Effects of Voluntary Audit on Accounting Quality in Small Private Firms

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Abstract

Many countries have introduced thresholds for mandatory audits, but empirical evaluations on how deregulation of audit markets affect reporting quality are scarce. I analyze a Norwegian audit reform in 2011, that introduced voluntary audit for small private limited liability firms. I find no consistent signs of negative effects on accounting quality for the firms that drop audit. Some firms around the size thresholds size down to avoid audit costs when the perceived benefits of audit are smaller than the costs. If such downsizing is done by manipulation of the accounts, one would expect lower accounting quality among firms just below the threshold. I find some indications of lower accounting quality among these firms, but the finding is not robust. I conclude that the reform has not had significant negative effects on accounting quality and that deregulating certain segments of the audit market – entrusting the audit decision to be taken by firms based on their individual cost-benefit assessments – increase economic efficiency.

1. Introduction

There is a growing international trend of reducing costs and complexity of private firms' financial reporting. Although research finds lower accounting quality for private than public firms, accounting quality in private firms is found to be important to potential and existing stakeholders' decision-making, and private firms' financing costs and constraints.[1] Private firms dominate all market economies in terms of the number of firms, employment, and total assets held.[2] If well-intended reforms lead to lower reporting quality, the benefits in the form of cost-savings may soon be lost, for instance in the form of higher capital cost due to higher information uncertainty. Spillover-effects into tax reporting may also be of concern, as financial reports often make up a basis for tax filings.[3]

In the literature, audit is found to have positive effects on accounting quality, and acts as a mitigating factor on restrained access to capital and investment opportunities.[4] For small private firms, however, findings indicate that dropping audit has no or low effect on the cost of capital and earnings quality (Langli, 2015; Langli and Che, 2016; and Liu and Skerratt, 2018). Langli (2009) argues that the number of stakeholders in small private firms is often

[1] See e.g., Allee and Yohn (2009), Hope et al. (2011), Minnis (2011), Chen et al. (2011), Hope et al. (2013), and Hope et al. (2017).
[2] See e.g., Berzins et al. (2008).
[3] Ball and Shivakumar (2005) and Burgstahler et al. (2006) argue that the requirements for private firms' financial reporting is more influenced by tax reporting than the information needs of external providers of capital.
[4] See e.g., Allee and Yohn (2009), Minnis (2011), Dedman and Kausar (2012), and Kausar et al. (2016).

exaggerated, as many small private limited liability firms do not have employees or rent-bearing debt. Small private firms may, in other words, not face the same incentives as larger private firms for requesting audit services.

The broad international adoption of voluntary audit for small private firms demonstrates that governments have acknowledged lower demand for audit in the small private firms' sphere and entrusted the audit-decision to be taken at firm-level based on individual cost-benefit assessments.[5] Evaluations of how such audit reforms affect accounting quality in targeted firms are, however, scarce.[6]

I use register data on small private firms' financial accounts, provided by the Norwegian Tax Authority to investigate the effects of introducing voluntary audit on small private firms' accounting quality. The identification strategy is to use regression analysis with firm fixed effects. This is possible as I have panel data on firms' financial accounts in the period 2006 to 2015 and the reform was put in effect from 2011.[7] Before the reform, *all* limited liability firms in Norway were subjected to mandated audits. After the reform, limited liability firms under certain thresholds were given the opportunity to opt out of audit.[8]

Firms that drop audit is the treatment group. I use two different control groups: firms that can opt out of audit but choose not to (control group 1 – eligible firms), and firms that cannot opt out of audit (control group 2 – non-eligible firms). As an extension, I focus on opt-out-firms exerting bunching behavior, i.e., firms that lie just below the size threshold in year *t* and drop audit in year *t+1*.

Firm fixed effects are included to reduce omitted variable bias through removal of unobserved time-invariant heterogeneity among firms, e.g., internal controls or corporate governance mechanisms that correlate with the main explanatory variables (Amir et al., 2016). Obviously, opting out is still a choice variable and to control for potential selection, I instrument the opt-out decision using combinations of pre-reform eligibility (i.e., whether a firm is counterfactually eligible for opting out in the pre-reform period) and time passed after the reform, as instrumental variables.

[5] See e.g., Bernard et al. (2018).
[6] See e.g., Clatworthy and Peel (2013), Downing and Langli (2019) and Langli (2015).
[7] All limited liability firms report financial accounts in the form Income Statement 2 (Næringsoppgave 2, RF 1167) which is reported to the Norwegian Tax Authority.
[8] https://www.regjeringen.no/no/dokumenter/nou-2008-12/id520230/

My main outcome variable for testing effects on accounting quality is discretionary accruals, which is a well-known theoretical measure of accounting quality. In robustness analyses, I use several alternative measures for accruals quality and timely loss recognition.

Langli (2015) analyzes accounting quality in the wake of the Norwegian audit-reform. His conclusions are, however, based on cross-sectional analyses, and capture more instantaneous effects as he only has data until 2012, which was the first year after the reform. Dedman et al. (2014) find evidence suggesting that firms need time to benefit from audit exemptions, and Langli (2015, p. 381) recognizes the shortcomings of his data. He therefore emphasizes that the results should be interpreted with caution.

My regression analyses reveal no consistent deterioration of accounting quality among opt-outs after the audit-reform. Moreover, I find no robust evidence of lower accounting quality among opt-out firms exerting bunching behavior. Overall, the introduction of voluntary audit seems to be a welcome regulatory change for the targeted firms, without any significant negative effects on accounting quality. In other words, a deregulation of the audit market seems to come at low costs in the form of lower accounting quality in the small private firm segment. This finding implies that a deregulation of certain segments of the audit market constitutes a feasible regulatory measure that can be taken to increase economic efficiency.

My study contributes to the literature in several ways. There is rather limited systematic empirical evidence concerning private firms' accounting quality practices (see e.g., Hope and Vyas, 2017), and I add to the general knowledge in this area of research. Most importantly, the study expands the literature relating to effects from the international trend of reducing costs and complexity of private firm's financial reporting (see e.g., Hope et al., 2017). The unique panel data set also provides important information on how private firms adjust over time.[9]

The paper continues as follows. In section 2, I discuss relevant literature concerning auditing and private firms and formulate test hypotheses. Section 3 gives the background for the introduction of voluntary audit in Norway. Section 4 describes the research design and presents descriptive statistics. Section 5 addresses the main test of hypotheses. Section 6 focuses on additional and robustness tests. Finally, in section 7, I evaluate findings and conclude on effects in the wake of the audit-reform.

[9] Langli (2015, chapter 8) does not use firm fixed effects or instrumental variables.

2. Literature and hypothesis development

2.1 Audit-effects on private firms' accounting quality

Several studies have found auditing to increase accounting quality in private firms.[10] Hence, introducing voluntary audit may cause lower accounting quality in firms choosing to drop audit, with implications for e.g., cost of capital.

Kausar et al. (2016) look at positive effects stemming from voluntary audit and refer to two different theories: First, audits are a costly signal chosen by low-risk firms to separate them from other firms (e.g., Jensen and Meckling, 1976, and Melumad and Thoman, 1990), and second, external financiers can use audits as a screening mechanism to separate the good debtors from the bad in terms of credit risk (Guasch and Weiss, 1981).

Kausar et al. embrace both theories and argue that the choice of obtaining audit signals firms' future investment opportunities: Only firms foreseeing themselves generating sufficient profits from investment opportunities to recover the cost of audit will chose to obtain voluntary audit. The authors find that choosing to obtain a voluntary audit significantly increase firms' access to debt financing, investment, and operating performance. They argue that in addition to an increase in quality and reliability of financial statements, the observable choice to obtain an audit in itself provides incremental information to creditors. Hence, their findings support the notion that audit seem to increase the perceived accounting quality among stakeholders. Lennox and Pittman (2011) find similar results with respect to credit ratings.

Langli and Che (2016), on the other hand, find no sign of increase in financial costs for firms that opt out of voluntary audit relative to audited firms. Langli (2015), in cross sectional analyses, finds certain indications of lower accounting quality among firms that drop audit in the wake of the Norwegian audit reform – principally for firms with high inventory and/or accounts receivable. However, he also shows that firms with external accountants do not experience a significant drop in tax-paper quality after opting out of audit. Hence, accountants may mitigate effects on reporting quality for opt-out firms.

Audit research has also found audit-firm size to affect accounting quality in audit clients (see e.g., Clatworthy and Peel, 2013). However, findings are mixed. Basu et al. (2001), for instance, find that firms with Big 8 auditors recognize losses in a timelier manner and are

[10] See e.g., Allee and Yohn (2009), Minnis (2011), and Clatworthy and Peel (2013).

more conservative, while Francis (2011) argues that this result depends on the distribution of client firms. He finds clear evidence of difference only in the most extreme deciles of the distribution of signed accruals, and addresses self-selection bias as a problem. Audit firms are not randomly assigned to audit clients, and findings may suffer from omitted variable bias. He therefore recommends controlling for firm fixed effects. Kim et al. (2011) find no Big 4-effect on interest cost of borrowing for privately held firms and argue that audit presence trumps auditor choice in terms of factors that matter to banks and other private lenders. Che et al. (2020), using a fixed audit partner and audit client effects research design, find evidence of less discretionary accruals in private firms that switch from a non-Big 4 to a Big 4-auditor. Lennox and Pittman (2011) argue that choosing a Big 4-auditor may be used to signal firms' demand for high audit assurance.

The mixed empirical evidence calls for more research on the topic of auditing and its effect on accounting quality in private firms. The key question in this study is whether opt-out-firms experience drop in accounting quality that can be attributed to the termination of audit. My main hypothesis is formulated as follows:

H_1: Firms that choose to drop audit have lower accounting quality than other comparable firms.

2.2 Threshold-effects on size distribution of firms

Firms that would naturally fall just above size-thresholds for mandated audit have high incentives to squeeze below these thresholds if perceived benefits from audit is found to be smaller than the costs. Consequentially, the size distribution of firms may show signs of excess mass in the area just below size-thresholds, and missing mass in the area just above.

In a companion paper, Aase (2021), I find evidence of revenue size management in the Norwegian setting and estimates that external services fees are reduced by approximately 1 700 € for firms avoiding audits – an amount comparable to lost profits from size management. These findings signal that indirect audit costs, such as management time, also play a part in the firm specific cost-benefit assessment of an audit. I find no evidence of size management being driven by real earnings management.

Bernard et al. (2018) study size management around thresholds for mandated audit based on a sample of 503 666 observations of private firms from 12 different European countries (not

including Norway). Their findings indicate that at least 4 % of firms within a range of 2 % from threshold for mandated audit manage assets downwards by an average of 3.35 bins of 2 % width. Although size-management could be indicative of lower accounting quality, this is not the focal point of Bernard et al.'s study as they claim that misreporting is unlikely to be common in firms exerting such behavior. The premises for their conclusion are that financial statements are scrutinized by tax authorities, and that national laws penalize managers and directors for misleading or false financial reporting. However, it is difficult to estimate the risk of being caught, and although sanctions may be serious, it is not obvious that such measures may deter firms from earnings management. Misreporting is therefore a compelling dimension to investigate further to test whether opt-out firms exerting size management (i.e., have total revenue just below the threshold in year *t*, and drop audit in year *t+1*) differ in accounting quality compared to other firms. This leads to my second hypothesis:

H_2: The negative effect on accounting quality from dropping audit (H_1) is strengthened if the firm exerts size management.

3. Background for the introduction of voluntary audit in Norway

The introduction of voluntary audit for small private limited liability firms in Norway, in 2011, is an example of the international trend of reducing costs and complexity of private firms' financial reporting.[11] In the Norwegian reform, small firms were defined as limited liability firms with less than 500 000 EUR in operating revenue and at the same time less than 2 million EUR in total assets and no more than 10 full time employees.[12] Norway was the last country in the EU/EEA to abolish full statutory audit for small private firms (Langli, 2015, p. 143). The main arguments used by the Norwegian Ministry of Finance for implementing the reform were reduction of cost and complexity, and competitive considerations.[13] Compared to the revenue thresholds reported in Bernard et al. (2018), the Norwegian revenue threshold is set relatively low.[14] The legal basis for opting out of audit is given in § 7-6 in the Norwegian

[11] The audit-reform was based on the green paper NOU 2008:12 submitted to the Norwegian Ministry of Finance. The bill was put forth in the cabinet mid-December 2010, and the statute was sanctioned mid-April 2011, with effect from 1st of May 2011.

[12] The threshold values in EUR correspond to 5 million NOK in total revenue and 20 million NOK in total assets, see Prop. 51 L (2010–2011) p. 41. From 10th of Jan. 2018, the thresholds were increased to 6 million NOK in operating revenue, and 23 million NOK in total assets. (Forskrift om terskelverdier for beslutning om å unnlate revisjon etter aksjeloven § 7-6)

[13] Prop. 51 L (2010–2011) p. 41.

[14] Denmark, Finland, and Sweden had lower thresholds than Norway in 2011, whereas Austria, Belgium, France, Germany, Ireland, Italy, the Netherlands, Spain, and the United Kingdom have higher thresholds.

Act relating to Private Limited Companies. The previous year's numbers on total revenue, total assets and number of employees are decisive to whether a firm can opt out of audit in year *t*.[15] The choice of opting out requires administrative action and cannot be put into effect until the decision is reported to the Register of Business Enterprises.[16] In a consultative statement, Langli (2008) estimates that limited liability firms under the revenue threshold paid around 44 % (1.6 billion NOK) of total audit fees for limited liability firms, whereas these firms only made up 4 % of total revenue among limited liability firms, and paid 8 % of total taxes for limited liability firms.[17] There are consequentially benefits to be gained in the form of cost reduction for small firms. However, the costs in terms of lower accounting quality are unclear and need to be taken into account.

4. Research design

4.1 Data

The data comes from the Norwegian Tax Authority Register and provides information on financial accounts of all Norwegian firms in the period 2006 to 2015. The focus of this study is on non-grouped limited liability firms around the introduced revenue threshold for mandated audit. I include firms with minimum revenue higher than 1 MNOK, maximum revenue lower than 10 MNOK, and average revenue between 3 MNOK and 7 MNOK in the sample period.[18] I focus on firms with more than 1 MNOK and less than 20 MNOK in total assets, and fewer than 10 employees during the sample period. Consequentially, the revenue threshold is the only decisive threshold for my sample of firms. I drop firms in NACE2-industries that are not included in the legislative amendment that introduced voluntary audit for small, limited liability firms, most importantly the finance industry, judicial services, and

[15] See e.g., https://www.regjeringen.no/no/dokumentarkiv/stoltenberg-ii/fin/Nyheter-og-pressemeldinger/pressemeldinger/2011/unntak-for-revisjonsplikt-fra-mai-i-ar/id641006/ Eligibility among new firms established after the reform, without prior financial statements, is assessed on the grounds of number of employees at the time of the general meeting's decision and initial total assets or share contribution.

[16] According to asl. § 7-6 the decision must be taken by the general meeting and requires a majority of 2/3 of the votes. The general meeting can then give the board authorization to opt out of audit. The board must then decide to opt out and report to the administrative body.

[17] https://www.regjeringen.no/globalassets/upload/fin/fma/horingssvar/2008_07_02_nou_12_revisjonsplikt/bi.pdf

[18] Parent companies in the data are subject to mandated audit regardless of the threshold values according to the Auditors Act § 2-1 (5). This provision was adjusted 1st of July 2017 so that only firms with obligation to prepare consolidated financial statements are subject to mandated audit. Subsidiaries are also dropped as the audit-decision is most likely not taken at firm-level, but rather at group-level. Consequentially, I drop all observations of firms that are listed with a parent, foreign subsidiary, posts on RF 1123 (controlled transactions and accounts outstanding) or have posts in the income statement (RF 1167) balance sheet that indicate that a firm is part of a group (e.g., investments in subsidiaries, accounts receivable/payable to group firms).

accounting services.[19] The final sample is presented in Table 1 and consists of about 42 000 firm-year observations of more than 5 500 firms. All sample firms are established before the reform and have at some point been subjected to mandatory audit. The maximum number of observations per firm is 10, and the average number of observations per firm is 7.5.

Table 2 shows an increasing number of opt-out firms throughout the years 2011 to 2015. The somewhat slow adaptation could reflect that firms need time to learn about the relevant cost-benefit ratio of opting out of audit and corresponds to Dedman et al.'s (2014) findings of firms needing time to benefit from the audit exemption. Langli and Che (2016) find that opt-out firms do not experience higher financial costs after dropping audit. Such effects may stimulate eligible firms to cut auditor costs. As this type of information reaches the market, more firms will consider the benefit of dropping audits higher than the costs.

[19] There is a change in industry (NACE2) coding in 2009 (from SN2002 to SN2007), and I use a key developed by Statistics Norway to convert SN2002 to SN2007 (Link SN2002-SN2007 (nøkkel mellom gammel og ny standard) (EXCEL)): https://www.ssb.no/virksomheter-foretak-og-regnskap/naeringsstandard-og-naeringskoder (Collected 21st of March 2020). Some observations with missing industry-code are imputed by using info on the firm's SN2007 code in other periods. Observations of firms with (old) SN2002 coding and missing SN2007 coding, and no observations in 2009 and onwards, are dropped as one cannot determine the SN2007 code properly. Observations with unrecognizable NACE2 coding are also dropped.

Table 1: Data selection

	No. of obs.	No. of Firms
Total sample size	**2 573 941**	**439 713**
- less observations of non-limited liability firms	207 660	55 625
- less firms with 1 MNOK >= yearly tot. Revenue >= 10 MNOK, and 3 MNOK >= avg. tot revenue >=7 MNOK	2 170 195	356 569
- less observations with missing tot. revenue	16 331	0
- less firms with 1 MNOK >= Yearly tot. Assets >= 20 MNOK	81 183	11 955
- less firms with yearly tot. employees >=10	22 647	3 367
- less observations of non-active firms	28	2
- less firms that did not exist pre reform	7 443	2 779
- less observations of firms missing industry-code	3 135	1 744
- less observations of firms in NACE2-industries not affected by the audit reform	3 279	366
- less observations of group firms	20 275	1 762
Sum dropped observations:	**2 532 176**	**434 169**
Final total sample size:	**41 765**	**5 544**

Table 2: Development in share of opt-outs over time in post-reform period

Year	No. of Firms in Sample	Share of Opt-outs in Sample	No. of Eligible firms in Sample	Share of Opt-outs among Eligible firms
2011	4 334	22 %	2 737	34 %
2012	4 191	26 %	2 436	45 %
2013	3 974	29 %	2 262	51 %
2014	3 919	31 %	2 241	54 %
2015	3 776	33 %	2 119	59 %
Total	20 194	28 %	11 795	48 %

4.2 Test methodology and variable construction

4.2.1 Measure of accounting quality

I use level of discretionary accruals as measure of accounting quality. Discretionary accruals are estimated based on the Kothari et al. (2005) model, and are defined as the unexplained variation, ε_{it} , from the following industry-year regression:[20]

$$TA_{it} = \delta_0 + \delta_1 \left(\frac{1}{Assets_{it-1}}\right) + \delta_2 \Delta Sales_{it} + \delta_3 PPE_{it} + \delta_4 ROA_{it} + \varepsilon_{it}, \quad (1)$$

Where:

TA_{it} = Total accruals in firm *i* in year *t*, scaled by lagged total assets

Total accruals are defined as: Δ non-cash current assets – Δ non-interest-bearing current liabilities – depreciation – amortization. In essence, total accruals account for non-cash effects on profit: Profit = net cash-flow + total accruals

$\Delta Sales_{it}$ = Yearly change in sales in firm *i* in year *t*, scaled by lagged total assets

PPE_{it} = Property, plant, and equipment in firm *i* in year *t*, scaled by lagged total assets

ROA_{it} =Return on assets in firm *i* in year *t*, scaled by lagged total assets

ε_{it} = The discretionary part of total accruals – a proxy for accounting quality

Industry is defined as the first two digits of the NACE-code. Following Hope et al. (2013), only industries with a minimum of 20 yearly observations are included, and the negative absolute value of the error term ($|\varepsilon_{it}| \times -1$) is used as the dependent variable in the analysis of how discretionary accruals are affected by the audit-reform below. With this measure, a higher value of the proxy for discretionary accruals indicates less discretionary accruals, and better accounting quality.

[20] Kothari et al. (2005) augment and modify the Jones (1991) model.

4.2.2 Main model

I use the following model to evaluate effects on accounting quality from dropping audit:

$$Discretionary\ Accruals_{it} = \beta_0 + \beta_1 Eligible_{it} + \beta_2 Drop_{it} + X_{it}\beta + \theta_t + \gamma_i + \varepsilon_{it} \quad (2)$$

Where:

i = firm, t = time (year)

$Discretionary\ Accruals_{it}$ = The negative absolute value of the error term ($|\varepsilon_{it}| \times -1$) from equation (1).

$Eligible_{it}$ = An indicator variable taking the value 1 if a firm is eligible for opting out of audit, and 0 otherwise

$Drop_{it}$ = An indicator variable taking the value 1, if an eligible firm opts out of audit, and 0 otherwise

X_{it} = Control variables

θ_t = Year fixed effects

γ_i = Firm fixed effects

As the sample consist of firms that were established before the 2011-reform, all firms should have at least one year with mandatory audit. The main treatment variable is whether an eligible firm opts-out of audit or not ($Drop_{it}$) and captures the effect on accounting quality from dropping audit. Due to the research design, I operate with two control groups: non-eligible firms (baseline comparison, β_0), and eligible firms that keep audit ($Eligible_{it}$). The effect of opting out of audit can hence be compared with voluntary auditees (coefficient on $Drop_{it}$) and non-eligible firms (coefficient on $Drop_{it}$ + coefficient on $Eligible_{it}$). Based on hypothesis H_1 of firms in the treatment group (firms that choose to opt-out of audit) having lower accounting quality than firms in the different control groups, I expect $\beta_2 < 0$.

Based on previous findings in the literature, I include the following control variables in the regressions: Accountant, to account for effects driven by external accountants. Big 5, to account for audit quality. Total revenue in year *t-1* scaled by lagged total assets and employees, to account for size effects. Return on equity (ROE), negative equity (NegEQ), and a ratio of cumulative years with negative profit (Cum. Loss Ratio), to account for economic performance and financial risk. Leverage, to account for financial exposure. Revenue growth

and assets growth, to account for growth. Inventory scaled by lagged total assets, and finally ln(age).[21]

To mitigate potential omitted variable bias in the OLS-estimates, I use firm fixed effects modeling.[22] Firm fixed effects do however not account for unobserved *temporary* shocks, affecting for instance internal controls. Such temporary shocks may affect both accounting quality and the choice of dropping audit, resulting in selection bias in firm fixed effects estimates. To account for potential selection bias, I develop four instruments for the variable *Drop*, i.e., the choice of opting out:

Instrument 1: *Always_eligible*. An indicator variable taking the value 1 if a firm is always (counterfactually) eligible in the pre-reform period, and 0 otherwise.

Instrument 2: *Always_eligible* × *Yr*. An interaction variable taking the value 1 if a firm is always (counterfactually) eligible in the pre-reform period, and 0 otherwise, multiplied with a variable counting the years after the reform.

Instrument 3: *Sometimes_eligible*. An indicator variable taking the value 1 if a firm is (counterfactually) eligible some of the years in the pre-reform period, and 0 otherwise.

Instrument 4: *Sometimes_eligible* × *Yr*. An indicator variable taking the value 1 if a firm is (counterfactually) eligible some of the years in the pre-reform period, and 0 otherwise, multiplied with a variable counting the years after the reform.

These instruments are correlated with the choice of dropping audit as smaller firms have higher probability of dropping audit, and – as shown in table 2 – the proportion of firms dropping audit increase over time. Accounting quality should however not be correlated with pre-reform eligibility in the post-reform period (whether a firm has more or less than 5 MNOK in total revenue in the pre-reform period), and time passed after the reform.

4.2.3 Modeling bunching behavior among opt-outs

To test hypothesis H_2, of whether the negative effect on accounting quality from dropping audit (H_1) is strengthened if the firm exerts bunching behavior, I follow the same test

[21] See e.g., Hope et al., 2013, and Langli, 2015. See Appendix 2 for more detailed variable definitions.
[22] Lennox et al. (2012) suggest using a fixed effects design to control for unobservable factors that are correlated with endogenous regressors. Amir et al. (2016) recommend a fixed effect design to control for unobserved factors and endogenous repressors when working with panel data. The firm fixed effect model controls for idiosyncratic firm specific characteristics that are time invariant.

procedures as for the main model described above. In addition, I include a proxy for bunching behavior based on findings in Aase (2021).[23] The main variable of interest is now an interaction variable capturing whether an opt-out firm ($Drop_t$), that also exerts bunching behavior ($JBT_{it} \times Drop_{it+1}$) has stronger negative effects on accounting quality:

$$Discretionary\ Accruals_{it} = \beta_0 + \beta_1 Eligible_{it} + \beta_2 Drop_{it} + \beta_3 (JBT_{it} \times Drop_{it+1}) + \beta_4 Drop_{it} \times (JBT_{it} \times Drop_{it+1}) + X_{it}\beta + \theta_t + \gamma_i + \varepsilon_{it}$$

Where:

JBT_{it}: Indicator variable that takes the value 1, if a firm is just below the threshold (4.8 MNOK ≤ Total revenue < 5 MNOK), in year *t* in years affected by the reform (2010-2015), and 0 otherwise

$JBT_{it} \times Drop_{it+1}$: Interaction variable that takes the value 1 if a firm is in the JBT-area in year *t* and drop audit in year *t+1*, and 0 otherwise. A proxy for bunching-behavior in year *t*.

Following hypotheses H_2, I expect $\beta_4 < 0$.

4.3 Descriptive statistics

Table 3 shows post reform descriptive statistics for (1) non-eligible firms, (2) eligible firms, (3) eligible non-opt-out firms, (4) opt-out firms, (5) opt-out firms not exerting bunching behavior, and (6) opt-out-firms exerting bunching behavior. Comparing firm characteristics of eligible non-opt-out firms with opt-outs, untabulated t-test clustered on firm-level show that, on average, opt-outs seem to be smaller firms that have lower revenue and asset growth, have lower cumulative loss ratio, are more likely to have an external accountant, are less likely to have been audited by a Big 5-auditor, and have less volatility in sales than voluntary auditees.

Findings in general correspond to a hypothesis of more risky firms having higher demand for audits (see e.g., Dedman et al., 2014). In terms of choosing Big 5 auditors, findings correspond to Lennox and Pittman's (2011) findings of lower probability for choosing a Big 4

[23] Using the same data as in this paper, Aase (2021) finds evidence of excess mass of firms in the area just below the introduced revenue threshold – ranging from 4.8 MNOK up to 5 MNOK.

auditor among firms that would drop audit under a voluntary audit regime, as they have lower demand for high audit assurance.[24]

Opt-out firms exerting bunching behavior are on average bigger in size, more profitable, and have higher growth rates than opt-outs not exerting bunching behavior.

Table 3: Descriptive statistics (post-reform period)

	(1)	(2)	(3)	(4)	(5)	(6)
	Non-Eligible	Eligible	Eligible Non-Opt-outs	Eligible Opt-outs	Non-Bunching Opt-outs	Bunching Opt-outs
Employees	4.381	3.285	3.274	3.298	3.047	3.569
	(2.143)	(1.924)	(1.98)	(1.861)	(1.685)	(1.612)
Tot. Revenue	6 079 378	3 998 839	4 222 189	3 755 757	3 714 605	4 904 103
	(1 302 613)	(1 052 424)	(1 108 690)	(928 467)	(850 306)	(61 123)
Tot. Assets	4 067 552	3 571 518	3 787 395	3 336 569	3 294 142	3 636 568
	(2 770 876)	(2 768 317)	(2 918 947)	(2 574 222)	(2 505 431)	(2 448 735)
Size (ln (tot. assets))	15.046	14.882	14.935	14.824	14.818	14.95
	(0.563)	(0.603)	(0.615)	(0.584)	(0.573)	(0.530)
ROA	0.100	0.104	0.102	0.105	0.107	0.155
	(0.146)	(0.150)	(0.150)	(0.151)	(0.149)	(0.136)
ROE	0.290	0.273	0.277	0.269	0.274	0.460
	(0.585)	(0.551)	(0.541)	(0.562)	(0.570)	(0.670)
Negative EQ	0.066	0.071	0.073	0.069	0.064	0.051
	(0.249)	(0.257)	(0.260)	(0.253)	(0.245)	(0.220)
Leverage	0.146	0.171	0.177	0.164	0.167	0.161
	(0.209)	(0.243)	(0.246)	(0.240)	(0.239)	(0.246)
Revenue growth	-0.004	0.079	0.107	0.046	0.045	0.243
	(0.317)	(0.326)	(0.340)	(0.306)	(0.300)	(0.293)
Asset growth	0.035	0.056	0.063	0.048	0.052	0.133
	(0.201)	(0.211)	(0.221)	(0.199)	(0.198)	(0.224)
Inventory	0.185	0.160	0.153	0.168	0.170	0.140
	(0.251)	(0.250)	(0.245)	(0.256)	(0.257)	(0.220)
Cum. Loss Ratio	0.182	0.200	0.207	0.193	0.187	0.151
	(0.225)	(0.231)	(0.236)	(0.224)	(0.222)	(0.200)
Age	17.177	17.177	17.388	16.947	16.423	14.190
	(10.793)	(11.323)	(11.607)	(11.003)	(11.012)	(8.792)
Accountant	0.731	0.786	0.675	0.908	0.906	0.903
	(0.443)	(0.410)	(0.468)	(0.290)	(0.292)	(0.297)
Big5	0.323	0.181	0.281	0.072	0.082	0.074
	(0.467)	(0.385)	(0.450)	(0.259)	(0.274)	(0.262)
Volatility in Sales	1 128 619	855 925	911 825	794 925	783 359	881 245
	(558 125)	(524 095)	(544 820)	(493 374)	(484 890)	(416 124)
No. of observations	8 399	11 795	6 147	5 648	3 925	216

Table 3 displays means with standard deviations in parentheses for different firm characteristics. Means and standard deviations are calculated based on number of observations in the different subgroups of the sample. Some observations have missing variables. Scaled variables such as ROA, ROE, Leverage, Revenue Growth, Asset Growth, and Inventory are trimmed at the 1st and 99th percentile. Big5 is an indicator variable taking the value 1 if auditor in year *t* is Big 5, or auditor in year *t-1* is Big 5 if a firm has opted out of audit, and 0 otherwise.

[24] I also find the likelihood of having a Big 5 auditor to be significantly lower for opt-outs versus non-opt-outs if the variable Big5 for opt-outs is specified as using the audit firm in the last year prior to opting out, instead of using audit firm in year *t-1*.

Untabulated correlation matrix results show that, among eligible firms and opt-outs, accounting quality is positively correlated with leverage and size of inventory scaled by lagged total assets. This could imply that creditors may restrict the scope of discretion implemented in financial accounts among borrowing firms, and that relative size of inventory may restrict use of discretion. The latter finding implies that more of the variation in inventory is explained by non-discretionary factors as the relative size of inventory increase, and that managers may use more discretion when inventory is of lower significance relative to total assets. Accounting quality is significantly negatively correlated with size measured by the natural log of assets among eligible firms, but not among opt-outs. Accounting quality is also significantly negatively correlated with growth of assets both for eligible and opt-out firms. These findings imply that there is room for more use of discretion in larger, and growing firms.

Table 4 compares average accounting quality for different segments of the data in the post-reform period. On average, there is only a significant difference among non-bunching opt-out firms and opt-out firms exerting bunching behavior (i.e., firms in the area just below the threshold that drop audit the following year) which indicates that accounting quality is lower among opt-out firms exerting bunching behavior.

Table 4: Comparing accounting quality across subgroups in data

	All firms post reform (2011-2015)		
	Non-eligible	Eligible	Diff.
Discretionary Accruals	-0.112	-0.110	-0.001
Std. Error.	(0.001)	(0.001)	
N	6,888	9,936	
	Eligible firms		
	Non-Opt-outs	Opt-outs	
Discretionary Accruals	-0.110	-0.110	0.000
Std. Error.	(0.001)	(0.002)	
N	5,213	4,723	
	Opt-out firms		
	Opt-outs with accountant	Opt-outs without accountant	
Discretionary Accruals	-0.111	-0.106	-0.005
Std. Error.	(0.002)	(0.005)	
N	4,296	427	
	Opt-out firms		
	Non-Bunchers	Bunchers	
Discretionary Accruals	-0.108	-0.129	0.021**
Std. Error.	(0.002)	(0.009)	
N	3,316	186	

Discretionary Accruals are trimmed at 1 % level. T-test are clustered on firm level. *** p<0.01, ** p<0.05, * p<0.1.

5. Main test of hypotheses

5.1 Test of hypothesis H_1

Table 5 shows effects on discretionary accruals from the choice of opting out of audit. OLS regressions in Columns (1) and (2) show no significant effects on the quality of accruals from opting out of audit, consistent with findings in table 4. To mitigate potential omitted variable bias, I use firm fixed effects models in Columns (3) and (4). The coefficients on *Drop* are still non-significant. Results from instrument variable (IV)-regressions presented in Columns (5) to (8) suggest no significant negative effect on accruals' quality from opting-out of audit. Hence, the overall results reveal no significant loss of accounting quality in opt-out firms.

From columns (2), (4), (6) and (8) we see that having an external accountant does not appear to have any consistent significant impact on accounting quality for opt-outs. This finding may reflect that the choice of outsourcing the accounting function is a source of selection bias, as firms with more complex accounting tasks may choose to engage an external accountant. Untabulated t-test, clustered on firm level, show that the level of total accruals relative to lagged total assets, in absolute value, is significantly higher in firms with external accountants

than in firms without external accountants. Findings relating to Big 5 auditor effects may indicate that size of the auditing firm is of less significance in the small private firm segment. This finding corresponds to Gaeremynck et al.'s (2008) findings of reporting quality being driven by other portfolio and client characteristics rather than size of the audit portfolio.

Most of the other control variables have consistent and expected effects on accruals' quality. Both growth measures seem to have negative effects on accounting quality, indicating that growth may trigger more use of discretion in accounting. Leverage is sometimes found to have negative effects on accounting quality. However, the literature also shows that there is a positive association between accounting quality and access to capital (see e.g., Allee and Yohn, 2009). External creditors typically focus on cash flows and may demand less discretion in financial reporting from borrowers, which in turn may affect reporting quality. Inventory could be a source of earnings manipulation through discretionary accruals such as write-offs. However, size of inventory relative to lagged assets consistently seem to affect accounting quality positively, implying that inventory is a type of asset which is subject to less discretion as its significance relative to other assets increases. More risky firms, in terms of having negative equity, and higher ratio of cumulative years of negative profit seem to exhibit poorer accounting quality, indicating that discretion may be used to a higher extent in firms with low performance.

Table 5: The effect on discretionary accruals

VARIABLES	(1) OLS	(2) OLS	(3) FirmFE	(4) FirmFE	(5) 2sls	(6) 2sls	(7) 2slsFE	(8) 2slsFE
Eligible	0.000	0.002	0.003	0.004	-0.022	0.004	0.001	0.030
	(0.002)	(0.003)	(0.003)	(0.004)	(0.020)	(0.043)	(0.013)	(0.026)
Drop	-0.001	-0.006	0.000	0.001	0.046	-0.013	0.006	-0.141
	(0.002)	(0.006)	(0.003)	(0.007)	(0.044)	(0.214)	(0.035)	(0.142)
Accountant	-0.002	-0.001	-0.006*	-0.005	-0.006	-0.001	-0.006	-0.007*
	(0.002)	(0.002)	(0.003)	(0.004)	(0.005)	(0.002)	(0.005)	(0.004)
Accountant x Eligible		-0.003		-0.002		-0.033		-0.030
		(0.004)		(0.004)		(0.036)		(0.024)
Accountant x Drop		0.006		-0.000		0.067		0.144
		(0.006)		(0.008)		(0.193)		(0.128)
Big5	0.001	0.001	-0.001	-0.001	0.006	0.006	0.000	-0.004
	(0.002)	(0.002)	(0.003)	(0.003)	(0.005)	(0.007)	(0.007)	(0.008)
Observations	24,226	24,226	24,226	24,226	24,226	24,226	23,883	23,883
Control variables	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	NO	NO	YES	YES	NO	NO
Firm FE	NO	NO	YES	YES	NO	NO	YES	YES
R^2	0.070	0.070	0.017	0.017	0.054	0.053	0.018	0.001
Number of firmid			4,524	4,524			4,181	4,181

Adjusted R^2 are shown in Columns (1)-(4), centered R^2 are shown in Columns (5)-(6), and uncentered R^2 are shown in Columns (7)-(8). In 2sls regressions, the variable *Drop* is instrumented by four variables: *Sometimes_eligible*, *Sometimes_eligible * yr*, *Always_eligible*, and *Always_eligible * yr*. In 2slsFE regressions, the variable *Drop* is instrumented by two interaction variables: *Sometimes_eligible * yr* and *Always_eligible_instr * yr*. Robust standard errors clustered on firm level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

5.2 Test of hypotheses H_2

Findings in columns (1) and (2) in Table 6 reveal significant negative effect on accounting quality among opt-outs exerting bunching behavior (coefficient on $Drop_t \times JBT_{it} \times Drop_{it+1}$) in OLS and firm fixed effects models. These findings, however, are not robust in 2sls models with or without fixed effects, as seen in columns (3) and (4). Hence, even in the segment of firms expected to have higher incentives to manage earnings, no robust significant effect on accounting quality from introducing voluntary audit is found. Effects from other control variables on accounting quality are as described above. Aase (2021) estimates total managed revenues from bunching behavior to be immaterial in the years affected by the reform – which supports the notion that deregulation of the lower segment of the audit market comes at low costs in terms of lower reporting quality.

Table 6: The effect on discretionary accruals for opt-out-firms exerting bunching behavior

VARIABLES	(1) OLS	(2) FE	(3) 2sls	(4) 2slsFE
$Eligible_t$	0.003	0.006	-0.018	0.036
	(0.004)	(0.004)	(0.052)	(0.032)
$Drop_t$	-0.005	-0.004	0.104	-0.174
	(0.007)	(0.008)	(0.270)	(0.183)
JBT_t x $Drop_{t+1}$ ($Buncher_t$)	0.011	0.011	0.136	0.101
	(0.011)	(0.010)	(0.348)	(0.282)
$Drop_t$ x JBT_t x $Drop_{t+1}$	-0.023*	-0.027**	-0.120	-0.081
	(0.013)	(0.013)	(0.269)	(0.222)
$Accountant_t$	-0.002	-0.006	-0.001	-0.007*
	(0.002)	(0.004)	(0.002)	(0.004)
$Accountant_t$ x $Eligible_t$	-0.002	-0.003	-0.025	-0.038
	(0.004)	(0.005)	(0.047)	(0.031)
$Accountant_t$ x $Drop_t$	0.006	0.005	-0.020	0.186
	(0.007)	(0.009)	(0.252)	(0.170)
$Big5_t$	0.002	0.001	0.010	-0.002
	(0.002)	(0.003)	(0.006)	(0.008)
Observations	20,221	20,221	20,221	19,807
Control variables	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	NO	YES	NO
Firm FE	NO	YES	NO	YES
R^2	0.073	0.021	0.012	-0.007
Number of firmid		4,257		3,843

Adjusted R^2 are shown in Columns (1)-(2), centered R^2 are shown in Column (3), and uncentered R^2 are shown in Column (4). In 2sls regressions, the variable *Drop* is instrumented by four variables: *Sometimes_eligible*, *Sometimes_eligible * yr*, *Always_eligible*, and *Always_eligible * yr*. In 2slsFE regressions, the variable *Drop* is instrumented by two interaction variables: *Sometimes_eligible * yr* and *Always_eligible_instr * yr*. Robust standard errors clustered on firm level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

6. Robustness tests

Measures of accruals used as indicators of accounting quality have been criticized throughout the years (e.g., Dechow et al., 1995; Bernard and Skinner, 1996; Guay et al., 1996;

McNichols, 2000; Thomas and Zhang, 2000; Kothari et al., 2005, Stubben, 2010; Owens et al., 2017). Therefore, following Hope et al. (2013), I use alternative measures of financial reporting quality (FRQ) to test the robustness of the derived results. In Appendix 1, I elaborate on one measure of discretionary revenue, and three measures of conditional conservatism, used in the robustness analysis. Measures of conditional conservatism have also been criticized in the research literature (see Dechow et al., 2010). I therefore use three different measures of timely loss recognition to test whether the audit reform affects accounting quality. The results are reported in Tables 7 to 11.

The robustness analysis does not show signs of consistent significant negative opt-out-effects across alternative measures of accounting quality in Table 7 and Table 8. Neither do I find significant negative effects relating to bunching behavior for the alternative measures for accounting quality, see Tables 9 and 10. As firms just below the threshold may have incentives to manage revenue downwards, I test for bunching effects using signed discretionary revenues in Table 11 and find no significant effects. In untabulated robustness tests, I also use discretionary accruals from the modified Jones Model developed by Dechow et al. (1995), and estimation errors based on the model developed by Dechow and Dichev (2002) and find no consistent significant negative effects on these measures of accounting quality among opt-out firms or opt-out firms exhibiting bunching behavior.

Table 7: Robustness analysis of results presented in table 5

VARIABLES	(1) DiscrRev OLS	(2) DiscrRev FirmFE	(3) DiscrRev 2sls	(4) DiscrRev 2slsFE	(5) LNEG OLS	(6) LNEG FirmFE	(7) LNEG 2sls	(8) LNEG 2slsFE
Eligible	-0.001	-0.000	0.046	0.024	0.007	-0.001	0.020	-0.004
	(0.003)	(0.003)	(0.053)	(0.021)	(0.004)	(0.005)	(0.046)	(0.028)
Drop	0.003	0.004	-0.245	-0.139	-0.009	0.000	-0.075	0.011
	(0.005)	(0.005)	(0.279)	(0.118)	(0.009)	(0.011)	(0.228)	(0.154)
Accountant	0.003**	-0.002	0.003*	-0.003	0.001	0.002	-0.000	0.004
	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.004)	(0.002)	(0.005)
Accountant x Eligible	-0.004	-0.001	-0.054	-0.024	-0.003	0.004	0.033	0.031
	(0.003)	(0.003)	(0.045)	(0.020)	(0.005)	(0.005)	(0.038)	(0.025)
Accountant x Drop	0.001	-0.005	0.254	0.132	0.005	-0.004	-0.022	-0.070
	(0.005)	(0.005)	(0.259)	(0.111)	(0.009)	(0.011)	(0.200)	(0.136)
Big5	0.001	-0.000	-0.002	-0.004	0.001	0.002	-0.009	-0.005
	(0.001)	(0.002)	(0.006)	(0.005)	(0.002)	(0.004)	(0.008)	(0.009)
Observations	21,924	21,924	21,924	21,558	27,007	27,007	27,007	26,655
Control variables	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	NO	YES	NO	YES	NO	YES	NO
Firm FE	NO	YES	NO	YES	NO	YES	NO	YES
R^2	0.251	0.027	0.129	-0.016	0.112	0.069	0.070	0.060
Number of firmid		4,499		4,133		4,873		4,521

Discretionary revenues (DiscrRev) are defined as in Stubben (2010). Large negative results (LNEG) are defined as an indicator variable taking the value 1 if net income before extraordinary items divided by lagged total assets is less than -0.2, and 0 otherwise. The regression model is the same as in tests of main hypotheses. Adjusted R^2 are shown in Columns (1)-(2) and (5)-(6), centered R^2 are shown in Column (3), and uncentered R^2 are shown in Columns (4) and (7)-(8). In 2sls regressions, the variable *Drop* is instrumented by four variables: *Sometimes_eligible*, *Sometimes_eligible * yr*, *Always_eligible*, and *Always_eligible * yr*. In 2slsFE regressions the variable *Drop* is instrumented by two interaction variables: *Sometimes_eligible * yr* and *Always_eligible_instr * yr*. Robust standard errors clustered on firm level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 8: Robustness analysis of results presented in table 5

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Accruals				Change in net income			
VARIABLES	OLS	FE	2sls	2slsFE	OLS	FE	2sls	2slsFE
CFO1 sc.	-0.489***	-0.628***	-0.488***	-0.621***				
	(0.007)	(0.007)	(0.007)	(0.007)				
Neg. CFO	0.012***	0.006**	0.012***	0.007**				
	(0.003)	(0.003)	(0.003)	(0.003)				
Neg. CFO x CFO sc.	-0.244***	-0.170***	-0.241***	-0.187***				
	(0.022)	(0.022)	(0.022)	(0.023)				
Eligible	-0.007**	0.004	-0.103***	0.016	0.012***	0.030***	0.033	0.072***
	(0.003)	(0.003)	(0.031)	(0.019)	(0.003)	(0.004)	(0.024)	(0.026)
Drop	0.006	0.004	0.213***	-0.059	-0.007*	-0.002	-0.047	-0.123**
	(0.004)	(0.004)	(0.066)	(0.040)	(0.004)	(0.005)	(0.048)	(0.055)
Neg. CFO x Eligible	0.008	0.009	0.044	0.134***				
	(0.007)	(0.006)	(0.045)	(0.045)				
Neg. CFO x Drop	-0.016**	-0.020***	-0.106	-0.276***				
	(0.008)	(0.008)	(0.091)	(0.093)				
CFO sc. x Eligible	0.000	0.008	0.054	0.084				
	(0.014)	(0.014)	(0.101)	(0.085)				
CFO sc. x Drop	-0.001	-0.014	-0.125	-0.194				
	(0.019)	(0.018)	(0.209)	(0.183)				
Neg. CFO x CFO sc. x Eligible	0.089*	0.091*	0.415	0.152				
	(0.053)	(0.049)	(0.316)	(0.303)				
Neg. CFO x CFO sc. x Drop	-0.197***	-0.186***	-0.917	-0.253				
	(0.065)	(0.063)	(0.671)	(0.640)				
Ch.NI (t-1) sc.					-0.270***	-0.311***	-0.270***	-0.305***
					(0.014)	(0.017)	(0.014)	(0.018)
Neg. Ch. NI(t-1)					-0.002	-0.003	-0.002	-0.005*
					(0.002)	(0.003)	(0.002)	(0.003)
Neg. Ch. NI(t-1) x Ch.NI (t-1)sc.					-0.160***	-0.195***	-0.162***	-0.209***
					(0.027)	(0.034)	(0.027)	(0.036)
Neg. Ch. NI(t-1) x Eligible					-0.002	-0.004	0.019	0.033
					(0.005)	(0.006)	(0.028)	(0.034)
Neg. Ch. NI(t-1) x Drop					0.014**	0.015**	-0.031	-0.055
					(0.006)	(0.007)	(0.059)	(0.071)
Ch.NI (t-1) sc. x Eligible					0.114***	0.107***	0.435**	0.466*
					(0.031)	(0.035)	(0.220)	(0.262)
Ch.NI (t-1) sc. x Drop					-0.008	-0.032	-0.665	-0.789
					(0.041)	(0.047)	(0.446)	(0.531)
Neg. Ch. NI(t-1) x Ch.NI (t-1)sc. x Elig.					-0.179***	-0.175***	-0.434	-0.577*
					(0.053)	(0.063)	(0.301)	(0.345)
Neg. Ch. NI(t-1) x Ch.NI (t-1)sc. x Drop					-0.004	0.037	0.576	1.093
					(0.070)	(0.087)	(0.697)	(0.817)
Constant	0.020**	0.078***			-0.010*	-0.005		
	(0.008)	(0.002)			(0.006)	(0.003)		
Observations	34,343	34,343	34,343	34,066	28,690	28,690	28,690	28,378
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	NO	YES	NO	YES	NO	YES	NO
Firm FE	NO	YES	NO	YES	NO	YES	NO	YES
R^2	0.516	0.630	0.401	0.562	0.123	0.168	0.066	0.030
Number of firmid		5,235		4,958		4,935		4,623

Accruals are defined as: (Δ non-cash current assets – Δ non-interest-bearing current liabilities – depreciation – amortization) scaled by lagged total assets. *CFO sc.* is defined as net income before extraordinary items less accruals, scaled by lagged total assets. *Neg. CFO* is defined as an indicator variable taking the value 1 if CFO is negative, and 0 otherwise. *Ch.NI (t-1)* sc. is defined as change in net income before extraordinary items scaled by lagged total assets. *Neg. Ch. NI(t-1)* is defined as an indicator variable taking the value 1 if last year's change in net income was negative, and 0 otherwise. Adjusted R^2 are shown in Columns (1)-(2) and (5)-(6), and uncentered R^2 are shown in Columns (3)-(4) and (7)-(8). In 2sls regressions, the variable *Drop* is instrumented by four variables: *Sometimes_eligible, Sometimes_eligible * yr, Always_eligible*, and *Always_eligible * yr*. In 2slsFE regressions, the variable *Drop* is instrumented by two interaction variables: *Sometimes_eligible * yr* and *Always_eligible_instr * yr*. Robust standard errors clustered on firm level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Robustness analysis of results presented in table 6

VARIABLES	(1) Accruals OLS	(2) Accruals FE	(3) Accruals 2sls	(4) Accruals 2slsFE
Eligible	-0.006	0.006	-0.084***	-0.069**
	(0.004)	(0.004)	(0.031)	(0.029)
Drop	0.006	0.003	0.176***	0.195***
	(0.005)	(0.005)	(0.068)	(0.067)
JBT x $Drop_{t+1}$	-0.027	0.003	0.166	0.467
	(0.044)	(0.036)	(0.144)	(0.527)
JBT x $Drop_{t+1}$ x Drop	0.056	0.026	-0.064	-0.170
	(0.046)	(0.038)	(0.185)	(0.372)
CFO scaled	-0.516***	-0.661***	-0.514***	-0.658***
	(0.008)	(0.007)	(0.008)	(0.008)
Neg. CFO	0.006**	-0.000	0.007**	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)
Neg. CFO x CFO scaled	-0.314***	-0.213***	-0.314***	-0.212***
	(0.025)	(0.025)	(0.025)	(0.027)
Neg. CFO x Eligible	0.008	0.010	0.035	0.079
	(0.007)	(0.007)	(0.081)	(0.074)
Neg. CFO x Drop	-0.016*	-0.022**	-0.073	-0.173
	(0.009)	(0.009)	(0.182)	(0.167)
Neg. CFO x JBT x $Drop_{t+1}$	-0.006	0.008	-0.076	-0.291
	(0.052)	(0.043)	(0.191)	(0.568)
Neg. CFO x JBT x $Drop_{t+1}$ x Drop	-0.050	-0.027	-0.070	0.126
	(0.056)	(0.049)	(0.258)	(0.426)
CFO scaled x Eligible	0.007	0.015	-0.076	-0.086
	(0.017)	(0.016)	(0.128)	(0.120)
CFO scaled x Drop	-0.011	-0.024	0.181	0.222
	(0.023)	(0.022)	(0.278)	(0.265)
CFO scaled x JBT x $Drop_{t+1}$	0.373	0.209	-0.259	1.165
	(0.328)	(0.266)	(0.900)	(1.420)
CFO scaled x JBT x $Drop_{t+1}$ x Drop	-0.436	-0.277	-0.077	-1.772
	(0.334)	(0.272)	(1.047)	(1.427)
Neg. CFO x CFO scaled x Eligible	0.076	0.066	0.402	0.105
	(0.063)	(0.060)	(0.507)	(0.532)
Neg. CFO x CFO scaled x Drop	-0.186**	-0.170**	-0.890	-0.327
	(0.080)	(0.075)	(1.127)	(1.187)
Neg. CFO x CFO scaled x JBT x $Drop_{t+1}$	-0.407	0.230	0.185	-2.000
	(0.458)	(0.335)	(1.433)	(2.645)
Neg. CFO x CFO scaled x JBT x $Drop_{t+1}$ x Drop	0.073	-0.332	0.055	2.502
	(0.480)	(0.379)	(1.664)	(2.433)
Constant	0.022***	0.086***		
	(0.008)	(0.003)		
Observations	29,085	29,085	29,085	28,807
Year FE	YES	YES	YES	YES
Industry FE	YES	NO	NO	NO
Firm FE	YES	YES	YES	YES
R^2	0.536	0.650	0.422	0.542
Number of firmid		4,955		4,677

Accruals are defined as: (Δ non-cash current assets – Δ non-interest-bearing current liabilities – depreciation – amortization) scaled by lagged total assets. *CFO scaled* is defined as Net Income before ex. ordinary items less Accruals, scaled by lagged total assets. *Neg. CFO* is defined as an indicator variable taking the value 1 if CFO is negative, and 0 otherwise. Adjusted R^2 are shown in Columns (1)-(2), and uncentered R^2 are shown in Columns (3)-(4). In 2sls regressions, the variable *Drop* is instrumented by four variables: *Sometimes_eligible*, *Sometimes_eligible * yr*, *Always_eligible*, and *Always_eligible * yr*. In 2slsFE regressions, the variable *Drop* is instrumented by: *Sometimes_eligible * yr* and *Always_eligible * yr*. Robust standard errors clustered on firm level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Robustness analysis of results presented in table 6

VARIABLES	(1) Change Net Income OLS	(2) Change Net Income FE	(3) Change Net Income 2sls	(4) Change Net Income 2slsFE
Eligible	0.006	0.025***	0.065**	0.079**
	(0.005)	(0.006)	(0.031)	(0.037)
Drop	-0.004	0.005	-0.131**	-0.128
	(0.005)	(0.007)	(0.065)	(0.082)
JBT x $Drop_{t+1}$	0.018	0.046	0.175	0.610
	(0.031)	(0.034)	(0.447)	(0.593)
JBT x $Drop_{t+1}$ x Drop	0.027	-0.007	-0.112	-0.632
	(0.033)	(0.039)	(0.423)	(0.561)
Ch.NI (t-1) scaled	-0.331***	-0.360***	-0.328***	-0.347***
	(0.021)	(0.023)	(0.021)	(0.025)
Neg. Ch. NI(t-1)	-0.009***	-0.010***	-0.008***	-0.009**
	(0.003)	(0.003)	(0.003)	(0.003)
Neg. Ch. NI(t-1) x Ch.NI (t-1)scaled	-0.174***	-0.214***	-0.174***	-0.229***
	(0.036)	(0.045)	(0.037)	(0.047)
Neg. Ch. NI(t-1) x Eligible	0.011	0.010	-0.014	0.026
	(0.007)	(0.008)	(0.039)	(0.051)
Neg. Ch. NI(t-1) x Drop	0.002	-0.003	0.044	-0.047
	(0.009)	(0.010)	(0.088)	(0.112)
Neg. Ch. NI(t-1) x JBT x $Drop_{t+1}$	-0.000	-0.017	-0.155	-0.751
	(0.039)	(0.049)	(0.526)	(0.722)
Neg. Ch. NI(t-1) x JBT x $Drop_{t+1}$ x Drop	-0.019	-0.002	0.181	0.745
	(0.044)	(0.056)	(0.476)	(0.645)
Ch.NI (t-1) scaled x Eligible	0.227***	0.214***	0.257	0.541
	(0.048)	(0.058)	(0.255)	(0.410)
Ch.NI (t-1) scaled x Drop	-0.100*	-0.131*	-0.168	-0.899
	(0.058)	(0.069)	(0.553)	(0.907)
Ch.NI (t-1) scaled x JBT x $Drop_{t+1}$	-0.063	-0.066	-0.377	-0.807
	(0.219)	(0.236)	(0.893)	(1.425)
Ch.NI (t-1) scaled x JBT x $Drop_{t+1}$ t x Drop	-0.005	0.107	0.608	3.038
	(0.252)	(0.340)	(1.297)	(2.220)
Neg. Ch. NI(t-1) x Ch.NI (t-1)scaled x Eligible	-0.298***	-0.260***	0.121	-0.129
	(0.075)	(0.093)	(0.462)	(0.539)
Neg. Ch. NI(t-1) x Ch.NI (t-1)scaled x Drop	-0.005	-0.032	-1.131	-0.386
	(0.098)	(0.123)	(1.141)	(1.323)
Neg. Ch. NI(t-1) x Ch.NI (t-1) scaled x JBT x $Drop_{t+1}$	0.249	0.322	0.503	0.428
	(0.398)	(0.502)	(2.029)	(2.466)
Neg. Ch. NI(t-1) x Ch.NI (t-1) scaled x JBT x $Drop_{t+1}$ x Drop	-0.125	-0.317	0.412	-2.242
	(0.564)	(0.685)	(2.319)	(3.151)
Constant	-0.007	0.001		
	(0.007)	(0.004)		
Observations	24,043	24,043	24,043	23,675
Year FE	YES	YES	YES	YES
Industry FE	YES	NO	NO	NO
Firm FE	NO	YES	YES	YES
R^2	0.126	0.161	0.076	0.066
Number of firmid		4,654		4,286

Change Net Income is defined as change in net income before extraordinary items scaled by lagged total assets. *Ch.NI (t-1)* scaled is defined as lagged *Change Net Inc. Neg. Ch. NI(t-1)* is defined as an indicator variable taking the value 1 if last year's change in net income was negative, and 0 otherwise. Adjusted R^2 are shown in Columns (1)-(2), and uncentered R^2 are shown in Columns (3)-(4). In 2sls regressions, the variable *Drop* is instrumented by: *Sometimes_eligible*, *Sometimes_eligible * yr*, *Always_eligible*, and *Always_eligible * yr*. In 2slsFE regressions, the variable *Drop* is instrumented by: *Sometimes_eligible * yr* and *Always_eligible *yr*. Robust standard errors clustered on firm level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Robustness analysis of results presented in table 6

Panel A:	Discretionary Revenue (unsigned)				Discretionary Revenue (signed)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	OLS	FE	2sls	2slsFE	OLS	FE	2sls	2slsFE
Eligible	-0.001	0.001	0.028	0.011	0.001	-0.001	-0.009	-0.029
	(0.003)	(0.003)	(0.040)	(0.022)	(0.003)	(0.004)	(0.044)	(0.035)
Drop	0.002	0.004	-0.148	-0.058	-0.003	-0.006	0.050	0.159
	(0.005)	(0.005)	(0.210)	(0.128)	(0.005)	(0.007)	(0.233)	(0.199)
JBT x $Drop_{t+1}$	0.003	-0.003	0.273	0.112	-0.010	-0.007	-0.535	-0.444
	(0.007)	(0.007)	(0.344)	(0.231)	(0.012)	(0.016)	(0.597)	(0.521)
JBT x $Drop_{t+1}$t x Drop	-0.011	-0.002	-0.238	-0.099	0.005	-0.008	0.408	0.310
	(0.009)	(0.009)	(0.277)	(0.183)	(0.014)	(0.019)	(0.480)	(0.417)
Accountant	0.003**	-0.002	0.003*	-0.002	-0.002	-0.004	-0.001	-0.005
	(0.002)	(0.003)	(0.002)	(0.003)	(0.001)	(0.004)	(0.002)	(0.005)
Accountant x Eligible	-0.005*	-0.002	-0.037	-0.010	0.001	0.001	0.016	0.023
	(0.003)	(0.003)	(0.036)	(0.022)	(0.003)	(0.005)	(0.039)	(0.035)
Accountant x Drop	0.003	-0.004	0.160	0.052	0.003	0.006	-0.059	-0.142
	(0.005)	(0.005)	(0.196)	(0.120)	(0.005)	(0.008)	(0.218)	(0.190)
Big5	0.001	0.000	-0.001	-0.003	-0.002	-0.003	-0.001	0.005
	(0.001)	(0.002)	(0.005)	(0.006)	(0.001)	(0.003)	(0.005)	(0.008)
Observations	20,670	20,670	20,670	20,281	20,670	20,670	20,670	20,281
Control variables	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	NO	YES	NO	YES	NO	YES	NO
Firm FE	NO	YES	NO	YES	NO	YES	NO	YES
R^2	0.252	0.028	0.174	0.009	0.066	0.080	-0.018	-0.008
Number of firmid		4,278		3,889		4,278		3,889

Panel B:	Only Negative Discretionary Revenue				Large Negative Result			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	OLS	FE	2sls	2slsFE	OLS	FE	2sls	2sls FE
Eligible	0.002	0.005	-0.020	0.013	0.005	-0.003	0.066	0.011
	(0.003)	(0.004)	(0.030)	(0.026)	(0.004)	(0.005)	(0.071)	(0.035)
Drop	-0.003	-0.009	0.128	-0.039	-0.006	0.001	-0.323	-0.087
	(0.006)	(0.008)	(0.171)	(0.160)	(0.009)	(0.010)	(0.370)	(0.196)
JBT x $Drop_{t+1}$	-0.001	-0.014*	0.112	0.395	-0.008	0.007	-0.122	-0.046
	(0.009)	(0.008)	(0.208)	(0.444)	(0.013)	(0.012)	(0.078)	(0.059)
JBT x $Drop_{t+1}$t x Drop	-0.009	0.006	-0.141	-0.352	0.005	-0.004	0.149	0.070
	(0.011)	(0.011)	(0.177)	(0.367)	(0.014)	(0.013)	(0.102)	(0.077)
Accountant	0.002	-0.002	0.002	-0.001	0.002	0.004	0.001	0.004
	(0.002)	(0.003)	(0.002)	(0.004)	(0.002)	(0.004)	(0.002)	(0.005)
Accountant x Eligible	-0.008**	-0.005	0.004	-0.009	-0.006	0.002	-0.028	0.007
	(0.003)	(0.004)	(0.030)	(0.027)	(0.005)	(0.005)	(0.061)	(0.032)
Accountant x Drop	0.008	0.005	-0.100	0.032	0.006	-0.003	0.245	0.037
	(0.006)	(0.008)	(0.165)	(0.155)	(0.009)	(0.011)	(0.342)	(0.182)
Big5	0.000	-0.002	0.004	-0.005	0.002	0.001	-0.008	-0.007
	(0.002)	(0.003)	(0.004)	(0.008)	(0.002)	(0.004)	(0.009)	(0.009)
Observations	10,594	10,594	10,594	9,768	22,414	22,414	22,414	22,013
Control variables	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	NO	YES	NO	YES	NO	YES	NO
Firm FE	NO	YES	NO	YES	YES	YES	YES	YES
R^2	0.266	0.020	0.218	-0.150	0.087	0.056	-0.036	0.044
Number of firmid		3,933		3,107		4,561		4,160

Discretionary revenue is defined as in Stubben (2010). Large negative result is defined as an indicator variable taking the value 1 if Net income before Ex. items divided by lagged total assets is less than -0.2, and 0 otherwise. The regression model is the same as in tests of main hypotheses. Adjusted R^2 are shown in Columns (1)-(2) and (5)-(6), centered/uncentered R^2 are shown in Columns (3) and (7), and uncentered R^2 are shown in Columns (4) and (8). In 2sls regressions, the variable Drop is instrumented by four variables: Sometimes_eligible, Sometimes_eligible * yr, Always_eligible, and Always_eligible * yr. In 2slsFE regressions, the variable Drop is instrumented by: Sometimes_eligible * yr and Always_eligible * yr. Robust standard errors clustered on firm level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

7. Conclusions and perspective

This study uncovers no consistent evidence of significantly lower accounting quality among opt-out firms relative to comparable firms, measured through proxies for accruals quality and conditional conservatism. This finding implies that the cost of introducing voluntary audit for small private firms in terms of lower reporting quality is low.

Firms just below the threshold for mandated audit may have higher incentives than other firms to manage earnings (i.e., revenues) to avoid mandated audit. However, even in the segment of opt-out firms that are just below the mandated threshold in year *t* and drop audit in year *t+1* (which proxies bunching behavior), I find no robust significant evidence showing lower accounting quality.

Overall, my analysis confirms the early evaluations denoted by Langli (2015) and Langli and Che (2016). The introduction of voluntary auditing for small private firms in Norway seems to be a well-functioning reform, actively used by firms without any serious detriments in the form of reduced accounting quality. My findings imply that a deregulation of certain segments of the audit market – entrusting the audit decision to be taken at the firm-level based on individual firm preferences in these segments – may constitute a feasible regulatory measure to increase economic efficiency.

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Appendix 1 Alternative measures of accounting quality

Dechow et al. (2010) emphasize different aspects of the problem of measuring accounting quality: the difficulty of measuring the fundamental performance, the contingency of the decision context, and the lack of convergent result among the numerous proxies for accounting quality developed. Below, I elaborate on measure of discretionary revenue, and three measures of conditional conservatism used in the robustness analysis to strengthen the validity of derived results.

(i) Discretionary revenue

Stubben (2010) has developed an alternative model for accounting quality based on a measure for discretionary revenue – defined as the unexplained variation, ω_{it} , in the change in accounts receivable. The analysis starts with estimating the industry-year regression:

$$\Delta AR_{it} = \beta_0 + \beta_1 \Delta Rev_{it} + \omega_{it},$$

Where,

ΔAR_{it} =Change in accounts receivable scaled by lagged total assets

ΔRev_{it} = Change in revenue scaled by lagged total assets

ω_{it} = The discretionary part of revenue – a proxy for accounting quality.

Industry is defined as in the main analysis, and $|\omega_{it}| \times -1$ is used as dependent variable – meaning that a higher value indicates less discretionary revenue, and better accounting quality (Hope et al., 2013).

(ii) Large negative results

Inspired by Barth et al., 2008, large negative results are defined as an indicator variable taking the value 1 if net income before extraordinary items is less than -0.2 of lagged total assets, and 0 otherwise. A negative coefficient on the variable *Drop* signals that opt-out firms recognize large losses less frequently than other firms, which may be indicative of less timely loss recognition among opt-outs.

(iii) Accruals-based test of loss recognition

In addition to the noise-mitigating effect – a source of negative correlation between accruals and cash flows, Ball and Shivakumar (2005) propose that timely recognition of economic gains and losses is a source of positive correlation between accruals and cash flows. The reasoning lies in that cash flows from individual durable assets are persistent over time, and that revision of current period cash flow is positively related with current period revision of *expected* future cash flows, which is accomplished

through accruals (i.e., timely gain/loss recognition). Hence, timely gain and loss recognition attenuate the negative correlation predicted by the Dechow et al. (1998) model. Ball and Shivakumar's (2005) piecewise-linear model builds on Basu (1997) and takes into account the asymmetry in recognition of unrealized gains and losses as unrealized economic losses are more likely to be recognized on a timely basis relative to unrealized gains (i.e., conditional conservatism/timely loss recognition). Hence, the incremental effect on effect from β_3 (when the cash flow is negative) is expected to be positive in the following model, based on Ball and Shivakumar (2005), and Basu (1997):

$$\mathrm{Acc_{it}} = \beta_0 + \beta_1 \mathrm{CFO_{it}} + \beta_2 \mathrm{NegCFO_{it}} + \beta_3 \mathrm{NegCFO_{it}} \times \mathrm{CFO_{it}} + \beta_4 \mathrm{eligible_{it}} + \beta_5 drop_{\mathrm{it}} + \beta_6 \mathrm{eligible_{it}} \times \mathrm{NegCFO_{it}} + \beta_7 drop_{\mathrm{it}} \times \mathrm{NegCFO_{it}} + \beta_8 \mathrm{eligible_{it}} \times \mathrm{CFO_{it}} + \beta_9 drop_{\mathrm{it}} \times \mathrm{CFO_{it}} + \beta_{10} \mathrm{eligible_{it}} \times \mathrm{NegCFO_{it}} \times \mathrm{CFO_{it}} + \beta_{11} drop_{\mathrm{it}} \times \mathrm{NegCFO_{it}} \times \mathrm{CFO_{it}} + \theta_t + \omega_j + \gamma_i + \varepsilon_{\mathrm{it}}$$

Where,

$\mathrm{Acc_{it}}$ = Accruals: Change in non-cash current assets - change in non-interest-bearing current liabilities – depreciation – amortization, scaled by lagged total assets

$\mathrm{CFO_{it}}$ = Cash flow: Net income – change in non-cash current assets + change in non-interest-bearing current liabilities + depreciation + amortization, scaled by lagged total assets

$NegCFO_{it}$ = Indicator variable equal to 1 if cash flow is negative and 0 otherwise

$\mathrm{eligible_{it}}$ = Indicator variable equal to 1 if firm is eligible for opting out of audit, and 0 otherwise

$\mathrm{drop_{it}}$ = Indicator variable taking the value 1, if a firm opts out of audit, and 0 otherwise

The coefficient on β_{11} is of particular interest in this study as it reveals whether there is significant positive or negative correlation between accruals and negative cash flow in year *t* for opt-outs relative to other eligible firms. A positive correlation would indicate more timelier loss recognition, as negative cash flows today may indicate negative changes in future cash flows (future loss), which should be accounted for today through negative accruals.

(iv) Time-series test of timeliness in loss recognition

Due to asymmetric recognition of gain and loss (loss should in theory be recognized timelier than gains), Basu (1997) argues that negative income changes should be less persistent than positive net income changes. The basis of this argument is that in cases where future loss is anticipated,

conditional conservatism leads to recognizing all expected loss as a transitive loss in the current period. In cases of expected gains, however, one does not recognize this as a transitive post in the current year's net income. Instead, one recognizes future gains more cautiously over time. Hence, such expected gains lead to more persistence in changes in net income relative to expected losses. Due to the asymmetry between recognition of economic gains and economic losses, one expects firms to incorporate unrealized losses earlier than unrealized gains, which in turn leads to relative more reversals of losses in subsequent income. Hence, future losses are recognized as transitory income decreases and subsequently reverse: $\beta_1 + \beta_3 < 0$ in the following model based on Basu (1997), and Ball and Shivakumar (2005):

$$\Delta NI_{it} = \beta_0 + \beta_1 \Delta NI_{it-1} + \beta_2 Neg\Delta NI_{it-1} + \beta_3 Neg\Delta NI_{it-1} \times \Delta NI_{it-1} + \beta_4 eligible_{it} + \beta_5 drop_{it} + \beta_6 eligible_{it} \times Neg\Delta NI_{it-1} + \beta_7 drop_{it} \times Neg\Delta NI_{it-1} + \beta_8 eligible_{it} \times \Delta NI_{it-1} + \beta_9 drop_{it} \times \Delta NI_{it-1} + \beta_{10} eligible_{it} \times Neg\Delta NI_{it-1} \times \Delta NI_{i,t-1} + \beta_{11} drop_{it} \times Neg\Delta NI_{it-1} \times \Delta NI_{it-1} + \theta_t + \omega_j + \gamma_i + \varepsilon_{it}$$

Where,

ΔNI_{it} = Change in net income from fiscal year *t-1* to *t*, scaled by lagged total assets (*t-1*)

ΔNI_{it-1} = Change in net income from fiscal year *t-2* to *t-1*, scaled by lagged total assets (*t-2*)

$Neg\Delta NI_{it-1}$ = Indicator variable set equal to 1 if the prior year change ΔNI_{it-1} is negative and 0 otherwise. The interaction term, $Neg\Delta NI_{it-1} \times \Delta NI_{it-1}$, reflects firms with negative change in Net Income.

The coefficient on β_{11} is of particular interest in this study as it reveals whether there is significant positive or negative correlation between ΔNI_{it} and a negative ΔNI_{it-1} for opt-outs relative to other eligible firms. A positive correlation ($\beta_{11} > 0$) would indicate more persistent loss recognition, i.e., spreading future losses over time instead of recognizing them at once. Such behavior indicates less timely loss recognition as losses (both current and future) should be recognized in the period they accrue.

Under asymmetric loss recognition, which applies in Norway, firms should through accruals incorporate future expected losses in current period's income to a greater extent than future expected gains.[25]

[25] Ball and Shivakumar (2005) argue that Basu's (1997) mean reversion of net income model cannot separate transitory gain or loss components in net income from random errors in accruals and certain types of earnings managements. The model can only identify the existence of transitory components, and not whether they are recognized in a timely manner (Ball and Shivakumar, 2005, p. 93). Peek et al. (2010) choose not to use the time series test of timeliness in loss recognition based on these arguments.

Appendix 2 Independent variables' definitions

Accountant$_{it}$: Indicator variable, takes the value 1 if firm has an external accountant in current year, and 0 otherwise

Assets growth$_{it}$: (Total Assets$_{it}$ – Total Assets$_{it-1}$)/ Total Assets$_{it-1}$. Trimmed at 1 % level.

Big5: Indicator variable, takes the value 1 if firm was audited by one of the Big 5 audit firms (based on number of audit-clients) in year *t*, or in year *t-1* if drop equals 1, and 0 otherwise

CFO (scaled): Profit before extraordinary items$_{it}$ – (Δ noncash current assets$_{it}$ – Δ non-interest-bearing current liabilities$_{it}$ – depreciations$_{it}$ – amortizations$_{it}$) scaled by lagged total assets. Trimmed at 1 % level.

Ch.NI (t-1) scaled: (Change in net income)$_{it-1}$ scaled by total assets$_{it-2}$. Trimmed at 1 % level.

Cum. loss ratio$_{it}$: (Number of observed years with negative profit in data)$_{it}$ /(number of observed years in data)$_{it}$

Drop$_{it}$: Indicator variable, takes the value 1 if firm drop auditor in current year, and 0 otherwise.

Eligible$_{it}$: Indicator variable, takes the value 1 if firm is eligible for opting out of audit in current year (e.g., last year's total revenue < 5 MNOK)

Employees$_{it-1}$: Number of employees in year t-1.

sq_Employees$_{it-1}$: Squared number of employees in year t-1.

Inventory$_{it}$: Inventory$_{it}$ /Total Assets$_{it-1}$. Trimmed at 1 % level.

JBT$_{it}$: Indicator variable, takes the value 1 if a firm has total revenue of 4.8 MNOK up to, but not including 5 MNOK in year *t* in years affected by the reform (2010-2015), and 0 otherwise.

Leverage$_{it}$: Long term debt$_{it}$/total assets$_{it}$. Trimmed at 1 % level.

Ln (Age$_{it}$): Natural logarithm to (Age of firm$_{it}$)

LNEG$_{it}$: Indicator variable, takes the value 1 if Net income before Ex. items divided by lagged total assets is less than -0.2, and 0 otherwise.

Neg. CFO: Indicator variable, takes the value 1 if CFO is negative, and 0 otherwise

Neg. Ch. NI(t-1): Indicator variable, takes the value 1 if last year's change in net income < 0, and 0 otherwise.

NegEQ$_{it}$: Indicator variable, takes the value 1 if a firm has negative equity in year *t* or *t-1* and 0 otherwise.

Revenue growth$_{it}$: (Revenue$_{it}$ – Revenue$_{it-1}$)/ Revenue$_{it-1}$. Trimmed at 1 % level.

ROA$_{it}$: Return on Assets. Profit scaled by lagged total assets. Trimmed at 1 % level.

ROE$_{it}$: Return on Equity: Profit scaled by average equity for firms with non-negative equity in year *t* and *t-1*. For observations with negative equity in year *t* or *t-1*, ROE is set to zero. Trimmed at 1 % level.

Tot. Revenue$_{it-1}$ sc.: Total revenue in year t-1 scaled by lagged total assets. Trimmed at 1 % level.

sq_Tot. Revenue$_{it-1}$ sc: Tot. Revenue$_{it-1}$ sc * Tot. Revenue$_{it-1}$ sc

cub_Tot. Revenue$_{it-1}$ sc: Tot. Revenue$_{it-1}$ sc * Tot. Revenue$_{it-1}$ sc* Tot. Revenue$_{it-1}$ sc

quad_Tot. Revenue$_{it-1}$ sc: Tot. Revenue$_{it-1}$ sc * Tot. Revenue$_{it-1}$ sc* Tot. Revenue$_{it-1}$ sc* Tot. Revenue$_{it-1}$ sc

Volatility in sales: Std. dev. of sales. Trimmed at 1 % level.

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