Handelshøyskolen BI

GRA 19703 Master Thesis

Thesis Master of Science 100% - W

Predefinert informasjon

Startdato:	16-01-2022 09:00	**Termin:**	202210
Sluttdato:	01-07-2022 12:00	**Vurderingsform:**	Norsk 6-trinns skala (A-F)
Eksamensform:	T		
Flowkode:	202210||10936||IN00||W||T		
Intern sensor:	(Anonymisert)		

Deltaker

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Informasjon fra deltaker

Tittel *:	Ex-post research on transitional effects of IFRS 16
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Inneholder besvarelsen konfidensielt materiale?:	Nei	Kan besvarelsen offentliggjøres?:	Ja

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Gruppe

Gruppenavn:	(Anonymisert)
Gruppenummer:	150
Andre medlemmer i gruppen:	

Master Thesis

Ex-post research on transitional effects of IFRS 16

Supervisor:
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Date of submission:

01.07.2022

Campus:

BI Oslo

Examination code and name:
GRA 1974 Master Thesis

Programme:
Master of Science in Business, Accounting and Business Control

Acknowledgment

This thesis marks the end of our two-year Master of Science in business, with a major in Accounting and Business Control.

We want to thank our supervisor Erlend Kvaal for support and constructive feedback throughout the work on our thesis. Erlend has been very helpful and available to us at all times.

Abstract

The objective of this master thesis is to determine the transition effects of implementing IFRS 16 on financial statement figures and corresponding financial ratios across six industries. The analysis is conducted using quantitative data from the companies' financial statements. Using descriptive analysis and a set of statistical tests, our findings indicate significant impact on firms' balance sheets and operating profitability, as well as reduced solvency and liquidity ratios, and increased profitability ratios. Furthermore, the impact of the various industries differ significantly, especially highlighted by retail companies. Further research could seek to increase the accuracy of calculated transition effects on various financial statement items as introduced in our paper.

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1 Introduction

On 1 January 2019 the new standard for lease accounting, IFRS 16, was adopted, more than twelve years after being added to the agenda of the International Accounting Standards Board (IASB) in July 2006. The standard superseded IAS 17 and its related interpretations, which had been subject to major criticism due to the different lease accounting methods for lessees. Whereas lease contracts classified as operating under IAS 17 were kept off-balance, finance leases were recognised in the balance. Hence, the differences in how two equal leases could be treated accounting-wise depending on their chosen classification, reduced comparability between companies' financial statements and required financial statement users to make necessary adjustments for decision-making purposes such as investment decisions and credit rating of companies. Consequently, the single-method leasing model introduced by IFRS 16, recognising all lease contracts in the balance, had a major impact on companies with a high share of lease contracts being classified as operating under IAS 17.

In this paper, we will further examine the post-transition effects on various companies' financial statement figures and ratios. In chapter 2 we have summarized the characteristics of both the previous standard for lease accounting, IAS 17, and its successor, IFRS 16. Furthermore, we highlight the criticism against IAS 17 which led to the standard being superseded and pinpoint the differences between the two standards. In chapter 3, we present and condense prior literature conducted on the topic and formulate our final research question based on findings from the literature review. The methodology applied to answer our stated research question is outlined in chapter 4. This comprise of the chosen research design, data collection, and a theoretical presentation of the various statistical models to be used for analysis. The results are presented in chapter 5, and the conclusions arising from our study is presented in chapter 6. We wrap up our thesis by highlighting limitations related to our study, and making suggestions for future research based on findings and limitations of our paper.

1.1 Defining scope and delimitations

The new standard for lease accounting affects both elements of companies' financial statements and several stakeholders. Hence, there is a need to focus our

thesis on a specific topic. The intention of our thesis is to analyse the accounting effects of IFRS 16 at transition, hence excluding further analysis of its impact on various stakeholders. Additionally, the standard changes the nature of accounting regarding various types of activities such as sale and leaseback transactions. However, we will not analyse the effect on this specific transaction in our thesis since a lease arising from a sale and leaseback transaction before the date of initial application shall not be reassessed at transition (International Accounting Standards Board [IASB], 2021, para. C16). Consequently, the transition effect is determined by the classification of the lease and not type of accounting transaction. Sale and leaseback transactions are affected for such arrangements taking place post adoption, which we will not be further analysing.

The new accounting standard imposes only minor changes for lessor accounting. Hence, our study will assess the effects on lessee accounting exclusively. Furthermore, the implementation will also incur tax implications which we will keep outside the scope of our thesis.

2   Standard for lease accounting

In this section we will have a closer look at the institution formulating the various international financial reporting standards, and the conceptual framework that the standards should be aligned with. Furthermore, we will describe the previous accounting standard for leases, IAS 17, its characteristics and criticism, before describing the nature of IFRS 16. Finally, we will compare the two leasing standards and point out key differences.

2.1   International Financial Reporting Standards

In 1973 the International Accounting Standards Committee (IASC) was established and was the precursor to the IASB as we know today. IASB is an independent standard-setting body and has the job of formulating International Financial Reporting Standards (IFRS) which serves as a guideline for companies when preparing their financial statements. IFRS contains a set of international accounting standards setting out principles for revenue recognition, reporting and disclosure of financial instruments, consolidation of accounts, and several other accounting

topics. The standards are developed based on the principles arising from the conceptual framework for financial reporting. The conceptual framework describes the objective of, and the concepts for, general purpose financial reporting and has the goal of assisting IASB to develop IFRS standards as well as preparers of financial statements to develop consistent accounting policies when no standard applies (IFRS Foundation, 2018a). The purpose of IFRS is to bring transparency, accountability, and efficiency to financial markets around the world by improving comparability and quality of financial information, reducing the information gap between the preparers of the financial statement and the users, and helping investors identify promising investment prospects (IFRS Foundation, n.d.). The standard is the dominant accounting standard internationally, and studies conducted by IFRS Foundation (2018b) show that out of the 166 jurisdictions in their sample, 144 of them require IFRS for all or most domestic publicly accountable entities.

The IFRS defines various principles for companies adopting new IFRS standards which are summarized in IFRS 1. IFRS 1 requires an entity that is adapting IFRS Standards for the first time to prepare a complete set of financial statements covering its first IFRS reporting period and the preceding year. The entity uses the same accounting policies throughout all periods presented in its first IFRS financial statements. Those accounting policies must comply with each standard effective at the end of its first IFRS reporting period (International Accounting Standards Board [IASB], 2022).

2.2   IAS 17

In 1997, IAS 17 Leases superseded IAS 17 Accounting for Leases from 1982 and became the new standard on how to report leases for companies subject to IFRS reporting. From its initial version in 1997, the standard went through several amendments until its adoption of IFRS 16 in 2019. In this section, we will describe the details of the previous standard and its related interpretations prior to the transfer to IFRS 16, and its main criticism.

2.2.1 Definition of a lease

For an arrangement to be accounted for in accordance with IAS 17, it must be classified as a lease defined by IFRIC 4. The interpretation highlights two criteria to be met (Deloitte, n.d.-b):

- Fulfilment of the arrangement depends upon a specific asset
- The arrangement conveys a right to control the use of the underlying asset

If these criteria are met, the arrangement is defined as a proper lease. According to IAS 17.4, the leasing agreement must be classified as either operating or financing based on the nature of the lease at the date of inception. In general, a lease is "classified as a finance lease if it transfers substantially all the risks and rewards incident to ownership" (Deloitte, n.d.-a). Hence, there is a need to define the requirements for the risks and rewards to be *substantially* transferred. To do so, the standard specifies a set of criteria to help determine whether the lease is financial or not (operating). The lease is classified as a finance lease if one or more of the following statements are fulfilled (IAS 17.10)(Deloitte, n.d.-a):

- The lessee acquires control of the asset by the end of the leasing term.
- It is reasonably certain that an option to buy the leased asset is exercised by the lessee.
- The lessee holds the leased asset for the majority of its economic life.
- The present value of all scheduled minimum lease payments substantially sums up to the fair value of the asset.
- The leased asset is so specialised that it cannot be used by others than the lessee without making significant changes to it.

Furthermore, IAS 17.11 defines additional scenarios where the lease should be classified as financial (Deloitte, n.d.-a):

- If the lessee is entitled to cancel the lease and the lessor's losses is covered by the lessee.
- Gains or losses from fluctuations in the fair value of the residual value fall to the lessee.
- The lessee can continue to lease for a secondary period at a rent that is substantially lower than market rent.

All leases exempt of the listed criteria will be classified as operating leases under IAS 17.

2.2.2 Accounting treatment and disclosure

The two types of leasing differ in terms of accounting treatment for the lessee. A finance lease is recognized as an asset and corresponding liability at the lower value of the present value of future minimum lease payments and its fair value at inception date according to IAS 17.20. Future lease payments should be discounted at the interest rate implicit in the lease agreement if applicable. If not defined, the firm should apply its incremental borrowing rate. For the coming periods, the leasing payments will be split between debt instalments and interest cost according to the interest rate used when discounting the lease payments (IAS 17.25). The asset is subject to depreciation at the shorter of the leasing period and remaining useful life of the asset, if there is no reasonable certainty that the company will obtain ownership of the leased asset at the end of the leasing period (IAS 17.27).

An operating lease on the other hand will recognise the lease payments as an expense linearly over the lease term unless another method is more relevant for the usage of the leased item (IAS 17.33). Additionally, if the lessee has received an incentive for entering an operating lease contract such as a rent-free period, this should be considered as an integral part of the consideration for the use of the leased asset according to the associated interpretation SIC-15.

To compare, finance leases will incur both an asset and a liability in the balance sheet, and the expense is recognised in the income statement as a split between depreciation and interest cost, while operating leases will not affect the balance sheet and only be recognised in the income statement as a rental expense.

In terms of disclosing necessary information regarding the finance leases in the financial statements, IAS 17.31 defines what has to be included (Deloitte, n.d.-a):

- The carrying amount of the asset.
- Reconciliation between total minimum lease payments and their present value.
- Amounts of minimum lease payments at balance sheet date and the present value thereof:

- o Within one year

- o Years two through five combined

- o Beyond five years

- Contingent rent recognised as an expense.

- Total future minimum sublease income under noncancellable subleases

- General description of significant leasing arrangements, including contingent rent provisions, renewal or purchase options, and restrictions imposed on dividends, borrowings, or further leasing

IAS 17.35 defines similar requirements for the operating leases disclosure (Deloitte, n.d.-a):

- Amounts of minimum lease payments at balance sheet date under noncancellable operating leases for:

  - o Within one year

  - o Years two through five combined

  - o Beyond five years

- Total future minimum sublease income under noncancellable subleases lease and sublease payments recognised in income for the period

- Contingent rent recognised as an expense

- General description of significant leasing arrangements, including contingent rent provisions, renewal or purchase options, and restrictions imposed on dividends, borrowings, or further leasing

Hence, there are significant differences of operating and financing leases in terms of accounting treatment, while the disclosure requirements are quite similar.

2.2.3 Criticism

The standard for lease accounting and its related interpretations have been a subject for discussion by academics, preparers, and users of financial statements since its origin. A central appraisal against IAS 17 is its disparity with the conceptual framework in terms of recognising assets and liabilities. A G4+1[1] special report

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[1] The members of the G4+1 group of accounting standard-setters are representatives from Australia, Canada, New Zealand, the UK, and the USA.

from 1996 concluded that the distinction between operating and finance leases required by current standards was arbitrary and unsatisfactory (McGregor, 1996). The report claimed that most (if not all) operating leases would qualify for recognition as assets and liabilities according to the conceptual framework. The group further issued a position paper building on the McGregor report proposing that all leases could give rise to asset and debt recognition, which received great support (IASC, 2000). From the results of these reports, Kvifte et al. (2006, p. 148) concluded that IAS 17 was not in line with the current conceptual framework.

As well as discrepancies with the conceptual framework, major parts of the standard's critique relates to the capitalisation of finance leases in the balance sheet while operating leases are held off-balance (Fitó et al., 2013). Arising from this classification issue, De Martino (2011) highlighted that the different accounting treatment of the two types of leasing could "fuel and favour the spread of discretional behaviours tending to subordinate some transactions to meet the company's accounting needs". Lease capitalisation could have a significant impact on the financial statement of a company, increasing debt and assets, which in turn impacts financial ratios such as increased leverage and often reduced rates of return. In a paper by Imhoff and Thomas (1988), managers stated that debt covenant violations was a problem from increased leverage ratios. Additionally, manager compensations are often based on accounting rates of return. Hence, managers could have an incentive to classify leases as operating to prevent affecting leverage ratios negatively and enhance manager compensation.

Furthermore, distinguishing between operating and finance lease, gives rise to difficulties in terms of classification. Each lease must be evaluated against the defined set of criteria which gives space for interpretations such as the criterion "the lessee holds the leased asset for the majority of its economic life". To determine whether the lease should be a financing lease or not, the preparer must evaluate the leased item's total economic life and determine whether the leasing period consists of a majority of its useful life or not. Hence, there is a significant risk that equal or similar leases will be treated differently as the criteria may be interpreted in different ways for different firms. Additionally, the same asset may be classified as financing by the lessor and operating by the lessee. This gives rise to reduced comparability between financial statements (Knubley, 2010).

2.3 IFRS 16

IFRS 16 superseded IAS 17 effective from 1 January 2019. In this section we will further describe the development of this standard, its characteristics, how to transit from IAS 17, and highlight differences from the previous lease accounting standard.

2.3.1 The development of a new standard for lease accounting

As described in chapter 2.2.3, there were major criticism against IAS 17, and in 2005, the US Securities and Exchange Commission (SEC) also expressed concerns about the lack of transparency of information about lease obligations (IASB, 2016b). As a response to this, IASB and FASB (Financial Accounting Standards Board) initiated a joint project in July 2006 on formulating the next leasing standard to supersede IAS 17 (and its US GAAP equivalent). In 2009, a discussion paper was published, and one year later an exposure draft of the new proposed model for lease accounting was announced. Based on feedback received from various stakeholders on these public consultations, IASB and FASB published a revised exposure draft in 2013.

The exposure draft proposed to recognise all leases in the lessee's balance sheet. This proposal was supported by Biondi et al. (2011) highlighting the importance of adapting a right-of-use approach rather than the current ownership approach which was plagued by loopholes that could be exploited to circumvent the intent of the standard. A single way of accounting for leases would both reduce the loopholes to keep leases off-balance and increase the comparability of financial statements.

From the 640 comment letters related to the 2013 revised exposure draft, Barone et al. (2014) comprised the issues raised into six main problems: unnecessary complexities associated with interpretations of the standard, excessive costs of applying the standard, irrelevance of information for the majority of stakeholders, no benefits for small businesses or SMEs, a lack of consistency with existing standard, and finally the costs outweighing the benefits. These problems have also been highlighted in other studies where the scepticism among preparers of financial statements is described. Research conducted by Comiran (2014) suggest that preparers were somewhat dissident to the proposed change, mainly due to cost-benefit considerations. Additional studies yield same conclusions regarding the scepticism by preparers (Barone et al., 2014; Beattie et al., 2006; Bryan et al., 2010).

A study by Beattie et al. (2006) also evaluated the perception of the potential changes by users (investment analysts) of financial statements. The research shows that the users supported the forthcoming changes due to an expectation of higher accounting quality. The distinction between users and preparers is rather unsurprising given that the preparers bear the costs from implementing a new standard, while there is no such cost for the users. Although the study by Beattie et al. (2006) showed high support for change among the investment analysts, other studies conclude differently. Bratten et al. (2013) provided evidence that disclosed items was not processed differently from recognised items, imposing that the current accounting standard was sufficient as sophisticated users could adjust for off-balance sheet leases based on its note disclosure. The same conclusions are drawn by other studies when analysing sophisticated users of financial statements such as credit rating agencies, banks, and debt holders (Altamuro et al., 2014; Cotten et al., 2013; Sengupta & Wang, 2011). Common for these studies is that they emphasize that the accounting quality would not necessarily increase with the introduction of a new standard for lease accounting, and that all relevant information is disclosed.

Although research indicate that sophisticated users consider off-balance sheet leases when making either investment decisions, credit rating evaluations, or setting loan terms with the previous standard, the new leasing standard would save the users for this necessary adjustment. Hence, after reviewing comments received from the exposure drafts, IASB published the final standard IFRS 16 Leases in 2016.

2.3.2 The scope and application

There are made significant changes from the old leasing standard IAS 17 to IFRS 16. This sub-chapter addresses the characteristics of IFRS 16 as it is defined in the published accounting standard by IASB.

Scope and objective

IFRS 16 sets out a set of principles for recognition, measurement, presentation and disclosure of leases. The main objective of the new standard is to ensure that lessees

and lessors provide relevant information to users of the financial statements (International Accounting Standards Board [IASB], 2021, 1st para.). The scope of the standard is to form a uniform way of accounting for leases for all companies. However, not all leases are included as defined in paragraph 3 (International Accounting Standards Board [IASB], 2021):

- Leases to explore minerals, oil, natural gas and similar non-generative resources
- Leases of biological assets held by a lessee
- Service concession arrangements
- Licences of intellectual property granted by a lessor
- Rights held by a lessee under licensing agreements within the scope of IAS 38 Intangible Assets

Identifying a lease after IFRS 16 focuses on the right to use the leased asset. If the lease conveys the right to control the use of an identified asset for a period of time in exchange for consideration, the contract should be considered as a lease according to IFRS 16. Furthermore, the control is conveyed when the customer has both the right to direct the identified asset's use and to obtain substantially all the economic benefits from that use (International Accounting Standards Board [IASB], 2021, 9th para.).

Initial measurement and accounting treatment

When entering a lease contract, the lessee shall recognise a right-of-use asset and a corresponding lease liability. The lease liability is initially measured at the present value of future lease payments using the interest rate implicit in the lease, or the lessee's incremental borrowing rate if the rate is not readily determined (International Accounting Standards Board [IASB], 2021, 26th para.). The corresponding right-of-use asset comprise of the initial measurement of the lease liability as well as lease payments incurred at or before commencement date less any lease incentives, and any initial direct costs incurred (International Accounting Standards Board [IASB], 2021, p. 24th para.). However, a lessee may elect to apply exemptions of initial measurement related to leases with a lease term of less than 12 months and leases where the underlying asset is of low value (International Accounting Standards Board [IASB], 2021, 5th para.).

After the initial recognition of the right-of-use asset, the asset will incur yearly depreciation expense according to IAS 16 Property, Plant and Equipment over the shorter period of the lease term and the asset's useful life (International Accounting Standards Board [IASB], 2021, 31st-32nd para.). The lease payments will reduce the carrying amount of the liability and an interest expense incurs from the lease liability using the interest rate applied at initial measurement until the lease commitment is fully repaid. However, there may be a need to adjust the carrying value of the lease liability and right-of-use asset in order to reflect any changes in the lease term, assessment of a purchase option, and future payment plan (International Accounting Standards Board [IASB], 2021, 36th para.).

Disclosure

Disclosing additional information in the notes should provide users of financial statements to assess the effect that leases have on the financial position. The lessee shall disclose the following information in their notes (International Accounting Standards Board [IASB], 2021, 53rd para.):

- Depreciation charge and additions for the right-of-use assets as well as the carrying value split by class of underlying asset
- Interest expense on the lease liabilities
- Expense related to short term leases and low-value assets
- Expense of variable lease payments not included in the measurement of lease liabilities
- Total cash outflow for leases
- Gains or losses arising from sale and leaseback transactions

Additionally, the lessee shall disclose a maturity analysis of future lease liability commitments (International Accounting Standards Board [IASB], 2021, 58th para.).

2.3.3 Transition to IFRS 16

The standard was applied for annual reporting periods beginning on or after 1 January 2019. As a practical expedient, entities were not required to reassess whether a contract was, or contained, a lease at the date of initial application

(International Accounting Standards Board [IASB], 2021, C3 para.). Hence, the assessment of a contract containing a lease would only be necessary for contracts entered after the commencement date of IFRS 16 when applying this practical expedient. Furthermore, the company could choose between two ways of applying the standard (International Accounting Standards Board [IASB], 2021, C5 para.):

- Full retrospective approach: Restating comparative information in prior period as if IFRS 16 was applicable.
- Modified retrospective approach: Not restate any comparative information, but rather recognise the cumulative effect of initially applying IFRS 16 as an adjustment to opening equity at the date of initial application

The transitional effects on affected balance sheet items when using the modified retrospective approach shall be disclosed in the annual report (International Accounting Standards Board [IASB], 2021, para. C12). For companies applying the full retrospective approach, prior periods should be restated using the principles in IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors.

The main advantage of applying the modified retrospective approach compared to a full retrospective approach for preparers of financial statements, is the potential cost savings in terms of not having to restate comparative numbers, and additional transitional reliefs available to be applied (Grant Thornton, 2019). These reliefs are the exceptions described in paragraph C9-C10 of the standard related to low-value and short-term leases, and applying a single discount rate for a portfolio of leases (International Accounting Standards Board [IASB], 2021). On the other hand, applying the modified approach result in loss of comparability since comparative information is not restated as in the full retrospective approach. Hence, the full retrospective approach provides the users of financial statements with better information, but the method requires more data and analysis at transition for preparers as compared to the modified retrospective approach. Consequently, the companies have to consider various factors when choosing transition method (Grant Thornton, 2018):

- The volume and complexity of the company's leasing contracts
- The importance of prior period comparative information to the users of financial statements

- The ease of accessing own leasing data (less time-consuming if all leasing data is stored in a database)

If a company choose to apply the modified retrospective approach, there are two available sub-methods in terms of right-of-use asset recognition. The right-of-use asset relating to previous operating leases can be measured at an amount equal to the lease liability adjusted for prepayments or accrued lease payments (method 1), or the asset's carrying value as if the standard had been applied from the start of the lease (method 2) (International Accounting Standards Board [IASB], 2021, para. C8b). Whereas method 1 set the carrying value of the right-of-use asset equal to its corresponding lease liability, the cumulative P&L effect is recognised in equity (retained earnings) at transition date under method 2. A comparison of the three possible methods regarding transition effect on the balance sheet as well as post-transition expenses to be incurred is shown in Table 1 below. The illustration is based on a previous operating 10-year lease contract with annual payments of 100, and six remaining years at transition. The incremental borrowing rate applied at transition date is 10 % (to be used in the modified retrospective approaches), while the interest rate related to this specific lease is 8 % (to be used in the full retrospective approach).

	Full retrospective	Modified retrospective, method 1	Modified retrospective, method 2
Right-of-use asset	403	436	369
Lease liability	462	436	436
Impact on net assets	-60	0	-67
Post-transition expense	540	600	533

Table 1. Comparison of transition effect and post-transition expense using various adaption methods. The illustration is based on a lease classified as operating under IAS 17 with yearly lease payments of 100 throughout the 10-year lease period from 1.1.15 to 31.12.24 with the usage of a 10 % incremental borrowing rate for the modified retrospective method and 8 % for the full retrospective method (the interest rate implicit in the lease). Based upon an example provided by Grant Thornton (2019).

The full retrospective approach is similar to the second method of modified retrospective approach in terms of transition effects and post-transition expense as they only deviate due to different interest rates being applied. Both methods incur an initial reduction of equity due to front-loading of costs which will be further described in chapter 2.3.4. Hence, total future expenses applying method 1 would exceed the corresponding costs applying the other methods and consequently deteriorate future earnings before taxes (EBT). These simplified comparisons do

not take into account companies applying transitional reliefs which would affect the amounts recognised as right-of-use assets and lease liabilities at adaption, but provides a good example of the differences in principle.

2.3.4 Difference between IAS 17 and IFRS 16

The three main differences between IAS 17 and IFRS 16 are the definition of a lease and the classifications of operating and finance leases, its consequential accounting treatment, and expense profile.

According to IAS 17, a lease may be classified as either operating of financing. As highlighted by IASB (2016a), IAS 17 focused on identifying when a lease is economically like purchasing the asset being leased. If the lease fulfilled the criteria of a purchase, the lease was classified as a finance lease and reported on a company's balance sheet. All other leases were classified as operating leases and held off-balance. The new standard for lease accounting, IFRS 16, eliminates the classification of leases as either operating leases or finance leases as required by IAS 17 and, instead, introduces a single lessee accounting model. Whereas IAS 17 focus on a lease being similar to a purchase in order to be reported on a company's balance sheet, the new accounting standard for leases focus on the right to use the asset as described in chapter 2.3.2. Hence, the single lessee accounting model introduced by IFRS 16 remove leases kept off-balance, resulting in all leases to be treated as previously defined finance lease in-balance as illustrated in Figure 1.

	IAS 17		IFRS 16
	Finance leases	**Operating leases**	**All leases**
Assets	✈		✈
Liabilities	$		$
Off-balance sheet rights / obligations		✈ $	

Figure 1. Difference between IAS 17 and IFRS 16 leases (IASB, 2016a, p. 4)

Regarding the income statement for companies with material off-balance leases, IFRS 16 changes the nature of expenses related to these. IFRS 16 replaces the

typical straight-line lease expense for those leases classified as operating under IAS 17 with a depreciation charge for the capitalized lease assets and an interest expense on lease liabilities. Hence, companies with many operating leases are expected to face increased EBITDA and EBIT post-transition due to the change in nature of expenses as illustrated in Figure 2.

	IAS 17		IFRS 16
	Finance leases	**Operating leases**	**All leases**
Revenue			
Operating costs (ex. depreciation and amortisation)		Lease cost	
EBITDA			⬆
Depreciation and amortisation	Depreciation		Depreciation
EBITDA			⬆
Net finance costs	Interest		Interest
EBT			⬌

Figure 2. Income statement differences between IAS 17 and IFRS 16 leases (IASB, 2016a, p. 4)

As Figure 2 shows, the effect on a company's earnings before taxes could be affected either way. When evaluating the expense over the entire lease contract, there is no difference between IAS 17 and IFRS 16 as all lease payments eventually will become an expense. However, the two methods have different expense profiles where operating leases under IAS 17 follows a straight-line cost structure, while the expense profile of an equivalent lease in IFRS 16 would incur a front-loading of costs (Imhoff et al., 1991). This is due to the interest expense incurred on the lease liability in IFRS 16. Since the carrying value of the lease liability reduces over the lease term, the interest will also decrease towards its maturity. This results in reducing total expense as an individual lease matures. Hence, a leased asset following the principles of IFRS 16 would incur higher costs in the first years of its lifetime compared to the same (operating) lease in IAS 17 and equivalently lower costs as it matures, as illustrated in Figure 3. Nevertheless, the difference in the expense profile between IFRS 16 and IAS 17 on company level is expected to be insignificant since their various lease contracts at most times will start and end in different reporting periods (IASB, 2016a). However, if this is not the case, the different expense profile could have an impact at transition.
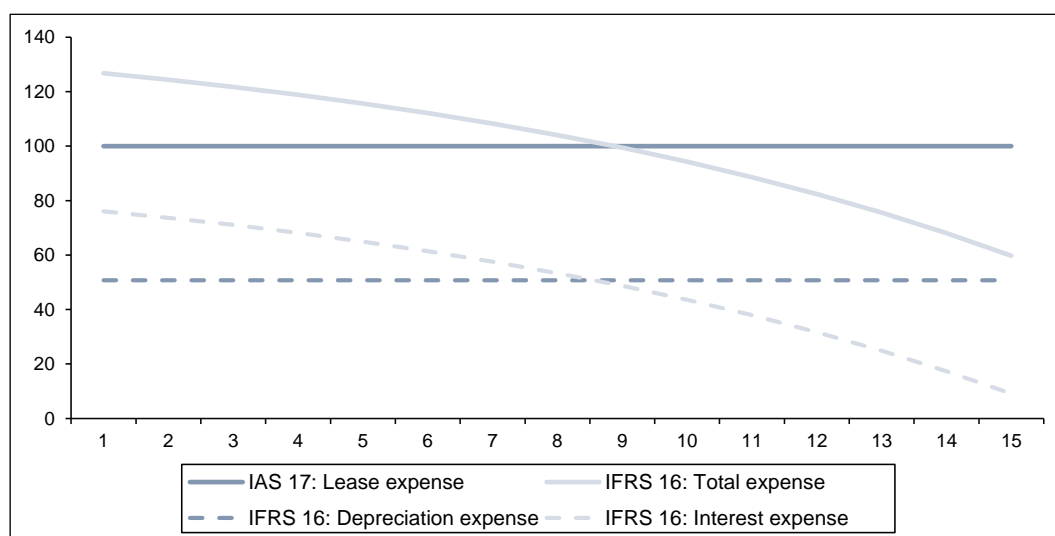
Figure 3. Expense profile of a single operating lease with periodic payment of 100 over 15 periods according to IAS 17 compared to an equivalent lease in IFRS 16 discounted at a periodic rate of 10 %. Own creation.

To comprehend the actual effect of implementing a new leasing standard we need to dive into the literature of the matter. Most of the current literature of the implementation effect of IFRS 16 is conducted before the effective date 1.1.19 and will only cover the theoretical estimated effect, but it will pinpoint interesting effects of the implementation.

3 Literature review and research development

Lease accounting has been highly debated, and after a long process of formulating a new standard to supersede IAS 17, IFRS 16 was implemented for financial years commencing on or after 1.1.19. In the literature review we will further investigate the benefits and drawbacks of different accounting methods on leasing agreements. To conclude this chapter, we will summarise the mentioned literature and state the research question of our thesis.

3.1 Impact on financial ratios

Several previous studies have estimated the effect that a capitalisation of a leasing agreement would yield. When analysing these effects, researchers must choose a method to calculate the initial recognised balance sheet amount. To do so, there are two main methods of capitalizing the off-balance sheet leases. The first method, the factor method, involves multiplying a factor (usually eight) by annual operating

lease rentals which is a simple method used by credit rating agencies and analysts (Barone et al., 2014). The method is good to use in terms of simplicity, however, it is not that accurate. The second method for recognizing operating lease arrangements in a company's balance sheet is the constructive capitalization method calculating its present value by discounting the minimum future cash flow at the firm's incremental borrowing rate (Imhoff et al., 1991, 1997). This method is more accurate than the factor model and is the preferred model for studies analysing the effects of capitalisation of operating leases.

As a response to the development of a new accounting treatment regarding leasing and the previous accounting scandal involving Enron in the US, Duke et al. (2009) demonstrated that 366 of the companies in the S&P 500 (as of 2003) could hide billions of dollars in liabilities and enhance financial ratios, by reporting leases as operating. Their results indicated that firms on average avoided USD 582 million of liabilities (which accounted for 11 % of total liabilities) and USD 450 million of assets by reporting operating leases (4 % of total assets). These significant changes also led to changes in profitability, liquidity, and solvency ratios. In terms of profitability measures, both ROA and the interest coverage ratio slightly decreased. The most impacted ratio was the solvency ratio debt-to-equity with a significant increase by 13 %[2]. Finally, the liquidity was negatively affected with a decrease in the current ratio.

Similar ex ante studies on capitalisation of leasing agreements have been conducted on S&P listed companies. The studies yield same results with decreased profitability measures, higher leverage ratios and decreased liquidity ratios (Bryan et al., 2010; Grossmann & Grossmann, 2010; Kostolansky & Stanko, 2011). The study conducted by Grossmann and Grossmann (2010) on 91 of the top 200 firms from Fortune 500 also showed minor, but not significant, increases in debt-to-assets ratio. Furthermore, based on all companies in the S&P Compustat database, Bryan et al. (2010) uncovered that 88 % of the firms' total lease value was operating leases, highlighting the significant impact of capitalisation. The researchers also did analysis on industry level with results indicating that the retail industry would be mostly affected by the new accounting method for leasing, with an increase of more than 70 % in their debt-to-equity ratio. Kostolansky and Stanko (2011) conducted

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[2] Calculated based on reported pre- and post-figures: (3.38-2.98) / 2.98 = 13 %

a study using the same database yielding similar results for the retail industry with an increase in total liabilities and total assets of 43 % and 20 % respectively.

Given the predicted significant impact for the retail industry, several researchers have based their ex ante analysis on retail companies specifically (Goodacre, 2003; Mulford & Gram, 2007; Singh, 2012). The results of the studies are all similar with increased leverage ratios, decreased liquidity measures, and lower return on assets and equity. The study conducted based on the UK retail sector shows that operating leases are 3.3 times the amount of finance leases and constitute 28 % of reported total assets (Goodacre, 2003). Furthermore, to complement previously mentioned profitability measures, the EBITDA-margin of retail firms in the S&P Compustat database was estimated to increase by 59 % on average, based on data for a three-year period from 2006-2008, while the EBIT-margin yielded a 33 % increase[3] (Singh, 2012).

Many studies on this field of research have been conducted with a sample from American companies or indices. However, several studies have also been conducted in other countries. Bennett and Bradbury (2003) analysed the potential effects on 38 companies listed on the New Zealand Stock Exchange. The results suggest that capitalization of leases has a material impact on reported liabilities and financial ratios with an increase in the debt-to-asset ratio by 11 %, a decrease in the current ratio by 14 %, and a lower ROA by 9 %[4]. A study conducted on the 100 largest Canadian public companies in terms of revenue (as of 2004) also showed increases in the debt-to-asset ratio and a decrease to the current ratio (Durocher, 2008). However, the estimated decreases in ROE and ROA were only significant in the merchandising industry, and not on a general level which was the case in the Canadian study. Furthermore, Fülbier et al. (2008) analysed the impact on 90 companies listed on the three major German indices DAX30, MDAX and SDAX. The results differ from similar research in terms of reporting a slightly higher ROE, while the other liquidity and profitability measures are in line with other mentioned studies. The researchers also analysed the impact of the market multiples price to earnings (P/E) and book to market (B/M) ratios yielding rather limited decreases. Deborah et al. (2011) investigated the proposed standard change for listed

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[3] Calculated based on reported unadjusted and adjusted figures:
EBITDA-margin: (0.129-0.081) / 0.081 = 59 %. EBIT-margin: (0.065-0.049) / 0.049 = 33 %
[4] Calculated based on reported pre- and post-figures. Debt-to-asset: (0.519-0.469) / 0.469 = 11 %.
Current ratio: (1.812-2.117) / 2.117 = -14 %. ROA: (0.115-0.126) / 0.126 = -9 %.

companies in Netherland and Belgium for 2008. The most striking change of implementing a new lease standard was the elimination of the difference between finance and operating lease. The study's results indicated a significant effect on debt-to-equity ratio, return on assets and current ratio. Lastly, the result from the study shows that the impact on financial rations differs among industries, where retail and transport, and services where the most effected.

Another study conducted by Meryem and Murat (2016) examined the statement of financial position of the lessee enterprise after the transition to the new financial reporting standard IFRS 16 and the impacts possible to occur in the financial position of an airline company operating in Turkey. The result of the study shows that the reflection of the operating leases on the balance sheet shall cause a significant increase the assets and liabilities and a significant decrease in return of assets.

A study by Ramírez and Morales-Diaz (2018) of Spanish companies had seemingly similar results as previous mentioned studies. They discovered that the implementation effect of IFRS 16 will increase the total assets and liabilities in the balance sheet. Further, companies will have an increase in leverage ratios while the interest coverage ratio would on the other hand experience a decrease. The effects will be higher in those sectors with higher lease relative volume such as retail, hotels, professional services, and the media.

Finally, Fitó et al. (2013) analysed the impact of all quoted Spanish firms for the period 2008-2010 (except financial firms due to different regulation). In addition to evaluating the profitability ratios yielding similar results to other studies, the authors analysed to what extent firm size (in terms of total assets) could be a determinant on the impact of financial ratios of operating lease capitalisation. They found size in general to have no statistical impact on the financial ratios. However, another study focusing on the restaurant industry in particular shows that there is a negative relationship between size and impact as the amount of operating leases were bigger for smaller firms in the sector (Singh, 2012).

The previous mentioned studies did in general provide the same results, which given the characteristics of the new lease standard IFRS 16 is not surprising. Furthermore, several studies have analyzed the impact across varying industries. These papers have highlighted significant changes of the financial statements and

its corresponding ratios on the retail industry especially given their high level of leases classified as operating.

3.2 Research development

The existing literature on the effect of implementing IFRS 16 is merely only ex ante analyses, and when we started to investigate this topic there were no ex post studies on the matter. This lack of literature triggered our interest to to fill the information gap and to contribute to literature by empirically control if the theoretical implications of previous research were consistent with our findings.

As mentioned in chapter 3.1, several of the previous research are rather unambiguous in the estimated effect of the implementation of IFRS 16. Affected companies will experience increase in total assets, liabilities and operating profitability. Furthermore, they will experience a significant effect on financial leverage and current ratio. Some important and interesting findings in the previous research was that several papers predicted that retail companies would be most affected (Bryan et al., 2010; Goodacre, 2003; Kostolansky & Stanko, 2011; Mulford & Gram, 2007; Singh, 2012). Deborah et al. (2011) highlights that the financial impact differs among industries and Ramires and Diaz (2018) highlighted that the implementation of IFRS 16 will have a bigger effect on sectors with higher operating lease volume. Lastly, Fitó et al., (2013) stated that there were no statistical impact on financial ratios considering size.

Since considerable prior research on IFRS 16 implementation both highlighted the overall transition effects and a variety of effects on different industries, we decided that it would be natural to investigate the following research question:

What was the IFRS 16 transition effect on companies' financial statements, and were there any significant variation across industries?

As we will investigate the actual effect of IFRS 16 implementation based on data from annual reports after the implementation of the new lease standard in 1.1.19 it will be interesting to see if our results conform with prior research, or if the findings significantly differ. Furthermore, it will be interesting to analyse the implementation across various industries to see if we will discover significant differences among industries.

4   Methodology

To answer our research question, a suitable methodology must be chosen and designed, and data must be collected. In this chapter we will describe the principles used when collecting data, and the chosen variables for analysis. We will also describe the process of data collection, and defining necessary assumptions taken to extract a complete set of data. Furthermore, we will outline the design of our research following the principles of the research onion introduced by Saunders et al. (2016), and assess the reliability and validity related to our research. Finally, the theoretical framework of the different statistic methods to be used in our thesis is described.

4.1   Sample and variable selection

Prior to our main study, we conducted a pilot-project where we briefly studied the 30 biggest firms on the Oslo Stock Exchange and created an Excel-sheet for data collection from the annual statements of the companies. The pilot was conducted to get familiar with annual statements and their disclosure of transition effects, and to create a well-functioning and structured spreadsheet for data collection. Furthermore, we gathered valuable experience to handle insufficient disclosure of transition differences as we will come back to in chapter 4.4.2. Lastly, based on our literature review in chapter 3.1 and the pilot-project, we got an initial idea of the actual effect on financial ratios in different industries. Our sample companies are listed in appendix A.

When conducted our main study, we selected six industries with five companies each, resulting in a total sample of 30 companies. The study is primarily based upon companies listed on the Oslo Stock Exchange, however, without excluding companies listed on other stock exchanges. Furthermore, the companies were selected at random within each industry, but the industry was selected based on knowledge acquired from the literature review of the different effects of the implementation of IFRS 16.

The first sector in our sample is the retail industry. As mentioned in the literature review, the impact on these companies was expected to yield high port-transition

impact on financial statement figures. Hence, we found it relevant to investigate whether our study conform with prior research. Similarly, the effects of the airline industry were also highlighted in the literature review. This further complies with the effect analysis conducted by IASB (2016a) underlining the potential impact on airliners. Furthermore, we chose to include the shipping industry as the effect analysis announced that the implementation would have a greater effect on sectors in which leases represent a large amount of adjusted debt, such as shipping companies. The fourth sector in our sample is the oil industry. There is no prior research highlighting specific impacts related to these companies. Since the industry is highly capital intensive, we find it interesting to analyse whether the change in accounting for leases would have an impact on their financial statements. We have also selected the seafood industry for further analysis. Similar to the oil industry, our literature review did not highlight this industry in terms of transitional effects. Nevertheless, we wanted to assess their impact to increase the awareness of their effects. Finally, have chosen to include pharmaceutical companies due to the high share of immaterial assets that are dominating their balance sheet. Hence, we found it interesting to assess their effect as their balance sheet composition in general differs from the other sectors in our sample.

In terms of variable selection, previous literature has analysed the impact of both balance sheet items and income statement figures as well as common financial ratios, and a common denominator for this kind of research is the impact on companies' total assets and liabilities, various profit measures, and financial statement ratios related to these. Regarding financial statement items, we want to analyse both aggregated items such as total assets, liabilities and various profit measures as prior research have conducted. Furthermore, we will drill down to the specific items to analyse the effect on the directly affected line item. Hence, the financial statement items to be further analysed in this paper is listed in Table 2 below.

Financial statement item	Financial statement
Total assets	Balance sheet
Right-of-use asset	Balance sheet
Total lease liabilities	Balance sheet
Lease expense	Income statement
EBITDA	Income statement
Depreciations	Income statement
EBIT	Income statement
Interest expense	Income statement
EBT	Income statement

Table 2. A list of all financial statement items that will be analysed in this thesis.

Financial ratios should arise from the chosen financial statement items. Several studies have analysed the effects of solvency ratios such as financial leverage and equity-to-asset ratio, liquidity ratios such as the current ratio, and various profitability ratios. Since we expect changes in the various income statement profits; EBITDA, EBIT, and EBT, we want to have a closer look at profitability ratios related to these. The financial statement ratios subject to analysis and their formulas as used in this paper is disclosed in Table 3 below.

Financial statement ratio	Formula
Financial leverage (FLEV)	Debt / Equity
Equity-to-asset ratio	Equity / Total assets
Current ratio (CR)	Current assets / Current liabilities
EBITDA margin	EBITDA / Revenue
EBIT margin	EBIT / Revenue
EBT margin	EBT / Revenue
ROA	EBT / Average total assets
ROE	EBT / Average total equity

Table 3. A list of all financial statement ratios that will be analysed in this thesis, and their corresponding formulas.

These industries and variables will constitute the foundation for our thesis and further analysis.

4.2   Research design

Research design refers to the basic structure of a research project, the plan for carrying out an investigation focused on a research question that is central to the concerns of a particular epistemic community (Schwartz-Shea & Yanow, 2012).

Describing our methodology and choices we have opted to use "the research onion" (Saunders et al., 2016). The research onion describes the different decisions we need to consider when developing a research methodology. The method consists of six layers: 1. Research philosophy, 2. Research approach, 3. Methodical choice, 4. Strategy, 5. Time horizon and 6. Technique & procedures.

4.2.1 Research philosophy

The research philosophy is the outer layer of the research onion. There are five main major philosophies in business and management according to Saunders (2016). Positivism, critical claim, interpretivism, postmodernism and pragmatism. Researching the implementation effect of IFRS 16 on accounting lines and how financial ratios have been affected within different industries classifies under the research philosophy of positivism. This research philosophy is characterized by observable reality that can only yield reliable data and entails working with an observable social reality to produce law-like generalizations (Saunders et al., 2016). Hence our study which analyses real life data would maintain an objective stance and is suitable for the defined positivism philosophy when combined with quantitative method which we will describe in 4.2.3.

4.2.2 Research approach

The next layer of the research onion is the research approach. Approaches to the theory development are either deductive, abductive, or inductive. Central characteristics of the deductive approach is to search and explain causal relationship between concepts and variables. In this thesis we are researching the relationship between the implementation of IFRS 16 on both financial ratios and industries, making a deductive approach necessary. A central part of our work has been to collect data from annual statements and conduct appropriate analysis of the relationship between the implementation of IFRS 16 and its effect on financial ratios. Detailed research and understanding of the topic have been a prerequisite to understanding the subject which we have explained in detail in 3.1.

4.2.3 Methodological choice

Furthermore, there are three possible methodological choices to be made in this layer. Different alternatives are quantitative, qualitative and a mixed method. A quantitative method is usually accompanied by a deductive approach (Saunders et al., 2016). Quantitative research examines the relationship between variables which are measured numerically and analyzed using a range of statistical and graphical techniques. This makes a quantitative method most applicable for our study. To examine these relationships between variables we have decided to use a variety of statistical tests. Full description of the statistical test used are covered in 4.5. Furthermore, in quantitative research both experimental and survey research is associated. In this thesis the experimental research is most natural to use since we are looking for, and to demonstrate the cause and effect of relationship between variables.

Another important aspect which isn't described in the layers of the research onion is the descriptive method. The purpose with the descriptive research is to gain accurate profile of events, persons, or situations (Saunders et al., 2016). It is important to have a clear picture of the phenomenon on which you wish to collect data prior to the collection of data. This thesis has several elements that fits the descriptive method. Firstly, we gathered information on the topic by conducting a literature review. Secondly, we conducted a pilot-project to make sure what data to collect to describe the phenomenon. These are core elements in the descriptive method and the descriptive analysis of our sample is conducted in chapter 5.1.

4.2.4 Strategy

There are various choices of research strategies that could be used. As mentioned in the previous chapter, the use of statistical analysis such as regression analyses, t-test and paired sign-test would lead to the use of an experimental strategy. On the other hand, we are investigating empirical data against theory of the matter which we covered in 3.1. This leads us to use the archival research. This strategy is suited for searching for and extracting information and evidence from original archives such as literature on this topic and the financial statements of companies.

4.2.5 Time horizon

The time horizon can either be cross-sectional or longitudinal. The first mentioned time horizon is characterized by being a snapshot in time while the longitudinal is characterized by looking at events over a period of time. In this thesis we are looking at primarily annual statements from 2019. There are three important snapshots in this thesis and it's the following dates: 31.12.18, 1.1.19 and 31.12.19. It is possible to argue that since its several snapshots of financial data over time, this study should be characterized as a longitudinal study. Since almost all data is gathered from the same annual statement, and the implementation date of 1.1.19 is the most important. We have decided that a cross-sectional study is the best to describe our study.

4.2.6 Technique & procedures

For the thesis we are collecting our data from annual statements published by the company. The experience we collected from our pilot-study helped us create a well-functioning and structured spreadsheet for data collection. We also conducted a thorough review of the literature in regards of the implementation effect of IFRS 16 on key financial ratios. Both the pilot-project and the literature review helped us narrowing and pinpoint the correct and useful data. The financial statement items and their related financial ratios are described in 4.1 and later in chapter 4.4 we will explain in depth about the data collection process. Our empirical analysis is based on annual statements and are regarded as first-hand information thus being primary data. On the other hand, our secondary data consists of articles and journals.

4.3 Reliability and validity

Reliability and validity are central to evaluate the quality of research in the natural science (Saunders et al., 2016). Validity refers to the appropriateness of the measures used, generalisability of the findings and accuracy of the analysis. Validity is concerned with the integrity of the conclusions that are generated from a piece of research (Bryman, 2012). Validity can be divided into internal, external and construct validity. Internal validity is established when research accurately demonstrates a causal relationship between two variables, for instance, when conducting a statistical test on leases to see if there is a significant change when

capitalizing operating leases. Threats to internal validity can for instance be ambiguity about causal direction such as lack of clarity about cause and effect. The external validity refers to generalization of the study and if the findings can be generalized. In this thesis the companies being analyzed need to conform with IFRS standards which follows a set of defined principles, indicating that the findings of our research could be generalized to other companies following IFRS. Nevertheless, findings can be generalized outside of the listed companies if there are no significant fluctuations in the use of operating leasing between large companies and the non-listed companies which use IFRS. Lastly, the construct validity describes how good a test measures its claims.

Reliability refers to replication and consistency, and whether a researcher is able to replicate an earlier research design and achieve the same findings (Saunders et al., 2016). When considering reliability, sometimes a distinction is made between internal and external reliability. The internal reliability refers to ensuring consistency during a project. According to Saunders (2016) external reliability refers to whether your data collection techniques and analytic procedures would produce consistent findings if they were repeated by you on another occasion or if they would be replicated by a different researcher. Our collected data comes from consolidated annual reports of the companies which have high reliability considering it is controlled by auditors. Furthermore, for this paper, we have defined a set of principles for estimation of figures not sufficiently disclosed in the various companies' financial statements to ensure consistency. These principles are described in chapter 4.4.2. Some of the common threats to reliability is researcher errors such as mistyping when collecting data and subpar stated assumptions.

4.4   Data collection

Data was collected using reported figures and disclosed information in the various companies' 2019 annual reports. In this section we will describe at what point in time the various data will be analysed, transformation techniques applied, disclosure of estimated figures, and the determination of transition method used.

4.4.1 Data transformation and comparison

The various companies apply different reporting currencies and scale, requiring us to transform all reported figures to one common measure. Hence, all data is transformed and presented in millions of NOK applying exchange rates from Norges Bank. Given the nature of the balance sheet items compared to the income statement, we have chosen to apply various exchange rates when transforming the data. For the balance sheet items, we have applied the exchange rate as of 31.12.18 and 31.12.19 for reported opening and ending balances respectively, while the average rate for 2019 has been applied for the income statement numbers. In our analysis, we will compare the following data:

- All balance sheet items, and corresponding ratios (financial leverage, current ratio, and equity-to-asset ratio) at transition date
- All income statement items, and corresponding ratios (EBITDA margin, EBIT margin, and EBT margin) for 2019
- Differences in ROE and ROA where the average rate of equity and asset in 2019 is applied

When comparing the figures of IAS 17 with IFRS 16 numbers, we have to make sure that the relevant data is compared, as the various accounting lines are presented differently in the two standards. Finance-leased assets was previously presented along with purchase, plant and equipment (PPE) and disclosed in the accompanying notes. Following the implementation of IFRS 16, the company shall present leased assets separately from PPE as right-of-use assets. Hence, when comparing leased assets under IFRS 16 and IAS 17, we have to compare right-of-use assets to the portion of finance-leased assets included in PPE rather than the PPE as a whole. The same applies for current and non-current lease liabilities previously being classified together with other liabilities (or optionally disclosed separately), while being presented separately under IFRS 16. For the profit and loss (P&L) figures, we will be comparing only the lease portion of depreciation and interest expense under both IAS 17 and IFRS 16.

4.4.2 Estimating missing figures

The transition effect to the balance sheet as of 1.1.19 is disclosed in every annual report of our sample as required by the standard and mentioned in chapter 2.3.2.

However, the new standard does not demand information disclosing the difference between the reported income statement figures in IFRS 16 and what would have been reported if IAS 17 was still applicable. The same goes for the ending balances of the fiscal year. Hence, for us to be able to conduct analysis on both P&L and financial ratios applying average balance sheet values of the year (i.e. ROA and ROE), we had to estimate the income statement figures and ending balances for all companies not disclosing this information. Given no prior research on the topic providing a method or common practice to handle this issue, we have made our own assumptions and calculations to be further explained.

For all calculations, we made a simplification assuming all lease contracts entered during 2019 would be classified as operating leases under IAS 17. As disclosed in chapter 3.1, Bryan et al. (2010) uncovered that 88 % of firms' total lease value was operating leases, indicating relevance of our assumption. Nonetheless, the most important element for this assumption is simplification purposes when calculating. Once assuming newly entered lease contracts has a finance lease element, we have to make further assumptions regarding what time of the year the contract was entered, collect additional information related to additions during the year, and estimate the costs incurring from these additions. Hence, we conclude that these additional assumptions would complicate our calculations without yielding significant additional accuracy to our estimates. The seven assumptions are described in the following. We refer to appendix B for how we calculated these elements for the Danish shipping company Maersk.

Split between current and non-current portion of initially recognised lease liability (appendix B-1)

Some companies did not define the current and non-current portion of their recognised lease liability as of 1.1.19 under IFRS 16. However, the firms disclosed both the discounted value of future operating lease payables and the initial net recognised lease liability. Hence, the difference between those two corresponded to the carrying value for all leases previously classified as a finance lease. We controlled that the carrying value related to finance leases corresponded to the reported number in the 2018 annual report which also specified the split between the current and non-current lease liability. Hence, we only had to estimate the split

arising from the discounting of operating lease liabilities. As described in chapter 2.2.2 regarding IAS 17, companies were required to disclose future minimum operating lease payments due within one year, years two through five, and beyond five years. Consequently, we calculated the share of all operating liabilities maturing within one year to use as a distribution key when determining the share of current lease liability.

Ending balance of lease liability (current and non-current) if IAS 17 was applicable (appendix B-2)

When determining the ending balance of lease liabilities as they would appear under IAS 17, we only have to take into account finance leases as no operating lease is recognised in the balance. As mentioned in the previous paragraph, the split of finance leases between current and non-current lease liability was reported in the 2018 annual report. The reported current portion is due within one year and corresponds to the principal payment made during 2019. Hence, given no newly added finance lease contracts, the total ending balance of carrying lease liability would be the same as the reported non-current portion of finance leases as of 31.12.18. Furthermore, we have assumed equal yearly payments, resulting in an unchanged amount of current lease liability as of 31.12.19, while the non-current lease liability is reduced by the previous period's reported current lease liability. If current lease liabilities as of 31.12.18 exceeded the non-current lease liability, the non-current amount was reclassified to current lease liability as of 31.12.19.

Interest expense incurred in 2019 as if IAS 17 was still applicable (appendix B-3)

The weighted average of lessee's incremental borrowing rate applied to lease liabilities at the date of initial application should be disclosed at transition (International Accounting Standards Board [IASB], 2021, para. C12). Since the interest cost of finance leases is calculated by multiplying the carrying value of lease liabilities by the applicable interest rate, we chose to multiply the given incremental borrowing rate by the opening balance of financial lease liabilities to estimate the IAS 17 interest cost incurred in 2019.

Depreciation expense incurred and ending balance of finance-leased assets in 2019 as if IAS 17 was still applicable (appendix B-4 and B-5)

As defined in IAS 17.27, and also mentioned in chapter 2.2.2, finance-leased assets are subject to depreciation at the shorter of the leasing period and remaining useful life of the asset. For us to calculate the depreciation expense for 2019, we have assumed the asset to be depreciated over the leasing period. Hence, we had to estimate the remaining lease period related to the finance leases as reported in 2018. To do this, we assumed equal yearly lease instalments, implicitly indicating that the remaining lease period would be the total lease liability-to-current lease liability ratio as of 31.12.18. To find the 2019 depreciation charge, we then divided the net carrying value of finance-leased assets as of 31.12.18 by the remaining lease period.

Assuming no additional financial leases during 2019, the ending balance of finance-leased assets was calculated by subtracting the calculated depreciation charge from the carrying value of finance-leased assets as of 31.12.18.

Lease expense incurred in 2019 as if IAS 17 was still applicable (appendix B-6)

When estimating the lease expense that would have been recognised using IAS 17, several elements must be taken into consideration. Firstly, when determining the estimation technique, we recall from IAS 17.33 that an operating lease will recognise the lease payments as an expense linearly over the lease term. Consequently, the cash flow related to leases during 2019 would serve as a fair estimate of the lease expense according to IAS 17 if all leases were classified as operating. However, for companies with a mixture of both operating and financing leases, an allocation of the cash flow between the two has to be made. As described in the section regarding the split of current and non-current lease liability at transition date, both the operating and financing part of the initial balance were disclosed. Hence, in order to allocate the reported cash flow to operating leases, we multiply the cash flow by the share of initial carrying value related to operating lease liabilities of total lease liabilities.

The cash flow used in the calculations is cash payments arising from the lease liability (principal and interest) as the company is required to report this in their

cash flow statement according to IFRS 16, paragraph 50 (International Accounting Standards Board [IASB], 2021). Hence, the cash outflow related to short term and low-value leases is not included. Since these leases would also incur a lease cost under IAS 17, we finally added that to come up with the estimated lease expense as if IAS 17 was still applicable.

Ending balance of equity if IAS 17 was applicable (appendix B-7)

As described above, the two adjustments made on ending balance figures were related to the finance-leased assets, and current and non-current assets. To make sure that the balance sheet still balances after the adjustments, we have used equity (retained earnings) as a plug number.

The reported figures have been used where available, and the various estimation methods as described above have only been applied when the numbers were not presented in a company's annual report. Whereas the analysis of balance sheet items and its three corresponding financial ratios will be based on reported differences at transition, the analyses of P&L figures, and ROE and ROA are based on estimations. Hence, the findings arising from these estimated numbers are subject of uncertainty.

4.4.3   Choice of transition method

Companies could choose between the modified and the full retrospective approach when adapting IFRS 16 and disclose this in their annual reports. In our sample, the modified retrospective approach was the popular choice being applied by 29 out of the 30 companies, indicating that the various companies seem to have concluded that the costs of applying the full approach would outweigh the benefits of comparison. Furthermore, as explained in chapter 2.3.3, there are two various methods within the modified approach. When collecting data for our analysis, we found that 18 and 11 companies applied method 1 and 2 respectively. All companies that incurred a transition effect on their equity applied method 2, and the remaining companies applied method 1. Given the similarities of method 2 and the full retrospective approach, we have decided to merge these two methods for future

analysis since the transitional effect as well as post-transition expenses are equal if the same interest has been applied.

4.5 Statistical tests

To control for significant impacts that the new accounting standard has had on financial ratios, we will look for statistically significant differences on data pre and post implementation using various statistical tests. In this sub-chapter we will present the theoretical framework of the parametric one sample t-test, the non-parametric sign test, and the ordinary lease squares (OLS) multiple linear regression.

4.5.1 T-test

The paired t-test is used to determine whether there is a true difference between the means of two populations (Løvås, 2018). In order to conduct the test, a set of prerequisites have to be fulfilled to prevent drawing incorrect or misleading statistical conclusions. The prerequisites to conduct a paired t-test are listed below.

- The pair of observations must be statistical independent of each other
- The paired differences are normally distributed

The first criterion is fulfilled as there is no dependency between the companies in our sample. However, there are difficulties regarding the normal distribution of the mean differences. Prior research papers analysing the impact of accounting standards on ratios have conducted non-parametric tests as the financial ratios did not follow a normal distribution (Fitó et al., 2012; Fülbier et al., 2008; Goodacre, 2003), and the same goes for our data. Hence, we cannot conduct any paired t-test on our data without transformation. Fitó et al. (2013) calculated a comparability index (CI) to handle the non-normality issue. The index shows the percentage change in the ratios following the implementation of IFRS 16. To prevent miscalculations, i.e. CI showing a negative change when the change in fact is positive, the absolute method is applied[5]. The formula for CI is the following:

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[5] The absolute method indicates using the absolute number in the denominator to make sure that the sign of the change is correct. If a company has a negative financial ratio (e.g. ROA) before lease

$$CI_i = \frac{FRa_i - FRb_i}{|FRb_i|}$$

where:

CI$_i$: Comparability index for company i

FRa$_i$: Financial ratio after the capitalisation for company i

FRb$_i$: Financial ratio before the capitalisation for company i

Following the conversion to the comparability index, most variables followed a normal distribution, but outliers occurred for some of the variables which could distort the results of the t-test. Hence, we chose to exclude these observations in order to fulfil the prerequisites. Figure 4 show the case for the ROA ratio where the observation related to the shipping company Evergreen was excluded. The normal distribution criterion has been controlled for all variables in question, and the removed companies per financial ratio are disclosed in appendix C.
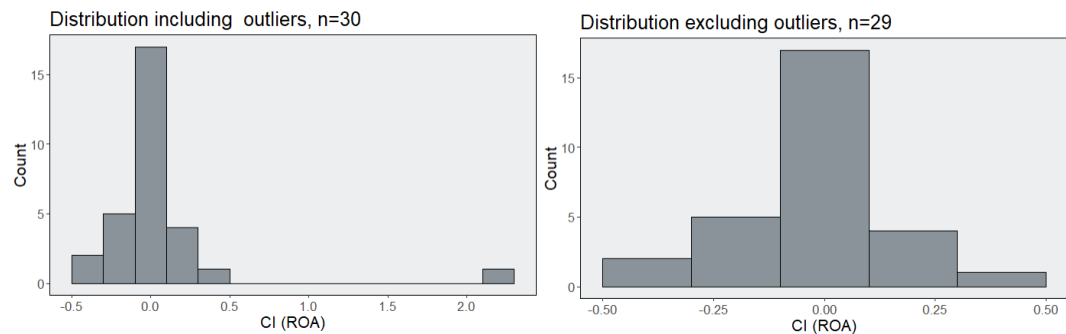
Figure 4. Histogram of the comparability index of ROA with and without outliers

After transforming the variables to a comparability index, we will be conducting a one-sampled t-test to determine whether the change is different from zero. The hypothesis in question will be the following:

H$_0$: CI$_i$ = 0

H$_1$: CI$_i$ ≠ 0

In a two-tailed t-test, the null hypothesis is rejected if the absolute value of the observed t-statistic exceeds the critical t-value at a given level of significance. The critical t-value is extracted from the two-tailed t-distribution table based on the

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capitalisation, and the ROA increase after implementation, the CI would yield a negative change if the negative ROA before capitalisation was used in the denominator. Hence, the denominator is always the absolute value.

significance level α/2 and n-1 degrees of freedom (Løvås, 2018, p. 345). The observed t-statistic is calculated using the following formula:

$$T = \frac{\overline{CI} - \mu}{S/\sqrt{n}} = \frac{\overline{CI}}{S/\sqrt{n}}$$

where

μ: The expected value in the null hypothesis which in our case is zero

$\overline{CI}$: The sample average of the comparability index

S: The sample standard deviation

n: Number of companies in the sample

In addition to the t-value, the p-value of the test will be reported as this value gives the probability of "obtaining results at least as extreme as the observed results of a statistical hypothesis test, assuming that the null hypothesis is correct" (Beers, 2022). The null hypothesis is rejected if the p-value is lower than a chosen level of significance α. We will distinguish between significance levels of 1 %, 5 % and 10 % when presenting the results in chapter 5.2.1.

4.5.2   Paired sign-test

As explained in chapter 4.5.1, previous research has conducted non-parametric test when the parametric t-test is inadequate (Fitó et al., 2012; Fülbier et al., 2008; Goodacre, 2003). There are different non-parametric tests to choose from, such as the paired Wilcoxon signed-rank test and the paired sign test. The paired Wilcoxon signed-rank test assumes symmetry in the data distribution which is not the case in our sample. Hence, we have chosen to conduct a paired sign-test as the test does not have any prerequisites and will always be relevant when comparing two paired set of data analysing the number of positive and negative differences in the sample. The hypothesis to be tested in the paired sign test is the following:

H_0: The medians are the same ($m_1 = m_2$)

H_1: The medians differ ($m_1 \neq m_2$)

If the null hypothesis is true, the probability of observing a positive difference will be 50 %. Hence, in order to reject the null hypothesis, we need to observe an

especially large (or small) amount of positive differences from the whole sample, so that it is reasonably certain that the true medians are different (Løvås, 2018). The p-value is calculated based on the number of positive differences k from the total number of observations n, and the level of significance α using the cumulative binomial distribution table. The null hypothesis is rejected if the p-value is below the level of significance α.

4.5.3 Ordinary least squares regression

A multiple regression tests the validity of the respective independent variables' beta coefficients against the dependent variable (Laerd Statistics, n.d.). Using the comparability index introduced in chapter 4.5.1, we can control its dependency on the six chosen industries in our sample. Since the size of the various companies differ, we have also chosen to include this in our model in the same way as Fitó et al. (2013) did in their research on Spanish companies. Additionally, we control for the method applied at transition as explained in chapter 2.3.3. The formal multiple linear regression model can be formulated followingly:

$$CI = \beta_0 + \beta_1 \times Airline + \beta_2 \times Pharma + \beta_3 \times Retail + \beta_4 \times Seafood + \beta_5 \times Shipping + \beta_6 \times \ln(ASSETS) + \beta_7 \times \text{Method 2} + \in_i$$

The various industries are converted to dummy variables taking the value 1 if the company belongs to the industry and 0 otherwise. To prevent perfect multicollinearity between the independent variables, one of the industries is kept outside the model as a reference category. The choice of reference category does not affect the outcome of the model and the choice of variable is principally irrelevant. Nevertheless, a common way of determining the reference category is by picking the category with most observations (Grace-Martin, n.d.). All industries comprise of five observations each, however as explained in chapter 4.5.1, some observations are removed, resulting in a smaller sample in the airline, shipping, and retail industry in some of the regression models. Hence, we are left with three relevant industries, where we have chosen the oil sector as the reference category for the regression model. In terms of interpretation, the output industry coefficients describe their effect on the comparability index compared to the oil sector. The variable regarding choice of adaption method 1 or 2 is also a categorical variable

transformed into a dummy variable in our model. Since there are most observations of companies applying method 1, we have chosen this as our reference category.

The model also applies a logarithmic transformation of the independent variable total assets due to normality. In terms of interpreting a log-transformed independent variable, one must convert the coefficient to an interpretable number. There are various ways of converting the coefficient based on what variable (dependent, independent or both) has been log-transformed. In this case, only the independent variable has been log-transformed. Then, the output coefficient can be divided by 100, and the outcome can be interpreted as the change in the dependent variable for every 1 % increase in the independent variable (Ford, n.d.).

The regression output is calculated using the ordinary least squares method. A linear regression model satisfying the OLS assumptions implies that the model has unbiased coefficient estimates that are relatively close to the reality (Frost, 2018). Violating the OLS assumptions may result in a misleading model. Hence, we have to control for the six criteria (Pedace, 2013, p. 175) :

1) Linearity in both coefficients and error term
2) The error term has a population mean of zero
3) The values for the independent variables are derived from a random sample of the population and contain variability
4) The error term is normally distributed
5) There is no heteroscedasticity in the dataset
6) There is no multicollinearity (or perfect collinearity) in the dataset

The first assumption is fulfilled given the regression formula containing only variables of first order. The second assumption also holds, given the nature of how the model is calculated which result in a population mean of residuals equal to zero. The final four assumptions are controlled plotting residual values against fitted values to control for variation in the independent variables, examine the Q-Q plot for normality in the residuals, plotting fitted values against standardised residuals to control the variance of residuals (homoscedasticity), and calculating the variance inflation factor (VIF) to control for multicollinearity[6]. We have controlled these

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[6] VIF measures the linear association between independent variables, and as a rule of thumb, VIFs greater than 10 indicate a likely multicollinearity problem, and a score between 5 and 10 a somewhat likely problem (Pedace, 2013). Hence, VIFs lower than that could be assumed satisfying.

assumptions for all regression models, and we refer to appendix D for an example on the regression model related to the equity-to-asset ratio.

5 Results

In the following section we will be presenting the results of our study. Firstly, we present descriptive data on affected accounting items on the sample as a whole and further commenting upon sector differences. The changes in companies' various accounting items subsequentially affect their financial ratios. In the second part of the results, we will be analysing the impact on financial ratios and determine if they have been significantly impacted by the change of accounting standard through the use of a one sampled t-test and a paired sign-test. To conclude the chapter, we have conducted a multiple regression model allowing us to analyse the relative impact of the different industries controlled for their size and adaptation method on changes in financial ratios based on the model introduced by Fitó et al. (2013).

5.1 Descriptive analysis

As mentioned in chapter 4.2.3, we have conducted a descriptive analysis on our data. In this sub-chapter we will display and comment upon the statistical measures mean, median and standard deviation prior and following the implementation of IFRS 16. The statistical analysis will be conducted in three parts covering the balance sheet, income statement, and financial ratios. The illustrations presented in Table 4 through Table 13 are based on descriptive data from the sample, and we refer to appendix E and F for descriptive statistics specified by industry and companies respectively.

5.1.1 Balance sheet

As presented in Table 4, our research shows an increase in total assets of 366 billion NOK at the time of implementation, which represents a 7 % increase across the whole sample. We can see that the median values of total assets both before and after implementing are significantly lower than the mean values, indicating a right-skewed distribution across our sample. Furthermore, the variance of the data is high with an average standard deviation from the mean of approximately 300 billion (pre

and post) which is expected given no scaling of the data. In terms of industry, the pharmaceutical sector does not seem to be highly impacted by the implementation with an increase of only 1 %. Pharmaceutical companies are characterised by relative high shares of immaterial assets, and the same goes for the companies in our sample with an average share of total assets of 47 %[7]. This could be a possible explanation to the minor impact on the industry. The retail industry on the other hand faced a large 58 % increase in their assets due to their high amount of operating premise leases. The impact is high for all five retail companies with rises spanning from 31 % to 60 %. Furthermore, both the shipping and airline industries had relatively significant increases in their assets. The two Nordic airliners SAS and Norwegian Air Shuttle increased their assets by 49 % and 59 % respectively due to their high share of aircraft leasing. However, there were big differences among the airliners, and the initial asset recognition did not increase the balance sheet of neither Lufthansa nor Ryanair by more than 5 %. Since the total assets of the two ladder was much higher than for the Nordic airline companies, the airline industry only recognised an initial 13 % increase in assets.

Total assets				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Sum	**5 240 390**	**5 606 401**	**366 011**	**7 %**
Mean	174 680	186 880	12 200	7 %
Median	45 450	54 644	9 193	20 %
Std.dev	299 568	306 285	6 717	2 %

Table 4. Comparison of aggregated amounts of total assets presented in million NOK

To explain the increase in the various companies' balance sheets, we have had a closer look at changes in their right-of-use assets and lease liabilities as presented in Table 5 and Table 6. The value of the companies' leased assets has increased by 357 billion NOK, corresponding to a 272 % increase from previous levels. Once again, the retail industry stands out with a relative increase of 20 893 % from 0.4 billion to 78 billion NOK. Their premises were mostly operating leases at the time of implementation, and neither XXL nor Clas Ohlson had a single lease agreement classified as a finance lease under IAS 17. The biggest absolute increase came from Hennes & Mauritz incurring a transition effect of 70 billion NOK. It is also worth noting that although the pharmaceutical industry only increased their assets by 1 %, their right-of-use assets increased by 2 437 % at implementation. Similar to the

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[7] Based on reported figures 31.12.18, before transition.

retail industry, almost all leases were previously classified as operating, but given low number of leases in general and the significant part of immaterial assets in possession, the impact on their total assets is limited.

Right-of-use assets				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Sum	**131 005**	**487 843**	**356 838**	**272 %**
Mean	4 367	16 261	11 895	272 %
Median	339	3 491	3 152	929 %
Std.dev	11 553	25 365	13 812	120 %

Table 5. Comparison of aggregated amounts of right-of-use assets presented in million NOK

Lease liability also increases significantly with and extra 375 billion NOK of debt and is clearly correlated with the change in the right-of-use asset. This is as expected since leases are initially recognised in the balance sheet as a right-of-use asset and a corresponding lease liability. The residual amount after recognising right-of-use asset and lease liability is recognised as an initial equity adjustment for companies applying the full retrospective approach or the modified retrospective approach according to method 2 as further described in chapter 2.3.3.

Lease liability				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Sum	**126 035**	**501 070**	**375 035**	**298 %**
Mean	4 201	16 702	12 501	298 %
Median	276	3 748	3 471	1256 %
Std.dev	11 595	26 757	15 162	131 %

Table 6. Comparison of aggregated amounts of total lease liabilities presented in million NOK

Following transition, the carrying value of capitalised leases comprise of a mixture between operating and finance leases. We can see that after adoption, 73 % of the value for all lease contracts was previously classified as operating leases[8]. The companies in the airline sector both has the (joint) highest and two out of three of the lowest shares across the whole sample with Norwegian's share of operating leases being 100 %, while the corresponding shares for Ryanair and IAG are 40 % and 44 % respectively. Hence, the airline industry has the lowest overall operating lease share across our sample with 62 %, which still is a significant part. The retail industry yields an overall 99.5 % share of operating leases, placing them at the top

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[8] Based on the transition effect as a percentage of total right-of-use asset after transition: 356 838 / 487 843 = 73 %. Could also have used the figures from lease liability without significant differences: 375 035 / 501 070 = 75 %

of our sample. Previous research indicated an 88 % share of operating leases which is a bit higher than our results (Bryan et al., 2010). However, our study suggests a far higher share for retail companies than similar research conducted on the UK retail sector, finding operating leases being 3.3 times the amount of finance leases, which corresponds to 77 % (Goodacre, 2003).

5.1.2 Income statement

As described in chapter 2.3.4, the implementation of IFRS 16 will shift the nature of the cost from a leasing cost according to IAS 17 into a split between depreciation arising from the right-of-use asset and an interest cost on the lease liability. Hence, we would expect an increase in both EBITDA and EBIT, but rather insignificant changes in the EBT.

The lease cost has been reduced by 83 billion NOK, or 67 %, following the implementation of IFRS 16 (Table 7). In principle, there should be no leasing cost in IFRS 16, but every firm in our sample have exploited the recognition exemption of low-value assets and short-term leases as explained in chapter 2.3.2, recognising them in the income statement up-front. Furthermore, the impact on the lease cost corresponds to the EBITDA increase for all industries except airline. The small deviation was reported in Norwegian Air Shuttle's annual report as an "operating expense excluding lease, depreciation and amortisation" (Norwegian Air Shuttle ASA, 2020, p. 35). The results on EBITDA are as expected with an average increase of 15 % for all companies. On industry level, we can see that the retail companies have more than doubled their EBITDA on average, while the airline and shipping companies experience a 28 % and 41 % increase respectively, mainly driven by a 343 % increase for Norwegian and both shipping companies Evergreen and Yang Ming exceeding a 100 % increase.

Lease cost				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Sum	**123 002**	**40 057**	**-82 945**	**-67 %**
Mean	4 100	1 335	-2 765	-67 %
Median	1 315	78	-1 237	-94 %
Std.dev	6 098	2 781	-3 316	-54 %

EBITDA				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Sum	**517 349**	**600 514**	**83 165**	**16 %**
Mean	17 245	20 017	2 772	16 %
Median	3 466	5 650	2 185	63 %
Std.dev	33 626	35 192	1 566	5 %

Table 7. Comparison of aggregated amounts of lease cost and EBITDA presented in million NOK

As displayed in Table 8, the depreciations related to leases increased by 69 billion NOK which corresponds to an increase of 549 % across the whole sample. The increase in absolute terms is lower than the cost savings from lease expenses as we would expect given the change of cost nature under IFRS 16. Hence, the overall EBIT increased by 14 billion NOK corresponding to a 5 % increase. However, the relative changes have big fluctuations across the industries. The shipping and retail industry faced big improvements in their operating profits following the adoption of the new standard by 33 % and 52 % respectively. The airline industry improved their EBIT by 11 % on average, while the remaining three industries yielded minor positive improvements up until 1 %.

Depreciation				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Sum	**12 523**	**81 278**	**68 755**	**549 %**
Mean	417	2 709	2 292	549 %
Median	41	1 233	1 192	2937 %
Std.dev	975	3 706	2 731	280 %

EBIT				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Sum	**296 481**	**310 891**	**14 410**	**5 %**
Mean	9 883	10 363	480	5 %
Median	2 005	2 509	503	25 %
Std.dev	20 782	20 874	92	0 %

Table 8. Comparison of aggregated amounts of depreciation related to leases and EBIT presented in million NOK

The final affected income statement figure before EBT is the interest expense, and the effect is displayed in Table 9, showing that the total increase in interest was 15

billion NOK. Once again, the most prominent change arises from the retail industry as their previous costs were close to zero given that only 0.5 % of their total leases was classified as financial prior to transition.

Interest				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Sum	**4 718**	**19 345**	**14 626**	**310 %**
Mean	157	645	488	310 %
Median	8	125	117	1538 %
Std.dev	364	1 142	778	213 %

EBT				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Sum	**266 711**	**266 495**	**-216**	**0 %**
Mean	8 890	8 883	-7	0 %
Median	1 774	1 940	166	9 %
Std.dev	20 621	20 530	-91	0 %

Table 9. Comparison of aggregated amounts of interest expense and earnings before taxes presented in million NOK

As shown in chapter 2.3.4, the effect on a company's EBT was expected to be uncertain upon adaption. However, given the front-loaded cost profile and previous research by Imhoff et al. (1991), we would expect a slight decrease in EBT following the adaption to IFRS 16. Our sample, accordingly, yielded slight deterioration in the companies' EBT on average, but the implementation varied between positive and negative effects across the industries. Whereas the EBT of airline, pharmaceutical, and seafood companies on average decreased in accordance with the research by Imhoff et al. (1991), the retail, shipping, and oil industry faced the opposite effect. On company level, eight firms yielded positive EBT-effects post-transition, whereas four of them were shipping companies. These are interesting observations to be further discussed in the following chapter when analysing the EBT margin.

5.1.3   Financial ratios

The changes in the aforementioned balance sheet and income statement figures subsequently affect a company's financial ratios. Especially the capitalisation of operating leases yields significant transition effects on a company's balance sheet as shown in chapter 5.1.1. Hence, we would expect a major change in our three chosen balance sheet ratios.

The average financial leverage of all companies in the sample increased by 1.15 (67 %) as shown in Table 10. The median leverage was significantly lower than the mean, indicating that there were some outliers heavily affecting the mean both prior and post implementation which is further underlined by the high standard deviation (7.30 pre and 10.34 post). The most prominent outlier affecting the mean and increasing the variance is Norwegian Air Shuttle which further levered their company from 31.85 to 51.09 (60 % increase) after implementing the new standard. The high amount of debt has been a main issue for Norwegian over the past couple of years, and the capitalisation of operating leases further underlined this. When comparing the six sectors, we can see that the implementation unsurprisingly affected retail companies mostly given their significant increase in debt (lease liability) as highlighted previously. The five retail companies in our sample constitute five of the six highest impacted companies in relative terms leaded by a 141 % increase in Hennes & Mauritz from 1.11 to 2.68. Overall, the industry faced an average increased leverage by 95 %. Furthermore, both the shipping and airline industry yielded significant changes with a 35 % and 53 % increase respectively, whilst the oil, pharmaceutical, and seafood companies incurred rather modest positive changes of 1 %, 10 % and 10 %.

Another measure of a company's solvency is their equity-to-asset ratio. The mean is reduced by 13 %, while the median was 20 % lower on average (see Table 10). Furthermore, the mean values were in general lower than the median equity-to-asset ratio due to a left-skewed distribution mainly caused by the oil companies Interoil and Noreco with negative equity book values. Once again, the relative changes are most prominent in the retail industry with a decrease of 33 % on average. The deterioration of the companies' solvency ratios was expected, and prior literature has also yielded similar results (Duke et al., 2009; Fülbier et al., 2008; Goodacre, 2003; Mulford & Gram, 2007; Singh, 2012). Furthermore, studies also highlight the impact of IFRS 16 on the retail industry as our numbers also suggest (Bryan et al., 2010; Goodacre, 2003; Kostolansky & Stanko, 2011).

The final balance sheet ratio, the current ratio, is a liquidity measure expected to weaken following the implementation as the debt increase whilst current assets remain unchanged. Descriptive statistics on our sample conform with stated expectations as the average current ratio deteriorated by 10 % and 15 % on the mean and median respectively (see Table 10). The retail industry is still mostly affected

with an average 25 % decrease. However, the impact on the shipping industry is quite close to the retailers with an average 15 % decrease and only 1 %-point lower median decrease (16 % vs 15 %). This is probably due to retail companies investing their capital in high relative amount of current assets through keeping goods at their warehouses, as opposed to the shipping companies which have more of their capital invested in vessels and other non-current assets[9]. Once again, the oil sector comes out least affected with a negative 2 % change.

Financial leverage				
	IAS 17	IFRS 16	Change	Change %
Mean	1.70	2.85	1.15	67 %
Median	1.10	1.55	0.44	40 %
Std.dev	7.30	10.34	3.04	42 %

Equity-to-asset ratio				
	IAS 17	IFRS 16	Change	Change %
Mean	39.3 %	34.2 %	-0.050	-13 %
Median	46.9 %	37.7 %	-0.092	-20 %
Std.dev	23.9 %	22.8 %	-0.011	-5 %

Current ratio				
	IAS 17	IFRS 16	Change	Change %
Mean	1.68	1.51	-0.17	-10 %
Median	1.29	1.10	-0.20	-15 %
Std.dev	1.29	1.24	-0.05	-4 %

Table 10. Comparison of balance sheet ratios before and after implementation of IFRS 16

When moving on to the profitability ratios, we know that the changes in EBITDA and EBIT as analysed in chapter 5.1.2 consequently impacts their margins in the same way. All companies affected by the change show an increase in their EBITDA margin with a sample average increase by 34 % going from a 12.1 % to a 16.2 % margin as shown in Table 11. The EBIT margin, however, disclose that four of the companies in our sample reduces their margin after implementation despite not including the additional interest expense. As mentioned in chapter 2.3.2, the right-of-use asset is depreciated over the shortest of its lease term and useful life. If the useful life is considered as being shorter than the future lease payment period, the depreciation costs incurred following IFRS 16 will be split over a shorter period of time than the corresponding lease payables. Hence, the depreciation expense could

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[9] On average, the current asset-to-total asset ratio was 41 % (30 %) and 28 % (22 %) for the retail and shipping industry respectively using figures before (after) recognising lease liabilities

exceed the saved lease expense in the first year after implementation, which could be an explanation to the reduced EBIT margin. Nevertheless, the EBIT margin increases on average by 19 % with especially Norwegian benefitting in terms of improving their margin from -0.3 % to 2.0 %.

The EBITDA and EBIT margin yields big impact for some companies influencing the sample mean. Hence, the median could give a better picture of the situation by not being affected by the extreme values. The median increase is 20 % and 3 % in the EBITDA and EBIT margin respectively. The retail industry face large cost savings on their leasing expenses, yielding a median increase in their EBITDA margin by 103 % (from 7.6 % to 15.5 %). Finally, the shipping and airline companies saw improvements of 38 % and 52 % in their median EBIT margin.

EBITDA margin				
	IAS 17	**IFRS 16**	**Change**	**Change %**
Mean	12.1 %	16.2 %	0.041	34 %
Median	14.0 %	16.8 %	0.027	20 %
Std.dev	18.5 %	17.0 %	-0.015	-8 %

EBIT margin				
	IAS 17	**IFRS 16**	**Change**	**Change %**
Mean	3.3 %	3.9 %	0.006	19 %
Median	8.3 %	8.5 %	0.003	3 %
Std.dev	19.4 %	19.5 %	0.000	0 %

Table 11. Comparison of EBITDA margin and EBIT margin before and after implementation of IFRS 16

As shown in chapter 5.1.2, our data tends to support the front-loading of costs as suggested by Imhoff et al. (1991) with an overall deteriorated EBT post-transition. These effects are also reflected in the EBT margin with a mean margin decreasing from 1.4 % to 1.3 % as shown in Table 12. However, eight companies in our sample had net cost savings following the implementation and yielded increased margins accordingly.

A first possible explanation regarding the increased EBT, could be lower lease payments in 2019 than the projected future lease payments. The reduced payment would have to be of such magnitude so that the lease expense savings exceed the additional depreciation and interest expense.

A second cause to the increased EBT relates to the portfolio mixture of leases. As described in chapter 2.3.4 related to the expense profile of a finance lease compared

to an operating lease, the costs related to the finance-leased asset exceeds the straight-line cost of an operating lease at the start of the lease term before changing after exceeding the halfway-mark (a bit more) of the lease term. Hence, if most of a company's previously operating lease agreements are more than halfway through their lease term at the time of transition, the lease expense saved would exceed the additional depreciation and interest expense incurred under IFRS 16. However, this effect can only occur for companies applying the full retrospective approach or the method 2-modified retrospective approach since method 1 recognises the right-of-use asset at transition equal to the lease liability, yielding higher expenses post-transition (as shown in the illustration example in chapter 2.3.3). Five of the eight companies reporting improved EBT following adaption applied method 2, including three of the four shipping companies, and two retail companies. Hence, the portfolio mixture could explain the increase in EBT for the shipping and retail industry generally. However, there are still three companies applying method 1 (Aker BP, Lerøy, Evergreen) that cannot be explained in the same manner. Consequently, their effect is due to other factors such as the mentioned lower lease payments.

EBT margin				
	IAS 17	IFRS 16	Change	Change %
Mean	1.4 %	1.3 %	-0.001	-7 %
Median	5.8 %	5.9 %	0.001	2 %
Std.dev	19.4 %	19.7 %	0.003	2 %

Table 12. Comparison of EBT margin before and after implementation of IFRS 16

The companies' ROA and ROE have changed both their numerator and denominator. All companies yielded increased total assets following transition which contribute to a decrease in ROA due to a larger denominator. However, the effect on companies' EBT varies, so the net effect of ROA is uncertain. Overall, the ROA has decreased from 1.2 % to 1.1 % following the implementation, resulting in a negative relative change of 5 % as displayed in Table 13. In terms of absolute changes, the effect is most prominent for the retail industry reducing their margin from 6 % to 4.1 % on average. Although the absolute changes are limited, we observe that the pharmaceutical companies have increased their ROA by 96 % on average. However, this effect is entirely related to ArcticZymes who reported a net loss in their EBT (and effect post-transition), while their assets increased after implementation. Despite no change in their EBT and an increase in their assets,

their ROA has increased due to a negative ROA becoming less negative. Hence, the big change arising from the pharmaceutical industry is artificial and it is -4 % when leaving out ArcticZymes. The same effect arises in the airline industry due to SAS, as the mean change is +55 %, but would have been -12 % excluding the company.

The ROE decreased on average from 4.4 % to 3.7 %. The variation across the sample was rather high with a standard deviation of 36.4 % using the IFRS 16 converted data. The high variance is especially explained by Norwegian who reduced their margin from -28.5 % to -57.9 %. Due an equity-to-asset ratio of 3 % prior to the change, minor changes in their earnings and equity would yield significant changes to their ROE. By industry, the airline, pharmaceutical and seafood industry yielded negative changes in their ROE on average, while the change was positive for the remaining three. When looking at relative figures, we can see that the shipping industry heavily increased by 52 % which is due to already low margins pre-transition (-1.7 %), so minor absolute changes would yield significant changes in relative terms.

ROA				
	IAS 17	**IFRS 16**	**Change**	**Change %**
Mean	1.2 %	1.1 %	-0.001	-5 %
Median	4.0 %	3.7 %	-0.002	-6 %
Std.dev	12.2 %	11.1 %	-0.011	-9 %

ROE				
	IAS 17	**IFRS 16**	**Change**	**Change %**
Mean	4.4 %	3.7 %	-0.007	-16 %
Median	11.6 %	11.5 %	-0.001	-1 %
Std.dev	34.8 %	36.4 %	0.017	5 %

Table 13. Comparison of ROA and ROE before and after implementation of IFRS 16

To conclude our descriptive analysis of affected financial statement figures, we can see that the changes conform with prior research. Leverage ratios are increased, liquidity ratios are weakened, and the profitability ratios related to EBITDA and EBIT are strengthened. The effect on EBT and its related margins have been affected differently across companies and industries due to factors such as various mixture in companies' portfolio of leases, and shorter useful life than lease term of an asset. Furthermore, in terms of industry, the retail companies are mostly affected, and it seems as though our sample firms were even more affected than estimated in previous studies explained by the 99.5 % share of operating leases.

5.2   Statistical tests

After analysing descriptive statistics of our sample, we will now conduct a set of statistical tests to determine if the various financial ratios as presented in the previous sub-chapter have changed significantly as a consequence of the implemented standard. In the following, we will conduct and present the results of a one sampled t-test and paired sign-test to look for statistically significant changes on ratios. We will conclude this part by conducting a multiple linear regression model to analyse changes in financial ratios controlled for companies in various industries and different sizes. Note that in order to conduct the t-test and the regression model, we have used the comparability indices of the various financial ratios. We refer to chapter 4.5.1 for further information regarding the comparability index.

5.2.1   One sample t-test

The result of the one sample t-test is presented in Table 14. The test is divided into three levels of significance: 1 %, 5 % and 10 % as illustrated in the table by number of stars. Our null hypothesis is that the comparability index of the various ratios is zero, meaning that there is no real change in the financial ratios after the introduction of IFRS 16. We will reject our null, hence saying that there is a true difference in the ratios after introducing IFRS 16, if we observe significant results at one of the three mentioned levels.

The three ratios financial leverage (FLEV), current ratio (CR), and equity-to-asset are significant at a 1 % level, indicating that there is a true statistical difference for the various ratios after implementing the new standard. Common for these measures is that they are based on balance sheet figures only, and given the high balance sheet impact as presented in chapter 5.1.1 and prior research (Duke et al., 2009; Fülbier et al., 2008; Goodacre, 2003; Mulford & Gram, 2007; Singh, 2012), this was expected. Furthermore, all of these ratios are statistically significant at minimum a 10 % level for all industries except oil and pharmaceutical.

Both the profitability ratios EBITDA margin and EBIT margin are also statistically significant at a 1 % and 5 % level respectively. As shown in chapter 5.1.2 both EBITDA and EBIT are positively influenced by the change in general. However,

the EBIT margin is not significant in any of the industries independently which may be a result of just including five companies in each industry[10]. Nevertheless, the positive statistically significant coefficients for the whole sample imply increased profitability ratios which is in line with prior research (Fitó et al., 2013; Fülbier et al., 2008; Singh, 2012).

		Total	df	Airline	Oil	Pharma	Retail	Seafood	Shipping
FLEV	*Mean*	0.3325	29	0.3253	0.0212	0.2895	0.9730	0.1057	0.2803
	t value	4.429***		2.639*	1.918	1.196	5.975***	5.825***	4.692***
CR	*Mean*	-0.0986	29	-0.0788	-0.0180	-0.0468	-0.2456	-0.0620	-0.1402
	t value	-5.994***		-2.896**	-1.725	-1.680	-8.690***	-3.508**	-6.472***
Equity/asset	*Mean*	-0.1321	29	-0.1940	-0.0127	-0.0639	-0.3314	-0.0433	-0.1474
	t value	-5.201***		-2.697*	-1.836	-1.332	-9.335***	-6.118***	-3.697**
ROA	*Mean*	-0.0295	28	-0.0184	-0.0017	0.0079	-0.1960	-0.0509	0.1102
	t value	-1.009		-0.239	-0.121	0.153	-2.138*	-4.811***	1.116
ROE	*Mean*	0.0230	27	0.0114	0.0166	-0.0182	0.0378	-0.0057	0.1112
	t value	1.166		0.452	0.789	-2.317*	0.420	-1.336	1.479
EBITDA margin	*Mean*	0.2874	26	0.2750	0.0214	0.1001	0.8263	0.0935	0.5698
	t value	4.065***		1.948	1.826	2.417*	8.46***	4.958***	2.066
EBIT margin	*Mean*	0.1012	27	0.0438	0.0151	0.0104	0.2423	0.0086	0.3187
	t value	2.76**		1.260	0.997	1.141	1.914	1.733	2.204
EBT margin	*Mean*	0.0083	26	-0.0233	0.0056	-0.0135	0.0044	-0.0064	0.1222
	t value	0.497		-2.443*	0.333	-2.77*	0.069	-1.533	1.248

Significance levels: * 10 %, ** 5 %, *** 1 %

Table 14. One sample t-test on the comparability index of the various financial ratios against a mean difference of 0. The variables to be tested are computed as illustrated by this example using the financial leverage: FLEV = (FLEV_a – FLEV_b) / |FLEV_b|, where subscript a represents the financial ratio after implementation and b the corresponding ratio before implementation.

In terms of the various industries, both retail and seafood seem to be the two sectors mostly affected by the change in terms of statistical significance. When comparing the mean difference between the two industries, we see that the difference is substantially bigger in the retail sector. For instance, the sample mean of the CI of financial leverage yields a 97.3 % increase for retail companies compared to 10.57 % for the firms in the seafood industry. These differences were further explained in the previous chapter on descriptive analysis where the seafood industry was not dominating. Nevertheless, the variance (and consequently standard deviation) among the seafood companies is low which, given the nature of calculating the t-statistic (as described in chapter 4.5.1), has resulted in these significant results.

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[10] The companies Norwegian and Evergreen have been excluded when running the t-test on EBIT margin due to the assumption of normality. Hence, there are only four airline firms and four shipping firms for that specific test.

Furthermore, we can see significance for both shipping and airliners related to the ratios arising from the balance sheet. These industries both have significant amounts of operating leases, but the airline sector especially is more fragmented in terms of method of financing, which consequently yield the highest standard deviation across all industries. As of December 31, 2018, 54 % of Norwegian's aircraft fleet was financed through operating leases[11], while the equivalent share of Lufthansa was 6 %[12]. Hence, this contributes to the lack of statistically significant results for the airline industry on any higher level than 5 %.

Finally, the test does not imply any significant changes for the oil companies. Two of the oil companies had no leases at all, influencing this result. Additionally, the sector has high-value balance sheets so capitalising leases does not necessarily result in a major impact on its financial ratios.

5.2.2 Paired sign-test

The result of the non-parametric paired sign-test is presented in Table 15 with the same levels of significance applied as in the t-test. The null hypothesis states that there is no true difference in median of the various ratios between the two groups before and after implementing IFRS 16. If we observe significant results at one of the three mentioned levels, we can reject our null, hence saying that there is a true difference in the ratios after the change of accounting standard.

The test yields significant results on a at least a 5 % level for all financial ratios but ROE. Most ratios are even significant at the 1 % level. Due to the characteristics of this test, these results are not surprising as the test only takes into account the sign of the difference, whilst its magnitude is ignored. Since initial lease recognition only will increase both assets and liabilities, the median difference for financial leverage will increase for all companies. The same goes for the current ratio and equity-to-asset ratio. Furthermore, the test suggest that both the EBITDA margin and the EBIT margin will increase following the implementation, while the EBT margin and ROA will slightly decrease.

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[11] The number of operating leased aircrafts was 88, and the total number of aircrafts was 164 (Norwegian Air Shuttle, 2020, p. 52). Hence 88/164 = 54 %.
[12] The number of operating leased aircrafts was 48, and the total number of aircrafts was 763 (Lufthansa, 2019, p. 20). Hence 48/763 = 6 %.

When looking at the impact of the various industries, there are no statistically significant results at a 1 % level. Due to the various industries only containing five companies each, the p value of this test cannot be any lower than 0.03125 since the p value is calculated using the cumulative binomial distribution table with five observations and a probability of 50 % (since this will be the probability of a positive difference if the null hypothesis is true). Hence, the test is unable to detect significant results with higher confidence. Nevertheless, we observe a total of 27 p-values equal to 0.03125 which indicates that there is a significant change in many of the accounting ratios. Several industries yield multiple statistically significant results, but the oil sector have no ratios significant at any level which is due to the two companies with no changes. The three balance sheet ratios and EBITDA margin are significant on a 5 % level for all industries except oil. Furthermore, the remaining ratios were only significant for a maximum of two industries each.

		Total	Airline	Oil	Pharma	Retail	Seafood	Shipping
FLEV	n	28	5	3	5	5	5	5
	Median diff	0.1660	1.1142	0.0809	0.0400	1.1118	0.0822	0.2406
	p value	0.000***	0.0313**	0.1250	0.0313**	0.0313**	0.0313**	0.0313**
CR	n	28	5	3	5	5	5	5
	Median diff	-0.1216	-0.0500	-0.0895	-0.0146	-0.3215	-0.1306	-0.1343
	p value	0.000***	0.0313**	0.1250	0.0313**	0.0313**	0.0313**	0.0313**
Equity/asset	n	28	5	3	5	5	5	5
	Median diff	-0.0258	-0.0123	-0.0061	-0.0058	-0.1425	-0.0231	-0.0479
	p value	0.000***	0.0313**	0.1250	0.0313**	0.0313**	0.0313**	0.0313**
ROA	n	29	5	4	5	5	5	5
	Median diff	-0.0021	-0.0021	-0.0001	-0.0008	-0.0334	-0.0044	0.0048
	p value	0.0121**	0.1875	0.6875	0.1875	0.1875	0.0313**	0.5000
ROE	n	28	5	3	5	5	5	5
	Median diff	-0.0006	-0.0034	0.0055	-0.0014	-0.0064	-0.0004	0.0071
	p value	0.1725	0.1875	0.5000	0.0313**	0.5000	0.1875	0.0313**
EBITDA margin	n	28	5	3	5	5	5	5
	Median diff	0.0265	0.0437	0.0122	0.0091	0.0721	0.0128	0.0478
	p value	0.000***	0.0313**	0.1250	0.0313**	0.0313**	0.0313**	0.0313**
EBIT margin	n	28	5	3	5	5	5	5
	Median diff	0.0022	0.0108	0.0006	0.0003	0.0056	0.0007	0.0132
	p value	0.0005***	0.1875	0.5000	0.1875	0.0313**	0.1875	0.0313**
EBT margin	n	28	5	3	5	5	5	5
	Median diff	-0.0007	-0.0022	-0.0009	-0.0009	-0.0022	-0.0007	0.0014
	p value	0.0178**	0.0313**	0.5000	0.0313**	0.5000	0.1875	0.1875

Significance levels: * 10 %, ** 5 %, *** 1 %

Table 15. Paired sign-test on the median of various financial ratios before and after implementing IFRS 16.

The results of the paired sign-test are in line with previous research related to weakened solvency and liquidity ratios (Duke et al., 2009; Fülbier et al., 2008; Goodacre, 2003; Mulford & Gram, 2007; Singh, 2012) and increased margins of EBITDA and EBIT (Fitó et al., 2013; Fülbier et al., 2008; Singh, 2012), although the EBIT margin was only significant for the retail and shipping industry.

Furthermore, the test suggests a slight decrease in the EBT margin on the sample as a whole.

5.2.3 Multiple linear regression

The t-test and sign-test determines if there is statistically significant change in the financial ratios both for the sample as a whole, and for each industry separately. However, the tests do not tell us the various sectors' impact on the ratio change which we can do by conducting a multiple linear regression. Additionally, we want to control for the size of the company and their choice of adaptation method. Hence, our formal model has the following formula with industry and adoption method as dummy variables with the oil sector and method 1 as their respective reference categories:

$$CI = \beta_0 + \beta_1 \times Airline + \beta_2 \times Pharma + \beta_3 \times Retail + \beta_4 \times Seafood + \beta_5 \times Shipping + \beta_6 \times \ln(ASSETS) + \beta_7 \times Method\ 2 + \in_i$$

The regression output is presented in Table 16 with both coefficients, significance levels, and goodness of fit (adjusted R^2). We can see that the three regression models concerning the balance sheet ratios have a high goodness of fit. The model for changes in current ratio says that 67.91 % of the variance in the current ratio is explained by the various independent variables in the model, while the remaining 32.09 % is due to other factors. Among the profitability ratio-models, the explanation power is significantly lower except for the EBITDA margin. Satisfying levels of R-squared depend on the nature of the research, however, R-squared figures exceeding 50 % could be considered as a good model (Fernando, 2021).

To illustrate how the comparability index is calculated in one of the models, this would be the result of the comparability index of financial leverage for a retail company with total assets of 200 million NOK applying adoption method 2:

$$CI(FLEV) = 0.3988 + 0.9054 \times 1 - 0.0433 \ln(200) + 0.1870 \times 1$$

$$= 1.26 = 126\%$$

		Intercept	Airline	Pharma	Retail	Seafood	Shipping	Size	Model 2	df	Adj. R2
FLEV	Coefficient	0.3988	0.3307	0.2430	0.9054	0.1446	0.2423	-0.0433	0.1870	22	0.5521
	t value	1.626	1.773*	1.383	5.149***	0.820	1.256	-1.945*	1.540		
CR	Coefficient	-0.0800	-0.0791	-0.0323	-0.2280	-0.0455	-0.1413	0.0063	0.0088	22	0.6791
	t value	-1.759*	-2.286**	-0.991	-6.992***	-1.393	-3.950***	1.523	0.389		
Equity/asset	Coefficient	-0.0989	-0.2057	-0.0556	-0.3187	-0.0334	-0.1597	0.0088	0.0092	22	0.5408
	t value	-1.177	-3.217***	-0.923	-5.289***	-0.553	-2.416**	1.155	0.220		
ROA	Coefficient	0.0884	0.0183	0.0194	-0.1887	-0.0521	0.1615	-0.0086	-0.0371	21	0.1462
	t value	0.681	0.185	0.208	-2.026*	-0.558	1.413	-0.733	-0.531		
ROE	Coefficient	-0.0877	-0.0748	-0.0545	0.0059	-0.0099	0.0050	0.0091	0.0857	20	0.0686
	t value	-0.977	-0.997	-0.846	0.091	-0.154	0.062	1.118	1.687		
EBITDA margin	Coefficient	0.1057	0.3656	0.1164	0.8583	0.0386	0.6602	-0.0050	-0.1810	19	0.5500
	t value	0.480	2.006*	0.738	5.075***	0.244	3.628***	-0.251	-1.549		
EBIT margin	Coefficient	-0.0834	-0.0563	-0.0308	0.2049	0.0134	0.1898	0.0078	0.1197	20	0.3056
	t value	-0.578	-0.467	-0.298	1.978*	0.129	1.474	0.594	1.466		
EBT margin	Coefficient	-0.0677	-0.0799	-0.0337	-0.0127	-0.0025	0.0533	0.0063	0.0642	19	0.1260
	t value	-0.929	-1.319	-0.649	-0.245	-0.048	0.781	0.954	1.568		

Significance levels: * 10 %, ** 5 %, *** 1 %

Table 16. Multiple linear regression using the OLS method with the comparability index of each financial ratio as the dependent variable, and industry and size as independent variables. The industries are converted to dummy variables with the oil sector as the base category. The natural logarithm of assets is used to measure the size of the company.

The largest coefficient arises from the financial leverage regression, saying that a company belonging to the retail sector on average has a higher change in its leverage (note: its comparability index) than the oil industry by 0.9054 when all other variables remain unchanged (size and adoption method). Furthermore, on a 10 % level, airline companies are also relatively more affected compared to the oil industry, and the model states that there is a negative relation between size and change in financial leverage. Since we have log-transformed the companies' assets to measure size, the coefficient is interpreted by saying that a 1 % increase in a company's asset would result in a -0.0433/100 change to the comparability index of financial leverage. We refer to chapter 4.5.3 for in-depth description of this interpretation.

In the regression for the comparability index of current ratio and equity-to-asset ratio, we observe that companies operating within the airline, retail, or shipping industry would yield a higher negative change in the comparability index compared to an oil company. The other variables are not statistically significant and cannot be interpreted with statistical certainty.

The regression concerning the comparability index of ROA has only one statistical coefficient on a 10 % level arising from the retail industry, indicating that the change in ROA for a retail company would be lower compared to oil. Similarly, the retail coefficient is the only significant value in the EBIT margin regression.

Contrary to the comparability index of ROA, the retail coefficient yields a higher number for retail companies compared to oil on the EBIT margin comparability index.

The EBITDA margin regression yielded significantly higher explanation power of the model compared to the other profitability ratios. The retail and shipping coefficients are significant on a 1 % level, while airline is significant using the 10 % mark. The three coefficients are all positive, indicating that their EBITDA margin would yield a higher change at transition than the impact of an oil company. Finally, neither the EBT margin nor ROE regression models had a single interpretable statistically significant variable.

From the results of the various regression models, we clearly see that a company operating in the retail industry face different changes in their comparability indices as compared to the oil industry with significant coefficients in six of eight regression models. The prominent impact of retail companies is both in line with our previous presented results as well as prior research (Bryan et al., 2010; Fitó et al., 2013; Singh, 2012). Furthermore, many significant results on various industries were obtained for the three balance sheet ratios, indicating that the various comparability indices vary depending on industry. Nevertheless, this was not the case for neither the pharmaceutical nor the seafood industry as no regression yielded significant coefficients for those categories. In terms of the profitability ratios, fewer significant coefficients were observed, and only the EBITDA margin yielded statistically significant results on minimum a 5 % basis. Hence, the various models could not explain the variance in the comparability indices from the independent variables used. Finally, the control variables size and adaptation method are considered to have no significant effect on the changes in financial ratios although the size was significant when using a 10 % significance level on financial leverage. Minor or no effect on size conforms with prior regression models conducted on transition effects (Fitó et al., 2013).

6 Conclusion

Throughout this paper we have analysed the implementation effects of the introduction of a new accounting standard for leases, IFRS 16. Our ex post research sought to answer the following research question:

What was the IFRS 16 transition effect on companies' financial statements, and were there any significant variation across industries?

We have based our analysis on information disclosed in 30 companies' annual reports regarding transition effects to IFRS 16. Effects on the transition date was disclosed for all companies, however, various amount of information was given for differences arising throughout the fiscal year on a company's income statement as well as their ending balances. With no prior ex post research to lean upon, we estimated these effects using each companies' current level of mix between operating and financial leases at transition as explained in chapter 4.4.2.

Our analysis unveiled significant effects on the balance sheet items. Total assets increased by 7 % at transition which mainly arose from the increase in right-of-use assets (finance leased assets under IAS 17) from 131 to 488 billion NOK (272 %). The corresponding lease liability increased by 298 % going from 126 to 501 billion NOK at transition.

The nature of costs shifted from lease expense to depreciation and interest expense after implementation. This gave an increased EBITDA of 16 % resulting in an increase in the corresponding EBITDA margin from 12.1 % to 16.2 % across the whole sample. Furthermore, EBIT rose by 5 % yielding an increased EBIT margin from 3.3 % to 3.9 %. These changes were due to cost savings of 83 billion NOK (67 %) from lease expenses, partly compensated by the increase in (lease) depreciation expense from 13 to 81 billion NOK (549 %). Furthermore, additional interest expense of 15 billion (310 %) incurred, which resulted in a 0.2 billion NOK decrease in the before-tax earnings (EBT). Consequently, the EBT margin decreased from 1.4 % to 1.3 % following the implementation of a single lease accounting model.

The changes in companies' balance sheet and income statement figures subsequently impacted financial ratios. Both solvency ratios in our analysis were weakened following the transition. The average leverage of companies increased by 67 % rising from an average level of 1.70 under IAS 17 to 2.85 using IFRS 16, while the average equity-to-asset ratio decreased from 39.3 % to 34.2 %. Furthermore, the liquidity measure was negatively impacted with the current ratio decreasing by 10 %, going from 1.68 to 1.51. Both return on asset and equity (ROA and ROE) deteriorated following transition as opposed to the profitability measures

EBITDA margin and EBIT margin. ROA decreased on average from its previous level of 1.2 % to 1.1 % after implementation, while ROE decreased by 16 % going from 4.4 % to 3.7 %.

The impact across the six different industries in our sample varies to a great extent. The retail industry is heavily impacted by the change as their leased premises were mostly classified as operating according to IAS 17. Hence, the transition yielded a 58 %, 110 % and 52 % increase in their total assets, EBITDA and EBIT respectively. Furthermore, the transition heavily impacted their measures of solvency and liquidity. The airline and shipping industry were also significantly impacted by the change. Especially the changes for Norwegian Air Shuttle was prominent as 54 % of their aircrafts were classified as operating leases prior to transition, yielding increased assets by 59 %, and better EBITDA and EBIT by 343 % and 786 %. On the other side, our study suggests minor effects on oil and pharmaceutical industry.

Using the statistical tests t-test and paired sign-test, we wanted to determine if the changes in the various financial ratios was statistically significant. The t-test identified differences at minimum 5 % significance level across the whole sample for all solvency and liquidity ratios as well as for the profitability measures EBITDA margin and EBIT margin[13]. In terms of industry, the retail and seafood sector yielded most significant differences, while the evidence from the oil industry yielded no significant differences. The paired sign-test provided similar results, but with statistically significant results for more industries such as the airline, shipping, and pharmaceutical.

Finally, we analysed the importance of various industries as well as size and choice of adoption method on the financial ratios. First of all, neither the size nor adaptation method did seem to have any significant impact according to the various regressions, similar to the findings of Fitó et al. (2013). Furthermore, the regression highlighted that belonging to the retail industry had a significant effect on the comparability indices on financial ratios. The model indicated that the relative change in all ratios except ROE and EBT margin for a retail company were different from the oil industry.

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[13] Solvency and liquidity ratios, and EBITDA margin were even significant at a 1 % level of significance.

As described, the transition effect following the adoption of IFRS 16 has been significant, especially affecting the balance sheet of many companies. The compelling change has levered several companies and enhance comparability between companies applying different financing methods. In our study, we found major internal variations within the airline industry which would give rise for comparison difficulties. The introduction of IFRS 16, and its major effect on companies with a high share of operating leases such as Norwegian makes it easier for financial statement users to compare the companies. However, sophisticated users of financial statements such as credit rating agencies and banks accounted for off-balance sheet leases even before transition (Altamuro et al., 2014). Hence, the increased comparability only yields a minor change for professional users, whilst providing less sophisticated users of financial statements (private persons) a better foundation for investing purposes.

Through this study, we have contributed to the existing literature on IFRS 16 by providing ex post evidence of the implementation effects of the new standard. Similar to ex ante research, the findings of our study show significant increases in companies' assets and liabilities, as well as increased leverage and reduced liquidity measures in terms of the current ratio (Bennett & Bradbury, 2003; Duke et al., 2009; Durocher, 2008; Fülbier et al., 2008; Goodacre, 2003; Mulford & Gram, 2007; Singh, 2012). In terms of profitability measures, significant differences were identified related to both EBIT and EBITDA. Findings related to the effects on EBT, and related profit margins ROE and ROA yielded divergent results. As discussed, the effect on a company's earnings before taxes post-transition may depend on the mixture of various starting and end dates for the different leasing contracts in possession at transition date, payment plan compared to remaining useful life, and choice of adaptation method. Conclusively, these mixed effects conforms with the effects analysis conducted by IASB (2016a).

7 Limitations and future research

The findings of our study have to be seen in light of some limitations. First, the level of disclosure regarding implementation effects of IFRS 16 varied to a great extent between the different companies in our sample. Hence, we had to estimate both the ending balances as of 31 December 2019 as it would have been if IAS 17

still was applicable, and income statement effects in 2019, both of which were described in chapter 4.4.2. Consequently, the findings related to income statement figures and its financial ratios are based on a set of prerequisites and are subject to deviations from reality. Nevertheless, given no prior ex post research on the topic to handle this issue, we find our set of prerequisites to be reasonable without yielding major deviation from reality. However, we assumed all additional leases during 2019 to be classified as operating leases according to IAS 17, simplifying the calculations of the ending balances of financial-leased assets and lease liability after IAS 17. If possible, future ex post research could further analyse the lease contracts entered during 2019 to ensure higher accuracy of calculated amounts either by receiving access from various companies to their entered lease contracts, or by creating a model where the yearly additions are split between operating and financing leases in a relevant way.

A second limitation of our study is the time constraint for our thesis. The data collection process was highly manual as the disclosure of the implementation effects was not readily available in a database, but rather described in the various firms' annual reports. Furthermore, the companies presented the effects very differently demanding us to filter relevant from irrelevant information when collecting. This process was time consuming and error-prone, so the number of companies in our sample was rather limited with only 30 firms equally split across 6 industries. Hence, the results of our statistical analysis must be interpreted cautiously, especially on industry level, given the limited size of the sample as the results are more easily distorted by extreme observations. One of the most deviating company throughout this paper was Norwegian Air Shuttle as they differed significantly from its peers due to their high share of aircraft leasing. The company previously followed a growth strategy and leasing instead of buying aircraft facilitated this growth due to less capital requirements. Hence, it could be interesting for future research to analyse the effects not necessarily by industry, but rather by companies with various strategies. Furthermore, the studies could beneficially increase the sample size to be able to draw statistically significant conclusions from their findings.

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Appendix A: Companies in our sample

Company	Industry	Total assets 31.12.18 (in MNOK)	Total assets 1.1.19 (in MNOK)	Market value 31.12.18 (in MNOK)	Stock exchange
Norwegian Air Shuttle	Airline	55 985	88 783	7 881	Oslo Stock Exchange
Lufthansa	Airline	380 154	399 564	93 133	Frankfurt Stock Exchange
SAS	Airline	32 995	49 176	5 597	Stockholm Stock Exchange
IAG	Airline	278 891	324 454	135 715	London Stock Exchange
Ryanair	Airline	131 822	133 122	131 527	London Stock Exchange
Mowi	Seafood	51 185	54 899	93 921	Oslo Stock Exchange
Lerøy Seafood Group	Seafood	28 373	29 783	39 266	Oslo Stock Exchange
Austevoll Seafood	Seafood	37 955	39 496	21 650	Oslo Stock Exchange
SalMar	Seafood	15 136	15 520	48 252	Oslo Stock Exchange
Grieg Seafood	Seafood	8 142	8 462	11 297	Oslo Stock Exchange
Equinor	Oil	977 534	1 013 062	608 768	Oslo Stock Exchange
DNO	Oil	17 414	17 526	13 102	Oslo Stock Exchange
Norwegian Energy Company (Noreco)	Oil	1 086	1 086	1 655	Oslo Stock Exchange
Interoil Exploration and Production	Oil	340	340	177	Oslo Stock Exchange
Aker BP	Oil	93 048	95 141	78 144	Oslo Stock Exchange
A.P. Moller - Maersk	Shipping	491 960	546 020	226 187	Copenhagen Stock Exchange
Evergreen Marine Corp. Ltd.	Shipping	64 980	82 164	15 238	Taiwan Stock Exchange
Hapag-Lloyd	Shipping	152 222	160 760	39 175	Frankfurt Stock Exchange
Orient Overseas International	Shipping	87 353	96 301	36 793	Hong Kong Stock Exchange
Yang Ming Marine Transport Corporation	Shipping	39 716	54 389	5 800	Taiwan Stock Exchange
ArcticZymes Technologies	Pharma	62	81	294	Oslo Stock Exchange
Carasent	Pharma	119	123	88	Oslo Stock Exchange
Merck KGaA	Pharma	366 973	371 599	389 190	Frankfurt Stock Exchange
Novartis	Pharma	1 264 724	1 277 991	1 713 970	SIX Swiss Exchange
AstraZeneca	Pharma	526 966	533 222	824 079	London Stock Exchange
Kid	Retail	2 093	2 752	1 463	Oslo Stock Exchange
Europris	Retail	4 757	6 746	3 837	Oslo Stock Exchange
XXL	Retail	7 663	10 858	3 630	Oslo Stock Exchange
Clas Ohlson	Retail	3 858	5 884	4 833	Stockholm Stock Exchange
Hennes & Mauritz	Retail	116 882	187 099	296 776	Stockholm Stock Exchange

Appendix B: Estimation of non-reported figures

Illustrations below are based on calculations made on the shipping company Maersk.

(1) Estimating the split of current and non-current portion of lease liabilities arising from capitalising operating leases

(2) Estimating the lease liability as of 31.12.19 according to IAS 17

(3) Estimating interest expense in 2019 according to IAS 17

(4) Estimating depreciation expense in 2019 according to IAS 17

(5) Estimating balance of finance-leased assets as of 31.12.19 according to IAS 17

(6) Estimating lease expense in 2019 according to IAS 17

(7) Estimating balance of equity as of 31.12.19 according to IAS 17

	(1) Lease liability 1.1.19		
Calculation:	**Operating lease commitments disclosed in Annual Report 2018, note 18:**		
A	Within 1 year	2 045 USD	
B	Total	12 035 USD	
C = A / B	Share of operating leases due within 1 year	17 %	
		USD million	
D	Capitalised lease liability from operating leases 1.1.19 (IFRS 16)	6 245	NOK million
E = C * D	of which to ble classified as current (17 %)	1 061	9 220
F = (1-C) * D	of which to ble classified as non-current (83 %)	5 184	45 040
G	Total lease liability at 31.12.18 (IAS 17) to be reclassified at implementation 1.1.19	2 266	19 688
H	of which current	408	3 545
I	of which non-current	1 858	16 143
J = D+G	Total lease liability at 1.1.19 (IFRS 16)	8 511	73 948
K = E+H	of which current	1 469	12 765
L = F+I	of which non-current	7 042	61 183
	(2) Lease liability 31.12.19 (IAS 17)		
Calculation:		USD million	
A	Recognised lease liability from finance leases 1.1.19, current	408	
B	Recognised lease liability from finance leases 1.1.19, non-current	1 858	
C = A	Lease instalment during 2019	408	NOK million
D = A	Lease liability from finance leases 31.12.19, current	408	3 582
E = B-C	Lease liability from finance leases 31.12.19, non-current	1 450	12 731
	(3) Interest expense 2019 (IAS 17)		
Calculation:			
A	Incremental borrowing rate used for capitalisation of leases	6.6 %	
		USD million	
B	Total lease liability from finance leases 31.12.18 (current and non-current)	2 266	NOK million
C = A * B	Interest expense 2019 (IAS 17)	150	1 317

(4) Depreciation expense 2019 (IAS 17)			
Calculation:		USD million	
A	Total lease liability as of 31.12.18	2 266	
B	of which current	408	
C = A / B	Estimated remaining lease term	5.6	
D	Carrying value of finance-leased assets as of 31.12.18, reclassified to right-of-use assets as of 1.1.19	2 552	NOK million
E = D / C	Estimated depreciation expense 2019 (IAS 17)	459	4 045

(5) Finance-leased asset 31.12.19 (IAS 17)			
Calculation:		USD million	
A	Carrying value of finance-leased assets as of 31.12.18, reclassified to right-of-use assets as of	2 552	
B	Estimated depreciation expense 2019 (IAS 17)	459.5	NOK million
C = A - B	Estimated carrying value of finance-leased assets as of 31.12.19 (IAS 17)	2 093	18 373

(6) Lease expense 2019 (IAS 17)			
Calculation:		USD million	
A	Lease liability 1.1.19, operating leases capitalised	6 245	
B	Lease liability 1.1.19, finance leases	2 266	
C = A+B	Lease liability 1.1.19, total	8 511	
D = A / C	Share of lease liability arising from operating leases	73 %	
E	Cash flow 2019 (lease instalments and interest)	1 788	
F = D * E	Allocation of cash flow to operating lease expense (73 %)	1 312	
G	Expenses related to short-term leases, variable lease payments and low-value assets	1 502	NOK million
H = F+G	Estimated lease expense 2019 (IAS 17)	2 814	24 773

(7) Equity 2019 (IAS 17)				
Calculation:		Reported under IFRS 16	Estimated under IAS 17	Adjustment
	Right-of-use assets / finance-leased assets, 31.12.19	8 460	2 093	-6 367
A	*Adjustment to total assets*			*-6 367*
	Current lease liability, 31.12.19	1 282	408	-874
	Non-current lease liability, 31.12.19	7 295	1 450	-5 845
B	*Adjustment to total liabilities*			*-6 719*
C = A - B	Adjustment to equity			352
			USD million	NOK million
D	Reported equity under IFRS 16		28 837	253 198
E = D + C	Estimated equity under IAS 17		29 189	256 284

Appendix C: Control of assumptions for equity-to-asset regression
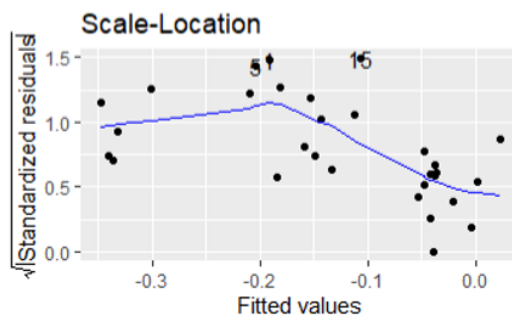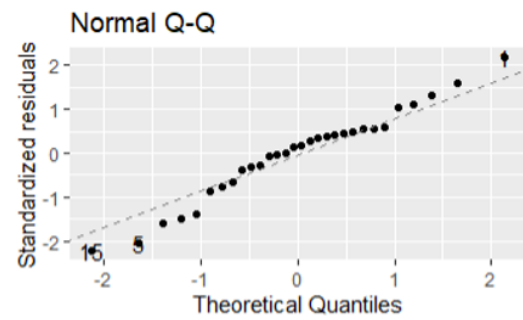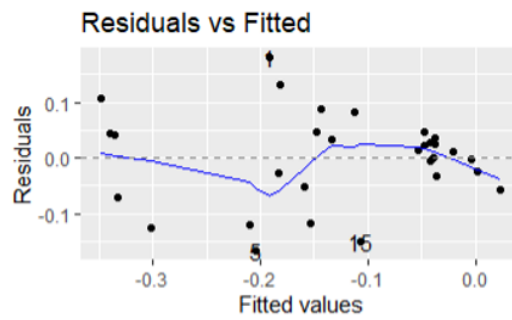
Independent variables	VIF
Industry	1.59
ln (assets)	1.22
Model	1.40
Mean VIF	**1.40**

Appendix D: Companies excluded in t-test and multiple linear regression

Financial ratio	Company excluded	Industry
ROA	Evergreen	Shipping
ROE	Evergreen	Shipping
	Norwegian	Airline
EBITDA margin	Norwegian	Airline
	Yang Ming	Shipping
	XXL	Retail
EBIT margin	Evergreen	Shipping
	Norwegian	Airline
EBT margin	Evergreen	Shipping
	Maersk	Shipping
	Norwegian	Airline

Appendix E: Descriptive statistics by industry

	Total assets	IAS 17	IFRS 16	Change	Change %
	in million NOK				
Total	**Sum**	**5 240 390**	**5 606 401**	**366 011**	**7 %**
	Mean	174 680	186 880	12 200	7 %
	Median	45 450	54 644	9 193	20 %
	Std.dev	299 568	306 285	6 717	2 %
Airline	Sum	879 847	995 098	115 251	13 %
	Mean	175 969	199 020	23 050	13 %
	Median	131 822	133 122	1 300	1 %
	Std.dev	149 224	154 029	4 805	3 %
Oil	Sum	1 089 423	1 127 155	37 732	3 %
	Mean	217 885	225 431	7 546	3 %
	Median	17 414	17 526	112	1 %
	Std.dev	426 371	442 029	15 658	4 %
Pharma	Sum	2 158 844	2 183 016	24 172	1 %
	Mean	431 769	436 603	4 834	1 %
	Median	366 973	371 599	4 626	1 %
	Std.dev	519 559	525 015	5 455	1 %
Retail	Sum	135 254	213 339	78 086	58 %
	Mean	27 051	42 668	15 617	58 %
	Median	4 757	6 746	1 989	42 %
	Std.dev	50 258	80 791	30 534	61 %
Seafood	Sum	140 791	148 159	7 368	5 %
	Mean	28 158	29 632	1 474	5 %
	Median	28 373	29 783	1 410	5 %
	Std.dev	17 295	18 595	1 300	8 %
Shipping	Sum	836 231	939 634	103 403	12 %
	Mean	167 246	187 927	20 681	12 %
	Median	87 353	96 301	8 948	10 %
	Std.dev	186 259	203 950	17 691	9 %

	Right-of-use assets	IAS 17	IFRS 16	Change	Change %
	in million NOK				
Total	**Sum**	**131 005**	**487 843**	**356 838**	**272 %**
	Mean	4 367	16 261	11 895	272 %
	Median	339	3 491	3 152	929 %
	Std.dev	11 553	25 365	13 812	120 %
Airline	Sum	70 935	185 278	114 343	161 %
	Mean	14 187	37 056	22 869	161 %
	Median	4 920	26 084	21 164	430 %
	Std.dev	24 279	37 914	13 636	56 %
Oil	Sum	3 302	40 190	36 889	1117 %
	Mean	660	8 038	7 378	1117 %
	Median	0	112	112	NA
	Std.dev	1 477	16 765	15 289	1035 %
Pharma	Sum	967	24 533	23 566	2437 %
	Mean	193	4 907	4 713	2437 %
	Median	0	4 735	4 735	NA
	Std.dev	384	5 561	5 177	1347 %
Retail	Sum	374	78 499	78 125	20893 %
	Mean	75	15 700	15 625	20893 %
	Median	5	2 056	2 052	44386 %
	Std.dev	161	30 692	30 531	18959 %
Seafood	Sum	3 289	10 657	7 368	224 %
	Mean	658	2 131	1 474	224 %
	Median	412	2 433	2 021	490 %
	Std.dev	616	1 369	753	122 %
Shipping	Sum	52 138	148 685	96 547	185 %
	Mean	10 428	29 737	19 309	185 %
	Median	3 842	21 078	17 236	449 %
	Std.dev	11 394	26 608	15 214	134 %

	Lease liability				
	in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Total	**Sum**	**126 035**	**501 070**	**375 035**	**298 %**
	Mean	4 201	16 702	12 501	298 %
	Median	276	3 748	3 471	1256 %
	Std.dev	11 595	26 757	15 162	131 %
Airline	Sum	71 868	193 232	121 364	169 %
	Mean	14 374	38 646	24 273	169 %
	Median	5 117	24 520	19 403	379 %
	Std.dev	25 051	41 750	16 700	67 %
Oil	Sum	3 753	43 986	40 232	1072 %
	Mean	751	8 797	8 046	1072 %
	Median	0	110	110	NA
	Std.dev	1 679	17 778	16 099	959 %
Pharma	Sum	839	26 055	25 215	3005 %
	Mean	168	5 211	5 043	3005 %
	Median	0	4 666	4 666	NA
	Std.dev	364	6 265	5 901	1620 %
Retail	Sum	376	83 179	82 803	22012 %
	Mean	75	16 636	16 561	22012 %
	Median	1	2 191	2 190	173275 %
	Std.dev	164	32 716	32 552	19844 %
Seafood	Sum	2 859	10 227	7 368	258 %
	Mean	572	2 045	1 474	258 %
	Median	397	2 351	1 954	492 %
	Std.dev	498	1 352	854	172 %
Shipping	Sum	46 340	144 392	98 052	212 %
	Mean	9 268	28 878	19 610	212 %
	Median	3 303	20 487	17 184	520 %
	Std.dev	10 450	26 021	15 571	149 %

	Lease cost				
	in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Total	**Sum**	**123 002**	**40 057**	**-82 945**	**-67 %**
	Mean	4 100	1 335	-2 765	-67 %
	Median	1 315	78	-1 237	-94 %
	Std.dev	6 098	2 781	-3 316	-54 %
Airline	Sum	29 822	4 935	-24 887	-83 %
	Mean	5 964	987	-4 977	-83 %
	Median	5 616	173	-5 443	-97 %
	Std.dev	3 970	1 872	-2 099	-53 %
Oil	Sum	11 564	3 836	-7 728	-67 %
	Mean	2 313	767	-1 546	-67 %
	Median	34	0	-34	-100 %
	Std.dev	4 631	1 712	-2 919	-63 %
Pharma	Sum	6 506	370	-6 136	-94 %
	Mean	1 301	74	-1 227	-94 %
	Median	1 665	18	-1 647	-99 %
	Std.dev	1 288	97	-1 191	-92 %
Retail	Sum	22 661	6 798	-15 863	-70 %
	Mean	4 532	1 360	-3 173	-70 %
	Median	567	78	-488	-86 %
	Std.dev	8 965	2 841	-6 124	-68 %
Seafood	Sum	2 766	742	-2 025	-73 %
	Mean	553	148	-405	-73 %
	Median	256	53	-203	-79 %
	Std.dev	706	261	-446	-63 %
Shipping	Sum	49 683	23 377	-26 306	-53 %
	Mean	9 937	4 675	-5 261	-53 %
	Median	7 040	2 928	-4 111	-58 %
	Std.dev	8 554	4 822	-3 732	-44 %

	EBITDA				
	in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Total	**Sum**	**517 349**	**600 514**	**83 165**	**16 %**
	Mean	17 245	20 017	2 772	16 %
	Median	3 466	5 650	2 185	63 %
	Std.dev	33 626	35 192	1 566	5 %
Airline	Sum	89 282	114 390	25 108	28 %
	Mean	17 856	22 878	5 022	28 %
	Median	18 031	18 485	453	3 %
	Std.dev	20 064	21 700	1 637	8 %
Oil	Sum	180 207	187 935	7 728	4 %
	Mean	36 041	37 587	1 546	4 %
	Median	3 352	3 381	28	1 %
	Std.dev	70 213	73 141	2 927	4 %
Pharma	Sum	149 527	155 663	6 136	4 %
	Mean	29 905	31 133	1 227	4 %
	Median	26 435	27 883	1 448	5 %
	Std.dev	37 474	38 636	1 162	3 %
Retail	Sum	14 476	30 339	15 863	110 %
	Mean	2 895	6 068	3 173	110 %
	Median	623	1 094	471	76 %
	Std.dev	5 605	11 725	6 120	109 %
Seafood	Sum	19 264	21 288	2 025	11 %
	Mean	3 853	4 258	405	11 %
	Median	3 579	3 736	157	4 %
	Std.dev	2 383	2 810	427	18 %
Shipping	Sum	64 593	90 899	26 306	41 %
	Mean	12 919	18 180	5 261	41 %
	Median	5 738	7 105	1 367	24 %
	Std.dev	16 628	20 301	3 673	22 %

	Depreciation				
	in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Total	**Sum**	**12 523**	**81 278**	**68 755**	**549 %**
	Mean	417	2 709	2 292	549 %
	Median	41	1 233	1 192	2937 %
	Std.dev	975	3 706	2 731	280 %
Airline	Sum	6 071	26 547	20 476	337 %
	Mean	1 214	5 309	4 095	337 %
	Median	650	4 683	4 033	620 %
	Std.dev	1 426	3 708	2 281	160 %
Oil	Sum	211	6 797	6 585	3117 %
	Mean	42	1 359	1 317	3117 %
	Median	0	31	31	NA
	Std.dev	94	2 942	2 847	3013 %
Pharma	Sum	146	5 930	5 783	3948 %
	Mean	29	1 186	1 157	3948 %
	Median	0	1 419	1 419	NA
	Std.dev	55	1 174	1 119	2028 %
Retail	Sum	69	14 537	14 468	20853 %
	Mean	14	2 907	2 894	20853 %
	Median	1	439	438	47376 %
	Std.dev	30	5 628	5 598	18846 %
Seafood	Sum	554	2 499	1 945	351 %
	Mean	111	500	389	351 %
	Median	43	427	384	893 %
	Std.dev	116	432	316	272 %
Shipping	Sum	5 471	24 968	19 497	356 %
	Mean	1 094	4 994	3 899	356 %
	Median	338	3 396	3 058	905 %
	Std.dev	1 667	4 199	2 532	152 %

	EBIT				
	in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Total	**Sum**	**296 481**	**310 891**	**14 410**	**5 %**
	Mean	9 883	10 363	480	5 %
	Median	2 005	2 509	503	25 %
	Std.dev	20 782	20 874	92	0 %
Airline	Sum	40 832	45 464	4 632	11 %
	Mean	8 166	9 093	926	11 %
	Median	11 240	11 108	-132	-1 %
	Std.dev	12 723	13 504	781	6 %
Oil	Sum	91 202	92 344	1 142	1 %
	Mean	18 240	18 469	228	1 %
	Median	668	666	-3	0 %
	Std.dev	35 732	35 836	104	0 %
Pharma	Sum	126 258	126 611	353	0 %
	Mean	25 252	25 322	71	0 %
	Median	20 838	20 888	49	0 %
	Std.dev	32 633	32 754	121	0 %
Retail	Sum	2 680	4 075	1 395	52 %
	Mean	536	815	279	52 %
	Median	422	511	89	21 %
	Std.dev	698	1 196	498	71 %
Seafood	Sum	14 918	14 998	80	1 %
	Mean	2 984	3 000	16	1 %
	Median	2 574	2 617	43	2 %
	Std.dev	1 925	1 906	-19	-1 %
Shipping	Sum	20 591	27 399	6 809	33 %
	Mean	4 118	5 480	1 362	33 %
	Median	3 110	3 181	71	2 %
	Std.dev	5 185	6 252	1 067	21 %

	Interest				
	in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Total	**Sum**	**4 718**	**19 345**	**14 626**	**310 %**
	Mean	157	645	488	310 %
	Median	8	125	117	1538 %
	Std.dev	364	1 142	778	213 %
Airline	Sum	1 840	8 197	6 357	345 %
	Mean	368	1 639	1 271	345 %
	Median	187	841	654	349 %
	Std.dev	594	1 872	1 278	215 %
Oil	Sum	440	1 489	1 049	238 %
	Mean	88	298	210	238 %
	Median	0	11	11	NA
	Std.dev	197	550	353	179 %
Pharma	Sum	28	914	885	3123 %
	Mean	6	183	177	3123 %
	Median	0	138	138	NA
	Std.dev	13	238	226	1780 %
Retail	Sum	1	1 118	1 117	94793 %
	Mean	0	224	223	94793 %
	Median	0	60	60	51969 %
	Std.dev	0	371	370	94071 %
Seafood	Sum	130	363	233	180 %
	Mean	26	73	47	180 %
	Median	32	81	49	157 %
	Std.dev	18	34	15	83 %
Shipping	Sum	2 279	7 264	4 985	219 %
	Mean	456	1 453	997	219 %
	Median	109	810	701	640 %
	Std.dev	563	1 536	973	173 %

		EBT			
	in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Total	**Sum**	**266 711**	**266 495**	**-216**	**0 %**
	Mean	8 890	8 883	-7	0 %
	Median	1 774	1 940	166	9 %
	Std.dev	20 621	20 530	-91	0 %
Airline	Sum	37 936	36 211	-1 725	-5 %
	Mean	7 587	7 242	-345	-5 %
	Median	6 791	6 604	-187	-3 %
	Std.dev	13 156	13 339	183	1 %
Oil	Sum	89 168	89 261	93	0 %
	Mean	17 834	17 852	19	0 %
	Median	-65	-65	0	0 %
	Std.dev	36 286	36 029	-257	-1 %
Pharma	Sum	109 950	109 418	-533	0 %
	Mean	21 990	21 884	-107	0 %
	Median	13 813	13 628	-185	-1 %
	Std.dev	32 801	32 703	-97	0 %
Retail	Sum	2 437	2 715	278	11 %
	Mean	487	543	56	11 %
	Median	419	448	29	7 %
	Std.dev	688	840	152	22 %
Seafood	Sum	15 258	15 105	-153	-1 %
	Mean	3 052	3 021	-31	-1 %
	Median	2 763	2 756	-7	0 %
	Std.dev	1 928	1 875	-53	-3 %
Shipping	Sum	11 962	13 785	1 824	15 %
	Mean	2 392	2 757	365	15 %
	Median	1 975	1 970	-4	0 %
	Std.dev	3 593	3 751	157	4 %

		Financial leverage			
		IAS 17	**IFRS 16**	**Change**	**Change %**
Total	Mean	1.70	2.85	1.15	67 %
	Median	1.10	1.55	0.44	40 %
	Std.dev	7.30	10.34	3.04	42 %
Airline	Mean	8.98	13.72	4.74	53 %
	Median	3.17	4.29	1.11	35 %
	Std.dev	12.86	21.05	8.19	64 %
Oil	Mean	-4.16	-4.12	0.04	1 %
	Median	0.65	0.66	0.01	2 %
	Std.dev	10.18	10.21	0.03	0 %
Pharma	Mean	1.20	1.32	0.12	10 %
	Median	0.85	0.87	0.02	2 %
	Std.dev	1.23	1.18	-0.05	-4 %
Retail	Mean	1.16	2.26	1.10	95 %
	Median	1.07	2.41	1.35	127 %
	Std.dev	0.29	0.53	0.24	83 %
Seafood	Mean	0.78	0.86	0.08	10 %
	Median	0.69	0.76	0.07	10 %
	Std.dev	0.19	0.20	0.01	6 %
Shipping	Mean	2.28	3.08	0.80	35 %
	Median	1.44	1.59	0.14	10 %
	Std.dev	2.10	3.12	1.02	49 %

	Equity-to-asset ratio	IAS 17	IFRS 16	Change	Change %
Total	Mean	39.3 %	34.2 %	-0.050	-13 %
	Median	46.9 %	37.7 %	-0.092	-20 %
	Std.dev	23.9 %	22.8 %	-0.011	-5 %
Airline	Mean	21.4 %	18.8 %	-0.026	-12 %
	Median	24.0 %	18.9 %	-0.051	-21 %
	Std.dev	13.3 %	14.0 %	0.006	5 %
Oil	Mean	17.3 %	16.9 %	-0.005	-3 %
	Median	27.8 %	27.2 %	-0.006	-2 %
	Std.dev	37.7 %	37.4 %	-0.003	-1 %
Pharma	Mean	54.7 %	50.2 %	-0.044	-8 %
	Median	54.1 %	53.5 %	-0.006	-1 %
	Std.dev	21.6 %	18.5 %	-0.031	-14 %
Retail	Mean	46.9 %	31.4 %	-0.155	-33 %
	Median	48.4 %	29.3 %	-0.191	-39 %
	Std.dev	5.5 %	5.5 %	0.000	1 %
Seafood	Mean	56.7 %	54.3 %	-0.024	-4 %
	Median	59.2 %	56.9 %	-0.023	-4 %
	Std.dev	5.4 %	5.3 %	0.000	-1 %
Shipping	Mean	38.5 %	33.8 %	-0.047	-12 %
	Median	40.9 %	38.6 %	-0.023	-6 %
	Std.dev	16.8 %	16.5 %	-0.003	-2 %

	Current ratio	IAS 17	IFRS 16	Change	Change %
Total	Mean	1.68	1.51	-0.17	-10 %
	Median	1.29	1.10	-0.20	-15 %
	Std.dev	1.29	1.24	-0.05	-4 %
Airline	Mean	0.74	0.69	-0.06	-7 %
	Median	0.78	0.65	-0.12	-16 %
	Std.dev	0.21	0.21	0.00	1 %
Oil	Mean	2.16	2.11	-0.04	-2 %
	Median	1.02	1.02	0.00	0 %
	Std.dev	2.65	2.60	-0.05	-2 %
Pharma	Mean	1.44	1.33	-0.11	-8 %
	Median	1.08	1.07	-0.01	-1 %
	Std.dev	0.86	0.66	-0.19	-23 %
Retail	Mean	1.56	1.16	-0.40	-25 %
	Median	1.33	1.12	-0.21	-16 %
	Std.dev	0.36	0.19	-0.17	-47 %
Seafood	Mean	2.86	2.67	-0.19	-7 %
	Median	2.99	2.84	-0.15	-5 %
	Std.dev	0.62	0.49	-0.13	-21 %
Shipping	Mean	1.31	1.11	-0.20	-15 %
	Median	1.36	1.16	-0.20	-15 %
	Std.dev	0.60	0.47	-0.13	-21 %

	EBITDA margin				
		IAS 17	**IFRS 16**	**Change**	**Change %**
Total	Mean	12.1 %	16.2 %	0.041	34 %
	Median	14.0 %	16.8 %	0.027	20 %
	Std.dev	18.5 %	17.0 %	-0.015	-8 %
Airline	Mean	4.1 %	11.9 %	0.078	188 %
	Median	11.1 %	16.8 %	0.057	52 %
	Std.dev	20.1 %	12.8 %	-0.072	-36 %
Oil	Mean	21.8 %	22.8 %	0.010	4 %
	Median	29.1 %	30.3 %	0.012	4 %
	Std.dev	37.8 %	38.7 %	0.009	2 %
Pharma	Mean	11.9 %	13.7 %	0.018	15 %
	Median	16.6 %	17.5 %	0.009	5 %
	Std.dev	16.1 %	14.9 %	-0.013	-8 %
Retail	Mean	7.9 %	15.4 %	0.075	95 %
	Median	7.6 %	15.5 %	0.079	103 %
	Std.dev	5.5 %	6.8 %	0.013	23 %
Seafood	Mean	18.6 %	20.3 %	0.016	9 %
	Median	15.8 %	17.0 %	0.012	8 %
	Std.dev	6.2 %	6.2 %	0.000	0 %
Shipping	Mean	8.0 %	13.2 %	0.052	65 %
	Median	9.5 %	13.1 %	0.036	38 %
	Std.dev	4.2 %	2.4 %	-0.018	-43 %

	EBIT margin				
		IAS 17	**IFRS 16**	**Change**	**Change %**
Total	Mean	3.3 %	3.9 %	0.006	19 %
	Median	8.3 %	8.5 %	0.003	3 %
	Std.dev	19.4 %	19.5 %	0.000	0 %
Airline	Mean	-4.2 %	-3.3 %	0.009	22 %
	Median	4.6 %	4.6 %	0.001	2 %
	Std.dev	24.8 %	24.6 %	-0.002	-1 %
Oil	Mean	-4.9 %	-4.3 %	0.006	11 %
	Median	7.8 %	7.8 %	0.000	0 %
	Std.dev	38.4 %	39.2 %	0.008	2 %
Pharma	Mean	6.8 %	7.0 %	0.002	3 %
	Median	12.0 %	12.0 %	0.000	0 %
	Std.dev	15.1 %	14.7 %	-0.004	-2 %
Retail	Mean	4.9 %	5.6 %	0.007	13 %
	Median	5.2 %	6.3 %	0.011	21 %
	Std.dev	6.0 %	6.0 %	0.000	0 %
Seafood	Mean	14.5 %	14.6 %	0.001	1 %
	Median	11.5 %	11.8 %	0.003	2 %
	Std.dev	6.0 %	5.9 %	-0.001	-1 %
Shipping	Mean	2.4 %	3.6 %	0.012	51 %
	Median	3.5 %	4.4 %	0.010	28 %
	Std.dev	3.3 %	2.8 %	-0.005	-15 %

		IAS 17	IFRS 16	Change	Change %
EBT margin					
Total	Mean	1.4 %	1.3 %	-0.001	-7 %
	Median	5.8 %	5.9 %	0.001	2 %
	Std.dev	19.4 %	19.7 %	0.003	2 %
Airline	Mean	-5.4 %	-6.3 %	-0.009	-16 %
	Median	5.2 %	5.1 %	-0.001	-1 %
	Std.dev	23.8 %	24.7 %	0.009	4 %
Oil	Mean	-11.5 %	-11.2 %	0.004	3 %
	Median	-4.8 %	-4.9 %	-0.002	-3 %
	Std.dev	36.7 %	37.2 %	0.006	2 %
Pharma	Mean	5.2 %	5.1 %	-0.002	-3 %
	Median	9.0 %	8.7 %	-0.003	-3 %
	Std.dev	14.3 %	14.4 %	0.001	1 %
Retail	Mean	4.4 %	4.2 %	-0.002	-5 %
	Median	5.1 %	5.5 %	0.004	7 %
	Std.dev	6.0 %	6.0 %	0.000	-1 %
Seafood	Mean	14.9 %	14.8 %	-0.001	-1 %
	Median	11.9 %	11.8 %	0.000	0 %
	Std.dev	6.4 %	6.4 %	0.000	0 %
Shipping	Mean	1.1 %	1.4 %	0.003	32 %
	Median	2.4 %	2.5 %	0.001	5 %
	Std.dev	2.4 %	2.4 %	0.000	1 %

		IAS 17	IFRS 16	Change	Change %
ROA					
Total	Mean	1.2 %	1.1 %	-0.001	-5 %
	Median	4.0 %	3.7 %	-0.002	-6 %
	Std.dev	12.2 %	11.1 %	-0.011	-9 %
Airline	Mean	-1.9 %	-0.8 %	0.010	55 %
	Median	4.7 %	4.4 %	-0.003	-6 %
	Std.dev	13.4 %	10.1 %	-0.033	-24 %
Oil	Mean	-8.2 %	-8.2 %	0.000	0 %
	Median	-1.8 %	-1.8 %	-0.001	-3 %
	Std.dev	20.1 %	20.1 %	0.000	0 %
Pharma	Mean	-0.8 %	0.0 %	0.007	96 %
	Median	3.6 %	3.2 %	-0.004	-11 %
	Std.dev	11.6 %	9.6 %	-0.020	-17 %
Retail	Mean	6.0 %	4.1 %	-0.020	-32 %
	Median	10.2 %	6.8 %	-0.034	-33 %
	Std.dev	7.2 %	5.2 %	-0.020	-27 %
Seafood	Mean	11.3 %	10.8 %	-0.005	-5 %
	Median	10.2 %	9.7 %	-0.005	-5 %
	Std.dev	4.8 %	4.7 %	0.000	-1 %
Shipping	Mean	0.6 %	0.9 %	0.003	54 %
	Median	1.8 %	1.7 %	-0.001	-6 %
	Std.dev	2.1 %	1.8 %	-0.003	-15 %

		ROE			
		IAS 17	IFRS 16	Change	Change %
Total	Mean	4.4 %	3.7 %	-0.007	-16 %
	Median	11.6 %	11.5 %	-0.001	-1 %
	Std.dev	34.8 %	36.4 %	0.017	5 %
Airline	Mean	-17.3 %	-22.9 %	-0.055	-32 %
	Median	13.5 %	13.1 %	-0.003	-3 %
	Std.dev	62.8 %	66.2 %	0.034	5 %
Oil	Mean	9.1 %	9.9 %	0.008	9 %
	Median	21.8 %	22.4 %	0.006	3 %
	Std.dev	54.9 %	55.4 %	0.005	1 %
Pharma	Mean	2.2 %	1.9 %	-0.003	-14 %
	Median	9.8 %	9.8 %	0.000	0 %
	Std.dev	17.2 %	17.7 %	0.005	3 %
Retail	Mean	13.6 %	13.7 %	0.001	1 %
	Median	22.5 %	23.3 %	0.008	4 %
	Std.dev	15.6 %	16.3 %	0.007	4 %
Seafood	Mean	20.3 %	20.2 %	-0.001	-1 %
	Median	21.0 %	20.8 %	-0.001	-1 %
	Std.dev	8.5 %	8.5 %	0.000	0 %
Shipping	Mean	-1.7 %	-0.8 %	0.009	52 %
	Median	3.0 %	3.2 %	0.002	6 %
	Std.dev	10.5 %	10.5 %	0.000	0 %

Appendix F: Descriptive statistics by company

Total assets				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Ryanair	131 822	133 122	1 300	1 %
Lufthansa	380 154	399 564	19 409	5 %
IAG	278 891	324 454	45 563	16 %
SAS	32 995	49 176	16 181	49 %
Norwegian Air Shuttle ASA	55 985	88 783	32 797	59 %
Noreco	1 086	1 086	0	0 %
Interoil	340	340	0	0 %
DNO	17 414	17 526	112	1 %
Aker BP	93 048	95 141	2 092	2 %
Equinor	977 534	1 013 062	35 527	4 %
Novartis	1 264 724	1 277 991	13 267	1 %
Merck KGaA	366 973	371 599	4 626	1 %
Carasent	119	123	4	3 %
AstraZeneca	526 966	533 222	6 256	1 %
ArcticZymes Technologies	62	81	19	31 %
Kid ASA	2 093	2 752	659	31 %
XXL	7 663	10 858	3 195	42 %
Europris	4 757	6 746	1 989	42 %
Clas Ohlson	3 858	5 884	2 026	53 %
Hennes & Mauritz	116 882	187 099	70 217	60 %
SalMar	15 136	15 520	385	3 %
Austevoll Seafood	37 955	39 496	1 541	4 %
Grieg Seafood	8 142	8 462	319	4 %
Lerøy Seafood Group	28 373	29 783	1 410	5 %
Mowi	51 185	54 899	3 714	7 %
Hapag-Lloyd	152 222	160 760	8 538	6 %
A.P. Moller - Maersk	491 960	546 020	54 060	11 %
Orient Overseas International	87 353	96 301	8 948	10 %
Evergreen Marine Corp. Ltd.	64 980	82 164	17 184	26 %
Yang Ming Marine Transport Corporation	39 716	54 389	14 673	37 %

Right-of-use assets				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Ryanair	1 968	3 268	1 300	66 %
Lufthansa	6 675	26 084	19 409	291 %
IAG	57 372	101 990	44 618	78 %
SAS	4 920	21 138	16 218	330 %
Norwegian Air Shuttle ASA	0	32 797	32 797	NA
Noreco	0	0	0	NA
Interoil	0	0	0	NA
DNO	0	112	112	NA
Aker BP	0	2 092	2 092	NA
Equinor	3 302	37 986	34 684	1051 %
Novartis	878	13 502	12 624	1439 %
Merck KGaA	90	4 735	4 646	5189 %
Carasent	0	4	4	NA
AstraZeneca	0	6 273	6 273	NA
ArcticZymes Technologies	0	19	19	NA
Kid ASA	6	675	668	10293 %
XXL	0	3 195	3 195	NA
Europris	5	1 993	1 989	43031 %
Clas Ohlson	0	2 056	2 056	NA
Hennes & Mauritz	363	70 580	70 217	19353 %
SalMar	316	700	385	122 %
Austevoll Seafood	1 538	3 079	1 541	100 %
Grieg Seafood	412	731	319	77 %
Lerøy Seafood Group	1 023	2 433	1 410	138 %
Mowi	0	3 714	3 714	NA
Hapag-Lloyd	1 712	10 250	8 538	499 %
A.P. Moller - Maersk	22 173	76 233	54 060	244 %
Orient Overseas International	23 512	25 409	1 897	8 %
Evergreen Marine Corp. Ltd.	3 842	21 078	17 236	449 %
Yang Ming Marine Transport Corporation	899	15 715	14 817	1648 %

Lease liability				
in million NOK	IAS 17	IFRS 16	Change	Change %
Ryanair	1 848	3 245	1 397	76 %
Lufthansa	5 929	25 408	19 479	329 %
IAG	58 974	110 655	51 681	88 %
SAS	5 117	21 127	16 010	313 %
Norwegian Air Shuttle ASA	0	32 797	32 797	NA
Noreco	0	0	0	NA
Interoil	0	0	0	NA
DNO	0	110	110	NA
Aker BP	0	3 387	3 387	NA
Equinor	3 753	40 488	36 735	979 %
Novartis	799	15 109	14 310	1790 %
Merck KGaA	40	4 666	4 626	11625 %
Carasent	0	4	4	NA
AstraZeneca	0	6 256	6 256	NA
ArcticZymes Technologies	0	20	20	NA
Kid ASA	3	662	659	22928 %
XXL	0	3 195	3 195	NA
Europris	5	1 994	1 989	42652 %
Clas Ohlson	0	2 191	2 191	NA
Hennes & Mauritz	369	75 137	74 769	20282 %
SalMar	343	728	385	112 %
Austevoll Seafood	1 214	2 755	1 541	127 %
Grieg Seafood	360	679	319	89 %
Lerøy Seafood Group	941	2 351	1 410	150 %
Mowi	0	3 714	3 714	NA
Hapag-Lloyd	985	10 412	9 427	957 %
A.P. Moller - Maersk	19 688	73 948	54 260	276 %
Orient Overseas International	21 189	23 246	2 056	10 %
Evergreen Marine Corp. Ltd.	3 303	20 487	17 184	520 %
Yang Ming Marine Transport Corporation	1 175	16 300	15 125	1288 %

Lease cost				
in million NOK	IAS 17	IFRS 16	Change	Change %
Ryanair	830	376	-453	-55 %
Lufthansa	8 582	4 325	-4 256	-50 %
IAG	10 976	0	-10 976	-100 %
SAS	3 819	60	-3 759	-98 %
Norwegian Air Shuttle ASA	5 616	173	-5 443	-97 %
Noreco	0	0	0	NA
Interoil	0	0	0	NA
DNO	34	6	-28	-82 %
Aker BP	965	0	-965	-100 %
Equinor	10 564	3 830	-6 735	-64 %
Novartis	2 984	132	-2 852	-96 %
Merck KGaA	1 665	217	-1 448	-87 %
Carasent	1	0	-1	-100 %
AstraZeneca	1 849	18	-1 831	-99 %
ArcticZymes Technologies	6	3	-3	-49 %
Kid ASA	305	78	-227	-74 %
XXL	723	191	-532	-74 %
Europris	499	49	-450	-90 %
Clas Ohlson	567	39	-528	-93 %
Hennes & Mauritz	20 567	6 441	-14 127	-69 %
SalMar	235	78	-157	-67 %
Austevoll Seafood	282	0	-282	-100 %
Grieg Seafood	179	53	-127	-71 %
Lerøy Seafood Group	256	0	-255	-100 %
Mowi	1 815	611	-1 204	-66 %
Hapag-Lloyd	8 867	2 928	-5 939	-67 %
A.P. Moller - Maersk	24 773	13 223	-11 550	-47 %
Orient Overseas International	3 100	2 055	-1 045	-34 %
Evergreen Marine Corp. Ltd.	5 903	1 780	-4 123	-70 %
Yang Ming Marine Transport Corporation	7 040	3 391	-3 649	-52 %

EBITDA				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Ryanair	18 031	18 485	453	3 %
Lufthansa	39 736	43 992	4 256	11 %
IAG	35 568	46 544	10 976	31 %
SAS	-5 704	-1 945	3 759	66 %
Norwegian Air Shuttle ASA	1 650	7 314	5 664	343 %
Noreco	-1 224	-1 224	0	0 %
Interoil	37	37	0	0 %
DNO	3 352	3 381	28	1 %
Aker BP	17 074	18 039	965	6 %
Equinor	160 967	167 702	6 735	4 %
Novartis	91 664	94 517	2 852	3 %
Merck KGaA	26 435	27 883	1 448	5 %
Carasent	11	12	1	10 %
AstraZeneca	31 429	33 260	1 831	6 %
ArcticZymes Technologies	-12	-9	3	26 %
Kid ASA	340	567	227	67 %
XXL	-41	491	532	1298 %
Europris	644	1 094	450	70 %
Clas Ohlson	623	1 151	528	85 %
Hennes & Mauritz	12 909	27 036	14 127	109 %
SalMar	3 579	3 736	157	4 %
Austevoll Seafood	3 673	3 955	282	8 %
Grieg Seafood	1 151	1 277	127	11 %
Lerøy Seafood Group	3 157	3 413	255	8 %
Mowi	7 704	8 908	1 204	16 %
Hapag-Lloyd	13 626	19 565	5 939	44 %
A.P. Moller - Maersk	41 378	52 928	11 550	28 %
Orient Overseas International	5 738	6 784	1 045	18 %
Evergreen Marine Corp. Ltd.	2 983	7 105	4 123	138 %
Yang Ming Marine Transport Corporation	868	4 517	3 649	420 %

Depreciation				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Ryanair	650	1 236	585	90 %
Lufthansa	1 172	5 123	3 951	337 %
IAG	3 655	11 360	7 705	211 %
SAS	593	4 145	3 552	599 %
Norwegian Air Shuttle ASA	0	4 683	4 683	NA
Noreco	0	0	0	NA
Interoil	0	0	0	NA
DNO	0	31	31	NA
Aker BP	0	146	146	NA
Equinor	211	6 620	6 409	3033 %
Novartis	127	2 685	2 558	2018 %
Merck KGaA	20	1 419	1 399	7100 %
Carasent	0	1	1	NA
AstraZeneca	0	1 822	1 822	NA
ArcticZymes Technologies	0	2	2	NA
Kid ASA	1	216	214	14768 %
XXL	0	493	493	NA
Europris	1	416	415	44914 %
Clas Ohlson	0	439	439	NA
Hennes & Mauritz	67	12 973	12 906	19263 %
SalMar	38	192	154	403 %
Austevoll Seafood	248	487	239	96 %
Grieg Seafood	43	164	121	281 %
Lerøy Seafood Group	225	427	202	90 %
Mowi	0	1 230	1 230	NA
Hapag-Lloyd	224	4 524	4 301	1923 %
A.P. Moller - Maersk	4 045	12 290	8 245	204 %
Orient Overseas International	749	1 723	975	130 %
Evergreen Marine Corp. Ltd.	338	3 396	3 058	905 %
Yang Ming Marine Transport Corporation	115	3 035	2 920	2535 %

EBIT				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Ryanair	11 240	11 108	-132	-1 %
Lufthansa	16 336	16 641	305	2 %
IAG	22 474	25 745	3 271	15 %
SAS	-9 093	-8 886	207	2 %
Norwegian Air Shuttle ASA	-125	856	981	786 %
Noreco	-1 840	-1 840	0	0 %
Interoil	-32	-32	0	0 %
DNO	668	666	-3	0 %
Aker BP	10 865	11 685	819	8 %
Equinor	81 540	81 866	326	0 %
Novartis	79 696	79 990	294	0 %
Merck KGaA	20 838	20 888	49	0 %
Carasent	4	4	0	0 %
AstraZeneca	25 733	25 742	9	0 %
ArcticZymes Technologies	-14	-14	1	5 %
Kid ASA	290	302	12	4 %
XXL	-240	-201	39	16 %
Europris	544	579	35	6 %
Clas Ohlson	422	511	89	21 %
Hennes & Mauritz	1 664	2 884	1 220	73 %
SalMar	3 032	3 035	3	0 %
Austevoll Seafood	2 574	2 617	43	2 %
Grieg Seafood	861	867	6	1 %
Lerøy Seafood Group	2 347	2 401	54	2 %
Mowi	6 105	6 079	-26	0 %
Hapag-Lloyd	6 356	7 994	1 639	26 %
A.P. Moller - Maersk	11 881	15 186	3 305	28 %
Orient Overseas International	3 110	3 181	71	2 %
Evergreen Marine Corp. Ltd.	262	1 327	1 065	406 %
Yang Ming Marine Transport Corporation	-1 018	-289	729	72 %

Interest				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Ryanair	36	91	55	153 %
Lufthansa	187	709	522	279 %
IAG	1 419	4 818	3 399	240 %
SAS	198	841	643	324 %
Norwegian Air Shuttle ASA	0	1 737	1 737	NA
Noreco	0	0	0	NA
Interoil	0	0	0	NA
DNO	0	11	11	NA
Aker BP	0	210	210	NA
Equinor	440	1 268	828	188 %
Novartis	28	581	553	1950 %
Merck KGaA	0	138	138	NA
Carasent	0	0	0	NA
AstraZeneca	0	194	194	NA
ArcticZymes Technologies	0	1	1	NA
Kid ASA	0	29	29	25565 %
XXL	0	95	95	NA
Europris	0	48	48	36492 %
Clas Ohlson	0	60	60	NA
Hennes & Mauritz	1	885	884	95000 %
SalMar	42	53	11	26 %
Austevoll Seafood	42	92	50	119 %
Grieg Seafood	14	26	11	80 %
Lerøy Seafood Group	32	81	49	157 %
Mowi	0	111	111	NA
Hapag-Lloyd	60	715	655	1090 %
A.P. Moller - Maersk	1 317	4 199	2 883	219 %
Orient Overseas International	745	820	75	10 %
Evergreen Marine Corp. Ltd.	109	810	701	640 %
Yang Ming Marine Transport Corporation	48	719	672	1413 %

EBT				
in million NOK	**IAS 17**	**IFRS 16**	**Change**	**Change %**
Ryanair	6 791	6 604	-187	-3 %
Lufthansa	18 543	18 326	-217	-1 %
IAG	22 543	22 415	-128	-1 %
SAS	-9 010	-9 447	-436	-5 %
Norwegian Air Shuttle ASA	-931	-1 688	-756	-81 %
Noreco	-1 602	-1 602	0	0 %
Interoil	-65	-65	0	0 %
DNO	-407	-421	-14	-3 %
Aker BP	8 936	9 545	609	7 %
Equinor	82 306	81 804	-502	-1 %
Novartis	78 964	78 705	-259	0 %
Merck KGaA	17 183	17 094	-89	-1 %
Carasent	4	4	0	-3 %
AstraZeneca	13 813	13 628	-185	-1 %
ArcticZymes Technologies	-14	-14	0	-1 %
Kid ASA	278	261	-17	-6 %
XXL	-328	-384	-56	-17 %
Europris	494	480	-14	-3 %
Clas Ohlson	419	448	29	7 %
Hennes & Mauritz	1 574	1 910	336	21 %
SalMar	3 167	3 158	-8	0 %
Austevoll Seafood	2 763	2 756	-7	0 %
Grieg Seafood	846	841	-6	-1 %
Lerøy Seafood Group	2 361	2 365	4	0 %
Mowi	6 121	5 985	-137	-2 %
Hapag-Lloyd	3 118	4 102	983	32 %
A.P. Moller - Maersk	8 091	8 513	423	5 %
Orient Overseas Internationa	1 975	1 970	-4	0 %
Evergreen Marine Corp. Ltd.	-142	222	364	256 %
Yang Ming Marine Transport	-1 080	-1 022	58	5 %

Financial leverage				
	IAS 17	IFRS 16	Change	Change %
Ryanair	1.54	1.57	0.03	2 %
Lufthansa	2.99	3.20	0.21	7 %
IAG	3.17	4.29	1.11	35 %
SAS	5.33	8.44	3.10	58 %
Norwegian Air Shuttle ASA	31.85	51.09	19.24	60 %
Noreco	-21.83	-21.83	0.00	0 %
Interoil	-3.83	-3.83	0.00	0 %
DNO	0.65	0.66	0.01	2 %
Aker BP	2.60	2.68	0.08	3 %
Equinor	1.62	1.71	0.10	6 %
Novartis	0.85	0.87	0.02	2 %
Merck KGaA	1.14	1.17	0.03	2 %
Carasent	0.30	0.34	0.04	13 %
AstraZeneca	3.32	3.37	0.05	2 %
ArcticZymes Technologies	0.38	0.85	0.47	125 %
Kid ASA	0.92	1.52	0.60	66 %
XXL	1.07	1.93	0.86	81 %
Europris	1.66	2.77	1.11	67 %
Clas Ohlson	1.04	2.41	1.37	132 %
Hennes & Mauritz	1.11	2.68	1.57	141 %
SalMar	0.66	0.70	0.04	6 %
Austevoll Seafood	0.69	0.76	0.07	10 %
Grieg Seafood	1.10	1.18	0.08	7 %
Lerøy Seafood Group	0.66	0.74	0.08	13 %
Mowi	0.79	0.92	0.13	16 %
Hapag-Lloyd	1.44	1.59	0.14	10 %
A.P. Moller - Maersk	0.70	0.88	0.19	27 %
Orient Overseas International	1.12	1.36	0.24	21 %
Evergreen Marine Corp. Ltd.	2.23	3.08	0.85	38 %
Yang Ming Marine Transport Corporation	5.90	8.46	2.56	43 %

Equity-to-asset				
	IAS 17	IFRS 16	Change	Change %
Ryanair	39.4 %	38.9 %	-0.5 %	-1 %
Lufthansa	25.1 %	23.8 %	-1.2 %	-5 %
IAG	24.0 %	18.9 %	-5.1 %	-21 %
SAS	15.8 %	10.6 %	-5.2 %	-33 %
Norwegian Air Shuttle ASA	3.0 %	1.9 %	-1.1 %	-37 %
Noreco	-4.8 %	-4.8 %	0.0 %	0 %
Interoil	-35.3 %	-35.3 %	0.0 %	0 %
DNO	60.8 %	60.4 %	-0.4 %	-1 %
Aker BP	27.8 %	27.2 %	-0.6 %	-2 %
Equinor	38.2 %	36.9 %	-1.3 %	-4 %
Novartis	54.1 %	53.5 %	-0.6 %	-1 %
Merck KGaA	46.7 %	46.1 %	-0.6 %	-1 %
Carasent	76.7 %	74.4 %	-2.3 %	-3 %
AstraZeneca	23.2 %	22.9 %	-0.3 %	-1 %
ArcticZymes Technologies	72.7 %	54.1 %	-18.6 %	-26 %
Kid ASA	52.1 %	39.6 %	-12.5 %	-24 %
XXL	48.4 %	34.2 %	-14.2 %	-29 %
Europris	37.6 %	26.5 %	-11.1 %	-29 %
Clas Ohlson	49.0 %	29.3 %	-19.7 %	-40 %
Hennes & Mauritz	47.4 %	27.2 %	-20.2 %	-43 %
SalMar	60.4 %	58.9 %	-1.5 %	-2 %
Austevoll Seafood	59.2 %	56.9 %	-2.3 %	-4 %
Grieg Seafood	47.7 %	45.9 %	-1.8 %	-4 %
Lerøy Seafood Group	60.4 %	57.5 %	-2.9 %	-5 %
Mowi	56.0 %	52.2 %	-3.8 %	-7 %
Hapag-Lloyd	40.9 %	38.6 %	-2.3 %	-6 %
A.P. Moller - Maersk	59.0 %	53.1 %	-5.9 %	-10 %
Orient Overseas International	47.1 %	42.3 %	-4.8 %	-10 %
Evergreen Marine Corp. Ltd.	31.0 %	24.5 %	-6.5 %	-21 %
Yang Ming Marine Transport Corporation	14.5 %	10.6 %	-3.9 %	-27 %

Current ratio				
	IAS 17	IFRS 16	Change	Change %
Ryanair	0.93	0.91	-0.02	-2 %
Lufthansa	0.66	0.64	-0.01	-2 %
IAG	0.91	0.84	-0.07	-8 %
SAS	0.78	0.65	-0.12	-16 %
Norwegian Air Shuttle ASA	0.43	0.38	-0.05	-12 %
Noreco	0.90	0.90	0.00	0 %
Interoil	1.02	1.02	0.00	0 %
DNO	6.84	6.72	-0.12	-2 %
Aker BP	0.45	0.44	-0.01	-2 %
Equinor	1.57	1.48	-0.09	-6 %
Novartis	1.18	1.17	-0.01	-1 %
Merck KGaA	1.08	1.07	-0.01	-1 %
Carasent	1.02	0.97	-0.05	-4 %
AstraZeneca	0.96	0.95	-0.01	-1 %
ArcticZymes Technologies	2.96	2.50	-0.46	-16 %
Kid ASA	2.09	1.39	-0.70	-33 %
XXL	1.33	1.12	-0.21	-16 %
Europris	1.80	1.33	-0.46	-26 %
Clas Ohlson	1.28	0.98	-0.30	-23 %
Hennes & Mauritz	1.30	0.98	-0.32	-25 %
SalMar	2.02	1.93	-0.08	-4 %
Austevoll Seafood	3.04	2.91	-0.13	-4 %
Grieg Seafood	2.58	2.46	-0.11	-4 %
Lerøy Seafood Group	2.99	2.84	-0.15	-5 %
Mowi	3.70	3.21	-0.49	-13 %
Hapag-Lloyd	0.73	0.65	-0.08	-11 %
A.P. Moller - Maersk	1.58	1.44	-0.13	-9 %
Orient Overseas International	2.15	1.69	-0.46	-21 %
Evergreen Marine Corp. Ltd.	1.36	1.16	-0.20	-15 %
Yang Ming Marine Transport Corporation	0.73	0.62	-0.11	-15 %

EBITDA margin				
	IAS 17	IFRS 16	Change	Change %
Ryanair	21.5 %	22.1 %	0.5 %	3 %
Lufthansa	11.1 %	12.3 %	1.2 %	11 %
IAG	14.2 %	18.5 %	4.4 %	31 %
SAS	-29.9 %	-10.2 %	19.7 %	66 %
Norwegian Air Shuttle ASA	3.8 %	16.8 %	13.0 %	343 %
Noreco	-41.7 %	-41.7 %	0.0 %	0 %
Interoil	24.6 %	24.6 %	0.0 %	0 %
DNO	39.2 %	39.5 %	0.3 %	1 %
Aker BP	57.9 %	61.2 %	3.3 %	6 %
Equinor	29.1 %	30.3 %	1.2 %	4 %
Novartis	21.9 %	22.6 %	0.7 %	3 %
Merck KGaA	16.6 %	17.5 %	0.9 %	5 %
Carasent	22.6 %	24.8 %	2.2 %	10 %
AstraZeneca	14.6 %	15.5 %	0.9 %	6 %
ArcticZymes Technologies	-16.3 %	-12.1 %	4.3 %	26 %
Kid ASA	14.5 %	24.2 %	9.7 %	67 %
XXL	-0.5 %	5.5 %	5.9 %	1298 %
Europris	10.3 %	17.6 %	7.2 %	70 %
Clas Ohlson	7.6 %	14.1 %	6.5 %	85 %
Hennes & Mauritz	7.4 %	15.5 %	8.1 %	109 %
SalMar	29.2 %	30.5 %	1.3 %	4 %
Austevoll Seafood	15.8 %	17.0 %	1.2 %	8 %
Grieg Seafood	13.9 %	15.4 %	1.5 %	11 %
Lerøy Seafood Group	15.5 %	16.7 %	1.3 %	8 %
Mowi	18.9 %	21.9 %	3.0 %	16 %
Hapag-Lloyd	11.0 %	15.8 %	4.8 %	44 %
A.P. Moller - Maersk	12.1 %	15.5 %	3.4 %	28 %
Orient Overseas International	9.5 %	11.2 %	1.7 %	18 %
Evergreen Marine Corp. Ltd.	5.5 %	13.1 %	7.6 %	138 %
Yang Ming Marine Transport Corporation	2.0 %	10.6 %	8.6 %	420 %

EBIT margin				
	IAS 17	IFRS 16	Change	Change %
Ryanair	13.4 %	13.3 %	-0.2 %	-1 %
Lufthansa	4.6 %	4.6 %	0.1 %	2 %
IAG	8.9 %	10.2 %	1.3 %	15 %
SAS	-47.6 %	-46.6 %	1.1 %	2 %
Norwegian Air Shuttle ASA	-0.3 %	2.0 %	2.3 %	786 %
Noreco	-62.8 %	-62.8 %	0.0 %	0 %
Interoil	-21.1 %	-21.1 %	0.0 %	0 %
DNO	7.8 %	7.8 %	0.0 %	0 %
Aker BP	36.9 %	39.7 %	2.8 %	8 %
Equinor	14.7 %	14.8 %	0.1 %	0 %
Novartis	19.1 %	19.1 %	0.1 %	0 %
Merck KGaA	13.1 %	13.1 %	0.0 %	0 %
Carasent	9.4 %	9.3 %	0.0 %	0 %
AstraZeneca	12.0 %	12.0 %	0.0 %	0 %
ArcticZymes Technologies	-19.5 %	-18.5 %	0.9 %	5 %
Kid ASA	12.4 %	12.9 %	0.5 %	4 %
XXL	-2.7 %	-2.2 %	0.4 %	16 %
Europris	8.7 %	9.3 %	0.6 %	6 %
Clas Ohlson	5.2 %	6.3 %	1.1 %	21 %
Hennes & Mauritz	1.0 %	1.7 %	0.7 %	73 %
SalMar	24.8 %	24.8 %	0.0 %	0 %
Austevoll Seafood	11.0 %	11.2 %	0.2 %	2 %
Grieg Seafood	10.4 %	10.4 %	0.1 %	1 %
Lerøy Seafood Group	11.5 %	11.8 %	0.3 %	2 %
Mowi	15.0 %	14.9 %	-0.1 %	0 %
Hapag-Lloyd	5.1 %	6.4 %	1.3 %	26 %
A.P. Moller - Maersk	3.5 %	4.4 %	1.0 %	28 %
Orient Overseas International	5.1 %	5.3 %	0.1 %	2 %
Evergreen Marine Corp. Ltd.	0.5 %	2.4 %	2.0 %	406 %
Yang Ming Marine Transport Corporation	-2.4 %	-0.7 %	1.7 %	72 %

EBT margin				
	IAS 17	IFRS 16	Change	Change %
Ryanair	8.1 %	7.9 %	-0.2 %	-3 %
Lufthansa	5.2 %	5.1 %	-0.1 %	-1 %
IAG	9.0 %	8.9 %	-0.1 %	-1 %
SAS	-47.2 %	-49.5 %	-2.3 %	-5 %
Norwegian Air Shuttle ASA	-2.1 %	-3.9 %	-1.7 %	-81 %
Noreco	-54.7 %	-54.7 %	0.0 %	0 %
Interoil	-43.5 %	-43.5 %	0.0 %	0 %
DNO	-4.8 %	-4.9 %	-0.2 %	-3 %
Aker BP	30.3 %	32.4 %	2.1 %	7 %
Equinor	14.9 %	14.8 %	-0.1 %	-1 %
Novartis	18.9 %	18.8 %	-0.1 %	0 %
Merck KGaA	10.8 %	10.7 %	-0.1 %	-1 %
Carasent	9.0 %	8.7 %	-0.3 %	-3 %
AstraZeneca	6.4 %	6.3 %	-0.1 %	-1 %
ArcticZymes Technologies	-19.0 %	-19.3 %	-0.3 %	-1 %
Kid ASA	11.9 %	11.1 %	-0.7 %	-6 %
XXL	-3.6 %	-4.3 %	-0.6 %	-17 %
Europris	7.9 %	7.7 %	-0.2 %	-3 %
Clas Ohlson	5.1 %	5.5 %	0.4 %	7 %
Hennes & Mauritz	0.9 %	1.1 %	0.2 %	21 %
SalMar	25.9 %	25.8 %	-0.1 %	0 %
Austevoll Seafood	11.9 %	11.8 %	0.0 %	0 %
Grieg Seafood	10.2 %	10.1 %	-0.1 %	-1 %
Lerøy Seafood Group	11.6 %	11.6 %	0.0 %	0 %
Mowi	15.0 %	14.7 %	-0.3 %	-2 %
Hapag-Lloyd	2.5 %	3.3 %	0.8 %	32 %
A.P. Moller - Maersk	2.4 %	2.5 %	0.1 %	5 %
Orient Overseas International	3.3 %	3.3 %	0.0 %	0 %
Evergreen Marine Corp. Ltd.	-0.3 %	0.4 %	0.7 %	256 %
Yang Ming Marine Transport Corporation	-2.5 %	-2.4 %	0.1 %	5 %

ROA				
	IAS 17	**IFRS 16**	**Change**	**Change %**
Ryanair	4.9 %	4.7 %	-0.2 %	-4 %
Lufthansa	4.7 %	4.4 %	-0.3 %	-6 %
IAG	7.7 %	6.6 %	-1.1 %	-15 %
SAS	-25.0 %	-18.0 %	7.0 %	28 %
Norwegian Air Shuttle ASA	-1.7 %	-1.9 %	-0.2 %	-12 %
Noreco	-38.3 %	-38.2 %	0.0 %	0 %
Interoil	-18.3 %	-18.3 %	0.0 %	0 %
DNO	-1.8 %	-1.8 %	-0.1 %	-3 %
Aker BP	9.0 %	9.5 %	0.4 %	5 %
Equinor	8.3 %	8.0 %	-0.2 %	-3 %
Novartis	6.9 %	6.8 %	-0.1 %	-1 %
Merck KGaA	4.3 %	4.2 %	-0.1 %	-2 %
Carasent	3.6 %	3.2 %	-0.4 %	-11 %
AstraZeneca	2.6 %	2.6 %	-0.1 %	-2 %
ArcticZymes Technologies	-21.3 %	-17.0 %	4.3 %	20 %
Kid ASA	11.7 %	8.4 %	-3.3 %	-28 %
XXL	-4.4 %	-3.6 %	0.7 %	16 %
Europris	10.2 %	6.8 %	-3.4 %	-33 %
Clas Ohlson	11.2 %	7.8 %	-3.4 %	-31 %
Hennes & Mauritz	1.4 %	1.1 %	-0.3 %	-22 %
SalMar	19.3 %	18.9 %	-0.4 %	-2 %
Austevoll Seafood	7.3 %	6.9 %	-0.3 %	-4 %
Grieg Seafood	10.2 %	9.7 %	-0.5 %	-5 %
Lerøy Seafood Group	8.3 %	7.9 %	-0.4 %	-5 %
Mowi	11.6 %	10.6 %	-1.0 %	-9 %
Hapag-Lloyd	2.1 %	2.5 %	0.5 %	24 %
A.P. Moller - Maersk	1.8 %	1.7 %	-0.1 %	-6 %
Orient Overseas International	2.2 %	2.0 %	-0.1 %	-6 %
Evergreen Marine Corp. Ltd.	-0.2 %	0.3 %	0.5 %	222 %
Yang Ming Marine Transport Corporation	-2.8 %	-1.9 %	0.9 %	32 %

ROE				
	IAS 17	**IFRS 16**	**Change**	**Change %**
Ryanair	13.5 %	13.1 %	-0.3 %	-3 %
Lufthansa	18.8 %	18.6 %	-0.2 %	-1 %
IAG	31.9 %	34.7 %	2.7 %	9 %
SAS	-122.2 %	-122.8 %	-0.6 %	0 %
Norwegian Air Shuttle ASA	-28.5 %	-57.9 %	-29.4 %	-103 %
Noreco	-77.5 %	-77.5 %	0.0 %	0 %
Interoil	67.4 %	67.4 %	0.0 %	0 %
DNO	-3.9 %	-4.1 %	-0.1 %	-3 %
Aker BP	37.7 %	41.1 %	3.5 %	9 %
Equinor	21.8 %	22.4 %	0.6 %	3 %
Novartis	13.5 %	13.5 %	0.0 %	0 %
Merck KGaA	9.8 %	9.8 %	0.0 %	0 %
Carasent	4.7 %	4.6 %	-0.1 %	-3 %
AstraZeneca	11.1 %	11.0 %	-0.1 %	-1 %
ArcticZymes Technologies	-28.0 %	-29.2 %	-1.2 %	-4 %
Kid ASA	25.0 %	23.3 %	-1.7 %	-7 %
XXL	-8.5 %	-10.2 %	-1.7 %	-19 %
Europris	26.1 %	25.5 %	-0.6 %	-2 %
Clas Ohlson	22.5 %	26.1 %	3.6 %	16 %
Hennes & Mauritz	2.8 %	3.7 %	0.9 %	32 %
SalMar	33.5 %	33.5 %	-0.1 %	0 %
Austevoll Seafood	12.1 %	12.0 %	0.0 %	0 %
Grieg Seafood	21.0 %	21.0 %	0.0 %	0 %
Lerøy Seafood Group	13.5 %	13.6 %	0.0 %	0 %
Mowi	21.3 %	20.8 %	-0.5 %	-2 %
Hapag-Lloyd	4.8 %	6.4 %	1.6 %	34 %
A.P. Moller - Maersk	3.0 %	3.2 %	0.2 %	6 %
Orient Overseas International	4.6 %	4.7 %	0.1 %	2 %
Evergreen Marine Corp. Ltd.	-0.7 %	1.1 %	1.8 %	257 %
Yang Ming Marine Transport Corporation	-20.0 %	-19.3 %	0.7 %	4 %