The impact of mandatory audit firm rotation on group subsidiaries

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Abstract

The purpose of this study is to analyze the impact of mandatory auditor rotations (MR) at the parent (listed) company level on group subsidiaries. The literature on MR has only examined the effects of mandatory rotations on listed parent companies, ignoring the potential impact that such a rule might have at the group level. Whenever the auditor of a parent listed company has to switch according to the mandatory rotation rule, cascade effects on all the group subsidiaries may occur. The potential costs and benefits deriving from the rule, might therefore be either amplified or compensated when the range of analysis expands to the entire group. This study is the first to provide empirical evidence on the actual effects of mandatory auditor rotations at the group level, specifically on group subsidiaries, taking advantage of a unique research setting based in Italy, which has a long history of mandatory rotation. We find that concurrent switches positively affect earnings quality of subsidiaries. When differentiating between mandatory and voluntary concurrent switches we find that the positive impact on earnings quality is driven by mandatory concurrent switches. We also find that concurrent switches, and especially those driven by a mandatory parent auditor rotation, lead to cost savings for the subsidiaries of the group. These results show that imposing mandatory rotations at the listed parent company level has some positive externalities at the group subsidiaries level. Finally, we find that non-concurrent switches either do not affect or negatively affect earnings quality of group subsidiaries depending on the earnings quality proxy employed.

Keywords: auditor rotations, group audit, concurrent switches, non-concurrent switches, earnings quality.

Introduction

The purpose of this study is to analyze the impact of mandatory auditor rotations at the parent (listed) company level on group subsidiaries.

Auditors play an important role in the provision of high-quality financial information (Krishnan, 2003). This role, however, has been questioned following Enron's case and other high-profile accounting scandals (e.g., Worldcom, Parmalat). In most of these cases, the company's auditor was accused of colluding with the management and helping it in hiding the company's true financial situation. This, in turn, prompted several countries to consider and/or adopt mandatory rotation rules as a means of enhancing auditor independence. The reasoning is that long audit tenure may weaken auditor independence and impair the auditor's capacity for critical judgement.

Regulators around the world have made different decisions regarding the implementation of the Mandatory Rotation (MR) rule for auditing firms or at least for audit partners (Sayyar, Basiruddin, Abdul Rasid, and Sayyar, 2014). Specifically, while the EU regulator has recently introduced mandatory audit firm rotation (REGULATION (EU) No 537/2014), in addition to mandatory partner rotations (which were introduced starting from 2009), the US Congress in July 2013 ruled against adding mandatory firm rotation to the existing mandatory partner rotation. Consequently, the Public Company Accounting Oversight Board (PCAOB) removed this option from its agenda. One of the reasons why Europe and the US are heading in opposing directions is because the potential effects of the rule are still not clear (GAO 2003) and the debate on its effectiveness is still open. On one hand, MR should increase auditors' independence by reducing both social bonding and economic dependence and, at the same time, limiting the so-called "familiarity effect" (Bell, Causholli, & Knechel, 2015; Cameran, Francis, Marra, & Pettinicchio, 2015). On the other hand, imposing the periodical auditor switch might reduce client-specific knowledge and, at the same time, cause considerable switching costs and organizational disruptions (DeAngelo, 1981; Knapp, 1991; Johnson, Johnson, Khurana, & Reynolds, 2002; Bell et al., 2015; Cameran et al., 2015).

The uncertainty around the actual effectiveness of the rule is exacerbated by the fact that empirical evidence on MR is scarce, and mixed. This is caused by two main problems. First, in most countries (U.S. included) where a policy of *mandatory partner rotation* is already in force, the names of the audit partner have only recently been disclosed in the audit opinions, making it difficult to empirically track mandatory partner rotations. Second, the impact of *audit firm changes* on financial reporting quality (Ghosh and Moon 2005; Johnson et al. 2002; Myers, Myers, & Omer, 2003) has been mainly studied in countries where audit firm rotations are voluntary. However, the results of these studies may not be able to be generalized to a mandatory rotation regime. Endogeneity issues may complicate the interpretation of the results of such studies (e.g., Bamber & Bamber, 2009; Lennox, 2014). A few papers examine the effects of mandatory partner rotations (e.g., Chi, Huang, Liao, & Xie, 2009, in Taiwan; Stewart, Kent and Routledge , 2016, in Australia; Sharma, Tany, and Litt, 2017 in USA), or mandatory and regulator-imposed firm rotations (e.g., Kim, Min, & Yi, 2004, in Korea; Nagy, 2005, following the demise of Arthur Andersen in US; Cameran et al., 2015; Cameran, Prencipe & Trombetta, 2016; and Corbella, Florio, Gotti, & Mastrolia, 2015, in Italy) and provide inconsistent results as to whether such rotations improve audit quality.

Moreover, the entire literature on MR has only examined the effects of mandatory rotations on listed parent companies, ignoring the potential impact that such a rule might have at the group level. Whenever the auditor of a listed company must switch according to the mandatory rotation rule, cascade effects on all the group subsidiaries may occur. The potential costs and benefits deriving from the rule, might therefore be either amplified or compensated when the range of analysis expands to the entire group.

To our knowledge, our study is therefore the first to provide empirical evidence on the actual effects of mandatory firm audit rotations at the group level, taking advantage of a unique research setting which is based in Italy. This is in fact the only country that has a long history of dual mandatory rotation (both firm and partner). The rule has been enforced at the firm level since 1975,

imposing audit firm changes for listed companies every 9 years[1].

Using this unique research setting, we first try to understand what type of switching implications the rule of auditing firm rotation has on the whole group. The mandatory rotation rule is enforced in Italy at the listed company level only. This means that group subsidiaries are not forced to rotate, even if they might decide to do so to be "aligned" with the parent company's decisions.

Specifically, we provide descriptive evidence on how often a rotation at the listed parent company level is followed by auditor switches at the subsidiary level. We do so also by differentiating between mandatory and voluntary rotations at the parent company level. These descriptive statistics would give an idea of whether mandatory auditor rotations at the listed parent companies have also direct "cascade" effects on group subsidiaries.

Second, we analyze the implications of auditor rotations on earnings quality of group subsidiaries. Previous literature has not yet reached a clear conclusion on whether audit rotations indeed increase audit quality of listed companies (Horton, Livne, & Pettinicchio, 2020; Cameran et al., 2016). However, we still do not know the effects of mandating periodical switches at the parent company level on earnings quality of their subsidiaries. We therefore analyze the impact on earnings quality of subsidiaries when an auditor rotation occurs. Specifically, we first analyze the impacts on earnings quality of a subsidiary when it changes its auditor because of an auditor change occurring at the listed parent company level (concurrent switch). Then, we compare the impact on earnings quality of subsidiaries when an auditor switch occurs due to a mandatory rotation or to a voluntary rotation at the listed company level.

Finally, we analyze the impact of auditor rotations on audit costs at the subsidiary level.

We find that concurrent switches positively affect earnings quality of subsidiaries. When splitting between mandatory and voluntary concurrent switches we find that the positive impact on earnings

[1] Moreover, the Italian regulator introduced partner mandatory rotations for listed companies every 7 years, in line with the EU regulator, which has only recently introduced mandatory audit firm rotations in Europe, since 2016. Given that the rule imposes audit firm rotations every 10 years, however, the first effective rotations will take place starting from 2026.

quality is driven by mandatory concurrent switches. This result shows that imposing mandatory rotations at the parent listed company level has some positive externalities at the group subsidiary level.

We also find that concurrent switches, and especially those that come from a mandatory rotation at the parent level, reduce audit costs (measured by audit fees) at the subsidiary level.

We believe our study has three main potential contributions.

Firstly, we contribute to the literature on mandatory audit firm rotation rule, by showing, for the first time, the "complete picture" of the effects at the group level. As mentioned earlier, the debate about the actual costs and benefits of the rule is still open, and this is also confirmed by different approaches taken by regulators at the international level. We believe that being able to show the complete picture of the potential impacts of such a rule, not only on parent listed companies, but also at the subsidiary level, could help regulators, academics and professionals in assessing the actual implications of requiring periodical auditing firm switches. Specifically, our findings support the idea that mandatory rotations have (indirect) positive effects on group level subsidiaries.

Secondly, we contribute to the auditing literature on private companies. The great majority of the audit empirical literature simply assumes that auditing firms only include listed companies in their portfolio. As suggested by Lennox (2018) this potentially leads to large measurement errors, given that the majority of audits are conducted on private companies: "For example, Lennox and Li (2012) show that public companies account for only 1% of the total number of audits performed in the UK." (Lennox, 2018, p. 39).

Finally we can provide evidence for further studies on group audits and component auditors and on the effects of overlapping or different group auditors on earnings quality (Burke, Hoitash, and Hoitash l., 2020; Carson, Simnett, Trompeter, and Vanstraelen, 2021; Docimo, Gunn, Li, and Michas., 2021).

Literature review and hypotheses development

As mentioned above, direct evidence on the effects of mandatory auditor rotations (firm or partner) is scarce and only refers to listed companies, mainly due to data limitation.

Few papers have analyzed the impact of mandatory audit firm rotations on audit quality and audit fees. Specifically, Horton et al. (2020) analyze the dual (i.e. both partner and firm) mandatory rotation regime in Italy, and try to assess the net benefit (cost), of audit firm rotation incrementally to partner rotation. The evidence from this paper suggests that while firm rotations seem not to provide positive incremental effects on earnings quality, partner rotation under the dual regime appears to improve both the earnings-based measures of audit quality, and market perception of earnings. Two other papers analyze the Italian environment to assess the impacts of mandatory audit firm rotations. Cameran et al. (2016) find that auditors become more conservative in the three-year period preceding the mandatory rotation; Cameran et al. (2015) find that audit fees are initially significantly discounted by the incoming auditor, but then subsequent fees are abnormally higher and exceed the initial fee discount. Moreover, Cameran et al. (2015) find that audit quality is lower during the first period (3 years) of the new engagement. Kwon, Lin, & Simnett (2014) analyze the effects of mandatory firm rotations in South Korea and find similar effects to Cameran et al. (2016). Other papers have tried to derive the impact of mandatory audit firm rotations looking at audit quality before and after the implementation of the rule in Spain and South Korea. Specifically, Ruiz-Barbadillo, Gomez-Aguilar, & Carrera (2009) compare the likelihood of issuing going concern opinions for financially distressed companies within a mandatory rotation period (1991-1994) and a voluntary rotation period (1995-2000) in Spain.[2] However, the paper fails to find any significant association between the quality of the audit and the application of the rule. Kim & Yi (2009) find evidence consistent with an improvement of audit quality after the implementation of the rule in South Korea. Except for this last paper, the evidence from past literature seems to

[2] A rule imposing the mandatory audit firm rotation every nine years was present in Spain from 1988 but was never enforced because Spain abandoned it in 1995, which was only seven years after the regulation was introduced.

suggest that while the rule is costly, it does not provide actual benefits in terms of increased audit quality.

One of the possible reasons for this is that while mandatory rotation is supposed to increase auditor independence, and ultimately audit quality, it also brings in potential threats. During the initial years of the engagement, the incoming auditor needs to get acquainted with the accounting systems, internal controls and processes of the new client, potentially missing material errors or even frauds. This is expected to be particularly true for larger and more complex engagements.

As noted earlier, the literature on auditor rotations has so far only analyzed listed companies[3]. Subsidiaries are typically smaller and less complex compared to parent listed companies and therefore it is reasonable to assume that this "unfamiliarity effect" would be less severe. On the other hand, however, reputational and litigation risks are usually less severe (Che et al., 2020, Johnstone and Bedard 2003) among private companies with the potential effect of reducing auditors' incentives to put efforts to ensure a high quality of audit services. It is also true that group auditors are responsible for the audit of the entire group, and therefore any potential threat at the subsidiary level should be carefully considered by the group level auditor. For all these reasons, it is not clear ex-ante if we can extend evidence obtained from prior literature on the impact of auditors' rotation on audit quality at the subsidiary level. The first objective of this study is to understand the impact on earnings quality of group subsidiaries coming from auditor rotations that are a consequence of an auditor rotation at the listed parent level (i.e. concurrent switches). We formulate therefore our first hypothesis in the null form:

H1: *Auditor switches at the subsidiary level which are concurrent to auditor switches at the parent (listed company) level do not affect earnings quality of subsidiaries.*

[3] One of the very few exceptions is Knechel and Vanstraelen (2007), who analyzed the relation between audit tenure (and therefore not directly audit changes) and audit quality in Belgium private companies. Analyzing a sample of private financial distressed companies, the authors found that auditor tenure seems not to affect audit quality in a subsample of firms that went bankrupt, whereas auditor tenure negatively affects audit quality in a non-bankrupt sample.

Auditor rotations of the parent (listed) company may be mandatory (if the auditor change is imposed as a consequence of the mandatory rotation rule) or voluntary (if the auditor change is not imposed – i.e. the auditor is changed on a voluntary basis). Prior literature suggests that mandatory auditor rotations do not impact earnings quality of listed companies (Horton et al., 2020) while main evidence on voluntary rotations suggests a negative association between auditor switches and audit quality in the year of rotation or in the first years of engagement of the incoming auditor. Evidence from voluntary rotations, however, is not directly comparable with evidence from mandatory rotations, as conditions and incentives may be different and potentially impact the inference obtained (Horton et al., 2020; Cameran et al., 2016; Casterella & Johnston, 2013; Ewelt-Knauer, Gold, and Pott, 2012; Johnson et al., 2002; Kwon et al., 2014; Lennox, 2014).

Given that listed parent companies can switch their auditors either by a mandatory rotation rule or based on a voluntary choice, we can differentiate concurrent switches at the subsidiary level into two categories: Auditor changes that occur at the subsidiary level as a consequence of an imposed (mandatory) rotation at the listed company level (*mandatory concurrent switches*) and auditor changes that occur at the subsidiary level as a consequence of a voluntary rotation at the listed company level (*voluntary concurrent switches*). By doing so, we can observe any potential indirect effect of imposing mandatory rotations at the listed parent company level on group subsidiaries. As we do not have a priori expectations in terms of "cascade" effects of parent auditor rotations on subsidiaries switches, we formulate our second hypothesis as follows:

H2a: *Auditor switches at the subsidiary level which are concurrent to mandatory auditor switches at the parent (listed company) level do not affect earnings quality of subsidiaries.*

H2b: *Auditor switches at the subsidiary level which are concurrent to voluntary auditor switches at the parent (listed company) level do not affect earnings quality of subsidiaries.*

While one would expect that, on average, group subsidiaries would tend to align to auditor changes at the parent company level (i.e., concurrent switches), auditor changes happen at the subsidiary

level also independently from switches occurring at the group level. We believe that these types of auditor switches (*non-concurrent switches*) are different, in nature, compared to concurrent switches, where the decision to switch is somehow "imposed" by the parent. We are therefore interested to understand the impact of non-concurrent switches on earnings quality of group subsidiaries. Once again, not having an a priori expectation, we formulate our third hypothesis in the null form.

H3: *Auditor switches at the subsidiary level which are non-concurrent to auditor switches at the parent (listed company) level do not affect earnings quality of subsidiaries.*

Finally, we want to assess how parent auditor rotations can affect audit costs at the subsidiary level. Again, parent auditor rotations which cascade to the subsidiaries of the group might have different, and possibly, competing effects. On the one hand, any switch to a new auditor may disrupt client-specific knowledge and lead to switching costs (Bell et al., 2015; Cameran et al., 2015), and this effect can be exacerbated when the decision to change the auditor comes from a parent decision rather than from a subsidiary specific need. Moreover, discerning between mandatory and voluntary audit rotations at the parent level, subsidiary rotations in response to a parent mandatory rotation rule might lead to higher switching costs, since the appointment of the auditor at the subsidiary level does not face market price competition. On the other hand, subsidiaries that switch auditor together with the parent company should face less coordination costs. Group audits, in fact, involve an active exchange of information between the parent's and subsidiary's auditors, the coordination of accounting rules to apply, consolidation adjustments, consolidation packages and the potential re-assessment of the subsidiary auditor's work (Sunderland and Trompeter, 2017). Such additional costs should be reduced if the subsidiary changes auditor together with and in consequence of the parent company's switch (Carson et al., 2021).

Given the above competing arguments, we do not have a priori expectations, and formulate our fourth set of hypotheses in the null form.

H4: *Auditor switches at the subsidiary level which are concurrent to auditor switches at the parent (listed company) level do not affect audit costs of subsidiaries.*

H4a: *Auditor switches at the subsidiary level which are concurrent to mandatory auditor switches at the parent (listed company) level do not affect audit costs of subsidiaries.*

H4b: *Auditor switches at the subsidiary level which are concurrent to voluntary auditor switches at the parent (listed company) level do not affect audit costs of subsidiaries.*

Methodology

We first provide descriptive information on audit firm rotations at the subsidiary level. Specifically, we are interested in exploring how often a mandatory parent audit firm rotation implies a change at the subsidiaries' level. This would provide us with a first understanding of the overall impact of rotation rules on groups.

To understand the impact of parent rotations, and especially mandatory ones, on the earnings quality and audit costs of group subsidiaries we estimate the two following models:

(1) $X_{i,t} = \beta_1 + \beta_2\ SUB\_SWITCH_{i,t} + \beta_3\ PARENT\_SWITCH_{i.t} + \beta_4\ PARENT\_SWITCH_{i.t}\ x\ SUB\_SWITCH_{i.t} + \beta_5\ SIZE_{i,t} + \beta_6\ ROA_{i,t} + \beta_7\ LEV_{i,t} + \beta_8\ GROWTH_{i,t} + \beta_9\ CFO_{i,t} + \beta_{10}\ BIG_{i,t} + \beta_{11} DIFF\_AUDITOR_{i,t} + \beta_{12} LOSS_{i,t} + \beta_{13}\ CURRENT_{i,t} + \beta_{14}\ INV_{i,t} + Year\ F.E. + Firm\ F.E + \varepsilon i_{,t}$

(2) $X_{i,t} = \beta_1 + \beta_2\ SUB\_SWITCH_{i.t} + \beta_3\ M\_PARENT\_SWITCH_{i,t} + \beta_4\ V\_PARENT\_SWITCH_{i,t} + \beta_5 SUB\_SWITCH_{i.t}\ x\ M\_PARENT\_SWITCH_{i,t} + \beta_6\ SUB\_SWITCH_{i.t}\ x\ V\_PARENT\_SWITCH_{i,t} + \beta_7\ SIZE_{i,t} + \beta_8\ ROA_{i,t} + \beta_9\ LEV_{i,t} + \beta_{10}\ GROWTH_{i,t} + \beta_{11}\ CFO_{i,t} + \beta_{12}\ BIG_{i,t} + \beta_{13}\ DIFF\_AUDITOR_{i,t} + \beta_{14}\ LOSS_{i,t} + \beta_{15}\ CURRENT_{i,t} + \beta_{16}\ INV_{i,t} + Year\ F.E. + Firm\ F.E + \varepsilon i_{,t}$

Where X is the vector of our dependent variables of interest depending on the hypothesis tested. When assessing the effect of audit rotations on earnings quality, X is replaced by a proxy for earnings quality in year t, calculated as the value of abnormal working capital accruals, AWCA

(DeFond & Park, 2001), scaled by lagged total assets, which is determined as a function of working capital and current and lagged sales.

When assessing the effect of audit rotations on audit costs, X is replaced by the natural logarithm of audit fees paid by the subsidiary.

Our main independent variables of interest are three. SUB_SWITCH, which is a dummy variable equal to 1 if there has been an audit firm rotation at the subsidiary level and zero otherwise. PARENT_SWITCH, which is a dummy variable equal to 1 if there has been an audit firm rotation at the parent level and zero otherwise. SUB_SWITCH x PARENT_SWITCH, which is the interaction between the two. This model specification allows us to measure, respectively, the effects of non-concurrent subsidiary and parent switches, captured by the coefficients of SUB_SWITCH and PARENT_SWITCH. The interaction term, SUB_SWITCH x PARENT_SWITCH, instead measures the effect of concurrent switches.[4] We also note that out of the total number of concurrent switches, 99.5% are switches that make the subsidiary align with the auditor of the parent company. Only 0.5% of cuncurrent switches are towards auditors which are different from the parent's one. The interaction terms SUB_SWITCH, M_PARENT_SWITCH and V_PARENT_SWITCH capture the effects of non-concurrent subsidiary, parent mandatory and parent voluntary switches, respectively. The interaction terms, instead, measure the effects of concurrent mandatory and voluntary switches.

In addition, we include several client and audit firm characteristics as control variables based on the results of prior literature. The size of the client firm (SIZE), which is calculated as the natural logarithm of total sales, as previous literature found that abnormal accruals are negatively related to firm size (Cameran et al., 2015; Johnson et al., 2002 and Cameran et al., 2016); Return on Assets (ROA), which is measured as Income Before Interests and Taxes over average total assets (Carcello & Li, 2013, Kothari Leone, and Wasley, 2005); Leverage (LEV), measured as Debt over total

[4] We assume that if the switch at the subsidiary level is concurrent (i.e., in the same year) with the switch at the parent level, the subsidiary switch is a direct consequence of the parent switch.

Assets, since firms are often prone to manage earnings in order to avoid violation of debt covenants (Carey & Simnett, 2006; DeFond & Jiambalvo, 1994); firm growth (GROWTH), calculated as change in sales between period t and t − 1, divided by sales in year t – 1, which controls for the impact of growth on accruals (Carey & Simnett, 2006); operating cash flows (CFO) scaled by year t beginning total assets, that prior literature identifies as an accruals-free measure of performance (Carcello & Li, 2013; Davis, Soo, and Trompeter, 2009); Big-4 auditor indicator (BIG) (Becker, DeFond, Jiambalvo, and Subramanyam, 1998; Francis, Maydew, and Sparks, 1999), which is a dummy variable equal to 1 if the audit firm is a Big-4 audit firm (E&Y, PWC, KPMG, Deloitte), 0 otherwise; Different auditor (DIFF_AUDITOR), which is a dummy variable equal to 1 if the subsidiary auditor is different from that of the parent company, in line with recent audit literature on the effects of different group auditors on earnings quality (Burke et al., 2020; Carson et al., 2021; Docimo et al., 2021); LOSS, which is a dummy variable equal to 1 if net income is negative in prior year, 0 otherwise, as firms reporting a loss in the previous year are more likely to engage in earnings management behaviors in order to avoid showing losses in the current financial year (Cameran et al., 2015; Carey & Simnett, 2006); current ratio (CURRENT), measured as current assets divided by current liabilities; inventory (INV), stock in year t scaled by total assets: both variables capture auditing complexity (Carey & Simnett, 2006).

In all regression models above, we also control for year and firm fixed effects and all regressions utilize robust variance estimates clustered at the individual firm level to control for potential bias in the estimates (Petersen, 2009). All continuous variables are winzorised at the top and bottom 1%.

Sample Selection

The sample selection is summarized in Table 1. We establish an initial sample of 246 listed non-financial companies quoted on the Milan Stock Exchange during the period 2007-2019 from

Compustat Global.[5] Then, we use historical versions of the Orbis database from Bureau Van Dijk to identify the subset of companies that are at the apex of a corporate group. These companies, defined as corporate Global Ultimate Owners (GUO), are not controlled by other companies. For each firm-year from 2007 to 2019, we identify in Orbis all Italian subsidiaries owned either directly or indirectly with at least 50.01% of the voting rights. This leads to a sample of 182 GUOs with Italian subsidiaries and 2,685 unique subsidiaries, corresponding to 1,003 GUO-year observations and 9,161 Italian subsidiary-year observations. The use of the 50.01% control criterion is conservative – it defines a set of subsidiaries where control is unambiguous and hence where the subsidiary is relevant to the group auditor.

The primary data we use is from the Orbis database, supplemented by data hand-collected from annual reports. Orbis provides the group structure of each GUO, including the number of subsidiaries within the group and the name and identifiers for each entity. We then collect subsidiary auditor identities and financial statement data. Auditor identity information might not be available for all companies; data are sometimes missing because companies might be exempt from mandatory filing or audit due to size, ownership, or materiality criteria. Hence, we were unable to achieve a complete mapping of subsidiaries and their auditors for some corporate groups.

After dropping observations with auditor and financial missing data and observations which belong to the financial industry (sic-codes 6000-6999), our final sample comprises 163 unique listed GUOs and 870 GUO-year observations, covering 1,126 unique subsidiaries and 4,163 subsidiary-year observations.

[5] Representing approximately 70% of total market capitalization during the period examined. We start from 2007 since the historical versions of Orbis Bureau van Dijk, our primary source to identify the group's consolidation perimeter, are available from 2007 onwards.

Results

Descriptive statistics

Panel A of Table 2 reports the descriptive statistics of all the variables in our models. Our measure of earnings quality (AWCA) has a mean (median) value of 0.023 (0.0001), which is smaller than values reported in prior literature (Horton et. al, 2020; Cameran et al. 2015) and is consistent with conservative accounting. Subsidiaries pay an average (median) of 26 (22) thousand Euros of audit fees in one year.

Subsidiary switches occur in 16.8% of our subsidiary-year observations (mean SUB_SWITCH is 0.168). Of these subsidiary switches, 9.6% occur concurrent with a parent switch (mean value of SUB_SWITCH x PARENT_SWITCH is 0.096), while 7.2% are non-concurrent. We furtherly discriminate concurrent switches in concurrent mandatory switches, which account for 9.2% of the sample (mean value of SUB_SWITCH x M_PARENT_SWITCH is 0.092), and concurrent voluntary switches, which account for only 0.4% (mean value of SUB_SWITCH x V_PARENT_SWITCH is 0.004).

In terms of year-observations, total switches are 701. Of these, 57% are concurrent switches (398) and 43% are non-concurrent (303). Among concurrent switches, 382 are mandatory (96% of concurrent switches) and 16 are voluntary (4% of concurrent switches).

As for the control variables, most of the subsidiaries in our sample are audited by Big-4 audit firms (72%), about 35% report a prior loss, have an average ratio of debt to total assets (LEV) of 0.709, and show a median sales growth of 17% (about 0.42 on average). The average ROA is positive (0.029) as well as the median (0.032). Operating cash flow is also positive (mean = 0.077).

Panel B of Table 2 reports the distribution of concurrent switches, both mandatory and voluntary and non-concurrent switches by year for the 2007-2019 period. The Table shows a concentration of switches in 2012.

Table 3 presents the pairwise Pearson correlation matrix. Overall, most correlation coefficients on our main variables of interest are insignificant, except from the correlations between concurrent

switches, captured by SUB_SWITCH x PARENT_SWITCH, and fees, which is negative and significant at the 1 percent level. Among concurrent switches, are mandatory ones (captured by SUB_SWITCH x M_PARENT_SWITCH) that drive the negative correlation. Concurrent switches also show a negative correlation with AWCA, although not significant.[6]

The other correlations with control variables are often significant but of low magnitude, suggesting that multicollinearity is not likely to be a significant issue in our multivariate analysis. We also performed VIF factor analysis on our regressions and no one of the variables exceed the critical value of 10.

Regression Models

Results from model (1) and (2) when assessing the impact on earnings quality are presented in Table 4. Column 1 presents the results when we do not distinguish the type of parent auditor rotations, while column 2 presents results when distinguishing between mandatory and voluntary parent auditor rotations. First of all, what we observe in column 1 is that there is a significant interaction effect between subsidiaries and parent switches. Switches at the subsidiary level that are not concurrent with a parent switch and switches at the parent level that are not concurrent with a subsidiary switch do not affect the earnings quality of subsidiaries. Specifically, the coefficient on SUB_SWITCH (0.071) and the coefficient on PARENT_SWITCH (0.139) are both insignificant (p-value>10%). However, the coefficient on the interaction SUB_SWITCH x PARENT_SWITCH, which captures concurrent switches, is instead negative (-0.249) and significant at the 5 percent level.

When distinguishing between types of parent switches in column 2, we continue to observe that non-concurrent switches do not affect the earnings quality of the subsidiaries. Instead, are mandatory concurrent switches which most significantly affect the earnings quality of subsidiaries

[6] Unlike for multivariate regressions, we cannot interpret SUB_SWITCH and PARENT_SWITCH correlations as capturing non-concurrent switches, since the interaction term cannot extract the concurrent switches effect in a univariate correlation analysis. Here, the two variables only capture the effect of a subsidiary (parent) switch unconditional from a parent (subsidiary) switch.

(coeff=-0.246, p-value<0.05), while voluntary concurrent switches are only marginally significant (coeff=-0.339, p-value<0.10).

Overall, these results suggest that earnings quality of subsidiaries increases when the latter rotate their auditors concurrently with their parent companies. First, being subsidiaries on average smaller and less complex compared to listed parent companies, the potential negative impacts associated with auditor switches deriving from the lack of client-specific knowledge of the new incoming auditor seem to be mitigated. Second, even if subsidiaries are not subject to mandatory auditor rotations, concurrent rotations are most likely the result of "imposed" rotations from the parent rather than a voluntary choice of the subsidiary itself. For this reason, it seems less likely that concurrent switches at the subsidiary level are driven by the so-called "opinion shopping" strategy (i.e., look for more complacent auditors). More interestingly, the increase in earnings quality coming from concurrent switches are mainly driven by mandatory concurrent switches. This result suggests that mandatory rotations enforced at the parent company level have indirect positive effects on earnings quality of controlled subsidiaries.

With reference to control variables, we notice that, consistently with prior literature, size and operating cash flows are negatively related to earnings quality, while ROA and growth are positively related to abnormal working capital accruals. We also note that variable DIFF_AUDITOR is positively related to earnings quality, possibly suggesting increased auditor's conservatism in case of a subsidiary audited by a different auditor (Carson et al., 2021).

In table 5 we present the results from model (1) and (2) when assessing the impact on audit costs.

Again, column 1 presents the results when we do not distinguish the type of parent auditor rotations, while column 2 presents the results when distinguishing between mandatory and voluntary parent auditor rotations. From column 1 we observe that, similarly with the results on earnings quality, only concurrent switches affect audit fees paid by subsidiaries. The coefficient on the interaction term SUB_SWITCH x PARENT_SWITCH is negative (coeff=-0.184) and statistically significant at the 5 percent level. When distinguishing between types of parent switches

in column 2, we observe that non-concurrent switches show a positive coefficient (0.203) although marginally significant at the 10 percent level, while non-concurrent mandatory switches show no significant effect. The same is true for non-concurrent subsidiary switches. Instead, unlike non-concurrent switches, concurrent switches reduce audit fees paid by subsidiaries, and this is especially true for mandatory concurrent switches (coeff=-0.184, p-value<0.05).

The above results are consistent with the reduction of coordination costs between the parent's and subsidiaries' auditors when concurrent switches occur.

Cross-sectional tests

In this section, we aim at gauging a better understanding of the effects of audit rotations on group subsidiaries. Specifically, we look at both subsidiaries and group characteristics which we believe can shape the relationship between audit rotations, earnings quality and audit costs. We first look at the relative size of subsidiaries compared to the group. Table 6 shows the results of splitting our AWCA and audit fees models between subsidiaries whose size relative to the group is above (below) the sample median.[7] In all our cross-sectional analyses, we do not furtherly distinguish between mandatory and voluntary parent rotations since we do not have enough voluntary rotations in the cross-section.[8] We find that concurrent switches increase earnings quality and decrease audit costs only in the sub-sample of larger subsidiaries (coeff=-0.363, p-value<0.1). This is consistent with larger, and possibly more complex subsidiaries, leading to high reputational concerns for parent auditors. Hence, concurrent audit rotations in bigger subsidiaries should lead to higher audit effort and higher audit quality. Concurrent switches in bigger subsidiaries also lead to cost savings (coeff=-0.253, p-value<0.05), which is consistent with benefits from coordination and homogenization of audit procedures on bigger and possibly more complex subsidiaries.

We then look at complexity measured at the group level. In fact, parent auditors, regardless of whether they also audit the subsidiaries of the group, bear the entire audit risk on the group

[7] The median relative size of subsidiaires, calculated as subsidiary total assets over group total assets is 0.01256.
[8] On 639 parent-year switches, only 28 are voluntary.

consolidated financial statements, audit risk which increases with the complexity of the group. In table 7, we split our AWCA and audit fees models between groups whose number of subsidiaries are above(below) the sample median.[9] We find, as expected, that the increase in earnings quality and decrease in audit costs of concurrent switches is concentrated in complex groups (coeff=-0.422 and coeff=-0.360, p-values<0.01 in the AWCA and fee analysis, respectively). As expected, complex groups benefit more for parent audit rotations which are cascaded to subsidiaries, due to the alignment of audit incentives and audit procedures.

We also split our sample based on the auditor characteristics, namely the identity of the auditor (Big4 vs non-Big 4) and the industry specialization of the auditor.[10] Interestingly, we find that auditor characteristics play a role on audit costs, but not on earnings quality. Results (untabulated) show that concurrent switches reduce audit fees when the auditor is a Big4 audit firm and when it is an industry specialist. Big 4 auditors and industry specialists should have more means and resources in coordinating and performing the audit of both parent and group subsidiaries compared to non-Big 4 and non-specialist auditors, which instead might charge more costs due to the "unfamiliarity" with the new client. Nevertheless, audit effort and reputational concerns might be high regardless of the auditor characteristics when concurrent switches occur, potentially explaining why we fail to find differences in terms of earnings quality.

Robustness checks

We check the robustness of our results to alternative proxies of earnings quality.

Specifically, we use the issuance of modified opinions as an alternative proxy for earnings quality. To this purpose, we estimate the following probit model, with standard errors clustered at the subsidiary level:

$$(3)\ P(M\_OP=1) = \beta_1 + \beta_2\ SUB\_SWITCH_{i,t} + \beta_3\ PARENT\_SWITCH_{i.t} + \beta_4\ PARENT\_SWITCH_{i.t} \times SUB\_SWITCH_{i.t} + \beta_5\ SIZE_{i,t} + \beta_6\ ROA_{i,t} + \beta_7\ LEV_{i,t} + \beta_8\ GROWTH_{i,t}$$

[9] Median number of subsidiaries is 51.

[10] Industry specialization is based on market share in a specific industry-year. The auditor who earns more audit fees in a specific industry-year is considered an auditor specialist.

$+ \beta_9 CFO_{i,t} + \beta_{10} BIG_{i,t} + \beta_{11} DIFF\_AUDITOR_{i,t} + \beta_{12} LOSS_{i,t} + \beta_{13} CURRENT_{i,t} + \beta_{14} INV_{i,t}$

$+$ Year F.E. $+$ Industry F.E $+ \varepsilon i_{,t}$

(4) $P(M\_OP=1) = \beta_1 + \beta_2 SUB\_SWITCH_{i,t} + \beta_3 PARENT\_SWITCH_{i.t} + \beta_4 PARENT\_SWITCH_{i.t} \times SUB\_SWITCH_{i.t} + \beta_5 SIZE_{i,t} + \beta_6 ROA_{i,t} + \beta_7 LEV_{i,t} + \beta_8 GROWTH_{i,t}$

$+ \beta_9 CFO_{i,t} + \beta_{10} BIG_{i,t} + \beta_{11} DIFF\_AUDITOR_{i,t} + \beta_{12} LOSS_{i,t} + \beta_{13} CURRENT_{i,t} + \beta_{14} INV_{i,t}$

$+$ Year F.E. $+$ Industry F.E $+ \varepsilon i_{,t}$

We employ a probit model since our dependent variable, M_OP, is a dummy variable which takes the value of 1 if the subsidiary receives a modified opinion in year t and zero otherwise. Since the issuance of modified opinions is a rare event (only 1.4% of our sample receives a modified opinion), the use of firm fixed effects is not feasible. This motivates our use of industry fixed effects instead. Results are reported in table 8 and are consistent with our main analyses. Concurrent switches (coeff=-1.150), and especially mandatory ones (coeff=-1.167), significantly reduce the probability to receive a modified opinion (p-value <0.01). On the contrary, non-concurrent switches (regardless of whether they come from a subsidiary or from a parent switch) significantly increase the probability to receive a modified opinion at the 5 percent level.

We also re-estimate model (1) and (2) using the absolute value of AWCA. Results are reported in table 9 and are consistent with our main results using signed AWCA, except for the significance of concurrent switches, which drops to the ten percent level in both model specifications.

Conclusions

Literature on auditor changes has mainly focused on listed companies and evidence mainly suggests that auditor switches are not associated, on average, with increased earnings quality. In groups of companies, changes at the parent company level are usually followed by changes at the subsidiary level, as controlled companies usually “adapt” to group decisions. In this study, we analyze the impact of auditor rotations at the parent (listed) company level on subsidiaries. Specifically, we first analyze the impact of auditor changes in subsidiaries that occur concurrently to auditor changes at

the listed parent company level. Our study confirms that concurrent switches are more frequent than non-concurrent changes. We find that, on average, concurrent auditor switches are associated with increased earnings quality of subsidiaries. We interpret this result as consistent with the view that the potential threats on audit quality deriving from the lack of client specific knowledge of the incoming auditor tend to be less severe in less complex and smaller clients (as subsidiaries) compared to listed parent companies. Moreover, as we believe that concurrent changes are the results of a decision taken at the group level (and not generally at the subsidiary level) it is less likely that these types of rotations are driven by opinion shopping motives.

Secondly, we split concurrent rotations into those that are most likely the consequence of mandatory rotations at the listed parent company level (mandatory concurrent rotations) and those that are the effect of voluntary rotations at the listed parent company level (voluntary concurrent rotations). We find that the positive impact on earnings quality of subsidiaries is mainly driven by imposed (i.e., mandatory) rotations. This suggests that imposing mandatory rotations at the parent company level, has positive indirect effects on subsidiaries, even when they are unlisted and therefore not subject to the mandatory rotation rule. Given that unlisted companies represent in the EU more than 75% of the European GDP (Ecoda, 2020) and more than one-half of the FDP in the US (Hope, Thomas, and Vyas, 2013), we believe that this result should be of interest for regulators at the international level.

We finally find that concurrent switches, and especially those driven by a mandatory parent auditor rotation, lead to cost savings for the subsidiaries of the group. We believe our study has three main potential contributions. First, we contribute to the literature on mandatory auditor rotation rule, by showing, for the first time, the "complete picture" of the effects at the group level. As mentioned earlier, the debate about the actual costs and benefits of the rule is still open, and this is also confirmed by different approaches taken by regulators at the international level. We believe that being able to show the complete picture of the potential impacts of such a rule, not only on listed

companies, but also at the subsidiary level, could definitely help regulators, academics, and professionals in assessing the actual implications of requiring periodical auditor switches. Second, we contribute to the auditing literature on private companies. The great majority of the audit empirical literature simply assumes that auditing companies only include listed companies in their portfolio. As suggested by Lennox (2018) this potentially leads to large measurement errors, given that most audits are conducted on private companies: "For example, Lennox and Li (2012) show that public companies account for only 1% of the total number of audits performed in the UK." (Lennox, 2018, p. 39). Finally, we provide evidence for further studies on group audits and component auditors and on the effects of overlapping or different group auditors on earnings quality (Burke et al., 2020; Carson et al., 2021; Docimo et al., 2021).

We are aware of some potential limitations that characterize our study. First, even if we consider the Italian setting as suitable to conduct our study, being one of the countries with the longest mandatory rotation tradition and where financial information about private companies is publicly disclosed, it would be interesting to test whether our findings are confirmed in other countries and institutional settings. Finally, data limitation impedes the use of other different proxies of audit quality that have been analyzed by prior research, such as accounting restatements. We still believe, however, that this study provides some interesting insights that can be further developed by future research.

Appendix: Variables Description

Variables	Description
AWCA	Abnormal working capital accruals calculated using the DeFond and Park (2001) formula: $AWCA_{it} = WC_{it} – (WC_{i,t-1} / REV_{i,t-1}) \times REV_{it}$ where WC_{it} is the working capital, calculated as (current assets - cash and short-term investments) – (current liabilities – short-term debt) and REVit represents sales. AWCA are then scaled by lagged total assets. (Source: Orbis Bureau Van Dijk);
SUB_SWITCH	Indicator variable equal to 1 when the subsidiary changes auditor and 0 otherwise (Source: hand collected auditors info);
PARENT_SWITCH	Indicator variable equal to 1 when the parent company changes auditor and 0 otherwise (Source: hand collected auditors info);
M_PARENT_SWITCH	Indicator variable equal to 1 when the parent changes auditor due to a mandatory rotation rule and 0 otherwise (Source: hand collected auditors info);
V_PARENT_SWITCH	Indicator variable equal to 1 when the parent changes auditor due to a voluntary decision and 0 otherwise (Source: hand collected auditors info);
SUB_SWITCH x PARENT_SWITCH	Interaction variable between SUB_SWITCH and PARENT_SWITCH;
SUB_SWITCH x M_PARENT_SWITCH	Interaction variable between SUB_SWITCH and M_PARENT_SWITCH;
SUB_SWITCH x V_PARENT_SWITCH	Interaction variable between SUB_SWITCH and V_PARENT_SWITCH;
LN_FEE	Natural logarithm; of subsidiary audit fees (Source: hand collected auditors info)
M_OP	Dummy varia ble equal to 1 if the subsidiary receives a modified opinion and 0 otherwise (Source: hand collected auditors info);
SIZE	Natural log of subsidiary sales (Source: Orbis Bureau Van Dijk);
ROA	Subsidiary operating income before interest and taxes scaled by average subsidiary total assets (Source: Orbis Bureau Van Dijk);
LEV	Subsidiary total debt on subsidiary total assets (Source: Orbis Bureau Van Dijk);
GROWTH	Percentage change in subsidiary sales (Source: Orbis Bureau Van Dijk);
CFO	Subsidiary operating cash flows scaled by lagged subsidiary total assets (Source: Orbis Bureau Van Dijk);

BIG	Dummy variable equal to 1 if the subsidiary is audited by a BIG4 audit firm and 0 otherwise (Source: hand collected auditors info)
DIFF_AUDITOR	Dummy variable equal to 1 if the subsidiary auditor is different from the parent auditor and 0 otherwise (Source: hand collected auditors info)
LOSS	Dummy variable equal to 1 if the subsidiary reports a loss in the previous year and 0 otherwise (Source: Orbis Bureau Van Dijk);
CURRENT	Subsidiary current assets on subsidiary current liabilities (Source: Orbis Bureau Van Dijk);
INV	Subsidiary total amount of inventories scaled by subsidiary total assets (Source: Orbis Bureau Van Dijk);

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Table 1. Sample Selection

	Unique GUOs	GUO-years	Unique Subs	Sub-years
Listed non-financial companies in Milan, 2007-2019 *(Source: Compustat)*	246			
Less non-GUO listed companies *(Source: BvD-Bureau VanDijk)*	(64)			
Initial GUOs and Italian subsidiaries sample	182	1,003	2,685	9,161
Less subsidiaries without auditor information	14	82	1,147	3,232
Less observations with missing values in other key variables	4	42	355	1,586
Less subsidiaries in the financial industry	1	9	57	180
Final Sample	163	870	1,126	4,163

Table 2. Descriptive Statistics

Panel A: Descriptive Statistics

Variables	Mean	SD	Q1	Median	Q3
AWCA	0.023	0.501	-0.067	0.0001	0.072
SUB_SWITCH	0.168	0.374	0	0	0
PARENT_SWITCH	0.116	0.320	0	0	0
M_PARENT_SWITCH	0.110	0.314	0	0	0
V_PARENT_SWITCH	0.005	0.073	0	0	0
SUB_SWITCH x PARENT_SWITCH	0.096	0.294	0	0	0
SUB_SWITCH x M_PARENT_SWITCH	0.092	0.289	0	0	0
SUB_SWITCH x V_PARENT_SWITCH	0.004	0.062	0	0	0
LN_FEE	3.094	1.102	2.303	2.944	3.764
M_OP	0.014	0.118	0	0	0
SIZE	16.999	2.210	15.633	16.899	18.322
ROA	0.029	0.153	-0.14	0.032	0.091
LEV	0.709	0.251	0.546	0.744	0.888
GROWTH	0.416	3.105	-0.089	0.173	0.146
CFO	0.077	0.231	-0.005	0.0779	0.169
BIG	0.719	0.449	0	1	1
DIFF_AUDITOR	0.0723	0.259	0	0	0
LOSS	0.347	0.476	0	0	1

CURRENT	1.169	2.280	0.887	1.174	1.654
INV	0.094	0.142	0	0.015	0.147

Panel B: Percentage of switches by Year

	Concurrent switches	Mandatory Concurrent Switches	Voluntary Concurrent Switches	Non-concurrent Switches
2007	0,063	0,063	0	0,136
2008	0,106	0,094	0,012	0,081
2009	0,051	0,051	0	0,076
2010	0,18	0,173	0,007	0,049
2011	0,048	0,039	0,009	0,054
2012	0,219	0,206	0,013	0,06
2013	0,033	0,029	0,004	0,066
2014	0,063	0,063	0	0,038
2015	0,099	0,099	0	0,026
2016	0,116	0,116	0	0,053
2017	0,075	0,075	0	0,082
2018	0,009	0,009	0	0,084
2019	0,164	0,164	0	0,164
Average	0,096	0,092	0,004	0,073

Variable definitions are reported in Appendix.

Table 3. Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1)AWCA	1																			
2)SUB_SWITCH	0.0533***	1																		
3)PARENT_SWITCH	0.00420	0.653***	1																	
4)M_PARENT_SWITCH	0.00289	0.638***	0.970***	1																
5)V_PARENT_SWITCH	0.00573	0.127***	0.216***	-0.0269	1															
6)SUB_SWITCH x PARENT_SWITCH	-0.00174	0.739***	0.901***	0.878***	0.176***	1														
7)SUB_SWITCH x M_PARENT_SWITCH	-0.00322	0.719***	0.877***	0.903***	-0.0243	0.973***	1													
8)SUB_SWITCH x V_PARENT_SWITCH	0.00616	0.154***	0.188***	-0.0234	0.872***	0.209***	-0.0212	1												
9)LN_FEE	-0.00205	-0.108***	-0.0553***	-0.0540***	-0.0102	-0.0553***	-0.0563***	-0.000761	1											
10)M_OP	-0.00953	0.00762	0.0185	0.0134	0.0223	0.0114	0.00508	0.0281*	0.0211	1										
11)SIZE	-0.0344**	-0.101***	-0.0207	-0.00947	-0.0473***	-0.00658	0.00188	-0.0367**	0.700***	-0.0494***	1									
12)ROA	0.0300*	0.0155	-0.00628	-0.00482	-0.00651	-0.00472	-0.00525	0.00180	-0.101***	-0.144***	0.132***	1								
13)LEV	-0.0475***	-0.000525	0.00720	-0.000362	0.0313*	0.00313	-0.00359	0.0290*	-0.0184	0.139***	0.0200	-0.267***	1							
14)GROWTH	0.313***	0.0971***	0.0172	0.0203	-0.0106	0.0270	0.0297*	-0.00901	-0.0380**	-0.0217	-0.0696***	-0.0373**	-0.00968	1						
15)CFO	-0.341***	0.00430	0.00821	0.0143	-0.0239	0.0192	0.0240	-0.0186	-0.0525***	-0.0340**	0.0829***	0.474***	-0.0622***	-0.0417**	1					
16)BIG	-0.0183	-0.0549***	-0.0577***	-0.0453***	-0.0555***	-0.0488***	-0.0366**	-0.0567***	0.255***	-0.0962***	0.167***	-0.0675***	-0.0594***	-0.0144	-0.0416**	1				
17)DIFF_AUDITOR	-0.0193	0.0184	0.0137	0.00880	0.0212	-0.0861***	-0.0837***	-0.0188	-0.0853***	-0.0143	-0.0507***	0.0401**	-0.0362**	-0.0305*	0.0413**	-0.206***	1			
18)LOSS	-0.0202	0.0197	0.0117	0.0142	-0.00915	0.00775	0.0110	-0.0131	0.0341**	0.129***	-0.166***	-0.591***	0.247***	0.0482**	-0.282***	0.00336	-0.0235	1		
19)CURRENT	0.0417**	0.0231	-0.0119	-0.00963	-0.0103	-0.00554	-0.00356	-0.00900	-0.0975***	-0.0267	-0.125***	0.0354**	-0.344***	-0.0166	-0.0898***	0.0129	0.0265	-0.0317*	1	
20)INV	-0.0361**	-0.0406**	-0.0183	-0.0155	-0.0131	-0.0125	-0.00842	-0.0184	0.124***	0.00674	0.112***	-0.0243	0.157***	-0.0101	-0.0579***	0.0411**	-0.0531***	0.0788**	-0.0369**	1

*** *p<0.01*, ** *p<0.05*, * *p<0.1*

The table reports pairwise Pearson correlation coefficients. Variable definitions are reported in Appendix.

Table 4. Subsidiary Auditor changes and Earnings Quality

	(1) X=AWCA	(2) X=AWCA
SUB_SWITCH	0.071	0.071
	(0.056)	(0.056)
PARENT_SWITCH	0.139	
	(0.088)	
M_PARENT_SWITCH		0.135
		(0.087)
V_PARENT_SWITCH		0.264
		(0.188)
SUB_SWITCH x PARENT_SWITCH	**-0.249****	
	(0.121)	
SUB_SWITCH x M_PARENT_SWITCH		**-0.246****
		(0.120)
SUB_SWITCH x V_PARENT_SWITCH		**-0.339***
		(0.204)
SIZE	-0.058**	-0.057**
	(0.027)	(0.027)
ROA	0.687***	0.686***
	(0.154)	(0.155)
LEV	-0.061	-0.062
	(0.100)	(0.099)
GROWTH	0.045**	0.045**
	(0.018)	(0.018)
CFO	-0.948***	-0.949***
	(0.095)	(0.095)
BIG	-0.038	-0.039
	(0.025)	(0.025)
DIFF_AUDITOR	-0.083***	-0.084***
	(0.031)	(0.032)
LOSS	-0.031	-0.031
	(0.024)	(0.024)
CURRENT	0.017*	0.017*
	(0.009)	(0.009)
INV	-0.146	-0.143
	(0.159)	(0.160)
Constant	1.096**	1.095**
	(0.469)	(0.469)

Observations	4,163	4,163
Unique subsidiaries	1,126	1,126
Firm FE	Yes	Yes
Ind. FE	No	No
Year dummies	Yes	Yes
Adj. R2	0.270	0.270

t-statistics in brackets *** p<0.01, ** p<0.05, * p<0.10. Variable definitions are reported in Appendix

Table 5. Subsidiary Auditor changes and Audit Fees

	(1) X=lnFEE	(2) X=lnFEE
SUB_SWITCH	-0.030	-0.030
	(0.041)	(0.041)
PARENT_SWITCH	0.027	
	(0.051)	
M_PARENT_SWITCH		0.022
		(0.052)
V_PARENT_SWITCH		0.203*
		(0.113)
SUB_SWITCH x PARENT_SWITCH	**-0.184****	
	(0.077)	
SUB_SWITCH x M_PARENT_SWITCH		**-0.184****
		(0.078)
SUB_SWITCH x V_PARENT_SWITCH		**-0.240***
		(0.136)
SIZE	0.092***	0.092***
	(0.018)	(0.018)
ROA	-0.113	-0.114
	(0.114)	(0.115)
LEV	-0.032	-0.030
	(0.080)	(0.080)
GROWTH	-0.003	-0.003
	(0.002)	(0.002)
CFO	-0.055	-0.054
	(0.043)	(0.043)
BIG	0.137**	0.136**
	(0.055)	(0.055)
DIFF_AUDITOR	-0.063	-0.064
	(0.065)	(0.066)

LOSS	0.059**	0.059**
	(0.024)	(0.024)
CURRENT	0.000	0.000
	(0.005)	(0.005)
INV	-0.271*	-0.272*
	(0.155)	(0.155)
Constant	1.581***	1.577***
	(0.325)	(0.325)
Observations	3,595	3,595
Unique subsidiaries	992	992
Firm FE	Yes	Yes
Ind. FE	No	No
Year dummies	Yes	Yes
Adj. R2	0.075	0.075

t-statistics in brackets *** p<0.01, ** p<0.05, * p<0.10. Variable definitions are reported in Appendix

Table 6. Cross-sectional anaylysis - Relative Size

	X=AWCA		X=lnFEE	
	(1) Big_Rel_size=1	(2) Big_Rel_size=0	(3) Big_Rel_size=1	(4) Big_Rel_size=0
SUB_SWITCH	0.075	0.064	-0.024	0.006
	(0.086)	(0.060)	(0.057)	(0.062)
PARENT_SWITCH	0.256*	-0.042	0.111	-0.037
	(0.136)	(0.058)	(0.068)	(0.084)
SUB_SWITCH x PARENT_SWITCH	**-0.363***	**-0.066**	**-0.253****	**-0.165**
	(0.193)	**(0.113)**	**(0.099)**	**(0.122)**
SIZE	-0.105**	-0.024	0.088***	0.057**
	(0.041)	(0.037)	(0.029)	(0.024)
ROA	0.759***	0.613***	-0.098	-0.139
	(0.230)	(0.219)	(0.160)	(0.161)
LEV	0.051	-0.128	-0.047	-0.037
	(0.119)	(0.192)	(0.123)	(0.119)
GROWTH	0.039	0.054**	-0.003	-0.005***
	(0.028)	(0.024)	(0.004)	(0.002)
CFO	-0.804***	-1.033***	-0.065	-0.113
	(0.118)	(0.136)	(0.051)	(0.071)
BIG	-0.017	-0.038	0.049	0.414***
	(0.035)	(0.032)	(0.060)	(0.111)
DIFF_AUDITOR	-0.130**	-0.015	-0.161*	0.087

	(0.062)	(0.042)	(0.083)	(0.122)
LOSS	-0.033	-0.042	0.032	0.099***
	(0.035)	(0.035)	(0.030)	(0.038)
CURRENT	0.069**	0.006	-0.032*	0.006
	(0.028)	(0.007)	(0.016)	(0.005)
INV	-0.174	-0.164	-0.265	-0.162
	(0.177)	(0.284)	(0.195)	(0.275)
Constant	1.757**	0.576	1.960***	1.636***
	(0.749)	(0.641)	(0.540)	(0.422)
Observations	2,373	1,790	2,000	1,595
Unique subsidiaries	681	560	584	513
Firm FE	Yes	Yes	Yes	Yes
Ind. FE	No	No	No	No
Year dummies	Yes	Yes	Yes	Yes
Adj. R2	0.237	0.349	0.063	0.119

t-statistics in brackets *** p<0.01, ** p<0.05, * p<0.10. Variable definitions are reported in Appendix

Table 7. Cross-sectional anaylysis - Complex groups

	X=AWCA		X=lnFEE	
	(1) Complex_group =1	(2) Complex_group =0	(3) Complex_group =1	(4) Complex_group =0
SUB_SWITCH	0.231***	-0.028	0.003	-0.025
	(0.084)	(0.065)	(0.057)	(0.053)
PARENT_SWITCH	0.156	0.189	0.135**	-0.080
	(0.120)	(0.156)	(0.056)	(0.079)
SUB_SWITCH x PARENT_SWITCH	**-0.422****	**-0.193**	**-0.360*****	**-0.044**
	(0.177)	**(0.186)**	**(0.102)**	**(0.108)**
SIZE	-0.069*	-0.038	0.094***	0.093**
	(0.036)	(0.040)	(0.020)	(0.039)
ROA	0.516**	0.798***	-0.147	-0.056
	(0.233)	(0.217)	(0.153)	(0.162)
LEV	-0.196	0.074	-0.115	-0.087
	(0.187)	(0.096)	(0.106)	(0.117)
GROWTH	0.047*	0.057**	-0.004	-0.002
	(0.025)	(0.026)	(0.002)	(0.004)
CFO	-1.135***	-0.806***	-0.049	-0.076
	(0.162)	(0.119)	(0.064)	(0.063)
BIG	0.001	-0.050	0.141	0.200***

	(0.084)	(0.034)	(0.146)	(0.065)
DIFF_AUDITOR	-0.069	-0.069	-0.058	0.076
	(0.075)	(0.053)	(0.106)	(0.127)
LOSS	-0.052*	-0.021	0.070*	0.070**
	(0.028)	(0.037)	(0.037)	(0.033)
CURRENT	0.012	0.051**	0.005	-0.038**
	(0.008)	(0.023)	(0.005)	(0.016)
INV	-0.175	-0.125	-0.236	-0.399**
	(0.289)	(0.147)	(0.202)	(0.194)
Constant	1.394**	0.588	1.739***	1.483**
	(0.637)	(0.706)	(0.367)	(0.696)
Observations	1,852	2,311	1,665	1,930
Unique subsidiaries	551	696	512	593
Firm FE	Yes	Yes	Yes	Yes
Ind. FE	No	No	No	No
Year dummies	Yes	Yes	Yes	Yes
Adj. R2	0.339	0.272	0.084	0.097

t-statistics in brackets *** p<0.01, ** p<0.05, * p<0.10. Variable definitions are reported in Appendix

Table 8. Subsidiary Auditor changes and Earnings Quality - Modified Opinions

	(1) M_OP	(2) M_OP
SUB_SWITCH	0.459**	0.464**
	(0.230)	(0.234)
PARENT_SWITCH	0.713***	
	(0.258)	
M_PARENT_SWITCH		0.593**
		(0.292)
V_PARENT_SWITCH		2.006**
		(0.804)
SUB_SWITCH x PARENT_SWITCH	**-1.150*** **	
	(0.397)	
SUB_SWITCH x M_PARENT_SWITCH		**-1.167*** **
		(0.416)
SUB_SWITCH x V_PARENT_SWITCH		**-1.718***
		(1.030)
SIZE	0.030	0.035
	(0.041)	(0.041)

ROA	-1.266**	-1.329**
	(0.544)	(0.551)
LEV	0.798**	0.798**
	(0.314)	(0.315)
GROWTH	-0.384**	-0.372**
	(0.186)	(0.182)
CFO	-0.138	-0.114
	(0.246)	(0.248)
BIG	-0.809***	-0.827***
	(0.194)	(0.197)
DIFF_AUDITOR	-0.897**	-1.022*
	(0.412)	(0.522)
LOSS	0.467***	0.486***
	(0.146)	(0.144)
CURRENT	0.011	0.012
	(0.047)	(0.047)
INV	-1.030	-1.083
	(0.652)	(0.661)
Constant	-4.001***	-4.016***
	(0.982)	(0.983)
Observations	3,215	3,215
Unique subsidiaries	926	926
Firm FE	No	No
Ind. FE	Yes	Yes
Year dummies	Yes	Yes
Pseudo R2	0.3025	0.3090

t-statistics in brackets *** p<0.01, ** p<0.05, * p<0.10. Variable definitions are reported in Appendix

Table 9. Subsidiary Auditor changes and Earnings Quality - Absolute AWCA

	(1)	(2)
	X=absAWCA	X=absAWCA
SUB_SWITCH	0.078	0.080
	(0.115)	(0.115)
PARENT_SWITCH	0.400	
	(0.257)	
M_PARENT_SWITCH		0.431
		(0.270)
V_PARENT_SWITCH		-0.534
		(0.412)
SUB_SWITCH x	-0.482*	

PARENT_SWITCH		
	(0.271)	
SUB_SWITCH x M_PARENT_SWITCH		-0.522*
		(0.283)
SUB_SWITCH x V_PARENT_SWITCH		0.656
		(0.471)
SIZE	-0.088**	-0.088**
	(0.043)	(0.043)
ROA	0.164	0.170
	(0.343)	(0.343)
LEV	0.056	0.062
	(0.390)	(0.390)
GROWTH	0.401***	0.401***
	(0.040)	(0.040)
CFO	0.024	0.028
	(0.189)	(0.188)
BIG	-0.027	-0.026
	(0.055)	(0.055)
DIFF_AUDITOR	-0.113	-0.106
	(0.074)	(0.070)
LOSS	0.013	0.013
	(0.051)	(0.051)
CURRENT	0.016	0.016
	(0.015)	(0.015)
INV	-0.953**	-0.960**
	(0.454)	(0.452)
Constant	1.602**	1.606**
	(0.815)	(0.816)
Observations	4,163	4,163
Unique subsidiaries	1,126	1,126
Firm FE	Yes	Yes
Ind. FE	No	No
Year dummies	Yes	Yes
Adj. R2	0.644	0.644

t-statistics in brackets *** p<0.01, ** p<0.05, * p<0.10. Variable definitions are reported in Appendix