Non-Audit Services And Audit Quality: Blessing Or Curse?

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ABSTRACT

This study investigates whether and how audit quality is associated with the provision of non-audit services by the statutory auditor. Using a sample of 1,008 firm observations of major German listed companies for the sample period 2004-2011, our study is one of the first to thoroughly analyze this issue empirically for the German audit market. Consistent with prior studies we choose discretionary working capital accruals as our proxy for audit quality. Our empirical results demonstrate that total non-audit fees in general and audit related fees in particular are negatively associated with audit quality, while provided tax and other advisory services have an insignificant impact on audit quality. Our results imply that non-audit fees are a significant factor with regard to auditor independence and economic auditor-client bonding while we are not able to detect compensating high knowledge spillover effects from these services. The empirical results are robust to alternative accrual measures and estimation model specifications, while our empirical evidence is not robust with regard to alternative fee measures.

Keywords: Non-Audit Services; Audit Quality; Auditor Independence; Knowledge Spillovers

1   INTRODUCTION

This paper provides empirical evidence on the relation between non-audit services and earnings management, hence audit quality. Our research is motivated by several factors. First, the implication of simultaneously provided audit and non-audit services by auditors has been discussed by regulators and commentators for decades. In general, the joint offering of the two services can be viewed as either a potential benefit resulting in considerable knowledge spillover effects or a potential threat to auditor independence. On October 13, 2010 the European Commission considered the debate in the published Green Paper "Audit Policy: Lessons from the Crisis" (European Commission, 2010). The purpose of this regulatory proposal is to provide improvements with regard to statutory audits in the European Union. As one of its key elements with respect to auditor independence, the regulators in the European Commission proposed that audit firms should not be allowed to provide joined audit and non-audit services to their clients. Moreover, large audit firms should be obliged to separate audit activities from non-audit operations. As the proposed requirements are also considered in the final proposal for the European Parliament and the European Council (European Commission, 2011), the approved requirements could affect audit market structures and auditing practices in the European Union, respectively Germany in the near future.

Second, the effects of jointly offered audit and non-audit services have received a great deal of interest from researchers and commentators in the past. Nevertheless, it is important to conduct an additional empirical study with German data, because the international research is mainly focused on the audit markets in the United States or other Anglo-Saxon countries. Therefore, the investigation of economic auditor-client bonding in the German audit market would greatly contribute to our understanding of non-audit service pricing over and above the studies in the United States as the institutional characteristics differ in terms of outside investor rights, importance of the equity market and ownership concentration (La Porta et al. 1998). Moreover, despite globalization and harmonization, audit market characteristics and the regulatory landscape in Germany still kept certain particularities, which could lead to different study results in comparison to other international studies. For example, the civil liability in cases of auditor misbehavior is sanctioned differently in Germany and the United States. If German auditors perform a

breach of duties during the audit work the liability of compensatory damages is limited by section 323 paragraph 2 of the German Commercial Code (GCC; Handelsgesetzbuch) to 1 million Euros, respectively 4 million Euros for audits of listed companies. On the contrary the legal liability of audit firms in the United States is more or less unlimited. With regard to different audit market characteristics, respectively non-audit service pricing the study of Bigus & Zimmermann (2008) documented that the provision of non-audit services is significantly higher for audit firms in the United States and the United Kingdom than in Germany. As a consequence the incentives to comprise auditor independence in Germany might be less problematic and therefore lead to other results than the corresponding studies in these two English speaking countries.

Third, Germany is one of the strongest national economies worldwide. Based on the highest gross domestic product, number of companies and inhabitants in the European Union, Germany is considered as the most important market, respectively audit market in continental Europe (Quick & Warming-Rasmussen, 2009). As a consequence, audit regulations in Germany often serve as role model for minor European audit markets. Following Quick & Warming-Rasmussen (2009) the German audit context shows similarities with audit characteristics in France, Spain, Belgium, Denmark and to a smaller degree other Scandinavian countries.[1] To the best of our knowledge, the study of Quick & Sattler (2011) is the only empirical research based on archival non-audit fee data that has been investigating the audit quality effects of provided non-audit services for an audit market in continental Europe within the last decade. In their study the authors are able to provide limited evidence for a negative association between provided non-audit services and auditor independence, hence audit quality. Overall, the empirical evidence of our study is not only considered to provide a deeper understanding of non-audit service pricing in the German audit market, but also can be valid for other countries in the European Union, in particular when the results of the Quick & Sattler (2011) study are unlimited confirmed by our research results.

Our results show that provided non-audit services by the statutory auditor are significantly negatively associated with audit quality. With regard to the different types of provided non-audit services, our results imply that the negative effects on audit quality are especially caused by the provision of audit-related services, while offered tax and other advisory services are overall an insignificant factor for the quality of the audit. Based on our hypotheses developments we conclude that the provision of non-audit services in general and audit-related services in particular create an economic bond between the auditor and its client. As a consequence of such an auditor-client relationship, the client gains more opportunities to conduct opportunistic earnings management. Further, our findings imply that the offering of non-audit services by an audit firm does not lead to significant high knowledge spillover effects, which could lead to an increase in the auditors' ability to detect inappropriate accounting practices, respectively entirely compensate the negative effects of impaired auditor independence. With regard to the level of provided tax and other advisory services, we neither find a significant threat for auditor independence nor substantial knowledge spillover effects. The results for the two fee categories can also be due to the fact that auditor independence and knowledge spillover effects off-set each other.

Our results are robust to alternative discretionary accrual measures and estimation model specifications, while the original empirical evidence is not robust to an alternative fee definition. Despite these partially robust results, our empirical evidence should be interpreted cautiously as we decide to use discretionary workings capital accruals as our proxy for audit quality. In contrast to the widely accepted usage in prior accounting research, accrual measures are criticized as an inappropriate proxy for audit quality.

The paper at hand is structured as follows: Section 2 provides background on the regulatory landscape of non-audit fee requirements in Germany and describes prior literature in this research field. Section 3 contains the development of our empirical predictions and explains the research design of our study approach. In section 4 we provide information about our sample composition and the related descriptive sample characteristics. Further, in section 5 we present the empirical results of the study and the related robustness checks. The final section contains our conclusions and some reflections on the limitations to our research.

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[1] Quick & Warming-Rasmussen (2009) refer in this context to the study results of Baker et al. (2008), Garcia-Benau et al. (2008), Vanstraelen & Willekens (2008) and Quick & Warming-Rasmussen (2005).

2   REGULATORY LANDSCAPE AND PRIOR LITERATURE

2.1   Regulatory Landscape

Within the last decade the German legislator pronounced several programs in order to strengthen the German regulatory framework concerning capital market conditions and corporate governance. As one important step the German legislator released the "Bilanzrechtsreformgesetz" (BilReG - Accounting Law Reform Act) of December 4, 2004. The act primarily contained the rules for the mandatory IAS/IFRS adoption in Germany. Moreover, the Accounting Law Reform Act substantially modified the existing German audit regulations, in particular with respect to auditor independence requirements. One key point of the new audit requirements to reinforce auditor independence is a restriction in the offering of non-audit services by the statutory auditor. Especially, section 319 paragraph 3 No. 3 and section 319a No. 1 of the GCC name specific non-audit services that are prohibited for the statutory auditor in Germany. In this context the rule in section 319 paragraph 3 No. 3 GCC prohibits the statutory auditor to be involved in keeping the client´s firm accounting records, preparing the annual financial statement and holding significant internal audit functions. Moreover, the performing of corporate management and financial services as well as preparing valuation reports, which could have a material impact on the annual financial statement, are not allowed. In addition to the rules in section 319 paragraph No. 3 GCC further services for the assigned auditor of German listed companies are restricted by the means of section 319 paragraph 3 No. 3 GCC. The rule comprises legal or tax advisory services that directly and significantly affect the presentation of net assets, financial positions and results of operations. Moreover, the assigned auditor should not be involved in the main development, establishment and implementation of the accounting information system. Beside the non-audit service regulative requirements the Accounting Law Reform Act also contained requirements for publicly traded firms to disclose the fees paid to the statutory auditor for the audit of the audited entity and the audited subsidiaries.[2] According to the GCC section 285 No. 17 (financial statements) and section 314 paragraph 1 No. 9 (consolidated financial statements), the firms have to divide their total fees into the following categories:

- Audit Fees
- Audit Related Fees
- Tax Fees
- All Other (Advisory) Fees

The disclosed fees, especially the non-audit fee categories b)-d), form the basis for our research approach.

2.2   Prior Literature

A lot of prior empirical studies analyzed the association between jointly offered audit and non-audit services and audit quality. As audit quality is not directly observable, the authors of those studies used several audit quality proxies in their study approach. In general, these proxies are: (1) issued audit and going-concern opinions, (2) accounting restatements, (3) quality assessment of stakeholders, (4) association between a client´s earnings and capital market reactions and (5) earnings management. The latter proxy is most commonly used by prior empirical non-audit fee studies.[3] As we also decide to apply an earnings management measure for our analyses, we first want to give a brief literature review over those current studies and their results. Due to the considerable high number of empirical studies in this research field, we restrict the literature review by using two exclusion criteria's. First, the study approach also has to use earnings management, respectively abnormal accruals as proxy for audit quality. Second, because of the considerable regulative changes in the last ten years (e.g., Sarbanes-Oxley-Act, 8th European Union Directive), we only considered empirical studies in this chapter that have been published within the last decade. Table 1 gives an overview over the studies that have met the two exclusion criteria's.

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[2]   In 2009 the audit fee disclosure requirements are adjusted through the "Bilanzrechtsmodernisierungsgesetz" (BilMoG - Accounting Law Modernization Act). After the amendment audit fees have not only be disclosed by publicly listed companies, but also from major companies that met certain accounting figure benchmarks as determined in section 267 paragraph 3 of the GCC. For small and medium-sized companies (with some exceptions) the disclosure requirements are still not binding.

[3]   The study of Pott et al. (2009, p. 227-230) provides a detailed overview for the recent studies in this research field and the applied research approaches.

Table 1
Results of Empirical Studies Investigating the Association between Non-Audit Services and Audit Quality

Study (by year)	Country	Sample Period	Sample Size	Audit Quality Effects Positive	Negative
Frankel et al. (2002)	United States	2000	3,074	Mixed[1]	
Chung and Kallapur (2003)	United States	2000	1,871	No	No
Asbaugh et al. (2003)	United States	2000	3,170	Mixed[2]	
Reynolds et al. (2004)	United States	2000	2,507	No	Yes[3]
Larcker and Richardson (2004)	United States	2000-2001	5,103	Yes	No
Ferguson et al. (2004)	United Kingdom	1996-1998	610	No	Yes
Ruddock et al. (2006)	Australia	1993-2000	3,746	No	No
Dee et al. (2005)	United States	1999-2000	384	No	Yes[4]
Antle et al. (2006)	United Kingdom	1994-2000	2,443	Yes	No
	United States	2000	1,430		
Srinidhi and Gul (2007)	United States	2000-2001	4,282	No	Yes
Huang et al. (2007)	United States	2003-2004	6,891	Yes[5]	No
Gul et al. (2007)	United States	2000-2001	4,720	No	Yes[6]
Lim and Tan (2008)	United States	2000-2001	3,498	Mixed[7]	
Cahan et al. (2008)	New Zealand	1995-2001	237	No	No
Krishnan et al. (2011)	United States	2000-2005	7,072	No	Yes[8]
Quick and Sattler (2011)	Germany	2005-2007	341	No	Yes[9]
Knechel et al. (2012)	New Zealand	2004-2005	230	No[10]	No

[1] Beside a positve associtation between unsigned and positive signed discretionary accruals and provided non-audit services the study also provides evidence for a negative association between non-audit fees and negative signed discretionary accruals.

[2] Beside a positve associtation between unsigned discretionary accruals and provided non-audit services, the authors also find a negative relationship for non-audit fees with income decreasing discretionary accruals.

[3] However, the significant results dissapear when additional controls for high-growth clients are considered.

[4] However, the results are not robust to alternative fee measures.

[5] The authors only find a weak positive association between abnormal accruals and provided tax, respectively other advisory services.

[6] However, the significant results are limited for audit engagments with short audit firm tenure.

[7] The authors find on the one hand a positive association between non-audit fees and unsigned discretionary accruals, while on the other hand the results imply a negative association between non-audit services and income decreasing discretionary accruals.

[8] The authors find a positve association between discreationary accruals in the pre-Sarbarnes-Oxley Act era. However, the results are limited to income-decreasing discretionary accruals. Moreover, the association declines in the post-Sarbarnes-Oxley Act periods.

[9] The significant results are limited to other advisory services, while total audit fees, audit-related fees and tax fees have an insignificant impact on audit quality.

[10] Results indicate the presence of knowledge spillovers as the level of non-audit services is negatively associated with the length of the audit reporting lag.

As can be seen in Table 1, the majority of the empirical non-audit service studies in our literature review had been conducted in English-speaking or Anglo-Saxon counties like the United States, United Kingdom, Australia and New Zealand. Further, it can be learned from Table 1 that the results of prior empirical studies are inconsistent or mixed, but the majority of those studies are unable to find a clear positive or negative impact for provided non-audit services on audit quality.

In contrast to the results of international studies, the empirical evidence for the effects of non-audit services on audit quality has not received a great deal of interest from researchers in continental Europe, respectively Germany. To the best of our knowledge, the study of Quick & Sattler (2011) is the only current empirical study that has investigated the effects of non-audit fee pricing on audit quality for the German audit market. The results of the study imply that in general non-audit services neither have positive nor negative impact on the quality of the audit. However, the authors are able to find a significant negative impact for individual other advisory services on audit quality. Using a similar study approach like Quick & Sattler (2011), we want to provide further empirical evidence on this audit regulation issue for the European, respectively German audit market. While the Quick & Sattler (2011) study is limited to a sample size of 341 firm observations over the sample period 2005-2007, we are able to investigate a sample of 1,008 firm observations over an eight year period from 2004 to 2011. Due to the extent of the sample size and sample period we expect more detailed and robust results than the prior study could provide. Moreover, we assume that the extent of the sample period may lead to different study results. This is due to the fact that the study of Quick & Sattler (2011) primarily examines the initial audit quality effects of provided non-audit services after the regulatory change in 2005, while our study also covers the medium-term effects of the new

requirements. With regard to the established audit market structures in Germany it seems plausible that sustainable audit regulation effects are not derivable in the first years after a regulative change.[4] Overall, in the wake of the ongoing discussion in the European Union regarding the provision of non-audit services by the statutory auditor, the single results of the Quick & Sattler (2011) study warrants a closer analysis of non-audit service effects in Europe, respectively Germany.

3   HYPOTHESES DEVELOPMENT AND RESEARCH DESIGN

3.1   Hypotheses

Our hypotheses development is based on the audit quality definition by DeAngelo (1981a). DeAngelo (1981a) identified in her study two major determinants of audit quality, namely auditor independence and auditor expertise.[5] With regard to this audit quality definition, provided non-audit services by statutory auditors can affect both determinants.

Major accounting firms and proponents of the joint provision of audit and non-audit services raised several arguments in favour of providing non-audit services to clients. One argument is that non-audit services can result in information advantages and reduced audit costs.[6] As an advisor, the statutory auditor gains in-depth knowledge of their client's business and accounting practices, which may improve audit efficiency (Quick & Warming-Rasmussen, 2009; Joe & Vandervelde, 2007). Moreover, the joint provision of audit and non-audit services can lead to knowledge spillover effects, as the findings from the auditing department are available for the advisory department and vice versa. With regard to audit quality, these knowledge spillovers can complement and increase the auditors' ability to detect substandard accounting and therefore allow audit firms to provide a highly qualitative audit product (Cahan et al., 2008; Joe & Vandervelde, 2007).

If clients receive non-audit services from their statutory auditor two major issues with regard to auditor independence, hence audit quality can occur.[7] First, when auditors provide advisory services to their clients, the likelihood that the audit team has to review facts in the annual financial statement audit, which have been influenced by advisory colleagues, increases (self-review threat; Quick & Warming-Rasmussen, 2009). As mentioned in chapter 2.1, the German regulator has already restricted the provision of certain non-audit services by the statutory auditor. Therefore, it can be assumed that for our study the self-review threat to auditor independence will only be a significant factor in specific auditor-client relationships. Second, prior research indicates that auditors which receive considerable non-audit fees may be economically bound to the client and are thus more likely to lose their objectivity (self-interest threat). Nevertheless, prior research also identifies different factors like reputation risks (Watts & Zimmermann, 1983; Johnson et al., 2002) and litigation concerns (Palmrose, 1988; Shu, 2000), which can help to curb the negative economic bonding effects.

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[4]   An example for the non-dynamic and inflexible German audit market can be derived from the relative low auditor switching rate of approximately 2.2 to 6 percent for major listed companies (Küting & Reuter, 2007; Marten, 1994; Marten & Schultze, 1998). With regard to the delayed effects of audit regulations on audit market structures we refer to the study approach of Krishnan et al. (2011). The authors examine the post effects of Sarbarnes-Oxley Act requirements on the provision of non-audit services. To capture the post-effects, the authors deliberately exclude the sample period 2002-2003 in order to examine the separate effects of the years 2004 to 2005. The authors argue that the years 2002 to 2003 are more or less a transition period, which is mainly determined by the introduction of several rules or interpretations and therefore are an unsuitable period for an audit market study.

[5]   In this context auditor expertise is defined as the auditors' ability to detect a significant breach in the accounting system of the client, while the definition of auditor independence contains the likelihood that the auditor actually reports that breach (DeAngelo, 1981a).

[6]   Further arguments about the advantages of the jointly provision of audit and non-audit services are provided in the study of Quick & Warming-Rasmussen (2009, p. 145). For our research approach these minor advantages of provided non-audit services are of subordinate importance and therefore not considered in the hypotheses development

[7]   Quick & Warming-Rasmussen (2009) also identified familiarity and advocacy threats to auditor independence with regard to provided non-audit services. For our research approach these two auditor independence threats are of subordinate importance and therefore not considered in the hypotheses development.

Whether audit firms trade off their objectivity for the degree of provided non-audit services is in the end a cost-benefit decision. In particular auditors are considered to comprise their independence when the net benefits of the non-audit engagement are greater than the present value of the combined litigation and reputational losses arising from a detected audit failure or even audit sandal. The present value of the litigation loss is determined by the probability that the audit failure is detected by a third party and the potential liability for compensatory damages. However, the German regulatory environment limits the civil liability of auditors for misconduct during the audit work to 1 million Euros, respectively 4 million Euros for the audit of listed companies (section 323 paragraph 2 GCC). Therefore, litigation risk should be considered as a subordinate factor with regard to auditor dependency issues in the German context. For German auditors the potential reputation risks, respectively losses are considered to be the more important factor in the cost-benefit decision. The present value of reputation losses are determined by the loss of the audit and non-audit fees of the current audit engagement, but also from other current and potential future clients.[8] Once the auditor's reputation is damaged, client firms will end the auditor-client relationship. In addition the audit firm will have problems to gain new audit mandates (Cahan et al., 2008).

Because of the competing theoretical arguments mentioned above and the mixed empirical results of our literature review (Table 1), we posit the following related nondirectional hypothesis. The hypothesis is stated in alternative form:

Hypothesis (1): Audit quality is not associated with the magnitude of provided non-audit services by the statutory auditor.

As the audit fee disclosure requirements in Germany allow us to distinguish between different types of non-audit services, we further want to analyze the effects of the individual categories. We expect that audit-related services create the highest knowledge spillover effects between the audit and advisory departments, because the two service lines are closely connected with each other (e.g., review of interim financial reports and annual financial statement audit). On the other hand, the self-review and self-interest threat for auditor independence could also be on the highest level for this category of non-audit services, as audit firms have the most diversified product portfolio in this service line. Moreover, the audit regulative requirements for this fee category are less restrictive than for the remaining non-audit fee categories. For instance, on the one hand section 319 paragraph 3 No. 3 GCC prohibits the statutory auditor of a listed audit client to perform legal or tax advisory services that directly and significantly affect the presentation of net assets, financial positions and results of operations in general. On the other hand with regard to the provision of audit related services the regulatory requirement only restricts the offering of services that have a material impact on the accounting information system of the client, which in the end still leaves a lot of opportunities for the audit firm to earn non-audit engagement profits. Therefore, we predict that the positive knowledge spillover effects from audit-related services are compensated by the negative effects of the economic incentives of this service line. As a consequence, we expect an insignificant association for this type of non-audit services with earnings management and posit the following hypothesis in alternative form:

Hypothesis (2): Audit quality is associated with the magnitude of provided audit-related services by the statutory auditor.

Tax and other advisory services are not considered to provide significant knowledge spillover effects for the financial statement audit. As mentioned before, legal and tax advisory services that have a significant effect on the financial statement presentation are prohibited by section 319 paragraph 3 No. 3 of the GCC for listed companies. As consequence of that restriction the opportunities to earn considerable non-audit fees with that kind of services are on the one hand marginal for the statutory auditor, while on the other hand the limited offered services are not considered to provide apparent knowledge spillovers. The results of the descriptive German audit market study of Bigus & Zimmermann (2008) support this assumption. The authors state that the degree of provided non-audit services by German audit firms is significantly lower when compared to the magnitude of offered non-audit services in the United States and the United Kingdom. To conclude, we expect that neither provided tax services nor other consulting services create significant knowledge-spillover between the auditing and the advisory departments

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[8]   In this context DeAngelo (1981b) argues that that large audit firms with a broad client portfolio have a stronger incentive to strengthen their reputation than minor audit firms, as the present value of reputation loss is higher for these companies.

of an audit firm. Moreover, we assume that the provision of the two services to the audit client is unlikely to result in a financial dependency issue as the total fees from the non-audit engagement are not high enough to create an economic incentive. Overall, tax and other consulting services are considered as an insignificant factor with regard to knowledge-spillover and auditor independence effects, respectively compensate each other. Therefore, we state the following two hypotheses in alternative form:

Hypothesis (3):　Audit quality is associated with the magnitude of provided tax services by the statutory auditor.

Hypothesis (4):　Audit quality is associated with the magnitude of provided other advisory services by the statutory auditor.

3.2　Earnings Management Model

Consistent with prior non-audit fee studies (e.g. Ferguson et al., 2004; Larcker & Richardson, 2004; Reynolds et al., 2004), we adopt earnings management as proxy for audit quality. We decide to use signed and unsigned discretionary accruals as proxy for audit quality in our research approach, because discretionary accruals are considered to capture the quality of an audit in a more general manner than alternative measures (e.g., qualified audit opinions, qualified going-concern opinions, audit fraud, audit restatement), which are in general based on rare and extreme audit issues (Myers et al., 2003; Choi et al., 2010). [9] In this context we adopt working capital accruals instead of total accruals for the following two reasons. First, prior research indicates that discretionary working capital accruals are more commonly used by client firms to manage earnings than total accruals (DeFond & Jiambalvo, 1994). Second, we can learn from the study of Young (1999) that the modified Jones model suffers from a systematic error by determine discretionary accruals when normal accruals are estimated including property, plant and equipment, respectively depreciations.

Our accrual measure of earnings management is derived from the modified Jones model (Dechow et al., 1995). As we use working capital accruals as proxy for audit quality, we have to adjust the original modified Jones model (Dechow et al., 1995) by deleting the independent variable for property, plant and equipment (Quick & Sattler, 2011; Ferguson et al., 2004; DeFond & Jiambalvo, 1994). In addition, in order to improve the explanatory power of the model, we add the variable ROA to control for firm performance. As suggested by McNichols (2000) and Kothari et al. (2005), non-discretionary accruals are highly correlated with past and current firm performance. As can be seen in Equation (1) all variables of the earnings management estimation model are scaled by lagged total assets:

Equation (1): Discretionary Working Capital Accrual Estimation Model

$$WCA_{it}/TA_{it-1} = \beta_0 + \beta_1(1/TA_{it-1}) + \beta_2([\Delta REV_{it} - \Delta REC_{it}]/TA_{it-1}) + \beta_3(ROA_{it-1}/TA_{it-1}) + \varepsilon_i$$

where for client firm $_i$ in year $_t$ (or $_{t-1}$). We estimate Equation (1) for each one-digit SIC code industry definition. Our discretionary accrual measures (DWCA) are then derived from the fitted value of the residuals (ε_i). WCA_{it} is the actual level of working capital accruals of firm $_i$ in year $_t$. Equation (2) present the calculation of WCA_{it}:

Equation (2): Working Capital Calculation Model

$$WCA_{it} = EAR_{it} + DEP_{it} - CFO_{it}$$

From the estimated DWCA we then calculate |DWCA| by taking the absolute value of DWCA. Further, we subdivide DWCA into positive signed $DWCA^+$ and negative signed $DWCA^-$ in order to distinguish between the different effects on income increasing and income decreasing working capital accruals. All variables used in Equation (1) and (2) are defined in the Appendix.

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[9]　For instance, our sample of listed German companies only contains 7 firm observations with a qualified audit opinion and 13 firms that have disclosed an audit restatement in the sample period.

3.3   Measuring the Association between Non-Audit Services and Earnings Management

To examine the association between provided non-audit services and audit quality, we design the following estimation model that links the magnitude of signed and unsigned discretionary working capital accruals with four alternative non-audit fee specifications. Using a pooled sample of 1,008 firm observations, we first want to capture the effects of provided non-audit services by auditors on audit quality in general.[10] Therefore, we calculate the ratio of total non-audit fees to total fees (audit fees + non-audit fees) and add the ratio variable NASFEE for NASVAR to Equation (3). With regard to the study approach of Quick & Sattler (2011), we also want to test for the potential effects of the three different non-audit fee types, namely audit-related fees, tax fees and other advisory fees on audit quality. Therefore, we calculate the ratio of audit-related fees to total fees (ARFEE), the ratio of tax fees to total fees (TXFEE), and the ratio of other advisory fees to totals fees (OAFEE). All three non-audit service specifications are then inserted for NASVAR to Equation (3) and calculated separately. All variables used in Equation (3) are defined in the Appendix.

Equation (3): Model for the Association between Non-Audit Services and Discretionary Working Capital Accruals

$$|DWCA| \text{ or } DWCA^{+} \text{ or } DWCA^{-}$$
$$= \beta_0 + \beta_1 (NASVAR) + \beta_2 (LNMCAP) + \beta_3 (LNAGE) + \beta_4 (CHGREV) + \beta_5 (BTM) + \beta_6 (ROE)$$
$$+ \beta_7 (CFO) + \beta_8 (LOSS) + \beta_9 (CHGLEVE) + \beta_{10} (CHGISSUE) + \beta_{11} (CGK) + \beta_{12} (BIG4)$$
$$+ \beta_{13} (INITIAL) + \beta_{14} (TENURE) + \text{year and industry dummies} + \varepsilon_i$$

Beside our variables of interest we have to include additional independent variables to receive an adequately specified estimation model. As first control variable we include LNMCAP to control for firm size. Prior empirical studies (e.g. Ferguson et al., 2004; Frankel et al., 2002) imply that larger firms are under increased public scrutiny. This public interest by regulators and commentators is assumed to curb aggressive earnings management behavior. As second control variable we add LNAGE to Equation (3), because longtime existing firms are expected to have more mature business operations and financial reporting systems in place. This development should lead to a lower level of earnings management (Johnson et al. 2002). To capture the effects of firm growth on earnings management, we include CHGREV and BTM. Empirical evidence from prior studies indicate that firms with high growth rates are engaged in greater earnings management activities in order to meet capital market expectations (Knechel et al., 2012; Choi et al., 2010). We therefore expect a positive association for CHGREV with our accrual measures, while BTM (an inverse measure of growth potential) should be negatively associated with the dependent variable. Further, we add ROE and CFO to Equation (3) to control for firm performance effects on audit quality. Prior research suggests that discretionary accruals are positively associated with firm performance (Kothari et al., 2005). As another independent variable we include the binary variable LOSS in our model to test for different earnings management behavior between loss and profitable firms (Dechow & Dichev, 2002). In addition to LOSS, we consider the leverage variable CHGLEVE in Equation (3), as specific debt covenants constraints could be a significant incentive for aggressive earnings management activities by the management (DeFond & Jiambalvo, 1994). The variable CHGISSUE is a binary variable that takes the value of 1 if the issued equity titles in the current fiscal year exceed more than ten percent of the subscribed capital of the prior fiscal year. In this context Ashbaugh et al. (2003) provide evidence that firms involved in financing activities tend to engage in higher earnings management when compared to non-financing firms.

The corporate governance structure of a company is considered to have a considerable impact on earnings quality, hence audit quality (Larcker & Richardson, 2004). Therefore, we include the variable CGK, which is based on the number of non-complied recommendations of the German Corporate Governance Codex. It can be assumed that the magnitude of discretionary working capital accruals is positively associated with "bad" corporate governance proxied by the number of non-complied recommendations (Quick & Sattler, 2011). As a control variable for external corporate governance we include a binary variable for audit firm size (BIG4). Evidence in prior audit studies shows that major audit firms are more efficient than small or medium-sized auditors in limiting earnings management (Becker et al., 1998; DeAngelo, 1981b). Further, the INITIAL and TENURE variables are included to

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[10]   We use a cross-sectional estimation approach, because a pooled estimation model generally increases the statistical power in comparison to firm fixed effect computations.

control for different audit tenure effects on audit quality. The results of prior empirical audit studies imply that due to a lack of client specific knowledge the audit quality in the first years of an audit engagement is lower than in subsequent periods (e.g., Geiger & Raghunandan, 2002; Johnson et al., 2002).

Finally, we include 15 industry indicator variables based on the one-digit SIC (Standard Industrial Classification) as well as year indicator variables in order to capture unobserved industry and year effects.

4   SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

4.1   Sample Description

For our analysis we use data from German companies belonging to the German major stock exchange indices DAX, MDAX, SDAX and TecDAX of the Frankfurt Stock Exchange. With regard to market capitalization the indices include the largest and most actively traded capital market-oriented German firms which are in particular under increased scrutiny by regulators and commentators.

Our initial investigation sample consists of 1,824 firm observations. The fee data is hand-collected from the published annual reports of the companies. Consistent with prior studies we exclude the fee disclosure of banks, insurance firms and other financial service companies (313) from our original sample, due to the unique asset structure of these firms. Further, we are not able to obtain 154 fee disclosures for the fiscal year 2004, as the mandatory fee disclosure requirements are not binding before fiscal years 2005.[11] The financial data of foreign issuers (152) are also not considered in our sample, as these firms are not bound to the fee disclosure requirements of the GCC. Moreover, we have to exclude 121 firm observations from our study sample as appropriate IFRS, fee or other financial data is not available for these companies. The reason not to consider another 44 firm observations in our analysis is a substantial change in the legal form of the assigned audit company. These organizational changes result in non-comparable fee data over time.[12] In addition, we are also not able to use fee disclosures of companies with an alternative fiscal year 2011 (16), as the annual reports are published too late for our study analysis. Finally, we exclude several accounting figures (16) of cross-listed German companies in the United States. These companies used a mandatory regulative option to publish an US-GAAP financial statement until 2007 instead of providing an IFRS annual report. As a consequence of the sample adjustments the final study sample consists of 1,008 firm observations.

The data for the remaining control variables of our analysis are collected from the Hoppenstedt Database and the financial annual reports at the end of the fiscal year. Table 2 gives an overview over the sample composition.

Table 2 Sample Composition	
Original Sample	1,824
./. Banks, Insurances and Financial Service Companies	313
./. Non-Mandatory Audit Fee Publication 2004	154
./. Foreign Issuer	152
./. Missing Audit Fee and Financial Data	121
./. Organizational Changes Audit Firm	44
./. Alternative Fiscal Year 2011	16
./. US-GAAP Financial Statement	16
Total	**1,008**

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[11]   The audit fee data for the fiscal year 2004 (16 firm observations) has been derived from the annual reports for the fiscal year 2005. As some firms want to provide their stakeholders with comparative figures for the prior fiscal year, they voluntarily include the audit fees for the fiscal year 2004 in their annual reports.

[12]   In October 2007, KPMG Germany, KPMG United Kingdom and KPMG Switzerland merged together to from KPMG Europe LLP. Since then the KPMG offices in Belgium, Spain, Russia, Ukraine, Kyrgyzstan, Kazakhstan, Armenia, Georgia, Netherlands, Luxembourg, Norway, Saudi Arabia, Jordan and Kuwait joined KPMG LLP.

4.2   Descriptive statistics

With regard to the descriptive statistics presented in Table 3, it is important to mention the following. First, the magnitude of unsigned discretionary working capital accruals (|DWCA|) are on average 6 percent of lagged total assets. Further, the mean values of signed discretionary working capital accruals (DWCA) are close to 0. Second, the NASFEE variable, which is the ratio of total non-audit fees to total fees, amounts to 33 percent for an average sample company. The total non-audit fee ratio can be further divided in 12 percent audit-related fees (ARFEE), 9 percent tax fees (TXFEE) and 12 percent other advisory fees (OAFEE). Third, the market capitalization of the median company in our sample amounts to 796,913,000 €, has a firm history of 37 years and audit firm tenure of 6 years.[13]

In addition, our sample shows plausible frequencies of our binary variables (LOSS, CHGLEVE, CHGISSUE, BIG4 and INITIAL). The descriptive figures for LOSS show that almost 18 percent of our sample firms report a negative net income. Moreover, 7 percent of our sample firms changed their auditor within the sample period (INITIAL), while 79 percent of the audit engagements are audited by major audit firms (BIG4). These descriptive statistics imply that the German audit market for large listed companies is dominated by BIG4 auditors and that the motivation for major listed companies to change the auditor is moderate.

Table 3
Distribution of Variables

Cont. Variables	Mean	Median	Std. Dev.	Min	Max
|DWCA|	0.0644	0.0382	0.0912	0.0001	1.2667
DWCA	0.0000	-0.0054	0.1116	-0.6713	1.2667
NASFEE	0.3250	0.3167	0.2106	0.0000	0.9294
ARFEE	0.1202	0.0547	0.1584	0.0000	0.9073
TXFEE	0.0865	0.0275	0.1228	0.0000	0.6492
OAFEE	0.1178	0.0730	0.1400	0.0000	0.8313
LNMCAP	13.651	13.589	1.7765	8.6781	18.421
LNAGE	3.557	3.611	1.173	0.0000	5.5759
CHGREV	0.1149	0.0810	0.2937	-0.9935	2.3195
BTM	0.6804	0.5489	0.6007	-4.2890	4.0194
ROE	0.0304	0.1125	0.6645	-13.467	4.3799
CFO	0.0916	0.0888	0.1213	-0.5887	1.1485
CGK	0.0708	0.0690	0.0516	0.0000	0.3519
TENURE	6.2321	6.0000	2.8518	1	11
Binary Variables	**Mean**	**0**	**1**	**Std. Dev.**	
LOSS	0.1806	826	182	0.37754	
CHGLEVE	0.0278	980	28	0.164576	
CHGISSUE	0.3899	615	393	0.487916	
BIG4	0.7867	215	793	0.410134	
INITIAL	0.0744	933	75	0.262799	

See the Appendix for the definition of variables.

Table 4 presents the Spearman correlation matrix for the dependent variables, variables of interests and all independent variables that show considerable high correlations ($p > 0.300$) with other variables included in Equation (3). Our measure of unsigned discretionary working capital accruals (|DWCA|) is significantly correlated with our variables of interest NASFEE ($p = 0.086$), ARFEE ($p = 0.055$) and OAFEE ($p = 0.064$). Further, our measure for signed discretionary working capital accruals (DWCA) is significantly correlated with our variables of interest ARFEE ($p = -0.055$), TXFEE ($p = 0.058$) and OAFEE ($p = -0.056$). In addition, most of the control variables used in Equation (3) are significantly associated with both accrual measures, suggesting to use a multivariate analysis to control for their effects.

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[13]   Audit firm tenure is defined as the number of consecutive years the client has engaged a particular audit firm. The calculation of auditor tenure starts in 1999.

Table 4
Spearman Correlation Matrix among Regression Variables

	|DWCA|	DWCA	NASFEE	ARFEE	TXFEE	OAFEE	LNMCAP	ROE	LOSS	CGK	INITIAL
DWCA	0.245 (0.00)	1.0									
NASFEE	0.086 (0.01)	-0.045 (0.16)	1.0								
ARFEE	0.055 (0.08)	-0.055 (0.08)	0.569 (0.00)	1.0							
TXFEE	0.004 (0.90)	0.058 (0.06)	0.415 (0.00)	-0.140 (0.00)	1.0						
OAFEE	0.064 (0.04)	-0.056 (0.08)	0.494 (0.00)	-0.156 (0.00)	-0.094 (0.00)	1.0					
LNMCAP	-0.121 (0.00)	0.032 (0.32)	0.104 (0.00)	0.202 (0.00)	-0.048 (0.13)	-0.030 (0.35)	1.0				
ROE	-0.114 (0.00)	0.209 (0.00)	-0.012 (0.71)	-0.002 (0.94)	0.043 (0.17)	-0.053 (0.09)	0.222 (0.00)	1.0			
LOSS	0.115 (0.00)	-0.258 (0.00)	0.048 (0.13)	0.014 (0.65)	-0.043 (0.17)	0.093 (0.00)	-0.305 (0.00)	-0.402 (0.00)	1.0		
CGK	0.161 (0.00)	0.053 (0.09)	-0.049 (0.12)	-0.116 (0.00)	0.038 (0.23)	0.025 (0.43)	-0.393 (0.00)	-0.026 (0.42)	0.033 (0.30)	1.0	
INITIAL	0.104 (0.00)	0.015 (0.64)	-0.087 (0.01)	-0.092 (0.00)	-0.067 (0.03)	0.032 (0.31)	-0.058 (0.07)	-0.051 (0.11)	0.054 (0.09)	0.033 (0.29)	1.0
TENURE	-0.083 (0.01)	-0.048 (0.13)	0.162 (0.00)	0.147 (0.00)	0.103 (0.00)	-0.014 (0.67)	0.121 (0.00)	-0.006 (0.85)	0.010 (0.76)	-0.093 (0.00)	-0.479 (0.00)

Two-tailed p-values are presented in parentheses. See the Appendix for the definition of variables.

With regard to the correlation among our independent variables in Equation (3), it is worth mentioning the following three facts. First, LNMCAP is significantly negatively associated with LOSS (p = -0.3047) and CGK (p = -0.3932). This suggests that large firms are more anxious to comply with the recommendations of the German Corporate Governance Codex and less likely to report a negative net income, when compared with small or medium-sized companies. Second, Table 4 displays a significant negative association between LOSS and ROE (p = -0.4017). It seems obvious that firms with a low or even negative net income have a low or a negative profitability ratio. Finally, the audit engagement tenure variables INITIAL and TENURE are significantly negatively related (p = -0.4793) with each other.

Overall, the correlation matrix implies that our estimation models are unlikely to suffer from multicollinearity issues.

5   EMPIRICAL RESULTS

5.1   Univariate Analysis

As shown in Table 4, the non-audit fee ratio (NASFEE) is significantly associated with unsigned discretionary working capital accruals (\|DWCA\|). To further investigate the association between both variables, we perform an univariate analysis. To conduct the univariate analysis we first form 15 portfolios based on the levels of NASFEE. Then we calculate for each portfolio the median values of NASFEE and corresponding \|DWAC\|. A plot of the portfolio medians is presented in Figure 1. As can be seen there, the level of \|DWAC\| is positively moving together with NASFEE. In other words, the higher the portfolio medians of NASFEE, the higher the degree of earnings management. Based on the trend lines in Figure 1 it can be assumed that the relationship between the two variables seems to follow a linear movement. Please note that these results also hold for NASFEE portfolios of 10 or 5 items (not tabulated). Overall, the results of our univariate analysis indicate that the provision of non-audit services by the statutory auditor has more negative consequences for audit quality than positive ones.

Figure 1
Portfolio Medians of Non-Audit Fee Ratios and Abnormal Working Capital Accruals
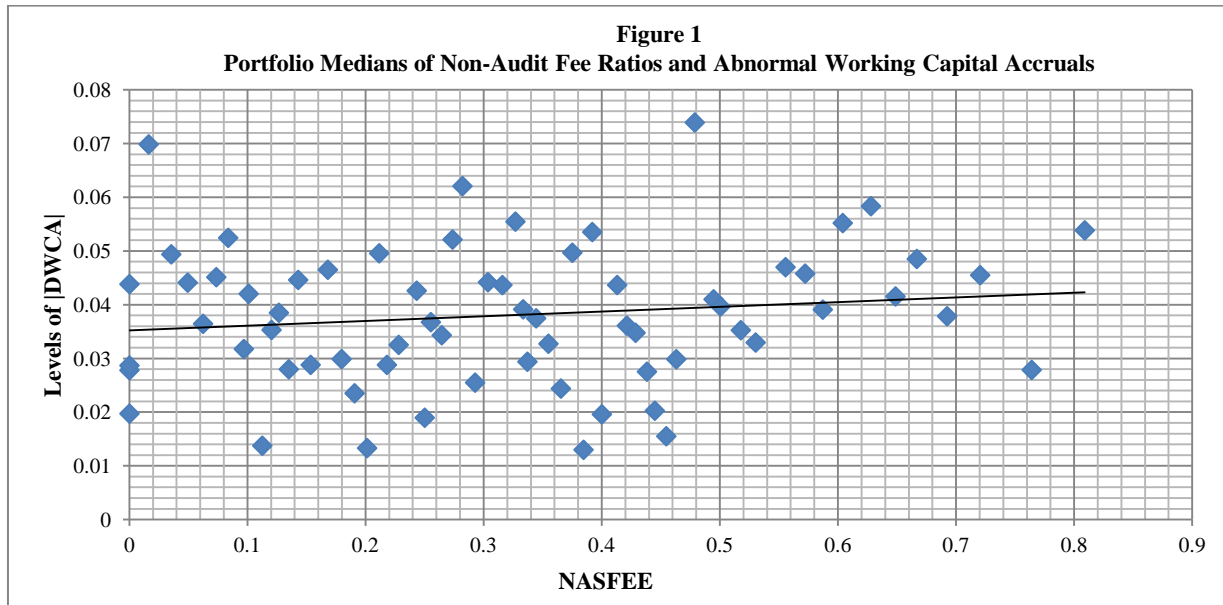
5.2 Multivariate Analysis

5.2.1 Testing the Association between Non-Audit Fees and Earnings Management

Table 5 presents the regression results of testing the association between the total non-audit fee ratios (NASFEE) and earnings management, where |DWCA|, $DWAC^+$ and $DWAC^-$ are used as the dependent variables. The empirical evidence for |DWCA| and $DWCA^+$ show qualitatively similar results for NASFEE, while the results for the association with $DWAC^-$ are insignificant. For |DWCA|, the coefficient for NASFEE is significantly positively associated ($p\text{-value} < 0.05$), indicating that the negative effects of reduced auditor independence on audit quality dominate the positive effects of additional audit information by knowledge spillovers. The results support the rejection of our non-directional Hypothesis (1). With regard to $DWCA^+$ and $DWCA^-$, the results imply that firms with a high non-audit fee ratio are more likely to be engaged in income increasing earnings management, while the level of non-audit fees is not associated with income decreasing accruals. Overall, the results in Table 5 are not in line with the findings of Quick & Sattler (2011), who are not able to find a significant association between the provision of non-audit services and discretionary working capital accruals. However, our results support the empirical findings of the international studies of Ferguson et al. (2004), Srinidhi & Gul (2007) and Krishnan et al. (2011).

Besides our variables of interest, Table 5 shows that 9 of our 13 control variables are significantly associated with |DWCA|. As expected and consistent with prior studies, discretionary working capital accruals are significantly positively associated ($p\text{-value} < 0.01$) with CHGREV, CHGLEVE, CHGISSUE and CGK, while the variables LOSS and INITIAL are considered to be less significant ($p\text{-value} < 0.10$). In addition, the independent variables LNAGE ($p\text{-value} < 0.05$) and BIG4 ($p\text{-value} < 0.01$) are significantly negatively associated with |DWCA|. Contrary to the majority of prior study results and our prediction, ROE – as a proxy for firm performance – also shows a significant negative association with the dependent variable. We assume that the negative coefficient is mainly based on the fact that already highly profitable firms are not forced to use earnings management to meet certain profitability forecasts by financial analysts.

Table 5
Results on the Correlation between Discretionary Working Capital Accruals and Non-Audit Services

Independent Variables	|DWCA|			DWCA$^+$			DWCA$^-$		
	Coefficient	t-value	p-value	Coefficient	t-value	p-value	Coefficient	t-value	p-value
Constant	0.0356	0.965	0.335	0.1055	1.616	0.107	-0.0055	-0.175	0.861
NASFEE	0.0287	2.098	0.036	0.0578	2.584	0.010	-0.0041	-0.334	0.739
LNMCAP	0.0023	1.131	0.258	0.0011	0.315	0.753	0.0009	0.488	0.626
LNAGE	-0.0063	-2.396	0.017	-0.0017	-0.369	0.712	-0.0044	-1.912	0.057
CHGREV	0.0413	4.034	0.000	0.0456	2.676	0.008	0.0049	0.529	0.597
BTM	0.0005	0.100	0.920	-0.0289	-2.754	0.006	0.0119	2.872	0.004
ROE	-0.0102	-2.258	0.024	0.0228	2.032	0.043	-0.0209	-6.320	0.000
CFO	0.0148	0.600	0.549	-0.3516	-7.984	0.000	0.3306	14.437	0.000
LOSS	0.0151	1.765	0.078	-0.0343	-1.687	0.092	0.0444	6.658	0.000
CHGLEVE	0.0606	3.546	0.000	-0.0245	-0.820	0.413	0.0967	6.434	0.000
CHGISSUE	0.0164	2.777	0.006	0.0190	1.873	0.062	0.0129	2.526	0.012
CGK	0.2043	3.440	0.001	0.0873	0.911	0.363	0.1099	1.993	0.047
BIG4	-0.0239	-3.264	0.001	-0.0305	-2.655	0.008	-0.0020	-0.285	0.776
INITIAL	0.0234	1.902	0.057	0.0235	1.152	0.250	0.0140	1.285	0.199
TENURE	-0.0021	-1.577	0.115	-0.0022	-1.024	0.306	-0.0013	-1.137	0.256
Year and industry dummies	Included			Included			Included		
Adjusted R^2	0.1275			0.2085			0.4846		
N	1,008			464			544		

See the Appendix for the definition of variables.

5.2.2   Testing the Association between Audit Related Fees and Earnings Management

Table 6 shows the regression results of testing the association between audit related fees (ARFEE) and earnings quality, where |DWCA|, DWCA$^+$ and DWCA$^-$ are used as the dependent variables. The empirical findings for ARFEE demonstrate a significant positive association with |DWCA|. The results imply that provided audit-related services are not related to client-specific knowledge spillover effects, respectively are not substantial enough to outweigh the negative effects on auditor independence. As we can learn from the descriptive statistics in Table 3, the non-audit service category of audit-related services has the highest proportion on total fees (12.02 percent), when compared to the other two non-audit fee categories. Therefore, we conclude that the economic auditor-client bonding with negative consequences on auditor independence is at the highest level for this category. As we are not able to find significant knowledge spillover effects that compensate or even outweigh the negative impact of high audit-related fee ratios on auditor independence, we are unable to reject Hypothesis (2). In contrast to |DWCA|, we are neither able to report significant results for ARFEE with DWCA$^+$ nor with DWCA$^-$. The insignificant results imply that the negative impact of audit related services on audit quality does not systematically differ between income increasing and income decreasing accrual management. Overall, with regard to |DWCA|, our results in Table 6 are considerably different to those of Quick & Sattler (2011), who report insignificant results for the relation of audit related services on audit quality. We assume that the different estimation results are mainly based on unequal sample compositions of both studies with regard to sample size and sample period.

Table 6
Results on the Correlation between Discretionary Working Capital Accruals and Audit Related Services

Independent Variables	|DWCA|			$DWCA^+$			$DWCA^-$		
	Coefficient	t-value	p-value	Coefficient	t-value	p-value	Coefficient	t-value	p-value
Constant	0.0457	1.236	0.217	0.1151	1.743	0.082	-0.0038	-0.122	0.903
ARFEE	0.0356	1.928	0.054	0.0284	0.885	0.376	0.0216	1.350	0.178
LNMCAP	0.0021	1.017	0.310	0.0015	0.414	0.679	0.0005	0.304	0.761
LNAGE	-0.0064	-2.441	0.015	-0.0031	-0.685	0.494	-0.0039	-1.692	0.091
CHGREV	0.0405	3.949	0.000	0.0445	2.587	0.010	0.0042	0.453	0.651
BTM	0.0003	0.059	0.953	-0.0281	-2.649	0.008	0.0119	2.882	0.004
ROE	-0.0100	-2.216	0.027	0.0238	2.103	0.036	-0.0208	-6.311	0.000
CFO	0.0157	0.637	0.524	-0.3490	-7.829	0.000	0.3262	14.181	0.000
LOSS	0.0151	1.763	0.078	-0.0352	-1.719	0.086	0.0437	6.566	0.000
CHGLEVE	0.0619	3.621	0.000	-0.0206	-0.687	0.493	0.0963	6.429	0.000
CHGISSUE	0.0158	2.656	0.008	0.0193	1.880	0.061	0.0114	2.220	0.027
CGK	0.2082	3.500	0.001	0.1009	1.044	0.297	0.1140	2.071	0.039
BIG4	-0.0235	-3.212	0.001	-0.0311	-2.687	0.008	-0.0025	-0.358	0.721
INITIAL	0.0238	1.930	0.054	0.0220	1.073	0.284	0.0143	1.318	0.188
TENURE	-0.0020	-1.528	0.127	-0.0017	-0.798	0.426	-0.0016	-1.333	0.183
Year and industry dummies	Included			Included			Included		
Adjusted R^2	0.1269			0.1977			0.4842		
N	1,008			464			544		

See the Appendix for the definition of variables.

5.2.3　Testing the Association between Tax Fees and Earnings Management

Table 7 presents the estimation results of investigating the association between tax fees (TXFEE) and audit quality proxied by signed and unsigned discretionary working capital accruals (|DWCA|, $DWCA^+$, $DWCA^-$).The empirical findings for all three accrual measures with regard to provided tax services are consistent. For our pooled sample of 1,008 firm observations we cannot find a significant association between TXFEE and discretionary working capital accruals and therefore are in the position to reject Hypothesis (3). With regard to the hypotheses development there are two plausible explanations for these results. First, the parallel provision of audit and tax services can on the one hand lead to an increase in client specific knowledge, while on the other hand the fee payments for both services can result in a decrease in auditor independence. If both effects reach a similar level, the effects compensate each other and lead to insignificant results. An alternative explanation assumes that provided tax services contain a minimum of knowledge spillover effects, as the majority of tax service are prohibit by the regulatory requirements in Germany. As can be learned from descriptive statistics in Table 3, the magnitude of paid tax fees is substantially lower when compared with audit-related and other advisory fees. As a consequence, the potential auditor-client economic bonding effects seem to be marginal.

Table 7
Results on the Correlation between Discretionary Working Capital Accruals and Tax Services

Independent Variables	|DWCA|			$DWCA^+$			$DWCA^-$		
	Coefficient	t-value	p-value	Coefficient	t-value	p-value	Coefficient	t-value	p-value
Constant	0.0378	1.015	0.310	0.0998	1.516	0.130	-0.0038	-0.120	0.905
TXFEE	0.0138	0.596	0.552	0.0599	1.599	0.111	-0.0140	-0.665	0.506
LNMCAP	0.0027	1.287	0.198	0.0023	0.628	0.530	0.0008	0.461	0.645
LNAGE	-0.0071	-2.711	0.007	-0.0036	-0.801	0.423	-0.0042	-1.856	0.064
CHGREV	0.0422	4.105	0.000	0.0475	2.766	0.006	0.0046	0.502	0.616
BTM	0.0011	0.215	0.830	-0.0252	-2.381	0.018	0.0117	2.826	0.005
ROE	-0.0103	-2.279	0.023	0.0222	1.969	0.050	-0.0208	-6.296	0.000
CFO	0.0169	0.686	0.493	-0.3560	-8.041	0.000	0.3294	14.394	0.000
LOSS	0.0159	1.860	0.063	-0.0351	-1.718	0.086	0.0441	6.632	0.000
CHGLEVE	0.0623	3.639	0.000	-0.0213	-0.711	0.477	0.0959	6.385	0.000
CHGISSUE	0.0178	2.989	0.003	0.0215	2.097	0.037	0.0122	2.370	0.018
CGK	0.2017	3.389	0.001	0.0927	0.963	0.336	0.1117	2.028	0.043
BIG4	-0.0228	-3.092	0.002	-0.0286	-2.454	0.015	-0.0025	-0.358	0.721
INITIAL	0.0232	1.885	0.060	0.0201	0.980	0.328	0.0138	1.272	0.204
TENURE	-0.0018	-1.373	0.170	-0.0019	-0.895	0.371	-0.0013	-1.117	0.264
Year and industry dummies	Included			Included			Included		
Adjusted R^2	0.1231			0.2010			0.4828		
N	1,008			464			544		

See the Appendix for the definition of variables.

Our results are in line with the study of Huang et al. (2007), who report that tax services are not associated with aggressive financial reporting for the audit market in the United States. Moreover, our results are also supported by the reported findings of Quick & Sattler (2011) for the German audit market.

5.2.4   *Testing the Association between Other Advisory Fees and Earnings Management*

Table 8 displays the results from Equation (3) using other advisory fees (OAFEE) as our variable of interest. The results for the earnings management model with OAFEE are qualitatively similar to those of the previous estimation with TAXFEE. To summarize, other advisory services are not related to |DWCA| and DWCA⁻. However, we are able to find a weak positive association (p-value < 0.10) between DWCA⁺ and OAFEE, suggesting that also other advisory fees can create an economic incentive that impairs auditor independence in order to allow clients to manage income increasing accruals. As can be learned from the descriptive statistics in Table 3, the magnitude of provided other advisory services are almost on the same level as for audit related services and significantly higher than for tax services. It can be assumed that the product portfolio of audit firms with regard to offered other advisory services are more diversified than for tax services. Therefore, auditors are able to provide a greater number of minor other advisory services, which are not prohibited by law. Despite the weak significant results, overall it can be stated that other advisory services are at best a weak factor with regard to knowledge spillover and auditor independence effects in Germany. As a consequence, we are partially able to reject our

Table 8
Results on the Correlation between Discretionary Working Capital Accruals and Other Consulting Services

Independent Variables	|DWCA|			DWCA⁺			DWCA⁻		
	Coefficient	t-value	p-value	Coefficient	t-value	p-value	Coefficient	t-value	p-value
Constant	0.0392	1.058	0.291	0.1030	1.568	0.118	-0.0028	-0.088	0.930
OAFEE	0.0094	0.467	0.641	0.0619	1.653	0.099	-0.0221	-1.326	0.185
LNMCAP	0.0026	1.269	0.205	0.0018	0.499	0.618	0.0007	0.413	0.680
LNAGE	-0.0069	-2.640	0.008	-0.0024	-0.531	0.596	-0.0044	-1.964	0.050
CHGREV	0.0419	4.079	0.000	0.0455	2.658	0.008	0.0049	0.533	0.594
BTM	0.0007	0.134	0.893	-0.0287	-2.718	0.007	0.0120	2.917	0.004
ROE	-0.0101	-2.249	0.025	0.0223	1.977	0.049	-0.0210	-6.348	0.000
CFO	0.0164	0.666	0.506	-0.3574	-8.067	0.000	0.3298	14.450	0.000
LOSS	0.0158	1.839	0.066	-0.0334	-1.637	0.102	0.0446	6.708	0.000
CHGLEVE	0.0616	3.586	0.000	-0.0221	-0.736	0.462	0.0985	6.540	0.000
CHGISSUE	0.0172	2.893	0.004	0.0186	1.818	0.070	0.0133	2.618	0.009
CGK	0.2014	3.384	0.001	0.0764	0.788	0.431	0.1079	1.961	0.051
BIG4	-0.0236	-3.203	0.001	-0.0334	-2.876	0.004	-0.0010	-0.147	0.883
INITIAL	0.0233	1.892	0.059	0.0241	1.174	0.241	0.0151	1.381	0.168
TENURE	-0.0017	-1.299	0.194	-0.0013	-0.611	0.542	-0.0014	-1.214	0.225
Year and industry dummies	Included			Included			Included		
Adjusted R²	0.1229			0.2012			0.4842		
N	1,008			464			544		

See the Appendix for the definition of variables.

Our results are not in line with the findings of Quick & Sattler (2011), who find inconsistent results for the effects of other advisory services on audit quality. On the one hand the authors report a significant positive association between unsigned discretionary working capital accruals and other advisory services, while on the other the signed negative discretionary working capital accruals are negatively associated with the level of paid other advisory services (Quick & Sattler, 2011, p. 331).

6   ROBUSTNESS CHECKS

To investigate the robustness of our results we perform several sensitivity analyses. First, our sample period (2004-2011) includes several year specific events (e.g. financial crisis in 2008, mandatory IFRS adoption in 2005). In order to capture the potential year specific effects on our empirical results, we already included year indicator variables in our original Equation (3). Further, we control the robustness of our findings by re-estimating Equation (3) for each sample year individually (excluding the year dummies).[14] The results of our annual regressions are qualitatively similar to those reported in Table 5 to 8.

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[14]   We refuse to conduct the analysis for the year 2004, as the sample size for this fiscal year (n = 16) is too small for an adequate analysis.

Second, regulators and researchers have expressed several concerns that auditor independence can be in particular impaired when the proportion of non-audit fees to total fees are unusually high. The Security and Exchange Commission (2001) as well as Quick & Warming-Rasmussen (2009) defined a critical reference ratio of 25 percent. Further, Quick & Sattler (2011) examine in their study an alternative and more conservative benchmark of 10 percent. To investigate the effects of high non-audit fee ratios on earnings management, we form several binary variables for total non-audit fees (NASFEE_DY), audit-related fees (ARFEE_DY), tax fees (TXFEE_DY) and other advisory fees (OAFEE_DY). The indicator variable takes the value of 1 if the non-audit variable exceeds the defined reference point, and 0 otherwise. The binary variables are then added to Equation (3) and calculated separately. Table 9 shows the results of the several robustness analyses. As the results of the other independent variables are qualitatively similar to those described in chapter 5, we decide only to present the empirical evidence for the test variables.

As can been seen in Table 9 the dependent variables ($|DWCA|$ and $DWCA^+$) are significantly positively associated (p-value < 0.01) with NASFEE_DY (> 25 percent of total fees), while for $DWCA^-$ an insignificant coefficient is reported. These results are qualitatively similar to those reported in Table 5. In contrast, we are not able to find significant results for the smaller non-audit fee ratio benchmark of 10 percent. This finding implies that especially greater non-audit fee payments lead to an erosion of audit quality. With regard to provided audit related services by the statutory auditor, we find a significant positive correlation for the 10 percent benchmark ratio with all three discretionary working capital accrual measures. If we compare these findings with those in Table 6, the findings are robust with regard to $|DWCA|$. We assume that significantly different results for $DWCA^+$ and $DWCA^-$ are mainly based on the alternative definition of the fee ratio. As the directions of all three coefficients are consistently positive, the conclusion that provided audit-related services have a negative impact on audit quality seems robust. Finally, the results for the variables TXFEE_DY and OAFEE_DY are in general insignificant and therefore support our findings in Table 7, respectively Table 8. In contrast to our results in Table 7, the robustness analysis shows a weak negative association (p-value < 0.10) between high tax fee ratios (> 25 percent of total fees) and income decreasing working capital accruals. We believe that these different results are mainly based on the fact that only a small number of firm observations (n = 58) reaches the benchmark ratio of 25 percent and as a consequence the results for the test variable are mainly driven by a few extreme tax fee observations.

Table 9
Results Robustness Analysis on the Association between Discretionary Working Capital Accruals and Non-Audit Services

	$|DWCA|$		$DWCA^+$		$DWCA^-$	
	≥ 10%	≥ 25%	≥ 10%	≥ 25%	≥ 10%	≥ 25%
Test Variables	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
NASFEE_DY	0.0099	0.0153	0.0113	0.0270	0.0050	0.0052
	(1.32)	(2.63***)	(0.99)	(2.86***)	(0.66)	(0.98)
ARFEE_DY	0.0175	0.0072	0.0188	0.0032	0.0161	0.0037
	(2.93***)	(0.94)	(1.84*)	(0.23)	(3.09***)	(0.58)
TXFEE_DY	0.0055	0.0015	0.0135	0.0167	-0.0023	-0.0155
	(0.90)	(0.18)	(1.30)	(1.25)	(-0.43)	(-1.96*)
OAFEE_DY	0.0040	0.0011	0.0132	0.0148	-0.0025	-0.0071
	(0.70)	(0.14)	(1.34)	(1.09)	(-0.52)	(-1.10)
N	1,008	1,008	464	464	544	544

The t-statistics and p-values are presented in parantheses. Two-tailed p-values are significant at *** l% level, ** 5% level, * l0% level. Coefficients are estimated using the same research design and other independent variables (not tabulated) as in Equation (3). The Robustness Analysis has been conducted for each non-audit fee variable separatly. See the Appendix for the definition of variables.

Third, our study approach assumes that discretionary working capital accruals are an appropriate measure of earnings management, hence audit quality. Despite the widely accepted use in prior accounting research, accrual measures are criticized as a noisy proxy for the management's discretion in earnings. To consider this limitation in our robustness analysis, we conduct two additional earnings management estimations with two alternative accrual measures: (1) abnormal working capital accruals (AWCA) calculated by the model of DeFond & Park (2001); (2) discretionary accruals (DA) measured by the original modified Jones model (Dechow et al. 1995).

After calculating the two additional accrual measures, we add the absolute value of the abnormal working capital accruals ($|AWCA|$) and discretionary accruals ($|DA|$) as dependent variables in Equation (3). The results of the alternative robustness check are presented in Table 10. As can be seen in Table 10, we find a positive association

for both accrual measures with the fee ratios NASFEE and ARFEE. In contrast, the results for the other two fee variables, namely TXFEE and OAFEE are insignificant. If we compare the results of the robustness analysis with those in Table 5 to 8, we can conclude that our empirical results are robust to both alternative accrual measures.

Table 10
Results Robustness Analysis on the Association between
Alternative Discretionary Accrual Measures and Non-Audit Services

Test Variables	|AWCA|			|DA|	
	Coefficient	t-value	p-value	Coefficient	t-value
NASFEE	0.0402	2.210	0.027	0.0263	1.726
ARFEE	0.0532	2.162	0.031	0.0527	2.561
TXFEE	0.0286	0.927	0.354	-0.0069	-0.269
OAFEE	0.0024	0.088	0.930	-0.0002	-0.009
N	1,008			1,008	

Coefficients are estimated using the same research design and other independent variables (not tabulated) as in Equation (3). The Robustness Analysis has been conducted for each non-audit fee variable separatly. See the Appendix for the definition of variables.

Forth, when examining auditor fee dependency issues, previous studies also used alternative fee measures in their research approach. Following Chung & Kallapur (2003) we re-estimate Equation (3) using a ratio of total fees (TOTFEEREV) from one client to the total revenues from all clients in Germany.[15] With regard to audit regulation in Germany, the GCC contains two specific total fee restriction benchmarks that are binding for the statutory auditor. According to section 319 paragraph 3 No. 5 GCC an audit firm cannot be assigned as the statutory auditor, when the total fees of the audit engagement within the last five years have exceeded 30 percent of the audit firms' total revenue. For audit engagements of listed companies section 319a paragraph 1 No. 1 GCC decreases the fee benchmark to 15 percent. In order to test the effects of our alternative fee measures on signed and unsigned working capital discretionary accruals, we insert the variable TOTFEEREV for NASVAR in Equation (3).

The results of the robustness analysis show that neither unsigned nor signed working capital discretionary accruals are significantly associated with TOTFEEREV (not tabulated). The result of the robustness analysis contributes our original research results in two ways. First, it seems that audit partners care more about the profitability of their own audit engagements than the concerns of the whole audit firm. As a consequence, we are able to find significant negative effects for our client-specific non-audit fee measures and insignificant results for the audit firm-specific total fee measure. Second, our results presented in Table 5 to 8 seem to be robust for alternative discretionary accrual measures and estimation models, while the original results are not robust to alternative fee measures.

7　CONCLUSION AND LIMITATIONS

In this paper, we analyze the empirical association between non-audit services and audit quality, as measured by signed and unsigned discretionary workings capital accruals. Consistent with recent literature, we form different non-audit fee ratios in order to capture knowledge spillover and auditor independence effects on audit quality. Due to the mandatory audit fee disclosure requirements in Germany, we are able not only to investigate the audit quality effects of non-audit fees in general, but also for the subcategories of audit-related fees, tax fees and other advisory fees. Using a sample of 1,008 major German listed companies for the sample period 2004-2011, our empirical results demonstrate that total non-audit fees and audit-related fees are negatively associated with audit quality, while the provision of tax services and other advisory services have more or less an insignificant impact on audit quality. Our results imply that total non-audit fees in general and audit-related fees in particular are a significant factor in the context of compromised auditor independence and economic auditor-client bonding. Further, we provide evidence that the provision of tax and other advisory services by the statutory auditor neither lead to impaired auditor independence nor create substantial knowledge spillover effects that could improve the auditors' ability to limit opportunistic earnings management practices. Our results are robust to alternative discretionary accrual measures and estimation model specifications. However, our empirical evidence is not robust with regard to alternative fee measures.

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[15]　The audit firms' total revenues in Germany are derived from the annual audit market studies of the Luenendonk Ltd. Our sample for the robustness analysis decreased to 918 firm observations, due to missing audit firms' total revenue data.

Our study is providing additional empirical evidence to the inconsistent and comprehensible range of existing non-audit fee literature. Moreover, we are able to complement the latest empirical study about the effects of non-audit service pricing in continental Europe, respectively Germany by Quick & Sattler (2011). In contrast to our study, the authors could find only limited empirical evidence by provided non-audit services on audit quality. From a regulatory point of view, our study provides useful insights into the recent debates regarding the economic auditor-client dependency issues. The latest developments in audit regulation by the EU-Commission demonstrate that regulators identified the provision of non-audit services by the statutory auditor as an important regulative field. Our empirical results imply that regulators should consider limiting the provision of non-audit services by statutory auditors in general and for audit-related services in particular. The offering of tax services and other advisory services should take a subordinate role in this discussion.

Nevertheless, our empirical evidence should be interpreted cautiously as the research design is subject to the following limitations which open up starting points for future research. First, the comparison between the different non-audit fee categories depends on the classification criteria for each category. Since the German audit fee disclosure requirements contain a number of interpretable classification criteria, we cannot rule out the possibility that not all non-audit services are classified consistently into the same subcategories and therefore the measures within each category are potentially noisy. We try to curb this limitation by hand-collecting our fee data from the annual reports.

Second, consistent with prior audit research we use discretionary accruals as a proxy for audit quality. These accrual measures are in general criticized because it is assumed that the accrual models classify non-discretionary and discretionary accrual items incorrectly. To mitigate this problem, we conduct an additional robustness check with two widely accepted accrual models, namely the abnormal working capital accrual calculation of DeFond & Park (2001) and the modified Jones model (Dechow et al., 1995). The results of these additional analyses imply that our results are robust with regard to alternative accrual measures. However, despite those tests there is still an unknown degree of potential measurement errors in our accrual models. For future analyses an exploration of alternative audit quality measures, e.g., qualified audit opinions, qualified going-concern opinions, accounting restatements or audit fraud would provide a better understanding about audit quality effects by the jointly provision of audit and non-audit services.

Finally, our sample is limited to large, publicly-traded firms, thus generalization to smaller firms might be inappropriate. Future research should consider this limitation by adding small and medium-sized companies to the sample composition.

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APPENDIX

The table below summarizes the variables used in Equation (1) to (3).

Variable	Definition	Type
ARFEE	audit-related fees divided by total fees.	Continuous
ARFEE_DY	binary variable that equals 1 if ARFEE ≥ 10% or 25%, and 0 otherwise.	Binary
|AWCA|	unsigned value of abnormal working capital accruals as measured by the model of DeFond and Park (2001).	Continuous
BIG4	binary variable equal to 1 if auditor is a Big 4 audit firm (Deloitte, PWC, Ernst & Young, KPMG), and 0 otherwise.	Binary
BTM	book-to-market ratio (equity divided by market capitalization).	Continuous
CFO	cash flow from operations divided by lagged total assets.	Continuous
CGK	number of non-complied recommendations of the German Corporate Governance Codex divided by the total number of recommendations.	Continuous
CHGISSUE	binary variable equal to 1 if the issued equity titels are ≥ 10% of the subscribed capital in the prior year, and 0 otherwise.	Binary
CHGLEVE	binary variable equal to 1 if leverage ratio (total liabilities divided by total assets) change to prior year is ≥ 20%, and 0 otherwise.	Binary
CHGREV	revenue change from the prior fiscal year.	Continuous
|DA|	unsigned value of discretionary accruals measured by the modified Jones model (Dechow et al. 1995).	Continuous
DEP	depreciation and armotization of fixed assets in thousand of €.	Continuous
DWCA	signed value of discretionary working capital accruals as measured by Equation (1).	Continuous
|DWCA|	unsigned value of discretionary working capital accruals as measured by Equation (1).	Continuous
+DWCA	signed positive value of abnormal working capital accruals as measured by Equation (1).	Continuous
-DWCA	signed negative value of abnormal working capital accruals as measured by Equation (1).	Continuous
EAR	earnings from ordinary operations.	Continuous
INITIAL	binary variable that equals 1 if first year audit engagement for the statutory, and 0 otherwise.	Binary
LNAGE	natural log of years since company foundation.	Continuous
LNMCAP	natural log of market capitilization in thousand of €.	Continuous
LOSS	binary variable equal to 1 if net income in prior fiscal year is negative, and 0 otherwise.	Binary
NASFEE	non-audit service fees divided by total fees.	Continuous
NASFEE_DY	binary variable that equals 1 if NASFEE ≥ 10% or 25%, and 0 otherwise.	Binary
OAFEE	other (consulting) fees divided by total fees.	Continuous
OAFEE_DY	binary variable that equals 1 if OAFEE ≥ 10% or 25%, and 0 otherwise.	Binary
REC	receivables in thousand of €.	Continuous
REV	total revenues in thousand of €.	Continuous
ROA	return on assets (net income divided by total assets).	Continuous
ROE	return on equity (net income divided by equity).	Continuous
TA	total assets in thousand of €.	Continuous
TENURE	number of years for the current auditor on the audit engagement.	Continuous
TOTFEEREV	ratio of total client fees (audit + non-audit services) to audit firm's to total revenus in Germany.	Continuous
TXFEE	tax fees divided by total fees.	Continuous
TXFEE_DY	binary variable that equals 1 if TXFEE ≥ 10% or 25%, and 0 otherwise.	Binary
WCA	woring capital accruals as measured by Equation (2).	Continuous

NOTES