Audit firm rotation, social ties and audit quality

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Summary

This study explores the association between auditor switching, social ties and audit quality. A global call for improved audit quality created a debate around mandatory auditor rotation. Proponents argue that long auditor tenure impairs the auditor's independence and will be harmful to audit quality. Meanwhile, opponents claim that it is auditor switching that is harmful to audit quality, since the auditor lacks industry- and client-specific knowledge in a new audit engagement. Current research empirically examining the benefits and costs of auditor rotation provides mixed results. This study argues that these mixed results might be due to the fact that none of these studies took social ties between the auditor and firm's management into account. These social ties might impair the auditor's independence and harm audit quality. Using a unique dataset of 88 listed Dutch firms in the 2007-2015 period and accrual levels as a proxy for audit quality, this study finds some indications of a negative effect of auditor switching on audit quality. This would provide support for mandatory rotation opponents. However, no statistically significant effects were found between an auditor switch and audit quality. This study discusses these findings and their implications.

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1. Introduction

Numerous accounting scandals as well as the recent financial crisis, damaged the public confidence in auditors. Regulators are introducing more legislation, standards and codes of conduct in an effort to restore public trust and improve audit quality. Enforcing periodic auditor rotation is one of the possible measures proposed to achieve this goal. However, mandatory auditor rotation is still a subject of much debate. This debate is a global one, since accounting scandals occurred worldwide (e.g. Enron, Royal Ahold, Parmalat). Although legislators around the globe face a similar challenge, their policy choices on mandatory auditor rotation differ. The European Union introduced regulation on mandatory auditor rotation in 2014 (Regulation No 537/2014, article 17), prescribing a maximum tenure of ten years in a row and a cooling down period of four years. The Netherlands recently conformed to this European standard and introduced mandatory auditor rotation in 2016. Italy, South Korea, Brazil and Singapore introduced similar legislation in the past (Harris and Whisenant, 2012). Meanwhile, many countries, including the United States and Australia, deliberately decided not to enforce auditor rotation (Brody and Moscove, 1998) and Canada even revoked previous laws for mandatory auditor rotation (Catanach and Walker, 1999; Harris and Whisenant 2012). This conflict in practice reflects the conflict in theory and in current empirical research regarding the benefits and costs of auditor rotation.

In theory, many arguments both in favor and against auditor rotation exist. The most important argument of rotation-proponents is the independence argument: periodic auditor rotation prevents the auditor from getting too familiar with his client and thus safeguards a fresh look on the engagement, resulting in higher audit quality (Brody and Moscove, 1998; Nashwa, 2004; Raiborn, Schorg and Massoud, 2006). Being too close to their client might push the auditor's boundaries on acceptable financial reporting practices, resulting in approved accounts that might contain material misstatements. On the other hand, rotation opponents argue that client- and industry-specific knowledge of the auditor grows with auditor tenure and valuable knowledge is lost with every rotation, at the expense of audit quality (Brody and Moscove, 1998; Myer, Myer and Omer, 2003). A new audit engagement implies catching up with this knowledge gap, resulting in higher costs in the first years of an audit. Theory does not provide a clear answer as to whether the possible benefits of auditor rotation outweigh these extra costs.

However, current research empirically examining the benefits and costs of auditor rotation does not provide a uniform answer either. Several researchers studied the effects of

auditor rotation on audit quality, but these studies show mixed results. Older studies indicate that audit quality declines with auditor tenure (Palmrose, 1989; Deis and Girous; 1992), thereby providing support for the legislators that want to enforce auditor rotation. However, more recent studies generally show a positive relation between auditor tenure and audit quality, indicating that mandatory rotation might prove to be harmful to audit quality (Johnson, Khuruna and Reynolds, 2002; Myers, Myers and Omer, 2003; Chen, Lin and Lin, 2008). Several other studies indicate that the relation between auditor tenure and audit quality depends on the stage of the audit and find that both in the early years of the audit as well as after a certain length of the auditor-client relationship, audit quality declines (Chi and Huang, 2005; Davis, Soo and Trompeter, 2009; Bell, Causholli and Knechel, 2015).

This study argues that this ambiguous results in current research might be due to the fact that none of these studies considered possible social ties between firm's management and the auditor when investigating the association between auditor rotation and audit quality. Although an auditor switch might enhance the auditor's independence in appearance, the independence in fact could be impaired when the auditor is a familiar face from management's network. A familiar face might be more inclined to cooperate with management in enhancing its own position and thus less inclined to restrict extreme reporting choices, resulting in lower audit quality. Therefore this study examines the relation between auditor switching and audit quality while considering the possible effect of social ties. In doing so, it provides a unique contribution to current literature.

A second contribution is made by using a unique dataset of 88 listed Dutch firms in the 2007-2015 period. The Netherlands provides a particularly interesting research setting, since the period under investigation can be considered as a transition phase between voluntary and mandatory auditor rotation. Regulation for a mandatory auditor rotation policy was announced by the Dutch legislator in 2012[1] and will become effective from the 1st of January 2016. Several firms seem to anticipate on the upcoming law, by already switching accountants in fiscal year 2014 or 2015. More than half of the auditor switches in the dataset were carried out in 2014 or 2015.

Third, this study uses multiple models to measure audit quality. Most studies measure audit quality using only the absolute levels of total accruals or discretionary accruals as a proxy for audit quality. This study considers three different measures; the difference in total

[1] *Kamerstukken II* 2011/2012, 33025-19

accruals, the absolute discretionary accruals calculated using the Modified Jones model and a measure that classifies measured discretionary accruals as either high or low by comparing it to the industry median. This multi model approach provides a more thorough measure of audit quality.

The remainder of this paper is organized as follows. Chapter 2 will discuss the theories and previous literature on auditor rotation and contains the hypotheses of this study. The research method will be discussed in chapter 3. Chapter 4 will provide the results of the regression analyses and the conclusion and discussion can be found in chapter 5.

2. Literature review and hypotheses

The auditing profession arose as one of the solutions to the information asymmetry problem that exists when a firm's ownership is separated from its management. This classic principal-agent situation is present in many large organizations where shareholders are not responsible for daily decision making. Although separation between ownership and management is preferable in large firms, since the owners do not possess the knowledge to make proper decisions throughout the whole organization, it involves agency costs (Fama and Jensen, 1983). Whilst managers do have the authority to make decisions, they do not face the financial consequences of these decisions. This might incentivize them to act in their own interest instead of in the interest of the business owners. Since management is closer to the day-to-day operations, they have an information advantage and the owners are faced with the risk of management behaving opportunistically. Auditors can contribute to solving this problem by examining whether the financial statements are true and fair. In this way, shareholders are assured that the information provided by management faithfully represents the true financial performance of the firm.

This assurance is more valuable when the audit performed is of high quality. Audit quality is often defined as 'the probability that an auditor will both discover and truthfully report material errors, misrepresentations or omissions detected in a client's accounting system' (DeAngelo, 1981, p. 186). The accounting scandals at the beginning of this century led many to believe that the quality of audits is currently lacking. Regulators feel the need for improvement. One of the measures that is often proposed as a possible solution for improving audit quality is mandatory auditor rotation, where firms are enforced to switch auditors after a predetermined period of time. However, both theory and empirical research are not capable of providing a conclusive answer as to whether auditor rotation is beneficial or harmful to audit quality.

Rotation proponent's most commonly used argument for a mandatory auditor rotation policy is the independence-argument. It is argued that longer auditor tenure results in becoming too familiar with the audit client and deteriorates the auditor's independence in fact (Brody and Moscove, 1998; Nashwa, 2004). The auditor might grow close to client's management, relate to their problems and blindly trust their explanations for discrepancies. Auditor rotation should prevent the auditor from becoming too familiar with their client and should safeguard a fresh and objective look on the engagement, thereby improving audit quality. Research indeed indicates that auditors who identify more with their client, are more

inclined to agree upon the client's reporting preferences (Bamber and Iyer, 2007) and auditors in a longer auditor-client relation are less inclined to issue a qualified or going concern opinion (Vanstraelen, 2003; Carey and Simnett, 2006). This might indicate that the auditor loses his independence in longer auditor-client relationships. However, these results were not confirmed in a later study, where no significant association between auditor tenure and the possibility of receiving a going concern opinion could be found (Knechel and Vanstraelen, 2007). Moreover, the results from numerous studies examining the relation between auditor tenure and audit quality using accrual levels as a proxy for audit quality, are also mixed. Johnson et al. (2002) conclude that longer auditor-client relationships do not show evidence of lower audit quality and Myers et al. (2003) and Chen et al. (2008) even found evidence of higher audit quality in longer audit-client relationships.

Auditor rotation is also said to enhance the auditor's independence in appearance. When a firm switches auditors, this might improve the public's perception of the auditor's independence as well as their confidence in the reliability of the financial statements (Raiborn et al. 2006). This theory is confirmed in experimental studies that indicate that users perceive the auditor as being more independent (Daniels and Booker, 2011) and the reported earnings as being of higher quality (Gates, Jordan Lowe and Reckers, 2006) when firms do rotate auditors. However, an empirical study performed by Ghosh and Moon (2005) indicate that investors perceive financial statements audited by a long-term auditor as being of higher quality.

Although it is widely acknowledged that a long auditor tenure might be a threat to the auditor's independence both in fact and in appearance, many oppose a mandatory rotation policy. Rotation opponents argue that client- and industry-specific knowledge of the auditor grows with auditor tenure and valuable knowledge is lost with every rotation, at the expense of audit quality (Brody and Moscove, 1998; Myers et al. 2003). Moreover, it takes time to get familiar and build relationships with the client's personnel. These relationships improve trust and understanding that will be beneficial in conducting the audit. An auditor switch means the new auditor has to start all over with his knowledge and relation building (Raiborn et al. 2006). In order to plan and conduct a decent audit, the auditor should have enough knowledge of the business- and industry specific factors that might create risks of material misstatement in the financial reports. The lack of knowledge in the initial phase of an audit, is said to increase the chances of audit failure since the auditor is less capable of making a proper risk assessment. Research indeed indicates that audit failures and fraudulent reporting are found to

be significantly more common in the earlier years of an audit engagement, probably because a new auditor lacks client-specific knowledge (Geiger and Raghunandan, 2002; Carcello and Nagy, 2004; Nashwa, 2004). However, Nashwa (2004) also provides evidence that most audit failures do occur in long-term engagements and the impact of these failures is much higher than the impact of failures in new audits. These mixed results are confirmed in an older study by Raghunathan, Lewis and Evans (1994) who found that audit failures are more likely to occur both in the first year of an audit and after the fifth year.

Auditor switching thus seems to have both a positive and a negative effect on audit quality, by an increase in the auditor's independence on the one hand and a decrease in the auditor's knowledge on the other. This study explores the effect of auditor switching on audit quality. Since current research shows mixed results and is not able to distinguish whether the positive effect of enhanced independence outweighs the loss of knowledge or vice versa, the first hypothesis of this study is as follows:

Hypothesis 1: Auditor rotation affects audit quality.

A possible explanation for these mixed results is the fact that none of the current studies considers social ties between firm's management and the auditor. It is possible that the auditor is a familiar face from management's professional or social network. These social ties might interfere in the relationship between auditor switching and audit quality and cause the mixed results. Socially tied auditors are argued to be less independent in fact. They are less incentivized to constrain management's extreme reporting decisions and truthfully report detected misstatements, because they relate more to management and are more willing to trust management's explanations for discrepancies. This study therefore argues that social ties are harmful to audit quality, which results in the following hypothesis:

Hypothesis 2: Social ties have a negative effect on audit quality.

It is possible that firm's management decides to switch to a socially tied auditor so they will be able to deal with a familiar face (Williams, 1988). Auditor switching is said to enhance the auditor's independence in fact, but this argument presumes that the new auditor is a complete stranger to firm's management and will be more objective than his predecessor. Although a switch to a socially tied auditor increases the public's perception of independence, the independence in fact could be impaired. It is therefore hypothesized that:

Hypothesis 3: Social ties negatively affect the impact of an auditor switch on audit quality.

3. Research design

3.1 Sample selection

The dataset used in this study contains data from Dutch publicly listed firms in the 2007-2015 period. Data on audit firms and audit fees in the years under investigation is retrieved from the Thomson database and, in case of missing values, complemented with data from original annual reports downloaded from company websites. Data on social ties between key (financial) officers and the auditor is retrieved from the BoardEx database. For companies not covered by BoardEx, the information is collected from company websites and network website LinkedIn. All other (financial) data is retrieved from the Orbis database. Financial companies in the banking and insurance sector and empty holding companies were excluded from the dataset. Companies missing data on auditors or missing financial data required to estimate accruals were also excluded. One company with its headquarter in the Netherlands, but applying French reporting principles, was excluded because of the French joint audit regulation. Table 1 provides a detailed overview on the composition of the sample.

Table 1. Sample composition	
All Dutch listed firms in Thomson Database	145
Minus: Companies in banking and insurance sector	- 10
Minus: Holding companies without activities	- 2
Minus: Companies with missing data	- 44
Minus: Companies applying French joint audit regulation	- 1
Total companies in sample	**88**

The period under investigation is limited to years beginning in 2007, since European regulation on disclosure of audit fees became effective in June 2006 (Directive 2006/43/EC of the European Parliament). This implies that data on audit fees, which is used as a control variable in this study, is mostly available from 2007 onwards. The total sample consists of 88 unique listed firms. Some firms are not listed throughout the whole 2007-2015 period, resulting in a total of 735 firm-year observations.

Table 2 provides an overview of the firm-year observations per industry group and table 3 provides an overview of the firm characteristics per industry group. Most firms are in the service industry with a total of 430 observations, where the industrial and trade industry

are responsible for 236 and 69 observations respectively. Industrials are, on average, the biggest in size and pay the highest audit fees to their auditors. Trading firms are most often audited by a Big 4 auditor, whilst almost 20% of the firms in the service industry appointed a non-Big 4 firm to audit their financial statements.

Table 2. Firm-year observations per industry

Industry	Number of observations									Total
	2007	2008	2009	2010	2011	2012	2013	2014	2015	
Trade	6	8	8	8	8	8	8	8	7	69
Industrial	23	25	26	27	27	27	27	27	27	236
Service	35	44	47	49	50	52	53	52	48	430
Total	64	77	81	84	85	87	88	87	82	735

Table 3. Sample characteristics per industry

Industry	Average size (natural log of total assets)	Average audit fee (in thousands €)	Firms audited by a Big 4 audit firm	Total observations
Trade	13.14	887.06	91.30%	69
Industrial	13.77	3,092.98	90.68%	236
Service	12.79	1,342.80	81.86%	430
Total average	13.14	1,861.98	85.58%	735

3.2 Measurement of variables

3.2.1 Audit quality

This study explores the influence of auditor switches and social ties on audit quality. Audit quality is a comprehensive concept that is measured differently in scientific literature. Recent literature agrees that accruals are a suitable proxy for measuring audit quality (Chen et al. 2008; Myers et al. 2003). Accrual positions, especially discretionary accruals, can be used by management to favorably adapt the disclosures of financial information. Accrual accounting leaves room for managerial discretion, since management is allowed to use their professional judgement in choosing certain financial reporting practices (Bowen, Rajgopal and Venkatachalam, 2008). It is argued that lower accruals are associated with higher audit quality, since this might indicate that the auditor is restraining management's extreme reporting decisions. Moreover, several studies indicate an association between accrual levels and other measures of low audit quality, such as audit failures and auditor litigation (Geiger

and Raghunandan, 2002; Heninger, 2001). Depending on their intentions, management can both adapt financial information upwards or downwards using accrual positions. Therefore, absolute values of accrual levels are considered. This study uses three different methods to measure audit quality:

Method 1:

Absolute discretionary accruals = $| TA - (\beta_0 + \beta_1 * \frac{1}{TOTASS\ t-1} + \beta_2 * (\Delta SALES - \Delta REC) + \beta 3 * PPE) |$ [2]

Method 2:

Dummy variable equal to 1 if discretionary accruals are above industry median and 0 otherwise

Method 3:

Absolute total accruals = $| TA_t - TA_{t-1} |$

Absolute total accruals in the longer term = $| TA_{t+2} - TA_t |$

where:

TA = total accruals (earnings before interest and taxes – net cash flow from operations)

β_i = coefficients estimated for each industry-year using the OLS-regression: $TA = \beta_0 + \beta_1 * \frac{1}{TOTASS\ t-1} + \beta_2 * (\Delta SALES - \Delta REC) + \beta 3 * PPE$

$TOTASS_{t-1}$ = total assets at year t-1

Δ*SALES* = change in sales

Δ*REC* = change in receivables

PPE = property, plant and equipment

Since larger firms typically have higher accrual levels, TA, ΔSALES, ΔREC and PPE are all scaled by total assets at the beginning of year t. Although all three methods measure audit quality, their assumptions differ. The third method originates from a 1986 paper by Deangelo (Deangelo, 1986). This method is based on the assumption that a change in total accruals is completely due to a change in discretionary accruals. This means that the total accruals in the previous year are assumed to be totally non-discretionary and any economic circumstances that might influence accrual levels are assumed to be unchanged. The Modified Jones Model

[2] The Modified Jones Model is used (Dechow, Sloan and Sweeney, 1995). The beta coefficients are calculated by estimating the equitation for each industry-year using a regression analysis. The regression output is a predictor of the non-discretionary accruals. By subtracting this predicted value from the actual total accruals, the residuals of the regression are used as an estimate for the discretionary accruals.

used by method 1 identifies several non-discretionary accrual drivers that might be prone to change from year to year (Dechow, Sloan and Sweeney, 1995). By using a regression to estimate 'normal' non-discretionary accrual levels, based on these drivers, the residuals of this regression are used as a measure of discretionary accruals. In doing so, the Modified Jones Model provides a solution for the strong assumptions underlying method 3. Research showed that both methods have the ability to measure discretionary accruals (Dechow, Sloan and Sweeney, 1995). The second method is based on a dummy variable equal to 1 if the discretionary accruals (calculated using method 1) are above industry median, and 0 when they are below industry median. This method is less sensitive to relatively high or low accrual values. This study uses all three methods in order to provide a more robust measure of audit quality. Furthermore, a variant of the third measure is used to explore whether the effects of an auditor switch and social ties on audit quality are different in the longer term. Instead of measuring the difference in total accruals between the current and the previous year, this method measures the difference in accrual over a two year period.

3.2.2 Independent variables

Auditor switching is measured with a dummy variable equal to 1 if the financial statements of year t are audited by a different audit firm than the financial statements of year t-1 and equal to 0 if both consecutive financial statements are audited by the same audit firm. Social ties are also measured with a dummy variable. The dummy is equal to 1 if one or more of the key (financial) officers working within the company in year t, previously worked with the audit firm that audited the financial statements in year t. The CEO and CFO are considered as key (financial) officers, as well as other top managers who are likely to be involved in the audit process, such as the concern controller. When there is no information indicating that one of the key (financial) officers was previously employed by the auditing firm, the dummy variable is equal to 0.

3.2.3 Control variables

This study considers four control variables that might affect audit quality and have been previously used in similar studies: audit fees, financial distress, auditor type and firm size. Audit fee is included because research indicates a negative association between audit fees and audit quality (Hoitash, Markelevich and Barragato, 2007). Higher audit fees might deteriorate the auditor's professional skepticism and make him less critical regarding extreme financial reporting choices, out of fear of losing a profitable client (Choi, Kim and Zang, 2010). Audit fees are measured in euros as disclosed in the annual report and are scaled by total assets.

When the reporting currency of the annual report differs from euros, the disclosed audit fee is converted to euros using the exchange rate at the balance sheet date. This study also controls for financial distress, since empirical research indicates that financial distress might be harmful to audit quality (Rosner, 2003; Habib, Uddin Bhuiyan and Islam, 2013). Distressed organizations might be more inclined to push the boundaries of reporting practices in order to prevent the disclosure of bad news. Financial distress is measured using Altman's Z-score, a formula that provides an indicator of the degree of financial distress in a certain year (Altman, 1968). The Z-score is calculated using the formula: $1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + .999X_5$, where X_1 is working capital divided by total assets; X_2 is retained earnings divided by total assets, X_3 is earnings before interest and taxes divided by total assets; X_4 is market value of equity divided by total liabilities and X_5 is sales divided by total assets. Prior studies found associations between auditor type (big 4 or non big 4) and audit quality (Becker, Defond, Jiambalvo and Subramanyam, 1998; Francis and and Krishnan, 1999; Myers et al. 2003), therefore auditor type is included as a control variable. Similar to previous studies on this topic (e.g. Chen et al. 2008; Myers et al. 2003), this study also controls for firm size, measured as the natural log of beginning total assets.

3.3 Econometric model

To test the hypotheses, the following general model is estimated using multivariate regression analyses:

$$AUDIT\ QUALITY = \beta_0 + \beta_1 SWITCH + \beta_2 ST + \beta_3 SWITCH*ST + \beta_4 FEE + \beta_5 ZSCORE + \beta_6 BIG4 + \beta_7 SIZE + \epsilon$$

The variables used in the equation are defined in table 4 below. Since the dataset used is a panel dataset, both a random effects model[3] and a pooled regression model are estimated. All models are checked for multicollinearity (see appendix 1) and controlled for heteroscedasticity by using robust models that cluster the standard errors by firm. In all models, year dummies are considered to control for year-specific effects. Industry-specific effects are controlled for by calculating the discretionary accrual levels separately for each industry-year (methods 1 and 2) or by using industry dummies (method 3). The dataset is divided into three industry groups: trade, industrial and service. Breaking down the industry

[3] Based on a Hausman test, the random effects model was selected as the most appropriate model.

groups further might be more precise, but would result in too little observations per industry-year.

The beta coefficients on *SWITCH, ST* and on the interaction effect *SWTICH*ST* provide a test for the hypotheses of this study. The beta coefficients on *SWITCH* provides a test for hypothesis 1 and indicates the change in discretionary accrual levels when a firm switched auditors. A negative coefficient would indicate that an auditor switch leads to lower absolute accrual levels, indicating a positive effect on audit quality and providing support for mandatory rotation proponents. The opposite is true for a positive coefficient, indicating that an auditor switch leads to higher absolute accrual levels and thus to lower audit quality. The beta coefficients on *ST* provides a test for hypothesis 2 and indicates the change in discretionary accrual levels when there are social ties between firm's management and the auditor. A positive coefficient would indicate that social ties lead to higher absolute accrual levels, indicating a negative effect on audit quality and providing support for our hypothesis. The beta coefficients on the interaction term *SWITCH*ST* indicate the effect of an auditor switch and social ties simultaneously. That is, it indicates the effect on audit quality of an auditor switch when the new auditor is socially tied to firm's management. Hypothesis 3 predicts a positive coefficient, indicating that a switch to a familiar auditor has a positive effect on accrual levels and thus a negative effect on audit quality.

Table 4. Definition of variables

Variable	Definition
AUDIT QUALITY	*DISCR* (method 1): the absolute discretionary accruals calculated using the Modified Jones Model. *DISCR DUMMY* (method 2): a dummy variable equal to 1 if the absolute level of discretionary accruals, calculated using the Modified Jones Model, is above industry median, and 0 otherwise. *TOTACCR* (method 3): the absolute value of the difference between total accruals in the current year and total accruals in the previous year, scaled by total assets at the beginning of the year.
SWITCH	A dummy variable equal to 1 if the company switched auditors and 0 otherwise.
ST	A dummy variable measuring social ties; equal to 1 if one or more of the key (financial) officers of the firm previously worked at the audit firm and 0 otherwise.

*SWITCH*ST*	The interaction effect between the variables *SWITCH* and *ST*; measures the effect of an auditor switch on audit quality when there are social ties with the new auditor.
FEE	The audit fee scaled by total assets.
ZSCORE	The calculated Z-score based on the model by Altman.
BIG4	A dummy variable equal to 1 if the company's auditor is PwC, EY, KPMG or Deloitte and 0 otherwise.
SIZE	The natural logarithm of total assets at the beginning of the year.

4. Results

4.1 Descriptive statistics

Table 5 presents an overview of the descriptive statistics of all the variables. 7.89% of the firm year observations contain an auditor switch, meaning that the complete dataset (i.e. 735 firm year observations) contains 58 different switches. In 19.86% of the firm year observations, the auditor is socially tied to firm's management. The mean (median) of the absolute discretionary accruals is 9.57% (5.42%) of the total assets at the beginning of the financial year. The mean (median) of the absolute difference in total accruals is 11.05% (4.09%) of beginning total assets. On average, firms pay their auditor a fee that is equal to 0.24% of their total assets value. Almost 86% of the firms is audited by a Big 4 audit firm.

Table 5. Descriptive statistics all variables

Variable	Mean	s.d.	Minimum	Median	Maximum
DISCR (%)	9.5660	18.647	0.0274	5.4243	300.33
DISCR DUMMY	0.4993	0.5003	0.0000	0.0000	1.0000
TOTACCR (%)	11.046	36.213	0.0033	4.0867	665.73
SWITCH	0.0789	0.2698	0.0000	0.0000	1.0000
ST	0.1986	0.3992	0.0000	0.0000	1.0000
SWITCH*ST	0.0095	0.0971	0.0000	0.0000	1.0000
FEE (%)	0.2372	1.3810	0.0039	0.0999	36.694
ZSCORE	2.5127	18.083	-115.0	2.3568	310.56
SIZE	13.139	2.2482	5.5134	13.248	17.683
BIG4	0.8558	0.3515	0.0000	1.0000	1.0000

Note: Variables are defined in table 4. Variables with % in parentheses, are expressed in percent of beginning total assets.

Table 6 tabulates the distribution of the auditor switches within the sample over the different years and industry groups. The 58 switches in the sample are not evenly distributed over the years. There is a growing trend in the number of switches from 2013 onwards, with half of the switches occurring in 2014 and 2015. Since regulation for a mandatory auditor rotation policy was announced by the Dutch legislator in 2012 (Kamerstukken II 2011/2012, 33025-19) and became effective in 2016, the trend is presumably caused by firms anticipating on the upcoming law. However, firms might also use the new rules as an excuse to switch auditors without raising a 'red flag'.

Table 6. Auditor switches per year per industry

Year	Switches per industry			Total
	Trade	Industrial	Service	
2007	0	0	1	1
2008	0	1	2	2
2009	0	2	5	7
2010	0	2	1	3
2011	0	0	2	2
2012	0	0	3	3
2013	1	2	5	8
2014	2	2	7	11
2015	0	10	10	20
Total	3	19	36	58

To provide a rough indication of the effect of auditor switching on audit quality, table 7 compares the means of the three audit quality measures for firms that switched auditors in year t versus firms that did not. All measures show, on average, higher accrual levels and thus lower audit quality for firms that switched auditors than for non-switchers. This would indicate that switching auditors has a positive effect on the height of accrual levels and thus, lowers audit quality. A possible explanation is the lack of client-specific knowledge from the new auditor in the first year of an audit. However, the differences in mean audit quality between switchers and non-switchers are not statistically significant.

Table 7. Audit quality for switchers and non-switchers

Switch	**Discretionary accruals** Mean (Median) [n]	**Dummy discretionary accruals** Mean (Median) [n]	**Difference in total accruals** Mean (Median) [n]
0	9.437 (5.389) [677]	0.493 (0) [677]	10.406 (4.080) [590]
1	11.078 (6.489) [58]	0.569 (1) [58]	18.335 (4.185) [57]
Difference (t-value)	-1.641 (-0.643)	-0.076 (-1.105)	-7.929 (-1.580)

Note: The three methods for measuring audit quality are defined in paragraph 3.2.

Since table 6 indicated that there is a difference in the frequency of auditor switches between the 2007-2013 and 2014-2015 period, table 8 compares the means of the three audit quality

measures for switchers in the first and in the second period. The table reveals that switchers in the 2014-2015 period show lower accrual levels than switchers in the 2007-2013 period. The differences in means are significant (at .10 level) for two out of three audit quality measures. A possible explanation is the difference in incentives that motivated the switch. In the 2007-2013 period, the upcoming mandatory auditor rotation policy starting from 2016 was most likely not the main reason to switch auditors. Since accrual levels are high amongst these switchers, it is possible that firms switched to auditors that were less restraining towards their financial reporting choices. Switches in the 2014-2015 period are more likely incentivized by the upcoming mandatory rotation law and less by the search for a more open-minded audit firm.

Table 8. Accrual models for switchers per period

Switch in period	**Discretionary accruals** Mean (Median) [n]	**Dummy discretionary accruals** Mean (Median) [n]	**Difference in total accruals** Mean (Median) [n]
2007-2013	14.708 (9.704) [27]	0.704 (1) [27]	26.474 (6.821) [26]
2014-2015	7.915 (4.874) [31]	0.452 (0) [31]	11.508 (2.467) [31]
Difference (t-value)	-6.793* (-1.733)	-0.252* (-1.965)	-14.967 (-1.364)

Note: Differences indicated with * are significant at .10, using a two-tailed test. The three methods for measuring audit quality are defined in paragraph 3.2.

Table 9 provides a rough indication of the effect of social ties on audit quality, by tabulating the average accrual levels for firm years with social ties and firm years without social ties. The table indicates that firms with an auditor that is socially tied to firm's management, show, on average, lower accrual levels and thus higher audit quality. The difference in means is only significant in one out of three measures (at the .10 level). The results are in contradiction with the hypothesis. A possible explanation is that the definition of social ties used in this study is too narrow. There are many ways one can socially connect, for example through friends or business clubs. Since these informal social ties are hard to observe, this study only considers social ties that originate in one's employment history. It is possible that a broader definition of social ties would lead to measurable effects on audit quality.

Table 9. Accrual models with and without social ties

Social Ties	**Discretionary accruals** Mean (Median) [n]	**Dummy discretionary accruals** Mean (Median) [n]	**Difference in total accruals** Mean (Median) [n]
0	9.997 (5.755) [589]	0.516 (1) [589]	11.880 (4.094) [518]
1	7.940 (3.398) [146]	0.432 (0) [146]	7.990 (3.525) [129]
Difference (t-value)	2.203 (1.177)	0.084* (1.823)	3.890 (1.091)

Note: Differences indicated with * are significant at .10, using a two-tailed test. The three methods for measuring audit quality are defined in paragraph 3.2.

4.2 Tests of hypotheses

Table 10 shows the results of the random effects regressions for the three different audit quality measures. All measures show a positive association between an auditor switch and accrual levels, indicating that a switch leads to higher accruals and thus to lower audit quality. This would confirm the argument of rotation opponents that the auditor lacks client-specific knowledge in the first year, which is harmful to audit quality. Another possible explanation is that a new auditor might notice necessary impairments in the first year, creating larger accrual levels (Myers et al. 2003). However, none of the switch-coefficients are statistically significant. The coefficients on social ties show both negative and positive values and are not statistically significant either, indicating that there is no relation between this measure of social ties and audit quality. The interaction effect between the auditor switch and social ties show negative coefficients, indicating a negative effect on accrual levels and a positive effect on audit quality. This is in contradiction with our third hypothesis. However, none of these coefficients show statistically significant values.

Table 10 makes a distinction between three different periods: the total period 2007-2015, the period before the (announcement of the) mandatory rotation regulation (2007-2013) and the period when the mandatory rotation policy was upcoming (2014-2015). Similar to the results from the comparison of means in table 8 in the previous paragraph, the effect of a switch in the 2007-2013 period and the 2014-2015 period seems to differ. The results in table 10 indicate that the negative effect of a switch on audit quality, is less strong in the second period.

Table 10. Random effects regression[4]

Period	2007-2015	2007-2013	2014-2015	2007-2015	2007-2013	2014-2015	2007-2015	2007-2013	2014-2015
Variable	Discretionary Accruals	Discretionary Accruals	Discretionary Accruals	Dummy discretionary accruals	Dummy discretionary accruals	Dummy discretionary accruals	Difference in total accruals	Difference in total accruals	Difference in total accruals
Switch	0.0135 (0.69)	0.0128 (0.36)	0.0054 (0.43)	0.0851 (1.21)	0.1411 (1.38)	0.0524 (0.53)	0.0740 (1.33)	0.0675 (0.84)	0.00152 (0.16)
Social Ties	0.0066 (0.38)	0.0014 (0.06)	0.0202 (0.83)	-0.0110 (-0.23)	-0.0266 (-0.52)	0.0732 (0.59)	0.0256 (1.20)	0.0448 (1.50)	0.0068 (0.18)
Switch * Social Ties	-0.0271 (-0.75)	-0.0147 (-0.22)	-0.0255 (-1.26)	-0.1547 (-1.04)	-0.2289 (-0.93)	-0.0733 (-0.39)	-0.0769 (-0.88)	-0.0726 (-0.52)	-0.0371 (-0.37)
Fee	1.1553** (5.09)	1.1026** (4.59)	2.1390 (0.86)	0.9499* (1.95)	0.8007* (1.64)	30.510* (3.11)	0.0000 (1.59)	0.0000 (1.57)	0.0000 (1.57)
Z-score	-0.0004** (-2.04)	-0.0004** (-2.35)	-0.0018 (-0.50)	-0.0001 (-0.16)	-0.0004 (-0.45)	-0.0045 (-0.43)	-0.0009** (-6.30)	-0.0013* (-5.79)	0.0024 (0.42)
Big 4	0.0044 (0.18)	0.0028 (0.09)	-0.0055 (-0.23)	-0.0452 (-0.69)	-0.0701 (-0.99)	-0.0053 (-0.03)	0.0351 (0.63)	-0.0125 (-0.18)	0.1182 (1.31)
Size	-0.0173** (-3.51)	-0.0183** (-3.27)	-0.0095** (-2.78)	-0.0437** (-4.09)	-0.0360** (-3.24)	-0.0456** (-1.96)	-0.0777* (1.93)	-0.0898* (-1.86)	-0.0368* (-1.84)
Year	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry	N	N	N	N	N	N	Y	Y	Y
Intercept	0.3089** (4.36)	0.3247** (4.31)	0.2054** (3.43)	1.1725** (7.93)	1.0975** (7.12)	0.9713** (3.31)	0.9885** (2.07)	1.1847** (2.01)	0.4014** (2.16)
Number of observations	735	565	169	735	565	169	647	478	169
Overall R^2	0.0860	0.0825	0.1213	0.0975	0.0953	0.1127	0.1034	0.1254	0.0636

Note: All variables are defined in table 4. Coefficients indicated with * and ** are significant at .10 and .05 respectively (two tailed). Z-values beneath the regression coefficients in parentheses.

[4] Based on a Hausman test, the random effects model was selected as the most appropriate model.

As mentioned before, the possible explanation lies in a difference in switch-incentive. Where switches in the 2007-2013 period were most likely motivated by the search for a more open-minded audit firm, the switches in 2014-2015 were most likely motivated by the upcoming mandatory auditor rotation law. However, since none of the associations are statistically significant, it is not possible to draw any real conclusions about the differences between both periods.

The results in table 10 further indicate a significant and negative association between size and accrual levels, indicating that larger firms have lower accrual levels, and thus higher audit quality, compared to smaller firms. This outcome is similar to results from Myers et al. (2003). The association between audit fees and accrual levels is positive and significant in two out of three measures. This indicates that firms that pay relatively high audit fees show higher accrual levels and thus lower audit quality. This outcome confirms the expectation that auditors are less restraining towards a profitable client (Choi et al. 2010). The variable Z-score shows indications of a significant and negative relationship. Lower Z-scores indicate more financial distress and results in higher accrual levels and lower audit quality. This confirms the results of earlier studies in which financial distress was found to be harmful to audit quality (Rosner, 2003; Habib et al. 2013), probably because firms in financial distress might be more inclined to choose extreme reporting practices to prevent the disclosure of bad news. The results do not indicate a difference in audit quality between firms audited by a Big 4 auditor and a non-Big 4 auditor.

Table 11 presents the results of the pooled regression model. The pooled regression model shows similar results compared to the random effects model. The coefficients on the switch-variable show a positive association between auditor switching and accrual levels, indicating a negative effect of an auditor switch on audit quality. The coefficients on the interaction effect between the auditor switch and social ties show negative coefficients, indicating a positive effect on audit quality. However, there are no significant associations found that can confirm the hypotheses. The results on the control variables are also similar to the results in the random effects model. There is a significant negative association between size and accrual levels, some evidence of a positive association between audit fee and accrual levels and some evidence of a negative association between Z-score and accrual levels.

Table 11. Pooled regression

Period	2007-2015	2007-2015	2007-2015
Variable	Discretionary Accruals	Dummy discretionary accruals	Difference in total accruals
Switch	0.0173 (0.89)	0.0840 (1.17)	0.0735 (1.22)
Social Ties	0.0032 (0.15)	-0.0171 (-0.37)	0.0345 (1.37)
Switch * Social Ties	-0.0218 (-0.51)	-0.1228 (-0.68)	-0.0758 (-0.75)
Fee	1.3070** (4.56)	1.0828 (1.45)	0.0000* (1.77)
Z-score	-0.0004* (-1.87)	-0.0003 (-0.44)	-0.0003 (-0.58)
Big 4	-0.0086 (-0.29)	-0.0697 (-0.99)	-0.0132 (-0.22)
Size	-0.0148** (-3.17)	-0.0410** (-3.58)	-0.0569** (-2.35)
Year	Y	Y	Y
Industry	N	N	Y
Intercept	0.2876** (4.66)	1.1602** (7.56)	0.765** (2.54)
Number of observations	735	735	647
R^2	0.0868	0.0978	0.1067

Note: All variables are defined in table 4. Coefficients indicated with * and ** are significant at .10 and .05 respectively (two tailed). T-values beneath the regression coefficients in parentheses

The previous tables all measure audit quality in the short term. In table 12, the third measure of audit quality is examined both in the short term and in the longer term. The short term represents the absolute difference in accruals in the current year compared to the previous year, whilst the longer term measures the difference in accruals after two years. In this way, the possible differences of the effect of an auditor switch or social ties between the short term and longer term are explored. The coefficients on the variable switch are lower in the longer term, suggesting that the negative effect of a switch on audit quality is stronger in the first year of an audit than after two years. This is consistent with the possible explanation that the lack of knowledge at the beginning of a new audit, has a negative effect on the audit quality and that this effect diminishes as the auditor gains more knowledge. The opposite is true for social ties, the negative effect of social ties on audit quality seems to be stronger in the long

term. However, the table shows no statistically significant associations between audit quality and a switch or social ties. It is therefore not possible to draw conclusions based on the table.

Table 12. Model 3 short and long term comparison

Regression model	Random effects	Random effects	Pooled regression	Pooled regression
Variable	Difference in total accruals Short Term	Difference in total accruals Long Term	Difference in total accruals Short Term	Difference in total accruals Long Term
Switch	0.0748 (1.45)	0.0017 (0.04)	0.0763 (1.27)	0.0142 (0.39)
Social Ties	0.0229 (0.54)	0.0470 (1.37)	0.0304 (1.17)	0.0600 (1.14)
Switch * Social Ties	-0.0803 (-0.56)	0.0118 (0.09)	-0.0859 (-0.84)	-0.0004 (-0.01)
Fee	0.0000** (3.35)	0.0000 (0.63)	0.0000* (1.80)	0.0000* (1.65)
Z-score	-0.0010 (-1.32)	-0.0000 (-0.07)	-0.0003 (-0.62)	-0.0001 (-0.20)
Big 4	0.0338 (0.59)	0.0277 (0.59)	-0.0171 (-0.28)	0.0313 (0.51)
Size	-0.0791** (-6.60)	-0.0287** (-2.95)	-0.0576** (-2.36)	-0.0311** (-2.55)
Intercept	1.0519** (7.54)	0.4171** (3.70)	0.8304** (2.68)	0.4463** (3.46)
Number of observations	647	558	647	558
R^2	0.0999	0.0650	0.1030	0.0679

Note: All variables are defined in table 4. Coefficients indicated with * and ** are significant at .10 and .05 respectively (two tailed). Z and t-values beneath the regression coefficients in parentheses.

5. Conclusion and discussion

This study explores the association between auditor switching, social ties and audit quality. Former research into the effect of auditor switching on audit quality shows mixed results and is not able to provide a conclusive answer as to whether auditor switching is beneficial or harmful to audit quality. It is argued that these mixed results might be due to the fact that none of these studies took social ties between the auditor and firm's management into account. This study therefore contributes to current literature by exploring whether auditor switching has a positive or negative effect on audit quality, whilst considering the possible negative effect of social ties.

A unique panel dataset containing data from 88 Dutch publicly listed firms in the 2007-2015 period is used. Audit quality is measured by three different accrual measures. These proxies are based on audit quality measures in similar studies (Chen et al. 2003; Myers et al. 2003) and on previous research that indicates that high accrual levels are associated with other indications of low audit quality, such as audit failures and auditor litigation (Geiger and Raghunandan, 2002; Heninger, 2001). Using these measures, this study finds some indications of a negative effect of an auditor switch on audit quality. Moreover, the results show indications that this negative effect is less evident two years after the switch. These outcomes provide support for the argument of mandatory auditor rotation opponents that the auditor lacks knowledge in the beginning of an audit, which has a negative effect on audit quality. The effect after two years would indeed be less strong, since the auditor gains more knowledge when auditor tenure grows. These results seem to support the findings of Myers et al. (2003) and Chen et al. (2008), who found that longer auditor tenure is beneficial to audit quality. However, since the results do not show statistically significant associations, the hypothesis of this study cannot be confirmed.

Additionally, the results provide evidence that completely voluntary auditor switches have a different effect on audit quality than auditor switches incentivized by an upcoming mandatory rotation policy. The sample of this study shows that a relatively large number of firms switched auditors in 2014 and 2015. Since the mandatory auditor rotation policy in the Netherlands was introduced in 2016, these switchers probably anticipated on the upcoming law. The average effect of these switches on audit quality seems to be significantly less negative than switches in the 2007-2013 period. This might indicate that the decision to voluntarily switch auditors is more often based on the search for a more open-minded audit

firm and is thus more harmful to audit quality. This is important information for policy makers that consider mandatory auditor rotation legislation. It indicates that results of studies on this topic in a completely voluntary environment, might not be generalizable to a mandatory rotation environment. One should be careful when using these results as an argument or counter argument when considering the introduction of a mandatory rotation policy.

Whilst the hypotheses of this study expected that the presence of social ties between the auditor and firm's management would harm audit quality, because of the impaired independence of the auditor, the regressions do not show any conclusive results on this matter. This might be explained by the difficulties faced in measuring social ties. This study considered social ties as present when somebody from top management previously worked for the same audit firm that is currently examining the financial statements. Although employment history is an important source of one's social network, it is not a comprehensive definition. Social ties could also emerge in numerous other ways, such as through friendly networks or business clubs. It is possible that the effects of these friendly social ties are much stronger and would result in measurable effects on audit quality. This study was unable to include these friendly social ties, since they are hard to objectively observe and are not (yet) systematically documented.

Next to the narrow definition of social ties, this study has several other limitations. First, since auditor switching was not mandatory in the Netherlands during the investigation period, the number of switches in our sample is limited. This limited dataset reduces the possibility of obtaining statistically significant results. Moreover, due to this limited dataset, this study only distinguishes three different industry groups in order to maintain a sufficient number of observations per industry. Since normal accrual levels differ strongly amongst industry groups, this simplification might influence the results. Second, the results of this study might not be generalizable to other countries, especially since the upcoming auditor rotation law in the Netherlands provides a very particular research setting that is neither completely voluntary nor completely mandatory. Besides, legal enforcement, auditing and reporting standards and other institutional factors are country specific and might influence the results. Finally, audit quality is a comprehensive concept and can be measured in many different ways. This study uses accrual levels as a measure for audit quality. Although this is a deliberate decision that is based on previous research, it is possible that other proxies for audit quality provided different results.

The research performed in this study contributes to current literature by exploring whether social ties might be the missing link that caused the mixed results in previous studies on auditor switching and audit quality. It highlights several avenues for future research. Future studies might define social ties in a broader context, by including friendly ties when studying the effects of social ties on audit quality. Furthermore, it is possible that other factors are an omitted variable in previous studies into auditor switching and might explain the current mixed results. An in-depth study into the motives for auditor switching might provide useful clues into this matter.

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Appendix 1 – Correlation Matrix

Table 13 tabulates the Pearson correlation coefficients for all the variables. The table indicates a significant and relatively high correlation between *DISCR, DISCR DUMMY* and *TOTACCR*. This is explainable, since all three variables are measures for audit quality. They are not used in the same model simultaneously. The table also indicates a relatively high and significant correlation between the variables *SWITCH, ST* and *SWITCH*ST*. This correlation is expected, since *SWITCH*ST* is the interaction term of *SWITCH* and *ST*. The variables *SIZE* and *BIG4* are significantly correlated at 0.5025.This indicates that big companies are often audited by a big 4 audit firm. Since the correlation is below the value of 0.7, both variables are included in our models.

Table 13. Pearson's correlation coefficients

	DISCR	DISCR DUMMY	TOTACCR	SWITCH	ST	SWITCH * ST	FEE	ZSCORE	BIG4	SIZE
DISCR	1.0000									
DISCR DUMMY	0.3745**	1.0000								
TOTACCR	0.5572**	0.1608**	1.0000							
SWITCH	0.0237	0.0408	0.0621	1.0000						
ST	-0.0434	-0.0675*	-0.0429	-0.0571	1.0000					
SWITCH*ST	-0.0014	-0.0139	-0.0137	0.3350**	0.1970**	1.0000				
FEE	0.1429**	0.0834**	0.7357**	0.0106	-0.0332	-0.0117	1.0000			
ZSCORE	-0.0375	-0.0101	-0.0039	0.0725**	0.0095	0.0065	-0.0104	1.0000		
BIG4	-0.1197**	-0.1477**	-0.1670**	-0.0810**	0.1753**	0.0403	0.1414**	-0.0436	1.0000	
SIZE	-0.2121**	-0.2265**	-0.2703**	-0.0687*	0.2568**	0.0688*	-0.2376**	-0.0290	0.5025**	1.0000

Note: Correlations indicated with * and ** are significant at .10 and 0.05 respectively.