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Tax income differences between multinational and domestic corporations in Norway: A panel data approach

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Taxable Income Differences Between Multinational and Domestic Corporations in Norway: A Panel Data Approach*

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Abstract

In this paper regression analysis is used to investigate negative profitability differential between foreign and domestic companies in Norway. More years and industries are included in the sample compared to previous studies on Norwegian data. Panel data methods, allowing to get rid of get rid of unobserved heterogeneity across the firms, are applied, in addition to OLS used in most of the earlier literature. More accurate and detailed classification of firms into different foreignness categories is conducted that allows to "refine" control group used for comparisons. The results indicate that multinational firms report around 30% lower profitability than comparable domestic firms. It has also been shown that profitability of domestic firms goes down by about 20% when they become multinational. This is after the most important characteristics and permanent differences between these two types of firms have been controlled for. The estimates of the profitability differential has been shown to be robust to different estimations methods used, as well as different definitions of foreignness and profitability measures. The differential found is consistent with profit shifting behavior by multinational companies in Norway, and would imply that profits are shifted out of Norway. The evidence provided cannot serve a direct proof of profit-shifting activities by multinational firms in Norway, but it strongly suggests that further research is warranted in order to get a better understanding of the problem of profit-shifting.

*This study is an updated and extended version of my master thesis "Profit-shifting in Norway: 1993-2005", supervised by professor Jarle Moen and delivered to NHH in 2007.

Contents

1 Introduction.

The main purpose of this paper is to investigate irregularities observed in Norwegian data in form of negative profitability differential between domestic and multinational companies. Internationalization theory of the firm (e.g. Markusen (1995)) predicts that firms that engage in foreign direct investments (FDI) are expected to possess some form of advantage (in form of superior technology, know-how, more effective management etc.) that would allow them to survive and succeed in the new markets. The relatively lower profitability performance of multinational firms in Norway contradicts this prediction. This anomaly deserves attention and should be studied further, since it can be an indication of profit shifting activities by multinational firms.

In this study, regression analysis is used to study the negative profitability differential between domestic and multinational firms observed in raw data. It aims to rule out the possibility that differences in profitability can be explained by the underlying differences in characteristics between the two types of firms. The profitability differential that "remains" unexplained after all the possible factors are controlled for would then be argued to provide an upper limit on the extent of profit shifting activities of multinational firms. This is in accordance with earlier studies in the field (Grubert et al. (1993), Oeyler and Emmanuelle (1997, 2002), Langli and Saudagaran (2004)). Realism of assumptions regarding the link between the differential and profit shifting will be addressed below. Also general advantages and disadvantages of this indirect approach will be discussed. This comes in addition to main contribution of this study to earlier literature which in very general terms is two-fold, and includes using "richer" and bigger data set for the analysis and improving the methodology used for estimations. As to the sample, the period of study will be extended, and more industries will be considered. The data available will also allow better classification of firms in different foreignness categories, which may remove "noise" from the control group used as a benchmark for profitability comparisons. Furthermore, a number of additional firm level controls will be introduced in the analysis to improve the general comparability of the firms. On the methodology side, panel data methods will be applied in order to do estimations as opposed to OLS, as in the previous studies.

The rest of the paper is organized as follows. The literature overview comes first. In the next section main assumptions made in this study are discussed.

In the following section the data sets and the sample are described. Description of variables and the summary statistics follow. Estimation specification and estimation methods are presented next. After that, the main results are presented and discussed. The sensitivity of the main results are then tested in the "extensions and sensitivity tests"-section. The paper is concluded with a summary section which contains an overview over the findings and conclusions.

2 Related literature.

Number of empirical studies of profit-shifting behavior in multinational companies is in general quite high (see Devereux (2006) for a comprehensive survey of studies). Some of them analyze different channels through which profits can be shifted directly. Others, in particular this study, apply the so called indirect approach for addressing the problem. Under the direct approach one can, for example, study manipulations by the means of transfer pricing mechanism directly by observing whether the prices set on goods and services traded between the affiliates of the multinational companies are being artificially over- or understated compared to market prices (Swenson (2001), Clausing (2003), Bernard et.al (2006)). The indirect approach implies on the other hand that one studies the observable measures, like profitability, that are expected to be affected by the different profit shifting mechanisms. While the former approach allows making more concrete conclusions regarding evidence of the one or the other mechanisms used, the advantage of the indirect approach lies in the fact that it may help to capture profit-shifting activities through the mechanisms that are not yet known to researchers. This is an important advantage given the nature of the profit shifting problem that is characterized by asymmetry of information between tax authorities and researchers on one side and firms and their consultants and lawyers on the other side. Moreover, the indirect approach may be the only available option to the researchers due to the data limitations, which is a common problem in this field of research. In the situations like that, even though there is a danger of capturing more than just profit shifting activities, the indirect approach can be helpful in shedding the light on the problem and indicating necessity and directions for future research.
The study that was the first to bring attention to the problem of negative profitability differentials between multinational and domestic firms, and thus started the line of the literature that this study follows, originates from the US. It is the study by Grubert et al (1993), where they use tax data to

uncover what lies behind low taxable income reported by foreign-owned affiliates in the US. There, statistical analysis was applied to see how much of the differential found in raw data can be explained by observable differences between these two types of firms. Their main finding is that around 50% of the differences in profitability between foreign-owned and domestically owned firms can be explained by different firm characteristics and other observable factors, among others maturation effects, exchange rate fluctuations and revaluation effects. They argue that the part of the differential that remains after the controls are accounted for can be considered as an upper bound on the extent of profit-shifting, most likely by the means of transfer price manipulations. Grubert (1997) extends the study by Grubert et al. (1993) in several respects among other things using data for several more years and applying different measure of profitability in the analysis. As a main result, he finds that as much as 75% of the profitability differential between the foreign and domestic controlled firms can be explained by systematic observed characteristics between them. He also finds that companies that are owned from abroad with ownership share between 25 and 50%, show the same type of systematic differences in profitability as 100% controlled companies when compared to domestic companies. Since one would expect that local majority owners would try to limit such activities by foreign owners, this makes him contemplate on whether also other reasons than profit shifting can lie behind the differential.

The results of a similar study, Kinney and Lawrence (2000) also put under the test the assumption that differences in tax payments observed in data can be attributed to profit shifting behavior. Their strategy is to investigate the relative tax burden of foreign controlled and domestic companies. They find that tax payments are indeed lower among the foreign controlled companies as compared to domestic companies. However, they suggest a way to test whether these are profit manipulations or real changes in profitability that are causing this differential. They use market return to equity to see whether it is consistent with profitability differences. The idea is that since market return to equity is "real" market response it would not go down as much if the differences were merely caused by profit-shifting. They find however that low profitability that one observes among foreign controlled firms is also associated with low market return to equity. Thus, they conclude that other reasons that profit shifting can lie behind the observed differences. An alternative explanation they offer is that foreign investors are not always as successful as domestic firms in choosing the best targets for takeover. The contribution by Kinney and Lawrence (2002) is important. However, the evidence they provide is not without limitations. Even though it questions

whether the differential is caused by profit shifting activities of the firms, it still does not prove directly that it does not. Moreover, they concentrate on a sample of firms that are controlled by foreigners with less than 100%, thus omitting the important group of firms that may be most exposed to profit shifting activities. The alternative explanation for the diferential they propose can however be an issue for future research.

Of the non-American studies using this indirect method of analysis, one can mention Oyelere and Emmanuel (1998). They use data on UK-based firms to compare profitability, as well as dividend distribution of the UK-controlled and foreign controlled firms, and get results consistent with profit shifting behavior of foreign controlled corporations. They match companies based on their total assets and industry composition to uncover the differences in profitability and dividend distribution between the two types of companies. In the main part of the study they use logit regression analysis to find that probability that the firm is foreign controlled is higher if it reports lower profitability and high dividend payout ratio. They conclude that this result is consistent with profit-shifting behavior since firms with equal capabilities (as measured by total assets) should otherwise be similar in terms of performance (profitability) and post performance measures (dividend payout) independent of where they are controlled from. Also here transfer price manipulations are named to be the most probable mechanism for the potential profit-shifting activities. Four years later Oyelere and Emmanuel (2002) update their analysis by adding observations for a longer time period and still find evidence of significant negative profitability differential between domestic and foreign controlled corporations in UK. However, in the latter paper they are less conclusive regarding the mechanisms that may lie behind, and do not exclude that differences in real activities that may also lie behind it.

In Norway the problem of profitability differential between domestic and foreign firms was first addressed in the study by Hægeland (2003), which is published as a part of the report by the Tax evaluation commission (Skatteutvalget) in Norway. One of the chapters in this study (5.6) investigates whether foreign-controlled and domestic companies in Norway have systematic differences in returns to total assets. Only weakly statistically significant difference was found in profitability between the two types of companies, and it was reported to be positive rather than negative as opposed to the above mentioned studies from other countries. These results indicate that if anything, the net flow of profits goes in rather than out of Norway. In addition to being in conflict with the results of similar international studies, these results are also the opposite of what is presented in another study based on Norwegian data by Langli and Saudagran (2004) published two years later.

The results by Langli and Saudagaran (2004) suggest that FCCs in Norway report systematically lower profitability as measured in several different ways and after a number of important firm characteristics are controlled for. Both of the papers follow approach similar to that in Grubert et al.(1993), and both of them, based on unconsolidated firm-level data on companies in Norway use regression analysis to investigate profitability differential between foreign controlled corporations (FCC) and domestically controlled corporations (DCC). However, the studies differ in terms of sample, profitability measures and control variables included in the analysis. At least some of these differences can potentially explain the contradicting results reported in the papers. For example, since the study by Langli and Saudagaran (2004) is based on a shorter time period and only considers a limited number of industry groups, it can be argued that the negative differential found in Langli and Saudagaran (2004) can be specific to the limited sample they use for analysis. The contradicting results described above contributed to motivation for conducting this study.

Most of the papers described above, using indirect approach, provide empirical evidence consistent with profit-shifting. This does not mean that the differential in profitability between foreign-controlled and domestic companies can be directly attributed to tax motivated profit-shifting behavior. Just a few of the earlier papers discuss the underlying assumptions regarding this link. Some of them, go one step further and try to test the link between the observed profitability differential and tax-motivated profit-shifting empirically. These are a the papers that tried to relate the differences in profitability to differences in tax rates the affiliates of multinational companies are facing. Klassen et al (1993) for example study whether profitability changes of US multinational companies are related to tax changes in US and international tax rate changes over time. They find that changes in profitability are consistent with flows of profit being shifted to the regions where the tax rates has been reduced and away from the regions with high tax rates. Also Harris (1993) that focuses on tax change in US as a result of 1986 TRA reform finds evidence that profitability of firms in US has been responsive to these changes in a way consistent with profit shifting behavior. Collins et al (1998) compared profitability of US multinational firms to themselves rather than using a control group for comparisons, and also found that profitability of US manufacturing multinational firms is related to average foreign tax rates. Among the European papers that studied the profit shifting incentives by relating differences in profitability to tax rate differences one could name Huizinga and Leavan (2008) and Dischinger (2007). Both of these studies are based on a sample of European multinational compa-

nies (Amadeus database), and both provide evidence consistent with profit shifting behavior. The main difference between the two is that the latter extends the analysis in the former by including several more years in the analysis and using fixed effects model for estimations, thus accounting for firms specific effects. As inspired by this literature, in the sensitivity tests section the analysis will be extended to incorporate tax rates of the foreign parent companies into analysis to see whether they will systematically affect the differences in profitability of the foreign controlled companies.

To conclude, I would like to specify the goals and contributions of this study. The idea of this paper is not only to resolve the controversy with regard to the already published results in Norwegian studies, but also to update and extend the existing analysis in several respects in order to shed more light on the issue of profitability differences between multinational and domestic companies in Norway. Contributions to existing literature include the following. Firstly, the period of study is extended to 13 years (from 1993 to 2005), as opposed to 6-years period in Hægeland (2002) and 4-years period in Langli and Saudagaran (2004). Secondly, all industries in private sector (excluding oil and mining) are included in the analysis, as opposed to all non-financial industries in Hægeland (2002) and only 3 industry groups in Langli and Saudagaran (2004). This will make it possible among other things to see if the profitability differential is driven by any particular industry. The data available will also allow better classification of firms in different foreignness categories, which may remove "noise" from the control group used as a benchmark for profitability comparisons. This means among other things that as opposed to comparing foreign controlled firms to domestically controlled firms (that may have subsidiaries abroad), it will be possible to compare profitability of multinational firms to profitability of pure domestic firms. Furthermore, additional firm level controls will be introduced in the analysis to improve the general comparability of the firms. On the methodology side, panel data methods will be applied in order to do estimations as opposed to OLS, as in most of the previous studies. Main advantage of the panel data methods is that they allow getting rid of unobserved heterogeneity between the firms that when not accounted for can cause a bias in profitability differential estimates. Moreover, since panel data methods allow studying deviations of performance of the firms from their own means, they make it possible to directly address the question of what happens to profitability of the firms as they change their foreignness status.

3 Discussion of the underlying assumptions.

In most of the earlier papers discussed above, negative profitability differential has been commonly attributed to tax motivated profit-shifting by means of transfer pricing manipulations. Thus, several important assumptions were implicitly made in all these papers. The first one is that the profitability differential that is observed in data is caused by the profit shifting activities of the firms. Second, nothing is explicitly said about the motive for profit shifting, tax minimization assumed to be the main motive. Finally, transfer price manipulations are assumed to be the mechanism behind the profit shifting activities. This section is devoted to a short discussion of these main assumptions that are made in the previous literature as well as in this study.
First of all, there can other reasons than profit shifting that lie behind the observed profitability differential. The idea behind the approach used here is to control for as many characteristics of the companies as possible, so as to be able to compare profitability of the firms that are similar in all other respects than multinationality. However, there still may be some factors that affect the profitability of the national and multinational firms differently, but are not accounted for. Most of the previous papers in the field have concentrated their attention on observable characteristics of the firms. Going a step further, panel data techniques will be used in order to also control for the time-invariant unobservable characteristics of the firms, like management quality and productivity and efficiency differences between the firms that can be difficult to measure. A number of controls for the observable characteristics of the firms that have not be used in the previous studies will also be included. For example, the possibility that multinational companies pay higher wages to their workers and thus are on average less profitable will be controlled for. Additionally, lower profitability of multinational companies may be due to the fact that foreigners having less information than local investors make systematically bad choices when choosing which companies to invest in. This issue has been raised in some of the papers relevant to this topic (Kinney and Lawrence (2000)). Trying to control for this particular possibility will be a topic for future research. Other tests that can help to establish (at least indirect) connection between the differential and profit shifting activities will be done in the "extensions and sensitivity tests"-section below.
Secondly, one cannot conclude with confidence from studying profitability differentials that profits are shifted solely in order to reduce tax payments. Among the alternative motives for profit shifting one can mention the desire to have better control over the profits which may motivate parent companies

to shift profits to the company headquarters rather than leaving them for subsidiaries managers disposition. In one of the sections below, tax rates will be incorporated into analysis, in order to see whether it can be shown that taxes are related to the profitability differentials observed.
Lastly, even though transfer price manipulations has been the mechanisms most widely discussed in literature so far, it is just one of the possible ways to shift profits. Other than transfer price manipulations, the ways to shift profits may for example include manipulations with the flows of royalty payments. This refers to the situations where intangible assets of the company, like patents and licenses, are located in the countries with preferential tax regimes, so that royalty fees, which also can be artificially overstated, will be concentrated in the countries where the minimum taxes will be paid on them. The profits can also be shifted by the means of debt shifting (also referred to as restructured financial arrangements in Klassen et al (1993)). Since interest payments on debt are tax deductible, the corporations can have incentives to "shift" debt (via internal lending and borrowing) to their subsidiaries in the high tax countries, thus reducing their tax liabilities there. In norwegian data, one can only observe aggregate borrowing, but cannot distinguish between the internal debt (debt that comes from within corporation) and external debt. But controlling for aggregate leverage in the regressions below allows at least partly to control for the profit shifting activities through debt shifting channel. However it still does not account for the fact that interest payments for loans can be over- or understated. Neither can it be possible to control for royalty fees manipulations with the data available. So both of these mechanisms can be captured by the estimated differential. Moreover, the list of the other potential mechanisms can be long, and will also most likely include items not known to researchers. This is caused by the very nature of the profit shifting problem, that it will always be characterized by asymmetric information, as already mentioned above, between the firms, their consultants and lawyers on one side and tax authorities and researchers on the other side. In addition, even if the mechanisms are generally known, the data necessary to reveal them is usually confidential and thus not publicly available. The approach used here, which involves studying profitability differential is a good starting point for analysis of profit shifting given these limitations. Even though it does not give us a possibility to uncover with confidence the means used for profit shifting, it allows us to estimate at least the upper limits to the extent of profit shifting activities.

4 The data sets and sample.

The sample is constructed by combining three different data sets. The first data set, provided by Dun&Bradstreet (D&B), contains data on financial statistics of all companies registered in Norway. The second data set, SIFON, provides data on foreign ownership in Norwegian companies (inbound FDI). Finally, Utenlandsoppgaver-data set, provided by Tax Authorities (Skattedirektoratet) in Norway, has data on direct investments of Norwegian companies abroad (outbound FDI). These three data sets are merged by unique organizations number with which each of the companies in Norway is registered with. This allows us to identify the extent of inbound and outbound FDI each of the companies in Norway is involved in, and to classify firms in the sample into 9 different categories. The categories are presented in table 1 and described below.

Table 1: Categories of firms.

	DCC	FCC	Both types
Without FDI	1	2	5
With FDI	3	4	6
Both types	7	8	9

1. Domestically controlled companies without foreign direct investments (or pure domestic companies).

2. Foreign controlled companies in Norway that do not have foreign direct investments. A company is considered as foreign controlled if foreign investors (in total) directly own *more* than 50% of shares of this company.

3. Domestically controlled companies in Norway that have foreign direct investments. A company is said to have foreign direct investments if it directly or indirectly owns more than 50% of the shares in a foreign company.

4. Foreign controlled companies that have direct investments abroad.

5. Companies in Norway that may be foreign or domestically controlled, but do not have foreign direct investments.

6. Companies in Norway that may be foreign or domestically controlled, and have direct investments abroad.

7. Domestically controlled companies that may have foreign direct investments.

8. Foreign controlled companies that may have foreign direct investments.

9. Companies in Norway that may be foreign or domestically controlled, and with or without foreign direct investments (All companies in the sample).

The possibility of more precise classifying the firms into different categories is one of the important contributions of this study. The advantage is that the main variable of interest (*"foreignness"*), discussed below, can now be defined in several different ways. This imples that a number of different definitions for domestic firms can be used, thus making it possible to obtain a "cleaner" control group (more about that in the next section). For comparison, of the 9 categories above only two (7 and 8) has been used in the studies by *Hægeland (2003)* and *Langli and Saudagaran (2004)*. Only one definition of foreignness (namely foreign control) was thus used in these studies (and in most of the other earlier studies). It means that their "control" group was "polluted" with domestically controlled firms that have subsidiaries abroad, and thus may have similar possibilities for shifting profits as foreign controlled firms.

To construct the sample, I followed the framework by *Langli and Saudagarn (2004)*. The restrictions done to the original data set are the following [1]:

- Firstly, only limited liability companies are included in the sample.
- Further, companies with total assets of less than NOK 1 000 000 are excluded. This is done in order to avoid the the potential "noise" from a big number of small companies, among which the share of multinational companies is very small.
- Companies with non-positive sales[2] are eliminated. This restriction is done in order to study the behavior of productive firms.

[1] The restrictions are done after the variables are deflated to 1998 NOK using average yearly CPI provided by SSB.

[2] Total operating revenue is used as a measure of sales throughout the paper.

- Companies which had profitability ratios as measured by Taxable Income to Sales of more than 1 in absolute value are excluded. This is also a common restrictions done in the related literature and makes interpretation of the coefficients more intuitive (percentage point changes).
- Additionally, the observations for which the adjusted TI/Sales ratio has been very different (more than 0.5 in absolute value) from the reported Income before Taxes/Sales ratio were excluded.
- Companies with leverage ratios (long-term and short-term debt to total assets) of less than 0 and bigger than 3 are dropped.
- Observations with Fixed/Total Assets ratio and Wage cost share of less than 0 and more than 1 are dropped from the sample too.
- Reported income before taxes is adjusted for temporary and permanent differences. Since the adjustment factor required data from financial statements for the previous year, the observations, for which this was information was missing dropped out.

The final sample differs however from that used in Langli and Saudagaran (2004) in that:

- a longer time period is considered for analysis: 1993-2005.
- all industries are included (except mining and quarrying) as opposed to just 3 industries hey considered

After all the restrictions are done, the final sample consists of *657 823* observations. The number of observations lost due to each of the restrictions is reported in Table 1. The different columns in Table 1 refer to the foreignness status of the firms. As described above, FMNC refers to foreign multinational firms, DMNC - to domestic multinational firms, MNC - to multinational firms that are either DMNC or FMNC, and DNC is an abbreviation for purely domestic firms.

5 The variables.

5.1 Dependent variables.

The main dependent variable is *Taxable Income to Sales*. Taxable Income is calculated by adjusting Net Income before Taxes (NIBT) as reported in financial statements, for temporary and permanent differences (*Klassen et*

Table 2: Exclusion restrictions.

	Number of observations					
	FMNC	***DMNC***	***MNC***	***DNC***	***Total***	*%*
Original data set	64 231	9 191	73422	1 646 719	1 720 141	*100 %*
Limited Liability Companies	58 430	8 658	67 088	1 545 594	1 612 682	*94 %*
Total Assets more than 1 mln NOK	45 667	8 442	54 109	898 013	952 122	*55 %*
Postive Sales	40 651	7 071	47 722	823 088	870 810	*59 %*
Absolute value (TI/Sales)<1	34 668	5 162	39 830	650 561	690 391	*40 %*
Absolute value ((TI-resfs)/Sales)<0,5	33 874	4 766	38 640	631 427	670 067	*39%*
0<Debt ratios<3	33 448	4 702	38 150	624 735	662 885	*39 %*
0<Fixed Assets/Total Assets<1	33 443	4 702	38 145	624 597	662 742	*39 %*
0<Wage cost share<1	33 390	4 693	38 083	623 652	661 735	*39 %*
All industries (except oil extract.)	32 663	4 602	37 265	620 558	657 823	*38 %*
Final sample (1993-2005)	***32 663***	***4 602***	***37 265***	***620 558***	***657 823***	*38%*

al (1993), *Jacob (1996)*, *Langli and Saudagaran (2004)*):

$$TI_{i,t} = NIBT_{i,t} + [(DTL_{i,t-1} - DTL_{i,t} + DTA_{i,t} - DTA_{i,t-1})]/TR_{i,t}$$

where

$NIBT_{i,t}$- net income before taxes

$DTL_{i,t}$- deferred tax liability

$DTA_{i,t}$- deferred tax asset

$TR_{i,t}$- is the effective tax rate, calculated as: $\frac{TE_{i,t}}{NIBT_{i,t}}$, where $TE_{i,t}$ is tax expense.

Alternative measures for profitability will be applied in sensitivity tests check section in order to rule out the possibility that the differential is only specific to this particular profitability measure used. They will include taxable income to total assets ratio; return on capital, defined as a ratio of operating income and financial revenues to total assets; and operating margin (measured as a ratio of operating profit to sales).

5.2 Explanatory variables.

Foreignness-varaible.

The definitions of *"foreignness"* that are going to be used in the analysis are the following:

- ***MNC*** - multinational companies, which are companies that are either foreign controlled or have subsidiaries abroad or both (categories 2, 3, 4, 6 and 8 in table 1). Firms that are MNC can further be divided into DMNC and FMNC:
- ***DMNC*** - domestic multinational companies, which are domestically controlled companies with subsidiaries abroad (category 3 in table 1).
- ***FMNC*** - foreign multinational companies, which are foreign controlled companies located in Norway that may or may not have subsidiaries abroad (categories 2, 4 and 8 in table 1). This is a definition of foreignness that is used in most of the previous papers in the field as described in the Relevant literature-section. Also here the classification can be refined even further, so that one can distinguish between the following two types of FMNC companies:
- ***FCC+FDI*** - foreign controlled companies, that have subsidiaries abroad (category 4 in table 1).
- ***FCC-FDI*** - foreign controlled companies, that do not have subsidiaries abroad (category 2 in table 1).

The category that will serve as a benchmark in this study will be:

- ***DNC*** - domestic national companies, which are pure domestic companies, i.e. are neither foreign controlled, nor do they have controlling ownership share in subsidiaries abroad (category 1 in table 1).

For the number of observations in each of these categories (for each of the years in the sample) see table 20 in Appendix.

Other explanatory variables:

Industry affiliation
Langli and Saudagaran (2004), where they have considered only firms in trade and manufacturing, used a dummy variable that takes value one if

the company is in trade industry and zero if it is in the manufacturing industry. This dummy does not allow distinguishing between the numerous sub-sectors within each of the industries that may differ from each other greatly (e.g. manufacturing of pharmaceuticals vs. manufacturing of hardware). Moreover more than just two industry groups are included in this study. That is why dummy variables for each of the 2- and 3-digit NACE codes has been created instead. Industry dummies based on 2-digit NACE codes are used in the analysis in Hægeland (2003). However, since they still do not allow distinguishing between the sub-sectors in trade industries, dummy for NACE 3 digit codes will be used to control for industry effects in the regressions. In total, there are 233 industry groups on a 3-digit NACE level in the sample.

Leverage ratio
Several leverage variables are used in the analysis. The first one is the long-term interest-bearing debt ratio which is constructed as the ratio of long-term interest-bearing debt to total assets. The second is the short-term interest bearing debt ratio which is constructed as a ratio between short term interest bearing liabilities to total assets. The last one is short-term non-interest bearing debt ratio (a ratio between short term non-interest bearing debt and total assets). It is important to control for debt in the regressions as shifting of (internal) debt is also a known channel for profit shifting (note however, that here only control for the aggregate debt is present, since data does not allow distinguishing between the debt that comes from other affiliates in the same corporation or from external sources). Manipulations with short- vs. long-term debt can be another source of profit manipulations, which is the main reason for controlling for short-term debt in the analysis. For comparison, only control for long-term debt was included in the analysis in Langli and Saudagaran (2004). No control for leverage is present in Hægeland (2002), something that can be expected to affect his estimate of the differential.

Expected sign: negative for interest-bearing debt (since interest payments reduce taxable income). No clear prediction for non-interest bearing debt.

Tangibility
Tangibility variable is constructed as ratio of fixed assets (sum of buildings, plants and equipment) to total assets.

Expected sign: positive (it can be easier to get financing for firms with high

tangibility ratio, as tangible/fixed assets can be used as collateral when borrowing funds, thus better investment possibilities) or negative (since depreciation allowances reduce taxable income).

Size
The size of the company is measured by its Sales. In Langli and Saudagaran (2004), a dummy for each of the 5 quantiles of Sales is created and included in the regressions to control for size. Dummy "Sales 1" takes value 1 if firm belongs to the 1st Sales quantile and zero otherwise, etc. In this study both sales quintile dummies and fourth order polynom in sales will be used as a control for size. The latter is chosen to be the main size control as it seems to be a better approximation for the relation between profitability and size of the company. Alternatively, one could use total assets as a measure of the size of the company. The sensitivity of the results to these alternative size measures is tested in the sensitivity tests section.

Expected sign: ambiguous (bigger firms have more possibilities to enjoy economies of scale which are expected to be positively correlated with the firms profitability. But on the other hand, big companies may also have more resources and incentives to involve in profit-shifting and thus have lower reported profits).

Age
The fourth order polynoms in age will be used as control for maturity of the firms. Age is calculated as the difference between the date of establishment and the year of the financial statement. The effect of an alternative control for age will be tested (following Langli and Saudagaran (2004)). Firms will be divided into 4 groups: 0-5 years old, 5-10 years old, 10-20 years old, more than 20 years old. A dummy corresponding to each of the groups is generated.

Expected sign: positive (it can be expected that young firms may report lower profitability due to start-up costs, and that profitability will increase as the firm matures).

Wage cost share
Wage cost share is calculated as share of wage costs in the total operating costs of the firm. This variable that have not been used in any of the papers described above (mostly due to the data limitations) is meant to serve as a proxy for the wage level in the firms, and thus account for the fact that

multinational firms can be paying higher wages to their workers, which in turn can be one of the factors behind their low profitability as compared to domestics firms.

Expected sign: negative (higher wages all other things being equal reduce profits).

Time effects
Year dummies are included in each of the regressions in order to control for general time effects common for all firms and changes in macroeconomic conditions.

5.3 Summary statistics.

Summary statistics for the main variables are presented in the table 3 below. All the numbers are in 1000 1998 NOK.

Table 3: Descriptive statistics (thousand NOK).

	Total		***FMNC***	***DMNC***	***MNC***	***DNC***
	Mean	*(St.error)*	Mean	Mean	Mean	Mean
Taxable Income	2 044	*(51 414)*	7 527	61 355	14 166	1 316
Total Assets	46 519	*(1 971 302)*	181 225	2 041 427	410 670	24 647
Sales	32 442	*(307 034)*	154 959	590 216	208 646	21 859
Taxable Income/Sales	0.1015	*(0.2311*	0.0434	0.0891	0.0491	0.1044
Taxable Income/Total Assets	0.0915	*(0,1756)*	0.0667	0.0680	0.0667	0.0929
Operating margin	0.1444	*(0.2451)*	0.0478	0.0768	0.0514	0.1499
Return to capital	0.1236	*(0.1797)*	0.0863	0.1009	0.0881	0.1258
Fixed Assets/Total Assets	0.2777	*(0.3350)*	0.1124	0.1404	0.1158	0.2875
Wage cost share	0.2573	*(0.2420)*	0.2344	0.2714	0.2389	0.2584
Long-term debt ratio (int.bearing)	0.2829	*(0.3216)*	0.1494	0.2029	0.1559	0.2906
Short-term debt ratio (int.bearing)	0.1061	*(0.1790)*	0.2132	0.1517	0.2056	0.1001
Short-term debt ratio (non-int.bearing)	0.3706	*(0.2821)*	0.3802	0.2636	0.3659	0.3709
Age	13.19	*(14.26)*	15.38	21.85	16.18	13.01
Obs.	657 823		32 663	4 602	37 265	620 558

As it can be seen from table 3, purely domestic companies represent the largest group in the sample. The number of multinational companies in the sample is relatively small (37 625 observations over 13 years), with the

number of domestic multinational companies being even smaller (4 602 observations). When it concerns the size of the companies, the mean total assets of the firms in the sample lie at around 46.5 million NOK. However, the dispersion in the average values of total assets in the firms with different foreignness status is large (as also seen from standard errors). For example one can see that the average value of capital for the domestic multinational companies (DMNC) that constitute less that 1% of observations in the sample is at around 2 billions NOK. Pure domestic companies on the other hand are reported with the lowest values of capital in the sample, which is approximately 17 times less than the average capital value for the multinational firms in the sample. The pattern is the same if size is measured in terms of sales: also here purely domestic companies come out to be the smallest and domestic multinationals are the largest. The dispersion of the values of sales is smaller than the case is for total assets, but still considerable. This may rise a question of whether the companies so different in size can be comparable. To account for the size differences the dependent variable is scaled with sales (and total assets in the sensitivity checks section) and control for size explicitly in the regressions (as described above). The regressions are also run on each of the sales quantiles groups (based on firms average sales) separately in order to make the compared groups more homogenous.

Purely domestic firms are also shown to have a relatively bigger proportion of fixed assets in their total assets, which is more than two times higher than the corresponding proportions for multinational firms. As opposed to what one would expect the wage cost share is slightly lower for foreign controlled than for domestic firms, but is the highest for the domestically controlled firms that have direct investments abroad. Purely domestic firms also have more than two times more in debt as measured by both long-term and short term interest-bearing debt ratio than the multinational firms. This is interesting to note due to the fact that internal debt-shifting can be one of the important channels for profit shifting by multinational firms. In norwegian data, it is not possible distinguish between internal debt (debt that comes from within corporation) and external debt. But the aggregate figures in table 3 indicate that at least on average, the multinational firms in Norway are not over-leveraged. The ratio of short-term non-interest bearing debt is almost the same for the two types of companies.

Another thing to note here is that even though purely domestic companies are smallest in size and on average have low taxable income, the profitability ratios reveal that they are always more profitable compared to multinational companies. The profitability difference between the multinational and domestic companies lies in between around 3 and 10 percentage points and is

the largest when measured in term of operating margin. Regression analysis is used to investigate these profitability differentials in further detail below.

6 Estimation specification.

The basic regression equation to be estimated is in accordance to that in earlier literature, among others Langli and Saudagaran (2004), and looks like following:

$$\Pi_{it} = \beta_1 \cdot f_{it} + \gamma \cdot X_{it} + \sigma_t + u_{it} \tag{1}$$

where:

Π_{it} - stands for a profitability, which in the baseline regressions is measured by the ratio of Taxable Income over Sales.

f_{it} - is the *"foreignness"* variable which is the main variable, and β_1 is the parameter of interest. β_1 will represent the profitability differential and is expected to reflect the net effect of profit shifting. It will be negative if foreign corporations report systematically lower profitability than domestic companies, indicating that profits may be shifted out of Norway. The opposite will be true if the coefficient will turn out positive. The only two studies done on Norwegian data define $foreignness$ variable as foreign control variable (FCC), but report contradicting results for this sign. Langli and Saudagaran (2004) reports negative coefficient for it, while positive coefficient is reported in a similar, even though less detailed study by Hægeland (2003). One of the important goals of this study is to estimate the model as specified above to find out what causes the results in the previous two studies to differ. Furthermore, as already mentioned above, the foreignness variable will be defined in several different ways. As a result, it will be possible to remove domestically controlled firms with foreign subsidiaries from the control group. As they may also have incentives to shift profits in or out of Norway, failing to do that would over- or underestimate the estimates of the differential depending on whether the net profit shifting through foreign parents and subsidiaries by foreign controlled companies goes in the same or opposite direction.

X_{it} - stands for the control variables that represent various firm characteristics, like size, age, leverage, wage cost share and tangibility (as described in detail above).

$\sigma_{\mathbf{t}}$ - represent year fixed effects, and imply that the intercept is allowed vary over time. The time effects are meant to capture the effects that vary over time but are common for all the firms, like for example changes in macroeconomic conditions.

ε_{it} - is the error term.

This specification (which can be referred to as time effects specification) will be used as the baseline equation and, following Langli and Saudagaran (2004) approach, will be estimated by Pooled OLS. Pooled OLS is the simplest estimator to apply. However one of its disadvantages is that it assumes that all observations are independently and identically distributed, and thus it does not take account of the fact the data are in panel format. This is a problematic assumption since two observations of one firm from different years would most likely be correlated with each other. This would imply that standard errors in OLS estimations will be wrong. One of the ways to account for that fact is to introduce firm-specific time-invariant effects into the specification by allowing the intercept to vary across the units. This is done in the fixed effects model discussed below. Since the specification above does not account for these firm fixed effects directly, they are "hidden" in the error term there. The modified specification of the model, where firm fixed effects are accounted for explicitly, will then look like as follows:

$$\Pi_{it} = \beta_1 \cdot f_{it} + \gamma \cdot X_{it} + \sigma_{\mathbf{t}} + \alpha_{\mathbf{i}} + \varepsilon_{it} \tag{2}$$

This is a fixed effect specification, where all the variables and parameters are as above, except that the error term u_{it} is now decomposed into:
$\alpha_{\mathbf{i}}$ - which is parameter that represents unobservable firm-specific effects that are time-invariant. This can be for example quality of management, production efficiency or other factors that are difficult to measure. And
ε_{it} - an idiosyncratic error, which can vary both across firms and time.

In this latter specification the intercept is allowed to vary not only over time, but also from one firm to another. This is important, since there can be good reasons to believe that these firm-specific effects in the case can be correlated with the foreignness variable, thus introducing endogeneity in the model. There are several factors that can cause that. According to the internationalization theory of the firm, for example, productivity and efficiency of the firms may affect their willingness and ability to involve in

foreign direct investments. Similarly, if foreignness is defined as foreign control, the decision of foreign investors to take over the firm can be influenced by the productivity of that firm. If firm-fixed effects and foreignness variable are indeed correlated, failing to account for the firm fixed effects properly will lead to an omitted variable bias. It implies that the OLS estimate of the profitability differential will be biased. The direction of the bias will depend on whether the relation between these unobservable factors and the foreignness variable is positive or negative. One would expect that these are the most productive and successful firms that decide to extend abroad. In this case the expectation is that pooled OLS estimate will underestimate (in absolute terms) the true effect of foreignness on profitability. The relation is not so obvious on the foreign control side: if foreign investors involve in "cherry picking", thus choosing the best performing firms to acquire, the bias will again be expected to be positive implying that the pooled OLS coefficient for f is understated. The bias will go in the opposite direction if the foreign investors are rather interested in taking over the poorly performing firms.

7 Estimation methods.

In the previous subsection the possibility of the omitted variables bias has been discussed, as well as the direction in which the bias can go in. Independent of which direction the bias goes in, it is important to get rid of it. There are several ways of doing so, since the data available is in panel format. Namely, different panel data methods will be applied in order to estimate the model, including first-differencing, fixed effects models and long-differencing.

7.1 First-difference model.

In this model one gets rid of the firm fixed effects by estimating the model in the first-difference (FD) form, so that the specification to be estimated will be the following:

$$\Pi_{it} - \Pi_{i,t-1} = \beta_1 \cdot (f_{it} - f_{i,t-1}) + \gamma \cdot (X_{it} - X_{i,t-1}) + (\sigma_t - \sigma_{t-1}) + (\varepsilon_{it} - \varepsilon_{i,t-1}) \quad (3)$$

where $\Pi_{i,t-1}$ - is value of the profitability variable in the previous year, and similarly for the rest variables. The fixed effects disappear as $\alpha_{i,t-1} = \alpha_i$.

It is interesting to note that first-differencing also constitutes the idea behind

the difference-in-difference estimator. This is an estimator that is widely used in evaluating the effects of introducing new policies/treatments. One can regard becoming a multinational company (either by being taken over by foreigners or getting subsidiaries abroad) as being a "treatment": so that the firms that become multinational are considered as a "treated" group, and the firms that remained domestic will be a "control" group. Assume for simplicity that only two periods of time are considered, where the firms may get a treatment in the second period. In this context, it may correspond to the situation where all of the firms are domestic in the first period, while some of them may become multinational in the next period. Estimating the first differenced specification (3) as formulated above by OLS, will imply that β_1 will now represent the "treatment effect", i.e. the effect on profitability of becoming a multinational all other things being equal. More closely it will allow us to estimate the difference between change in profitability of the firms that have been "treated", i.e. became multinational from one period to another, and change in profitability of those that remained domestic ("control" group), all other things being equal. This comparison is however done under assumption that "treated" firms would have had the same profitability as those that are in the "control" group if they would not change the status. The interpretation of the coefficient in this study can also be less straightforward due to the fact that there are more than two time periods to consider, and firms change foreignness status all at different times. Thus, it can be appropriate to use generalized form of the difference-in-difference estimator which is a fixed effects estimator. The latter can be used when dealing with many time periods and when the "treatment" may occur in different time periods for different firms without any particular pattern.

7.2 Fixed effects model.

Fixed effects model (FE) represents an alternative way of getting rid of firm specific effects. This is achieved by estimating the model with fixed effects in a time-demeaned form:

$$\Pi_{it} - \bar{\Pi}_i = \beta_1 \cdot (f_{it} - \bar{f}_i) + \gamma \cdot (X_{it} - \bar{X}_i) + (\sigma_t - \bar{\sigma}) + (\varepsilon_{it} - \bar{\varepsilon}_i) \qquad (4)$$

where all the variables with bar-sign over refer to the time means of the variables. For example, the firm average profitability is calculated as $\bar{\Pi}_i = T^{-1}\Sigma_t \Pi_{it}$, where T is the number of years the firms has observations on. Since the regression here is done on deviations of the variables from their mean values over time, the firm specific effects, that are assumed time invariant ($\bar{\alpha}_i = T^{-1}\Sigma_t \alpha_i = \alpha_i$), get cancelled out.

The estimates of a "treatment effect" (β_1) as estimated by FE and FD are not expected to be the same since the number of periods considered here is more than two. Baltagi (2008) with reference to Laporte and Windmeijer (2005) argues also that the two estimates can differ considerably in the cases where "treatment" (in this case change of ownership status) does not occur systematically at the same time for all firms, and when the effects of changing the status are not constant over time. They argue that if this is the case a more flexible specification (which will include dummy variables for years before and after status change) is needed for these two estimators to give similar results. Considering this issue in further detail will however be left for future research.
Both first differencing and fixed effects models help to eliminate the firm specific time invariant effect from the specification, thus helping to solve the problem of omitted variable bias described above. There is however one another problem this specification can suffer from, that would be worsened by these transformations. This is the potential measurement error problem in the foreignness variable that may arise from the fact that firms may be misclassified between the different categories, mostly due to timing differences between actual and reported status change. If not properly accounted for, it can cause attenuation bias in the main parameter of interest, as estimated by the models above, driving the estimates for foreignness-variable towards zero. The main motivation for estimating the model using the method described next is that it can reduce the potential measurement error problem in the foreignness variable.

7.3 Long-difference model.

Long differencing (LD) is similar to first differencing except that instead of taking difference of the variable with respect to the previous year, the difference with respect to a year a longer period back is taken. For example, like it will be done in this study, the difference between the last and the first year with data available in the sample can be taken:

$$\Pi_{il} - \Pi_{if} = \beta_1 \cdot (f_{il} - f_{if}) + \gamma_k \cdot (x_{kil} - x_{kif}) + (\sigma_l - \sigma_f) + (\varepsilon_{il} - \varepsilon_{if}) \quad (5)$$

Also here the time invariant firm specific effects will be eliminated from the model. When presenting the empirical results in the next section, the results of the long differencing approach will be compared to the fixed effects and first difference results to see if it is helpful in reducing the potential attenuation bias.

8 Empirical results.

8.1 Main regression results.

The results of estimations are presented in this section. The dependent variable in all the regressions is taxable income to sales ratio, unless otherwise specified. Alternative definitions of profitability will be tested in the sensitivity checks section. First, the main four tables (tables 4, 5, 6 , 7 below) will be presented with the results of the baseline regressions, based on a sample as described above. These tables differ in the way the main explanatory variable, foreignness, is defined.
In the first table, table 4, the foreignness variable (FCC) is defined in the same way as in most of the earlier literature, among others Hægeland (2003) and Langli and Saudagaran (2004). Namely, it covers foreign controlled companies, while domestically controlled companies serve as a benchmark. The idea is that the profitability differential between these two types of companies can reveal whether foreign controlled companies exercise their possibility to shift profits in or out of Norway via its foreign parent. Note however that as it is defined now, both types of companies may have subsidiaries abroad. This implies that both types of companies may also have incentives to shift profits in or out of the country through their foreign subsidiaries. This latter possibility is not accounted for if foreignness is defined as foreign control, and this definition may thus introduce some noise in the effect that is to be identified in the regression analysis. The results of the regressions with foreign control as the main explanatory variables will be presented to serve as a benchmark for further discussion, and use other definitions of foreignness for the main explanatory variables. In the second regression results table, table 5, foreignness variable (MNC) is defined so that it contains all the multinational companies that are either foreign controlled, or have foreign subsidiaries or both. Only domestic companies, that are neither foreign controlled nor have controlling share in subsidiaries abroad, are left in the control group (they will be referred to as pure domestic companies). In table 6 all the firms in the sample are divided into 3 subgroups. The control group still consists of purely domestic companies. The multinational firms however are further divided into 2 subgroups. The first subgroup ($FMNC$) contains those firms that are foreign controlled with or without foreign subsidiaries (i.e. the same as in the case with foreign control variable in table 4). The second group ($DMNC$) is the group of domestically controlled firms that have subsidiaries abroad (the group that have been a part of a "control" group in table 4). This will allow us to see among other things

Table 4: Main regressions.

	(1) OLS	(2) FE	(3) FD	(4) LD
FCC	–.0339***	–.0191***	–.0058	–.0307***
	(.002)	(.003)	(.004)	(.008)
Long-term (int.)	–.2725***	–.2304***	–.2677***	–.2626***
	(.003)	(.003)	(.004)	(.007)
Short-term (int.)	–.2376***	–.1689***	–.2003***	–.1831***
	(.003)	(.003)	(.004)	(.008)
Short-term (non-int.)	–.1145***	–.0936***	–.1119***	–.1203***
	(.002)	(.003)	(.003)	(.006)
Tangib.	.0304***	–.0158***	–.0922***	–.0586***
	(.003)	(.003)	(.003)	(.008)
Wage cost share	–.0331***	–.0703***	.0114**	–.0667***
	(.003)	(.005)	(.005)	(.011)
Sales	–.0000***	–.0000***	.0000**	–.0000**
	(.000)	(.000)	(.000)	(.000)
$Sales^2$	.0000***	.0000***	–.0000***	.0000
	(.000)	(.000)	(.000)	(.000)
$Sales^3$	–.0000***	–.0000***	.0000**	–.0000
	(.000)	(.000)	(.000)	(.000)
$Sales^4$	.0000***	.0000***	–.0000**	.0000
	(.000)	(.000)	(.000)	(.000)
Age	.0050***	.0062***	.0000	.0043***
	(.000)	(.000)	(.)	(.001)
Age^2	–.0002***	–.0000	–.0001***	.0001*
	(.000)	(.000)	(.000)	(.000)
Age^3	.0000***	.0000	.0000***	–.0000
	(.000)	(.000)	(.000)	(.000)
Age^4	–.0000***	–.0000	–.0000**	.0000
	(.000)	(.000)	(.000)	(.000)
Constant	.2656***	.1689***	.0058***	.0060***
	(.017)	(.003)	(.000)	(.002)
Year Eff.	Yes	Yes	Yes	Yes
Industry Eff.	Yes	No	No	No
Adj. R^2	.237	.070	.049	.061
No. of obs.	657823	657823	521204	136619

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

Table 5: Main regressions.

	(1) OLS	(2) FE	(3) FD	(4) LD
MNC	–.0317***	–.0182***	–.0041	–.0230***
	(.002)	(.003)	(.003)	(.006)
Long-term (int.)	–.2725***	–.2304***	–.2677***	–.2626***
	(.003)	(.003)	(.004)	(.005)
Short-term (int.)	–.2379***	–.1689***	–.2003***	–.1832***
	(.003)	(.003)	(.004)	(.006)
Short-term (non-int.)	–.1150***	–.0937***	–.1119***	–.1204***
	(.002)	(.003)	(.003)	(.005)
Tangib.	.0301***	–.0158***	–.0922***	–.0586**
	(.003)	(.003)	(.003)	(.006)
Wage cost share	–.0331***	–.0702***	.0114**	–.0667***
	(.003)	(.005)	(.005)	(.009)
$Sales$	–.0000***	–.0000***	.0000**	–.0000***
	(.000)	(.000)	(.000)	(.000)
$Sales^2$	.0000***	.0000***	–.0000***	.0000**
	(.000)	(.000)	(.000)	(.000)
$Sales^3$	–.0000***	–.0000***	.0000**	–.0000**
	(.000)	(.000)	(.000)	(.000)
$Sales^4$	.0000***	.0000***	–.0000**	.0000**
	(.000)	(.000)	(.000)	(.000)
Age	.0050***	.0062***	.0000	.0043***
	(.000)	(.000)	(.)	(.000)
Age^2	–.0002***	–.0000*	–.0001***	.0001
	(.000)	(.000)	(.000)	(.000)
Age^3	.0000***	.0000	.0000***	–.0000
	(.000)	(.000)	(.000)	(.000)
Age^4	–.0000***	–.0000	–.0000**	.0000
	(.000)	(.000)	(.000)	(.000)
Constant	.2663***	.1689***	.0058***	.0059***
	(.017)	(.003)	(.000)	(.002)
Year Eff.	Yes	Yes	Yes	Yes
Industry Eff.	Yes	No	No	No
Adj. R^2	.237	.070	.049	.061
No. of obs.	657823	657823	521204	657823

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

Table 6: Main regressions.

	(1) OLS	(2) FE	(3) FD	(4) LD
FMNC	–.0343***	–.0197***	–.0057	–.0303***
	(.002)	(.003)	(.004)	(.008)
DMNC	–.0126**	–.0129**	.0021	.0100
	(.005)	(.006)	(.008)	(.020)
Long-term (int.)	–.2725***	–.2304***	–.2677***	–.2626***
	(.003)	(.003)	(.004)	(.007)
Short-term (int.)	–.2375***	–.1688***	–.2003***	–.1831***
	(.003)	(.003)	(.004)	(.008)
Short-term (non-int.)	–.1147***	–.0937***	–.1119***	–.1202***
	(.002)	(.003)	(.003)	(.006)
Tangib.	.0302***	–.0158***	–.0922***	–.0586***
	(.003)	(.003)	(.003)	(.008)
Wage cost share	–.0331***	–.0702***	.0114**	–.0667***
	(.003)	(.005)	(.005)	(.011)
Sales	–.0000***	–.0000***	.0000**	–.0000**
	(.000)	(.000)	(.000)	(.000)
$Sales^2$	.0000***	.0000***	–.0000***	.0000
	(.000)	(.000)	(.000)	(.000)
$Sales^3$	–.0000***	–.0000***	.0000**	–.0000
	(.000)	(.000)	(.000)	(.000)
$Sales^4$	.0000***	.0000***	–.0000**	.0000
	(.000)	(.000)	(.000)	(.000)
Age	.0050***	.0062***	.0000	.0043***
	(.000)	(.000)	(.)	(.001)
Age^2	–.0002***	–.0000*	–.0001***	.0001*
	(.000)	(.000)	(.000)	(.000)
Age^3	.0000***	.0000	.0000***	–.0000
	(.000)	(.000)	(.000)	(.000)
Age^4	–.0000***	–.0000	–.0000**	.0000
	(.000)	(.000)	(.000)	(.000)
Constant	.2662***	.1689***	.0058***	.0060***
	(.017)	(.003)	(.000)	(.002)
Year Eff.	Yes	Yes	Yes	Yes
Industry Eff.	Yes	No	No	No
Adj. R^2	.237	.070	.049	.061
No. of obs.	657823	657823	521204	136619

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

Table 7: Main regressions.

	(1) OLS	(2) FE	(3) FD	(4) LD
FCC+FDI	–.0251**	–.0356**	–.0249**	–.0943**
	(.010)	(.011)	(.013)	(.034)
FCC-FDI	–.0345***	–.0189***	–.0048	–.0275***
	(.002)	(.003)	(.004)	(.008)
DMNC	–.0125**	–.0143**	–.0006	.0038
	(.005)	(.007)	(.008)	(.020)
Long-term (int.)	–.2725***	–.2304***	–.2677***	–.2626***
	(.003)	(.003)	(.004)	(.007)
Short-term (int.)	–.2375***	–.1688***	–.2003***	–.1830***
	(.003)	(.003)	(.004)	(.008)
Short-term (non-int.)	–.1147***	–.0937***	–.1119***	–.1203***
	(.002)	(.003)	(.003)	(.006)
Tangib.	.0302***	–.0158***	–.0922***	–.0586***
	(.003)	(.003)	(.003)	(.008)
Wage cost share	–.0331***	–.0702***	.0114**	–.0665***
	(.003)	(.005)	(.005)	(.011)
Sales	–.0000***	–.0000***	.0000**	–.0000**
	(.000)	(.000)	(.000)	(.000)
$Sales^2$	.0000***	.0000***	–.0000***	.0000
	(.000)	(.000)	(.000)	(.000)
$Sales^3$	–.0000***	–.0000***	.0000**	–.0000
	(.000)	(.000)	(.000)	(.000)
$Sales^4$	.0000***	.0000***	–.0000**	.0000
	(.000)	(.000)	(.000)	(.000)
Age	.0050***	.0062***	.0000	.0043***
	(.000)	(.000)	(.)	(.001)
Age^2	–.0002***	–.0000*	–.0001***	.0001*
	(.000)	(.000)	(.000)	(.000)
Age^3	.0000***	.0000	.0000***	–.0000
	(.000)	(.000)	(.000)	(.000)
Age^4	–.0000***	–.0000	–.0000**	.0000
	(.000)	(.000)	(.000)	(.000)
Constant	.2662***	.1689***	.0058***	.0060***
	(.017)	(.003)	(.000)	(.002)
Year Eff.	Yes	Yes	Yes	Yes
Industry Eff.	Yes	No	No	No
Adj. R^2	.237	.070	.049	.061
No. of obs.	657823	657823	521204	136619

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

Table 8: Main regressions.

	(1) OLS	(2) FE	(3) FD	(4) LD
FCC	–.0239***	–.0188***	–.0058	–.0284***
	(.002)	(.003)	(.004)	(.008)
Long-term (int.)	–.2764***	–.2306***	–.2627***	–.2610***
	(.003)	(.003)	(.004)	(.007)
Short-term (int.)	–.2296***	–.1697***	–.1997***	–.1954***
	(.003)	(.003)	(.004)	(.008)
Short-term (non-int.)	–.1036***	–.0924***	–.1168***	–.1214***
	(.002)	(.003)	(.003)	(.006)
Tangib.	.0166***	–.0174***	–.0854***	–.0564***
	(.003)	(.003)	(.003)	(.008)
Wage cost share	–.0344***	–.0733***	.0171***	–.0713***
	(.003)	(.005)	(.005)	(.011)
SalesQ 2	–.0282***	.0116***	.0561***	.0511***
	(.002)	(.003)	(.003)	(.006)
SalesQ 3	–.0538***	.0053*	.0797***	.0550***
	(.002)	(.003)	(.003)	(.006)
SalesQ 4	–.0631***	–.0059*	.0950***	.0467***
	(.002)	(.003)	(.003)	(.007)
SalesQ 5	–.0750***	–.0256***	.1043***	.0321***
	(.002)	(.004)	(.004)	(.008)
Age gr. 2	.0235***	.0043***	–.0002	.0103***
	(.001)	(.001)	(.001)	(.002)
Age gr. 3	.0338***	.0004	–.0008	.0261***
	(.001)	(.002)	(.002)	(.004)
Age gr. 4	.0390***	.0016	.0018	.0575***
	(.001)	(.003)	(.002)	(.007)
Constant	.3061***	.2064***	.0041***	.0219***
	(.017)	(.003)	(.000)	(.002)
Year Eff.	Yes	Yes	Yes	Yes
Industry Eff.	Yes	No	No	No
Adj. R^2	.245	.071	.055	.061
No. of obs.	657823	657823	521204	136619

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

whether the profitability differential is also characteristic for the important group of domestically controlled Norwegian companies that have foreign direct investments. In the next table, table 7, the group of FMNC companies are further divided into those foreign controlled companies that have subsidiaries abroad themselves and those that do not. This allows investigate directly the possibility of profit shifting through the parent company. Also here, pure domestic firms will serve as a benchmark category.

Pooled OLS results: Since better classification of multinational firms is one of the important contributions of this study, I start with comparing coefficients for the different foreignness variables. It is interesting to look at the OLS coefficient for FCC-variable in table 4 (used in most of the previous studies) in comparison to that of MNC-variable in table 5. The main difference between the two is that the coefficient for the latter is meant to capture the differential between the multinational companies compared to purely domestic companies, while in the former case the comparison group includes also those domestically controlled companies that may have subsidiaries abroad. The difference between the coefficients for FCC and MNC of around 0.22 percentage points indicates that domestically controlled companies with subsidiaries abroad are on average more profitable than foreign controlled companies, but still less profitable than pure domestic companies, which is also evident from the summary statistics table. Table 6 confirms this result: here it can be seen that when domestic companies with foreign direct investments (DMNC) are included as a separate group, the coefficient for the corresponding variable is negative, but almost 3 times lower in size than the coefficient for FMNC. This result indicates also that these are the foreign controlled firms in Norway that drive the negative differential found in the data. With the data available, it is possible to go even one more step further and see whether these are foreign controlled companies with or without foreign subsidiaries abroad that affect the coefficient for FMNC in table 6 most. From table 7 one can see that the coefficients for both FCC+FDI (foreign controlled with subsidiaries) and FCC-FDI (foreign controlled without subsidiaries) are negative and statistically significant. However, this is the latter group of foreign controlled firms without foreign subsidiaries that seems to drive the result. This may indicate that if the differential is really caused by profit shifting activities, profit shifting through the foreign parent can be an important channel.
To sum up, the OLS coefficients indicate that profitability of foreign controlled firms in Norway is on average 3.39 percentage points lower than profitability of comparable domestic firms. This result is comparable to the 2.6

percentage points negative differential reported in Langli and Saudagaran (2004) (a more thorough comparison of the results to the results in existing Norwegian studies will be presented below). When comparing the multinational firms in Norway (i.e. those that are foreign controlled as well as those that are domestically controlled but engage in outward foreign direct investments) to those of pure domestic companies in Norway, the difference is also negative and lies at around 3.17 percentage points. Domestic multinational companies are also reported to show lower profitability than their pure domestic counterparts, however, with negative difference being slightly lower: 1.26 percentage points. Of the foreign controlled companies, those without subsidiaries abroad seem to be even less profitable as compared to their pure domestic counterparts than foreign controlled companies with subsidiaries abroad (with negative profitability differentials of -3.5 and -2.5 percentage points correspondingly).

Panel data methods results: Next, it would be interesting to take a look at the coefficients from the regressions which were estimated using panel data methods. The results of these estimations are to be found in columns (2), (3) and (4) in each of the tables 4, 5, 6, 7. I start with the fixed effects (FE) coefficients which are statistically significant and negative in all the tables, independent on which definition of foreignness used. The main advantage from using this approach is that it makes it possible to get rid of the differences in profitability changes between these two groups that can be caused by permanent differences between the groups. The negative coefficient of 1.82 for MNC variable (column (2) in table 5) implies for example that the difference between the after and before profitability of the firms that changed their foreignness status and change in profitability of the firms that have not changed their status in the same period is negative and lies at 1.82 percentage points. This means with other words that firms that change their status and become multinational show lower profitability than the firms that remain domestic. It is especially the firms that have been taken over by foreigners that show the largest reduction in profitability (-1.97 percentage points).
FE coefficients are also almost always lower (in absolute terms) than the corresponding OLS coefficient for the foreign controlled firms, i.e. OLS coefficient seems to overstate the differential in absolute terms. It may indicate that firm specific effects that are not accounted for in OLS, but are taken care of in FE are negatively correlated with the foreignness variable. This would mean that these are the least efficient and productive firms that are being taken over by foreigners (see coefficients for FCC in table 4 and FMNC

in table 5). However, this may also be a consequence of measurement error in the foreignness variable, caused by the differences in timing between the actual and reported change in foreignness status. The FE estimate will then be lower than the OLS estimate because of the attenuation bias that becomes even stronger due to the FE transformation. The results in table 7 columns (1) and (2), on the other hand, seem to confirm cherry picking hypothesis for the group of foreign controlled companies with subsidiaries abroad. For them FE coefficient is more negative than the OLS coefficient (-0.0356 vs. -0.0251) indicating that there may be some unobserved characteristics these firms possess that may make them more attractive targets for foreign takeover. FE coefficient for the DMNC variable (table 6 column (2)) lies at around -1.29 percentage points and is significant at least at 5% significance level. It is only 0.03 percentage points lower than the corresponding OLS coefficient. The FE coefficient shows that domestically controlled firms become less profitable after they change their status to being domestic multinational firms. A small negative difference between the OLS and FE coefficients indicates that firm specific effects seem to play quite limited role in the decision of the companies to extend abroad, however, it still confirms the expectations in accordance with internationalization theory of the firm that says that these are the most productive firms that have a possibility and motivation to extend abroad.

When looking at the results of the the first difference (FD) estimations, the first thing to notice is that the coefficients for the foreignness variables are never shown to be statistically significant at any conventional significance levels and are small in size too (less than 1 percentage points). The only exception is the coefficient for the FCC+FDI (foreign controlled with subsidiaries) variable (column (3) table 7). In this case the FD coefficient is negative, significant at 5% level, and comparable in size to the coefficients from OLS and FE estimations.

The long difference (LD) estimates (columns (4) in tables 4, 5, 6, 7) are all negative and statistically significant, in size being somewhere in between the OLS and FE coefficients, except for the table 7, where LD coefficient for the variable (FCC+FDI) is almost 3 times larger than the corresponding FE coefficient. Since this coefficient is so much higher than the rest of the coefficients, and since the number of firms in this category (FCC+FDI) is limited, it may be necessary to consider it with caution.
The idea with long difference estimations was to address potential measurement problem in the main explanatory variable. The expectation was that

the problem maybe worsened due to the transformations made in FE and FD models, and thus cause a severe attenuation bias in the coefficients. The LD coefficients are indeed higher in absolute terms than those reported from FE and FD estimations. They are also shown to be statistically significant for all the foreignness variables (except for DMNC, for which they are small in size but positive and never statistically significant at any of the conventional levels). This is consistent with the concern regrading the presence of measurement errors in the foreignness variable. Since the source of the error lies mainly in the timing of reporting of the status change, removing the years around it (for example the year of status change as well as one year before and after it has taken place) can be considered when estimating the model. This issue will however be left for future research.

The coefficients from the FD and FE estimations were not expected to be very close to each other since the number of periods in the analysis is bigger than two. However, they could be more similar to each other than what is observed (compare columns (2) and (3) in tables 4, 5, 6, 7). As mentioned shortly in the estimation model-section, this latter inconsistency can among other things indicate that the "treatment effects" to be estimated are not constant over time. Laporte and Windmeijer (2005) argue that in this case more flexible specification may be needed to capture the dynamics of the effect. This will allow to account for the fact that the effect on profitability of change in status may happen over time rather than causing an immediate change. This is an important and interesting issue that will be left for for future research.
Another important things to be aware is that since the coefficients in fixed effects and first difference models are identified only for the firms that changed their status at least once, it does not tell us much about the difference in profitability between the firms that remained domestic and those that remained foreign through the whole period of study (for example it implies that the data on greenfield foreign direct investments in Norway are not used to identify the FE coefficients). For the number of firms that change their status during the period of study and thus are used to identify the FE and FD coefficients, see table 9 below.

In the rest of the paper, only the OLS and FE coefficients will be presented (because of the issues discussed above, but also because the reported FD standard errors may be incorrect in the case were error term is not random walk; and because LD is less efficient estimator since it does not utilize information about the change in foreignness status of the firms).

Table 9: Transitions from one category to another (within firms over time).

Transition	*Number of changes*
FCC $\Longrightarrow$ DCC	1 078
DCC $\Longrightarrow$ FCC	2 562
MNC $\Longrightarrow$ DNC	1 375
DNC $\Longrightarrow$ MNC	3 037
FMNC $\Longrightarrow$ DMNC	48
DMNC $\Longrightarrow$ FMNC	128
DNC $\Longrightarrow$ FMNC	2 434
FMNC $\Longrightarrow$ DNC	1 030
DNC $\Longrightarrow$ DMNC	603
DMNC $\Longrightarrow$ DNC	345

Control variables.

So far only the coefficients for the foreignness variables have been commented. When it concerns the rest of the variables, the signs of their coefficients are as expected. The coefficients for leverage variables (interest-bearing debt, both short- and long-term debt) are all negative and highly significant. This is as expected as interest payments on debt reduce taxable income. The coefficient for the short-term non-interest bearing debt is smaller in scale than the coefficients for the two other leverage variables, but still negative. The reason for that is not entirely straightforward. The OLS coefficient for the tangibility variable is positive, while it is negative when the model is estimated by the panel data methods (FE, FD, LD). The positive coefficient for the tangibility means that on average, those with higher share of tangible assets are shown to be more profitable. It can reflect the fact that it can be easier and cheaper to borrow for the highly tangible firms, since their tangible assets can be used as a collateral. Better access to funds can further make it easier for these firms to involve in bigger and more profitable projects. When observing within-firm changes, negative FE coefficient indicates that the firms that become more tangible tend to also become less profitable. This can capture the effect that increase in tangible assets due to acquiring new assets by the firm is associated with higher depreciation allowances that reduce taxable income. The coefficients for the wage cost share variable (both OLS and FE) are negative, which is as expected since wage costs reduce profitability. When age group dummies are used as a control for age in regressions (table 8 [3]), one can see that their coefficients (with the youngest age group excluded) are all positive, indicating that the older and more mature firms tend to report higher profitability. The FE coefficients for the age dummies are also positive. Two of them are also not shown to be statistically significant. One of the explanations for that can be that these variables are not properly identified in that it can be too little variation in them (change with the same amount each year). When fourth order polynoms in age are used as controls for maturity of the firms (tables 4, 5, 6, 7), profitability seem to increase with age up to a certain point, decline as firm gets older and go up and down again in the later years (life cycle hypothesis of the firms). The coefficients for the age polynom variables

[3]This table is added for the purpose of illustrating the effect of an alternative set of control variables, which in this table are similar to the ones used in Langli and Saudagaran (2004)

are all significant and consistent for both OLS and FE. The age polynoms variables will be used as age controls in all the tables below.
The OLS coefficients for the size-dummy variables (with the dummy for the lowest size quintile excluded) are all significant and negative (table 8). If the differential reported is at least partly attributed to profit shifting activities, this may reflect the fact that bigger firms may have more incentives and possibilities to involve in activities that may help them reduce their taxable income. For example they can afford hiring consultants and lawyers that can help them with tax planning. The FE coefficients for the size-dummy variables were positive only for for the first two dummies, indicating that as the firm grows its profitability increase only up to a certain point. When polynoms of fourth order in sales are used as controls for size (as in tables 4, 5, 6, 7), their coefficients reveal that profitability initially falls with size to then go up, it decline again after a certain turnover is reached and goes down with size thereafter. All the polynom sales variables are highly significant, indicating that this may be good approximation for the relationship between size and profitability. This is the size control that will be used throughout the paper from here on, unless specified otherwise. In the sensitivity checks-section effects of these and other alternatives for size controls on the foreignness variables estimates will be discussed in further detail.

Comparison to previous Norwegian studies: Table 10 below reproduces coefficients for the foreignness variables from the previously discussed tables (tables 4, 5, 6, 7) (all the control variables are omitted from the table, even though they are still included in the regressions). In addition, in the top panels (I, II, III) of table 10 the results of the regressions based on specifications used in the other two existing Norwegian studies: by Hægeland (2003) and Langli and Saudagaran (2004) are reported. This makes it easier to compare the estimates presented there and in this study. Note that only OLS estimates were reported in both of these studies, and only FCC variable was used in their regressions. All the regressions for which the results are presented in this table are run on a sample as described in the "The data sets and sample"-section above. The specification in the first panel in the table (FCC (Hægeland (2003)) includes controls for size of the firms (in form of dummies for each of the quintiles the firms were divided into based on sales, total assets and number of employees), as well as 2 digit NACE industry dummies, time dummies and dummies for the county where the firm is located. Return on capital (calculated as ratio of operating income plus financial revenue to total assets) is used as a dependent variable. The second panel differs from the first one only in the variables used as foreign-

ness control. In panel II, three dummies included instead of one general for foreign control. The dummies indicate whether the firm is owned with ownership share of 10 to 49%, 50 to 99% or wholly owned by a foreign parent. This is similar to what it have been done in Hægeland (2003). The specification in the third panel (FCC (Langli and Saudagaran (2004))) in table 10 is similar to the one in this study, and includes controls for size (dummies for sales based quintiles), age (4 groups as described above), leverage ratio (long-term interest-bearing debt), tangibility, year dummies and dummies for each of the 10 group industries. As it can be seen from table 10, the OLS coefficient for the FCC variable is highly significant and negative for both Hægeland (2003) (panel I and II table 10) and Langli and Saudagaran (2004) (panel III) specifications, as well as for the specification in the study (panel IV). It is the highest (most negative) in the Hægeland specification, and especially for the foreign controlled firms that are wholly owned. It is surprising, since the results reported in his study show that the profitability of foreign controlled firms is on the contrary higher than profitability of the comparable domestically controlled firms, as implied by the positive coefficients. This is however not entirely unexpected, since the samples the regressions are run on differ between his study and ours. Additionally indicator variables for whether the firm belongs to a bigger corporate group and if so, if it is then a subsidiary or a parent company were used in his study. To the best of our knowledge these variables only exist for foreign owned firms[4]. This implies that the full effect of foreign ownership on profitability in Hægelands study cannot be determined without knowing the coefficients on these variables, but unfortunately they are not reported. When the regression on our sample was run including these indicator variables, the coefficients for the foreignness variable reported were much more similar to that in Hægeland (2003), mostly insignificant, partly positive, while the corporate group indicator variable drove the negative and significant result as reported in this study. Since it could not be confirmed whether the variables used in Hægeland (2003) are exactly the ones described above, and because no straightforward rationale was found for including it in the regressions, we omit reporting the corresponding results here. We still consider this to be one of the potential explanations to the contradicting results he reports. Since information on the limiting restrictions applied to the sample was not available, it can also be possible that the results in his paper could be driven by the big number of smaller companies that report quite "noisy" data, and that are excluded from the sample in Langli and Saudagaran (2004) as well

[4]The variables seem to be based on the *ftype* information in the SIFON register

as from this study.
The results for the Langli and Saudagaran (2004) as estimated on the sample are more similar to the ones reported in their paper (-0.022 vs -0.026). This is despite the fact that they have done their estimations on a limited sample of only 4 years and 3 industries. So the results found in this study indicate that the negative differential they found seems to persist also in the extended 13 years time period and for a sample of all industries (except mining and quarrying). In the next subsections the attention will be focused on the development of the differential over time, as well as on how the differential differs across the industries.

Table 10: Regressions based on specifications from earlier studies.

		(1) OLS	(2) FE	(3) Obs.
I.	FCC	–.0576***	–.0357***	369 791
	(Hægeland (2003))	(.003)	(.005)	
II.	FCC share 10-49%	–0.0242***	–0.009	369 791
		(0.006)	(0.007)	
	FCC share 50-99%	–0.0446***	-0.0175**	
		(0.006)	(0.008)	
	FCC share 100%	–0.0620***	-0.0398***	
	(Hægeland (2003))	(0.004)	(0.007)	
III.	FCC	–.0217***	–.0129***	657 823
	(Langli and Saudagaran (2004))	(.002)	(.003)	
IV.	FCC	–.0339***	–.0191***	657 823
		(.002)	(.003)	
	Control var.	Yes	Yes	
	Year Eff.	Yes	Yes	
	Industry Eff.	Yes	No	

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

8.2 Regressions by years.

Table 11 above shows development of the profitability differential (as estimated by OLS) over time for several foreignness variables: MNC, FMNC and DMNC, as well as for the foreign controlled companies divided into those that have and do not have subsidiaries abroad. In all cases pure domestic companies are served as a comparison category. As it can be seen from the table below the differentials for MNC and FMNC seem to be relatively stable over years, the former being driven by the latter. FMNC coefficient seems in turn to be driven by the firms that are foreign controlled and do not have subsidiaries abroad. The coefficients for all three of these variables are negative in all years and lie at around 2-3 percentage points in most of the years (being higher in 1993, 1994, 2003 and 2004). The differential seems to show no clear trend, however it may seem to be increasing in the 5 last years of the panel. It can be related to the fact that number of multinational companies has increased rapidly in these years, and the quality of data has improved. Additionally, if it can be expected that the differential is really caused by profit-shifting activities, its increase can also be explained by the fact that new and more sophisticated methods for tax planning and tax evasion could have been developed in more recent years, as well as the supply of professionals and consultants that help companies to find ways to hide their profits has increased. The DMNC differential fluctuates a lot, and is insignificant in some of the years, something can among other things be explained by the low number of the companies in this category.

Table 11: Profitability differential over time (1993 - 2005)/ OLS coefficient.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
MNC	–.0406***	–.0416***	–.0239***	–.0254***	–.0229***	–.0112**	–.0265***	–.0239***	–.0205***	–.0267***	–.0380***	–.0516***	–.0355***
	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)
FMNC	–.0411***	–.0433***	–.0252***	–.0280***	–.0286***	–.0130***	–.0297***	–.0239***	–.0204***	–.0263***	–.0415***	–.0595***	–.0393***
	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)
DMNC	–.0380**	–.0315**	–.0152	–.0062	.0275*	.0055	.0080	–.0238**	–.0211*	–.0289**	–.0122	.0099	–.0002
	(.013)	(.011)	(.012)	(.014)	(.015)	(.016)	(.015)	(.012)	(.011)	(.012)	(.012)	(.013)	(.013)
FCC+FDI	–.0334*	–.0251	–.0532	–.0541**	–.0386	.0078	–.0291	–.0006	.0009	–.0175	–.0018	.0004	–.0399*
	(.018)	(.024)	(.033)	(.022)	(.024)	(.026)	(.025)	(.021)	(.026)	(.022)	(.021)	(.022)	(.022)
FCC-FDI	–.0413***	–.0437***	–.0247***	–.0274***	–.0283***	–.0134***	–.0297***	–.0245***	–.0210***	–.0266***	–.0426***	–.0612***	–.0393***
	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)
DMNC	–.0379**	–.0313**	–.0155	–.0066	.0273*	.0057	.0080	–.0236*	–.0208*	–.0288**	–.0118	.0106	–.0002
	(.013)	(.011)	(.012)	(.014)	(.015)	(.016)	(.015)	(.012)	(.011)	(.012)	(.012)	(.013)	(.013)
Control var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Eff.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Eff.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	35 031	38 067	41 436	44 407	47 466	49 516	52 783	54 816	56 352	57 112	58 029	60 167	62 641

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

8.3 Regressions by industry.

Tables 12 and 13 below show how profitability differentials differ across the industries. There are in total 8 separate industry groups with at least 20 000 observations each, and one group for all the industries for which there were less than 20 000 observations in the sample. The results in the first two columns ((OLS) and (FE)) correspond to those reported earlier for the full sample in tables 5, 6 and 7.

The profitability differential is reported to be negative and significant for all the industry groups considered, except for Retail industry, for which the coefficients are not economically nor statistically significant. This is an interesting result since the corresponding differential was found to be significant in Langli and Saudagaran (2004). Further investigation showed that the main reason for this divergence lies in the controls introduced in the model, among others a more flexible control for size of the firms. The highest differentials in profitability between the multinational and domestic companies (as estimated by both OLS and FE) is reported for "Real Estate/Finace/Business activities" and "Hotels/Restaurants". The result for the "Hotels/restaurants" group should however be taken with some caution, since number of MNC in this industry group is relatively small (381 observations over all the years, which is also less than 2% of all the companies in this sector). The latter group ("Real estate/Finace/Business activities") is better represented by multinational companies (8 421 firm-year observations which account for around 4% of all firms in this sector). It is also interesting to look at, since many of the companies in this group are R&D-intensive companies. Also in general many of the products in this industry group are intangible in nature. This can give these firms better opportunities to involve in transfer pricing manipulations, since it can be difficult to find a comparable market price for the goods and services they produce. So the result that the differential is relatively high for the firms in this industry group can be consistent with that profitability differential can at least to a certain degree caused by profit shifting activities.

FE coefficients reported for the pooled sample of all industries seem to be mainly driven by four industry groups, namely "Wholesale", "Hotel/Restaurants", "Real Estate/Finace/Business activities" and "Others". For the first two of these industry groups the FE coefficients are negative, significant (at 5% level for "Hotels/Restaurants"), and higher in absolute value than the OLS coefficients. In the "Wholesale" sector, the profitability seem to go down as result of change to becoming FMNC as well as to becoming a DMNC. Only change to FMNC-status (but not DMNC) seems to bring along reduction in

profitability for the firms in "Hotels/Restaurants" sector. The size of OLS and FE coefficients relative to each other for these two industries may indicate that there can be a "positive selection" into becoming a multinational company in this industries (i.e. these are the most productive firms that become multinational). The "Wholesale"-industry is interesting to look at since it is the industry, where the multinational companies represent the highest proportion of all the companies compared to the other industries (share of the multinational companies in the wholesale sector is appr.18% (15 096 observations)). The FE coefficients for MNC, and FMNC variables for the companies in "Real Estate/Finace/Business activities" are also negative and significant.

Also representation of multinational companies in manufacturing sector is quite high (around 8% of all the manufacturing firms). The OLS results indicate that profitability differential is negative and significant also in this industry, even though differential as driven solely by FMNC, being lower in absolute terms than in the sample as a whole. The results of FE regressions indicate that no significant change in profitability happens when manufacturing terms shift their foreignness status, independent of whether it is a change to FMNC or DMNC is considered.

Profitability differential for the DMNC for the other industries is also worth commenting on. At closer look, significant and negative differential (as estimated by both OLS and FE) that is reported for the full sample seem to be driven by the firms in 2 industry groups: "Wholesale" (as already mentioned above) and the group of companies that are collected under the "Other industries". The differential as estimated by OLS is reported to be positive for the following industry groups: "Hotels/Restaurants" (around 3 percentage points, but not statistically significant); "Transport" industry group, being statistically significant at 5% level, and "Retail" industry, where coefficient for DMNC (significant at 5% level) reveals that domestic multinational companies report on average 6.34 percentage points higher profitability than comparable pure domestic firms.

Table 12: Regressions by industry.

	(1) Full sample		***(2) Manufacturing***		***(3) Wholesale***		***(4) Retail***	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE
MNC	–.0317***	–.0182***	–.0163***	.0012	–.0185***	–.0218***	–.0041	–.0067
	(.002)	(.003)	(.003)	(.005)	(.002)	(.004)	(.005)	(.007)
Obs.(MNC)	*37 625*		*6 338*		*15 088*		*2 408*	
FMNC	–.0343***	–.0197***	–.0207***	.0008	–.0189***	–.0207***	–.0078**	–.0059
	(.002)	(.003)	(.004)	(.005)	(.002)	(.004)	(.005)	(.007)
DMNC	–.0126**	–.0129**	–.0018	.0022	–.0115**	–.0262**	.0634**	–.0149
	(.005)	(.006)	(.006)	(.008)	(.007)	(.010)	(.035)	(.020)
Obs.(FMNC)	*32 663*		*4 760*		*14 128*		*2 270*	
Obs.(DMNC)	*4 602*		*1 578*		*960*		*138*	
FCC+FDI	–.0251**	–.0356**	.0096	–.0002	–.0248**	–.0112	–.0595	.0349**
	(.010)	(.011)	(.015)	(.015)	(.013)	(.016)	(.068)	(.019)
FCC-FDI	–.0345***	–.0189***	–.0228***	.0009	–.0189***	–.0211***	–.0075	–.0061
	(.002)	(.003)	(.004)	(.005)	(.002)	(.004)	(.005)	(.007)
DMNC	–.0125**	–.0143**	–.0011	.0020	–.0115**	–.0256**	.0633**	–.0149
	(.005)	(.007)	(.006)	(.008)	(.007)	(.010)	(.035)	(.020)
Obs.(FCC+FDI)	*947*		*366*		*201*		*14*	
Obs.(FCC-FDI)	*31 716*		*4 394*		*13 927*		*2 256*	
Control var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Eff.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Eff.	Yes	No	Yes	No	Yes	No	Yes	No
No. of obs.	657 823	657 823	79 924	79 924	81 960	81 960	127 131	127 131

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

Table 13: Regressions by industry (continued).

	(5) Hotels/ Restaurants		***(6) Transport***		***(7) Real estate/Finance Business act.***		***(8) Construction***		***(9) Others (excl. Oil)***	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
MNC	–.0478***	–.0542**	–.0386***	–.0067	–.0588***	-.0310***	–.007	-.0101	–.0508***	–.0425**
	(.012)	(.031)	(.007)	(.010)	(.005)	(.008)	(.008)	(.009)	(.010)	(.015)
Obs.(MNC)	*381*		*2 597*		*8 421*		*970*		*1 242*	
FMNC	–.0500***	–.0537**	–.0500***	–.0235**	–.0605***	–.0296***	–.009	–.008	–.0470***	–.0325**
	(.012)	(.028)	(.007)	(.011)	(.005)	(.008)	(.008)	(.008)	(.011)	(.013)
DMNC	.0324	–.0663	.0184	.0362**	–.0486***	–.0315	.0019	–.0219	–.0774**	–.0986*
	(.108)	(.286)	(.018)	(.020)	(.001)	(.017)	(.0259)	(.0247)	(.033)	(.055)
Obs.(FMNC)	*370*		*2 109*		*7 022*		*897*		*1 087*	
Obs.(DMNC)	*4*		*488*		*1 199*		*73*		*155*	
FCC+FDI	–.1160***	–.4257***	–.0527*	–.0877**	–.0514**	–.0782***	–.006	-.007	–.0496	–.0996**
	(.015)	(.041)	(.030)	(.053)	(.025)	(.021)	(.034)	(.038)	(.083)	(.058)
FCC-FDI	–.0493***	–.0545*	–.0499***	–.0197**	–.0608***	–.0274**	–.009	–.009	–.0470***	–.0307**
	(.012)	(.028)	(.007)	(.011)	(.005)	(.009)	(.008)	(.008)	(.011)	(.013)
DMNC	.0318	–.0653	.0183	.0303	– .0485***	–.0357*	.0189	–.0209	–.0774**	–.0999**
	(.108)	(.286)	(.018)	(.019)	(.013)	(.018)	(.026)	(.025)	(.033)	(.055)
Obs.(FCC+FDI)	*5*		*85*		*233*		*25*		*18*	
Obs.(FCC-FDI)	*365*		*2 024*		*6 809*		*872*		*1 069*	
Control var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Eff.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Eff.	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
No. of obs.	21 438	21 438	37 835	37 835	195 801	195 801	62 995	62 995	50 739	50 739

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

8.4 Regressions by size groups.

Here the firms has been divided into 5 quintile groups, based on the average sales of firms over years. The firms with sales between 2 thousand and 2 million NOK correspond to the first sales quantile. In the second quantile there are firms that have average sales of between 2.1 and 4.7 million NOK. The firms with average sales more than 4.7, but less than 8.9 million NOK belong to the third quantile. The fourth quantile is for the firms with average sales between 8.9 and 20 million NOK. In the fifth quantile there are firms with between 20 million and 34.8 billion NOK in sales. It is interesting to note (see table 14) that number of multinational firms gets bigger as one moves from the 1st to the 5th quantile, so that the number of multinational companies is the biggest in the last, fifth, quantile (moreover there are more multinational companies in the fifth quintile group than it is in total in the first four quantiles). The results in table 14 indicate that the differential is negative and statistically significant for all the sales quantiles when estimated by OLS. It is the largest (in absolute value) for the first sales quantile group, where the OLS coefficient lies at -9.68 percentage points. The differential then goes down in absolute value as one moves up to the fifth quantile. If the differentials reported can be caused by the profit shifting activities, this result here may indicate then that smaller companies as well as the big ones, and possibly even in a bigger degree, may involve in tax evasion activities. However, the results may also be due to low representation of multinational companies in the lowest quintiles. Looking at the differentials as estimated by FE instead, reveals however that the FE coefficients for the first two lowest sales quantiles are not statistically significant. The differentials as estimated by FE are negative and significant for the 3rd, 4th and 5th quantile groups. The FE coefficient for the third sales quantile group lies at around - 2.5 percentage points, this is the highest differential as estimated by FE. In general this indicates that only companies that have average sales of more than 5 million NOK and change their status from being domestic to being multinational (in particular FMNC) report systematically lower profitability than comparable companies that have not changed their status. For domestic multinational companies the differentials are mostly negative and largely insignificant. The exception are the OLS and FE coefficients for the second quintile that are positive (at 5.44 and 8.52 percentage points correspondingly) and significant at 5% level, thus indicating that for the companies in this size range firms that are domestically controlled report higher profitability than comparable pure domestic firm.

Table 14: Regressions by size quintiles.

	(1) Sales q1		***(2) Sales q2***		***(3) Sales q3***		***(4) Sales q4***		***(5) Sales q5***	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
MNC	−.0968***	−.0044	−.0331***	.0104	−.0205***	−.0281**	−.0192***	−.0116*	−.0144***	−.0133***
	(.016)	(.024)	(.009)	(.015)	(.005)	(.009)	(.003)	(.006)	(.002)	(.003)
Obs.(MNC)	*1 252*		*2 106*		*3 548*		*7 009*		*23 350*	
FMNC	−.0996***	.0014	−.0437***	−.0021	−.0226***	−.0273**	−.0225***	−.0112*	−.0165***	−.0145***
	(.017)	(.027)	(.010)	(.016)	(.005)	(.010)	(.003)	(.006)	(.002)	(.004)
DMNC	−.0833**	−.0255	.0544*	.0852*	.0133	−.0361	.0204	−.0138	−.0019	−.0102
	(.038)	(.047)	(.032)	(.046)	(.031)	(.026)	(.018)	(.022)	(.005)	(.007)
Obs.(FMNC)	*1 041*		*1 880*		*3 338*		*6 479*		*19 925*	
Obs. (DMNC)	*211*		*226*		*210*		*530*		*3 425*	
FCC+FDI	−.2088**	−.2486**	−.0451	.3994**	.0972	.0458	−.0479	−.0923**	−.0133	−.0274**
	(.081)	(.092)	(.128)	(.130)	(.066)	(.051)	(.036)	(.043)	(.009)	(.011)
FCC-FDI	−.0983***	.0050	−.0437***	−.0046	−.0229***	−.0276**	−.0223***	−.0100*	−.0166***	−.0133***
	(.018)	(.027)	(.010)	(.015)	(.005)	(.010)	(.003)	(.006)	(.002)	(.004)
DMNC	−.0833**	−.0315	.0544*	.0877*	.0133	−.0354	.0204	−.0177	−.0018	−.0117*
	(.038)	(.048)	(.032)	(.045)	(.031)	(.026)	(.018)	(.021)	(.005)	(.007)
Obs.(FCC+FDI)	*12*		*16*		*7*		*58*		*854*	
Obs. (FCC-FDI)	*1 029*		*1 864*		*3 331*		*6 421*		*19 071*	
Control var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Eff.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Eff.	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Adj. R^2	.232	.136	.266	.088	.227	.080	.209	.074	.192	.050
No. of obs.	131 565	131 565	131 566	131 566	131 564	131 564	131 567	131 567	131 561	131 561

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

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8.5 Extensions and sensitivity checks.

8.5.1 Alternative definitions of profitability measures.

In all the regressions above, taxable income to sales was used as a measure of profitability. To rule out the possibility that the differential found is characteristic to this particular measure used, the results reported above will be tested using alternative measures, which are taxable income to total assets ratio (TI/TA); return on capital as used in Hægeland (2003), defined as a ratio of operating income and financial revenues to total assets; and operating margin (measured as a ratio of operating profit to sales). The regressions here are run on a sample where extreme values for each of the three new variables were excluded. The regression using the TI/Sales ratio as a dependent variable is re-run on this new sample, in order to make sure that the results above are not driven by the excluded observations. From table 15 it can be seen that both OLS and FE coefficients for MNC variables are negative and highly significant for all the specifications, implying that independent of which measure of profitability is used, multinational companies in Norway tend to be on average systematically less profitable. There is also a systematic reduction in profitability associated with change in status from being domestic to becoming multinational independent of which measure is used. Difference in profitability between multinational and domestic companies when measured as a ratio of taxable income to total assets (column (2)), is reported to be negative and significant, and is slightly higher in absolute terms than the differential as estimated for the taxable income to sales ratio. Grubert (1997) argues however this measure can be problematic. The assets values reported may be misleading for the purpose of comparing firms because of the problems of assets revaluations arising as a result of mergers and acquisitions activities.The OLS differential lies at -2.84 percentage points when profitability is measured in terms of operating margin (column (4)). The FE estimate of the differential is at -1.6 percentage point and also significant. This is the smallest estimate compared to the results based on other measures (which is consistent with finding in Grubert (1997)). It is also considerably smaller than what can be observed in raw data (see table 3). Further calculations show that as much as 84% of the differential observed in raw data, measured in terms of operating margin, can be explained by differences in observable and time invariant characteristics between multinational and domestic firms. The differential is however still highly significant, which is an interesting result because operating margin can provide a more direct way to reveal transfer price manipulations, since

it focuses on operating items that are most likely to be directly affected by transfer prices. This is also a profit indicator that is used in comparable profit method (CPM) of analysis conducted in order test (indirectly) if transfer prices set by firms deviate from arm length prices. However, taxable income was chosen as a denominator for the main part of the analysis since it is expected that given the differential found is due to profit shifting activities, there may be more than just transfer price manipulations that lie behind it. In addition taxable income provide a direct link to the estimate of taxes paid by the firms, or taxes foregone by government, which is the figure of ultimate interest. When return on capital is used as a profitability measure (column (3)) both the OLS and FE coefficients for the MNC variable highly significant and negative and comparable in size to the ones reported in the regression where taxable income to sales is used as a dependent variable. Given the differential calculated based on raw data, this implies that while around 68% of the differential as measured by taxable income to sales can be explained by various firm characteristics, the "explained part" of the differential as measured in terms of return to capital does not exceed 35%. It can also be mentioned that FE coefficients for the DMNC variable are lower than the corresponding OLS coefficients (around 1 percentage points lower) for the cases where return to capital, operating income or taxable income to total assets ratio has been used as profitability measures. The two are however quite similar, implying only slightly positive omitted bias in the OLS coefficient when taxable income is scaled by sales.

Table 15: Alternative profitability measures.

	(1) TI/Sales		***(2) TI/Total Assets***		***(3) Return on capital***		***(4) Operating margin***	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE
MNC	–.0308***	–.0179***	–.0288***	–.0228***	–.0346***	–.0247***	–.0284***	–.0160***
	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)
FMNC	–.0332***	–.0189***	–.0281***	–.0241***	–.0358***	–.0266***	–.0289***	–.0156***
	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)
DMNC	–.0125**	–.0145**	–.0336***	–.0186***	–.0261***	–.0180***	–.0250***	–.0174**
	(.005)	(.006)	(.004)	(.005)	(.004)	(.005)	(.005)	(.006)
FS	–.0235**	–.0330**	–.0479***	–.0343***	–.0429***	–.0358***	–.0295***	–.0233**
	(.010)	(.011)	(.009)	(.009)	(.009)	(.009)	(.009)	(.010)
FWS	–.0335***	–.0182***	–.0276***	–.0235***	–.0356***	–.0262***	–.0289***	–.0153***
	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)
DMNC	–.0124**	–.0158**	–.0338***	–.0195***	–.0261***	–.0189***	–.0250***	–.0181**
	(.005)	(.006)	(.004)	(.005)	(.004)	(.005)	(.005)	(.006)
Control var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Eff.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Eff.	Yes	No	Yes	No	Yes	No	Yes	No
Adj. R^2	.239	.066	.205	.097	.143	.074	.430	.021
No. of obs.	654 259	654 259	654 259	654 259	654 259	654 259	654 259	654 259

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

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8.5.2 Alternative controls for the size of the firms.

Different variations of controls for size of the firms are tested against each other in this section. It is important to be sure that an appropriate measure is used since firms in the sample are highly heterogeneous with respect to size. So far, a flexible specification form for the size variables has been used, namely fourth order polynoms in sales (column (2) Table 16). Alternative definitions of size controls that are used in the specifications are sales quintiles (dummies corresponding to each of the quintiles, as used in Langli and Saudagaran (2004) and Hægeland (2003)), logarithm of sales, as well as capital quintiles dummies, fourth order polynoms in capital, logarithm of capital and number of employees. Even though OLS coefficients for the foreignness variables vary in size (ranging from 2.0 to 6.6 percentage points), all of them are negative and highly significant. The FE estimates of the differential are also all negative, significant, but quite similar independent of which specification is chosen. The results observed in table 16 indicate further that the differential seems to be higher in absolute value when the size is controlled for in terms of capital rather than in terms of sales. However, the sales are still preferred as a control for size because of the assets re-evalutaion issues mentioned above. When dummies for the number of employees divided into quintiles is used as a control for the size of the firm, the differential seem to be quite similar to that when dummies for sales quintiles are used as controls. Since there is a considerable number of firms in the sample that miss data on the number of employees, sales-based measure of size was preferred to it in the main regressions above. While FMNC coefficients from both OLS and FE regressions are always negative and significant and seem to drive the MNC result, the OLS coefficients for the DMNC turn insignificant when sales quintiles, logarithm of sales or number of employees quintiles are used as controls.

Table 16: Alternative controls for size.

	(1) Sales quintiles		*(2) Sales polynoms*		*(3) Log(Sales)*		*(4) Capital quintiles*		*(5) Capital polynoms*		*(6) Log(Capital)*		*(7) Number of employees*	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
MNC	−.0214***	−.0182***	−.0317***	−.0182***	−.0203***	−.0198***	−.0344***	−.0195***	−.0342***	−.0196***	−.0365***	−.0218***	−.0206***	−.0174***
	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)
FMNC	−.0241***	−.0195***	−.0343***	−.0197***	−.0235***	−.0211***	−.0368***	−.0208***	−.0365***	−.0209***	−.0386***	−.0227***	−.0239***	−.0202***
	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.004)
DMNC	−.0023	−.0136**	−.0126**	−.0129**	.0029	−.0154**	−.0168***	−.0148**	−.0173***	−.0149**	−.0208***	−.0185**	.0040	−.0082
	(.005)	(.006)	(.005)	(.006)	(.005)	(.006)	(.005)	(.006)	(.005)	(.006)	(.005)	(.006)	(.006)	(.007)
FS	−.0270**	−.0385***	−.0251**	−.0356**	−.0070	−.0403***	−.0354***	−.0393***	−.0379***	−.0410***	−.0409***	−.0453***	−.0072	−.0270**
	(.013)	(.011)	(.010)	(.011)	(.010)	(.011)	(.009)	(.011)	(.009)	(.011)	(.009)	(.011)	(.011)	(.013)
FWS	−.0199***	−.0185***	−.0345***	−.0189***	−.0239***	−.0201***	−.0368***	−.0199***	−.0365***	−.0199***	−.0385***	−.0216***	−.0244***	−0.0199***
	(.004)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.003)	(.002)	(.004)
DMNC	−.0088	−.0153**	−.0125**	−.0143**	.0030	−.0171**	−.0168***	−.0165**	−.0173***	−.0167**	−.0209***	−.0206**	.0041	−.0088
	(.007)	(.007)	(.005)	(.007)	(.005)	(.007)	(.005)	(.007)	(.005)	(.007)	(.005)	(.007)	(.006)	(.007)
Control var. incl.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Eff.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Eff.	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
No. of obs.	657 823	657 823	657 823	657 823	657 823	657 823	657 823	657 823	657 823	657 823	657 823	657 823	443 877	443 877

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

8.5.3 Differences in ownership share.

So far, the company was considered as foreign controlled if at least 50% of its shares were owned by foreign investor. Similarly a company was considered to have control over a foreign subsidiary if its ownership share in the subsidiary exceeded 50%. Dummies for whether the companies were foreign controlled or had controlling share in foreign subsidiaries were then used in the regression analysis. This means that companies that were owned with less than 50% were a part of the control group. There can be reasons to believe that also firms with lower ownership share than 50% (foreign owned firms rather than foreign controlled) still can have possibilities and incentives to involve in profit shifting activities. This would mean that the coefficients reported above for the foreign controlled and domestic multinational companies would be understated. The degree to which they would be understated will depend on the extent of potential profit shifting activities of foreign owned companies. This is again under the assumption that negative profitability differential found is at least partly due to these type of activities. Experimenting with the different ownership shares can however allow testing this assumption, at least to a certain degree. The idea is that if differential is somehow related to profit shifting activities, one would expect it to be most pronounced, if not limited to those firms that are majority owned from abroad or those that own majority of shares in foreign firms. This type of "test" is also used in Grubert (1997) who includes a dummy variable for the companies with ownership share between 25 and 50 in addition to the one based on controlling share. His results indicate that the differential for the companies controlled with lower than 50% share show same low profitability as wholly owned companies. This makes him to contemplate whether other reasons than profit-shifting can lie behind the differential too.
Also Hægeland (2003), as discussed shortly above, have used dummies for the different intervals of ownership share in the regressions. His results indicated however that all foreign owned companies, independent of ownership share, have systematically higher profitability than comparable domestically controlled companies. As reported above, table 10, replicating his specification and running it on sample used in this study have led to all negative, rather than positive differentials. Here, the findings from the main part above will be tested by inclusion of dummies with different ownership shares in the original specification reported above. All the results of this modification are presented in table 17 below. The table is divided into 4 panels. In the first two panels the results of the basic regressions from the main part are reproduced. The third panel includes foreignness dummies for

foreign owned firms and domestically owned multinational firms, for which threshold for foreignness was set to 10% (the definition of foreign direct investment). In the fourth, and last panel three dummies for foreign control are introduced in the regression instead of one as in the panels above: one for the companies that are owned with foreign share between 10 and 49%, one for those owned with 50 to 99%, and one for the wholly owned subsidiaries. The same is done on the outward FDI side: i.e. three dummies based on the same ownership share groups are included instead of a single dummy. The results reported generally point in the direction that the differential can be caused by profit-shifting activities. FMNC coefficient in the third panel, table 17, is just slightly more negative than the corresponding coefficient in the second panel. This indicates that firms owned with foreign share between 10 and 50%, that are now moved from the control into the "treated" group, were on average less profitable than pure domestic companies. The difference however seems to be relatively small. Comparing the FE coefficients for FMNC from the second and third panels indicate that change to foreign ownership is associated with profitability decrease, and the decrease is larger when the foreign control share of exceeds 50%. On the outward FDI side, no systematic differences in profitability are found between domestically controlled multinational firms and domestic firms, when foreign ownership is defined using a 10% threshold. Similarly no systematic changes in profitability are found in connection to change to DMNC status under the 10% ownership definition. The results in the last panel of table 17 show that independent of ownership share, all foreign owned firms seem to report systematically lower profitability. Generally, however, the differential seems to decline in absolute size as ownership share decreases, and is the lowest for the firms owned with between 10 and 49% share. Transfer of foreign ownership status into each of this category is associated with decrease in profitability, with decrease being largest for the fully owned foreign subsidiaries. Firms that have received foreign direct investments of less than 50% show no systematic difference in profitability after the investment has taken place. This is an important results, which is consistent with the profit shifting hypothesis as described above. On the outward side, the positive and economically significant OLS coefficient for DIA[5] 10-49% indicates that firms in this category are on average more profitable than comparable domestic firms. Those firms that are controlled with more than 50% are on the contrary less profitable. However, none of the coefficients for dummies on the outward FDI side (neither OLS nor FE) are statistically significant.

[5]DIA stands for Direct Investment Abroad

Table 17: Experiments with ownership share.

		(1) OLS	(2) FE
I.	MNC	–.0317***	–.0182***
		(.002)	(.003)
II.	FMNC (50%)	–.0343***	–.0197***
		(.002)	(.003)
	DMNC (50%)	–.0126**	–.0129**
		(.005)	(.006)
III.	FMNC (10%)	–.0348***	–.0159***
		(.002)	(.003)
	DMNC (10%)	–.0070	–.0057
		(.006)	(.010)
IV.	FCC share 10-49%	–.0274***	–.0079
		(.005)	(.006)
	FCC share 50-99%	–.0306***	–.0113**
		(.004)	(.005)
	FCC share 100%	–.0365***	–.0229***
		(.002)	(.005)
	DIA share 10-49%	.0231	–.0244
		(.019)	(.017)
	DIA share 50-99%	–.0112	.0081
		(.011)	(.012)
	DIA share 100%	–.0061	–.0080
		(.007)	(.007)
	Control var.	Yes	Yes
	Year Eff.	Yes	Yes
	Industry Eff.	Yes	No
	Adj. R^2	.237	.070
	No. of obs.	657 823	657 823

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

8.5.4 Changes in foreignness status.

All the regressions above are based on a sample where firms change their foreignness status both from being domestic to being multinational and back from being multinational to being domestic, as well as they can go from one category to another several times. This may introduce noise and complicate interpretation of the FE estimates, which are based on comparing the average after- and before-profitability of the firms upon the status change. It can be seen from table 18 how the coefficients are affected if the regressions are run on a sample where only firms that changed foreignness maximum one time are included: column (2). Comparing the results from columns (1) and (2) shows that FE coefficient has increased in absolute terms with almost 0.3 percentage points after the firms with multiple changes in foreignness status has been removed. Furthermore, the sample has been limited to only those firms that either have not changed their status at all or changed their status from being domestic to becoming multinational (but not the other way around). The results of regressions based on that sample are presented in column (3) table 18. It is especially interesting to look at these results in comparison to those in column (4), which are based on a sample with only firms that either did not change their foreignness status at all or changed it from being multinational to being domestic. FE coefficient in column (3) reveals that profitability of the firms that changed their foreignness status from being domestic to being multinational goes down as compared to the firms that have not experienced a corresponding change. However, no systematic changes in profitability is found for the firms that became domestic after being multinational (column (4)). Further comparison of the FE coefficients from columns (1) and (3) implies that the results of the original regressions are driven by the domestic firms that became multinational, and to a bigger degree by those that were taken over by foreigners (FMNC), and to a lesser degree by those domestic firms that opened foreign subsidiaries abroad (DMNC).

Table 18: Changes in foreignness status.

	(1) Original sample		(2) Only one change in foreignness status		(3) Change from DNC to MNC		(4) Change from MNC to DNC	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE
MNC	–.0317***	–.0182***	–.0317***	–.0209***	–.0321***	–.0251***	–.0297***	–.0041
	(.002)	(.003)	(.002)	(.004)	(.002)	(.005)	(.002)	(.010)
FMNC	–.0343***	–.0197***	–.0340***	–.0228***	–.0345***	–.0272***	–.0325***	–.0088
	(.002)	(.003)	(.002)	(.004)	(.002)	(.005)	(.002)	(.010)
DMNC	–.0126**	–.0129**	–.0120**	–.0152*	–.0121*	–.0184**	.0028	.0090
	(.005)	(.006)	(.006)	(.008)	(.007)	(.009)	(.008)	(.019)
FCC+FDI	–.0251**	–.0356**	–.0178*	–.0352**	–.0128	–.0340**	–.0148	–.0224
	(.010)	(.011)	(.010)	(.013)	(.011)	(.014)	(.013)	(.019)
FCC-FDI	–.0345***	–.0189***	–.0345***	–.0219***	–.0352***	–.0267***	–.0330***	–.0072
	(.002)	(.003)	(.002)	(.005)	(.002)	(.005)	(.002)	(.010)
DMNC	–.0125**	–.0143**	–.0118**	–.0167*	–.0118*	–.0192**	.0032	.0051
	(.005)	(.007)	(.006)	(.009)	(.007)	(.009)	(.008)	(.020)
Control var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Eff.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Eff.	Yes	No	Yes	No	Yes	No	Yes	No
Adj. R^2	.237	.070	.239	.071	.239	.071	.241	.071
No. of obs.	657 823	657 823	642 535	642 535	633 839	633 839	625 121	625 121

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

8.5.5 Introducing taxes in the model.

That the differential found is due to tax motivated profit shifting behavior by multinationals was an implicit assumption made here as well as in most of the earlier studies following the same approach. In this section I will introduce taxes in the model in order to see whether the differentials reported can be related to taxes rather than other factors [6]. Incorporating taxes in the model like the one here is not entirely straightforward. On the inward FDI side this is due to the fact that the data does not allow observing the full structure of the corporate group the firm belongs to. If one looks at the subsidiary of the foreign firm in Norway (FMNC), the data is available on where the parent company of this firm is located; however, it is not known what other countries this parent have subsidiaries in. This means that even though tax rates of the parent may be included in the analysis, they may have only limited effect on the taxable income reported in Norway. The reported profits may rather be related to the tax rates in other affiliated companies, some of which can be located in tax havens, and thus serve as a more attractive destinations for shifted profits. In the absence of better options, however, in this section the information on the tax rates of the parent companies will still be used as regressor in the model where taxable income to sales ratio of foreign controlled companies (FMNC) is used a dependent variable (column (1), top panel in table 19). The regressions here are run on a sample of 14 594 firm-year observations for foreign controlled firms for which the parent country was reported and tax data on the parent company was available. Neither of the two tax rate coefficients are shown to be statistically significant at any conventional significance level. One of the explanations for that can be relatively low variation in tax rates across the countries as well as over time. The list of countries foreign direct investments in Norway come from and go to, as well as average tax rates used in the analysis in this section are to be find in table 22 and 21 in Appendix. The OLS coefficient for the tax variable is negative and economically significant indicating that firms that are controlled by the parent companies with higher tax rates tend to report lower profitability. This is the opposite of what one would expect according to tax motivated profit shifting hypotheses: higher tax rates in the parent country would imply that more profits would be shifted out from the parent country and to Norway. The main weakness of this argument is however that taxes in parent company may be irrelevant if profits can be shifted to other subsidiaries with lower tax

[6] The tax rates are collected from the International Bureau of Fiscal Documentation and Ministries in different countries, currently available for this study for years 1996-2006

Table 19: Introducing taxes in the model.

		(1) FMNC		(2) FCC-FDI (no subsid.)		(3) DMNC (one subsid.)	
		OLS	FE	OLS	FE	OLS	FE
I.	Tax rate*	–.0395	.0206	–.0291	.0102	–.3040	–.4470
		(.026)	(.040)	(.026)	(.040)	(.220)	(.483)
II.	Tax rate higher than in Norway	.0672	.0508	.0682	.0512	–.0450	.0046
		(.065)	(.050)	(.064)	(.050)	(.030)	(.042)
	Control var.	Yes	Yes	Yes	Yes	Yes	Yes
	Year Eff.	Yes	Yes	Yes	Yes	Yes	Yes
	Industry Eff.	Yes	No	Yes	No	Yes	No
	Adj. R^2	.199	.576	.257	.516	.198	.644
	No. of obs.	14 594	14 594	14 223	14 223	1 268	1 268

*Statutory tax rate for the parent country for regressions in columns (1) and (2); and statutory tax rate in the country of foreign subsidiary - for column (3).

In parentheses: robust SE corrected for clustering within firms.

Industry effects: dummies for NACE 3 digit codes

$*p < 0.10, **p < 0.05, ***p < 0.001$

rates. In the absence of data on other subsidiaries in the corporate group, one cannot conclude anything more than that. The results reported are however consistent with the reasoning that there can be higher possibility that parent companies located in high tax countries are more likely to have subsidiaries in tax haven countries (or in countries with tax rates lower than in Norway) to where profits can be shifted from Norway. FE coefficient for the tax rate in the first panel column (1) is economically significant, positive and lies at around 2 percentage points, indicating that increase in the parent country tax rate is associated with increase in the reported profitability of its subsidiary located in Norway. The corresponding FE coefficient is approximately two times lower when the sample is limited to only those foreign controlled subsidiaries that do not have subsidiaries abroad themselves (column (2), panel I in table 19). For these subsidiaries no other channel than through shifting profits to and from the parent company and its other affiliates is available. This means that the difference between the two coefficients implies that shifting to and from the foreign subsidiaries, that companies in Norway themselves have controlling interest in can also be an active channel for profit shifting activities. Both of the coefficients are however not statistically significant. In the last column (3), top panel in table 19, the sample consist of the firms that are domestically controlled, but have one subsidiary abroad. This implies that they only have one channel to shifting profits, and that the relevant tax rate will be that in the country of subsidiary[7]. However representativeness of this sample for the rest of domestically controlled multinational companies can be questioned. Also here none of the coefficients are statistically significant. However, both of them (OLS and FE) are negative and considerable in size, indicating that if anything, the profits are shifted to the subsidiary facing higher or increasing tax rates. This contradicts the profit shifting hypothesis, but the number of observations available for analysis can be too small to make further inferences based on these results. Further research is needed to improve and extend these regressions.

In the lower panel of the table, instead of using a continuous tax variable as above a dummy was constructed which is equal to one if the tax rate in the parent/or foreign subsidiary country was higher than that in Norway. The expectation was that reported profitability for the firms for which this dummy variable is equal to one, will be higher than for the firms that

[7]This is under the assumption that we have complete data on the corporate structure of the multinational group. If corporate group has subsidiaries abroad that it does not report about to the authorities (for example a subsidiary in a tax haven country), the argument becomes invalid.

have parent/foreign subsidiary in a country with lower tax rate than in Norway. The coefficients for the sample of foreign controlled firms (both FMNC (column (1) and FCC-FDI (column (2))) seem to confirm this expectation, however, the reported coefficients are not statistically significant at any of the conventional levels: This is however not surprising since the number of companies in the sample that have been controlled by parents in the countries where average tax rates were higher than in Norway turned out to be just 10. For the domestically controlled firms with one subsidiary abroad, the higher tax rate in the host country in the subsidiary than in its home country (in total 94 observations), is shown to be associated with decreased profitability in Norway. Small and insignificant FE coefficient for the DCC companies indicate that if the tax in the subsidiary country changes so that it becomes bigger than tax rate in Norway no systematic differences in profitability of a Norwegian parent occur.

9 Summary.

The main purpose of this paper was to shed more light on the problem of negative profitability differential between domestic and multinational firms in Norway. The contribution of this study is in extending the existing studies methodologically, as well as with respect to the sample used. The average profitability of *all* multinational firms in Norway was compared to the profitability of domestic firms. Since most of the earlier studies only studied profitability differential between foreign controlled and domestically controlled firms, this means that an important group of domestically controlled multinational companies was moved out from the control group making it "cleaner". The results above indicate that multinational firms are on average less profitable than domestic firms. The profitability differential reported in this study is also shown to be both economically and statistically significant, lying at around -3.17 percentage points. In comparison to existing Norwegian studies, it is higher in absolute value, but still comparable to the differential reported in Langli and Saudagaran (2004), while being of opposite sign as compared to that reported by Hægeland (2003). None of the previous studies before this one have used panel data techniques to estimate the differential. Both fixed effects (FE), first difference (FD) and long difference (LD) methods were used for estimations in this study. While first difference estimations have not given any significant results, long difference estimates indicated the possibility of measurement errors in the main explanatory variable. The FE estimates of the differential revealed that not only multinational firms are on average less profitable than comparable domestic firms, but profitability of the firms that become multinational reduces with around 1.8 percentage points compared to the domestic firms that remain domestic. On the outward FDI side, the relative size of the OLS and FE coefficients have indicated that these are the most productive firms that extend abroad. The latter is in accordance with predictions from internationalization theory of the firm. Both the OLS and FE estimates of the differential for multinational firms were shown to be driven by the foreign controlled companies (and in particular those that do not have subsidiaries abroad themselves), even though the profitability is reported to be around 1.3 percentage points lower also for the domestically controlled multinational companies as compared to pure domestic companies. The negative sign of the differential estimates is consistent with the fact that if it is caused by profit-shifting activities, the net stream of shifted profits is out of Norway. It was further shown from year-by-year regressions that the estimated profitability differential was quite stable and negative through all the 13 years,

while increasing in absolute value the in last 5 years of the panel. The differential was also reported to be negative and significant for all the industry groups considered. The only exception has been the retail-industry, for which the coefficient was neither economically, nor statistically significant. "Real estate/financial intermediation/business activities" was the industry group for which the highest difference in average profitability between multinational and domestic companies has been reported. Since industries in this group are generally characterized by intangible nature of their products, the transfer price for which can more easily be manipulated, this may point in the direction that the differential found at least partly reflects the profit shifting activities of the firms. It has also been revealed that FE coefficients reported for the pooled sample of all industries seem to be mainly driven by four industry groups, namely "Wholesale", "Hotel/Restaurants", "Real estate/Financial intermediation/Business activities" and "Others". The profitability differential has also been estimated for different groups of companies based on their average sales (divided into quintiles). The differential as measured by OLS was shown to be negative and significant for all the size groups, increasing in absolute value from the fifth to the first quantile. If the differentials reported can be caused by the profit shifting activities, this result here may indicate then that smaller companies as well as the big ones, and possibly even in a bigger degree, may involve in tax evasion activities. The differential as estimated by FE was however shown to be negative and significant only for the 3rd, 4th and 5th quantile groups. This indicates that only companies that have average sales of more than 5 millions NOK and change their status from being domestic to being multinational (in particular those that are being taken over by foreigners) report systematically lower profitability than comparable companies that have not changed their status.

The profitability differential was also found to be robust negative and significant independent of what size controls were included in the regressions. Neither did choice of profitability measure affect the sign and significance of the results. However, the percentage of the differential that could be explained by the different firm characteristics that were controlled for in the model differed considerably depending on which measure was used. 32% of the profitability differential as measured by taxable income to sales has been left unexplained after all the controls were accounted for in the model. The corresponding figure for the return to capital differential was 66%. Sensitivity of the results has also been tested with respect with different foreign ownership shares. Minimum of 50% ownership share was used to define foreign control throughout most of the study. A 10% threshold has also been

tested. This adjustment reveals that also companies controlled with foreign ownership less than 50% report systematically lower profitability than domestic companies, although the difference seems to be much less. The results for the domestically controlled multinational companies turn insignificant, both economically and statistically. Furthermore, dummies for the different ranges of foreign ownership has been included in the model instead of a single dummy for foreignness. Independent of ownership share range, all foreign owned firms were shown to report systematically lower profitability than domestic firms. Generally, however, the differential estimates declined in absolute size as ownership share decreased. Transfer of foreign ownership status into each of this category was associated with decrease in profitability, with decrease being largest for the fully owned foreign subsidiaries. Firms that have received foreign direct investments of less than 50% showed no systematic difference in profitability after the investment has taken place. This is an important results, which is consistent with the assumption that profitability differential can be caused by profit-shifting activities. On the outward FDI side, none of the coefficients for dummies (neither OLS nor FE) were statistically significant.

In order to test whether multiple changes in foreignness status have affected FE estimates of the profitability differential, the sample has been "refined" to only include companies that changed their ownership status maximum once. The resulting sample has further been divided into the sample where firms has changed their status to being multinational, and those who became domestic after being multinational. FE estimate of the differential revealed that profitability of the firms that changed their foreignness status from being domestic to being multinational went down as compared to the firms that have not experienced a corresponding change. However, no systematic changes in profitability was found for the firms that became domestic after being multinational. It was also found that the results based on original sample with multiple status changes were driven by domestic firms that became multinational. In particular by those that were taken over by foreigners (FMNC), and to a lesser degree by those domestic firms that opened foreign subsidiaries abroad (DMNC). In the last part of the study taxes has been included in the analysis in order to see whether the differential observed can be shown to be tax-motivated. Even though some of the coefficients were economically significant and showed signs consistent with profit shifting hypothesis, none of the two tax rate coefficients were statistically significant at any conventional significance level.

10 Conclusions.

The results of this study indicate that multinational firms in Norway on average report around 30% lower profitability than comparable domestic firms. Furthermore, it has been shown that profitability of domestic firms goes down by about 20% when they become multinational. This is after the account was taken for the most important characteristics and permanent differences between these two types of firms. The estimates of the profitability differential has been shown to be robust to different estimations methods used, as well as different definitions of multi-nationality and profitability measure. Even though the evidence provided cannot serve a direct proof of profit shifting activities by multinational firms in Norway, some of the findings as described above seem to indicate that they are at least partly responsible for the relatively low profitability of the multinational firms. In the absence of better alternatives, this can be enough to increase the awareness of international profit shifting issue that can potentially cost Norwegian government billions of kroner in foregone tax payments. Further research is however needed in order to get a better understanding of the problem of profit-shifting.

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Table 20: Number of observations by foreignness category over time.

Year	Total	DNC	MNC	FMNC	FCC-FDI	FCC+FDI	DMNC
1993	35,031	33,072	1,959	1,620	1,583	37	339
1994	38,067	35,850	2,217	1,875	1,833	42	342
1995	41,436	39,064	2,372	2,040	1,992	48	332
1996	44,407	41,867	2,540	2,228	2,169	59	312
1997	47,466	44,897	2,569	2,302	2,246	56	267
1998	49,516	46,888	2,628	2,359	2,305	54	269
1999	52,783	49,987	2,796	2,537	2,477	60	259
2000	54,816	51,674	3,142	2,729	2,644	85	413
2001	56,352	53,125	3,227	2,814	2,716	98	413
2002	57,112	53,782	3,330	2,881	2,778	103	449
2003	58,029	54,612	3,417	2,993	2,896	97	424
2004	60,167	56,693	3,474	3,061	2,962	99	413
2005	62,641	59,047	3,594	3,224	3,115	109	370
Total	657,823	620,558	37,265	32,663	31,716	947	4,602

Table 21: Tax rates for the countries of parents companies of foreign owned companies in Norway.

Country	Obs	Average tax (1996-2005)
Denmark	2 567	0.31
Finland	590	0.29
Sweden	5 550	0.28
Belgium	232	0.38
France	301	0.37
Italia	103	0.42
Netherlands	1 338	0.34
Luxembourg	2	0.34
Portugal	14	0.34
Spain	60	0.35
UK	1045	0.31
Russia	30	0.32
Switzerland	581	0.33
Germany	1 046	0.49
Austria	61	0.32
Japan	61	0.43
Costa Rica	28	0.36
USA	985	0.39
Total	14 594	0.35

Table 22: Tax rates for the countries where Norwegian companies have FDI (based on sample of companies that have only 1 subsidiary).

Country	Obs.	Average tax (1996-2005)
Denmark	166	0.31
Finland	40	0.29
Island	4	0.25
Sweden	534	0.28
Belgium	10	0.38
France	11	0.37
Gibraltar	3	0.35
Irland	7	0.11
Latvia	11	0.22
Netherlands	18	0.34
Luxembourg	9	0.34
Poland	31	0.29
Portugal	19	0.29
Romania	2	0.29
Lithauen	12	0.10
Spain	21	0.35
UK	150	0.31
Russia	13	0.32
Switzeralnd	4	0.33
Turkey	8	0.35
Hungary	9	0.18
Slovakia	3	0.29
Czech Rep.	1	0.30
Egypt	1	0.42
Phillipines	3	0.33
Hong Kong	5	0.17
India	3	0.37
Japan	1	0.43
China	3	0.33
Maldives	7	0.28
Saudi Arabia	2	0.38
Singapore	8	0.24
Bahamas	1	0.00
Bermuda	2	0.00
Costa Rica	19	0.36
Cayman Islands	1	0.00
USA	115	0.39
Brazil	2	0.33
Chile	9	0.16
Total	1 268	0.28