Master's thesis

Audit firm-client relationship: influence of audit firm tenure and audit firm switching on the audit quality of client firms in Italy

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Abstract

The study analyses whether the implementation of mandatory audit firm rotation positively contributes to the level of audit quality. Erosion in auditors' independence as a result of a long audit firm-client relationship is perceived as cause for a lower audit quality. The focus is on Italian listed companies for whom mandatory audit firm rotation is effective for more than 30 years. As a consequence, client firms can switch audit firm after a three-year engagement and the relationship can be extended twice with a maximum number of nine years. Due to this specific regulation, this study is able to determine whether a longer audit firm tenure influences audit quality and whether a switch in audit firm has its effect on the audit quality of client firms. Two measures examine the level of audit quality: the amount of discretionary accruals and the amount of abnormal working capital accruals. The amount of discretionary accruals and the amount of negative abnormal working capital accruals reject that audit quality will decrease, when audit firm tenure extends. However, the findings do not provide evidence of an association between audit firm switching and the amount of both discretionary accruals and abnormal working capital accruals.

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I. Introduction

The rich history of financial accounting and reporting has been subject to several large bankruptcies and events of fraudulent financial reporting (Carcello and Nagy, 2004). A characteristic illustration is the case of Enron. The bankruptcy of Enron, one of the largest U.S. companies in the field of energy, was the result of fraudulent behavior by both the external auditor and top management. Top management designed transactions that complied with regulations within the law, though top management's financial performance did not represent financial risks (Healy and Palepu, 2003). The auditor did not apply his expertise and critical attitude in order to recognize that top management designed their transactions with the purpose of creating an attractive balance sheet instead of reflecting the actual financial performance according to their business. This may be the result of erosion in the independence of Enron's auditor due to large sums of audit fees (Healy and Palepu, 2003). As a consequence of the revelation of Enron, the role of auditor, affiliated with one of the Big Five audit firms, provoked concerns about the profession of the auditor (Benston and Hartgraves, 2002).

To ensure a high level of audit quality and a fully independent auditor, mandatory audit firm rotation is offered as a solution. The general claim is that an increasing length of auditor tenure will influence the independence of auditors negatively because the independence of the client-auditor relationship may be comprised (Ghosh and Moon, 2005). Resulting in a diminished critical attitude of the auditor and therefore the quality of the audit (Carey and Simnett, 2006). Geiger and Raghunandan (2002) found that during the first years of the client-auditor relationship, there were more 'clean' audit reports than in longer client-auditor relationships. However, there are opponents of implementation of mandatory audit rotation. The argument that is predominantly supported by opponents of mandatory rotation is that the level of audit quality is lower in the earlier years of the client-auditor relationship (Imhoff, 2003). This emanates from unfamiliarity of the auditor with the processes, controls and policies of the client (Carcello and Nagy, 2004).

The fall of Enron and the resulting destruction of audit firm Arthur Andersen have contributed to a high number of audit firm switches. As a result of the destruction of the audit firm, client firms of Arthur Andersen were forced to switch to another audit firm at the end of august 2002. In addition to these required switches, the collapse of Arthur Andersen increased auditors' attitude regarding the risk assessment of their clients (Landsman, Nelson and Rountree, 2009). As a consequence, audit firms increasingly evaluate their client

portfolios and the risks their clients possess to prevent an Andersen scenario. Traditionally, Big Six audit firms (Arthur Andersen, Coopers & Lybrand, Deloitte & Touche, Ernst & Young, PricewaterhouseCoopers and KPMG) are associated with providing a higher quality audit and are characterized by a higher reputation in relation to non-Big Six auditors. (DeAngelo, 1981). However, due to several large scandals and the demise of Arthur Andersen and Coopers & Lybrand the reputation of the residual Big Four audit firms is damaged. This study will among others map whether these Big Six audit firms actually deliver a higher audit quality or whether client firms are better off with a non-Big Six audit firm.

This research will combine above concepts in order to investigate: *'the influence of audit firm tenure and audit firm switching on the audit quality of client firms'*. Two components of the audit firm-client relationship are identified: audit firm tenure and audit firm switching. The audit firm tenure will be investigated to observe whether the audit quality will be higher or lower with a longer audit firm tenure. While audit firm switching will use the distinction, whether there was a switch in audit firm or whether client firms stay at the same audit firm. This allows the study to observe whether an audit firm switch influences audit quality positively or negatively.

The existing and well-established body of literature on auditor rotation focuses mainly on the effects of (mandatory) auditor rotation on audit quality. Due to this specific focus of literature they oversee the effect audit firm switching can have on audit quality. More specifically, due to the emphasis of the literature on the pros and cons of auditor rotation (Myers, Myers and Omer, 2003; Carcello and Nagy, 2004; Ghosh and Moon, 2005; Carey and Simnett, 2006; Jackson, Moldrich and Roebuck, 2008) the role of auditor selection and auditor switching is overlooked. Landsman et al. (2009) compares the pre- and post-Enron period to observe whether the sensitivity of auditors changed after the bankruptcy of Enron. However, the literature about auditor switching does not directly link the concept of auditor switching to the level of audit quality.

This study will expand the knowledge with respect to the debate about auditor rotation and audit quality by combining the concepts audit firm tenure and audit firm switching in a mandatory audit firm rotation environment. By studying the effects of the audit firm-client relationship, there is an opportunity to measure whether (1) audit firm tenure or (2) audit firm switching has a stronger effect on the level of audit quality or if there are any effects. Using a

sample of Italian firms, the effects of the audit firm-client relationship on audit quality will be explored. The focus is particularly on Italian firms, because mandatory audit firm rotation has been in effect in Italy since 1974. The study contributes to the study of Cameran, Prencipe and Trombetta (2014) which studied the effect of mandatory audit firm rotation on audit quality in the unique institutional setting of Italy. The research develops a more comprehensive illustration of audit quality in Italy by taking into account the role of auditor switching and auditor selection. In order to measure audit quality the study uses two different proxies for earnings management: the use of discretionary accruals and the use of abnormal working capital accruals. The amount of accruals is predominantly employed to measure indirectly the level of audit quality, derived from the extent to which management engage in earnings management (Healy and Wahlen, 1999).

The structure of the paper is as follows. Section II contains a review of the literature and the development of the hypotheses. Subsequently, section III elaborates the methodological approach of the study. Section IV analyses and discusses the empirical results. Eventually, section V consists of concluding remarks and additional future research directions are given.

II. Theory and hypotheses

To achieve an accounting profession that provides high audit quality the policy of mandatory audit firm rotation is initiated (Carey and Simnett, 2006). The underlying idea of mandatory audit firm rotation is that a longer length of the client-auditor relationship will lead to a reduction in audit quality and therefore will increase the possibility for financial misstatements. This may arise as a consequence of a diminishing independence due to familiarity in the audit firm-client relationship (Hussey, 1999). However, existing literature regarding the association between mandatory audit firm rotation and audit quality reached overall outcomes that contradict with the aim of mandatory audit firm rotation.

An important limitation of all these studies (Myers, Myers and Omer, 2003; Carcello and Nagy, 2004; Ghosh and Moon, 2005; Jackson et al., 2008) is that they contemplated to investigate to what extent the policy of mandatory audit firm rotation is effective in terms of audit quality, but they all conducted their research in an environment where audit firm rotation is voluntary. The empirical evidence with regard to the association between mandatory audit firm rotation and audit quality in a setting where mandatory audit firm

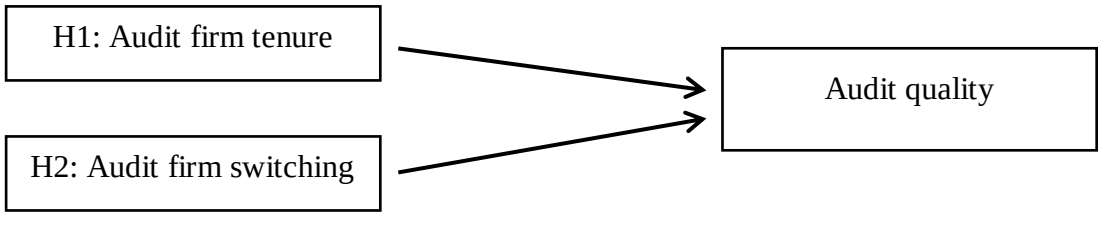
rotation is enforced for an extended number of years is scarce. An exception are the studies of Carey and Simnett, (2006); Cameran et al. (2014), their researches focused on an institutional setting where mandatory audit firm rotation is implemented for an extended period. This applies only to listed companies, private companies are not mandated to disclose their financial statements.

A second limitation is the underexposure of the role audit firm switching might possess as factor in determining the level of audit quality. Landsman et al. (2009) for instance investigated auditor switches in the U.S. and compared the pre- and post-Enron period to examine the influence of the Sarbanes-Oxley Act (SOX). They found that Big Four audit firms review their client portfolio rather than increase their attitude towards client risk in the post-Enron period. In relation, Ettredge, Scholz and Li (2007) demonstrated a growth in audit work after the scandals in the accounting business and the implementation of the SOX. Besides, they observed an increase in audit fees for services provided to large public firms. However, it does not become clear in both of the papers how audit firm switching is related to audit quality.

In order to bridge both limitations of the existing literature, the research will combine audit firm tenure and audit firm switching to examine their influence on the audit quality of client firms in a 'mandatory' environment. Through the combination of both concepts the research is able to develop a more comprehensive understanding of the role these components have as determining factor of audit quality. The sample consists of listed companies in Italy, as these companies have a legal requirement to rotate after a maximum specified period (Cameran, Merlotti and Di Vincenzo, 2005). The audit firm-client relationship is the denominator for both audit firm tenure and audit firm switching. On the basis of this distinction, two hypotheses will be developed to test the effect of audit firm tenure and audit firm switching on the audit quality of client firms in the setting of Italy (see figure 1).

Figure 1

Connection between the audit firm-client relationship and audit quality



Hereby, audit quality is defined as the probability that the external auditor will both detect and report any violations in the accounting system of the client (DeAngelo, 1981). This depends on the technical skills of the auditor in order to detect misreporting and on his independence to report any observed 'miscalculations'. Collins and Schultz (1995) stated that accountants, as described in the code of professional conduct, perform an essential role in society. In accordance with that role they are considered to exercise professional and moral judgments in their activities in order to maintain the public's confidence. Therefore, the quality of auditing services is perceived as higher whenever the auditor is independent and possesses the capabilities to critically judge the financial reporting of client firms (Francis, 2011). These capabilities are constructed by the values, ethics, knowledge and experience of the auditor (IAASB, 2013). As a consequence, the client firm is perceived to choose the audit firm that delivers the highest and most credible service for the lowest audit fee. Dopuch, Holthausen and Leftwich (1987) argued that larger audit firms (Big Six) compared to smaller audit firms (non-Big Six) possess more capabilities to be independent in their activities. In general, smaller audit firms are associated with a larger size of client firms and as a result they are subject to more external threats that can reduce their independency.

However, in providing the highest and most credible auditing services, the level of audit quality can either be affected by the tenure of the audit firm or by the switch in audit firm. The audit firm tenure is expected to be extended whenever the capabilities and qualities of the auditor meet the expectations of the client firm. However, as a consequence of the audit firm switching regulation the auditor may not be able to develop the client-specific knowledge capital and therefore it could decrease the quality of its auditing services (Imhoff, 2003). This is the result of mandatory audit firm rotation that is perceived to mitigate agency problems in the auditor-client relationship and as a consequence improves the level of audit quality of client firms. This research will focus on affiliation networks that may exist between the audit firm and the client firm. More specifically, the regulation of mandatory audit firm rotation will be tested in the setting of Italy in order to examine whether longer tenure is associated with a higher or lower level of audit quality. Gietzmann and Sen (2002) illustrated that the case of mandatory audit firm rotation is a trade-off. Rotating auditors every three years would enhance audit quality, due to for instance a reduced likelihood of former colleagues auditing the client firm (Imhoff, 2003). However, a negative side effect are the increasing costs related to obtain a sufficient level of knowledge of the new client during the first years of the new relationship (Gietzmann and Sen, 2002).

The existing body of literature on the issue of audit firm rotation demonstrated a positive relationship with audit quality in a 'voluntary' environment. Ghosh and Moon (2005) explored a positive relation between investor perceptions of earnings quality and tenure. In accordance, Myers, Myers and Omer (2003) suggest that on average and in the current environment, longer periods of audit tenure are associated with higher earnings and audit quality. Their study also showed that longer auditor tenure is associated with less extreme income increasing accruals. Jackson et al. (2008) provided with their study corresponding outcomes. They elaborated that audit quality will increase with a longer audit firm tenure. Carcello and Nagy (2004) their results are consistent with the argument that mandatory audit firm rotation could have adverse effects on audit quality. However, they fail to find any evidence that fraudulent financial reporting is more likely given longer auditor tenure. So overall, these studies explored that audit quality will increase with the length of audit firm tenure. Hereby, the caveat should be placed that these papers focused on a setting where client firms are not mandated to switch audit firm after a fixed number of years.

In contrast, Lennox (2005) presumed that auditor-client firm, or more concrete auditor-executive affiliations will affect audit quality negatively. This is based on the argumentation that the probability that the auditor will discover and/or report a problem in the financials of the firm is reduced. This is related to the so called familiarity threat, this means that the auditors' independence may erode as a consequence of a long-term relationship between the auditor and the directors of the client firm (Hussey, 1999). In line with the argument of Lennox (2005), Bruynseels and Cardinaels (2013) reached that auditor independence as indicator of audit quality will decrease if there exists personal ties between the executive of the client firm and former audit personnel that performed the audit of the organization. Clikeman (1996) provides an illustration of a case where an affiliation is associated with a reduction in audit quality. In his example of 1996, Deloitte & Touche (at present Deloitte) received 65 million dollars for their audit of Bonneville Pacific. However, executives of this organization had a working history at Deloitte & Touche which as a results affected the independence of the audit firm. These studies demonstrated that audit quality will decrease as a consequence of familiarity in the audit firm-client relationship. In other words they implicitly argue that if audit firm tenure is extended for a longer period, then this will have negative consequences on the level of audit quality. Consequently, the hypothesis that is developed to study if this indication empirically exists is:

H1. If audit firm tenure persists for a longer period, then there is a negative effect on the audit quality of client firms.

The concept of audit firm tenure is closely connected to audit firm switching. The auditor collects during an audit experience, knowledge and familiarity with the client firm. However, due to the policy of mandatory audit firm rotation, client firms are mandated to switch audit firm after a maximum number of years and therefore the auditor might not be able to build up a sufficient level of client-specific knowledge (Carey and Simnett, 2006). The client firm can switch from audit firm in three different ways: (1) stays at the same Big Six audit firm, (2) switches to a Big Six audit firm from another Big Six audit firm or from a lower-tier audit firm (hereafter: lateral and upward switches) and (3) switches from a Big Six audit firm to a lower-tier audit firm (hereafter: downward switches) (Landsman et al., 2009).

Existing literature offers many diverse explanations for client firms to initiate an upward, downward or lateral switch in audit firm. More recent studies (Sankaraguruswamy and Whisenant, 2004; Ettredge et al., 2007) argue that clients' motivation to switch arise from a desire to reduce audit fee expenses and/or to get better customized services. From this perspective, a downward switch may be obvious if the client generate a financial advantage due to for instance a lower audit fee in combination with more personalized services. However, Shu (2000) argue that the choice for an audit firm switch can be the result of change in the economics of the interrelationship. More specifically, variations in the (financial) characteristics of either the client firm or audit firm can contribute to a misalignment. It is expected that due to a misalignment, client firms switch downward from a Big Four audit firm to a non-Big Four audit firm. Landsman et al. (2009) indicated that both misaligned clients and risky clients are more likely to switch downward.

Despite the regulatory measures in response to the accounting scandals and the negative publicity for Big Four audit firms, the accounting market is still dominated by Big Four audit firms (Chang, Cheng and Reichelt, 2010). Partially, this is the result of the strong brand name that has been developed during the years. Investors associate those Big Four audit firms with a higher audit quality in relation to lower-tier audit firms (DeAngelo, 1981). As a consequence, the stock market judges a downward switch negatively. This is supported by Chang and Hwang (2003), they found that clients from audit firm Arthur Andersen that switched downward have significantly lower abnormal returns in relation to clients that

switch laterally. However, irrespectively whether there was an upward, downward or lateral switch, the study will hypothesize that the first years after a switch are characterized by a decrease in audit quality. This is the result of a loss of client-specific information when another audit firm has to perform the audit (Jackson et al., 2008). The new audit firm has to develop their understanding and knowledge of the new client firm. This phenomenon is known as the learning curve. As a consequence, the first years of the audit firm-client relationship are characterized by a greater probability of audit failures due to the unfamiliarity of the audit firm with the (accounting) practices of the client firm (Imhoff, 2003). Therefore, the study will test the following hypothesis:

H2. If clients switch (upward, downward or lateral) from audit firm, then there is a negative effect on the audit quality of client firms.

III. Methods

First of all, the method section will elaborate on the composition of the sample. Hereby, it will emphasize the setting in which the research is conducted, the time setting that is used and the data sources that are employed. Subsequently, the study will provide and explore the analytic model to measure the effects of the audit firm-client relationship on the level of audit quality of client firms. The variables in the analytic model will be discussed in a logical order. Initially, the dependent variable audit quality is measured on the basis of two different proxies. Secondly, the independent variables (audit firm tenure and audit firm switching) are discussed. Thirdly, the variables to control the dependent variable are taken into account. Eventually, table 1 will demonstrate the summary statistics of the variables in the analytic model.

Sample

The sample of the study consists of non-financial Italian companies listed on the Milan Stock Exchange, for which mandatory audit firm rotation is effective since 1974. Due to this specific context, this study is able to investigate the auditing services performed by an auditor from the same audit firm for a maximum period of nine consecutive years. The focus of the study will be on a time span of 11 years, more specifically the period 1998-2008. As the focus is on non-financial firms, all firms with Standard Industrial Classification (SIC) four-

digit codes 6000-6999 are removed from the sample. Financial firms are excluded due to their deviating operating setting and differences in their accounting classifications (Landsman et al., 2009). The motivation for excluding those firms is that as a consequence of these differences, it may be difficult to draw conclusions in the multivariate analysis. Besides, non-financial firms that did not present information about either of the proxies of audit quality are removed. Consequently, the final sample of non-financial listed companies consists of 877 firm-year observations.

The cross-sectional data regarding the extent to which auditing services are executed by the same audit firm are collected from financial statements retrieved from Calepino dell' azionista. Calepino dell' azionista contains yearly financial information and information about the external audit firm concerning all Italian institutions listed on the Milan Stock Exchange. These information is provided by Mediobanca, a major financial institution in Italy. On the basis of these collected audit firm data for every fiscal year, the study is able to determine whether there was a switch in audit firm. In addition, the database Compustat is employed to retrieve financial data in order to construct earnings and accruals to measure audit quality according to amount of discretionary accruals and the amount of abnormal working capital accruals.

Analytic model

This section will examine how both the tenure of the audit firm and the switch in audit firm affect the level of audit quality of client firms. In order to test the two hypotheses, the study developed the following analytic model:

$$Audit\ Quality = b0 + b1\#TENURE + b2\#SWITCH + b3\#LEVERAGE + b4\#AGE + b5\#AUDITORTYPE + b6\#GROWTH + b7\#INVREC + b8\#CFO + b9\#ROA + b10\#ACSTAND + b11\#FIRMSIZE + b12\#LOSS + b13\#INDUSTY + \in \quad (1)$$

The left-hand-side variable audit quality is measured on the basis of the amount of discretionary accruals and the amount of abnormal working capital accruals. Both proxies provide an indication for the probability that managers of the client firms were able to manage their earnings. Hereby, a higher level (either positive or negative) of accruals reflects that management was able to influence the auditor in such a way that the auditors' report contains management input (Jackson et al., 2008). The right-hand-side variables consist of the independent variables TENURE and SWITCH and the control variables. The variables of

key interest on the right side are the independent variables, in order to test whether the assumed negative relationships for both variables with audit quality hold in practice. The research includes a set of control variables that have influence on either the audit firm-client relationship or audit quality or on the relationship between the audit firm-client relationship and audit quality. These variables are part of the regression model to reduce the occasion that the audit quality results serves as proxy for other cross-sectional determinants of accruals.

Measures

Dependent variable

Audit quality. The dependent variable audit quality is measured in two different ways. The first proxy for audit quality is the use of discretionary accruals by the client firm. Discretionary accruals are the accruals that are not related to the normal activities of an organization. They capture the probability that firms' management is able to influence their earnings in such a way that it does not represent their actual performance fairly. Healy and Wahlen, (1999); Myers et al. (2003); Kothari, Leone and Wasley (2005); Klein (2002); Jackson et al. (2008); Cohen, Dey and Lys (2008) have all used the amount of discretionary accruals as a proxy of audit quality.

The Modified-Jones model (Jones, 1991) that is elaborated in the paper of Dechow, Sloan and Sweeney (1995) will be used to measure the amount of discretionary accruals. The Modified-Jones model, in contrast to the former Jones model, assigns the total change in receivables to earnings management. Dechow et al. (1995) and Guay, Kothari and Watts (1996) compared and contrasted different accrual-based models. Both studies concluded that the Modified-Jones model is characterized by the highest statistical power to discover earnings management. In this model discretionary accruals are defined as the difference between total accruals and normal accruals:

$$DA_{it} = \left(TA_{it}/Assets_{it_{-1}}\right) - NA_{it} \qquad (2)$$

For fiscal year (t) and firm (i), the discretionary accruals (DA) are defined as:

TA_{it} = earnings before extraordinary items and discontinued operations – operating cash flows;

Assets $_{it-1}$ = total assets from the preceding year;

NA_{it} = normal accruals.

In addition, the use of abnormal working capital accruals will be employed to measure the level of audit quality. The examination of these multiple measures of audit quality provide more confidence in the relationship between the audit firm-client relationship and audit quality. In order to estimate the amount of abnormal working capital accruals, the model of DeFond and Park (2001) will be used. Abnormal working capital accruals are defined as the difference between the realized working capital and the level of working capital that is required to support the current sales levels (Carey and Simnett, 2006). The model of DeFond and Park (2001) can be perceived as alternative to the Modified-Jones model. The amount of abnormal working capital accruals is predominantly employed to determine whether firms engage in earnings management when the observations per year or industry are limited (Cameran et al., 2014). The measure of abnormal working capital accruals according to DeFond and Park (2001) is as follows:

$$AWCA_{it} = \frac{WC - \left(\frac{WC_{it-1}}{S_{it-1}}\right) \text{x } S_{it}}{TA_{it-1}} \quad (3)$$

For fiscal year (t) and firm (i), the abnormal working capital accruals (AWCA) are defined as:

WC = noncash working capital, calculated as [(current assets – cash and short-term investments) – (current liabilities –short-term debt)];

S_t = sales in current year;

S_{t-1} = sales in prior year;

TA_{t-1} = total assets in prior year.

Based on equation (2) and (3) this study will determine to what extent management was able to engage discretion in their financial reporting. The study hypotheses a larger (either positive or negative) amount of both DA and AWCA for firms that engage in earnings management and as a result expects a lower level of audit quality.

Independent variables

TENURE. The tenure of the audit is defined to explain whether having a lengthy audit firm-client relationship can be detrimental for the quality of the audit. Audit firm tenure is measured as the number of years an audit firm provides auditing services to the client firm.

SWITCH. The other independent variable audit firm switching will measure whether the audit quality of client firms will be lower after a switch in audit firm. A dummy variable measures whether there was an audit firm switch (=1) or whether the auditing services are provided by the incumbent audit firm (=0).

Control variables

LEVERAGE. The amount of leverage is included to control whether highly leveraged firms are likely to have a lower level of audit quality (Johnson, Khurana and Reynolds, 2002). Leverage is calculated as total liabilities in current year, divided by total assets in the current year.

AGE. The age of the client firms is taken into account to investigate whether younger firms are more likely to engage in earnings management in relation to older firms. Carey and Simnett (2006) demonstrated that younger firms are more sensitive to engage in earnings management to obscure that they deal with financial distress. Age is measured as the natural logarithm of the number of years the firms are listed on the Milan Stock Exchange.

AUDITORTYPE. The variable auditor type is defined to control whether Big Six audit firms are to a greater extent able to detect earnings management compared to non-Big Six audit firms. Auditor type applies the distinction between auditors from a Big Six audit firm (=1) and auditors from a lower-tier audit firm (=0).

GROWTH. Growth is included to control whether client firms that experienced a growth in assets during a fiscal year are associated with a higher level of audit quality. Clients that faced a higher level of growth during a fiscal year have a smaller possibility of audit failures (Jackson et al., 2008). Growth is calculated as the difference between total assets in the current year less total assets in the preceding year, divided by total assets in the preceding year.

INVREC. The inventory and receivables of the client firms are defined to investigate whether the amount of inventories and receivables influences the level of audit quality negatively due to the exposure to more audit risks. IVREC is measured as the amount of inventory plus the amount of receivables, divided by total assets in the current year.

CFO. The cash flow from operations are included to explain whether an increasing operating cash flow will result in higher level of audit quality. Previous papers (Myers et al.,

2003; Francis and Wang, 2008) showed that the amount of accruals decreased, when firms' cash flow from operating activities increased. The amount of cash flow from operating is measured as the operating cash flow in the current year, divided by total assets in the preceding year.

ROA. The return on assets are taken into account to observe whether the return of assets are negatively related to the level of audit quality of client firms. Cameran et al. (2014) demonstrated a positive association between return on assets and the amount of discretionary accruals. Return on assets is measured as the income before extraordinary items, divided by average total assets in the current year.

ACSTANDARD. Accounting standards are included as control variable to control for the adoption of International Financial Reporting Standards (IFRS) in the Italian setting after the period of 2004 (Cameran et al., 2014). Accounting standards is an ordinal variable that control for both International Accounting Standards (IFRS) and domestic Generally Accepted Accounting Principles (Italian GAAP and US GAAP).

FIRMSIZE. The size of client firms is defined to observe whether firm size is positively associated with the level of audit quality. Larger firms in terms of size have a tendency to have a lower amount of accruals than have smaller firms (Carcello and Nagy, 2004). The natural logarithm of assets (in millions) is used to determine the size of the sample firms.

LOSS. The variable loss in previous years functions as proxy regarding financial distress. Loss in either of the two previous years is expected to have a negative association with the level of audit quality (Jackson et al., 2008; Cameran et al., 2014). A dummy variable reflects whether the firm reported an negative income before extraordinary items in either of the two previous year (=1) or not (=0).

INDUSTRY. Industry is part of the control variables while Barth, Cram and Nelson (2001) indicated that accruals may vary by industry. The study will employ an ordinal variable to control for all industries of the sample firms.

Summary statistics

Table 1 presents the summary statistics of the variables used in the main analysis. The table provides an overview of the number of observations, the mean, the first quartile, the second quartile or median, the third quartile, the standard deviation and the minimum and maximum for each of the variables of interest.

Initially, the study checked all the continuous variables to ensure the results are not shaped by some variables with extreme observations. In order to control whether the variables are normally distributed, histograms are plotted that are visually checked. In addition, the differences between the median and mean are observed, as big differences between these measures may give an indication for a skewed distribution. As a result of both tests, the study winsorized the variables DA, AWCA, LEVERAGE, GROWTH, CFO and ROA at both tails (1%). Subsequently, the two tests are repeated and gave for all continuous variables a normal distribution. In order to control whether the winsorized variables are

Table 1

Summary Statistics

Variable	N	Mean	Min	P25	P50	P75	Max	SD
Dependent								
DA	877	-0,255	-1,844	-0,498	-0,288	-0,073	1,125	0,451
AWCA	877	-0,001	-0,476	-0,029	0,000	0,028	0,438	0,095
Independent								
TENURE	877	3,139	1	2	3	4	9	1,589
SWITCH	877	0,135	0	0	0	0	1	0,341
Control								
LEVERAGE	877	0,241	0	0,104	0,252	0,355	0,645	0,156
AGE	877	3,757	2,565	3,296	3,638	4,317	5,100	0,632
AUDITORTYPE	877	0,738	0	0	1	1	1	0,440
GROWTH	877	-0,036	-0,999	-0,111	0,011	0,124	3,945	0,623
INVREC	877	0,429	0,042	0,279	0,416	0,563	0,981	0,195
CFO	877	0,050	-0,370	0,000	0,046	0,102	0,369	0,097
ROA	877	0,009	-0,363	-0,000	0,015	0,044	0,191	0,077
ACSTAND	877	1,198	1	1	1	1	3	0,592
FIRMSIZE	877	7,896	1,490	5,171	6,543	10,940	18,424	3,521
LOSS	877	0,278	0	0	0	1	1	0,448
INDUSTRY	877	4,814	1	4	4	5	10	1,755

statistically validated the difference between the mean and median are checked in the descriptive statistics. Due to the absence of large differences, the winsorized variables are included in the analysis and replaced the variables that have a skewed distribution.

The statistics indicate that organizations in general are characterized by a negative amount of both DA and AWCA. On average, independent variable TENURE indicates that the tenure of non-financial firms in Italy is around three years (3,15). In the setting of Italy, the client firm is permitted to switch from audit firm after a minimum of three years with the same audit firm. So, the study indicates that in general, firms in the sample switch from audit firm after the minimum required audit engagement. SWITCH demonstrates that on average 12% of the companies switch from audit firm in the period 1998-2008. Besides, LEVERAGE showed that on average 25% of the assets of firms in the sample have been financed by debt. With regard to AUDITORTYPE, the descriptive statistics demonstrate that the market of non-financial firms is dominated by Big N audit firms. On average, approximately 3 out of 4 firms (74%) in this specific market are audited by a Big N auditor. Moreover, the standard deviation of respectively TENURE, FIRMSIZE and INDUSTRY is quite large in relation to the standard deviation of the other variables. The large deviation for the three variables is most likely the result of the large diversification among these variables. In other words, these variables are characterized by a large difference between the minimum and maximum values.

In appendix A the study analyzes the correlations among the variables to calculate audit quality on the basis of the amount of DA and AWCA. Based on the significance levels 10, 5 and 1 percent (respectively *, **, ***), the table indicates which variables in the model have a significant relationship. More specifically, the correlations between the variables provide information about the strength of the inter-relationships between the variables. The high values in the correlation matrix can cause problems with respect to the phenomenon multicollinearity. For instance, the correlation matrix demonstrated a highly significant correlation between LOSS and ROA (-0,61)***. In order to ensure that multicollinearity does not have influence on the multivariate analyses the study has performed an additional test to control whether multicollinearity exists among the variables. In accordance with the paper of Li, Eden, Hitt and Ireland (2008) the variance inflation factor (VIF) is used to determine whether there is multicollinearity among the variables. The factor takes into account the possibility of 'indirect' correlations. For example, variable A and B can have a weak correlation, while variable A and C can correlate strongly. The general rule that exists in literature regarding the VIF value, is that a VIF value should not be higher than 10 (Robinson

and Schumacker, 2009). Appendix B showed that the VIF for each individual variable in the analytic model is below 2,20 and the resulting mean VIF for all variables is 1,36. Therefore, the study assumes that the variables do not suffer from multicollinearity among the coefficient estimates.

IV. Results

Univariate analyses

The univariate analysis measures whether the audit quality of client firms is higher or lower after a switch in audit firm. Therefore, table 2 contains a two-sample t-test to compare the population means of audit quality in the period before and after an audit firm switch is observed. This is executed for audit quality proxies, discretionary accruals and abnormal working capital accruals. Panel A presents the results from comparing the discretionary accruals means pre- and post-switch. While Panel B compares the means of abnormal working capital accruals in both periods to observe whether the audit firm switch influences audit quality positively or negatively. The t-test allows the study to already infer the kind of relationship we can expect between SWITCH and audit quality. The same significance levels are used, respectively 10, 5 and 1 percent as indication for the strength of the significance.

Table 2
Comparison of means
Comparison of audit quality pre- and post-switch of audit firm firm

Panel A		
	N	Mean
Discretionary accruals Pre-Switch	481	-0,245
Discretionary accruals Post-Switch	396	-0,266
Pr (T > t) = 0,497		
Panel B		
	N	Mean
Abnormal working capital accruals Pre-Switch	481	0,001
Abnormal working capital accruals Post-Switch	396	-0,004
Pr (T > t) = 0,384		

*, **, *** Indicate variable is significantly if greater than the corresponding value at the 10%, 5% or 1% levels, respectively, using two-tailed tests.

Panel A elaborates that the difference in mean of discretionary accruals in the pre-switch period and post-switch is almost zero. As a consequence, there is no significant relationship found between SWITCH and DA. These values indicate that the audit quality does not differ in both periods. More specifically, the hypothesis of the study that an audit firm switch will decrease the audit quality of client firms is not supported by these results. However, the results should be analyzed carefully, because the study cannot draw conclusions based on these findings. The comparison of means does not capture the influence other variables in the model can have on the relationship between SWITCH and audit quality. Therefore, final conclusions can be drawn based on the multinomial regression analysis.

In contrast, Panel B provided that the mean after an audit firm switch differ from the mean of abnormal working capital accruals in the situation pre-switch. In the post-switch period the mean is slightly negative, while the mean before a switch in audit firm is slightly positive. The results do not indicate that audit quality will increase after an audit firm switch according to the level of abnormal working capital accruals. As lower (either positive or negative) amounts of AWCA are perceived as indicator for a higher level of audit quality (Becker, DeFond, Jiambalvo and Subramanyam, 1998).; Myers et al., 2003; Carey and Simnett, 2006). However, the relationship between SWITCH and AWCA is insignificant and based on the comparison of means we have to be cautious with drawing conclusions. The multivariate analyses will clarify the relationship between SWITCH and audit quality by taking all variables of the analytic model into account.

Multivariate analyses

Table 3 demonstrates the results of the multiple linear regression analysis. The motivation for the multiple linear regression is that this type of regression is able to perform a regression analysis that include the independent variables TENURE and SWITCH. The table is grouped based on the two proxies of audit quality: discretionary accruals and abnormal working capital accruals. The expected sign presents the predicted relationships between the individual variables and either discretionary accruals or abnormal working capital accruals. The method section described these relationships in more detail. Besides, the table includes some additional statistics. For instance, r-squared illustrates how much of the variance in audit quality is explained by the predictors in the model. The r-squared of 0,548 indicates that 54,8% of the variance in discretionary accruals is explained by the independent and control variables.

Table 3

Results of Multiple Linear Regression Analyses

Variables	Exp. Sign	DA		AWCA	
		Coef.	p-value	Coef.	p-value
Constant		-0,164*	0,083	-0,020	0,454
Independent					
TENURE	+	-0,017**	0,046	0,003	0,246
SWITCH	+	-0,027	0,453	0,002	0,836
Control					
LEVERAGE	+	-0,252***	0,000	-0,006	0,766
AGE	-	-0,027	0,125	0,004	0,374
AUDITORTYPE	-	-0,005	0,837	-0,008	0,274
GROWTH	-	-0,428***	0,000	0,002	0,646
INVREC	+	0,341***	0,000	-0,025	0,119
CFO	-	-1,635***	0,000	-0,452***	0,000
ROA	+	1,055***	0,000	0,399***	0,000
ACSTAND	?	0,026	0,156	0,004	0,464
FIRMSIZE	+ / -	-0,006*	0,077	0,002**	0,040
LOSS	+	0,032	0,284	0,004	0,653
INDUSTRY	?	0,010	0,107	0,002	0,331
Observations		877		877	
R^2		0,548		0,151	
F-test		80,34		11,83	
P-value X^2		0,0000		0,0000	

*, **, *** Indicate variable is significantly if greater than the corresponding value at the 10%, 5% or 1% levels, respectively, using two-tailed tests.

From the observations for the dependent variable discretionary accruals the variables TENURE, LEVERAGE, GROWTH, INVREC, CFO, ROA and FIRMSIZE are all significant at a 10, 5 or 1 percent level (*,**,***). The direction of these significant variables corresponds with the expected sign, except for TENURE and LEVERAGE. The study hypothesizes in accordance with the aim of the implementation of mandatory audit firm rotation that a longer audit firm-client engagement will be at the expense of audit quality. However, the significant negative relationship indicates that a longer tenure will result in a higher level of audit quality. This negative relationship between TENURE and audit quality has already been demonstrated by several studies (Myers et al., 2003; Ghosh and Moon, 2005; Jackson et al., 2008). They argue that it will take time to develop a comprehensive understanding of the client and as a consequence the audit firm will be able to perform a more reliable audit whenever the audit firm-client relationship is in a more advanced stage.

Besides, the significant variable LEVERAGE do not match with the expected sign. The study hypothesizes that firms that are highly leveraged are more likely to have higher levels of discretionary accruals. The results demonstrate that firms with higher amounts of leverage are associated with a negative level of discretionary accruals. Despite the fact that earnings management is associated with either high positive or negative levels of discretionary accruals, the coefficient (-0,252) is not considered as 'high' level. The negative discretionary accruals can be the result of a conservative auditor (Becker et al., 1998). The auditor may use conservative accounting techniques to prevent litigation and the possibility of a damaged reputation. The other significant variables GROWTH, INVREC, CFO, ROA and FIRMSIZE correspond with the predicted signs. The relatively high coefficients of CFO (-1,635) and ROA (1,055) exhibit the significantly big influence of the variables in the formalization of discretionary accruals. CFO indicates that whenever the operating cash flow divided by total assets in the preceding year increase, the amount of discretionary accruals will decrease. More specifically, firms that experienced an increase in CFO are more likely to engage in earnings management as a high value of DA is an indication for earnings management and a lower level of audit quality.

The right-hand-side of table 3 demonstrates the influence of the variables on the dependent variable AWCA. Audit quality calculated by the amount of AWCA, showed other significant relationships in relation to the measurement of DA. The variables CFO, ROA and FIRMSIZE influence the dependent variable AWCA significantly. The type of connection of all these variables match with the expected sign. The negative coefficient of CFO (-0,452)*** proves that whenever the amount of operating cash flow increases, the amount of AWCA decreases. As a consequence, the results demonstrate a positive relationship between CFO and the level of audit quality according to the amount of AWCA. In accordance with the paper of Cameran et al., (2014), this study demonstrates a significantly positive relationship between ROA and AWCA for non-financial firms in the setting of Italy. Eventually, an explanation for the significant association between FIRMSIZE and AWCA is provided by Carcello and Nagy (2004). They showed that smaller firms are more likely to have higher amount of accruals. Therefore, FIRMSIZE is expected to have a positive relationship with the level of audit quality.

The two hypotheses developed in the theoretical framework of the paper relate to the two different proxies to measure the level of audit quality of the sample firms. Interestingly, in the light of the first hypothesis is independent variable TENURE. The study hypothesizes a

decrease in audit quality as result of a longer audit firm tenure. The decrease in audit quality is expected due to a decrease of auditor's independence whenever the audit firm-client relationship is extended for a longer period. The results indicate a significance influence (-) of TENURE on audit quality, but this applies only to the amount of discretionary accruals. Higher amounts of accruals (positive and negative) are perceived as indication of earnings management. However, the small coefficient (-0,017) is not classified under a high level of accruals. Therefore, the first hypothesis is rejected by the amount of discretionary accruals. However, TENURE does not have a significant influence on the amount of AWCA. Therefore, the first hypothesis is partially rejected by the multivariate analysis. The second hypothesis is related to the variable SWITCH and is expected to demonstrate a positive relationship with the amount of accruals. The audit quality of client firms is hypothesized to be lower in the years after an audit firm switch due to ignorance of the audit firm with the new client. However, the results do not demonstrate a significant relationship between SWITCH and either DA or AWCA. Therefore, this study does not support the expected negative relationship between audit firm switching and audit quality.

Sensitivity analyses

In order to ensure that the results have a certain robustness, the study will perform additional analyses. The two proxies to measure audit quality provide different significant relationships and only the independent variable TENURE has a significant relationship with DA. The study will perform an additional test to emphasis the relationship between TENURE and the level of audit quality. In the first hypothesis, the study is interested in the development of the level of audit quality. As the paper assumed that audit quality will decrease with an extended audit firm engagement. In order to be able to determine whether the level of audit quality develops positively or negative during an engagement, the study will create a new variable that divides TENURE in three-year periods. In accordance with the paper of Cameran et al. (2014), TENURE_1 includes observations in the first three years of an audit firm tenure; TENURE_2 includes observations during the fourth to sixth year of the engagement and TENURE_3 includes observations in the seventh to ninth year of audit firm tenure.

However, the study is unable to control for all the three periods due to multicollinearity among TENURE_1, TENURE_2 and TENURE_3. Therefore, the paper will omit observations in the fourth to sixth year of audit firm tenure as this period is perceived as least important for the hypotheses. This study compares TENURE_1 and TENURE_3 and

consequently judge whether a more lengthy audit firm-relationship affects the level of audit quality negatively.

Appendix C presents the regression analysis with TENURE distributed in three periods. However, both of the periods (TENURE_1 and TENURE_3) do still not provide a significant relationship with DA or with AWCA. The coefficient changed from positive to negative as the audit firm tenure is extended according to the amount of DA. A reverse relationship is observed for the development of TENURE in relation to AWCA. However, based on these results the paper cannot draw conclusions on the level of audit quality as the coefficient are relatively small. According to these results there is no indication of earnings management, because these coefficients do not result in extremely high positive or negative values for DA and AWCA. However, due to the absence of significance these indications cannot be concluded. The other independent variable SWITCH does also not have a significant influence on both proxies of audit quality. With regard to the control variables, the variables that present a significance relationship with DA and AWCA correspond with the previously performed regression analysis.

The second additional test will separate both discretionary accruals and abnormal working capital accruals in positive (income increasing) and negative (income decreasing) accruals (Carey and Simnett, 2006; Cameran et al., 2014; Corbella, Florio, Gotti and Mastrolia, 2015). The study uses this distinction, because prior literature (Dechow and Dichev, 2002; Myers et al., 2003) demonstrated that extremely positive and negative accruals are associated with a decline in audit quality. The distinction in positive and negative accruals allows the study to observe whether positive accruals become more positive and whether negative accruals become more negative. Both of these developments are perceived as indication for extreme accruals and therefore this will be labeled as decrease in the audit quality of client-firms. Purposefully, the regression analysis does not contain the disaggregated variable TENURE in three periods in order to be able to test the influence of the distribution in positive and negative accruals ceteris paribus.

Table 4 demonstrates the regression analysis on the basis of the subdivision in positive and negative accruals. The results for the positive discretionary accruals should be interpreted carefully, due to a very limited scope of observations. Consequently, the R-squared (20,2 percent) and F-test (3,24) for the positive DA result in lower values in comparison with the other proxies of audit quality. The explanatory power (R^2) for the

amount of AWCA improves when the accruals are divided in positive and negative accruals. However, the explanatory power of the amount of DA decreases when the paper distributed DA in positive and negative amounts.

Table 4
Results of Multiple Linear Regression Analyses
Distribution in Positive and Negative Accruals

Variables	Exp. Sign	Positive accruals		Exp. Sign	Negative accruals	
		DA	AWCA		DA	AWCA
Constant		0,358*	0,055**		-0,547***	-0,087***
Independent						
TENURE	+	-0,014	-0,003	-	0,009	0,006***
SWITCH	+	-0,066	-0,009	-	0,029	0,014
Control						
LEVERAGE	+	0,298**	-0,034*	-	-0,268***	0,016
AGE	-	-0,015	-0,001	+	-0,014	0,005
AUDITORTYPE	-	-0,055	-0,000	+	-0,016	-0,007
GROWTH	-	-0,152***	0,072***	+	-0,322***	-0,070***
INVREC	+	-0,016	0,002	-	0,453***	-0,045***
CFO	-	-0,994**	-0,328***	+	-0,672***	-0,055
ROA	+	0,276	0,147**	-	0,779***	0,200***
ACSTAND	?	0,070	0,006	?	0,032**	0,002
FIRMSIZE	-	-0,006	-0,000	-	0,002	0,002**
LOSS	+	0,064	0,005	-	0,038	-0,004
INDUSTRY	?	-0,026**	0,005***	?	0,010*	-0,002
Observations		181	425		696	452
R^2		0,202	0,488		0,425	0,356
F-test		3,24	30,07		38,72	18,64
P-value X^2		0,0002	0,0000		0,0000	0,0000

*, **, *** Indicate variable is significantly if greater than the corresponding value at the 10%, 5% or 1% levels, respectively, using two-tailed tests.

The results show significant relationships for LEVERAGE, GROWTH, CFO and INDUSTRY with the amount of positive DA. The expected sign for these significant variables corresponds with the actual direction of the coefficients. For instance, the significantly positive coefficient (0,298) of LEVERAGE proved that whenever the amount of leverage within a firm increases, the positive discretionary accruals increase. Therefore, LEVERAGE is considered to have a negative association with the level of audit quality. With respect to the amount of positive AWCA, the variables LEVERAGE, GROWTH, CFO, ROA, and INDUSTRY are statistically significant. The variables LEVERAGE and

GROWTH do not match with the expected sign. The coefficient (0,070) of GROWTH indicates that growing non-financial firms in Italy are perceived to engage in earnings management. The coefficient surely demonstrates that the positive AWCA will increase for growing firms.

The negative accruals, divided in negative DA and negative AWCA provided more statistically significant variables in relation to the positive accruals. The variables LEVERAGE, GROWTH, INVREC, CFO, ROA, ACSTAND and INDUSTRY are significantly connected with negative DA. However, not all variables match with the expected type of connection with the dependent variable. The study hypothesizes that firms with an increase in return on assets are more likely to engage in earnings management. However, ROA (0,779) indicates that the negative accruals will be influenced positively. As a result, the negative accruals will not become more negative. So, an increase in ROA in the model of negative DA contributes positively to the level of audit quality. Independent variable TENURE is solely significant related to the negative amount of AWCA. According to TENURE (0,007) the amount of negative AWCA will become smaller as audit firm tenure is extended. So, the hypothesis of the study is not confirmed by the results of the negative AWCA model. The results indicate that a longer audit firm tenure will not influence audit quality negatively. These findings are supported by prior studies (Myers et al., 2003; Ghosh and Moon, 2005; Jackson et al., 2008). They argue that the audit firm is able to develop their expertise with regard to the specific client when the engagement is extended. The variable SWITCH is insignificantly connected to the negative amount of AWCA. Therefore, the results do not demonstrate that an audit firm switch will contribute to a decrease in the level of audit quality of client firms.

V. Conclusion

Recently, the auditing profession has been subject to legislative changes as a result of scandals as Enron. The implementation of these regulations have as objective to rebuild public's confidence in the role of the auditor in society. The topic that draw the attention is the policy of mandatory audit firm rotation. The underlying reason of restricting tenure is that when audit firm tenure persists for a longer period this will influence audit quality negatively. As a consequence of mandatory audit firm rotation, clients are required to switch from audit firm after a maximum number of years. The study is performed in Italy that is characterized

by a minimum audit firm tenure of three years with a maximum of nine years. This allows this research to determine the length of audit firm tenure and whether client firms switch from audit firm. The paper combined both issues in order to investigate the influence of audit firm tenure and audit firm switching on the audit quality of client firms in Italy.

The study hypothesized that audit quality will decrease as result of a longer audit firm tenure. Mainly, the erosion of auditors' independence is perceived as motive for a lower audit quality when the audit firm-client relationship is extended for a longer period. The second hypothesis assumed a negative association between audit firm switching and audit quality. The unfamiliarity of the audit firm with the new 'unknown' client firm and their practices is perceived to lower the audit quality of the client firm after a switch in audit firm. Two different proxies are used to measure the level of audit quality: discretionary accruals and abnormal working capital accruals. High levels of accruals, either positive or negative, are considered as indication of earnings management and therefore a lower level of audit quality is expected.

The empirical results partially reject that audit quality will decrease with an extended audit firm tenure. According to the amount of DA, the level of audit quality for client firms will increase with a longer audit firm tenure. However, the study found no evidence that support the relationship between tenure and the amount of AWCA. The findings do not demonstrate a negative association between audit firm switching and the level of audit quality. Neither the amount of DA, nor the amount of AWCA is significantly associated with audit firm switching. Two additional tests are performed in order to infer how changes in the independent variable affect the level of audit quality. This study divided tenure in three-year periods to observe whether the level of audit quality differ during the audit firm engagement. However, these results provide no evidence for an association between the audit firm-client relationship and audit quality. Eventually, the study divided both types of accruals in positive and negative accruals. Extreme accruals are perceived as indicator of earnings management. So, positive accruals that become more positive and negative accruals that become more negative are considered as 'extreme accruals'. The results reject that audit quality will decrease with an extended audit firm tenure according to the amount of negative AWCA. The other proxies of audit quality did not demonstrate a significant association with audit firm tenure and audit firm switching. Therefore, the amount of DA and the amount of negative AWCA reject that audit quality will be lower when audit firm tenure persists for a longer

period. However, this study found no evidence that support a diminishing level of audit quality after a switch in audit firm.

Limitations and future research

The study contains several limitations that have to be considered by interpreting the results. The most important caveat refers to the specific focus on the concept of the audit firm-client relationship that is elaborated to investigate whether either audit firm tenure or audit firm switching have influence on the audit quality of client firms. However, the particular focus on this specific phenomenon has left unexposed the role that other factors may have in determining the level of audit quality. The framework of IAASB (2013) showed that audit quality is designed by input factors, interactions, contextual factors and output factors that interact and influence each other and as a consequence determine the level of audit quality. The consequences of the particular focus of this study and ignoring these concepts may result in a distorted image of the actual level of audit quality. A second restriction refers to the limited generalizability, which is the result of the unique environmental setting in which the study is conducted. The Italian setting is characterized by a low litigation risk and a weak form of enforcement regulation (Leuz, Nanda and Wysocki, 2003). Di Pietra, Grambovas, Raonic and Riccaboni (2008) amplify this description of the Italian market by demonstrating that listed companies have a highly concentrated ownership structure. The institutional and legal environment of Italy differ from Anglo-Saxon countries. As a consequence, the findings within the Italian setting may be restrictedly generalizable to countries with stronger legal environments.

Thirdly, the focus on the timespan 1998-2008 ensures that not all organizations in the sample are equally represented. This can be the result of bankruptcy of firms during the sample period, but it is also possible that organizations emerge during the investigated period. Due to the restricted timespan it may also be difficult to determine the actual number of years that the same audit firm audits the client firm. For example, the audit firm tenure may arise before 1998 or continue after 2008. As a result, there is a possibility that the study is not able to determine the actual length of the audit firm engagement.

The study contributes to the existing literature by providing a more comprehensive understanding of the influence the audit firm-client relationship possess as determining factor for the level of audit quality. More specifically, the paper gives insight in the effects of audit

firm tenure, audit firm switching and financial factors on the level of audit quality measured by two different proxies. Therefore, the results may be interesting for firms' management, as the significant financial variables indicate the influence and importance of these concepts in the formalization of the level of audit quality of client firms in Italy.

The findings create scope for future research to examine the audit firm-client relationship in relation to audit quality in for instance an Anglo-Saxon environment. The developed models can be used to test whether they give comparable or deviating results in larger (inter)national samples to give additional dimension to the external validity of the findings (Braam and Borghans, 2010). In addition, due to the particular focus on audit firm rotation it is unclear whether there occurred an internal partner rotation during the sample period. For future research it can be interesting to take into account the potentiality of audit partner rotation to observe whether a switch in partner within the audit firm influences audit quality positively or negatively. Chi, Huang, Liao and Xie (2009) assume that it will affect audit quality negatively, due to the time consuming process to gather all client-specific information. However, proponents of audit partner rotation argue that it will strengthening auditor's independence and as a consequence improves the level of audit quality (Carey and Simnett, 2006).

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Appendix A

Table 5
Correlation matrix

Variable	*DA*	AWCA	1	2	3	4	5	6	7	8	9	10	11	12	13
DA	1														
AWCA	0,22*** (0,00)	1													
1. *TENURE*	-0,00 (0,97)	0,01 (0,84)	1												
2. *SWITCH*	-0,01 (0,81)	-0,02 (0,64)	-0,53*** (0,00)	1											
3. *LEVERAGE*	-0,04 (0,20)	-0,01 (0,85)	0,05 (0,15)	0,02 (0,51)	1										
4. *AGE*	-0,01 (0,67)	0,03 (0,31)	-0,05 (0,14)	0,05 (0,13)	0,01 (0,82)	1									
5. *AUDITORTYPE*	-0,01 (0,81)	-0,02 (0,63)	-0,01 (0,81)	0,01 (0,66)	0,06* (0,06)	0,16*** (0,00)	1								
6. GROWTH	-0,64*** (0,00)	0,00 (0,98)	-0,06* (0,08)	0,02 (0,52)	-0,06* (0,08)	-0,07* (0,05)	-0,01 (0,84)	1							
7. INVREC	0,26*** (0,00)	0,01 (0,74)	0,00 (0,90)	0,00 (0,99)	0,05 (0,13)	0,03 (0,34)	0,01 (0,83)	-0,09** (0,01)	1						
8. CFO	-0,38*** (0,00)	-0,27*** (0,00)	0,02 (0,62)	-0,02 (0,51)	-0,09** (0,01)	0,08** (0,02)	-0,00 (0,95)	0,14*** (0,00)	-0,20*** (0,00)	1					
9. ROA	-0,09** (0,01)	0,07* (0,05)	-0,03 (0,37)	-0,03 (0,38)	-0,12*** (0,00)	0,15*** (0,00)	0,03 (0,34)	0,07 (0,04)	-0,06* (0,07)	0,56*** (0,00)	1				
10. *ACSTAND*	-0,02 (0,53)	0,04 (0,24)	0,20*** (0,00)	-0,08** (0,02)	0,04 (0,22)	0,03 (0,41)	0,00 (0,93)	0,07* (0,05)	-0,07** (0,04)	0,00 (0,92)	0,03 (0,31)	1			
11. *FIRMSIZE*	-0,24*** (0,00)	0,08** (0,02)	-0,29*** (0,00)	0,03 (0,42)	0,10*** (0,00)	0,16*** (0,00)	0,06* (0,08)	0,29*** (0,00)	-0,10*** (0,00)	0,08** (0,01)	0,17*** (0,00)	-0,10*** (0,00)	1		
12. *LOSS*	0,11*** (0,00)	-0,03 (0,35)	0,08** (0,03)	0,02 (0,48)	0,16*** (0,00)	-0,11*** (0,00)	-0,01 (0,73)	-0,07** (0,03)	0,12*** (0,00)	-0,36*** (0,00)	-0,61*** (0,00)	-0,03 (0,42)	-0,19*** (0,00)	1	
13. *INDUSTRY*	-0,03 (0,33)	0,00 (0,89)	0,03 (0,46)	-0,04 (0,28)	-0,13*** (0,00)	-0,24*** (0,00)	-0,01 (0,67)	0,14*** (0,00)	-0,09** (0,01)	-0,08** (0,02)	-0,19*** (0,00)	0,00 (0,89)	-0,11*** (0,00)	0,18*** (0,00)	1

*, **, *** Indicate variable is significantly if greater than the corresponding value at the 10%, 5% or 1% levels, respectively, using two-tailed tests.

Appendix B

Table 6 **Multicollinearity**		
	Variance Inflation Factor	
	DA	AWCA
Variables		
Independent		
TENURE	1,64	1,63
SWITCH	1,45	1,38
Control		
LEVERAGE	1,10	1,10
AGE	1,14	1,08
AUDITORTYPE	1,03	1,03
GROWTH	1,20	1,13
INVREC	1,09	1,11
CFO	1,55	1,48
ROA	2,12	2,19
ACSTAND	1,07	1,38
FIRMSIZE	1,38	1,34
LOSS	1,68	1,78
INDUSTRY	1,18	1,11
Mean VIF	1,36	1,36

Appendix C

Table 7

Results of Multiple Linear Regression Analyses

Distribution of Tenure in Three Periods

Variables	Exp. Sign	DA		AWCA	
		Coef.	p-value	Coef.	p-value
Constant		-0,232**	0,010	-0,007	0,785
Independent					
*TENURE_1	+	0,013	0,606	-0,007	0,318
*TENURE_3	+	-0,068	0,266	-0,001	0,941
SWITCH	+	0,006	0,857	-0,002	0,850
Control					
LEVERAGE	+	-0,260***	0,000	-0,005	0,791
AGE	-	-0,027	0,116	0,004	0,379
AUDITORTYPE	-	-0,005	0,838	-0,008	0,274
GROWTH	-	-0,428***	0,000	0,003	0,622
INVREC	+	0,341***	0,000	-0,025	0,119
CFO	-	-1,647***	0,000	-0,451***	0,000
ROA	+	1,056***	0,000	0,399***	0,000
ACSTAND	?	0,025	0,171	0,005	0,389
FIRMSIZE	+ / -	-0,005	0,167	0,002**	0,044
LOSS	+	0,030	0,324	0,004	0,634
INDUSTRY	?	0,010	0,101	0,002	0,335
Observations		877		877	
R^2		0,546		0,151	
F-test		74,17		10,95	
P-value X^2		0,0000		0,0000	

*TENURE_1: 1 if the audit firm engagement tenure is within the first three-year period (Years 1–3) and 0 otherwise;
*TENURE_3: 1 if the audit firm engagement tenure is within the second three-year period (Years 7–9) and 0 otherwise;
*, **, *** Indicate variable is significantly if greater than the corresponding value at the 10%, 5% or 1% levels, respectively, using two-tailed tests.