NGAAP				
	IFRS		Group		Simplified		Simplified Group		NGAAP		Small enterprises		
Year	n	%	n	%	n	%	n	%	n	%	n	%	Total
2005	219	0,12 %	173	0,09 %	-	-	-	-	183 837	99,80 %	173 397	94,13 %	184 202
2006	363	0,17 %	254	0,12 %	-	-	-	-	211 744	99,74 %	201 878	95,09 %	212 295
2007	563	0,25 %	437	0,19 %	-	-	-	-	224 714	99,62 %	215 103	95,36 %	225 563
2008	691	0,29 %	483	0,20 %	-	-	-	-	236 906	99,57 %	226 403	95,16 %	237 924
2009	746	0,31 %	517	0,21 %	-	-	-	-	240 369	99,54 %	230 024	95,26 %	241 468
2010	835	0,34 %	604	0,25 %	-	-	-	-	243 836	99,49 %	233 821	95,40 %	245 086
2011	587	0,23 %	603	0,24 %	-	-	-	-	250 449	99,59 %	239 990	95,43 %	251 486
2012	212	0,08 %	574	0,22 %	1	0,00 %	-	-	265 103	99,73 %	254 176	95,62 %	265 813
2013	183	0,07 %	607	0,22 %	1	0,00 %	-	-	277 466	99,74 %	266 666	95,86 %	278 176
2014	196	0,07 %	752	0,26 %	19	0,01 %	-	-	289 613	99,70 %	279 094	96,07 %	290 499
2015	217	0,07 %	508	0,17 %	987	0,33 %	100	0,03 %	301 444	99,47 %	291 435	96,16 %	303 065
2016	218	0,07 %	470	0,15 %	982	0,31 %	115	0,04 %	315 456	99,51 %	305 142	96,25 %	317 021
2017	239	0,07 %	416	0,13 %	1 043	0,31 %	113	0,03 %	329 579	99,52 %	319 450	96,46 %	331 168
2018	265	0,08 %	447	0,13 %	971	0,28 %	118	0,03 %	343 420	99,55 %	333 037	96,54 %	344 982
2019	268	0,08 %	432	0,13 %	976	0,28 %	136	0,04 %	341 892	99,54 %	331 393	96,48 %	343 469
2020	353	0,09 %	464	0,12 %	1 060	0,28 %	160	0,04 %	371 211	99,52 %	359 897	96,49 %	372 983
2021	350	0,09 %	500	0,13 %	1 170	0,30 %	158	0,04 %	390 056	99,51 %	378 601	96,59 %	391 960

Notes. Data provided by Brreg. Sorted on IFRS and associated subgroups. Number is the total amount the accounting standard is stated for the given year. % is n divided by Total.

2.1.2 NGAAP

The Accounting Act determines what the financial statements must contain, who must prepare the annual accounts, and how they must be set up (Langli, 2018, p. 69). The accounting principles in NGAAP serve as guidelines to ensure the best overview and most detail about income, costs, and results in a specific period. The annual accounts must be prepared in accordance with fundamental accounting principles and specifications of mandatory accounting reporting and must be prepared in accordance with the following accounting principles (rskl § 4-1).

The transaction principle: The transaction principle states that "transactions must be accounted for at the value of the consideration at the time of the transaction" (rskl § 4-1). The transaction principle is roughly the same as the historical cost principle (Langli, 2018, p. 252).

The accrual principle: The accrual principle is based on the fact that the reporting of the period's result must occur when the activities that generate income take place and not at the time of receipts and payments (rskl § 4-2) (Langli, 2018, p. 256).

The matching principle: The matching principle states that the value of the resources used to create income must be recognized in the income statement at the same time as the income is earned (rskl § 4-3) (Langli, 2018, p. 258).

Best estimate, prudence, and hedging principle: A consequence of the uncertain future means that judgment must be used when preparing the accounts, where three principles provide guidelines for how to deal with an uncertain future. First, in the event of uncertainty, the best estimate shall be used based on available information. From the prudence principle, unrealized losses must be recognized. Lastly, the hedging principle states that in the case of hedging, gains and losses must be recognized in the income statement in the same period (rskl § 4-4).

The congruence principle: The congruence principle states that income and costs, profit and loss must be recognized in the income statement. The income statement should recognize changes in equity outside capital contributions and withdrawals. Violation of the congruence principle, for instance, changes in accounting principles and errors in earlier financial statements, should be recognized against equity (rskl § 4-3).

Good accounting, application principle, and assumption of continued operation: Annual accounts must be prepared in accordance with sound accounting practice. Further, the consistent application of principles means that companies must use the same measurement methods over time. Lastly, the assumption of continued operation states that the financial statement should be prepared with the assumption that the firm will continue to operate as long as the probability of liquidation of the firm is low (Langli, 2018, p. 266).

2.1.3 IFRS

In decision-making, financial reporting must be valuable and relevant for existing and potential investors, lenders, and creditors. Such decisions involve, among other things, the purchase and sale of equity and debt instruments (Sellæg, 2011, p. 3). The purpose of having a common accounting reporting language is to strengthen the quality of reporting and comparability between companies across national borders. As a result, investors and other stakeholders gain a basis for making informed financial decisions that contribute to improved capital allocation and reduced capital costs (Gjesdal et al., 2006, p. 21).

The framework from the IASB is balance sheet-oriented and has a large element of value-based measurement. Balance orientation (asset-liability view) means that the criteria for accounting are based on the definition of assets and liabilities. Value-based means that there is a greater element of fair value measurement of assets, liabilities, and thus equity. In a value-based model, the main principle is that annual changes in the value of assets and liabilities, increase or decrease, must be accounted for (Kristoffersen, 2008, p. 135).

The framework of the IASB is normative. Normative theory starts from a frame of reference and describes how the accounts should be designed. On this basis, objectives and general principles for accounting are derived, where practical problems are solved according to the framework's general principles. A normative conceptual framework aims to establish a uniform system for preparation. (Kristoffersen, 2008, p. 136).

The financial accounts are based on a set of basic assumptions and principles. The framework from the IASB mentions the following two underlying assumptions: accruals and going concern. The accrual basis means that income must be

recognized in the income statement in the period it is earned, and costs must be recognized in the income statement in the period they incurred. In addition, accruals and accounting in the international standards require that a transaction or event satisfies the balance sheet-oriented definitions in the framework and the requirement for measurability. Furthermore, the going concern concept is important for the valuation of assets and liabilities in financial accounts. (Kristoffersen, 2008, p. 146).

2.1.4 IFRS in Norway

All Norwegian companies are allowed to use IFRS in their consolidated accounts. Furthermore, it is permitted to use IFRS in the company accounts. Enterprises within the financial sector, banking, finance, and insurance, have their own annual accounts regulations, which regulate the access and obligation for such enterprises to apply IFRS and simplified IFRS. The Norwegian authorities cannot make the applicable rules in the Accounting Act an obstacle or limit access to keeping the accounts in accordance with IFRS as adopted by the EU. It is possible to submit annual accounts according to simplified IFRS. The rules are laid down by the Ministry of Finance and, in 2008, were extended to general access, with the exception of the group accounts of listed companies. In particular, the requirements for the note information are simplified for companies that use IFRS in their accounts. The rules mean that the Norwegian Accounting Act's note requirements and other companies' Norwegian accounting standards can mostly be used instead of the note requirements in IFRS (Myrbakken & Haakanes, 2018, p. 877).

Simplified IFRS is primarily relevant for companies that are required to report according to IFRS, but where the accounts do not have to be prepared according to full IFRS. This applies, for example, to the company accounts in groups that submit the group accounts in accordance with full IFRS. The measurement and recognition rules in simplified IFRS are the same as in full IFRS, with a few exceptions (Myrbakken & Haakanes, 2018, p. 897).

2.1.5 Differences

The theoretical differences between IFRS and Norwegian rules are well documented (Bernhoft et al., 2018). However, IFRS is constantly developing through new standards and interpretations. Experience from practice means that previous understandings have been changed in some cases. It can thus be expected

that, in the future, new views on certain issues will also develop as a result of new experiences (Sellæg, 2011, p. 3). The following section discusses similarities and differences in principle selection, valuation, and the use of estimates between the theory in NGAAP and IFRS, providing an understanding of how and why differences occur.

Principle of measurement: The significant difference between NGAAP and IFRS is characterized by their measurement principle. NGAAP builds on the transaction principle and historical-cost measurement, with specific assessment rules for assets and liabilities. In addition, NGAAP provides an earnings-oriented conceptual framework focusing on current performance measurement and principles for accrual income and costs (Kristoffersen, 2008, p. 140). On the other hand, IFRS is based on a balance-sheet-oriented conceptual framework, where assets, equity, and liabilities are measured at fair value. Fair value is a market-based measurement, not entity-specific. IFRS 13 Fair Value Measurement defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (exit price) (IFRS, 2023l).

Goodwill: NGAAP necessitates that goodwill will be amortized over the best estimate of its useful life and undergo testing for impairment losses. In contrast, according to IFRS, goodwill does not require amortization. IFRS requires the annual impairment testing of goodwill against the fair value and possibly written down if the fair value is lower than the balance sheet value (Kvifte & Tofteland, 2008, p. 274).

Research and development expenditure: Under IFRS, research expenditures must be expensed as incurred. Further, development expenditures that yield future economic benefits are required to be recognized as intangible assets according to IFRS (Walton, 2011, p. 93). Under NGAAP, expenses for own research must be expensed. Expenses for own development can be expensed. Capitalized development costs must be assessed according to acquisition cost (rskl § 5-6).

Investment properties: Under IFRS, investment properties are measured at fair value, reflecting the market-driven approach, allowing companies to reflect gains and losses on the market value of their investments. At initial recognition, the property is measured at cost, but after that, the entity must opt for the historical cost

or fair value (Walton, 2011, p. 89). On the other hand, NGAAP base the measurement of investment properties on the historical cost principle. Further, the transaction principle requires that there must be a transaction to recognize an increase in value so that revaluations are not permitted in NGAAP (Kvifte & Tofteland, 2008, p. 241).

Financial instruments: Under IFRS, financial instruments are primarily measured at fair value (Walton, 2011, p. 102). This applies to debt instruments, derivatives, equity instruments, and financial liabilities and must contain changes in value from market development, accumulation of interest, exchange rate changes, and other changes in value (Bernhoft et al., 2018, p. 542). On the contrary, NGAAP stipulates that financial instruments should be measured at cost since there are limitations in the use of fair value measurement (Kvifte & Tofteland, 2008, p. 268). However, NGAAP requires that some current investments be measured using the market value principle. This means financial instruments are recorded at their market value at the end of the accounting period and with progressive profit recognition of all changes in value.

Assets held for sale and biological assets: At NGAAP, inventories must be measured in accordance with the lowest value principle, which is the general assessment rule for current assets. For inventories, IFRS mandates measurements at the lower cost and market value (Walton, 2011, p. 99). However, IFRS has a different approach to accounting for products that increase in value due to growth. The IAS 41 standard defines agricultural activities as the transformation of biological assets into agricultural products or new biological assets (Kvifte & Tofteland, 2008, p. 270). From IAS 41 Agriculture, biological assets, such as farmed fish, are to be measured at fair value when a reliable measurement is feasible (IFRS, 2023h). There have been significant disagreements in Norway, especially in the farming industry, which has struggled with how fish should be assessed in inventory according to IFRS (Langli, 2018, p. 338) & (Kvifte & Tofteland, 2008, p. 270).

Periodic maintenance: According to IFRS, periodic maintenance of an asset is recognized as an investment, which is subsequently depreciated over the period leading up to the next scheduled maintenance (Gjerde et al. 2008). NGAAP permits

periodic maintenance reporting as a provision or by decomposing the acquisition, so each component gets its own depreciation plan (Langli, 2018, p. 271).

Leasing: If most of the financial risk and control associated with the leased object has been transferred from the lessor to the lessee through the lease agreement, the agreement is classified as financial and is a transaction following rskl. § 4-1, and the right must be capitalized in the balance sheet. Agreements that cannot be classified as financial are operational. For leases not to be capitalized in the balance sheet, the lease must be expensed as an operating cost over the lease period (Kvifte & Tofteland, 2008, p. 126). IFRS 16 Leases removes the distinction between operating and financial leases for lessees and requires lessees to capitalize most leases in the balance sheet (Bernhoft et al., 2018, p. 609).

Notes: Under NGAAP, the accounting principles used must be disclosed in the notes to the annual accounts. Furthermore, a number of requirements for note information are listed in rskl. The listed requirements are mandatory, but with certain exceptions, they can be omitted when they are not important to the position and results of the accounting equivalent (Kvifte et al., 2011, p. 29). Under IFRS, there are a number of general and special disclosure requirements in IAS 1 Presentation of the financial statements (IFRS, 2023b). These have been expanded over time to satisfy various user needs. The notes give greater detail of the make-up of statement of financial position figures, give additional information to assist prediction of future cash flow, and give information of interest to other stakeholders (Elliot & Elliot, 2019, p. 46). Furthermore, the individual standards make very extensive requirements for additional information. This is well illustrated by the fact that the volume of the annual reports of the largest European companies increased to almost double when the transition from local rules to IFRS in 2005 (Kvifte et al., 2011, p. 30).

2.2 Current Research

2.2.1 Transition from GAAP to IFRS

The type and extent of information presented in the financial statements vary between countries (Kolesnik, 2013). In order to get a comprehensive overview of the potential effects, we have reviewed previous research on the transition effect from domestic GAAP to IFRS.

From the German adoption of IFRS, Hung and Subramanyam (2007) sampled 80 German firms that adopted IAS for the first time from 1998 to 2002. The authors applied the Wilcoxon signed-ranked test to analyze the reconciliation adjustments separately for equity and net income. The Wilcoxon signed-rank test is a non-parametric test procedure for analyzing matched-pair data, based on differences or for a single sample. The null hypothesis is that the differences, or individual observations in the single-sample case, have a distribution centered around zero. Then, the absolute values are ranked. The test statistic is the sum of the positive or negative values ranks (Woolson, 2008). As a result, the Wilcoxon signed-ranked test aims to test whether the difference between German GAAP (GGAAP) figures and IFRS figures is statistically significant and indicates how large the difference is (Xia, 2020). For further explanation of the Wilcoxon test, see section 4.1.3 Wilcoxon Test. Hung and Subramanyam (2007) reported the reconciliation adjustments between GGAAP and IAS in million euros (MEUR).

Their findings showed that PP&E increases the book value of equity by an average of 180.34 MEUR. Further, provisions increase the book value of equity by an average of 116.32 MEUR, and R&D increases the book value of equity on average by 128.49 MEUR. At the same time, pensions decrease the book value the most, with an average of -76.73 MEUR. Comparing the median book value of equity under GGAAP with the median book value of equity under IAS shows a difference of a total of 3.93 MEUR, where the median book value under GGAAP is 126.85 MEUR, while under IAS is 130.78 MEUR. The difference is significant at the 1 percent level. It is important to note that the standard deviation of equity is nearly double under IAS that under GGAAP, 2,700.08 and 1,546.21, respectively, indicating that adopting IAS increases cross-sectional variation, consistent with the fair-value orientation of IAS, as fair value likely magnifies differences across companies.

The largest effect on net income is provisions, with a decrease of 47.16 MEUR, leases which increase net income by 28.35 MEUR, and PP&E, with an increase of 18.98 MEUR. The findings show a less difference between GGAAP and IFRS compared to the book value, with an average difference of 21.90 MEUR, where the net income during GGAAP is 143.10 MEUR, and IFRS is 165.00 MEUR. In addition, the standard deviation of net income increases under IAS from 407 to 507 MEUR. In conclusion, findings show that total assets and equity are significantly larger under IAS than GGAAP, and median net income is significantly higher.

Another study focusing on the German adoption of IFRS is Haller et al. (2009), which analyzes the differences between GGAAP and IFRS by quantifying the effects of German companies' first-time adoption of IFRS. Similar to Hung and Subramanyam (2007), Haller et al. (2009) focus on the transition's total effect on equity and net income by identifying the differences in financial accounting with the comparability index developed by Gray (1980).

Gray (1980) developed a method for measuring accounting differences across financial reporting regimes, where an index of comparability can be used to estimate the impact of differences in accounting standards on various measures of firm performance (Baker & Barbu, 2007). The same concept was adopted by Weetman et al. (1998) but was renamed the index of comparability to shift the focus to comparability without regard to the issue of conservatism.

To compare equity reported under GGAAP to equity reported under IFRS, the following formula expresses the index:

$$1 - \left(\frac{Equity_{GGAAP} - Equity_{IFRS}}{Equity_{GGAAP}}\right)$$

To compare net income reported under GGAAP to net income under IFRS, the following formula expresses the index for net income:

$$1 - \left(\frac{Net\ Income_{GGAAP} - Net\ Income_{IFRS}}{Net\ Income_{GGAAP}}\right)$$

An index value greater than one indicates that equity or net income under IFRS is higher than the respective equivalent reported according to GGAAP. An index value of less than one means that equity or net income under IFRS is lower than

GGAAP. An index value of one is neutral and indicates that the transition to IFRS does not impact equity or net income. GGAAP is the denominator and the benchmark because it is the comparable point of the transition to IFRS (Haller et al., 2009).

Firstly, these indices were calculated separately for each company examined. After that, the mean of the index values of all examined was computed. Then, the statistical significance of the index was tested using the t-test and the non-parametric Wilcoxon signed-rank test (Haller et al., 2009).

Haller et al. (2009) use and examine the same company's accounting differences at a consistent point, namely December 31, 2004, the year before the mandatory transition. An advantage of this approach is that the data is not distorted by changes or revisions of the corresponding standards, which could be the case in comparisons over several periods (Burger et al., 2004). The final sample consisted of 103 companies whose transition from GGAAP to IFRS could be analyzed. The results on equity showed similar results as Hung and Subramanyam (2007), PP&E increased the book value by 10.8 percent on average, business combinations (IFRS 3) contributed on average with an increase of 11.6 percent, while employee benefit decreased equity on average with 11.1 percent. Leases decreased the equity by 8.2 percent on average. The total difference in equity from the adoption was a 19.6 percent increase, statistically significant at the 1 percent level. The standard deviation is consistently high with each balance sheet post, indicating a big difference between companies and industries.

Furthermore, the most prominent items affecting net income are business combinations, with an average of 33.3 percent, and income taxes, with a decrease of 7.3 percent. Adopting IFRS resulted in an average increase of 15.4 percent in net income. The effect is statistically significant at the 5 percent level. Thus, Haller et al. (2009) have the same conclusions as the findings of Hung and Subramanyam (2007), that equity and net income significantly increase due to the transition effect.

For Sweden, Hellman (2011) uses the index of comparability when studying the impact of a transition to IFRS from Swedish GAAP (SWGAAP) on financial statements. The aim of the paper was to investigate the impact of the EU-regulated IFRS adoption on net profits and balance sheet numbers (Hellman, 2011). The total

sample size was 132 companies listed on the Stockholm Stock Exchange, collected from the mandatory "IFRS as adopted by the EU" in 2005.

The findings on shareholders' equity showed an increase of 3.2 percent, significant at the 1 percent level. The biggest items affecting the shareholders' equity are IAS 40 Investment property, with an increase of 28.2 percent, and IAS 41 Agriculture showed an increase of 9.5 percent, both significant at the 1 percent level. Further, IFRS 3 Business Combinations showed an increase of 2.3 percent, significant at the 1 percent level. However, it is important to note that the number of observations on IAS 41 Agriculture is only six companies. It can be hard to assume external validity on this finding if the companies are in different industries.

The effect of net profit showed an increase of 18.1 percent, significant at the 1 percent level. The effects related to net profits were biggest at IAS 40 Investment property with an increase of 29.9 percent and IFRS 3 Business combinations with 12,9 percent, both significant at the 1 percent level. Furthermore, the effect of IFRS 1 First-time adoption, reclassification of minority interest was also significant at the 1 percent level, but the effect was small at 0.5 percent. Lastly, the effect related to net profit from IFRS 2 Share-based payment was a decrease of 1.3 percent, significant at the 1 percent level.

In Finland, Lantto and Sahlström (2009) studied the economic consequences of adopting IFRS on key accounting ratios. The methodology was a three-step approach. Firstly, a comprehensive database of financial statements prepared under domestic accounting standards and IFRS from published transition reports was created. Secondly, Lantoo and Salström (2009) used the database to investigate whether key financial ratios and financial statement items changed following the transition. Lastly, they investigated differences in accounting practices between domestic standards and IFRS.

The following financial ratios were analyzed: operating profit margin (OPM), return on equity (ROE), return on invested capital (ROIC), equity ratio (ER), gearing ratio (GR), current ratio (CR), quick ratio (QR), and price to earnings ratio (PE).

The findings showed that adopting IFRS increased OPM by 0.76 percent, ROE by 2.03 percent, ROIC by 0.87 percent, and GR by 1.1 percent. Adopting IFRS reduced

the following ratios, ER by 0.35 percent, QR by 0.21 percent, CR by 0.17 percent, and PE by 142.39 percent. The results indicated that increases in the income statement could explain the effects, suggesting that removing the amortization of purchased goodwill under IFRS 3 Business Combinations contributes to increased profitability ratios (Jones and Higgins, 2006).

The study by Beke (2011) covered dividend, growth, profitability, liquidity, and leverage ratios when analyzing the impact of the adoption of IFRS in Hungary. The results show that the dividend ratios with dividend per share and dividend yield both show a positive increase of 0.0711 and 5.294 percent, respectively. The growth ratios based on market value to book value decreased from 5.82 to 2.54. Further, the profitability ratios earnings per share, net profit margin, and return on capital employed all decreased after the IFRS adoption, with 4.53, 67, and 95.97 percent, respectively. As for liquidity, the ratio used is operating cash flow scaled by total assets, current ratio, and cash flow margin. Both operating cash flow scaled by total assets and the current ratio increased after IFRS adoption with 24.99 and 49.74 percent, respectively, while the cash flow margin decreased by 105.08 percent from 0.8029 to -0.0408. Finally, for the leverage ratios, Beke (2011) used debt to equity, debt to shareholders funds, and capital gearing, where all ratios show increases with 16.41, 67.86, and 152.29 percent, respectively.

The study by Lopes and Viana (2008) analyzed to impacts of the mandatory transition from Portuguese GAAP to IFRS for listed companies in 2005. The sample consisted of 44 companies listed on the Euronext Lisbon. The results showed the recognition of intangibles and the accounting treatment of goodwill resulting from business combination were the two issues of great transition changes (Lopes & Viana, 2008). Furthermore, financial instruments, tangible fixed assets, and deferred taxes were also affected.

Another study from Portugal was by Silva et al. (2009), who evaluated the impact of the mandatory adoption of IFRS in 2005 on Portuguese firms listed on the Euronext Lisbon. The study by Silva et al. (2009) aimed to quantify the differences between balance sheet items and financial ratios after the IFRS implementation. The collected data sample consisted of consolidated financial reports of 39 listed Portuguese firms on Euronext Lisbon.

The results show that total assets increased by 1.5 percent, with intangible assets, investments, deferred tax assets, and inventory being the biggest contributors, with -10.78, 22.70, 15.89, and 12.01 percent, respectively. The total average change for equity was 3.19 percent, where consolidated profit after taxes and minority interests were the biggest contributors, with -12.74 and 13.50 percent, respectively. The change in total liabilities showed an average increase of 3.42 percent, where deferred tax liabilities and provisions contributed the most, with 183.96 and 48.31 percent, respectively. It is important to note that, like Hung and Subramanyam (2007), the standard deviation for all items is significant, meaning a significant spread among the companies studied. For the income statement, the results reported an increase in profit after taxes of 14.66 percent with a standard deviation of 64 percent.

Further, profits after taxes increased by 14.66 percent. Operating profits verified a positive increase due to the decrease in operating costs, a decrease of 2.18 percent, compensated to some extent by the average decrease in operating revenues of 1.18 percent (Silva et al., 2009). The gearing ratio shows a decrease of 1.6 percentage points. The price-to-earnings ratio increased by 107.55 percent, and earnings per share decreased by 4.23 percent.

Tsalavoutas and Evans (2010) studied the transition to IFRS on listed companies in Greece. The data sample comprised 193 companies' consolidated annual reports and 45 individual publishing accounts. The 2004 financial statements under domestic Greek GAAP were collected and transferred to a spreadsheet to analyze the comparative figures referring to the reconciliation statements under IFRS.

Tsalavoutas and Evans (2010) used the index of comparability. They found that more companies' (119) shareholders' equity was affected positively by the transition to IFRS than negatively (93), with a median index value of 0.97, significant at 10 percent. Similarly, the mean index value showed that, on average, shareholders' equity under GGAAP was 1 percent lower than IFRS. However, this was not significant. The results show an overall positive impact regarding the net profit with a mean index of 0.88. The median value of 0.96 (significant at the 1 percent level) supports this. The gearing index shows mean and median values of 0.58 and 0.56, both significant at the 1 percent level. Similar findings are shown regarding the liquidity ratio, which was, on average, 6 percent higher after adopting IFRS.

Cordazzo (2013) investigates the impact of mandatory IFRS adoption on net income and Equity in Italy. Cordazzo (2013) uses the reconciliation statement of 178 Italian-listed companies that transitioned to IFRS in 2005. In order to analyze the quantitative effects of the transition, the index of compatibility and Wilcoxon's t-statistics for total indexes of proportionality were applied to address the firm's concern about the extent to which accounting differences could change their reported financial outcomes in the IFRS transition.

Cordazzo's (2013) study shows a positive and significant total impact on equity, net income, and ROE. Equity is, on average, 4.78 percent higher under IFRS than under Italian GAAP, significant at the 1 percent level. The IFRS rules affecting the most are business combinations, with a mean of 2.84 percent, and PP&E, with an increase of 6.12 percent. On average, net income under IFRS is 25.34 percent higher than Italian GAAP, significant at the 1 percent level. The effect results from intangible assets increasing net income by an average of 17.44 percent, income taxes decreasing net income by an average of 4.82 percent, and business combinations increasing net income by an average of 22.46 percent. Furthermore, the calculation of the index of proportionality for ROE confirms the positive incidence of total adjustments to net income and equity, as the ratio is a synthesis of them. ROE under IFRS is, on average, 9.47 percent higher than Italian GAAP, significant at the 5 percent level.

O'Connell and Sullivan's (2008) studied how the mandatory switch to IFRS quantitatively impacted the reported net income of the FTSEurofirst 80 index. The first 60 of the 80 index constituents are selected based on their market capitalization rank, while the remaining 20 were chosen in order to optimize sector representation (O'Connell & Sullivan, 2008). The sample consisted of 37 firms from the following six countries, France, Holland, Spain, Italy, Portugal, and Belgium. The primary reason for choosing constituents of the FTSEurofirst 80 was that all the firms on the index are classified as members of the Continental Europe financial reporting group. Moreover, it excludes UK and Irish firms, which O'Connell and Sullivan (2008) deliberately excluded since Irish/UK GAAP has been heavily influenced by IFRS (Flower & Ebbers, 2002).

O'Connell and Sullivan (2008) use the Index of Comparability and Wilcoxon signed-rank test to quantify the difference between national GAAP and IFRS net

income. Their findings showed that net income for the sample firms for 2004 (excluding the two outliers) using IFRS is, on average, 9 percent higher than net income under domestic GAAP. The statistics table shows that out of the 37 firms, 27 experienced increased net income when converting to IFRS. Further, 9 firms have net income decreased, and 1 firm has the same net income under both IFRS and domestic GAAP.

The t-test of the index of comparability on net income yields a t-statistics of 1.96, including outliers, and 2.61, excluding outliers, which are statistically significant at 10 percent and 5 percent, respectively. Furthermore, the Wilcoxon signed-rank test yields Z-statistics of 3.46 and 3.15, including and excluding outliers, respectively, which are both significant at 5 percent. Both tests provide strong statistical evidence for the assertion that net income for the sample firms was significantly higher in 2004 under IFRS as compared with domestic GAAP. The balance sheet item that caused the greatest increase in net income was IFRS 3 Business Combinations, with a mean of 1.13 and median of 1.10.

Table 2 provides a summarized overview of the prior research discussed in Section 2.2.1, Transition from GAAP to IFRS. The table is divided into three categories: countries, authors, and their respective findings.

Table 2. Previous research on the transition from domestic GAAP to IFRS

Country	**Authors**	**Findings**
Germany	Hung and Subramanyam (2007)	412.66 MEUR increase in Equity 21.90 MEUR increase in Net Income
	Haller et al. (2009)	19.6 percent increase in Equity, significant at the 1 percent level 15.4 percent increase in Net Income, significant at the 5 percent level
Sweden	Hellman (2011)	3.2 percent increase in Equity, significant at the 1 percent level 18.1 percent increase in Net Income, significant at the 1 percent level
Finland	Lantto and Sahlström (2009)	Increase in OPM, ROE, ROIC, and GR by 0.76, 2.03, 0.87, and 1.1 percent, respectively. Decrease in ER, QR, CR, and PE by 0.35, 0.21, 0.17, and 142.39 percent, respectively.
Hungary	Beke (2011)	Dividend ratio: Increase in dividend per share and dividend yield by 0.0711 and 5.294 percent, respectively.

		Profitability ratio: Decrease in EPS, net profit margin, and return on capital employed by 4.53, 67, and 95.97 percent, respectively. Liquidity ratio: Increase in operating cash flow scaled by total assets and current ratio by 24.99 and 49.74 percent, respectively. Decrease in cash flow margin by 105.08 percent. Leverage ratio: Increase in debt-to-equity, debt-to-shareholders funds, and capital gearing by 16.41, 67.86, and 152.29 percent, respectively.
Portugal	Silva et al. (2009)	3.19 percent increase in Equity 14.66 percent increase in Net Income
Greece	Tsalavoutas and Evans (2010)	Equity median index value of 0.97, significant at the 10 percent level Net income median index value of 0.96, significant at the 1 percent level
Italy	Cordazzo (2013)	4.78 percent increase in Equity, significant at the 1 percent level. 25.34 percent increase in Net Income, significant at the 1 percent level. 9.47 percent increase in ROE, significant at the 5 percent level.
Multi national	O'Connell and Sullivan (2008)	9 percent increase in Net Income, significant at the 10 percent level including outliers, and 5 percent excluding outliers.

Notes. Table 2 summarizes previous research on the transition from GAAP to IFRS. The findings are categorized on findings from each country's domestic GAAP, apart from the study by O'Connell and Sullivan (2008), which was a multinational study on companies listed on the FTSEurofirst 80 index with the following six countries represented: France, Holland, Spain, Italy, Portugal, and Belgium. OPM: operating profit margin, ROE: return on equity, ROIC: return on invested capital, ER: equity ratio, GR: gearing ratio, CR: current ratio, QR: quick ratio, PE: prince to earnings ratio and EPS: earnings per share. Under findings, the quantitative findings are summarized.

2.2.2 Transition from NGAAP to IFRS

In their 2008 study, Gjerde et al. (2008) gathered data on all companies listed on the Oslo Stock Exchange (OSE) from 2004 and 2005. Among 219 firms listed, 145 provided financial statements in compliance with NGAAP, and restated them when adopting IFRS in 2005. Gjerde et al. (2008) use a two-sample unconditional comparison and marginal dependency tests to determine value relevance differences between NGAAP and IFRS. Some key findings from Gjerde et al. (2008) showed that the main difference between NGAAP and IFRS is the reporting of goodwill and research and development-expenditures for firms with high intangible assets. Furthermore, Gjerde et al. (2008) discuss if IFRS is marginally more value relevant than NGAAP due to goodwill impairments instead of amortization. Since the allocation of acquisition costs to goodwill remains in the

balance sheet under IFRS, it becomes more value relevant. Moreover, IFRS enhances value relevance since assets are measured at fair value in the balance sheet.

Berner and Olving (2013) conducted a descriptive and empirical analysis of the use of IFRS in Norway based on accounting and company information coupled with information on the use of accounting standards. They identified companies that used IFRS and their characteristics. Furthermore, they studied differences between IFRS and NGAAP by analyzing changes in key figures related to margins, financing, and profitability by both the immediate transition and longer-term effects.

The short-term effects were analyzed by studying the financial statements of a sample of companies at initial reporting. The long-term effects were identified by comparing IFRS companies with a control group reporting under NGAAP over five years from 2006 to 2010. The control group was formed using a matching methodology.

Berner and Olving (2013) found that the total number of companies reporting under IFRS tripled from 2005 to 2011, and the number of non-statutory increased sixfold in the same period. Furthermore, almost half of the non-statutory companies were foreign-owned.

In line with Sellæg (2011), Berner and Olving (2013) found that depreciation is reduced. This reduction is, on average, 17 percent relative to NGAAP. The main reason for this is the elimination of goodwill amortization. A majority of the companies had a positive effect on goodwill. The average median increase was 13 percent due to the absence of depreciation. Further, the PP&E increased by 20 percent due to fair value measurements (Berner & Olving, 2013).

When analyzing the impact on profits by industry, Berner and Olving (2013) found a trend towards companies in manufacturing, trade, services, and real estate experiencing a positive impact from the transition to IFRS. Within shipping, IT and telecom, and other industries, there appears to be a more even distribution related to the direction of the change in earnings.

Furthermore, the Wilcoxon Signed Rank Sum Test was used to analyze whether the transition effect was significantly different. The effect on Earnings Before Interest Taxes, Depreciation, and Amortization (EBITDA) margin is not significantly different in the transition from NGAAP to IFRS since there were small differences in the measurement of total income. However, the transition to IFRS significantly increased the operating profit margin, which is attributed to reduced depreciation. The increase in median corresponds to an increase of 10 percent in operating margin, significant at the 1 percent level. The effect on the net profit margin was an increase of 5 percent, significant at the 1 percent significance level. However, the median percentage change and significance level were lower than observed for the operating profit margin median percentage change. This is explained by increased financial costs (Berner & Olving, 2013).

Moreover, the z-values from the Wilcoxon Signed Rank Sum test indicate that IFRS results in a lower level of solvency and debt ratios, but the difference was not significant. This went against expectations, given that a large proportion of companies increased the value of their assets and thus their equity due to the fair value measurement (Berner & Olving, 2013).

Lastly, Berner and Olving (2013) found that ROA, return on capital employed (ROCE), and ROE under IFRS was significantly higher than under NGAAP at the 1 percent significance level. The medians of selected profitability ratios corresponded to an increase of 5 percent. As profitability has increased under IFRS, profits must have increased relatively more so that the key ratio improvements are mainly attributable to profit improvements.

Beisland and Knivsflå (2015) examined how the mandatory shift from NGAAP to IFRS affected the valuation of earnings and book values. Beisland and Knivsflå (2015) state that a considerable weakness of the IFRS adoption literature is that differences in accounting principles have not adequately explained differences observed in value relevance. Therefore, their study aims to identify the underlying causes of the differences observed in value relevance. The data sample consists of all firms listed on OSE from 2001 to 2008 that reported according to IFRS and NGAAP. The period of 2001 to 2008 was to obtain a relatively equal sample size between NGAAP and IFRS. The total data sample was 1 264 firm-year

observations. Of these, 623 were IFRS observations, and 641 were NGAAP observations.

Beisland and Knivsflå (2015) found that the balance sheet's valuation weight increased following the IFRS adoption. Furthermore, the more fair value accounting positively affected the value relevance of book values, whereas the increased recognition of intangible assets had a negative effect. Beisland and Knivsflå (2015) findings also suggest that the effects of IFRS adoption on value relevance may be susceptible to firm characteristics and choice of regulatory benchmarks (Christiensen et al., 2007; Brown, 2011; Clarkson et al., 2011).

Stenheim and Madsen (2017) investigated the change in accounting quality when firms shift from NGAAP to IFRS. The study utilizes a panel study design with firm-year observation between 2000 to 2008. The analysis excludes companies not transiting from NGAAP to IFRS in 2005 and companies in the bank and insurance industry. Ultimately, the final sample comprises 640 firm-year observations for 80 firms listed on OSE.

Stenheim and Madsen (2017) discovered a notable increase in value relevance when using IFRS compared to the findings of Gjerde et al. (2008). This difference can be attributed to their more extensive sample of firm-year observations. Furthermore, the findings indicate that adopting IFRS improves value relevance and accrual quality. Nonetheless, the less frequent recognition of large losses under IFRS suggests that it may produce less conservative accounting numbers.

One potential limitation of their research methodology was the absence of direct control of other factors that could explain changes in accounting quality. For example, Stenheim and Madsen (2017) identify economic conditions and reporting incentives as potential factors that may explain changes in accounting qualities. In Barth et al. (2008) study, firms that voluntarily adopted IFRS were matched on size and industry with firms not adopting IFRS. This matching approach made it possible to address differences in accounting quality to the change in accounting standards. However, the matched-sample design was infeasible since almost every listed firm on OSE adopted IFRS in 2005.

3.0 Research Questions

3.1 Research Questions

Previous research that looked at the transition effects from NGAAP to IFRS, Gjerde et al. (2008), Berner and Olving (2013), Beisland and Knivsflå (2015), and Stenheim and Madsen (2017) used and analyzed the effects from the mandatory transition to IFRS in 2005. The study from Berner and Olving (2013) showed that the effects of the transition in 2005 resulted in higher operating and net profit margins. However, neither the equity nor debt ratios were significantly different between NGAAP and IFRS.

IFRS is developing through new standards and interpretations; previous understandings have sometimes been updated. Therefore, our objective for the research is to give an updated view on companies transitioning from "NGAAP" to IFRS, as well as where in the financial statement the effects occur. Further, we include companies that have adopted IFRS voluntarily to broaden the data and include the effect. Lastly, we will also investigate if there are industry-specific effects. Therefore, we define our research questions as follows:

"*Where in the financial statement does the transitioning from NGAAP to IFRS occur?*"

"*How significant are the transitioning effect from NGAAP to IFRS?*"

"*How are the financial metrics affected by the transitioning from NGAAP to IFRS?*"

"*Are there differences between industries in the transition from NGAAP to IFRS?*"

The paper aims to contribute to the literature on the economic consequences of IFRS adoption in Norway. For various reasons, understanding the effects of adopting IFRS from NGAAP on the financial statement is important for users. Firstly, the user perspective. Users need to understand the difference between IFRS and NGAAP reporting companies. As mentioned in 2.1.5 Differences, there are different rules for valuation and what is required to be recognized and capitalized.

Further, the research can provide insight and knowledge of the potential benefits and challenges associated with the transition. This can help increase knowledge about the transition so stakeholders and users have an idea and expectations of a

possible transition. This helps to increase the level of knowledge in possible decision-making on whether to adopt IFRS from NGAAP.

3.2 Analysis

3.2.1 Approach

In order to investigate our research question, we will use the same three-step approach as Lantto and Sahlström (2009). Firstly, we create a comprehensive database of financial statement information prepared under NGAAP and IFRS. Secondly, using the database created, we investigate whether IFRS changes income statement and balance sheet items, and key financial ratios. This is done through comparing the different account figures for the same reporting period. The effects are also distributed on industries to show potential differences. Lastly, we investigate the main reasons for the difference by analyzing the accounting practice under NGAAP and IFRS.

3.2.2 Financial Ratios

As there is no single key figure that alone can assess a company's financial performance and financial position, we will consider the impact of the accounting standards on different categories of financial ratios. To illustrate the transition effect, we have selected various financial ratios. These can be divided into profitability, growth, liquidity, and solvency.

Earnings Per Share

The profitability ratio provides information about the business model's sustainability and how well it is managed. Earnings per share (EPS) indicates a company's profitability and how much it makes for each stock share. An increase in EPS indicates greater value, making it important for shareholders and investors.

$$EPS = \left(\frac{Net\ Income}{Outstanding\ shares}\right)$$

Book Value Per Share

Book value per share (BVPS) is an important ratio for shareholders' and investors' interest in a company's growth potential, as it indicates the underlying value of a company's assets. BVPS measures the ratio of Equity available to shareholders divided by outstanding shares.

$$BVPS = \left(\frac{Equity}{Outstanding\ shares}\right)$$

Current ratio

Without liquidity, a firm cannot pay its bills or carry out profitable investments (Petersen et al., 2017, p. 211). Analysis of the short-term liquidity uncovers a company's ability to satisfy (pay) all short-term obligations as they fall due, with short-term in this perspective meaning a year (Petersen et al., 2017, p. 211). The Current ratio compares current assets with current liabilities, with the idea that the larger the ratio, the greater the likelihood that the proceeds from the liquidation of current assets would cover current liabilities (Petersen et al., 2017, p. 231).

$$Current\ ratio = \left(\frac{Current\ Assets}{Current\ Liabilities}\right)$$

Debt-to-Equity Ratio

The Debt-to-Equity (D/E) is a solvency ratio that examines a firm's ability to meet its long-term debts and obligations. The Debt-to-Equity ratio compares a company's total liabilities with Equity. It can be used to assess whether firms have a sound financing structure and a reasonable capital buffer for unforeseen events (Petersen et al., 201, p. 217).

$$Debt/Equity\ ratio = \left(\frac{Total\ Liabilities}{Equity}\right)$$

Return on Equity

Return on equity (ROE) focuses on measuring the equity component of investments. The ratio relates to earnings that are left over for equity investors (Damodaran, 2007). The accounting definition of return on equity is as follows:

$$ROE = \left(\frac{Net\ Income}{Avg.\ Equity}\right)$$

However, our data does not contain incoming, only closing balance. It is possible to calculate the closing balance by using the COGS formula. However, not all companies in our research reported cost of goods sold. In order to get a consistent measure, we have simplified the formula to:

$$ROE = \left(\frac{Net\ Income_t}{Equity_t}\right)$$

Return on Assets

Return on assets (ROA) measures a company's profitability relative to its total assets. It indicates how well the company uses its assets to create value (Zinn, 2023). The formula for calculating return on asset is:

$$ROA = \left(\frac{Net\ Income}{Avg.\ Total\ Assets}\right)$$

Similar to ROE, we simplify the formula due to a lack of data, resulting in the following formula:

$$ROA = \left(\frac{Net\ Income_t}{Total\ Assets_t}\right)$$

3.2.3 Challenges with key financial ratios

As there is no single financial ratio that alone is capable of assessing a company's performance and financial position, we will consider the impact of accounting standards on different categories of financial ratios ratios. However, there are weaknesses and challenges in making conclusions based solely on the ratios. A problem for investors and other users is that the financial statements do not necessarily measure all important aspects or the real profitability, as the true picture cannot be reflected in the financial statements. These are factors that various frameworks such as SWOT and PESTEL analysis are better able to capture. Furthermore, reported financial ratios may vary.

Furthermore, the ratios in the annual reports are retrospective, and we only observe the ratios for one isolated year. Therefore, reported financial ratios vary and change over time. Limitations and challenges arise since the results reflect short-term timing differences, which may reverse in later periods, and as a result, cannot assess the impact of timing differences (Tsalavoutas & Evans, 2010; Bertoni and De Rosa, 2006). Furthermore, the period may not reflect a typical economic environment (Tsalavoutas & Evans, 2010; Norton, 1995).

4.0 Methodology

4.1 Methodology

4.1.1 Research Design

Research is a systematic data collection and interpretation process that aims to discover new insights (Saunders et al., 2019, p. 815). The research design serves as a framework for collecting and analyzing data to answer specific research questions and meet objectives. Thus, it provides reasoned justification for the choice of data sources, collection methods, and analysis techniques (Saunders et al., 2019, p. 815). Gathering meaningful and significant data to address our research question is crucial. The choice of data collection methods depends on the nature of the research question. A quantitative research design, for instance, utilizes data collection techniques or data analysis that generates or uses numerical data (Saunders et al., 2019, p. 175). We will use a quantitative methodological research design to answer our research question.

4.1.2 Research Approach

Saunders et al. (2019, p. 186) define four research approaches, exploratory, descriptive, explanatory, and evaluative research. The choice of research approach depends on what you want to examine and how much research has previously been carried out in this area. Our research approach will be a descriptive research design to systematically obtain information to describe the effects of transitioning to IFRS.

The effects of transitioning to IFRS from NGAAP can be analyzed by studying the financial statements of the year before the introduction since comparable figures must be presented. There is a requirement for a balance sheet at the beginning of the previous period when the company applies an accounting principle with retroactive effect, makes a restatement ("restatement") of items in its financial accounts with retroactive effect, (IAS 1.40A) (Bernhoft et al., 2018, p. 14).

IAS 1 Presentation of Financial Statements requires that an entity provide one year's comparative figures, so if the official conversion date is 2021, the entity must be able to supply 2020 comparatives under IFRS. Consequently, the entity must run parallel systems for 2020. IFRS 1 Frist-time Adoption of IFRS would tell the entity to publish statements using previous GAAP, then prepare 2020 statements using IFRS, and a reconciliation statement that gets you from one to the other (Walton,

2011, p. 116). Thus, two comparable sets of financial statements exist, representing the same underlying economic activities.

4.1.3 Wilcoxon Test

The Wilcoxon signed-rank test is a non-parametric test procedure for analyzing matched-pair data, based on differences or for a single sample. The null hypothesis is that the differences or individual observations in the single-sample case, have a distribution centered around zero. Then, the absolute values are ranked. The test statistic is the sum of the positive or negative values ranks (Woolson, 2008)

The Wilcoxon test does not provide insights into the exact difference between the two comparable samples, in our case NGAAP and IFRS figures (Xia, 2020). But does indicate how big the difference is and how significant it is. As we will see in section 6.0 Results and Discussion, the spread in the data is significant meaning that the application of the mean is not practical, but rather the median. Since regular t-tests test for differences in mean, Wilcoxon is more suited as it tests for underlying differences between two sets of observations.

4.1.4 Validity

Internal and external validity provides a framework to assess whether statistical research results are applicable to answer specific questions. Internal validity concerns whether the analysis has causal effects on the population being studied. External validity concerns whether the analysis's conclusions are generalizable for other populations outside the one being studied (Stock & Watson, 2019, p. 331).

4.1.4.1 Internal Validity

Internal validity emphasizes the effects studied for the population are valid. There are five main threats to internal validity, omitted variable bias, wrong functional form, errors-in-variables bias, sample selection bias and simultaneous causality bias. Only one of these threats is relevant to our research, sample selection bias.

Sample selection bias

For our data, the sample is based on companies changing from NGAAP to IFRS with transition years in 2020 and 2021. Since our data depends on firms providing reformulated figures in their financial statement, our selection is limited to those providing this overview. For example, in 2020, most of the firms that transitioned

to IFRS were banks and financial institutions. They were not obligated to restate their financial statement (IFRS, 2023i).

For a more comprehensive view of the choices and adjustments in the dataset, see Table 2 in section 5.1.1. Quality Assurance and Adjustments. This section provides details on the number of companies that have been excluded from our selection process. Consequently, it should be noted that our data does not constitute a randomized sample representative of specific industries.

4.1.4.2 External Validity

External validity emphasizes whether the results are generalizable to other populations and settings outside the one being studied.

In our case, the question is whether our findings will be relevant to other firms considering adopting IFRS as their accounting standard.

Differences in populations

All firms are structured differently. When reading the results, it is important to have this in mind. However, by decomposing the results to the industry level, companies within the same industry can see potential effects when adopting IFRS. By comparing own financial figures to the firms listed in Appendix A5: Companies, it is possible to get a better view of whether the effects will be demagnetized or magnetized.

Differences in settings

Even though the population in this research is identical to another population, it might not be generalizable as the settings may differ (Stock and Watson, 2019, p. 332). Examples of differences in settings could be differences in institutional environment, differences in laws, and differences in the physical environment. For our study, there is no direct threat to external validity as long as the population of interest is located in Norway, where the environment and the laws are the same for all organizations.

4.1.5 Novelty

In research, novelty refers to introducing a new idea or a new perspective added to the existing research and knowledge within a field (Oommen, 2023). Our research concerns a topic that is already investigated to a large extent. Therefore, our

methods used in this paper will not provide a unique perspective but rather an updated view of recent changes in the past two years.

4.2 Choices

Because the IFRS standards are amended and updated (IFRS, 2023a), we have chosen to focus on the transition effects in 2020 and 2021. The chosen period is due to the selection of data with the same standards when analyzing the effect of transition and giving an updated view. This is in line with Burger et al. (2004), who argue that an advantage is that the data is not distorted by changes, updates, or revisions of the standards, which could be the case in comparisons over several years. By looking at a broader and longer selection of years, new standards can impact the analysis differently when analyzing the transition effect. Although this is possible to adjust for, it may provide inaccuracies in the results.

Since we are looking at the transition effects in the financial statement, our approach is to identify the biggest changes in non-current assets, current assets, equity, non-current liabilities, current liabilities, and net income. Further, we identify the individual items that exert the most significant impact on the observed changes. This will provide an overall view of the transition's significant balance sheet changes. Further, we want to go more in-depth into what drives the changes and differences in the balance sheet items.

In addition, we want to analyze the transition effect on financial ratios. Therefore, we have chosen a selection of financial ratios that deal with different segments to analyze a company's financial situation. A financial ratio analysis is valuable for mapping a firm's economic well-being and uncovering different aspects of its performance and financial position (Petersen et al., 2017, p. 101). Financial ratios describe the level and trend in a firm's profitability, growth, and risk.

Furthermore, we want to look at industry-specific differences. As stated, some Norwegian Real Estate firms have transitioned to IFRS or simplified IFRS, a shift primarily motivated by the assessment of asset at fair market value, proving more accurate and insightful reflection of their financial accounts (Myrbakken & Haakanes, 2018, p. 900). If the focus is on the balance sheet's ability to provide relevant information about financial values. In that case, there is no doubt that IFRS provides an opportunity to report balance sheet values that are closer to market values than what follows from NGAAP (Langli, 2022, p. 755).

5.0 Data

The following section describes how the data has been retrieved, complemented by an elaboration of the choices undertaken to obtain the final data sample.

5.1 Description of the Data Source

The analysis is based on firms' reconciliation statements between NGAAP and IFRS. The data were hand-collected from annual reports from companies that transitioned to IFRS in 2020 to 2021. This was made possible with IFRS information provided by Brønnøysundregisteret (Brreg). Brreg is a state administrative agency whose purpose is to create order and simplification for businesses and citizens by being a national registry and data source (Aspøy, 2022). We ordered data from Brreg, showing the organization number alongside the accounting standard utilized for the years 2005 to 2021. Each organization number shows whether the enterprise uses IFRS, simplified IFRS, NGAAP, or NGAAP for small companies.

After identifying companies that switched to IFRS, we gathered data on the NGAAP figures and the reformulated comparable IFRS figures. The data was sourced from the companies' own websites, where their annual reports were accessible. When the annual reports were unavailable on the company's website, we used Brreg to order their annual accounts from the accounting register. The following section below explains how we identified whether the companies transitioned voluntarily or mandatory.

5.1.1 Identification of Mandatory IFRS Companies

Companies listed in the EU and EEA must apply "IFRS as adopted by EU". The Oslo Stock Exchange's annual "Decisions and Statements" lists companies that have applied for listing and have been approved for listing in the corresponding year (Oslo Børs, 2023). This applies to the Oslo Stock Exchange and sub-exchanges. A list of companies listed in 2020 and 2021 was matched with the data provided by Brreg to check if they changed their accounting standard to IFRS.

5.1.2 Identification of Voluntary IFRS Companies

To broaden our data, we also wanted to include companies that have voluntarily chosen to use IFRS as their accounting standard. We used Python, see Appendix

A7: Python Code, to extract the organizational number in the dataset provided by Brreg of companies that transitioned to IFRS or simplified IFRS as reporting language from NGAAP.

5.2 Data Sample and Processing

5.2.1 Data sample

The sample is based on all companies transitioning to IFRS in 2020 and 2021. Having identified mandatory and voluntary transitions to IFRS, our total sample consisted of 172 companies. They represent the basis for the sample selection and are presented in Table 3.

Table 3. Classification of the final sample

Classification	**Frequency**
Companies transitioning to IFRS in 2020 and 2021	172
Less:	
Companies reporting IFRS for the first time in the consolidated accounts	29
Companies that are banks, financial institutions, or insurance	84
Companies that are foreign enterprises or preparing consolidated accounts in a different currency	4
Companies established the previous year	5
Finale sample	50

Notes. The table present the classification of the finale sample.

5.2.2 Quality Assurance and Adjustments

The data provided by Brreg helped provide a clear overview of the accounting standard used for companies from 2005 to 2021. When utilizing the data to find companies that transition from NGAAP to IFRS, and then reviewing their annual reports, we found some weaknesses, resulting in excluding certain companies.

Some of the weaknesses we found were that for some companies, IFRS was only applied in the first year to the consolidated accounts, so there was no basis for comparison. We removed 29 companies in our dataset where this was the case. Furthermore, we excluded companies in the banking and financial sector, as they

have different rules for the presentation of annual reports (Stenheim & Madsen, 2017). This resulted in 84 companies being excluded. Moreover, companies were established the year before the transition to IFRS were excluded since the data was too small and weak, resulting in 5 companies being excluded. Lastly, we excluded 4 foreign companies and or companies with foreign currency in their accounts. Thus, the final sample consists of 50 companies, Appendix A5: Companies.

5.2.3 Additional Data

The categorization and identification of industries are made with industry codes. The industry code must show the main activity of the business. From 2008, the current standard is designated SN2007 and is based on the EU industry standard Nace Rev. 2 (Brreg, 2023). Furthermore, it is categorized as when the transition happened in which year. In addition, whether the transition to IFRS was voluntary or mandatory. Lastly, the number of outstanding shares. Table 4 shows the final data sample with industry, transition year, and mandatory and voluntary transition.

Table 4. Data sample categorized by year and voluntary vs. mandatory adoption

	Year				
	2020		2021		
Industry	Mandatory	Voluntary	Mandatory	Voluntary	Total
Services	1	0	2	4	7
Transport	0	3	0	0	3
Property	0	4	1	0	5
Energy	2	0	1	1	4
IT	6	3	2	2	13
Trade	0	1	2	2	5
R&D	2	0	0	2	4
Aquaculture	1	0	3	1	5
Production	0	1	2	0	3
Mining	0	1	0	0	1
Sum	12	13	13	12	50

Notes. Data sample based on industry, year of transition, and if the transition was mandatory or voluntary. For a definition of industries, see Appendix A3: Explanation of Industries.

6.0 Results and Discussion

6.1 Balance Sheet

6.1.1 General Changes

By reviewing the standard deviation of both the difference between IFRS and NGAAP and the percentage change, we can observe that the spread of the data is significant, see Appendix A2 Figures 2 to 5 and Table 5. Considering the spread, using mean will provide inaccurate insight as it is sensitive to extreme values in the data. With a skewed distribution, the median can provide a more reliable measure (Holt & Scariano, 2009). Due to this, we will focus on the median rather than the mean, but we have provided both in the tables beneath. All numbers under the category "Difference" are in 1 000 NOK. The calculation of the difference and the percentage change between IFRS and NGAAP is through the following formula:

$$Difference = Balance\ Sheet\ Post_{IFRS} - Balance\ Sheet\ Post_{NGAAP}$$

$$Percentage\ Change = \frac{(Balance\ Sheet\ Post_{IFRS} - Balance\ Sheet\ Post_{NGAAP})}{Balance\ Sheet\ Post_{NGAAP}}$$

Examining Table 5, the items showing a median percentage change different from zero are non-current assets, non-current liability, current liability, and total equity and liability. The Wilcoxon test in Table 5 shows that non-current liability is the only item that is statistically significant at the 1 percent level. In Table 6, the Wilcoxon test shows that only goodwill is statistically significant at the 10 percent level.

Table 5. Descriptive statistics of Balance Sheet items

	Difference			%-Change			Wilcoxon	
Item	Mean	Median	SD	Mean	Median	SD	Statistic	P-value
Non-Current Assets	16844,9	615,2	40503,1	37,0%	7,4%	67,2%	67	9,465
Current Assets	144,8	0,0	13698,3	-0,3%	0%	23,7%	115	0,708
Equity	1198,9	0,0	29851,1	112,6%	0%	603,0%	374	0,332
Non-Current Liability	4181,6	225,6	21109,6	31,4%	4,8%	89,2%	166	0,000***
Current Liability	8180,0	150,1	21069,6	16,9%	5,8%	44,9%	157	7,995
Total Equity & Liability	8934,6	319,9	24665,4	10,5%	2,2%	18,3%	156	2,659

Notes. The table provides descriptive statistics of balance sheet items mean, median, and SD: standard deviation statistics, with the difference and percentage change. Difference is calculated: IFRS – NGAAP. NOK thousand. The percentage change is the effect of adopting IFRS. For exact formulas used, see above. The last column reports the Wilcoxon statistics and p-value.
Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 6. Descriptive Statistics of Balance Sheet items

Item	Index	Mean	SD	P0	P25	P50	P75	P100
Goodwill	NGAAP	272831	730925	545	7605	44260	159191	3344400
	IFRS	287725	731762	0	7605	63476	185084	3344400
	%-Change	17%	62%	-100%	-4%	**4%***	33%	161%
	Difference	13197	33844	-35022	-162	**351***	20726	109537
Deferred tax asset	NGAAP	6598	11769	0	0	852	7515	44509
	IFRS	6302	10728	0	0	729	8271	35718
	%-Change	-14%	58%	-100%	-32%	0%	2%	89%
	Difference	-296	13927	-44509	0	0	579	35718
Right-of-use assets	NGAAP	287	1517	0	0	0	0	8028
	IFRS	102584	298300	0	2170	12156	44979	1562415
	%-Change	321,0%		321,0%	321,0%	321,0%	321,0%	321,0%
	Difference	109108	308745	0	1649	8748	80883	1562415
Intangible Assets	NGAAP	206936	609978	-22832	2126	19362	103948	3344400
	IFRS	216654	617333	-9661	4531	18196	102257	3344400
	%-Change	18%	108%	-100%	0%	0%	4%	586%
	Difference	9718	47030	-89117	0	0	4558	230957
PP&E	NGAAP	169800	331979	7	1330	12193	123486	1247151
	IFRS	148609	312403	0	1309	6987	117342	1252449
	%-Change	-3%	54%	-100%	0%	0%	0%	280%
	Difference	-21749	89677	-453077	0	0	0	34831
Non-current lease liabilities	NGAAP	11677	49680	0	0	0	0	257664
	IFRS	66759	135526	0	1252	8072	67082	605357
	%-Change	176,5%	304,6%	0%	7%	13%	264,8%	528,3%
	Difference	55082	130624	0	742	6755	19265	605357
Deferred tax liabilities	NGAAP	12978	33718	0	0	363	12353	177058
	IFRS	18040	40980	-3087	11	1813	14295	177058
	%-Change	-235%	156,3%	-727,9%	-6%	0%	13%	128,2%
	Difference	5061	22666	-10843	0	0	1838	120661
Current lease liabilities	NGAAP	2743	14251	0	0	0	0	74048
	IFRS	46451	169968	0	434	3199	17184	889203
	%-Change	-5%		-5%	-5%	-5%	-5%	-5%
	Difference	43709	170159	-3387	306	2721	6360	889203
Other current liabilities	NGAAP	163700	633478	26	1852	9996	50128	3485764
	IFRS	153238	633637	0	1852	7984	57082	3485764
	%-Change	5%	59%	-100%	-2%	0%	2%	197%
	Difference	-10462	42389	-190116	-18	0	5	44335

Notes. The table provides statistics of mean, standard deviation (SD), and min (P0), the 25th (P25), 50th (P50), 75th (P75), and max (P100) of balance sheet items, showing NGAAP, IFRS, and Difference in NOK thousand. Difference is calculated: IFRS – NGAAP. %-Change is the percentage change from NGAAP to IFRS. Levels of significance are calculated with the Wilcoxon test.
Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Non-current assets

Non-current assets show the biggest change when adopting IFRS, with a median increase of 7.4 percent, see Table 5 above. The main driver of this increase is goodwill, deferred tax asset, PP&E, right-of-use assets, and investments in associate, see Table 6.

Goodwill shows a median increase of 4 percent, and the standard deviation is not as high as some of the other items. The increase could be due to IAS 36 Impairment of Assets, which does not require goodwill to be amortized compared to NGAAP. While NGAAP necessitates that goodwill should be amortized over the best estimate of its useful life and undergo testing for impairment losses, IFRS requires annual impairment testing of goodwill against the fair value (IFRS, 2023e) & (NRS, 2023c). Under IAS 38 Intangible Assets, IFRS practices fair value measurement, while NGAAP uses acquisition costs. Based on this, IAS 36 Impairment of Assets can explain the increase from a transition, while IAS 38 Intangible Assets might explain a potential decrease. It depends on when the goodwill occurred and how much it has been amortized (IFRS, 2023g) & (NRS, 2023e).

Under IFRS, the right-of-use asset is a lessee's right to use an asset over the life of a lease (PWC, 2016). IFRS 16 Leases requires all leasing agreements to be accounted for in the balance sheet. NGAAP does not recognize operating leases on the balance sheet, and lessees account the these as an expense over the lease term. However, financial leases are recognized on the balance sheet as lease liabilities and right-to-use assets (Bernhoft et al., 2018, p. 609) & (NRS, 2023b). As a result, the non-current assets will likely increase since the operating leases are not disclosed under NAAP. In Table 6, no observations are negatively impacted by a transition. Since none of the companies in our data register any right-of-use assets under NGAAP, it is not possible to calculate the percentage change. However, reviewing the median difference of 8 748 shows an increase. Although the standard deviation is high, this is most likely explained by the difference in company size.

Due to the results found by other research papers, we have added the change in PP&E, although this is not the post contributing the most to the percentage change. In fact, the median percentage change equals zero and does not contribute to any notable effect from our observations. Looking more into the details of the data, 38 companies reported PP&E in their financial statement. Of these, 21 reported a 0

percent change when adopting IFRS, 10 reported a decrease with a median change of 33.5 percent, and the last 7 reported an increase with a median change of 2.6 percent. The reason for the overall median effect of 0 percent could be explained by how the PP&E is initially measured. Under IFRS and NGAAP, the initial measurement of PP&E is measured at cost, including directly attributable costs. IAS 16 Property, Plant, and Equipment states that subsequent measurement should be executed using either the cost or revaluation model. While the cost model calculates the current value of PP&E using the historical cost less accumulated depreciation and impairment losses, the revaluation model states that assets can be carried at revalued amounts, which are fair values determined by appraisals or other methods (IFRS, 2023d). For NGAAP, the general model used is the cost model. It is not permitted to revaluate an asset if it is not a decrease in the existing value. There are, however, special cases where a company can revaluate and write up an asset. In order to do so, the write-up should come as a result of reversing an earlier write-down of the same asset (NRS, 2023a).

Non-current liabilities

Non-current liability shows a median increase of 4.8 percent, see Table 5. By reviewing the different items in the balance sheet, the two items contributing to the increase are deferred tax liabilities and non-current lease liabilities.

Non-current lease liabilities relate to the right-of-use asset under non-current assets. As we saw under non-current assets, the difference between IFRS 16 Leases and NGAAP is the disclosure of operating leases. It is, therefore, according to theory, that non-current lease liability increases. The amount accounted for under non-current lease liabilities is the amount of expenditure connected to the leases with a due date above 12 months (Deloitte, 2023). From Table 6, the median value increases by 13 percent following the transition.

Although the deferred tax liability shows a median difference equal to zero, we have included the observations, showing that 15 of 32 companies reported a positive increase. Further, 11 reported zero affection for deferred tax liabilities, and only six reported a decrease in deferred tax liabilities. The median value of the companies reporting a positive development was a 49.9 percent increase, see Table 6. This increase is due to IAS 12 Income Taxes requiring all companies to report all deferred tax liabilities as non-current (IFRS, 2023c).

Current liabilities

The current liability is the second largest balance sheet post showing a median increase of 5.8 percent, see Table 5. The items affecting the most are current lease liabilities.

We have already covered the current lease liabilities under non-current liabilities. For all companies, this is not accounted for under NGAAP, meaning the percentage is not possible to measure. Looking at the median difference for current lease liabilities, we see an increase of 2 721 with a standard deviation of 170 591, see Table 6, meaning there are differences within each company depending on the size.

6.1.2 Industry-Specific Changes

After observing general changes in the balance sheet, another question arises whether there are differences between industries. As each industry is characterized by different characteristics, it is valuable to provide an overview of the different effects. Table 7 shows the distribution of percentage change on the different items. The median values, which are statistically significant by the Wilcoxon test, are marked. To see the distribution of the data per industry, see Appendix A2 Figures 6 and 7. One important note to keep in mind is the industry of Mining. The data only include one firm, meaning the output is represented by that specific firm. For an explanation of each industry and which company includes in each industry, please see Appendix A3 Explanation of Industries.

The main observation is that except for equity and current liabilities, the trend is an increase both in mean and median percentage change. Current assets show an overall small change, where only Mining is showing a decrease. IT is the industry showing the most statistically significant results, with all aggregated items statistically significant at the 1 percent level, except for equity and current assets. The item with the most significant results is non-current assets.

In non-current assets, we can see that Property, Technology, and Services are the industries contributing the biggest changes, while Mining, Energy, and Transport are the industries contributing the least. Examining the industries and comparing them to the identified items contributing to the change of non-current assets is often characterized by investment in PP&E and R&D, while also often leases assets.

Table 7. Industry-specific change Balance Sheet items, percent

	%-Change NCA					%-Change CA					%-Change E				
Industry	Mean	SD	Min	Median	Max	Mean	SD	Min	Median	Max	Mean	SD	Min	Median	Max
Aquaculture	0,139	0,165	0,027	0,051*	0,416	0,004	0,103	-0,158	0	0,097	0,095	0,146	-0,007	0,061	0,348
Energy	0,008	0,016	0	0	0,032	0	0	0	0	0	-0,004	0,005	-0,009	-0,004	0
IT	0,34	0,692	0	0,074***	2,545	0,003	0,315	-0,84	0	0,658	-0,051	0,259	-0,807	0,013	0,217
Mining	0,091	-	0,091	0,091	0,091	-0,276	-	-0,276	-0,276	0,276	-0,339	-	-0,339	-0,339	-0,339
Production	-0,059	0,098	-0,172	-0,006	0	0	0	0	0	0	-0,07	0,121	-0,21	0	0
Property	1,258	1,124	0	0,896*	2,753	0,009	0,587	-0,804	0	0,856	2,289	3,408	0	1,071	8,253
R&D	0,524	0,536	0	0,516	1,065	0,001	0,002	0	0	0,003	0,02	0,11	-0,096	0,002	0,17
Services	0,288	0,482	-0,304	0,31	1,178	0,003	0,007	0	0	0,016	0,253	0,816	-0,236	0	2,092
Trade	0,614	0,655	0,029	0,563*	1,302	0	0	0	0	0,001	8,474	18,507	-0,041	0,028	41,575
Transport	0,076	0,109	0,006	0,021	0,201	0	0	0	0	0	0,079	0,128	0,002	0,009	0,227

	%-Change NCL					%-Change CL					%-Change TEL				
Industry	Mean	STD	Min	Median	Max	Mean	STD	Min	Median	Max	Mean	STD	Min	Median	Max
Aquaculture	-0,42	0,571	-0,921	-0,454	0,151	0,408	0,858	-0,121	0,032	1,69	0,033	0,019	0,012	0,035*	0,063
Energy	-0,033	0,039	-0,077	-0,027	0	0,372	0,668	0	0,058	1,37	0,002	0,003	0,000	0,000	0,006
IT	0,189	0,398	0	0,064***	1,313	0,096	0,135	-0,041	0,061***	0,49	0,099	0,170	-0,001	0,060***	0,643
Mining	0,047	-	0,047	0,047	0,047	0,193	-	0,193	0,193	193	-0,029	-	-0,029	-0,029	-0,029
Production	-0,294	0,598	-0,983	0	0,1	-0,016	0,054	-0,078	0,004	0,025	-0,015	0,010	-0,024	-0,017	-0,004
Property	1,746	1,878	0,1	1,347*	3,792	0,144	0,538	-0,2	0	1,091	0,357	0,395	0,000	0,291	0,781
R&D	0,594	-	0,594	0,594	0,594	-0,004	0,6	-0,828	0,111	0,592	0,046	0,086	0,000	0,005	0,176
Services	0,388	0,801	-0,003	0,001*	1,817	0,167	0,263	-0,003	0,085	0,735	0,130	0,168	-0,081	0,135	0,431
Trade	1,024	1,055	0,047	0,812*	2,718	0,087	0,075	0	0,084	0,192	0,271	0,239	0,018	0,386*	0,540
Transport	0,029	0,131	-0,108	0,044	0,152	0,482	1,058	-0,394	0,184	1,657	0,047	0,063	0,005	0,017	0,120

Notes. The table provides statistics of mean, standard deviation (SD), and min (P0), median, and max (P100), of industry-specific changes in balance sheet items, showing NCA: non-current assets, CA: current assets, E: equity, NCL: non-current liabilities, CL: current liabilities. %-Change is the percentage change from NGAAP to IFRS. For number of observations within each industry, see Table 4, section 5.2.3. Levels of significance are calculated with the Wilcoxon test. Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Equity showed a median percentage change of 0 when looking at all industries in one, see Table 5, section 6.1.1 General Changes. However, when we distribute the changes to specific industries, it becomes clear that there are differences, see Table 7. Aquaculture, IT, Property, and Trade all show tendencies to increase from the transition, while Energy and Mining seem to decrease. The main driver for the increase in Aquaculture, IT, Property, and Trade experiences is due to an increase in retained earnings. For Aquaculture, one reason for the increase is the net profit. Since the net profit increases, so does the retained earnings. Also, the increase in retained earnings might be explained by numerous causes. However, it is difficult to identify as most firms do not disclose reasons for changes in equity.

Based on the findings in section 6.1.1 General Changes, we can make some suggestions. IFRS allows for the revaluation of certain assets to fair value, in contradiction to NGAAP. If this revaluation causes a higher carrying amount of the asset, this will most likely result in an increase in retained earnings. Another difference that might contribute to the increase in retained earnings is IFRS 9 Financial Instruments. The adoption of IFRS might result in changes and impairments of financial instruments. Such changes could impact the valuation of financial assets or liabilities, increasing retained earnings.

Aquaculture and Production show the biggest decrease from the transition in non-current liabilities. In comparison, the Trade industry is experiencing the most significant increase. Production and Aquaculture are experiencing the biggest reduction in non-current liabilities due to IFRS 9 Financial Instruments and a reduction in financial institutions. According to IFRS 9 Financial Instruments, next year's installments on long-term liabilities must be reclassified as short-term (IFRS, 2023k). Non-current lease liabilities are the main driver of the increase in the Trade industry.

In current liabilities, there are variations between all industries where R&D has the most spread. Property, R&D, and Transport all show tendencies to decrease from the transition, while the other industries show a slight increase. The spread in R&D is driven by two main drivers, current lease liabilities and provisions. Not all firms within the R&D industry report current lease liabilities and current provisions. We have already discussed lease liabilities in section 6.1.1 General Changes. However, provisions show an increase as IAS 37 Provisions, Contingent Liabilities and

Contingent Assets, require the firms to recognize the expected social security that will be paid out in the future for share-based payments (IFRS, 2023f). For small entities, this is not obligated to report under NGAAP.

6.1.3 Mandatory Versus Voluntary Transition

One aspect which is interesting to review is the difference between the companies adopting IFRS mandatorily due to regulations and the companies choosing to adopt it voluntarily. The reason is that the voluntary transition to IFRS allows the companies to decide when they want to transition, which might affect the transition outcome. Companies transitioning voluntarily will most likely change accounting policy when it is beneficial. Hence, the potential effect of an adoption might be larger than compared to mandatory adoptions.

Table 8 below shows the difference between the companies adopting IFRS mandatorily and voluntarily. The largest values are highlighted with bold and cursive text. As we can see, non-current assets and total equity and liability are statistically significant at the 1 percent level for both mandatory and voluntary. For non-current liability, the significance level differs between voluntary and mandatory, where the mandatory firms are significant at the 5 percent level while the voluntary firms are significant at 1 percent. Finally, voluntary firms are also statistically significant at the 10 percent level in equity.

Non-current assets increase more for voluntary adoption than mandatory, with a median percentage increase of 9.9 percent against 6.8 percent. Table 9 shows that although the percentage change is higher, the median difference between NGAAP and IFRS is lower under voluntary than mandatory. This is because the firms adopting IFRS mandatory are often bigger companies than the ones adopting IFRS voluntarily since the transition happens in conjunction with stock exchange listings, meaning the percentage change is often smaller.

Secondly, we can see that both mandatory and voluntary transition increases non-current liabilities. However, the voluntary transition shows a median difference of 120,66 compared to 1433,50 in mandatory adoption.

The change in current liabilities is the most significant difference between mandatory and voluntary adoption. The statistics show that mandatory adoption makes up the biggest change, with a median percentage value of 6.1 compared to

voluntary with 0.1. This is also reflected in the difference with a median value of 1606.00 against 7.01. Reviewing the different items under current liabilities, it becomes clear that financial derivatives, current interest-bearing debt, lease liabilities, and provisions are the main drivers of mandatory firms. Especially financial derivatives and provisions are not highly represented in voluntary companies.

Finally, we can see that voluntary transitions to IFRS experience a slight increase in equity, which is suitable to the argument that voluntary companies adopt IFRS when it is beneficial.

Table 8. Descriptive statistics of Balance Sheet items, mandatory and voluntary transition effect, percentage

	Mandatory			Voluntary		
Item	Mean	Median	SD	Mean	Median	SD
% - Change NCA	13.4%	6.8%***	25.0%	***59.7%***	***9.9%****	85.7%
% - Change CA	***6.9%***	0.0%	22.3%	-7.2%	0.0%	23.4%
% - Change E	1.5%	-0.1%	12.2%	***210.9%***	***0.7%****	822.5%
% - Change NCL	5.7%	***6.4%****	55.6%	***53.3%***	4.4%***	106.7%
% - Change CL	***20.0%***	***6.1%***	36.3%	14.1%	0.1%	52.0%
% - Change TEL	6.2%	1.8%***	14.2%	***14.9%***	***6.5%****	21.1%

Notes. The table provides descriptive statistics of mean, median, and standard deviation (SD) percentage changes in balance sheet items, distributed by mandatory and voluntary transition, showing NCA: non-current assets, CA: current assets, E: equity, NCL: non-current liabilities, CL: current liabilities, TEL: total equity and liabilities. %-Change is the percentage change from NGAAP to IFRS. Levels of significance are calculated with the Wilcoxon test. Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 9. Descriptive statistics of Balance Sheet items, mandatory and voluntary transition effect, difference

	Mandatory			Voluntary		
Item	Mean	Median	SD	Mean	Median	SD
Difference NCA	18853,70	712,00***	49804,33	***14996,72***	***319,87****	30519,77
Difference CA	***2273,24***	0,00	16759,93	-1898,48	0,00	9859,71
Difference E	810,93	-75,00	23830,11	***1555,80***	***3,72****	34988,90
Difference NCL	2685,91	***1433,50****	26044,80	***5617,48***	120,66***	15387,69
Difference CL	***11410,58***	***1606,00***	24097,79	5207,86	7,01	17828,17
Difference TEL	6726,20	464,04***	16935,23	***10877,93***	***258,36****	30111,68

Notes. The table provides descriptive statistics of mean, median, and standard deviation (SD) difference in balance sheet items, distributed by mandatory and voluntary transition, showing NCA: non-current assets, CA: current assets, E: equity, NCL: non-current liabilities, CL: current liabilities, TEL: total equity and liabilities. Difference = IFRS - NGAAP. NOK thousand. Levels of significance are calculated with the Wilcoxon test. Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

6.2 Income Statement

6.2.1 General Changes

Similar to the results in 6.1.1 General Changes in the balance sheet, the review of the standard deviation of both the difference and the percentage change between IFRS and NGAAP, shows spread in the data, see the distribution in Appendix A2 Figures 8 to 11. Also, in the following section, we will focus on the median rather than the mean, but we have provided it in Tables 10 and 11. All numbers under the category "Difference" are in 1 000 NOK. The difference and the percentage change are calculated with the same method as in the balance sheet, see formulas under section 6.1.1 General Changes.

Examining Table 10, the items which show a median percentage change different than zero are operating profit and net financial income. The Wilcoxon test shows that operating profit and net financial income are statistically significant at the 1 percent level, while results are statistically significant at the 10 percent level. Further revenue is close to being statistically significant at the 10 percent level with a P-value of 10,2 percent. The statistical significance is also tested for Table 11. However, none of the items shows statistical significance at conventional levels.

Table 10. Descriptive statistics of Income Statement items

	Difference			%-Change			Wilcoxon	
Item	Mean	Median	SD	Mean	Median	SD	Statistic	P-value
Revenue	-1372,34	0,00	6525,58	0,60 %	0,00 %	0,08	48	0,102
Operating Profit	5486,18	3,58	19667,04	19,50 %	3,60 %	1,13	184	0,006***
Net financial income	-266,00	-0,06	1974,12	23,10 %	-3,0 %	0,95	146	0,003***
Result	3612,38	2,00	15762,14	-9,80 %	0,00 %	1,53	301	0,059*

Notes. The table provides descriptive statistics of income statement items mean, median, and SD: standard deviation statistics, with difference and percentage change. Difference is calculated: IFRS – NGAAP. NOK thousand. For exact formulas used, see the beginning of section 6.1.1 General Changes. The percentage change is the effect of adopting IFRS. The last column reports the Wilcoxon statistics and p-value.
Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 11. Descriptive statistics of Income Statement items

Item	Index	Mean	SD	P0	P25	P50	P75	P100
Depreciation & amortization	NGAAP	7983	53291	-170222	-978	104	30113	162192
	IFRS	13383	78217	-170222	-1155	42	21339	380775
	%-Change	2%	6,9%	-100%	-41%	-1%	45%	222%
	Difference	5694	43241	-90333	-1957	-1	1821	218583
Other operating expenses	NGAAP	207946	1187611	-498230	-12873	211	15405	6241352
	IFRS	197533	1143928	-455118	-13163	1696	14970	6013735
	%-Change	30%	178%	-44%	-13%	-1%	4%	933%
	Difference	-10413	47013	-227617	-1311	18	3357	43112
Payroll	NGAAP	475669	2912790	-711195	-19510	3560	43034	17928390
	IFRS	474981	2912663	-679151	-19301	2983	43008	17928390
	%-Change	1%	20%	-44%	-2%	0%	0%	83%
	Difference	-688	9886	-34713	-394	0	0	32044
Financial Income	NGAAP	-14146	71371	-292135	156	779	2481	77732
	IFRS	419695	1913795	-292135	197	932	2481	8317732
	%-Change	592%	249,8%	-13%	0%	0%	0%	10601%
	Difference	457938	1942147	-1019	0	0	0	8240000
Financial Expenses	NGAAP	-1358	32291	-55243	-2959	-434	471	104722
	IFRS	-2018	37631	-75497	-3601	-752	451	119241
	%-Change	12%	18%	-6%	0%	6%	15%	55%
	Difference	-643	6868	-23373	-235	-10	1	14519

Notes. The table provides statistics of mean, standard deviation (SD), and min (P0), the 25th (P25), 50th (P50), 75th (P75), and max (P100), of income statement items, showing NGAAP, IFRS and Difference in NOK thousand. Difference: IFRS – NGAAP. %-Change is the percentage change from NGAAP to IFRS. Levels of significance are calculated with the Wilcoxon test. Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Operating Profit

The operating profit increases with a median value of 3.6 percent. Since revenue remains even in most cases, the main reason for the increase should arguably be caused by a decrease in operational cost. When examining the different accounting items for operational costs, the items contributing to change are depreciation, amortization, other operating expenses, and payroll.

Depreciation reduces by a median of 0.8 percent. The depreciation and amortization result from the value of the fixed assets. As described in 6.1.1 General Changes in the balance sheet, although the median value of changes in PP&E is zero, there are firms experiencing changes in PP&E. Most of these experience a decrease in PP&E. Hence the depreciation and amortization will decrease likewise. Another factor that could contribute to the decrease is the componentization of the assets. IFRS and IAS 16 Property, Plant and Equipment often require the assets to be split into

components. This involves identifying separate components of an asset with different useful lives (IFRS, 2023d). This approach could also contribute to lower depreciation expenses compared to NGAAP. Other operating expenses are difficult to identify as they vary from firm to firm and what the post contains. However, other operating expenses were reduced by 1.38 percent.

Payroll covers all employee expenses, from salary to benefits. From Table 11, we can see a median value of 0 percent change. The distribution of the number of firms experiencing zero changes is 17 companies, 14 companies experience a decrease in employee expenses, and 7 companies get an increase. The median change for the 14 companies experiencing a decrease is 4.2 percent. The prior-service cost policy in IFRS and IAS 19 Employee Benefits might explain the decrease. While NGAAP recognizes prior service costs at the date when the amendment of the plan is adopted and is then amortized as income over the remaining years of services, IFRS and IAS 19 Employee Benefits recognize all prior service costs in the profit and loss account when the amendment takes place in the employee benefit plan (Oguche, 2022).

Net financial income

The net financial income decreases with a median value of 3.0 percent. Reviewing the financial income- and expenses-items, the main driver is financial expenses, with a median increase of 6.2 percent.

Although it is hard to identify the specific reason for change as the firms do not disclose why they see a decrease. The reason could be a result of IFRS 9 fair value measurement of financial instruments such as derivatives. IFRS 9 differs from NGAAP regarding the classification of financial instruments. While IFRS 9 uses a principle-based approach for classifying and measuring financial instruments, NGAAP follows a rules-based approach with specific guidelines for different financial instruments (NRS, 2023d). IFRS 9 Financial Instruments differentiates between three categories of financial assets: financial assets measured at amortized costs, the second measured at fair value through other comprehensive income (OCI), and lastly, measured at fair value through profit or loss (IFRS, 2023k). An increase in the valuation of financial instruments will also increase the expenses as the rate calculating the expenses will now be multiplicated with a higher number.

6.2.2 Industry-Specific Changes

Examining Table 12, we see some differences between industries, especially within operating profit, net financial result, and net profit. The median values, which are statistically significant by the Wilcoxon test, are marked. To see the distribution of the data per industry, see Appendix A2, Figures 12 and 13.

The main observation is that almost all industries show the same trend within each item except for results where there are differences between industries experiencing a reduction or increase. There are few observations that are statistically significant at conventional levels. From Table 4 in section 5.2.3 Additional Data, there are few companies within each industry potentially affecting the significance of the result.

On revenue, most industries show a median percentage change equal to 0. Aquaculture shows a minor tendency to increase with a median percentage of 0.1, while the Mining industry shows an increase of 16.5 percent. Keep in mind that the Mining industry only consists of one observation. The reason for the increase in the Mining industry is that, under NGAAP, revenue was recognized at a point in time for all contracts with customers. Under IFRS 15 Revenue from Contracts with Customers, revenue is recognized using forward price for the settlement period at the date of the sale.

Regarding operating profit, we can see that all industries experience an increase except Production, R&D, and Energy. Property has the most spread but also the biggest median percentage change of 116.6. This is due to IFRS 8 Operating Segments, which provides a principle-based standard with broad guidelines and allows for judgement in the application of segment reporting requirements (IFRS, 2023j). NGAAP tends toward more rules-based, providing specific requirements and detailed guidance. For the other industries experiencing an increase, the reason is solely not IFRS 8 Operating Segments but also IFRS 13 Fair Value Measurement and IFRS 16 Leases. For Aquaculture especially, IFRS 13 Fair Value Measurement covers biological assets measured at fair value less cost to sell (IFRS, 2023l). Under NGAAP, biological assets are measured at the lower of cost and net realizable value. The IFRS 13 Fair Value Measurement contributed positively to the operating profit. IFRS 16 Leases is already covered in 6.1.1 General Changes. The effect of IFRS 16 Leases on the income statement is the lease payments. The payments are discounted using the interest rate specified in the lease.

For net financial profit, there is a trend along all industries where the post decreases. Examining Table 12, the industries of Trade and Transport experience the biggest decreases with a median of 46.0 and 42.3 percent, respectively. Examining the different industries, the main reason for the decrease in net financial profits is due to IFRS 16 Leases. The effect of IFRS 16 Leases and disclosing operational leases in the financial statement requires the company to pay the lease's financial rates (IFRS, 2023m). This affects the net financial profit as the financial expenses increase.

Another rule affecting the financial profit is IFRS 9 Financial Instruments and currency hedging. This is especially relevant for companies working internationally or operating with foreign valutas. Under NGAAP, currency hedging is already accounted for (NRS, 2023d). With a transition to IFRS, currency hedging will first be accounted for in the coming financial year (IFRS, 2023k). For example, a transition to IFRS in 2020 will account for currency hedging in 2021. Although this is only temporary, it is worth considering as it might impact the net result.

Finally, for net profits, most industries experiences little or no change in profit. However, the four industries that show a difference are Aquaculture, IT, Property, and R&D, where Property shows a decrease while the other shows an increase. Since the net profits are a summation post, there is no IFRS difference to NGAAP causing any direct impact on the post.

Table 12. Industry-specific change in Income Statement items, percent

	%-Change REV					%-Change OP					%-Change NF					%-Change RES				
Industry	Mean	SD	Min	Median	Max	Mean	SD	Min	Median	Max	Mean	SD	Min	Median	Max	Mean	SD	Min	Median	Max
Aquaculture	-0,008	0,014	-0,029	-0,001	0	0,23	0,487	-0,092	0,029	0,955	-0,331	0,706	-1,388	-0,006	0,075	0,048	0,758	-0,947	0,172	0,792
Energy	0	0	0	0	0	0	0	0	0	0	-0,05	0,086	-0,149	0	0	0,023	0,04	0	0	0,07
IT	0,024	0,13	-0,072	0	0,451	0,404	1,304	-1,588	0,078	3,597	-0,214	0,704	-2,504	-0,047**	0,429	0,695	2,666	-1,084	0	9,396
Mining	0,162	-	0,162	0,162	0,162	0,431	-	0,431	0,431	0,431	-0,137	-	-0,137	-0,137	-0,137	-0,021	-	-0,021	-0,021	-0,021
Production	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Property	-0,019	0,039	0	0	0	2,173	2,723	0,098	1,166	5,256	0,511	1,086	-0,234	0*	2,314	-0,771	1,256	-2,6	-0,291	0,098
R&D	0	0	0	0	0	-0,049	0,133	-0,246	0	0,05	-0,046	0,293	-0,254	-0,046	0,161	0,181	0,555	-0,425	0,126	0,897
Services	-0,014	0,034	0	0	0,002	0,055	0,847	-1,234	0,019	1,439	-0,588	1,297	-3,225	-0,003	0	0,095	0,597	-0,63	0	1,2
Trade	-0,001	0,003	0	0	0	0,147	0,144	0,01	0,089*	0,386	-0,046	1,15	-1,021	-0,46	1,934	-0,008	0,08	-0,099	-0,017	0,12
Transport	-0,009	0,016	0	0	0	0,075	0,059	0,027	0,057	0,141	-1,213	1,745	-3,214	-0,423	-0,003	0,114	0,038	0,073	0,122	0,147

Notes. The table provides statistics of mean, standard deviation (SD), and min (P0), median, and max (P100), of industry-specific changes in income statement items, showing REV: revenue, OP: operating profit, NF: net financial profit, and RES: result. %-Change is the percentage change from NGAAP to IFRS. For number of observation within each industry, see Table 4 under section 5.2.3 Additional Data. Levels of significance are calculated with the Wilcoxon test. Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

6.2.3 Mandatory Versus Voluntary Transition

The difference between mandatory and voluntary adoption of IFRS is quite interesting as where voluntary transition shows a change, mandatory does not, and vice versa. Table 13 shows the distributed descriptive statistics of the income statement on the mandatory and voluntary differences in percentage. The largest values are highlighted with bold and cursive text. Table 14 shows the difference in NOK thousand.

The Wilcoxon test is executed on both statistics, and the results show that mandatory firms have a statistically significant result on revenue at the 5 percent level and net financial results at the 1 percent level. Meanwhile, for the voluntary companies, operating profit and results are statistically significant at the 1 percent level and net financial result at the 5 percent level.

Table 13. Descriptive statistics of Income statement items, mandatory and voluntary transition effect, percent

	Mandatory			Voluntary		
Item	Mean	Median	SD	Mean	Median	SD
% - Change REV	***0.6%***	0.0%**	10.8%	0.5%	0.0%	3.5%
% - Change OP	***17.7%***	0.0%	102.4%	4.6%	***7.8%****	117.0%
% - Change NF	***-2.4%***	-4.7%**	55.6%	-38.4%	***-0.5%****	119.3%
% - Change RES	-43.9%	***3.2%***	216.9%	***-24.1%***	0.0%***	60.1%

Notes. The table provides descriptive statistics of mean, median and standard deviation (SD) percentage changes in Income Statement items, distributed by mandatory and voluntary transition, showing REV: revenue, OP: operating profit, NF: net finance, and RES: result. %-Change is the percentage change from NGAAP to IFRS. Levels of significance are calculated with the Wilcoxon test.
Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 14. Descriptive statistics of Income statement items, mandatory and voluntary transition effect, difference

	Mandatory			Voluntary		
Item	Mean	Median	SD	Mean	Median	SD
Difference REV	***2830,05***	0,00**	9191,68	27,06	0,00	186,88
Difference OP	***6675,46***	0,00	26103,58	4344,49	***9,03****	10853,91
Difference NF	***-584,98***	-14,02**	2025,26	-52,98	***-0,01****	1910,42
Difference RES	1931,38	***0,00***	18647,72	***5099,42***	6,19***	128888,21

Notes. The table provides descriptive statistics of mean, median, and standard deviation (SD) difference in Income Statement items, distributed by mandatory and voluntary transition, showing REV: revenue, OP: operating profit, NF: net finance, and RES: result. Difference = IFRS - NGAAP. NOK thousand. Levels of significance are calculated with the Wilcoxon test.
Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

For operating profit, voluntary companies adopting IFRS show a median increase of 7.8 percent, whereas mandatory firms show a median value of 0, see Table 13. From section 6.2.1 General Changes, we observed that the items affecting operating profit were depreciation, other operating expenses, and payroll expenses.

Secondly, the firms mandatorily adopting IFRS experiences a decrease in net financial profit of 4.7 percent. However, the voluntary companies only show a decrease of 0.5 percent. As all companies that adopted IFRS mandatory are listed on the stock exchange, currency hedging is more likely to be relevant for a listed firm than a minor firm that adopted IFRS voluntarily and also might explain the difference.

From Table 14, the zero medians in the mandatory transition suggest that for a substantial number of firms, the transition did not affect revenue and operating profit, similar to the median percentage change in revenue and operating profit in Table 13. Like revenue in the mandatory transition, the median revenue in the voluntary transition is 0 for Tables 13 and 14.

For mandatory transitions, Table 14 indicates a negative average impact on revenue and net finance but a positive average effect on operating profit and results. However, the sizeable standard deviations indicate high variability among the companies. Meanwhile, voluntary transitions present a positive trend on all items' mean differences in Table 14. Notably, the standard deviations, particularly for results, are relatively high. This points towards substantial disparities in the impacts of the transition among different companies on the result.

6.3 Financial Ratios

6.3.1 General Changes

Financial ratios are numerical values from the financial statement that provide information to stakeholders about a company's performance. The numbers are often used to assess the company´s liquidity, solvency, and profitability and are therefore important to review when examining the adoption of IFRS. To see the specific calculation of each ratio, see section 3.2.2 Financial Ratios.

From Table 15, the three items showing a median percentage change different from zero are the current ratio, debt-to-equity ratio, and ROA. The Wilcoxon test shows that EPS and Current ratio is statistically significant at the 5 and 1 percent level.

Table 15. Descriptive statistics of Financial Ratios

	Difference			%-Change			Wilcoxon	
Ratio	Mean	Median	SD	Mean	Median	SD	Statistic	P-value
EPS	0.126	0.000	0.701	-51,3%	0%	316,4%	238	0,012**
Current ratio	-0.532	-0.052	1.890	4,9%	-4,8%	85,6%	227	0,001***
BVPS	-0.597	0	11.368	-376,8%	0%	3494,8%	321	0,156
D/E	0.189	-0.004	3.025	-390,4%	-1,6%	3032,7%	447	0,215
ROE	-4.043	0	19.704	-42,6%	0%	257,5%	421	0,530
ROA	0.013	0	0.058	-52,3%	-2%	251,6%	419	0,375

Notes. The table provides descriptive statistics of Financial Ratios items mean, median, and SD: standard deviation statistics, with difference and percentage change. Difference is calculated: IFRS – NGAAP. The percentage change is the effect of adopting IFRS. For exact formulas used, see beginning of section 6.1.1 General Changes. The last column reports the Wilcoxon statistics and p-value.
Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

The current ratio is calculated by dividing current assets by current liabilities. Our results from the balance sheet, Table 5, showed no change in current assets, while current liabilities increased with a median of 4.8 percent. Increasing the denominator reduces the ratio; the mean decrease in short-term liquidity is 4.8 percent. As we mentioned earlier, the main driver of the current liabilities is IFRS 16 Leases.

The debt-to-equity ratio increases with the observation in this research paper. Both current and non-current liabilities increase, while equity has a median increase of zero. Due to this, the debt-to-equity ratio increases with a median value of 1.6 percent. The standard deviation is 0.738, which tells us that the spread within the financial ratio is not as big as other ratios but is still significant, meaning there are

differences between each company in the dataset. The increase is due to the change in non-current and current assets. As discussed, non-current assets are driven by changes in right-to-use assets, goodwill, and for some companies, PP&E.

The last ratio affected by a transition is ROA. ROA is typically calculated with average total assets. However, since our data does not contain data with incoming balance but only closing balance at year-end, we have chosen to simplify the ratio by only using closing balance. The results show a median decrease of 2 percent, mainly driven by increased total assets, while the result remains consistent.

6.3.2 Industry-Specific Changes

All metrics have significantly large standard deviations based on the aggregated Table 15. This argues that there are differences between companies. This is useful as there might be different effects on the different ratios within each industry. As we saw from sections 6.1.2 and 6.2.2 Industry-Specific Changes, there are differences in how much impact the different industries experience. Hence it is reasonable to assume that the same applies to financial ratios. The overview of the financial ratios and the transition effect is presented in Table 16 on the next page.

Only IT shows statistically significant results at the 5 percent level. The reason for the low number of significant results is arguably the same as for the results in 6.2.2 Industry Specific Changes. Since the number of observations within each industry is low, it is also hard to find statistically significant results as well.

For EPS, we see that Aquaculture, Property, and Transport all experience the biggest change with a median value of -17.2, 34.1, and 12.2 percent, respectively.

The current ratio showed an overall decrease of 4.8 percent. Examining the different industries, we can see that most industries experience a drop in short-term liquidity, except for Services, which do not have any median differences. Mining is the industry with the most decrease. However, there is only one company within this industry, which is not generalizable.

The debt-to-equity ratio showed an overall increase of 1.6 percent. Besides Mining, IT and Services are the industries with the largest increase, with a median value of 8.6 and 14.3 percent, respectively. On the other side, Aquaculture, Production, Property, and Transport experienced a decrease in debt-to-equity.

Table 16. Industry-specific in Income Statement items, difference and percent

	EPS						Short-term liquidity						BVPS					
	Difference			%-Change			Difference			%-Change			Difference			%-Change		
Industries	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
Aquaculture	0,00	0,00	0,00	-4,7 %	-17,2 %	75,8 %	-0,82	-0,15	1,47	-22,7 %	-6,3 %	40,7 %	0,00	0,00	0,00	9,5 %	6,1 %	14,6 %
Energy	0,00	0,00	0,00	-2,4 %	0,0 %	4,1 %	-1,88	-0,34	3,31	-17,1 %	-5,2 %	27,6 %	0,00	0,00	0,00	-0,4 %	-0,4 %	0,5 %
IT	0,03	0,00	0,10	-69,5 %	0,0 %	266,6 %	-0,74	-0,03	2,14	-8,3 %	-5,0 %*	28,5 %	-0,12	0,00	0,44	-1849,5 %	0,0 %	6650,0 %
Mining	0,00	0,00		2,1 %	2,1 %		-0,39	-0,39		-39,3 %	-39,3 %		0,00	0,00		-33,9 %	-33,9 %	
Production	0,00	0,00	0,00	0,0 %	0,0 %	0,0 %	0,02	-0,04	0,12	1,9 %	-0,3 %	5,8 %	0,00	0,00	0,00	-7,0 %	0,0 %	12,1 %
Property	0,06	0,04	0,07	-384,9 %	34,1 %	994,5 %	-0,33	0,00	0,78	-12,6 %	-0,7 %	38,0 %	9,92	0,22	19,55	286,1 %	144,2 %	364,7 %
R&D	0,07	0,00	0,14	18,1 %	12,5 %	55,5 %	-0,08	-0,91	4,49	106,8 %	-9,1 %	251,1 %	0,07	0,00	0,14	1,9 %	0,2 %	11,1 %
Services	0,00	0,00	0,00	9,5 %	0,0 %	59,7 %	-0,23	0,00	0,67	36,4 %	0,0 %	112,5 %	0,04	0,00	0,10	25,3 %	0,0 %	81,6 %
Trade	0,95	0,00	2,13	-0,8 %	-1,7 %	8,0 %	-0,13	-0,12	0,12	-7,6 %	-7,7 %	6,4 %	-13,68	0,00	30,59	847,4 %	2,8 %	1850,8 %
Transport	0,05	0,04	0,05	11,4 %	12,2 %	3,8 %	-0,25	-0,22	0,70	-4,3 %	-15,5 %	64,4 %	0,18	0,01	0,30	7,9 %	0,9 %	12,8 %
	Debt-to-Equity						ROE						ROA					
	Difference			%-Change			Difference			%-Change			Difference			%-Change		
Industries	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
Aquaculture	-1,22	-0,08	2,30	-21,5 %	-5,6 %	36,5 %	-0,04	0,00	0,14	-11,7 %	-24,0 %	73,3 %	-0,01	-0,01	0,04	-7,7 %	-19,5 %	73,6 %
Energy	0,01	0,01	0,01	2,8 %	0,8 %	4,5 %	0,00	0,00	0,00	-2,1 %	0,0 %	3,5 %	0,00	0,00	0,00	-2,4 %	0,0 %	4,1 %
IT	36,64	0,05	131,51	39,4 %	8,6 %**	123,5 %	-8,83	0,00	31,64	-30,2 %	0,3 %	268,4 %	0,03	0,00	0,07	-66,3 %	-1,3 %	241,2 %
Mining	1,44	1,44		69,3 %	69,3 %		0,43	0,43		54,5 %	54,5 %		0,01	0,01		5,2 %	5,2 %	
Production	0,28	-0,02	0,53	4,0 %	-6,5 %	29,1 %	0,00	0,00	0,00	0,0 %	0,0 %	0,0 %	0,00	0,00	0,00	2,1 %	2,1 %	0,5 %
Property	-0,65	-0,05	1,32	-25,2 %	-1,6 %	36,7 %	-0,01	0,00	0,18	-307,3 %	-23,6 %	641,7 %	0,00	0,00	0,04	-303,7 %	-11,1 %	652,3 %
R&D	0,03	0,00	0,06	35,5 %	3,7 %	66,2 %	0,01	-0,01	0,14	19,3 %	19,1 %	59,8 %	0,02	0,00	0,12	15,7 %	12,0 %	58,7 %
Services	-0,19	0,01	1,75	16,7 %	14,3 %	43,9 %	-0,04	0,00	0,09	3,6 %	-0,8 %	73,2 %	0,01	0,00	0,06	3,0 %	-11,6 %	70,9 %
Trade	77,63	0,09	173,51	-5,9 %	3,4 %	58,8 %	-15,02	0,00	33,45	-28,2 %	-6,1 %	44,1 %	0,01	0,00	0,04	-20,0 %	-19,2 %	13,8 %
Transport	0,04	-0,01	0,37	-7,8 %	-0,5 %	28,4 %	0,00	0,01	0,02	4,1 %	7,1 %	11,5 %	0,01	0,00	0,01	6,7 %	10,3 %	9,7 %

Notes. The table provides statistics of mean, standard deviation (SD) for EPS, Short term liquidity, BVPS, Debt-to-equity, ROE, and ROA distributed to industries. For number of observation within each industry, see Table 4 under chapter 5.2.3. Levels of significance is calculated with Wilcoxon test. Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

ROE shows that there are differences between industries. For example, Aquaculture and Property experience a decline in ROE with a median percentage change of 24 and 23.6 percent, respectively. Meanwhile, R&D has more than one observation, which experiences the biggest increase, with 19.1 percent.

Finally, ROA shows the spread between the industries. Again, Aquaculture and Property experienced a decrease together with Services and Trade by 19.5, 11.1, 11.6, and 19.2 percent, respectively. R&D and Transport experienced an increase of 12 and 10.3 percent, respectively.

EPS and BVPS remain mostly unaffected in most sectors, as indicated by the 0 median difference. However, the standard deviation point to a wide divergence in individual company experiences within the sectors. Interestingly, the Property sector shows an increase in BVPS, both in difference and percentage change. The mean and median difference for the Property industry is 9.92 and 0.22, respectively. The mean and median percentage change is 286.1 and 144.2 percent, respectively. The increase in BVPS for Property indicates a substantial impact of the transition on equity valuation in this industry. The observed effect could be linked to some companies in the Norwegian Property industry that have switched to IFRS or simplified IFRS, justifying the transition because assessing the assets at fair value is considered to increase the information value in the accounts (Myrbakken & Haakanes, 2018, p. 900).

6.5 Limitations

Firstly, the matched sampling is sensitive to both the short-term implementation effects of the IFRS adoption process and the restatements that are typically induced by discontinuous operations (Beisland and Knivsflå, 2015).

Furthermore, there is a risk that the results reflect short-term timing differences, which may reverse in later accounting periods (Street et al., 2000; Norton, 1995). Additionally, this period may not reflect a typical economic environment. For example, in 2020, and 2021, the Covid-19 pandemic was present. A study by Albitar et al. (2020) concluded that Covid-19 was more likely to impact audit quality negatively. This may have had an impact on the sampled data from the financial statements. This is especially relevant for companies adopting IFRS voluntarily. Mandatory adoption of IFRS often results from being listed or purchased by a listed company. These processes are often time-consuming, and in

order to get listed often takes more than a year, hence it is hard to time with a good performance (Maldan et al., 2016).

Moreover, the financial statements that dedicated separate note(s) for the transitional effects are of better quality to analyze the transition effect than those where we had to compare the transition year to the previous year. This is because we experienced that some balance sheet items were merged or split from one year to the next.

Conclusively, distributing the results to industries reduces the number of observations in each variable. This could potentially lead to non-relevant numbers for companies outside this study. For example, Mining is represented by only one company, meaning the potential for differences to companies outside the study is high.

6.6 Recommendation for Further Research

For future research, we recommend focusing on transitions from NGAAP to IFRS within specific industries. There are differences between the industries, and a general analysis such as this paper focuses on a set of companies. It does not go in-depth within specific industries. It would be insightful to achieve a sufficient database within the same industry to provide a more specific effect.

Another topic with potential for future research is the long-term effect of a transition. Most studies on adopting IFRS's transition effect focus on the transition year. There is a gap in the current research on the long-term effect. Some studies have been executed but not to the same extent as with the transition year. Looking at the long-term effect of IFRS adoption could provide more insight into the benefits and downsides of the adoption. Focusing only on the transition would display the effect at a certain point.

A final recommendation is the focus on the voluntary adoption of IFRS. Adopting IFRS voluntarily allows the company to choose when the transition should happen. This enables the company to time the transition to maximize the potential benefit of the adoption. An interesting topic would be to look at what time and under which circumstances the IFRS adoption would provide as much benefits as possible. This research would enable companies considering adopting to get insight into when they should execute the transition.

7.0 Conclusion

This thesis aims to provide an updated view of the effect of transitioning to IFRS in Norway, focusing on where in the financial statement the effect occurs, how financial metrics are affected, how significant the effect is, and whether there are differences between industries. By identifying companies in the transition years 2020 and 2021, a total of 50 companies were included in the research.

The balance sheet shows a statistically significant change in non-current liabilities. By reviewing the median, due to the spread in our data, we can also observe a difference between non-current assets and current liability. The main items that drive the changes in the balance sheet are goodwill, leases, and, for some companies, PP&E. For the income statement, the results showed no change in revenue, while operating profit increased, and net financial income decreased. Operating profit, net financial income, and result showed statistically significant results at conventional levels. The main drivers for the increased operating profit are depreciation, other operating expenses, and payroll. For net financial income, the financial expenses increase, driving the net financial income down. IFRS 9 Financial Instruments mainly drives the change because of how they classify their financial instruments and how currency hedging is treated.

Furthermore, the thesis reviewed differences between industries. We observed significant differences between each industry on each post within the financial statement. Almost all industries showed positive development in non-current assets in the balance sheet. In contrast, there were differences between industries decreasing and increasing for non-current and current liability. For the income statement, we observed that almost every industry showed the same trend of declining net financial profits and increasing operating profits.

Conclusively, we presented the differences between mandatory and voluntary adoption of IFRS. The topic is interesting because voluntary adoption can be timed to benefit the companies, meaning we can potentially get biased results. On the balance sheet, we observed that the voluntary adoption increased more in non-current assets than a mandatory adoption, while the non-current and current liability mandatory increased more than the voluntaries. On the income statement, the main percentage change driver under voluntary adoption was operating profit, while the decrease in net financial profits was the main driver in mandatory adoption.

8.0 References

Albitar, K., Gerged, A. M., Kikhia, H. Y., & Hussainey, K. (2020). Auditing in times of social distancing: the effect of COVID-19 on auditing quality. *International Journal of Accounting and Information Management*, *29*(1), 169–178. https://doi.org/10.1108/ijaim-08-2020-0128

Aspøy, A. (2022, May 3). *Brønnøysundregistrene*. Store Norske Leksikon. https://snl.no/Br%C3%B8nn%C3%B8ysundregistrene

Baker, C. R., & Barbu, E. (2007). Evolution of research on international accounting harmonization: a historical and institutional perspective. *Socio-economic Review*, *5*(4), 603–632. https://doi.org/10.1093/ser/mwm014

Barth, M. E., Landsman, W. R., & Lang, M. H. (2008). International Accounting Standards and Accounting Quality. *Journal of Accounting Research*, *46*(3), 467–498. https://doi.org/10.1111/j.1475-679x.2008.00287.x

Beisland, L. A., & Knivsflå, K. H. (2015). Have IFRS changed how stock prices are associated with earnings and book values? *Review of Accounting and Finance*, *14*(1), 41–63. https://doi.org/10.1108/raf-06-2013-0079

Beke, J. (2011). International Accounting Standards Effects on Business Management. *Business Management and Strategy*. https://doi.org/10.5296/bms.v2i1.660

Berner, E., & Olving, M. (2013). *Utbredelse og virkninger av IFRS i Norge* [Master Thesis]. Norges Handelshøyskole.

Bernhoft, A. C., Kvifte, S. S., & Røsok, K. O. (2018). *IFRS i Norge* (8th ed.). Fagbokforlaget.

Bertoni, M., & De Rosa, B. (2006). Measuring balance sheet conservatism: empirical evidence from Italian first time adopters of IFRS. *Proceedings of*

the International Conference Emerging Issues in International Accounting and Business, Padua, Italy, 20-22 July, *1*, 33–54.

Brønnøysundregistrene. (2023). *Næringskoder - Brønnøysundregistrene*. https://www.brreg.no/bedrift/naeringskoder/

Brown, P. (2011). International Financial Reporting Standards: what are the benefits? *Accounting and Business Research*, *41*(3), 269–285. https://doi.org/10.1080/00014788.2011.569054

Burger, A., Fröhlich, J., & Ulbrich, P. (2004). Die Auswirkungen der Umstellung von HGB auf IFRS auf wesentliche Kennzahlen der externen Unternehmensrechnung. *Zeitschrift Für Internationale Und Kapitalmarktorientierte Rechnungslegung*, *4*(9), 353–366.

Clarkson, P., Hanna, J. D., Richardson, G. D., & Thompson, R. (2011). The impact of IFRS adoption on the value relevance of book value and earnings. *Journal of Contemporary Accounting & Economics*, *7*(1), 1–17. https://doi.org/10.1016/j.jcae.2011.03.001

Cordazzo, M. (2013). The impact of IFRS on net income and equity: evidence from Italian listed companies. *Journal of Applied Accounting Research, 14*(1), 54–73. https://doi.org/10.1108/09675421311282540

Damodaran, A. (2007). Return on Capital (ROC), Return on Invested Capital (ROIC) and Return on Equity (ROE): Measurement and Implications. *Social Science Research Network*. https://doi.org/10.2139/ssrn.1105499

Deloitte. (2023). *IFRS 16 — Leases*. IAS Plus. https://www.iasplus.com/en/standards/ifrs/ifrs-16

Elliott, B., & Elliott, J. (2019). *Financial Accounting and Reporting* (19th ed.). Pearson Education.

Flower, J., & Ebbers, G. (2002). Financial Instruments. In *Global Financial Reporting* (pp. 615–650). https://doi.org/10.1007/978-1-137-10538-7_22

Gjerde, Y., Knivsflå, K., & Sættem, F. (2008). The value-relevance of adopting IFRS: Evidence from 145 NGAAP restatements. *Journal of International Accounting, Auditing and Taxation*, *17*(2), 92–112. https://doi.org/10.1016/j.intaccaudtax.2008.07.001

Gjesdal, F., Kvaal, E., & Kvifte, S. S. (2006). *Internasjonale regnskapsstandarder* (1st ed.). Cappelen akademisk forlag.

Gray, S. J. (1980). The Impact of International Accounting Differences from a Security-Analysis Perspective: Some European Evidence. *Journal of Accounting Research*, *18*(1), 64. https://doi.org/10.2307/2490392

Haller, A., Ernstberger, J., & Froschhammer, M. (2009). Implications of the mandatory transition from national GAAP to IFRS — Empirical evidence from Germany. *Advances in Accounting*. https://doi.org/10.1016/j.adiac.2009.08.007

Hellman, N. (2011). Soft Adoption and Reporting Incentives: A Study of the Impact of IFRS on Financial Statements in Sweden. *Journal of International Accounting Research*, *10*(1), 61–83. https://doi.org/10.2308/jiar.2011.10.1.61

Holt, M. M., & Scariano, S. M. (2009). Mean, Median and Mode from a Decision Perspective. *Journal of Statistics Education*, *17*(3). https://doi.org/10.1080/10691898.2009.11889533

Hung, M., & Subramanyam, K. (2007). Financial statement effects of adopting international accounting standards: the case of Germany. *Review of Accounting Studies*, *12*(4), 623–657. https://doi.org/10.1007/s11142-007-9049-9

IFRS. (2023a). *How we set IFRS® Standards*. https://www.ifrs.org/about-us/how-we-set-ifrs-standards/

IFRS. (2023b). *IAS 1 Presentation of Financial Statements*. https://www.ifrs.org/issued-standards/list-of-standards/ias-1-presentation-of-financial-statements/

IFRS. (2023c). *IAS 12 Income Taxes*. https://www.ifrs.org/issued-standards/list-of-standards/ias-12-income-taxes/

IFRS. (2023d). *IAS 16 Property, Plant and Equipment*. https://www.ifrs.org/issued-standards/list-of-standards/ias-16-property-plant-and-equipment/

IFRS. (2023e). *IAS 36 Impairment of Assets*. https://www.ifrs.org/issued-standards/list-of-standards/ias-36-impairment-of-assets/

IFRS. (2023f). *IAS 37 Provisions, Contingent Liabilities and Contingent Assets*. https://www.ifrs.org/issued-standards/list-of-standards/ias-37-provisions-contingent-liabilities-and-contingent-assets/

IFRS. (2023g). *IAS 38 Intangible Assets*. https://www.ifrs.org/issued-standards/list-of-standards/ias-38-intangible-assets/

IFRS. (2023h). *IAS 41 Agriculture*. https://www.ifrs.org/issued-standards/list-of-standards/ias-41-agriculture/

IFRS. (2023i). *IFRS 1 First-time Adoption of International Financial Reporting Standards*. https://www.ifrs.org/issued-standards/list-of-standards/ifrs-1-first-time-adoption-of-ifrs/

IFRS. (2023j). *IFRS 8 Operating Segments*. https://www.ifrs.org/issued-standards/list-of-standards/ifrs-8-operating-segments/

IFRS. (2023k). *IFRS 9 Financial Instruments*. https://www.ifrs.org/issued-standards/list-of-standards/ifrs-9-financial-instruments/

IFRS. (2023l). *IFRS 13 Fair Value Measurement*. https://www.ifrs.org/issued-standards/list-of-standards/ifrs-13-fair-value-measurement/

IFRS. (2023m). *IFRS 16 Leases*. https://www.ifrs.org/issued-standards/list-of-standards/ifrs-16-leases/

IFRS. (2023n). *Who we are*. https://www.ifrs.org/about-us/who-we-are/

Jones, S., & Higgins, A. (2006). Australia's switch to international financial reporting standards: a perspective from account preparers. *Accounting and Finance, 46*(4), 629–652. https://doi.org/10.1111/j.1467-629x.2006.00186.x

Kolesnik, K. (2013). The role of culture in accounting in the light of Hofstede's, Gray's and Schwartz's cultural dimensions theories: A literature review. *e-Finanse: Financial Internet Quarterly*, *9*(3), 33–41.

Kristoffersen, T. (2008). *Regnskapsteori: Med introduksjon til internasjonale regnskapstandarder (ifrs)* (1st ed.). Fagbokforlaget.

Kvaal, E. (2012). Hvordan påvirker Norsk RegnskapsStiftelse regnskapsutviklingen innenfor IFRS? *Praktisk Økonomi & Finans*, *28*(1), 68–74. https://doi.org/10.18261/issn1504-2871-2012-01-08

Kvifte, S. S., & Brandsås, H. (2010). God regnskapsskikk i 25 år – fra «skatteregnskap» til IFRS. *Praktisk Økonomi & Finans, 26*(3), 45–59.

Kvifte, S. S., & Tofteland, A. (2008). *Finansregnskap - God regnskapsskikk og IFRS* (1st ed.). Fagbokforlaget.

Kvifte, S. S., Tofteland, A., & Bernhoft, A. (2011). *Finansregnskap: god regnskapsskikk og IFRS* (2nd ed.). Fagbokforlaget.

Langli, J. C. (2018). *Fra bilag til bruk: innføring i finansregnskap og regnskapsanalyse* (1st ed.). Gyldendal akademisk.

Langli, J. C. (2022). *Årsregnskapet* (11th ed.). Gyldendal akademisk.

Lantto, A. M., & Sahlström, P. (2009). Impact of International Financial Reporting Standard adoption on key financial ratios. *Accounting & Finance*, *49*(2), 341–361. https://doi.org/10.1111/j.1467-629x.2008.00283.x

Lopes, P. T., & Viana, R. C. (2008). The transition to IFRS: disclosures by Portuguese listed companies. *IDEAS Working Paper Series From RePEc. Federal Reserve Bank of St Louis*.

Lovdata. (2022). *Lov om årsregnskap m.v. (regnskapsloven)*. https://lovdata.no/dokument/NL/lov/1998-07-17-56

Maldan, N., Midttun, J., & Jordbræk, R. (2016). Børsnotering eller ikke? *Praktisk Økonomi & Finans*, *32*(1), 90–96. https://doi.org/10.18261/issn.1504-2871-2016-01-10

Myrbakken, E., & Haakanes, S. (2018). *IFRS på norsk: forskrift om internasjonale regnskapsstandarder* (7th ed.). Fagbokforlaget.

Norton, J. (1995). The Impact of Financial Accounting Practices on the Measurement of Profit and Equity: Australia Versus the United States. *Abacus*, *31*(2), 178–200. https://doi.org/10.1111/j.1467-6281.1995.tb00361.x

NOU 2015: 10: Lov om regnskapsplikt. (2015). In *Finansdepartementet*. https://www.regjeringen.no/no/dokumenter/nou-2015-10/id2425387/sec13

NRS. (2023a). *NRS 2 Anleggskontrakter*. https://www.regnskapsstiftelsen.no/wp-content/uploads/2015/08/2008-NRS-2-Anleggskontrakter-2008.pdf

NRS. (2023b). *NRS 14 Leieavtaler*. https://www.regnskapsstiftelsen.no/wp-content/uploads/2015/01/NRS-14-Leieavtaler-2008.pdf

NRS. (2023c). *NRS 17 Virksomhetskjøp og konsernregnskap*. https://www.regnskapsstiftelsen.no/wp-content/uploads/2023/01/2022-NRS-17-Virksomhetskjop-og-konsernregnskap-2022-desember.pdf

NRS. (2023d). *NRS 18 Finansielle eiendeler og forpliktelser*. https://www.regnskapsstiftelsen.no/wp-content/uploads/2023/01/2022-NRS-18-Finansielle-eiendeler-og-forpliktelser-2022-desember.pdf

NRS. (2023e). *NRS 19 Immaterielle eiendeler*. https://www.regnskapsstiftelsen.no/wp-content/uploads/2023/01/2022-NRS-19-Immaterielle-eiendeler-2022-desember.pdf

O'Connell, V., & Sullivan, K. (2008). The Impact of Mandatory Conversion to IFRS on the Net Income of FTSEurofirst 80 Firms. *Journal of Applied Research in Accounting and Finance (JARAF)*, *3*(2), 17–26.

Oguche, O. A. (2022). IFRS vs GAAP Income Statement: Differences and Similarities - Financial Falconet. *Financial Falconet*. https://www.financialfalconet.com/ifrs-vs-gaap-income-statement-differences-similarities/?utm_content=cmp-true

Oommen, M. (2023). *Novelty in research: What it is and how to know if your work is original | Researcher.Life*. https://researcher.life/blog/article/novelty-in-research-what-it-is-and-how-to-know-your-work-is-original/

Oslo Børs. (2023). Vedtak og Uttalelser 2020. In *Euronext*. https://www.euronext.com/sites/default/files/2023-01/vedtak_og_uttalelser_2022_.pdf

Pedersen, A. O., & Hoff, K. G. (2019). *Grunnleggende regnskap* (4th ed.). Universitetsforlaget.

Petersen, C., Plenborg, T., & Kinserdal, F. (2017). *Financial Statement Analysis: Valuation - Credit Analysis - Performance Evaluation* (1st ed.). Fagbokforlaget.

PWC. (2016). *Ny IFRS-standard for regnskapsføring av leieavtaler*. https://www.pwc.no/no/publikasjoner/ifrs/regnskapsforing-av-leieavtaler.pdf

Saunders, M., Thornhill, A., & Lewis, P. (2019). *Research Methods for Business Students*. Pearson.

Sellæg, F. E. (2011). *IFRS: håndboken 2011* (1st ed.). Ernst & Young.

Silva, F., Gouto, G., & Cordeiro, R. (2009). Measuring the impact of international financial reporting standards (IFRS) to financial information of portuguese companies. *Revista Universo Contábil*, *5*(1). https://doi.org/10.4270/RUC.20095

Stenheim, T., & Madsen, D. I. (2017). The shift of accounting models and accounting quality: The case of Norwegian GAAP. *Corporate Ownership and Control*, *14*(4), 289–300. https://doi.org/10.22495/cocv14i4c1art11

Stock, J. H., & Watson, M. W. (2019). *Introduction to Econometrics, Global Edition* (4th ed.). Pearson Education Limited.

Street, D. L., Nichols, N. B., & Gray, S. J. (2000). Assessing the Acceptability of International Accounting Standards in the US: An Empirical Study of the Materiality of US GAAP Reconciliations by Non-US Companies Complying with IASC Standards. *The International Journal of Accounting*, *35*(1), 27–63. https://doi.org/10.1016/s0020-7063(99)00047-3

Tsalavoutas, I., & Evans, L. (2010). Transition to IFRS in Greece: financial statement effects and auditor size. *Managerial Auditing Journal*. https://doi.org/10.1108/02686901011069560

Walton, P. (2011). *An Executive Guide to IFRS: Content, Costs and Benefits to Business*. Wiley.

Woolson, R. F. (2008). Wilcoxon Signed-Rank Test. *Wiley Encyclopedia of Clinical Trials*. https://doi.org/10.1002/9780471462422.eoct979

Xia, Y. (2020). Correlation and association analyses in microbiome study integrating multiomics in health and disease. In *Elsevier eBooks* (pp. 309–491). Elsevier BV. https://doi.org/10.1016/bs.pmbts.2020.04.003

Zinn, D. (2023). Return on Assets: How ROA can help you assess how much bang a company is getting for its buck. *Business Insider*. https://www.businessinsider.com/personal-finance/return-on-assets?r=US&IR=T

9.0 Appendix

A1: Tables

Table 1. Development of choice of reporting language in Norway

	IFRS								NGAAP				
	IFRS		Group		Simplified		Simplified Group		NGAAP		Small enterprises		
Year	n	%	n	%	n	%	n	%	n	%	n	%	Total
2005	219	0,12 %	173	0,09 %	-	-	-	-	183 837	99,80 %	173 397	94,13 %	184 202
2006	363	0,17 %	254	0,12 %	-	-	-	-	211 744	99,74 %	201 878	95,09 %	212 295
2007	563	0,25 %	437	0,19 %	-	-	-	-	224 714	99,62 %	215 103	95,36 %	225 563
2008	691	0,29 %	483	0,20 %	-	-	-	-	236 906	99,57 %	226 403	95,16 %	237 924
2009	746	0,31 %	517	0,21 %	-	-	-	-	240 369	99,54 %	230 024	95,26 %	241 468
2010	835	0,34 %	604	0,25 %	-	-	-	-	243 836	99,49 %	233 821	95,40 %	245 086
2011	587	0,23 %	603	0,24 %	-	-	-	-	250 449	99,59 %	239 990	95,43 %	251 486
2012	212	0,08 %	574	0,22 %	1	0,00 %	-	-	265 103	99,73 %	254 176	95,62 %	265 813
2013	183	0,07 %	607	0,22 %	1	0,00 %	-	-	277 466	99,74 %	266 666	95,86 %	278 176
2014	196	0,07 %	752	0,26 %	19	0,01 %	-	-	289 613	99,70 %	279 094	96,07 %	290 499
2015	217	0,07 %	508	0,17 %	987	0,33 %	100	0,03 %	301 444	99,47 %	291 435	96,16 %	303 065
2016	218	0,07 %	470	0,15 %	982	0,31 %	115	0,04 %	315 456	99,51 %	305 142	96,25 %	317 021
2017	239	0,07 %	416	0,13 %	1 043	0,31 %	113	0,03 %	329 579	99,52 %	319 450	96,46 %	331 168
2018	265	0,08 %	447	0,13 %	971	0,28 %	118	0,03 %	343 420	99,55 %	333 037	96,54 %	344 982
2019	268	0,08 %	432	0,13 %	976	0,28 %	136	0,04 %	341 892	99,54 %	331 393	96,48 %	343 469
2020	353	0,09 %	464	0,12 %	1 060	0,28 %	160	0,04 %	371 211	99,52 %	359 897	96,49 %	372 983
2021	350	0,09 %	500	0,13 %	1 170	0,30 %	158	0,04 %	390 056	99,51 %	378 601	96,59 %	391 960

Notes. Data provided by Brreg. Sorted on IFRS and associated subgroups. The Number is the total amount for the given year the accounting standard is stated. % is n divided by Total.

Table 2. Previous research on the transition from domestic GAAP to IFRS

Country	Authors	Findings
Germany	Hung and Subramanyam (2007)	412.66 MEUR increase in Equity 21.90 MEUR increase in Net Income
	Haller et al. (2009)	19.6 percent increase in Equity, significant at the 1 percent level 15.4 percent increase in Net Income, significant at the 5 percent level
Sweden	Hellman (2011)	3.2 percent increase in Equity, significant at the 1 percent level 18.1 percent increase in Net Income, significant at the 1 percent level
Finland	Lantto and Sahlström (2009)	Increase in OPM, ROE, ROIC, and GR by 0.76, 2.03, 0.87, and 1.1 percent, respectively. Decrease in ER, QR, CR, and PE by 0.35, 0.21, 0.17, and 142.39 percent, respectively.
Hungary	Beke (2011)	Dividend ratio: Increase in dividend per share and dividend yield by 0.0711 and 5.294 percent, respectively. Profitability ratio: Decrease in EPS, net profit margin, and return on capital employed by 4.53, 67, and 95.97 percent, respectively. Liquidity ratio: Increase in operating cash flow scaled by total assets and current ratio by 24.99 and 49.74 percent, respectively. Decrease in cash flow margin by 105.08 percent. Leverage ratio: Increase in debt-to-equity, debt-to-shareholders funds, and capital gearing by 16.41, 67.86, and 152.29 percent, respectively.
Portugal	Silva et al. (2009)	3.19 percent increase in Equity 14.66 percent increase in Net Income
Greece	Tsalavoutas and Evans (2010)	Equity median index value of 0.97, significant at the 10 percent level Net income median index value of 0.96, significant at the 1 percent level
Italy	Cordazzo (2013)	4.78 percent increase in Equity, significant at the 1 percent level. 25.34 percent increase in Net Income, significant at the 1 percent level. 9.47 percent increase in ROE, significant at the 5 percent level.
Multi national	O'Connell and Sullivan (2008)	9 percent increase in Net Income, significant at the 10 percent level including outliers, and 5 percent excluding outliers.

Notes. Table x summarizes previous research on the transition from GAAP to IFRS. The findings are categorized on findings from each country's domestic GAAP, apart from the study by O'Connell and Sullivan (2008), which was a multinational study on companies listed on the FTSEurofirst 80 index with the following six countries represented: France, Holland, Spain, Italy, Portugal, and Belgium. OPM: operating profit margin, ROE: return on equity, ROIC: return on invested capital, ER: equity ratio, GR: gearing ratio, CR: current ratio, QR: quick ratio, PE: prince to earnings ratio, and EPS: earnings per share. Under findings, the quantitative findings are summarized.

Table 3. Classification of the final sample

Classification	**Frequency**
Companies transitioning to IFRS in 2020 and 2021	172
Less:	
Companies reporting IFRS for the first time in the consolidated accounts	29
Companies that are banks, financial institutions, or insurance	84
Companies that are foreign enterprises or preparing consolidated accounts in a different currency	4
Companies established the previous year	5
Finale sample	50

Notes. The table present the classification of the finale sample.

Table 4. Data sample categorized by year and voluntary vs. mandatory adoption

	Year				
	2020		2021		
Industry	Mandatory	Voluntary	Mandatory	Voluntary	Total
Services	1	0	2	4	7
Transport	0	3	0	0	3
Property	0	4	1	0	5
Energy	2	0	1	1	4
IT	6	3	2	2	13
Trade	0	1	2	2	5
R&D	2	0	0	2	4
Aquaculture	1	0	3	1	5
Production	0	1	2	0	3
Mining	0	1	0	0	1
Sum	12	13	13	12	50

Notes. Data sample based on industry, year of transition, and if the transition was mandatory or voluntary. For a definition of industries, see Appendix A3: Explanation of Industries.

Table 5. Descriptive statistics of Balance Sheet items

	Difference			%-Change			Wilcoxon	
Item	Mean	Median	SD	Mean	Median	SD	Statistic	P-value
Non-Current Assets	16844,9	615,2	40503,1	0,370	0,074	0,672	67	9,465
Current Assets	144,8	0,0	13698,3	-0,003	0,000	0,237	115	0,708
Equity	1198,9	0,0	29851,1	1,126	0,000	6,030	374	0,332
Non-Current Liability	4181,6	225,6	21109,6	0,314	0,048	0,892	166	0,000***
Current Liability	8180,0	150,1	21069,6	0,169	0,058	0,449	157	7,995
Total Equity & Liability	8934,6	319,9	24665,4	0,105	0,022	0,183	156	2,659

Notes. The table provides descriptive statistics of balance sheet items mean, median, and SD: standard deviation statistics, with the difference and percentage change. Difference is calculated: IFRS – NGAAP. NOK thousand. The percentage change is the effect of adopting IFRS. For exact formulas used, see above. The last column reports the Wilcoxon statistics and p-value.
Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 6. Descriptive Statistics of Balance Sheet items

Item	Index	Mean	SD	P0	P25	P50	P75	P100
Goodwill	NGAAP	272831	730925	545	7605	44260	159191	3344400
	IFRS	287725	731762	0	7605	63476	185084	3344400
	%-Change	0,17	0,62	-1,00	-0,04	**0,04***	0,33	1,61
	Difference	13197	33844	-35022	-162	**351***	20726	109537
Deferred tax asset	NGAAP	6598	11769	0	0	852	7515	44509
	IFRS	6302	10728	0	0	729	8271	35718
	%-Change	-0,14	0,58	-1,00	-0,32	0,00	0,02	0,89
	Difference	-296	13927	-44509	0	0	579	35718
Right-of-use assets	NGAAP	287	1517	0	0	0	0	8028
	IFRS	102584	298300	0	2170	12156	44979	1562415
	%-Change	32,10		32,10	32,10	32,10	32,10	32,10
	Difference	109108	308745	0	1649	8748	80883	1562415
Intangible Assets	NGAAP	206936	609978	-22832	2126	19362	103948	3344400
	IFRS	216654	617333	-9661	4531	18196	102257	3344400
	%-Change	0,18	1,08	-1,00	0,00	0,00	0,04	5,86
	Difference	9718	47030	-89117	0	0	4558	230957
PP&E	NGAAP	169800	331979	7	1330	12193	123486	1247151
	IFRS	148609	312403	0	1309	6987	117342	1252449
	%-Change	-0,03	0,54	-1,00	0,00	0,00	0,00	2,80
	Difference	-21749	89677	-453077	0	0	0	34831
Non-current lease liabilities	NGAAP	11677	49680	0	0	0	0	257664
	IFRS	66759	135526	0	1252	8072	67082	605357
	%-Change	17,65	30,46	0,00	0,07	0,13	26,48	52,83
	Difference	55082	130624	0	742	6755	19265	605357
Deferred tax liabilities	NGAAP	12978	33718	0	0	363	12353	177058
	IFRS	18040	40980	-3087	11	1813	14295	177058
	%-Change	-2,35	15,63	-72,79	-0,06	0,00	0,13	12,82
	Difference	5061	22666	-10843	0	0	1838	120661
Current lease liabilities	NGAAP	2743	14251	0	0	0	0	74048
	IFRS	46451	169968	0	434	3199	17184	889203
	%-Change	-0,05		-0,05	-0,05	-0,05	-0,05	-0,05
	Difference	43709	170159	-3387	306	2721	6360	889203
Other current liabilities	NGAAP	163700	633478	26	1852	9996	50128	3485764
	IFRS	153238	633637	0	1852	7984	57082	3485764
	%-Change	0,05	0,59	-1,00	-0,02	0,00	0,02	1,97
	Difference	-10462	42389	-190116	-18	0	5	44335

Notes. The table provides statistics of mean, standard deviation (SD), and min (P0), the 25th (P25), 50th (P50), 75th (P75), and max (P100) of balance sheet items, showing NGAAP, IFRS, and Difference in NOK thousand. Difference is calculated: IFRS – NGAAP. %-Change is the percentage change from NGAAP to IFRS. Levels of significance are calculated with the Wilcoxon test.
Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 7. Industry-specific change Balance Sheet items, percent

	%-Change NCA					%-Change CA					%-Change E				
Industry	Mean	SD	Min	Median	Max	Mean	SD	Min	Median	Max	Mean	SD	Min	Median	Max
Aquaculture	0,139	0,165	0,027	0,051*	0,416	0,004	0,103	-0,158	0	0,097	0,095	0,146	-0,007	0,061	0,348
Energy	0,008	0,016	0	0	0,032	0	0	0	0	0	-0,004	0,005	-0,009	-0,004	0
IT	0,34	0,692	0	0,074***	2,545	0,003	0,315	-0,84	0	0,658	-0,051	0,259	-0,807	0,013	0,217
Mining	0,091	-	0,091	0,091	0,091	-0,276	-	-0,276	-0,276	0,276	-0,339	-	-0,339	-0,339	-0,339
Production	-0,059	0,098	-0,172	-0,006	0	0	0	0	0	0	-0,07	0,121	-0,21	0	0
Property	1,258	1,124	0	0,896*	2,753	0,009	0,587	-0,804	0	0,856	2,289	3,408	0	1,071	8,253
R&D	0,524	0,536	0	0,516	1,065	0,001	0,002	0	0	0,003	0,02	0,11	-0,096	0,002	0,17
Services	0,288	0,482	-0,304	0,31	1,178	0,003	0,007	0	0	0,016	0,253	0,816	-0,236	0	2,092
Trade	0,614	0,655	0,029	0,563*	1,302	0	0	0	0	0,001	8,474	18,507	-0,041	0,028	41,575
Transport	0,076	0,109	0,006	0,021	0,201	0	0	0	0	0	0,079	0,128	0,002	0,009	0,227

	%-Change NCL					%-Change CL					%-Change TEL				
Industry	Mean	STD	Min	Median	Max	Mean	STD	Min	Median	Max	Mean	STD	Min	Median	Max
Aquaculture	-0,42	0,571	-0,921	-0,454	0,151	0,408	0,858	-0,121	0,032	1,69	0,033	0,019	0,012	0,035*	0,063
Energy	-0,033	0,039	-0,077	-0,027	0	0,372	0,668	0	0,058	1,37	0,002	0,003	0,000	0,000	0,006
IT	0,189	0,398	0	0,064***	1,313	0,096	0,135	-0,041	0,061***	0,49	0,099	0,170	-0,001	0,060***	0,643
Mining	0,047	-	0,047	0,047	0,047	0,193	-	0,193	0,193	193	-0,029	-	-0,029	-0,029	-0,029
Production	-0,294	0,598	-0,983	0	0,1	-0,016	0,054	-0,078	0,004	0,025	-0,015	0,010	-0,024	-0,017	-0,004
Property	1,746	1,878	0,1	1,347*	3,792	0,144	0,538	-0,2	0	1,091	0,357	0,395	0,000	0,291	0,781
R&D	0,594	-	0,594	0,594	0,594	-0,004	0,6	-0,828	0,111	0,592	0,046	0,086	0,000	0,005	0,176
Services	0,388	0,801	-0,003	0,001*	1,817	0,167	0,263	-0,003	0,085	0,735	0,130	0,168	-0,081	0,135	0,431
Trade	1,024	1,055	0,047	0,812*	2,718	0,087	0,075	0	0,084	0,192	0,271	0,239	0,018	0,386*	0,540
Transport	0,029	0,131	-0,108	0,044	0,152	0,482	1,058	-0,394	0,184	1,657	0,047	0,063	0,005	0,017	0,120

Notes. The table provides statistics of mean, standard deviation (SD), and min (P0), median, and max (P100), of industry-specific changes in balance sheet items, showing NCA: non-current assets, CA: current assets, E: equity, NCL: non-current liabilities, CL: current liabilities. %-Change is the percentage change from NGAAP to IFRS. For number of observations within each industry, see Table 4, section 5.2.3. Levels of significance are calculated with the Wilcoxon test. Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 8. Descriptive statistics of Balance Sheet items, mandatory and voluntary transition effect, percentage

	Mandatory			Voluntary		
Item	Mean	Median	SD	Mean	Median	SD
% - Change NCA	0,134	0,068***	0,25	***0,597***	***0,099******	0,857
% - Change CA	***0,069***	0	0,223	-0,072	0	0,234
% - Change E	0,015	-0,001	0,122	***2,109***	***0,007****	8,225
% - Change NCL	0,057	***0,064****	0,556	***0,533***	0,044***	1,067
% - Change CL	***0,2***	***0,061***	0,363	0,141	0,001	0,52
% - Change TEL	0,062	0,018***	0,142	***0,149***	***0,065*****	0,211

Notes. The table provides descriptive statistics of mean, median, and standard deviation (SD) percentage changes in balance sheet items, distributed by mandatory and voluntary transition, showing NCA: non-current assets, CA: current assets, E: equity, NCL: non-current liabilities, CL: current liabilities, TEL: total equity and liabilities. %-Change is the percentage change from NGAAP to IFRS. Levels of significance are calculated with the Wilcoxon test. Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 9. Descriptive statistics of Balance Sheet items, mandatory and voluntary transition effect, difference

	Mandatory			Voluntary		
Item	Mean	Median	SD	Mean	Median	SD
Difference NCA	18853,70	712,00***	49804,33	14996,72	319,87***	30519,77
Difference CA	2273,24	0,00	16759,93	-1898,48	0,00	9859,71
Difference E	810,93	-75,00	23830,11	1555,80	3,72*	34988,90
Difference NCL	2685,91	1433,50**	26044,80	5617,48	120,66***	15387,69
Difference CL	11410,58	1606,00	24097,79	5207,86	7,01	17828,17
Difference TEL	6726,20	464,04***	16935,23	10877,93	258,36***	30111,68

Notes. The table provides descriptive statistics of mean, median, and standard deviation (SD) difference in balance sheet items, distributed by mandatory and voluntary transition, showing NCA: non-current assets, CA: current assets, E: equity, NCL: non-current liabilities, CL: current liabilities, TEL: total equity and liabilities. Difference = IFRS - NGAAP. NOK thousand. Levels of significance are calculated with the Wilcoxon test. Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 10. Descriptive statistics of Income Statement items

	Difference			%-Change			Wilcoxon	
Item	Mean	Median	SD	Mean	Median	SD	Statistic	P-value
Revenue	-1372,34	0,00	6525,58	0,60 %	0,00 %	0,08	48	0,102
Operating Profit	5486,18	3,58	19667,04	19,50 %	3,60 %	1,13	184	0,006***
Net financial income	-266,00	-0,06	1974,12	23,10 %	-3,0 %	0,95	146	0,003***
Result	3612,38	2,00	15762,14	-9,80 %	0,00 %	1,53	301	0,059*

Notes. The table provides descriptive statistics of income statement items mean, median, and SD: standard deviation statistics, with difference and percentage change. Difference is calculated: IFRS – NGAAP. NOK thousand. For exact formulas used, see the beginning of section 6.1.1 General Changes. The percentage change is the effect of adopting IFRS. The last column reports the Wilcoxon statistics and p-value.
Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 11. Descriptive statistics of Income Statement items

Item	Index	Mean	SD	P0	P25	P50	P75	P100
Depreciation & amortization	NGAAP	7983	53291	-170222	-978	104	30113	162192
	IFRS	13383	78217	-170222	-1155	42	21339	380775
	%-Change	0,02	0,69	-1,00	-0,41	-0,01	0,45	2,22
	Difference	5694	43241	-90333	-1957	-1	1821	218583
Other operating expenses	NGAAP	207946	1187611	-498230	-12873	211	15405	6241352
	IFRS	197533	1143928	-455118	-13163	1696	14970	6013735
	%-Change	0,30	1,78	-0,44	-0,13	-0,01	0,04	9,33
	Difference	-10413	47013	-227617	-1311	18	3357	43112
Payroll	NGAAP	475669	2912790	-711195	-19510	3560	43034	17928390
	IFRS	474981	2912663	-679151	-19301	2983	43008	17928390
	%-Change	0,01	0,20	-0,44	-0,02	0,00	0,00	0,83
	Difference	-688	9886	-34713	-394	0	0	32044
Financial Income	NGAAP	-14146	71371	-292135	156	779	2481	77732
	IFRS	419695	1913795	-292135	197	932	2481	8317732
	%-Change	5,92	24,98	-0,13	0,00	0,00	0,00	106,01
	Difference	457938	1942147	-1019	0	0	0	8240000
Financial Expenses	NGAAP	-1358	32291	-55243	-2959	-434	471	104722
	IFRS	-2018	37631	-75497	-3601	-752	451	119241
	%-Change	0,12	0,18	-0,06	0,00	0,06	0,15	0,55
	Difference	-643	6868	-23373	-235	-10	1	14519

Notes. The table provides statistics of mean, standard deviation (SD), and min (P0), the 25th (P25), 50th (P50), 75th (P75), and max (P100), of income statement items, showing NGAAP, IFRS and Difference in NOK thousand. Difference: IFRS – NGAAP. %-Change is the percentage change from NGAAP to IFRS. Levels of significance are calculated with the Wilcoxon test. Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 12. Industry-specific change in Income Statement items, percent

	%-Change REV					%-Change OP					%-Change NF					%-Change RES				
Industry	Mean	SD	Min	Median	Max	Mean	SD	Min	Median	Max	Mean	SD	Min	Median	Max	Mean	SD	Min	Median	Max
Aquaculture	-0,008	0,014	-0,029	-0,001	0	0,23	0,487	-0,092	0,029	0,955	-0,331	0,706	-1,388	-0,006	0,075	0,048	0,758	-0,947	0,172	0,792
Energy	0	0	0	0	0	0	0	0	0	0	-0,05	0,086	-0,149	0	0	0,023	0,04	0	0	0,07
IT	0,024	0,13	-0,072	0	0,451	0,404	1,304	-1,588	0,078	3,597	-0,214	0,704	-2,504	-0,047**	0,429	0,695	2,666	-1,084	0	9,396
Mining	0,162	-	0,162	0,162	0,162	0,431	-	0,431	0,431	0,431	-0,137	-	-0,137	-0,137	-0,137	-0,021	-	-0,021	-0,021	-0,021
Production	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Property	-0,019	0,039	0	0	0	2,173	2,723	0,098	1,166	5,256	0,511	1,086	-0,234	0*	2,314	-0,771	1,256	-2,6	-0,291	0,098
R&D	0	0	0	0	0	-0,049	0,133	-0,246	0	0,05	-0,046	0,293	-0,254	-0,046	0,161	0,181	0,555	-0,425	0,126	0,897
Services	-0,014	0,034	0	0	0,002	0,055	0,847	-1,234	0,019	1,439	-0,588	1,297	-3,225	-0,003	0	0,095	0,597	-0,63	0	1,2
Trade	-0,001	0,003	0	0	0	0,147	0,144	0,01	0,089*	0,386	-0,046	1,15	-1,021	-0,46	1,934	-0,008	0,08	-0,099	-0,017	0,12
Transport	-0,009	0,016	0	0	0	0,075	0,059	0,027	0,057	0,141	-1,213	1,745	-3,214	-0,423	-0,003	0,114	0,038	0,073	0,122	0,147

Notes. The table provides statistics of mean, standard deviation (SD), and min (P0), median, and max (P100), of industry-specific changes in income statement items, showing REV: revenue, OP: operating profit, NF: net financial profit, and RES: result. %-Change is the percentage change from NGAAP to IFRS. For number of observation within each industry, see Table 4 under section 5.2.3 Additional Data. Levels of significance are calculated with the Wilcoxon test. Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 13. Descriptive statistics of Income statement items, mandatory and voluntary transition effect, percent

	Mandatory			Voluntary		
Item	Mean	Median	SD	Mean	Median	SD
% - Change REV	***0,006***	0**	0,108	0,005	0	0,035
% - Change OP	***0,177***	0	1,024	0,0456	***0,078****	1,17
% - Change NF	-0,024	***-0,047****	0,556	***-0,384***	-0,005**	1,193
% - Change RES	***-0,439***	***0,032***	2,169	-0,241	0***	0,601

Notes. The table provides descriptive statistics of mean, median and standard deviation (SD) percentage changes in Income Statement items, distributed by mandatory and voluntary transition, showing REV: revenue, OP: operating profit, NF: net finance, and RES: result. %-Change is the percentage change from NGAAP to IFRS. Levels of significance are calculated with the Wilcoxon test.
Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 14. Descriptive statistics of Income statement items, mandatory and voluntary transition effect, difference

	Mandatory			Voluntary		
Item	Mean	Median	SD	Mean	Median	SD
Difference REV	-2830,05	0,00**	9191,68	27,06	0,00	186,88
Difference OP	6675,46	0,00	26103,58	4344,49	9,03***	10853,91
Difference NF	-584,98	-14,02**	2025,26	52,98	-0,01**	1910,42
Difference RES	1931,38	0,00	18647,72	5099,42	6,19***	128888,21

Notes. The table provides descriptive statistics of mean, median, and standard deviation (SD) difference in Income Statement items, distributed by mandatory and voluntary transition, showing REV: revenue, OP: operating profit, NF: net finance, and RES: result. Difference = IFRS - NGAAP. NOK thousand. Levels of significance are calculated with the Wilcoxon test.
Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

Table 15. Descriptive statistics of Financial Ratios

	Difference			%-Change			Wilcoxon	
Ratio	Mean	Median	SD	Mean	Median	SD	Statistic	P-value
EPS	0.126	0.000	0.701	-0.513	0	3.164	238	0,012**
Current ratio	-0.532	-0.052	1.890	0.049	-0.048	0.856	227	0,001***
BVPS	-0.597	0	11.368	-3.768	0	34.948	321	0,156
D/E	0.189	-0.004	3.025	-3.904	-0.016	30.327	447	0,215
ROE	-4.043	0	19.704	-0.426	0	2.575	421	0,530
ROA	0.013	0	0.058	-0.523	-0.020	2.516	419	0,375

Notes. The table provides descriptive statistics of Financial Ratios items mean, median, and SD: standard deviation statistics, with difference and percentage change. Difference is calculated: IFRS – NGAAP. The percentage change is the effect of adopting IFRS. For exact formulas used, see beginning of section 6.1.1 General Changes. The last column reports the Wilcoxon statistics and p-value.
Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

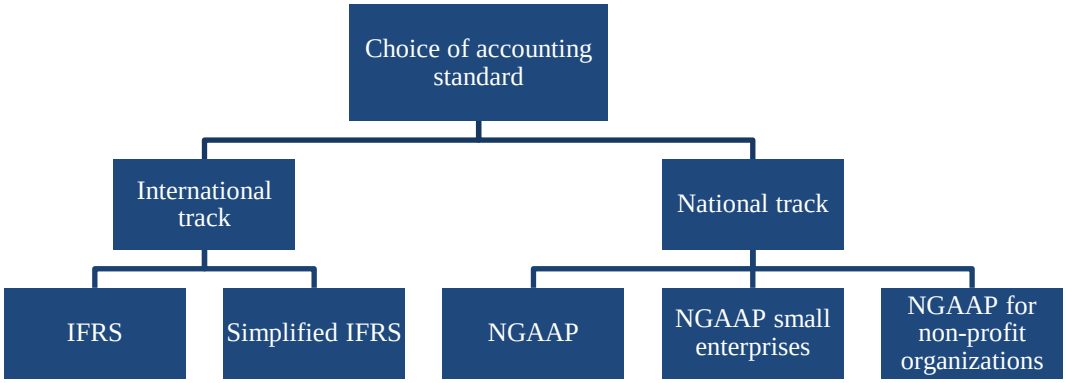
Table 16. Industry-specific in Income Statement items, difference and percent

	EPS						Short-term liquidity						BVPS					
	Difference			%-Change			Difference			%-Change			Difference			%-Change		
Industries	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
Aquaculture	0,00	0,00	0,00	-4,7 %	-17,2 %	75,8 %	-0,82	-0,15	1,47	-22,7 %	-6,3 %	40,7 %	0,00	0,00	0,00	9,5 %	6,1 %	14,6 %
Energy	0,00	0,00	0,00	-2,4 %	0,0 %	4,1 %	-1,88	-0,34	3,31	-17,1 %	-5,2 %	27,6 %	0,00	0,00	0,00	-0,4 %	-0,4 %	0,5 %
IT	0,03	0,00	0,10	-69,5 %	0,0 %	266,6 %	-0,74	-0,03	2,14	-8,3 %	-5,0 %*	28,5 %	-0,12	0,00	0,44	-1849,5 %	0,0 %	6650,0 %
Mining	0,00	0,00		2,1 %	2,1 %		-0,39	-0,39		-39,3 %	-39,3 %		0,00	0,00		-33,9 %	-33,9 %	
Production	0,00	0,00	0,00	0,0 %	0,0 %	0,0 %	0,02	-0,04	0,12	1,9 %	-0,3 %	5,8 %	0,00	0,00	0,00	-7,0 %	0,0 %	12,1 %
Property	0,06	0,04	0,07	-384,9 %	34,1 %	994,5 %	-0,33	0,00	0,78	-12,6 %	-0,7 %	38,0 %	9,92	0,22	19,55	286,1 %	144,2 %	364,7 %
R&D	0,07	0,00	0,14	18,1 %	12,5 %	55,5 %	-0,08	-0,91	4,49	106,8 %	-9,1 %	251,1 %	0,07	0,00	0,14	1,9 %	0,2 %	11,1 %
Services	0,00	0,00	0,00	9,5 %	0,0 %	59,7 %	-0,23	0,00	0,67	36,4 %	0,0 %	112,5 %	0,04	0,00	0,10	25,3 %	0,0 %	81,6 %
Trade	0,95	0,00	2,13	-0,8 %	-1,7 %	8,0 %	-0,13	-0,12	0,12	-7,6 %	-7,7 %	6,4 %	-13,68	0,00	30,59	847,4 %	2,8 %	1850,8 %
Transport	0,05	0,04	0,05	11,4 %	12,2 %	3,8 %	-0,25	-0,22	0,70	-4,3 %	-15,5 %	64,4 %	0,18	0,01	0,30	7,9 %	0,9 %	12,8 %
	Debt-to-Equity						ROE						ROA					
	Difference			%-Change			Difference			%-Change			Difference			%-Change		
Industries	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
Aquaculture	-1,22	-0,08	2,30	-21,5 %	-5,6 %	36,5 %	-0,04	0,00	0,14	-11,7 %	-24,0 %	73,3 %	-0,01	-0,01	0,04	-7,7 %	-19,5 %	73,6 %
Energy	0,01	0,01	0,01	2,8 %	0,8 %	4,5 %	0,00	0,00	0,00	-2,1 %	0,0 %	3,5 %	0,00	0,00	0,00	-2,4 %	0,0 %	4,1 %
IT	36,64	0,05	131,51	39,4 %	8,6 %**	123,5 %	-8,83	0,00	31,64	-30,2 %	0,3 %	268,4 %	0,03	0,00	0,07	-66,3 %	-1,3 %	241,2 %
Mining	1,44	1,44		69,3 %	69,3 %		0,43	0,43		54,5 %	54,5 %		0,01	0,01		5,2 %	5,2 %	
Production	0,28	-0,02	0,53	4,0 %	-6,5 %	29,1 %	0,00	0,00	0,00	0,0 %	0,0 %	0,0 %	0,00	0,00	0,00	2,1 %	2,1 %	0,5 %
Property	-0,65	-0,05	1,32	-25,2 %	-1,6 %	36,7 %	-0,01	0,00	0,18	-307,3 %	-23,6 %	641,7 %	0,00	0,00	0,04	-303,7 %	-11,1 %	652,3 %
R&D	0,03	0,00	0,06	35,5 %	3,7 %	66,2 %	0,01	-0,01	0,14	19,3 %	19,1 %	59,8 %	0,02	0,00	0,12	15,7 %	12,0 %	58,7 %
Services	-0,19	0,01	1,75	16,7 %	14,3 %	43,9 %	-0,04	0,00	0,09	3,6 %	-0,8 %	73,2 %	0,01	0,00	0,06	3,0 %	-11,6 %	70,9 %
Trade	77,63	0,09	173,51	-5,9 %	3,4 %	58,8 %	-15,02	0,00	33,45	-28,2 %	-6,1 %	44,1 %	0,01	0,00	0,04	-20,0 %	-19,2 %	13,8 %
Transport	0,04	-0,01	0,37	-7,8 %	-0,5 %	28,4 %	0,00	0,01	0,02	4,1 %	7,1 %	11,5 %	0,01	0,00	0,01	6,7 %	10,3 %	9,7 %

Notes. The table provides statistics of mean, standard deviation (SD) for EPS, Short term liquidity, BVPS, Debt-to-equity, ROE, and ROA distributed to industries. For number of observation within each industry, see Table 4 under chapter 5.2.3. Levels of significance is calculated with Wilcoxon test. Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

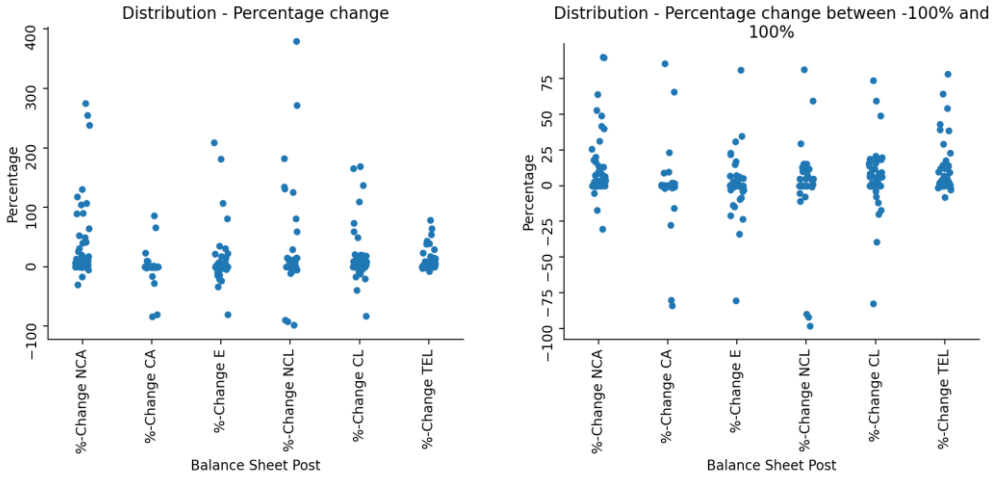
A2: Figures

Figure 1. Two main tracks and five accounting standards in Norway



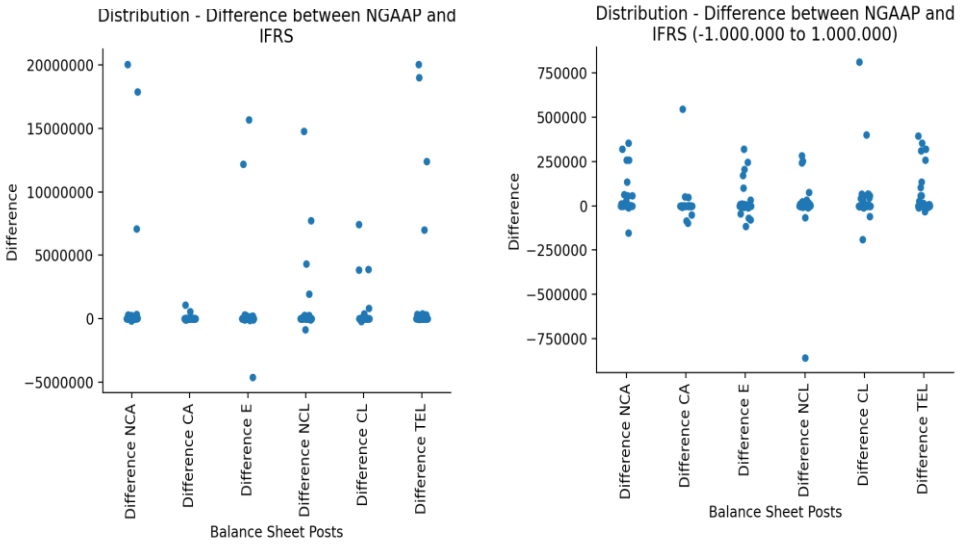
Notes. Figure 1 shows the two main tracks and five accounting standards in Norway (Langli, 2022, p. 32)

Figure 2. Distribution of percentage change in balance sheet post



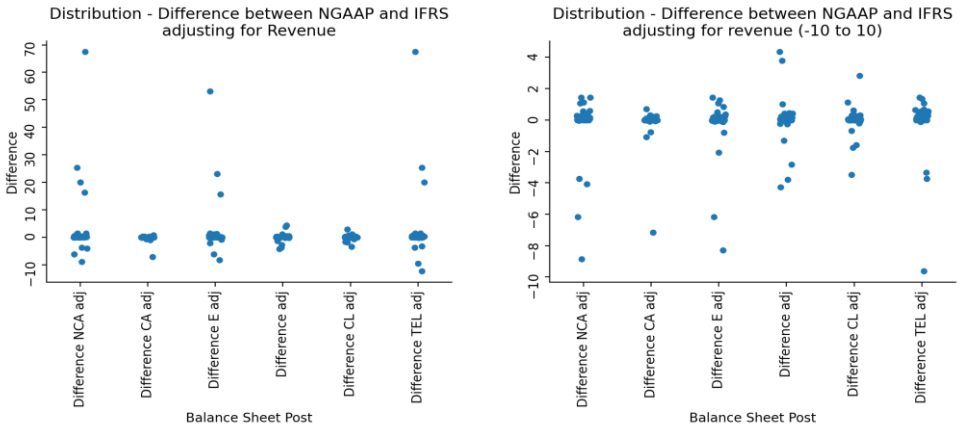
Notes. Figure 2 shows the distribution of percentage change in the balance sheet items and the distribution of percentage change between -100% and 100%. NCA: non-current assets, CA: current assets, E: equity, NCL: non-current liabilities, CL: current liabilities and TEL: total equity and liabilities.

Figure 3. Distribution of difference between NGAAP and IFRS



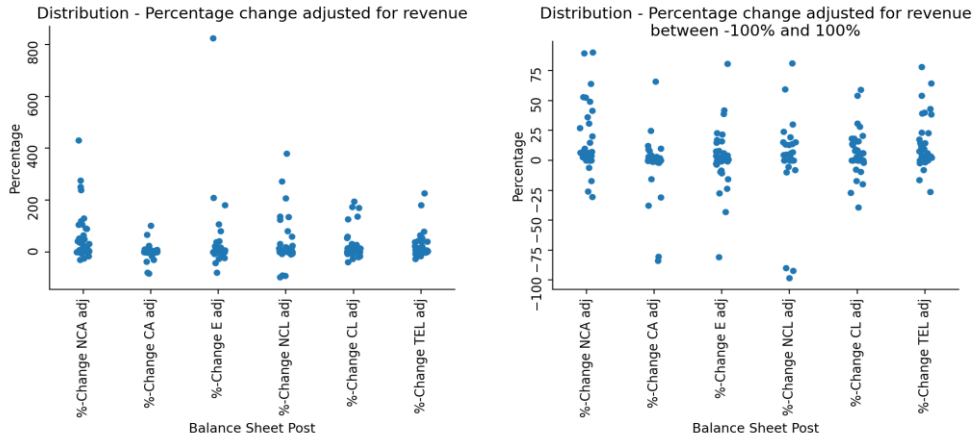
Notes. Figure 3 shows the distribution of difference between NGAAP and IFRS and distribution where the difference between NGAAP and IFRS is -1.000.000 to 1.000.000 for balance sheet items. NCA: non-current assets, CA: current assets, E: equity, NCL: non-current liabilities, CL: current liabilities and TEL: total equity and liabilities.

Figure 4. Distribution of difference between NGAAP and IFRS adjusting for Revenue



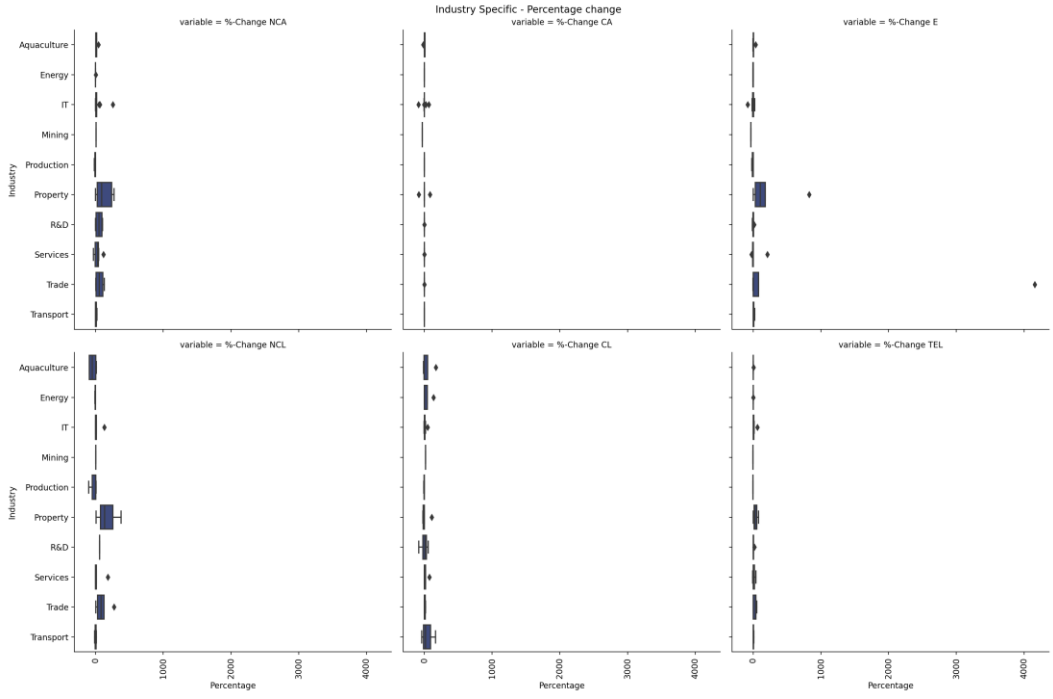
Notes. Figure 4 shows the difference between NGAAP and IFRS adjusting for revenue and difference between NGAAP and IFRS adjusting for revenue between -10 to 10 for balance sheet items. NCA: non-current assets, CA: current assets, E: equity, NCL: non-current liabilities, CL: current liabilities and TEL: total equity and liabilities.

Figure 5. Distribution of percentage change adjusted for Revenue



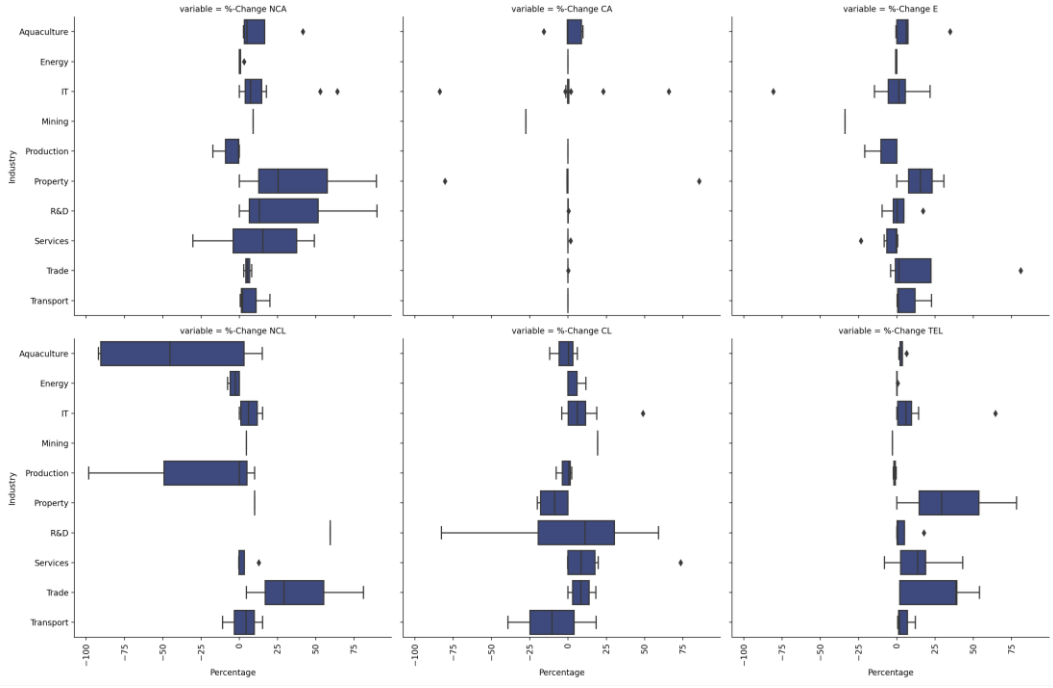
Notes. Figure 5 shows the distribution of percentage change adjusted for revenue and Distribution of percentage change adjusted for revenue between -100% and 100%. NCA: non-current assets, CA: current assets, E: equity, NCL: non-current liabilities, CL: current liabilities and TEL: total equity and liabilities.

Figure 6. Industry-specific percentage change between balance sheet items



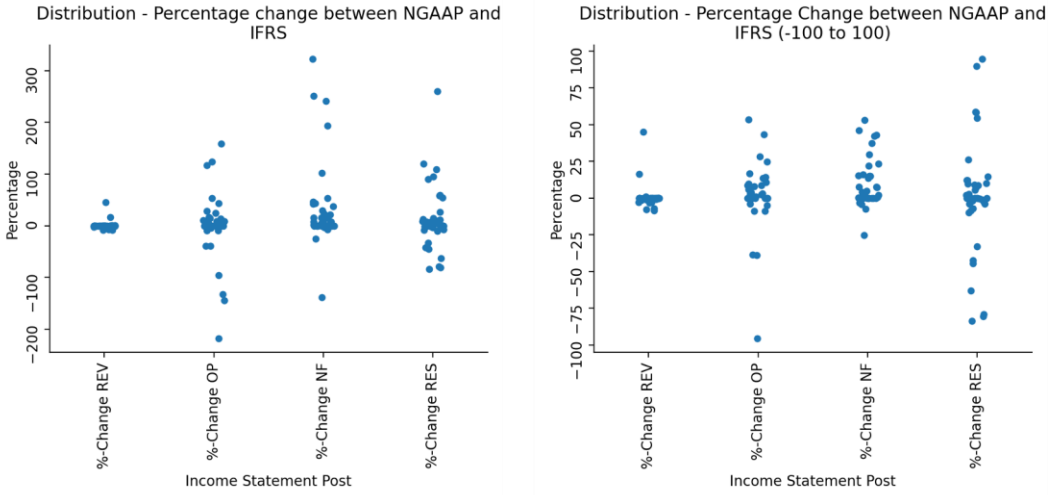
Notes. Figure 6 shows the industry-specific percentage change between balance sheet items. NCA: non-current assets, CA: current assets, E: equity, NCL: non-current liabilities, CL: current liabilities and TEL: total equity and liabilities.

Figure 7. Industry-specific change for balance sheet items, percentage between -100% and 100%



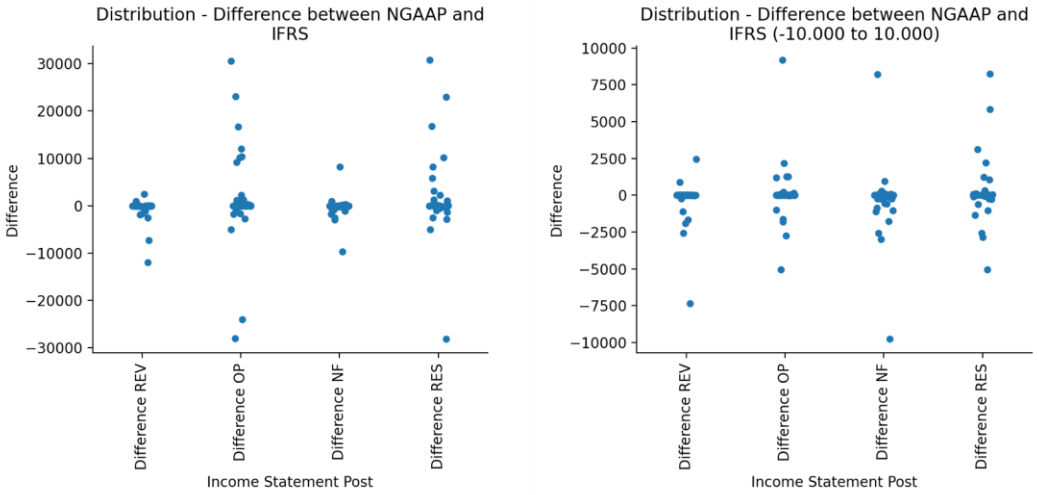
Notes. Figure 7. Industry-specific change between balance sheet items. NCA: non-current assets, CA: current assets, E: equity, NCL: non-current liabilities, CL: current liabilities and TEL: total equity and liabilities.

Figure 8. Distribution of percentage change between NGAAP and IFRS



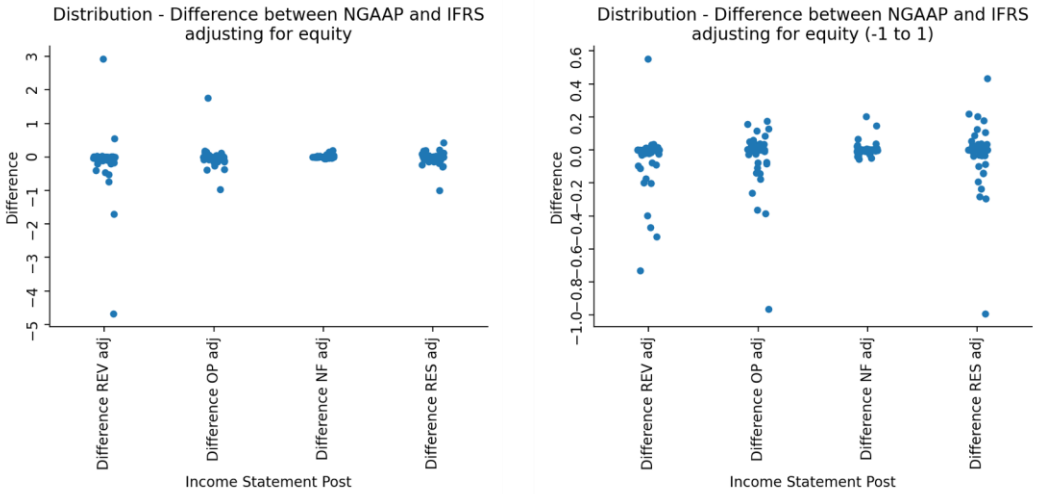
Notes. Figure 8 shows the distribution of percentage change between NGAAP and IFRS and the distribution of percentage change between NGAAP and IFRS form -100 to 100 for Income Statement items. REV: revenue, OP: operating profit, NF: net finance, RES: result.

Figure 9. Distribution of difference between NGAAP and IFRS



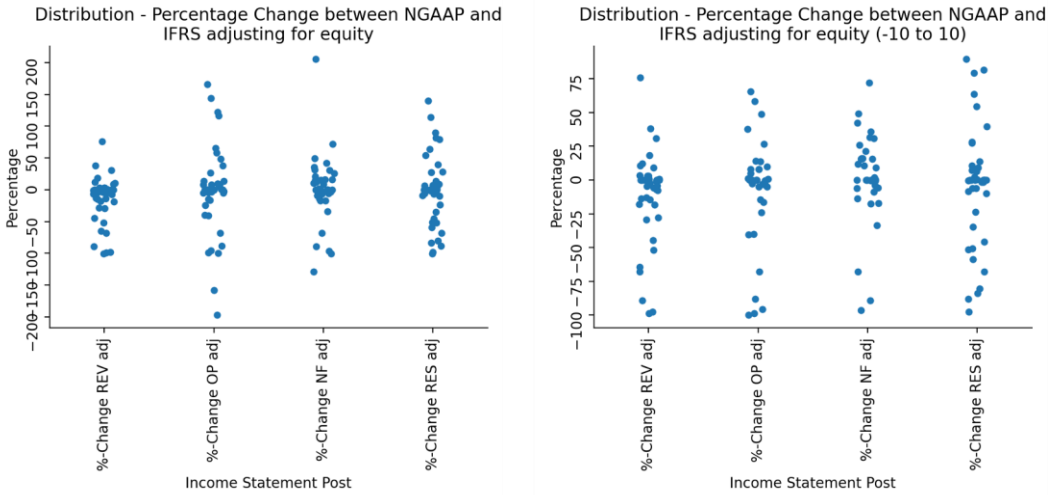
Notes. Figure 9 shows the distribution of difference between NGAAP and IFRS and the distribution of percentage change between NGAAP and IFRS form -10.000 to 10.000 for Income Statement items. REV: revenue, OP: operating profit, NF: net finance, RES: result.

Figure 10. Distribution of difference between NGAAP and IFRS adjusted for equity



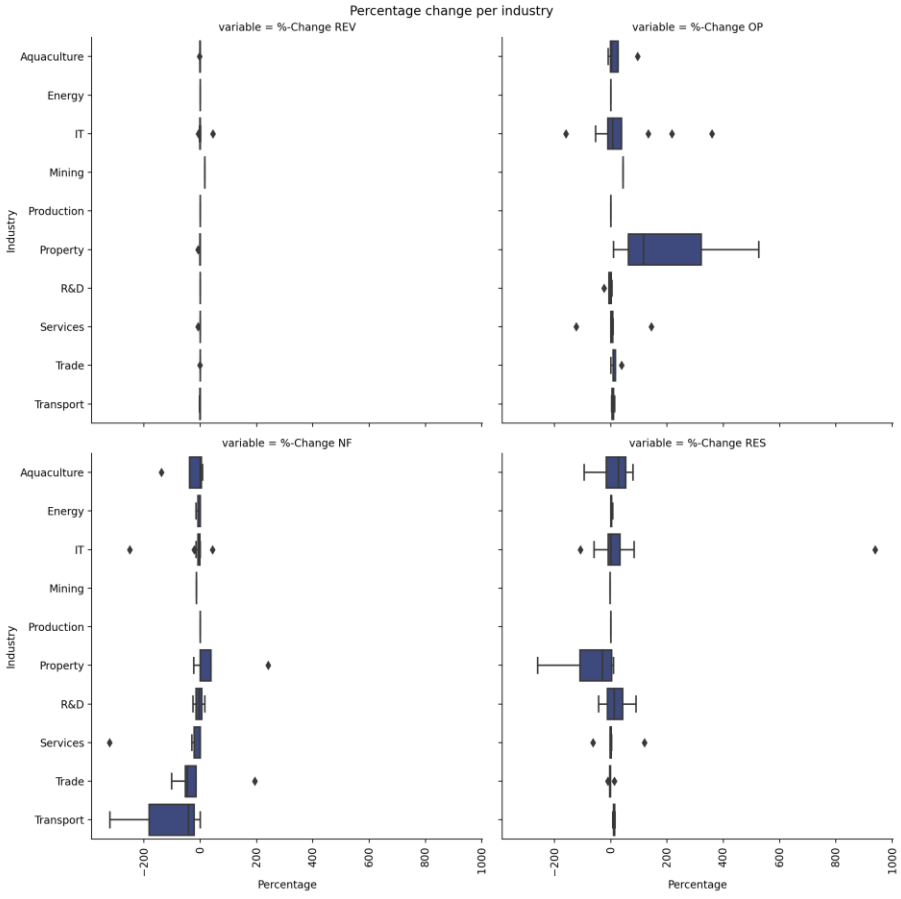
Notes. Figure 10 shows the distribution of difference between NGAAP and IFRS adjusted for equity and distribution of difference between NGAAP and IFRS adjusted for equity from -1 to 1 for Income Statement items. REV: revenue, OP: operating profit, NF: net finance, RES: result.

Figure 11. Distribution of percentage change between NGAAP and IFRS adjusted for equity



Notes. Figure 11 shows the distribution of percentage change between NGAAP and IFRS adjusted for equity and distribution of percentage change between NGAAP and IFRS adjusted for equity from -10 to 10 for Income Statement items. REV: revenue, OP: operating profit, NF: net finance, RES: result.

Figure 12. Industry-specific percentage change between income statement items



Notes. Figure 12 shows industry-specific percentage change between income statement items. REV: revenue, OP: operating profit, NF: net finance, RES: result.

Figure 13. Industry-specific percentage change (-100 <= x <= 100) between income statement items

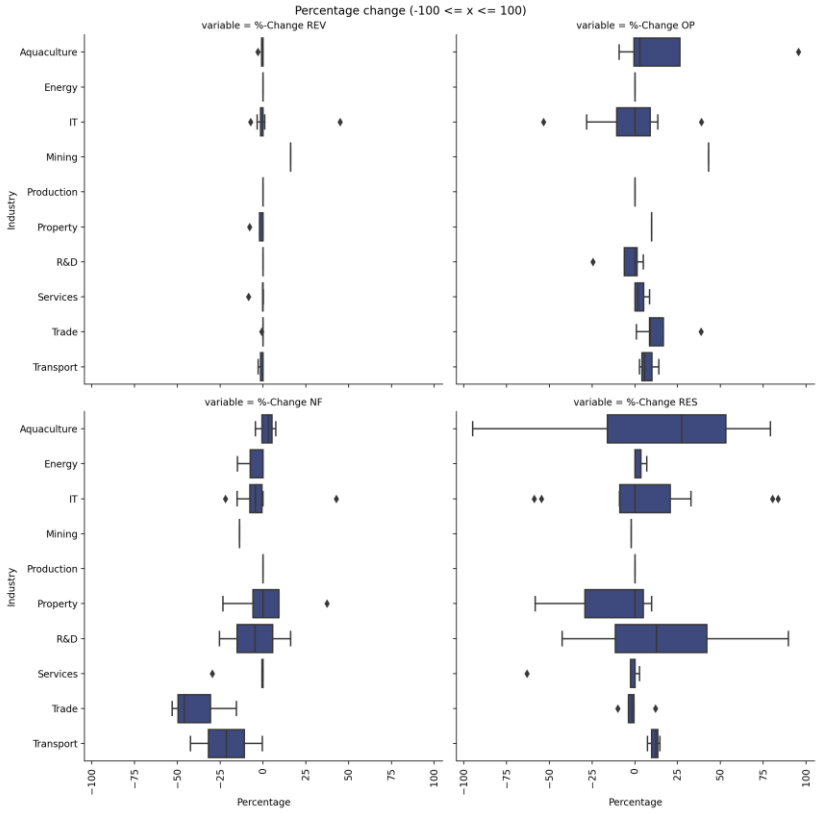


Figure 14. Industry-specific change for income statement items, difference

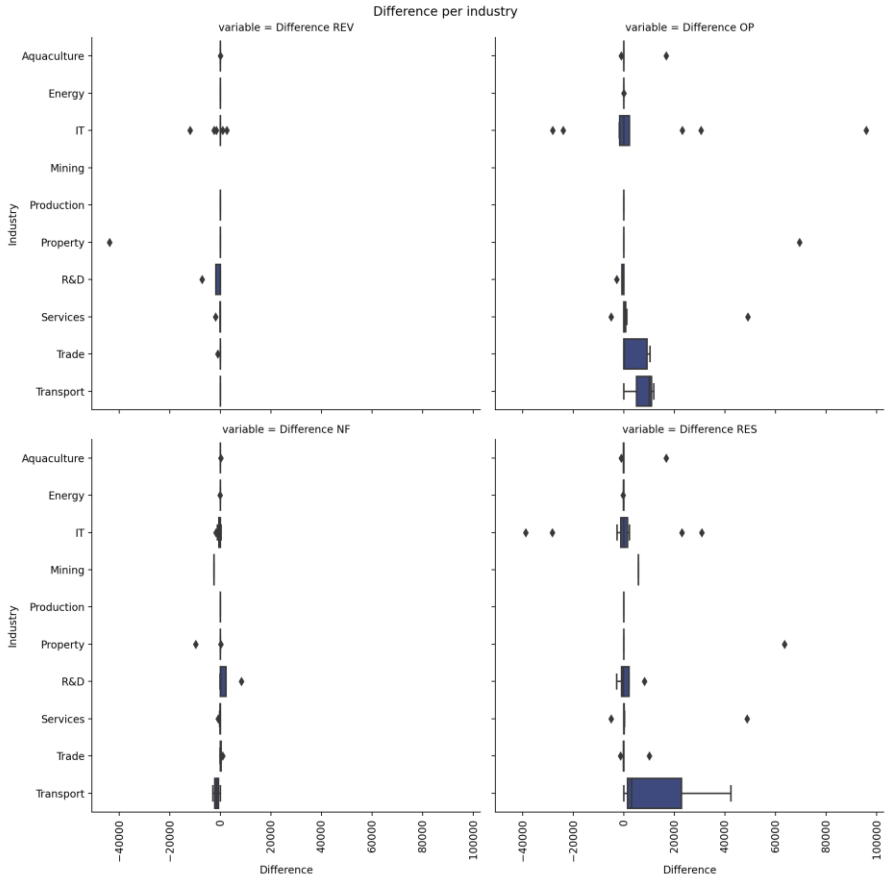


Figure 15. Industry-specific change for income statement items, difference (<=100.000)

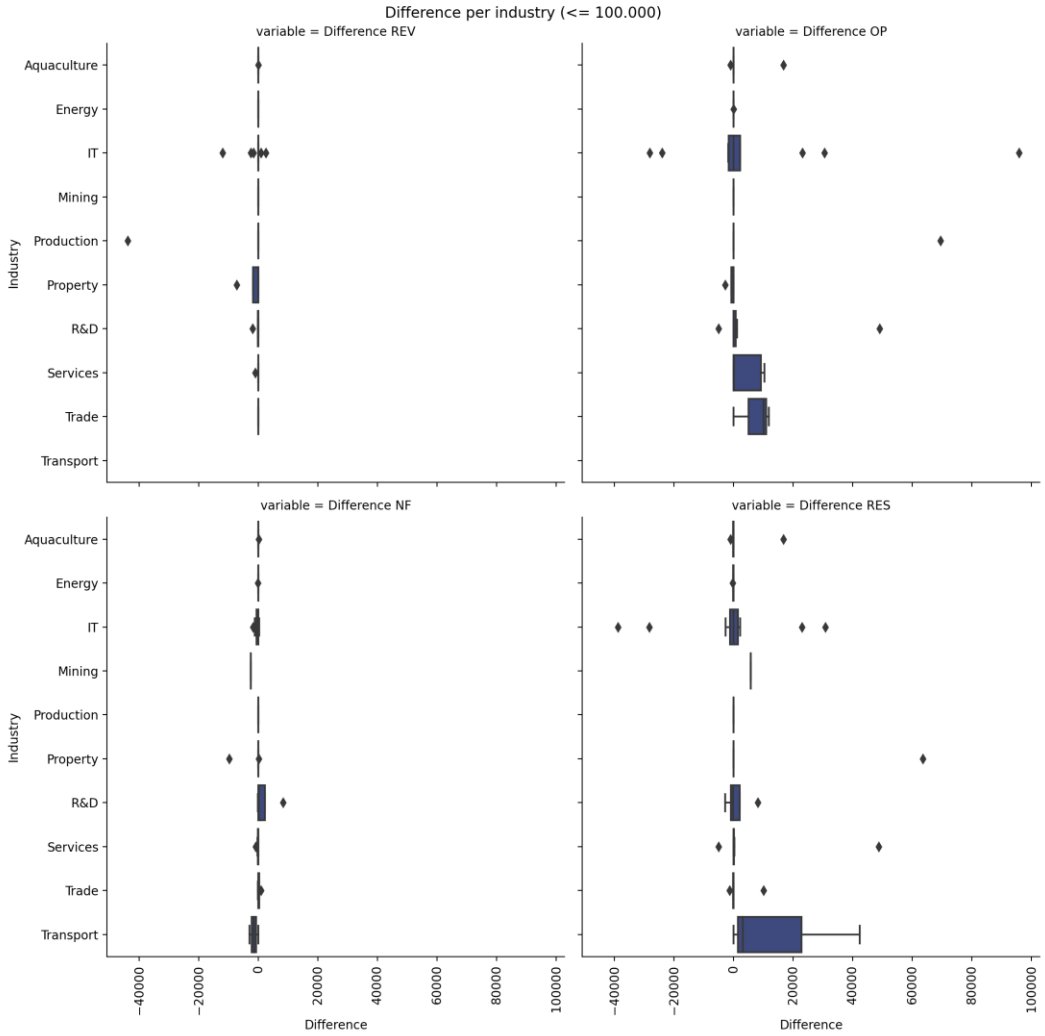


Figure 16. Percentage change per industry adjusted for equity

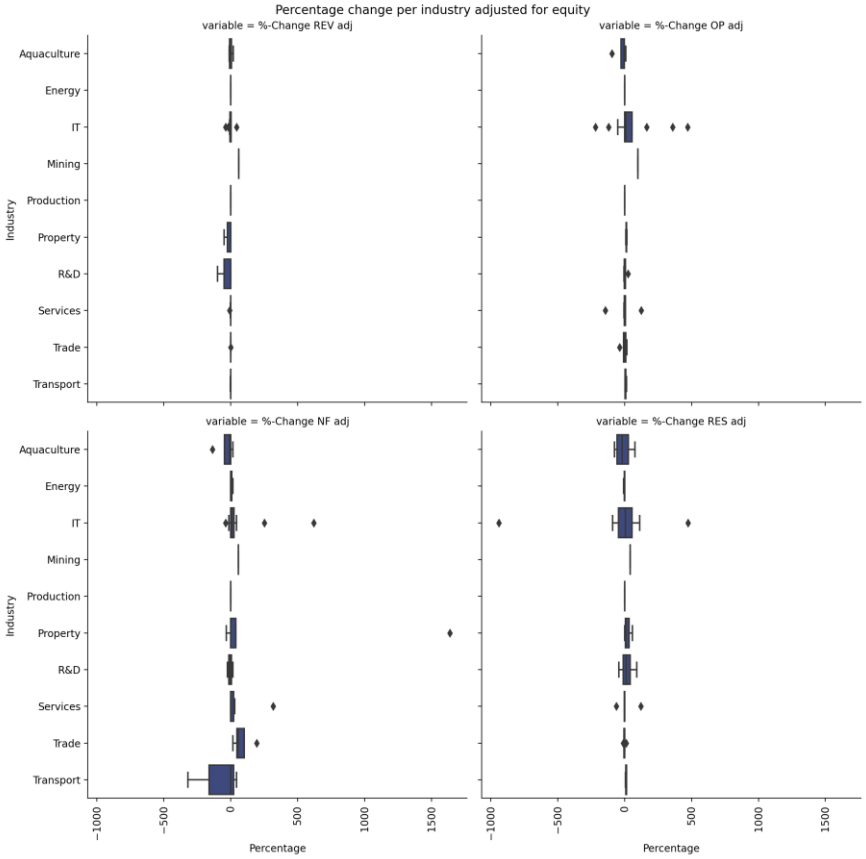


Figure 17. Difference per industry adjusted for equity (<=100.000)

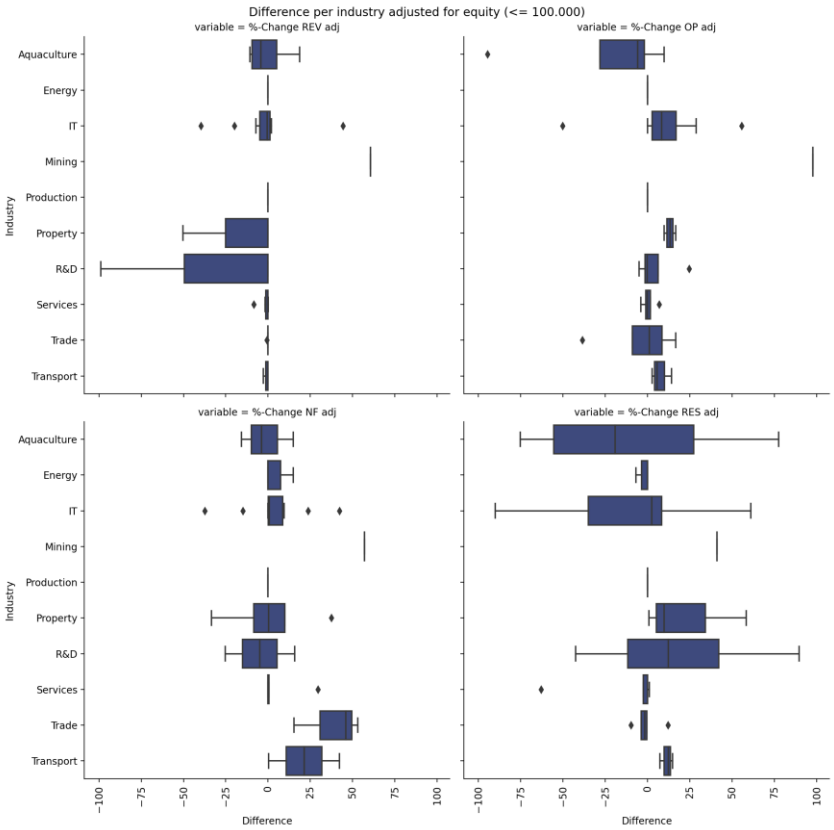


Figure 18. Difference per industry adjusted for equity

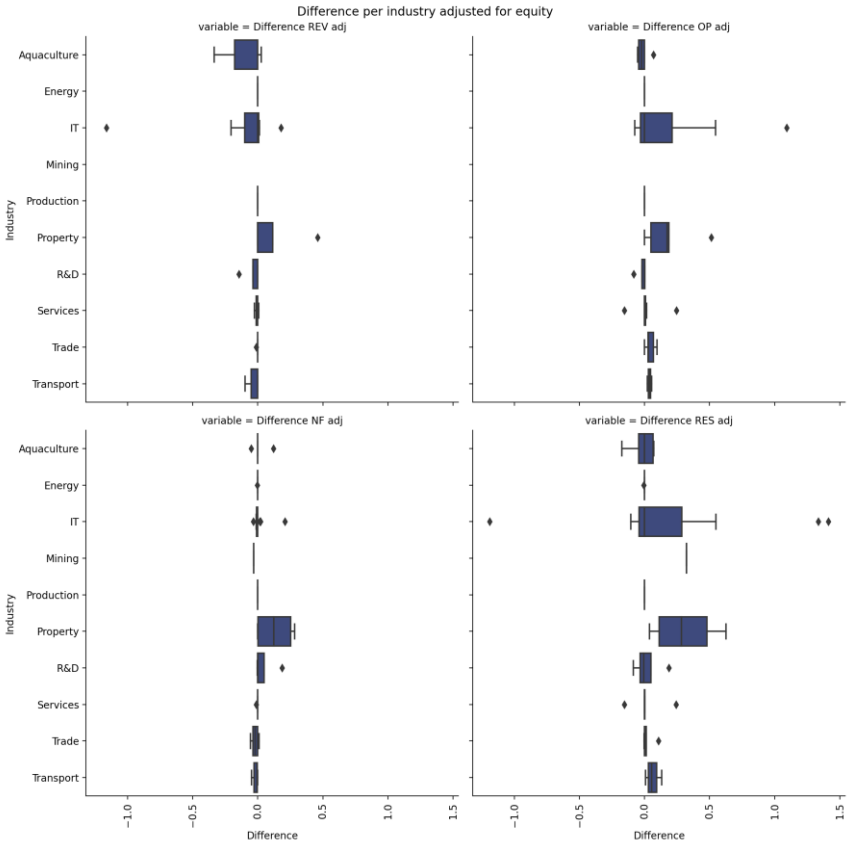
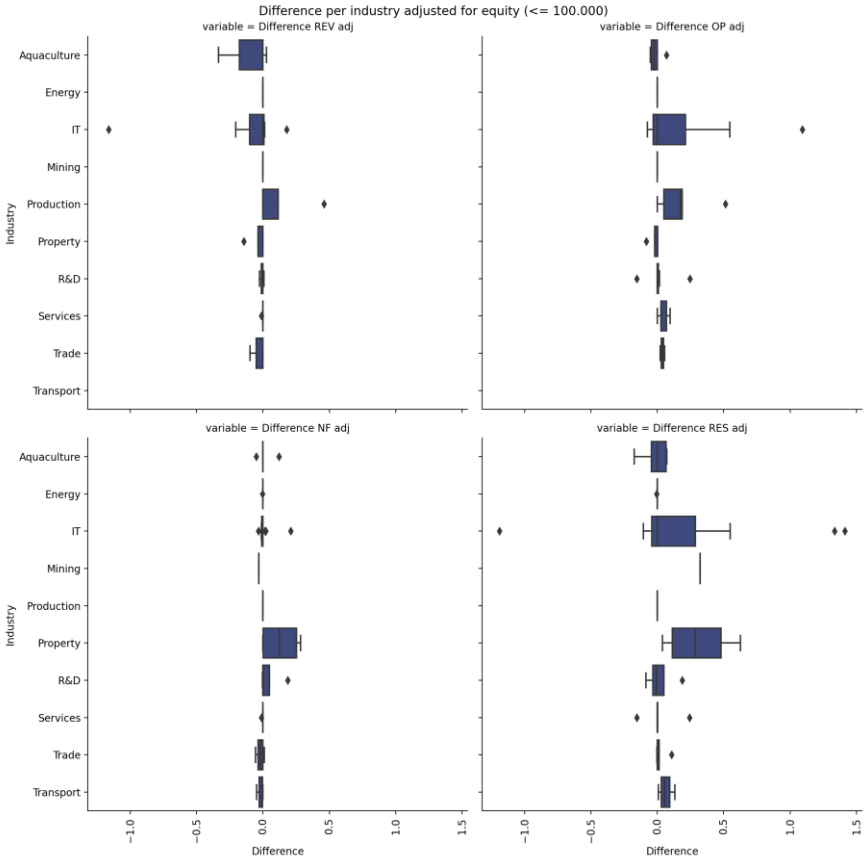


Figure 19. Difference per industry adjusted for equity (<=100.000)



A3: Explanation of Industries

Aquaculture: Aquaculture is the production of food fish in sea- and coastal-based aquaculture, and services associated with sea- and coastal-based aquaculture

Energy: Energy includes the construction of facilities for electricity and the production of electricity.

IT: IT includes services related to IT operation, programming, computer software, development, and support

Mining: Mining includes mine operation and extraction, and associated services

Property: Property includes sales and 7operation of real estate.

R&D: R&D includes professional research and development work

Services: Services include professional, scientific, and technical services that include advice and consultancy

Trade: Trade includes trade in goods, with retail trade and shop trade

Transport: Transport includes, among other things, land transport, goods transport, moving transport, and other land transport with passengers.

A4: Abbreviations

Brreg: Brønnøysundregisteret

BVPS: Book Value Per Share

CA: Current Assets

CL: Current Liabilities

CLT: Central Limit Theorem

CR: Current ratio

D/E: Debt-to-Equity

E: Equity

EBITDA: Earnings Before Interest, Taxes, Depreciation, and Amortization

EPS: Earnings Per Share

ER: Equity ratio

GAAP: General Accepted Accounting Principles

GGAAP: Germany General Accepted Accounting Principles

GR: Gearing ratio

IAS: International Accounting Standard

IASB: International Accounting Standards Board

IFRS: International Financial Reporting Standard

MEUR: Million Euro

NASB: Norwegian Accounting Standards Board

NCA: Non-Current assets

NCL: Non-Current Liabilities

NF: Net Finance

NGAAP: Norwegian General Accepted Accounting Principles

OCI: Other Comprehensive Income

OP: Operating Profit

OPM: Operating profit margin

OSE: Oslo Stock Exchange

PE: Price to Earnings ratio

PP&E: Property, Plant, and Equipment

QR: Quick ratio

RES: Result

REV: Revenue

ROA: Return on Assets

ROE: Return on Equity

ROIC: Return on Invested Capital

SWGAAP: Swedish General Accepted Accounting Principles

TEL: Total Equity and Liabilities

A5: Companies

Industry	Company
Aquaculture	Hadar Holding
	Måsøval Fiskeoppdrett
	Nordic Halibut
	Salmon Evolution
	Statt Torsk
Energy	Cloudberry Clean Berry
	Edda Wind
	Småkraft
	Zaptec
IT	ECOonline
	House of Control
	ININ Group
	Kahoot!
	Mercell
	Mintra
	Papirfly
	Placewise Group
	Play Magnus
	Sectra Norge
	Smartcraft
	Soft Topco
	Ørn Software Holding
Mining	Rana-Gruber
Production	Hydro Extrusion Norway
	Hydrogen Pro
	Tekna
Property	Bernhd. Brekke
	Brekke Industries
	Lumi
	Solicitu Eidsvoll
	Tavex
R&D	Exact Therapeutics
	Greenstat
	Hystar
	Nykode Therapeutics
Services	Airthings
	Desert Control
	Full Steam
	Jordanes Investments
	Remedy Topco

	Resman Holding 1
	Stacc
Trade	Elektroimporten Invest
	Invent Sport
	Jøtul
	Otovo
	Smartoptics
Transport	Baneservice
	Flytoget
	Intership

A6: Python Code

Main code

```
# IMPORT LIBRARIES:
import pandas as pd
import numpy as np
import seaborn as sns
import seaborn.objects as so
from scipy import stats
from scipy.stats import wilcoxon
from itertools import chain
from pandas.plotting import table
import matplotlib.pyplot as plt
from matplotlib import rcParams
rcParams.update({'figure.autolayout': True})
pd.set_option("display.max_columns", None)
pd.set_option("display.max_rows", None)
pd.set_option('display.float_format', lambda x: '%.3f' % x)

# FUNCTIONS:
#Choose numbers of standard deviation. A higher number allows for
more variation in the dataset.
def removing_outliers(df, columns, n_std):
    for col in columns:
        mean = df[col].mean()
        std = df[col].std()
        criteria1 = mean+(n_std*std)
        criteria2 = mean-(n_std*std)
        for i in range(len(df[col])):
            value = df[col].iloc[i]
            if (value > criteria1):
                df[col].iloc[i] = np.nan
            elif (value < criteria2):
                df[col].iloc[i] = np.nan
            else:
                continue
    return df

# DATA IMPORTING:
master_df = pd.read_excel("Comparison and analysis.xlsx",
sheet_name="Master Sheet")
master_df = master_df.round(3)

#Separating datasets into one dataset for balance sheet and one for
income statement:
columns_income = master_df.columns[54:]
columns_balance = master_df.columns[6:54]
balance_sheet = master_df.drop(axis=1, columns=columns_income)
income_statement = master_df.drop(axis=1, columns=columns_balance)
```

```
# BALANCE SHEET ANALYSIS:
#General

#Identifying the columns highlighting %-change to only look at these
in the box plot:
columns_unique = balance_sheet.columns
cols_perc = []
cols_diff = []

for column in columns_unique:
    if "%" in column:
        cols_perc.append(column)
    elif "Difference" in column:
        cols_diff.append(column)
    else:
        continue

# Add all the relevant columns into a list and remove outliers
outside 3 standard deviations:
cols = cols_diff + cols_perc
balance_sheet = removing_outliers(balance_sheet, cols, 3)

# Create a distribution plot for the difference:
balance_sheet_melt = pd.melt(balance_sheet[cols_diff])
cols = balance_sheet_melt.columns[1:]
balance_sheet_melt = removing_outliers(balance_sheet_melt, cols, 3)
sns.catplot(data=balance_sheet_melt, x="variable", y="value",)
plt.title("Distribution - Difference between NGAAP and IFRS",
wrap=True)
plt.ylabel("Difference")
plt.xlabel("Balance Sheet Posts")
plt.ticklabel_format(style="plain", axis="y")
plt.tick_params(rotation=90)
plt.yticks(rotation=0)
plt.savefig("BS - Difference between NGAAP and IFRS.png", dpi=200)
plt.show()

# Create a selection less and bigger than 20000:
balance_sheet_melt = balance_sheet_melt[balance_sheet_melt["value"]
<= 20000]
balance_sheet_melt = balance_sheet_melt[balance_sheet_melt["value"]
>= -20000]
sns.catplot(data=balance_sheet_melt, x="variable", y="value",)
plt.title("Distribution - Difference between NGAAP and IFRS (-20.000
to 20.000)", wrap=True)
plt.ylabel("Difference")
plt.xlabel("Balance Sheet Posts")
plt.ticklabel_format(style="plain", axis="y")
plt.tick_params(rotation=90)
plt.yticks(rotation=0)
```

```
plt.savefig("BS - Difference between NGAAP and IFRS (-1.000.000 < X
< 1.000.000).png", dpi=200)
plt.show()

#Create a distplot fir the percentage change
balance_sheet_melt = pd.melt(balance_sheet[cols_perc])
balance_sheet_melt["value"] = balance_sheet_melt["value"] * 100
cols = balance_sheet_melt.columns[1:]
balance_sheet_melt = removing_outliers(balance_sheet_melt, cols, 3)
sns.catplot(data=balance_sheet_melt, x="variable", y="value",)
plt.tick_params(rotation=90)
plt.ylabel("Percentage")
plt.xlabel("Balance Sheet Post")
plt.title("Distribution - Percentage change", wrap=True)
plt.savefig("BS - Percentage change.png", dpi=200)
plt.show()

#Look at only the values less than <= 100%
balance_sheet_melt = balance_sheet_melt[balance_sheet_melt["value"]
<= 100]
sns.catplot(data=balance_sheet_melt, x="variable", y="value",)
plt.tick_params(rotation=90)
plt.ylabel("Percentage")
plt.xlabel("Balance Sheet Post")
plt.title("Distribution - Percentage change between -100% and 100%",
wrap=True)
plt.savefig("BS - Percentage Change (-100% < x < 100%).png",
dpi=200)
plt.show()

#Creating a dictionary to identify the mean and median on each
ratio:
balance_mean = {}
balance_median = {}
balance_std = {}

cols = cols_diff + cols_perc

for col in cols:
    mean = balance_sheet[col].mean()
    median = balance_sheet[col].median()
    std = balance_sheet[col].std()
    balance_mean[col] = mean
    balance_median[col] = median
    balance_std[col] = std

#Converting the dictionary to dataframe:
balance_mean = pd.DataFrame.from_dict(balance_mean, orient="index",
columns=["Value"])
balance_median = pd.DataFrame.from_dict(balance_median,
orient="index", columns=["Value"])
```

```
balance_std = pd.DataFrame.from_dict(balance_std, orient="index",
columns=["Value"])

#Merging mean values from dataframe without and with outliers for
comparison:
balance_mean.reset_index(names=["Ratios"], inplace=True)
balance_median.reset_index(names=["Ratios"], inplace=True)
balance_std.reset_index(names=["Ratios"], inplace=True)
merged_balance = pd.merge(balance_mean, balance_median, on="Ratios")
merged_balance = pd.merge(merged_balance, balance_std, on="Ratios")
merged_balance.set_index("Ratios", inplace=True)

#Transposing the dataset to get a horizontal layout:
merged_balance = merged_balance.transpose()
merged_balance = merged_balance.rename({"Value_x": "Mean",
"Value_y": "Median", "Value": "Std. Deviation"}, axis="index")
merged_balance = merged_balance.transpose()
merged_balance

#Test the statistical significant by Wilcoxon:
nca = wilcoxon(balance_sheet["NCA NGAAP"], balance_sheet["NCA
IFRS"], nan_policy="omit")
ca = wilcoxon(balance_sheet["CA NGAAP"], balance_sheet["CA IFRS"],
nan_policy="omit")
e = wilcoxon(balance_sheet["E NGAAP"], balance_sheet["E IFRS"],
nan_policy="omit")
ncl = wilcoxon(balance_sheet["NCL NGAAP"], balance_sheet["NCL
IFRS"], nan_policy="omit")
cl = wilcoxon(balance_sheet["CL NGAAP"], balance_sheet["CL IFRS"],
nan_policy="omit")
tel = wilcoxon(balance_sheet["TEL NGAAP"], balance_sheet["TEL
IFRS"], nan_policy="omit")

print("NCA:", nca)
print("CA:", ca)
print("E:", e)
print("NCL:", ncl)
print("CL:", cl)
print("TEL:", tel)

#Industry specific changes - Balance Sheet
columns_unique = balance_sheet.columns
cols_perc = []
cols_diff = []

for column in columns_unique:
    if "%" in column:
        if "adj" in column:
            continue
        else:
            cols_perc.append(column)
```

```
    elif "Difference" in column:
            cols_diff.append(column)
    else:
        continue

if "Industry" not in cols_perc:
    cols_perc.append("Industry")

balance_sheet_red = balance_sheet[cols_perc]
balance_sheet_red.groupby("Industry").agg({balance_sheet_red.columns
[0]: ["mean", "std", "min", "median", "max"],
                                           balance_sheet_red.columns[
1]: ["mean", "std", "min", "median", "max"],
                                           balance_sheet_red.columns[
2]: ["mean", "std", "min", "median", "max"],
                                           balance_sheet_red.columns[
3]: ["mean", "std", "min", "median", "max"],
                                           balance_sheet_red.columns[
4]: ["mean", "std", "min", "median", "max"],
                                           balance_sheet_red.columns[
5]: ["mean", "std", "min", "median", "max"]})

#Plot boxplot:
if "Industry" not in cols_diff:
    cols_diff.append("Industry")

balance_sheet_red = balance_sheet[cols_diff]
balance_sheet_melt = pd.melt(balance_sheet_red, id_vars="Industry",
value_vars=cols_diff)

g = sns.FacetGrid(data=balance_sheet_melt, col="variable",
margin_titles=True, height=6, col_wrap=3)
g.map(sns.boxplot, "value", "Industry", color="#334488")
g.tick_params(axis="x", rotation=90)
g.set_xlabels("Difference")
g.fig.suptitle("Difference per industry")
g.figure.savefig("BS Industry - Difference.png", dpi=200)
g.figure.show()

balance_sheet_melt = balance_sheet_melt[balance_sheet_melt["value"]
<= 100000]
balance_sheet_melt = balance_sheet_melt[balance_sheet_melt["value"]
>= -100000]
g = sns.FacetGrid(data=balance_sheet_melt, col="variable",
margin_titles=True, height=6, col_wrap=3)
g.map(sns.boxplot, "value", "Industry", color="#334488")
g.tick_params(axis="x", rotation=90)
g.set_xlabels("Difference")
g.fig.suptitle("Difference per industry (-100.000 < x < 100.000)")
g.figure.savefig("BS Industry - Difference (-100.00 < x<
100.000).png", dpi=200)
```

```
g.figure.show()

if "Industry" not in cols_perc:
    cols_perc.append("Industry")

balance_sheet_red = balance_sheet[cols_perc]
balance_sheet_melt = pd.melt(balance_sheet_red, id_vars="Industry",
value_vars=cols_perc)
balance_sheet_melt["value"] = balance_sheet_melt["value"] * 100

g = sns.FacetGrid(data=balance_sheet_melt, col="variable",
margin_titles=True, height=6, col_wrap=3)
g.map(sns.boxplot, "value", "Industry", color="#334488")
g.tick_params(axis="x", rotation=90)
g.set_xlabels("Percentage")
g.fig.suptitle("Industry Specific - Percentage change")
g.figure.savefig("BS Industry - Percentage change.png", dpi=200)
g.figure.show()

balance_sheet_melt = balance_sheet_melt[balance_sheet_melt["value"]
<= 100]
g = sns.FacetGrid(data=balance_sheet_melt, col="variable",
margin_titles=True, height=6, col_wrap=3)
g.map(sns.boxplot, "value", "Industry", color="#334488")
g.tick_params(axis="x", rotation=90)
g.set_xlabels("Percentage")
g.fig.suptitle("Industry Specific - Percentage change (<= 10%)")
g.figure.savefig("BS Industry - Percentage change (<= 10%).png",
dpi=200)
g.figure.show()

#Test each industry for statistical results:
industry_unique = balance_sheet["Industry"].unique()
for industry in industry_unique:
    print(industry)
    try:
        df = balance_sheet[balance_sheet["Industry"] == industry]
        nca = wilcoxon(df["NCA NGAAP"], df["NCA IFRS"],
nan_policy="omit")
        ca = wilcoxon(df["CA NGAAP"], df["CA IFRS"],
nan_policy="omit")
        e = wilcoxon(df["E NGAAP"], df["E IFRS"], nan_policy="omit")
        ncl = wilcoxon(df["NCL NGAAP"], df["NCL IFRS"],
nan_policy="omit")
        cl = wilcoxon(df["CL NGAAP"], df["CL IFRS"],
nan_policy="omit")
        tel = wilcoxon(df["TEL NGAAP"], df["TEL IFRS"],
nan_policy="omit")
```

```
        print("NCA:", nca)
        print("CA:", ca)
        print("E:", e)
        print("NCL:", ncl)
        print("CL:", cl)
        print("TEL:", tel)
    except:
        continue

# VOLUNTARY VS. MANDATORY - Balance Sheet:
balance_sheet_voluntary = balance_sheet[balance_sheet["Listed"] ==
"NO"]
balance_sheet_mandatory = balance_sheet[balance_sheet["Listed"] ==
"YES"]

bs_mandatory_mean = {}
bs_mandatory_median = {}
bs_mandatory_std = {}
bs_voluntary_mean = {}
bs_voluntary_median = {}
bs_voluntary_std = {}

cols = cols_diff + cols_perc

for col in cols:
    if col == "Industry":
        continue
    else:
        mean = balance_sheet_mandatory[col].mean()
        median = balance_sheet_mandatory[col].median()
        std = balance_sheet_mandatory[col].std()

        mean1 = balance_sheet_voluntary[col].mean()
        median1 = balance_sheet_voluntary[col].median()
        std1 = balance_sheet_voluntary[col].std()

        bs_mandatory_mean[col] = mean
        bs_mandatory_median[col] = median
        bs_mandatory_std[col] = std

        bs_voluntary_mean[col] = mean1
        bs_voluntary_median[col] = median1
        bs_voluntary_std[col] = std1

balance_mandatory_mean = pd.DataFrame.from_dict(bs_mandatory_mean,
orient="index", columns=["Value"])
balance_mandatory_median =
pd.DataFrame.from_dict(bs_mandatory_median, orient="index",
columns=["Value"])
balance_mandatory_std = pd.DataFrame.from_dict(bs_mandatory_std,
orient="index", columns=["Value"])
```

```
balance_voluntary_mean = pd.DataFrame.from_dict(bs_voluntary_mean,
orient="index", columns=["Value"])
balance_voluntary_median =
pd.DataFrame.from_dict(bs_voluntary_median, orient="index",
columns=["Value"])
balance_voluntary_std = pd.DataFrame.from_dict(bs_voluntary_std,
orient="index", columns=["Value"])

balance_mandatory_mean.reset_index(names=["Ratios"], inplace=True)
balance_mandatory_median.reset_index(names=["Ratios"], inplace=True)
balance_mandatory_std.reset_index(names=["Ratios"], inplace=True)

balance_voluntary_mean.reset_index(names=["Ratios"], inplace=True)
balance_voluntary_median.reset_index(names=["Ratios"], inplace=True)
balance_voluntary_std.reset_index(names=["Ratios"], inplace=True)

merged_mandatory = pd.merge(balance_mandatory_mean,
balance_mandatory_median, on="Ratios")
merged_mandatory = pd.merge(merged_mandatory, balance_mandatory_std,
on="Ratios")
merged_mandatory.set_index("Ratios", inplace=True)

merged_voluntary = pd.merge(balance_voluntary_mean,
balance_voluntary_median, on="Ratios")
merged_voluntary = pd.merge(merged_voluntary, balance_voluntary_std,
on="Ratios")
merged_voluntary.set_index("Ratios", inplace=True)

merged_mandatory
merged_voluntary

#Test statistical significance:
nca = wilcoxon(balance_sheet_mandatory["NCA NGAAP"],
balance_sheet_mandatory["NCA IFRS"], nan_policy="omit")
ca = wilcoxon(balance_sheet_mandatory["CA NGAAP"],
balance_sheet_mandatory["CA IFRS"], nan_policy="omit")
e = wilcoxon(balance_sheet_mandatory["E NGAAP"],
balance_sheet_mandatory["E IFRS"], nan_policy="omit")
ncl = wilcoxon(balance_sheet_mandatory["NCL NGAAP"],
balance_sheet_mandatory["NCL IFRS"], nan_policy="omit")
cl = wilcoxon(balance_sheet_mandatory["CL NGAAP"],
balance_sheet_mandatory["CL IFRS"], nan_policy="omit")
tel = wilcoxon(balance_sheet_mandatory["TEL NGAAP"],
balance_sheet_mandatory["TEL IFRS"], nan_policy="omit")

print("NCA:", nca)
print("CA:", ca)
print("E:", e)
print("NCL:", ncl)
print("CL:", cl)
```

```
print("TEL:", tel)

nca = wilcoxon(balance_sheet_voluntary["NCA NGAAP"],
balance_sheet_voluntary["NCA IFRS"], nan_policy="omit")
ca = wilcoxon(balance_sheet_voluntary["CA NGAAP"],
balance_sheet_voluntary["CA IFRS"], nan_policy="omit")
e = wilcoxon(balance_sheet_voluntary["E NGAAP"],
balance_sheet_voluntary["E IFRS"], nan_policy="omit")
ncl = wilcoxon(balance_sheet_voluntary["NCL NGAAP"],
balance_sheet_voluntary["NCL IFRS"], nan_policy="omit")
cl = wilcoxon(balance_sheet_voluntary["CL NGAAP"],
balance_sheet_voluntary["CL IFRS"], nan_policy="omit")
tel = wilcoxon(balance_sheet_voluntary["TEL NGAAP"],
balance_sheet_voluntary["TEL IFRS"], nan_policy="omit")

print("NCA:", nca)
print("CA:", ca)
print("E:", e)
print("NCL:", ncl)
print("CL:", cl)
print("TEL:", tel)

#INCOME STATEMENT
#General
columns_unique = income_statement.columns
cols_perc = []
cols_diff = []

for column in columns_unique:
    if "%" in column:
        cols_perc.append(column)
    elif "Difference" in column:
        cols_diff.append(column)
    else:
        continue

cols = cols_diff + cols_perc
income_statement = removing_outliers(income_statement, cols, 3)

income_melt = pd.melt(income_statement[cols_diff])
cols = income_melt.columns[1:]
income_melt = removing_outliers(income_melt, cols, 3)
sns.catplot(data=income_melt, x="variable", y="value",)
plt.tick_params(rotation=90)
plt.title("Distribution - Difference between NGAAP and IFRS",
wrap=True)
plt.ylabel("Difference")
plt.xlabel("Income Statement Post")
plt.yticks(rotation=0)
plt.savefig("IS - Difference between NGAAP and IFRS.png", dpi=200)
plt.show()
```

```
income_melt = income_melt[income_melt["value"] <= 10000]
income_melt = income_melt[income_melt["value"] >= -10000]
sns.catplot(data=income_melt, x="variable", y="value",)
plt.tick_params(rotation=90)
plt.title("Distribution - Difference between NGAAP and IFRS (-10.000
to 10.000)", wrap=True)
plt.ylabel("Difference")
plt.xlabel("Income Statement Post")
plt.yticks(rotation=0)
plt.savefig("IS - Difference between NGAAP and IFRS <= 10.png",
dpi=200)
plt.show()

income_melt = pd.melt(income_statement[cols_perc])
income_melt["value"] = income_melt["value"] * 100
cols = income_melt.columns[1:]
income_melt = removing_outliers(income_melt, cols, 3)
sns.catplot(data=income_melt, x="variable", y="value",)
plt.tick_params(rotation=90)
plt.title("Distribution - Percentage change between NGAAP and IFRS",
wrap=True)
plt.ylabel("Percentage")
plt.xlabel("Income Statement Post")
plt.savefig("IS - Percentage Change between NGAAP and IFRS.png",
dpi=200)
plt.show()

income_melt = income_melt[income_melt["value"] <= 100]
income_melt = income_melt[income_melt["value"] >= -100]
sns.catplot(data=income_melt, x="variable", y="value",)
plt.tick_params(rotation=90)
plt.title("Distribution - Percentage Change between NGAAP and IFRS
(-100 to 100)", wrap=True)
plt.ylabel("Percentage")
plt.xlabel("Income Statement Post")
plt.savefig("IS - Percentage Change between NGAAP and IFRS <=
10.png", dpi=200)
plt.show()

#Getting mean and median values of all ratios without considering
the outliers:
income_mean = {}
income_median = {}
income_std = {}

cols = cols_diff + cols_perc

for column in cols:
    mean = income_statement[column].mean()
    median = income_statement[column].median()
```

```
    std = income_statement[column].std()
    income_mean[column] = mean
    income_median[column] = median
    income_std[column] = std

#Convert dictionary to dataframe:
income_mean = pd.DataFrame.from_dict(income_mean, orient="index",
columns=["Value"])
income_median = pd.DataFrame.from_dict(income_median,
orient="index", columns=["Value"])
income_std = pd.DataFrame.from_dict(income_std, orient="index",
columns=["Value"])

#Merging mean values from dataframe without and with outliers for
comparison:
income_mean.reset_index(names=["Ratios"], inplace=True)
income_median.reset_index(names=["Ratios"], inplace=True)
income_std.reset_index(names=["Ratios"], inplace=True)
merged_income = pd.merge(income_mean, income_median, on="Ratios")
merged_income = pd.merge(merged_income, income_std, on="Ratios")
merged_income.set_index("Ratios", inplace=True)

#Transposing the dataset to get a horizontal layout:
merged_income = merged_income.transpose()
merged_income = merged_income.rename({"Value_x": "Mean", "Value_y":
"Median", "Value": "Std Deviation"}, axis="index")
merged_income = merged_income.transpose()

merged_income

#Test statistcal signficance:
rev = wilcoxon(income_statement["REV NGAAP"], income_statement["REV
IFRS"], nan_policy="omit")
op = wilcoxon(income_statement["OP NGAAP"], income_statement["OP
IFRS"], nan_policy="omit")
nf = wilcoxon(income_statement["NF NGAAP"], income_statement["NF
IFRS"], nan_policy="omit")
res = wilcoxon(income_statement["RES NGAAP"], income_statement["RES
IFRS"], nan_policy="omit")

print("REV:", rev)
print("OP:", op)
print("NF:", nf)
print("RES:", res)

# INDUSTRY SPECIFIC - Income Statement:
columns_unique = income_statement.columns
cols_perc = []
cols_diff = []

for column in columns_unique:
```

```
    if "%" in column:
        cols_perc.append(column)
    elif "Difference" in column:
        cols_diff.append(column)
    else:
        continue

if "Industry" not in cols_perc:
    cols_perc.append("Industry")

income_statement_red = income_statement[cols_perc]
income_statement_red.groupby("Industry").agg({income_statement_red.c
olumns[0]: ["mean", "std", "min", "median", "max"],
                                              income_statement_red.c
olumns[1]: ["mean", "std", "min", "median", "max"],
                                              income_statement_red.c
olumns[2]: ["mean", "std", "min", "median", "max"],
                                              income_statement_red.c
olumns[3]: ["mean", "std", "min", "median", "max"]})

#Create graphs:
if "Industry" not in cols_diff:
    cols_diff.append("Industry")

income_statement_red = income_statement[cols_diff]
income_statement_melt = pd.melt(income_statement_red,
id_vars="Industry", value_vars=cols_diff)

g = sns.FacetGrid(data=income_statement_melt, col="variable",
margin_titles=True, height=6, col_wrap=2)
g.map(sns.boxplot, "value", "Industry", color="#334488")
g.tick_params(axis="x", rotation=90)
g.set_xlabels("Difference")
g.fig.suptitle("Difference per industry")
g.figure.savefig("IS Industry - Difference.png", dpi=200)
g.figure.show()

income_statement_melt =
income_statement_melt[income_statement_melt["value"] <= 100000]
g = sns.FacetGrid(data=income_statement_melt, col="variable",
margin_titles=True, height=6, col_wrap=2)
g.map(sns.boxplot, "value", "Industry", color="#334488")
g.tick_params(axis="x", rotation=90)
g.set_xlabels("Difference")
g.fig.suptitle("Difference per industry (<= 100.000)")
g.figure.savefig("IS Industry - Difference (<= 100.000).png",
dpi=200)
g.figure.show()

if "Industry" not in cols_perc:
    cols_perc.append("Industry")
```

```
income_statement_red = income_statement[cols_perc]
income_statement_melt = pd.melt(income_statement_red,
id_vars="Industry", value_vars=cols_perc)
income_statement_melt["value"] = income_statement_melt["value"] *
100

g = sns.FacetGrid(data=income_statement_melt, col="variable",
margin_titles=True, height=6, col_wrap=2)
g.map(sns.boxplot, "value", "Industry", color="#334488")
g.tick_params(axis="x", rotation=90)
g.set_xlabels("Percentage")
g.fig.suptitle("Percentage change per industry")
g.figure.savefig("IS Industry - Percentage change.png", dpi=200)
g.figure.show()

income_statement_melt =
income_statement_melt[income_statement_melt["value"] <= 100]
income_statement_melt =
income_statement_melt[income_statement_melt["value"] >= -100]
g = sns.FacetGrid(data=income_statement_melt, col="variable",
margin_titles=True, height=6, col_wrap=2)
g.map(sns.boxplot, "value", "Industry", color="#334488")
g.tick_params(axis="x", rotation=90)
g.set_xlabels("Percentage")
g.fig.suptitle("Percentage change (-100 <= x <= 100)")
g.figure.savefig("IS Industry - Percentage change (-100 <= x <=
100).png", dpi=200)
g.figure.show()

# Test for statistical significance:
industry_unique = income_statement["Industry"].unique()
for industry in industry_unique:
    print(industry)
    try:
        df = income_statement[income_statement["Industry"] ==
industry]
        rev = wilcoxon(df["REV NGAAP"], df["REV IFRS"],
nan_policy="omit")
        op = wilcoxon(df["OP NGAAP"], df["OP IFRS"],
nan_policy="omit")
        nf = wilcoxon(df["NF NGAAP"], df["NF IFRS"],
nan_policy="omit")
        res = wilcoxon(df["RES NGAAP"], df["RES IFRS"],
nan_policy="omit")

        print("REV:", rev)
        print("OP:", op)
        print("NF:", nf)
        print("RES:", res)
    except:
```

```
        continue

# VOLUNTARY vs. MANDATORY - Income Statment
income_mandatory = income_statement[income_statement["Listed"] ==
"YES"]
income_voluntary = income_statement[income_statement["Listed"] ==
"NO"]

is_mandatory_mean = {}
is_mandatory_median = {}
is_mandatory_std = {}
is_voluntary_mean = {}
is_voluntary_median = {}
is_voluntary_std = {}

cols = cols_diff + cols_perc

for col in cols:
    if col == "Industry":
        continue
    else:
        mean = income_mandatory[col].mean()
        median = income_mandatory[col].median()
        std = income_mandatory[col].std()

        mean1 = income_voluntary[col].mean()
        median1 = income_voluntary[col].median()
        std1 = income_voluntary[col].std()

        is_mandatory_mean[col] = mean
        is_mandatory_median[col] = median
        is_mandatory_std[col] = std

        is_voluntary_mean[col] = mean1
        is_voluntary_median[col] = median1
        is_voluntary_std[col] = std1

is_mandatory_mean = pd.DataFrame.from_dict(is_mandatory_mean,
orient="index", columns=["Value"])
is_mandatory_median = pd.DataFrame.from_dict(is_mandatory_median,
orient="index", columns=["Value"])
is_mandatory_std = pd.DataFrame.from_dict(is_mandatory_std,
orient="index", columns=["Value"])

is_voluntary_mean = pd.DataFrame.from_dict(is_voluntary_mean,
orient="index", columns=["Value"])
is_voluntary_median = pd.DataFrame.from_dict(is_voluntary_median,
orient="index", columns=["Value"])
is_voluntary_std = pd.DataFrame.from_dict(is_voluntary_std,
orient="index", columns=["Value"])
```

```
is_mandatory_mean.reset_index(names=["Ratios"], inplace=True)
is_mandatory_median.reset_index(names=["Ratios"], inplace=True)
is_mandatory_std.reset_index(names=["Ratios"], inplace=True)

is_voluntary_mean.reset_index(names=["Ratios"], inplace=True)
is_voluntary_median.reset_index(names=["Ratios"], inplace=True)
is_voluntary_std.reset_index(names=["Ratios"], inplace=True)

merged_mandatory = pd.merge(is_mandatory_mean, is_mandatory_median,
on="Ratios")
merged_mandatory = pd.merge(merged_mandatory, is_mandatory_std,
on="Ratios")
merged_mandatory.set_index("Ratios", inplace=True)

merged_voluntary = pd.merge(is_voluntary_mean, is_voluntary_median,
on="Ratios")
merged_voluntary = pd.merge(merged_voluntary, is_voluntary_std,
on="Ratios")
merged_voluntary.set_index("Ratios", inplace=True)

merged_mandatory
merged_voluntary

#Test statistical significance:
rev = wilcoxon(income_mandatory["REV NGAAP"], income_mandatory["REV
IFRS"], nan_policy="omit")
op = wilcoxon(income_mandatory["OP NGAAP"], income_mandatory["OP
IFRS"], nan_policy="omit")
nf = wilcoxon(income_mandatory["NF NGAAP"], income_mandatory["NF
IFRS"], nan_policy="omit")
res = wilcoxon(income_mandatory["RES NGAAP"], income_mandatory["RES
IFRS"], nan_policy="omit")

print("REV:", rev)
print("OP:", op)
print("NF:", nf)
print("RES:", res)

rev = wilcoxon(income_voluntary["REV NGAAP"], income_voluntary["REV
IFRS"], nan_policy="omit")
op = wilcoxon(income_voluntary["OP NGAAP"], income_voluntary["OP
IFRS"], nan_policy="omit")
nf = wilcoxon(income_voluntary["NF NGAAP"], income_voluntary["NF
IFRS"], nan_policy="omit")
res = wilcoxon(income_voluntary["RES NGAAP"], income_voluntary["RES
IFRS"], nan_policy="omit")

print("REV:", rev)
print("OP:", op)
print("NF:", nf)
print("RES:", res)
```

```
# FINANCIAL RATIOS:
#EPS:
master_df["EPS NGAAP"] = master_df["RES NGAAP"] /
master_df["Outstanding Shares"]
master_df["EPS IFRS"] = master_df["RES IFRS"] /
master_df["Outstanding Shares"]
master_df["EPS Difference"] = master_df["EPS IFRS"] - master_df["EPS
NGAAP"]
master_df["%-Change in EPS"] = (master_df["EPS IFRS"] -
master_df["EPS NGAAP"]) / master_df["EPS NGAAP"]

#Short term liquidity:
master_df["Short term liquidity NGAAP"] = master_df["CA NGAAP"] /
master_df["CL NGAAP"]
master_df["Short term liquidity IFRS"] = master_df["CA IFRS"] /
master_df["CL IFRS"]
master_df["Short term liquidity Difference"] = master_df["Short term
liquidity IFRS"] - master_df["Short term liquidity NGAAP"]
master_df["%-Change Short term liquidity"] = (master_df["Short term
liquidity IFRS"] - master_df["Short term liquidity NGAAP"]) /
master_df["Short term liquidity NGAAP"]

#Book value per share:
master_df["BVPS NGAAP"] = master_df["E NGAAP"] /
master_df["Outstanding Shares"]
master_df["BVPS IFRS"] = master_df["E IFRS"] /
master_df["Outstanding Shares"]
master_df["BVPS Difference"] = master_df["BVPS IFRS"] -
master_df["BVPS NGAAP"]
master_df["%-Change BVPS"] = (master_df["BVPS IFRS"] -
master_df["BVPS NGAAP"]) / master_df["BVPS NGAAP"]

#Debt to equity ratio:
master_df["D/E NGAAP"] = (master_df["NCL NGAAP"] + master_df["CL
NGAAP"]) / master_df["E NGAAP"]
master_df["D/E IFRS"] = (master_df["NCL IFRS"] + master_df["CL
IFRS"]) / master_df["E IFRS"]
master_df["D/E Difference"] = master_df["D/E IFRS"] - master_df["D/E
NGAAP"]
master_df["%-Change D/E"] = (master_df["D/E IFRS"] - master_df["D/E
NGAAP"]) / master_df["D/E NGAAP"]

#ROE:
master_df["ROE NGAAP"] = master_df["RES NGAAP"] / master_df["E
NGAAP"]
master_df["ROE IFRS"] = master_df["RES IFRS"] / master_df["E IFRS"]
master_df["ROE Difference"] = master_df["ROE IFRS"] - master_df["ROE
NGAAP"]
master_df["%-Change ROE"] = (master_df["ROE IFRS"] - master_df["ROE
NGAAP"]) / master_df["ROE NGAAP"]
```

```
#ROA:
master_df["ROA NGAAP"] = master_df["RES NGAAP"] / master_df["TEL
NGAAP"]
master_df["ROA IFRS"] = master_df["RES IFRS"] / master_df["TEL
IFRS"]
master_df["ROA Difference"] = master_df["ROA IFRS"] - master_df["ROA
NGAAP"]
master_df["%-Change ROA"] = (master_df["ROA IFRS"] - master_df["ROA
NGAAP"]) / master_df["ROA NGAAP"]

cols = ["Industry",
        "EPS Difference",
        "%-Change in EPS",
        "Short term liquidity Difference",
        "%-Change Short term liquidity",
        "BVPS Difference",
        "%-Change BVPS",
        "D/E Difference",
        "%-Change D/E",
        "ROE Difference",
        "%-Change ROE",
        "ROA Difference",
        "%-Change ROA"]

ratio_df = master_df[cols]
ratio_df_median_industy =
master_df[cols].groupby("Industry").median()
ratio_df_mean_industry = master_df[cols].groupby("Industry").mean()

avg_ratio = ratio_df.mean()
median_ratio = ratio_df.median()
std_ratio = ratio_df.std()
avg_ratio = pd.DataFrame(avg_ratio)
median_ratio = pd.DataFrame(median_ratio)
std_ratio = pd.DataFrame(std_ratio)
calc_ratio = pd.merge(avg_ratio, median_ratio, left_index=True,
right_index=True)
calc_ratio = pd.merge(calc_ratio, std_ratio, left_index=True,
right_index=True)
calc_ratio.rename(columns={"0_x": "Mean", "0_y": "Median", 0: "Std.
Deviation"}, inplace=True)
calc_ratio

industry_ratio = ratio_df.groupby("Industry").describe()

cols = ["EPS NGAAP", "EPS IFRS",
        "Short term liquidity NGAAP", "Short term liquidity IFRS",
        "BVPS NGAAP", "BVPS IFRS",
        "D/E NGAAP", "D/E IFRS",
        "ROE NGAAP", "ROE IFRS",
```

```
        "ROA NGAAP", "ROA IFRS"]

ratio_wil = master_df[cols]

#Test for statistical signficance
#EPS:
eps = wilcoxon(ratio_wil["EPS NGAAP"], ratio_wil["EPS IFRS"],
nan_policy="omit")

#Short term liquidity:
liq = wilcoxon(ratio_wil["Short term liquidity NGAAP"],
ratio_wil["Short term liquidity IFRS"], nan_policy="omit")

#BVPS:
bvps = wilcoxon(ratio_wil["BVPS NGAAP"], ratio_wil["BVPS IFRS"],
nan_policy="omit")

#D/E:
d_e = wilcoxon(ratio_wil["D/E NGAAP"], ratio_wil["D/E IFRS"],
nan_policy="omit")

#ROE:
roe = wilcoxon(ratio_wil["ROE NGAAP"], ratio_wil["ROE IFRS"],
nan_policy="omit")

#ROA:
roa = wilcoxon(ratio_wil["ROA NGAAP"], ratio_wil["ROA IFRS"],
nan_policy="omit")

dictionary = {"EPS": eps,
              "Liquidity": liq,
              "BVPS": bvps,
              "D/E": d_e,
              "ROE": roe,
              "ROA": roa}

dictionary

cols = ["Industry", "EPS NGAAP", "EPS IFRS",
        "Short term liquidity NGAAP", "Short term liquidity IFRS",
        "BVPS NGAAP", "BVPS IFRS",
        "D/E NGAAP", "D/E IFRS",
        "ROE NGAAP", "ROE IFRS",
        "ROA NGAAP", "ROA IFRS"]

ratio_wil = master_df[cols]

industries = ratio_wil["Industry"].unique()
for industry in industries:
        print(industry)
        df = ratio_wil[ratio_wil["Industry"] == industry]
```

```
        try:
                #EPS:
                eps = wilcoxon(df["EPS NGAAP"], df["EPS IFRS"],
nan_policy="omit")

                #Short term liquidity:
                liq = wilcoxon(df["Short term liquidity NGAAP"],
df["Short term liquidity IFRS"], nan_policy="omit")

                #BVPS:
                bvps = wilcoxon(df["BVPS NGAAP"], df["BVPS IFRS"],
nan_policy="omit")

                #D/E:
                d_e = wilcoxon(df["D/E NGAAP"], df["D/E IFRS"],
nan_policy="omit")

                #ROE:
                roe = wilcoxon(df["ROE NGAAP"], df["ROE IFRS"],
nan_policy="omit")

                #ROA:
                roa = wilcoxon(df["ROA NGAAP"], df["ROA IFRS"],
nan_policy="omit")

                print("EPS:", eps)
                print("LIQ:", liq)
                print("BVPS", bvps)
                print("D/E", d_e)
                print("ROE", roe)
                print("ROA", roa)
        except:
                continue
```

Search Function

```
import pandas as pd
pd.set_option("display.max_columns", None)
pd.set_option("display.max_rows", None)
pd.set_option('display.float_format', lambda x: '%.3f' % x)

hydrogenpro = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='HydrogenPro AS')
play_magnus = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Play Magnus')
rana_ruber = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Rana-Gruber')
kahoot = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Kahoot!')
```

```
cloudberry = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Cloudberry')
solicitu = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='SOLICITU EIDSVOLL ')
flytoget = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Flytoget')
full_steam = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Full steam')
intership = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Intership')
mintra = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Mintra')
mercell = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Mercell')
smartcraft = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Smartcraft')
jordanes = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Jordanes investments')
hystar = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Hystar')
lumi = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Lumi')
papirfly = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Papirfly')
sectra = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Sectra Norge')
småkraft = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Småkraft')
hydro = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Hydro Extrusion Norway')
zaptec = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Zaptec')
salmon = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Salmon Evolution')
nordic_halibut = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Nordic Halibut')
desert_control = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Desert Control')
måsøval = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Måsøval')
smartoptics  = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Smartoptics')
otovo = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Otovo')
stacc  = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Stacc')
ørn_software = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Ørn Software Holding')
resman_holding = pd.read_excel("Comparison and analysis.xlsx",
sheet_name='Resman Holding 1 AS')
```

```
nykode_therapeutics = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Nykode Therapeutics')
jøtul = pd.read_excel("Comparison and analysis.xlsx", sheet_name=
'Jøtul')
exact_therapeutics = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Exact Therapeutics')
statt_torsk = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Statt Torsk')
tekna = pd.read_excel("Comparison and analysis.xlsx", sheet_name=
'Tekna')
eco_online = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'EcoOnline')
edda_wind = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Edda Wind')
airthings = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Airthings')
elektroimportøren = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Elektroimportøren Invest')
greenstat = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Greenstat')
hadar_holding = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Hadar Holding')
invent_sport = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Invent Sport')
remedy_topco = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Remedy Topco')
house_of_control = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'House of Control')
inin_group = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'ININ Group')
tavex = pd.read_excel("Comparison and analysis.xlsx", sheet_name=
'Tavex')
mybank = pd.read_excel("Comparison and analysis.xlsx", sheet_name=
'Mybank')
soft_topco = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Soft topco')
brekke_industrier = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Brekke industrier')
baneservice = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Baneservice')
placewise_group = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'PLACEWISE GROUP')
bernhd_brekke = pd.read_excel("Comparison and analysis.xlsx",
sheet_name= 'Bernhd. Brekke')

list_of_dataframes = [hydrogenpro,
    play_magnus,
    rana_ruber,
    kahoot,
    cloudberry,
    solicitu,
```

```
    flytoget,
    full_steam,
    intership,
    mintra,
    mercell,
    smartcraft,
    jordanes,
    hystar,
    lumi,
    papirfly,
    sectra,
    småkraft,
    hydro,
    zaptec,
    salmon,
    nordic_halibut,
    desert_control,
    måsøval,
    smartoptics,
    otovo,
    stacc,
    ørn_software,
    resman_holding,
    nykode_therapeutics,
    jøtul,
    exact_therapeutics ,
    statt_torsk,
    tekna,
    eco_online,
    edda_wind,
    airthings,
    elektroimportøren,
    greenstat,
    hadar_holding,
    invent_sport,
    remedy_topco,
    house_of_control,
    inin_group,
    tavex,
    mybank,
    soft_topco,
    brekke_industrier,
    baneservice,
    placewise_group,
    bernhd_brekke]

list_of_names = ['hydrogenpro',
    'play_magnus',
    'rana_ruber',
    'kahoot',
    'cloudberry',
```

```
    'solicitu',
    'flytoget',
    'full_steam',
    'intership',
    'mintra',
    'mercell',
    'smartcraft',
    'jordanes',
    'hystar',
    'lumi',
    'papirfly',
    'sectra',
    'småkraft',
    'hydro',
    'zaptec',
    'salmon',
    'nordic_halibut',
    'desert_control',
    'måsøval',
    'smartoptics',
    'otovo',
    'stacc',
    'ørn_software',
    'resman_holding',
    'nykode_therapeutics',
    'jøtul',
    'exact_therapeutics ',
    'statt_torsk',
    'tekna',
    'eco_online',
    'edda_wind',
    'airthings',
    'elektroimportøren',
    'greenstat',
    'hadar_holding',
    'invent_sport',
    'remedy_topco',
    'house_of_control',
    'inin_group',
    'tavex',
    'mybank',
    'soft_topco',
    'brekke_industrier',
    'baneservice',
    'placewise_group',
    'bernhd_brekke']

for name in list_of_dataframes:
    columns = name.columns
    column = columns[0]
    name[column].dropna()
```

```
    name.set_index(column, inplace=True)

def find_values(string): #lst_1 needs to be a list of strings
stating the same companies in the same orders as lst_2. lst_2 is a
list of dataframes.
    dictionary = {} #Creates empty dictionary
    for ind, n in enumerate(list_of_names): #itterate over lst_1
with index and value
        for index, name in enumerate(list_of_dataframes): #itterate
over lst_2 with index and value
            if index == ind: #if index of lst_1 and lst_2 is the
same: continue
                names = n #define names as a variable of n
                for i in range(len(name)): #itterate over each
dataframe
                    j = str(name.index[i]) #define the index as a
string for later comparison
                    cols = list(name.columns) #define the columns we
want to extract data from
                    if string in j: #test is string we are looking
for is in the index
                        value1 = name[cols[0]].iloc[i] #get the
first value (NGAAP)
                        value2 = name[cols[1]].iloc[i] #get the
second value (IFRS)
                        value3 = name[cols[2]].iloc[i] #get the
third value (Percentage Change)
                        value4 = name[cols[3]].iloc[i] #get the
fourth value (Difference)
                        lst2 = [value1, value2, value3, value4]
#save all values to a list
                        dictionary[names] = lst2 #add the name and
the list to the dictionary
                    elif string.lower() in j: #Same as the if
statement above.
                        value1 = name[cols[0]].iloc[i]
                        value2 = name[cols[1]].iloc[i]
                        value3 = name[cols[2]].iloc[i]
                        value4 = name[cols[3]].iloc[i]
                        lst2 = [value1, value2, value3, value4]
                        dictionary[names] = lst2
                    else:
                        continue
            else:
                continue
    df = pd.DataFrame.from_dict(dictionary, orient="index",
columns=["NGAAP", "IFRS", "Percentage Change", "Difference"])
#Change the dictionary to a dataframe.
    return df #Return the dataframe to the user

goodwill = find_values("Goodwill")
```

```
goodwill_mean = goodwill.mean()
goodwill_median = goodwill.median()
goodwill_std = goodwill.std()

goodwill_mean = pd.DataFrame(goodwill_mean)
goodwill_median = pd.DataFrame(goodwill_median)
goodwill_std = pd.DataFrame(goodwill_std)

goodwill = pd.merge(goodwill_mean, goodwill_median, left_index=True,
right_index=True)
goodwill = pd.merge(goodwill, goodwill_std, left_index=True,
right_index=True)
goodwill.rename(columns={"0_x": "Mean", "0_y": "Median", 0:
"Standard Deviation"}, inplace=True)
goodwill

deferred = find_values("Deferred tax asset")

deferred_mean = deferred.mean()
deferred_median = deferred.median()
deferred_std = deferred.std()

deferred_mean = pd.DataFrame(deferred_mean)
deferred_median = pd.DataFrame(deferred_median)
deferred_std = pd.DataFrame(deferred_std)

deferred = pd.merge(deferred_mean, deferred_median, left_index=True,
right_index=True)
deferred = pd.merge(deferred, deferred_std, left_index=True,
right_index=True)
deferred.rename(columns={"0_x": "Mean", "0_y": "Median", 0:
"Standard Deviation"}, inplace=True)
deferred

rightofuse = find_values("Right-of-use")

rightofuse_mean = rightofuse.mean()
rightofuse_median = rightofuse.median()
rightofuse_std = rightofuse.std()

rightofuse_mean = pd.DataFrame(rightofuse_mean)
rightofuse_median = pd.DataFrame(rightofuse_median)
rightofuse_std = pd.DataFrame(rightofuse_std)

rightofuse = pd.merge(rightofuse_mean, rightofuse_median,
left_index=True, right_index=True)
rightofuse = pd.merge(rightofuse, rightofuse_std, left_index=True,
right_index=True)
rightofuse.rename(columns={"0_x": "Mean", "0_y": "Median", 0:
"Standard Deviation"}, inplace=True)
rightofuse
```

A7: Preliminary Thesis

ID number: 1022546

ID number: 1011749

Preliminary Master Thesis

- The Effects on the Financial Statement of an adoption of IFRS from NGAAP -

Hand-in date:

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Campus:

BI Oslo

Examination code and name:

GRA 19702 Master Thesis

Programme:

Master of Science Business - major in Accounting & Business Control

Table of content

1. Introduction

In 2002, due to the IAS Regulation EC. No.1606/2002, the European Union (EU) decided that from 2005, all publicly traded firms within the European Economic Area (EEA) had to report consolidated financial statements according to International Financial Reporting Standards (IFRS) (Europalov, n.d.). The requirement was adopted as a Regulation on the Application of International Accounting Standards (the "IAS Regulation") (Gjesdal et al., 2006, p. 21). The IASB's framework for accounting, in line with IFRS, deals with the purpose of financial information. In decision-making, financial reporting must be valuable and relevant for existing and potential investors, lenders, and creditors. Such decisions involve, among other things, the purchase and sale of equity and debt instruments (Sellæg, 2011, p. 3).

The purpose of having a common accounting reporting language is to strengthen the quality of reporting and comparability between companies across national borders. As a result, investors and other stakeholders gain a basis for making informed financial decisions that contribute to improved capital allocation and reduced capital costs (Gjesdal et al., 2006, p. 21).

The theoretical differences between IFRS and Norwegian rules are well documented (Bernhoft et al., 2018). IFRS is constantly developing through new standards and interpretations, and experience from practice means that previous understandings have, in some cases, been changed. It can thus be expected that, in the future, new views on certain issues will also develop as a result of new experiences (Sellæg, 2011, p. 3).

The effects of transitioning from Norwegian generally accepted accounting principles (NGAAP) to adopting IFRS can be analyzed by studying the financial statements of the year before the introduction since comparable figures must be presented. There is a requirement for a balance sheet at the beginning of the previous period when the company applies an accounting principle with retroactive effect, makes a restatement ("restatement") of items in its financial accounts with retroactive effect, (IAS 1.40A) (Bernhoft et al., 2018, p. 14). Thus, two comparable sets of financial statements exist, representing the same underlying economic activities.

2. Research question

Our research will look at how a change from NGAAP to IFRS will affect companies' financial statements. In more detail, we will look at where in the financial statements the changes occur and how significant the changes are.

We seek to answer the following research question:

> *How is the financial statement of Norwegian firms affected by a transition from NGAAP to IFRS, where do the changes occur, and how significant are they?*

To answer our research question, we need to investigate the following topics:

Where in the financial statement do the effects of a transition occur?

How significant are the direct effects of a transition?

2.1 The objective

IFRS is developing through new standards and interpretations, and previous understandings have sometimes been changed. Therefore, our objective is to give an updated view of Norwegian companies' transition from NGAAP to IFRS, as well as where in the financial statements the effects occur.

The first part of the preliminary thesis will review key rules in the reporting languages NGAAP and IFRS. Further, a discussion of differences and similarities between NGAAP and IFRS. Lastly, we will present a comprehensive literature review on the existing research on the transition from GAAP to IFRS and the transition from NGAAP to IFRS. The object is to highlight similarities and differences between the reporting languages and identify the knowledge gaps.

2.2 Why is it interesting

The proposed research question aims to provide a description for companies where the practical effects in the financial statement occur, as well as how significant the effects are. This can be decisive in assessing and deciding whether or not to change reporting language. Furthermore, it can provide an understanding of why or if certain companies want to switch voluntarily if the transition is beneficial for a company's assets or industry.

3. Literature review

3.1 Reporting language

3.1.1 NGAAP

The Norwegian Accounting Standards Board (NASB) was established in 1989 with its primary purpose of composing reporting standards (Kvaal, 2012). NASB was tasked to define good accounting practice that also aligns with the accounting law (NOU 2015: 10, 2015, p. 349). Thus, NGAAP was elaborated based on the Norwegian reporting standards.

The accounting principles in NGAAP are a guideline to ensure the best overview and the most amount of information regarding the income, costs, and results in a specific period. The annual accounts must be prepared in accordance with the following basic principles (rskl § 4-1).

The fundamental accounting principle contains transactions and profit and loss accounting principles:

- **The transaction principle** states that payment for goods or services should be accounted for when the goods are delivered physically or when the services are performed.
- **The accrual principle** states that income should be recognized in the income statement when the income is achieved.
- **The matching principle** states that expenditures should be accounted for in the same period as the belonging income.
- **The precautionary principle** states that there is a demand to recognize any unrealized losses in the income statement. An example of this could be a loss when a property has lost its value.
- **The principle of periodicity** states that profit and losses on positions that hedge each other should be recognized in the income statement in the same period.

Other accounting principles

- **Best estimate** should be applied when there is uncertainty due to the information available when the annual accounts must be submitted. The principle states that when there is uncertainty, the financial statement

should be valued to an expected value and is a discretionary assessment (rskl § 4-2).

- **The congruence principle** states that income and costs, profit and loss must be recognized in the income statement. The income statement should recognize changes in equity outside capital contributions and withdrawals. Violation of the congruence principle, for instance, changes in accounting principles and errors in earlier financial statements, should be recognized against equity (rskl § 4-3).
- **The application of principles** states that the financial statement should be prepared according to a uniform set of principles and used continuously over time, which means that the same principle should be used for similar transactions and events (rskl § 4-4).
- **Assumption of continued operation** states that the financial statement should be prepared with the assumption that the firm will continue to operate as long as the probability of liquidation of the firm is low (rskl § 4-5).
- **Good accounting practice** states that the financial statement preparation should be conducted according to good accounting practice (rskl § 4-6).

3.1.2 IFRS

International Financial Reporting Standards (IFRS) are a set of accounting standards developed by the International Accounting Standards Board (IASB) that provides a common language for businesses to report their financial results. IFRS aims to develop high-quality, understandable, enforceable, and globally accepted accounting and sustainability disclosure standards (IFRS, 2023n). During the last twenty years, a significant number of international accounting standards (ISA/IFRS) have been prepared (Kristoffersen, 2008, p. 15). IFRS are based on both standards and interpretations (Gjesdal et al., 2006, p. 23).

3.1.3 Differences and similarities

The biggest difference between NGAAP and IFRS is that NRS is more result oriented, while IFRS is more balance oriented, meaning that for NGAAP, the main goal is to provide the most accurate and reasonable measurement of the period's result. Meanwhile, IFRS focuses on the balance. Furthermore, IFRS allows the use of fair value to a larger extent than NGAAP (Stenheim & Madsen, 2017).

Regarding IFRS, since the prominent focus is on the balance sheet, assets and liabilities are required to be valued at fair value. Further, these must be valued at fair value regardless of whether a transaction has occurred or not, in contrast to historical cost (NRS). Moreover, discretionary assessments are required to be used as a basis. Thus, the overall objective here is balance sheet-oriented, which is mainly the fair value of assets and liabilities. (Fardal, 2007).

According to the NRS, assets, and liabilities must be valued at acquisition cost with deductions for depreciation and write-downs. Write-up is something that is not allowed. There are exceptions in the main rule for market-based financial current assets, which must be assessed at fair value (rskl, § 5-8). This is because the NRS is based on a historical cost model. (Fardal, 2007). NRS also attaches great importance to the *forsiktighetsprissippet*, which can be found in section 4-1 of rskl § 4-1. (4) *Grunnleggende regnskapsprinsipper* state that unrealized losses must be recognized in the income statement.

According to IFRS, contrary to NRS, unrealized gains must be recognized in the accounts to a greater extent. Therefore, routines and systems must be established to ensure satisfactory calculations and documentation to account for IFRS and use fair value as required. This is particularly important in places where there are no current market prices (Fardal, 2007).

As far as the regulations are concerned, IFRS is more comprehensive and less flexible than NRS. The rules in IFRS are legally binding, while the Accounting Act takes precedence over Norwegian standards in a legal sense. IFRS requires a statement of the changes in equity, while NRS has this information in the notes. (Fardal, 2007).

3.2 Transition from GAAP to IFRS

The transition from GAAP to IFRS contains extensive research. Many current research papers focus on adopting IFRS during the mandatory adoption of IFRS in 2005 (Kubickova & Jindrichovska, 2013, p.2). We will discuss some relevant articles with a “high quality” domestic GAAP that differs significantly from IFRS, such as NGAAP. Thus, the comparison towards NGAAP is more relevant and applicable (Beisland & Knivsflå, 2015).

Authors (year)	Country	Main topic / result
Agca and Aktas (2007)	Turkey	Development of accounting regulation
Callao, Jarne and Laínez (2007)	Spain	Special issues of accounting regulation
Lantto, A. and Sahlström, P. (2009)	Finland	Three key economic dimensions of a firm
Silva, do Conto and Cordeiro (2009)	Portugal	Impact of IFRS on companies listed by Eurolist by Euronext Lisbon
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Tsalavoutas and Evans (2010)	Greece	Use of Gray's comparability index; found big impact of IFRS adoption
Hellnam (2011)	Sweden	Soft adoption IFRS before the 2005
Klimczak (2011)	Poland	Used the unexpected returns model, relatively small impact of IFRS
Beke (2011) and Csebfalvi (2012)	Hungary	Looking in the specific features of IFRS adoption; found big impact of IFRS introduction
Jindrichovska, Kubickova and Prsala (2012)	Czech Republic	Differences in ratios - CAS vs IFRS; no statistically significant impact

Table 1: Summary of research studies on financial ratios in European countries

Lantto A. and Sahlström P. (2009) investigated in their study how an adoption to IFRS would change the key financial ratios. The purpose was to fill the gap in the existing research of the economic consequences of IFRS. Their goal is to show that the adoption of fair value accounting rules and stricter requirements on specific accounting issues can lead to observed changes in financial ratios. The sample size was a total of 91 firms, with data gathered from the firm's transition reports in 2004 and 2005. The research paper focuses on the eight following ratios:

1. Operating profit margin (OPM)
2. Return on equity (ROE)

3. Return on invested capital (ROIC)
4. Equity ratio (ER)
5. Gearing ratio (GR)
6. Current ratio (CR)
7. Quick ratio (QR)
8. Price to earnings ratio (PE)

The research findings state that the ratios differ significantly between the different financial statements. The adoption of IFRS increased the profitability ratios and gearing ratio, while the PE ratio decreased considerably. The main driver for the increase in profitability ratios and the decrease in PE is the increase in income statement profits (Lantto & Sahlström, 2009, p. 360). The profitability ratio is increased as a result of IFRS 3, which states how an acquirer recognizes the financial statement, goodwill and determines what type of information is necessary to disclose to enable the users to evaluate the balance sheet and the income statement (IFRS, 2022). The liquidity ratios decreased due to the adoption, mainly driven by an increase in current liabilities. Summarized, the overall reason for the changes in financial ratios is due to the adoption of fair value accounting and stricter requirements (Lantto & Sahlström, 2009).

Hellman (2011) investigated the hard IFRS adoption in connection with the mandatory EU adoption in 2005. The paper investigates not only the adoption from SWGAAP to IFRS but also from pre-2005 IFRS and after 2005. This is relevant because of the possibility for companies to adapt to IFRS from 1991 to 2004. However, the adoption pre-2005 could be viewed as a soft adoption due to national deviations from IFRS and a lack of enforcement institutions. The paper aims to contribute to the existing literature in three ways: 1) net profit and shareholders' equity numbers, 2) swedish accounting is highly influenced by government and tax regulations but has become more capital market-oriented over time, and 3) contribute with an enhanced understanding of how the adoption of international accounting standards interacts with the conditions that count for a specific context.

The sample size of the paper was 132 companies listed on the stock exchange, and the data consisted of financial statements before and after the hard adoption in 2005. The findings show an IFRS net profit 18.1 percent higher than SWGAAP

net profit. However, comparing the adoption from pre-2005 IFRS and post-2005 IFRS, the findings show an increase of 3.3 percent (Hellman, 2011).

Fülbier et al. (2008) investigated the potential effects of the accounting treatment for operating leases on financial statements and financial ratios. The research comprised 90 companies listed on either DAX 30, MDAX, or SDAX in 2003 and 2004.

The findings from the paper show a material capitalization that impacts a considerable number of companies, where all ratios are considerably affected by the capitalization procedure.

3.3 Transition from NGAAP to IFRS

Gjerde et al. (2008) investigated the value relevance when adopting IFRS from NGAAP. The data was collected from the financial statements of firms listed on the Oslo Stock exchange in 2005, when all listed firms were required to restate their 2004 financial statement from NGAAP to IFRS. The sample size was 145 firms, with data gathered from the balance sheets and income statements.

The paper aimed to investigate whether adopting IFRS would provide accounting figures more strongly correlated to the stock market value. By comparing the two financial statements unconditionally, the research finds little evidence of increased value relevance when adopting IFRS. However, by weight for firm size, intangible asset intensity, and profitability, the increased value relevance is mainly driven by the net operating income due to the capitalization of intangible assets.

Berner and Olving (2013) performed a descriptive and empirical analysis on the use of IFRS in Norway. They further identified companies that use IFRS and their characteristics. Moreover, they analyzed changes in key figures related to margins, financing, and profitability between IFRS and NGAAP.

The findings suggest that using IFRS in Norway was persistent with foreign ownership and industry affiliation. In contrast, the direct and long-term analysis produced conflicting results on the effect of key figures. As a result, it was not possible to draw any clear conclusions about the direct and long-term transition effects.

Beisland and Knivsflå (2015) extends the literature on structural shifts between pre- and post-adoption periods between the IFRS sample and the domestic GAAP sample. Their paper aimed to examine how the mandatory shift from NGAAP to IFRS affected the valuation weights of earnings and book values. The aim was to gain insight relevant for investors, standard setters, and other users of accounting information.

The findings from the paper show that greater recognition of intangible assets and increased measurement at fair value may have opposite effects on the valuation weights of earnings and book values. Further, the findings suggest that the effects of IFRS adoption on value relevance may be susceptible to firm characteristics and the choice of regulatory benchmarks in accordance with Clarkson et al. (2011).

As we see from some of the literature mentioned above, many research papers focused their data on mandatory adoption in 2005. In this period, all listed companies had to restate their financial report making them much more comparable. However, there is a gap in the literature with the same research being done more recently. There are case studies that have been done where the focus has been on one specific company, but not a set of firms. This argues for an updated view with companies that have adopted IFRS more recently.

4. Methodological approach

In the following section, we will explain and describe the method for conducting our analysis and thesis.

4.1 Research strategy and design

Our aim is to explore the financial effects of a transition from NGAAP to IFRS. Since we wish to adopt a clear theoretical position that will be tested through the collection of data, we will be utilizing a deductive approach (Saunders et al., 2019, p. 51). Furthermore, the research will be descriptive since we want an accurate profile of our study (Sauders et al., 2019, p. 187). Our data will consist of selected firms' financial statements before and after adopting IFRS. In order to get an accurate description of the adoption, a descriptive approach will be most applicable (Saunders et al., 2019, p. 187). Since our data is collected from the financial statements, it will be numerical, which appeals for a quantitative approach rather than qualitative. With a quantitative approach, some concerns

could entail problems. For instance, analyzing quantitative data involves observing a set of observations that constitutes a population. Often this limits the external validity, which defines to which degree our population's findings could be held to firms outside our study (Slack M. & Draugalis J., 2001, p. 1). In our case, different industries will most likely experience different effects that must be addressed.

4.2 Research method

As we aim to use a deductive and descriptive approach, our primary method of collecting data will be to extract financial numbers from the selected firm's financial statement. This can be viewed as secondary data collected from several external databases. Although data collection requires much fewer resources, there are disadvantages that needs to be considered. One example is the purpose for which the data is collected (Saunders et al., 2019, p. 353). In our case, the financial statement's main goal is to accurately describe a firm's result, financial position, and cash flow (Mautz & Angell, 2006, p.1). However, as the different standards allow for different evaluations by the firm, the possibility of a company boosting or reducing its result intentionally is present. As all financial statements are required to be audited by an independent party, Kinney and Martin (1994) found that many firms would have reported inflated earnings and assets without any auditing. This means that the possible effect of bias in the financial statement is reduced but still is present.

As described in our literature review, most of the research on adopting IFRS is based on data from 2005, where the firms were required to restate their original financial statement from NGAAP to IFRS. This made the comparison easier than what will be the case for our study. However, since we will compare the numbers from year X0 to X1, it will mean that there is a change in the financial statement due to the transition. This needs to be accounted for in order to get a comprehensive answer.

5. Master schedule

5.1 Progression

After the preliminary master thesis, we will continue to explore the literature to support our thesis while starting to collect the necessary data. Some of the data is already collected, but the need to add more is required to get sufficient data. After collecting adequate data and structuring it, we will analyze the effects on the

financial statement. The analysis will be time-consuming and, therefore, devoted to 2-3 months. The writing of the master thesis is planned for the last two months before the deadline on 1. July 2023. A visualization of the thesis progression is illustrated on the next page.

5.2 Visualization of thesis progression

Tasks and months	January	February	March	April	May	June	July
Preliminary Master Thesis	x						
Read more literature	x	x	x				
Data collection	x	x					
Structure data		x					
Analysis of data		x	x	x			
Write Thesis				x	x	x	
Hand in Thesis							x

Table 2: Visualization of thesis progression

6. Bibliography

Beisland, L. A., & Knivsflå, K. H. (2015). Have IFRS changed how stock prices are associated with earnings and book values? *Review of Accounting and Finance*, *14*(1), 41–63. https://doi.org/10.1108/raf-06-2013-0079

Berner, E., & Olving, M. (2013). *Utbredelse og virkninger av IFRS i Norge* [Master Thesis]. Norges Handelshøyskole.

Bernhoft, A. C., Kvifte, S. S., & Røsok, K. O. (2018). *IFRS i Norge* (8th ed.). Fagbokforlaget.

Clarkson, P., Hanna, J. D., Richardson, G. D., & Thompson, R. (2011). The impact of IFRS adoption on the value relevance of book value and earnings. *Journal of Contemporary Accounting &Amp; Economics*, *7*(1), 1–17. https://doi.org/10.1016/j.jcae.2011.03.001

Europalov. (n.d.). *IFRS-forordningen: bruk av internasjonale regnskapsstandarder: Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards*. https://www.europalov.no/rettsakt/ifrs-forordningen-bruk-av-internasjonale-regnskapsstandarder/id-3050

Fardal, A. (2007). IFRS og norske regnskapsregler. *Magma*. https://old.magma.no/ifrs-og-norske-regnskapsregler

Fülbier, R. U., Silva, J. L., & Pferdehirt, M. H. (2008). Impact of Lease Capitalization on Financial Ratios of Listed German Companies. *Schmalenbach Business Review*, *60*(2), 122–144. https://doi.org/10.1007/bf03396762

Gjerde, Y., Knivsflå, K., & Sættem, F. (2008). The value-relevance of adopting IFRS: Evidence from 145 NGAAP restatements. *Journal of International Accounting, Auditing and Taxation*, *17*(2), 92–112. https://doi.org/10.1016/j.intaccaudtax.2008.07.001

Gjesdal, F., Kvaal, E., & Kvifte, S. S. (2006). *Internasjonale regnskapsstandarder* (1st ed.). Cappelen akademisk forlag.

Hellman, N. (2011). Soft Adoption and Reporting Incentives: A Study of the Impact of IFRS on Financial Statements in Sweden. *Journal of International Accounting Research*, *10*(1), 61–83. https://doi.org/10.2308/jiar.2011.10.1.61

IFRS. (2022). *IFRS 3 Business Combinations*. https://www.ifrs.org/issued-standards/list-of-standards/ifrs-3-business-combinations/

IFRS. (2023). *IFRS - Who we are*. https://www.ifrs.org/about-us/who-we-are/

Kinney, W. R., & Martin, R. D. (1994). Does Auditing Reduce Bias in Financial Reporting? A Review of Audit Adjustment Studies. *Auditing a Journal of Practice & Theory*, *13*(1), 149. https://www.proquest.com/docview/216737612?pq-origsite=gscholar&fromopenview=true

Kristoffersen, T. (2008). *Regnskapsteori: Med introduksjon til internasjonale regnskapstandarder (ifrs)* (1st ed.). Fagbokforlaget.

Kubickova, D., & Jindrichovska, I. (2013). Impact of IFRS Adoption on Key Financial Ratios: Comparison of Selected European Countries. *International Conference on Business Excellence*, 2. https://ssrn.com/abstract=2214801

Kvaal, E. (2012). Hvordan påvirker Norsk RegnskapsStiftelse regnskapsutviklingen innenfor IFRS? *Praktisk Økonomi &Amp; Finans*, *28*(1), 68–74. https://doi.org/10.18261/issn1504-2871-2012-01-08

Lantto, A. M., & Sahlström, P. (2009). Impact of International Financial Reporting Standard adoption on key financial ratios. *Accounting &Amp; Finance*, *49*(2), 341–361. https://doi.org/10.1111/j.1467-629x.2008.00283.x

Lovdata. (2022). *Lov om årsregnskap m.v. (regnskapsloven)*. https://lovdata.no/dokument/NL/lov/1998-07-17-56

Mautz, R. D., & Angell, R. J. (2006). Understanding the Basics of Financial Statement Analysis. *Commercial Lending Review*, *21*(5), 27–34. https://www.proquest.com/docview/229680301?parentSessionId=R%2BT9AfvL18sOpB27%2FoY3osEcL7Tv8DLxYg9VmZGFeZc%3D

NOU 2015: 10: Lov om regnskapsplikt. (2015). In *Finansdepartementet*. https://www.regjeringen.no/no/dokumenter/nou-2015-10/id2425387/sec13

Saunders, M., Thornhill, A., & Lewis, P. (2019). *Research Methods for Business Students*. Pearson.

Sellæg, F. E. (2011). *IFRS: håndboken 2011* (1st ed.). Ernst & Young.

Slack, M. K., & Draugalis, J. R. (2001). Establishing the internal and external validity of experimental studies. *American Journal of Health-System Pharmacy*, *58*(22), 2173–2181. https://doi.org/10.1093/ajhp/58.22.2173

Stenheim, T., & Madsen, D. I. (2017). The shift of accounting models and accounting quality: The case of Norwegian GAAP. *Corporate Ownership and Control*, *14*(4), 289–300. https://doi.org/10.22495/cocv14i4c1art11

7. Appendix

Table 7.1 Summary of research studies on financial ratios in European countries

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