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Agency conflicts and the demand for non-audit services

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Abstract

Purpose – The aim of the present paper is to examine the impact of agency costs on the demand for non-audit services (NAS) in Germany.

Design/methodology/approach – This study uses data from German listed companies to test whether audit clients vary their purchases of NAS according to agency costs over time. The paper used multiple regressions and included ownership composition, performance-based management compensation, and leverage as proxies for agency conflicts.

Findings – Overall, the hypothesis that agency costs influence the demand for NAS was not confirmed. None of our proxies for agency conflicts were significantly associated with the purchase of NAS. These findings remain stable when alternative NAS fee measures were applied.

Research limitations/implications – Findings cannot be generalised for smaller, private companies. Particularities of the German setting might have caused the insignificance of agency costs, but this cannot be tested statistically. The contrast between these insignificant results and the significant impact of agency costs on the demand for non-audit services revealed by many previous studies, in particular from the US and the UK, raises important questions for future research.

Practical implications – This paper concerns management's perceptions on how stakeholders perceive the effect of NAS provision on auditor independence. Thus, its findings should be of interest to German, European and international regulators when evaluating the impact of the provision of NAS on independence in appearance.

Originality/value – This study is the first to provide evidence on the relationship between agency conflicts and the demand for non-audit services from Germany and thus from a continental European country. Moreover, it provides evidence for periods after the introduction of stricter standards on the provision of non-audit services. In addition, it applies a new proxy for agency costs (i.e. performance-based management compensation).

Keywords Auditing, Non-audit services, Agency conflicts, Agency costs, Fee disclosure, Independence, Germany

Paper type Research paper

1. Introduction

In the wake of numerous accounting scandals, the impact of non-audit services (NAS) on auditors' independence has been debated. Regulators fear that relatively high levels of

JEL classification – M42, M48

Managerial Auditing Journal
Vol. 28 No. 4, 2013
pp. 323-344

0268-6902
DOI 10.1108/02686901311311927

fees for NAS have the potential to reduce the independence of auditors by increasing the economic bond between them and their clients. In order to preserve auditor independence, regulators in the USA and Germany, for example, have prohibited the provision of certain NAS by incumbent auditors. Moreover, the International Federation of Accountants (IFAC) Code of Ethics and the revised Eighth EC Directive, include restrictions and safeguards to strengthen auditor independence. The recent proposal for a regulation on statutory audits of public-interest companies by the European Commission (2011) even suggests a general prohibition of the provision of NAS to audit clients[1].

The conflicting interests of agents (management) and principals (investors/creditors) in combination with the existence of information asymmetries between them can result in agency costs (Jensen and Meckling, 1976, p. 308). The purpose of this paper is to investigate whether agency costs affect companies' demand for NAS in Germany. Thus, we examine the relationship between the agency costs of a firm and the relative levels of NAS fees paid to external auditors. We assume that the managers of a firm are interested in having an external audit because of the subsequent reduction in agency costs. Furthermore, we presume that companies that have high agency costs purchase fewer NAS to signal the independence of their auditors, since the provision of NAS may impair independence in appearance.

Prior research on agency costs and the demand for NAS was conducted in the UK and Australia and in particular in the USA, but not in Continental Europe[2]. Although the NAS fee ratio (NAS fees in relation to total fees) has decreased from approximately 50 to 25 per cent for US firms in the post-SOX era[3], it nevertheless increased slightly by approximately 0.5 per cent for the publicly listed German companies included in the sample of this study between 2005 and 2007. This growth in NAS fees might indicate that managers of German firms have less fear of the potentially negative impacts on investor trust than their American counterparts when demanding advisory services from their auditors. Therefore, the relationship between agency costs and NAS fees might be different for German companies in comparison with companies in other parts of the world.

Like in the UK, Australia and the USA, the provision of several NAS by the statutory auditor is banned in Germany including involvement in keeping the audit client's accounting records and preparing its annual financial statements to be audited; involvement in the performance of internal audit functions in a position of responsibility; or rendering corporate management or financial services and independent actuarial or valuation services that have material bearing on the annual financial statements. In addition, further services for the audit of listed companies are prohibited. These include provision of legal or tax advisory services that extend beyond the presentation of structuring alternatives, and which directly and materially affect the presentation of the net assets, financial position and results of operations in the annual financial statements; and involvement in developing, establishing and implementing accounting information systems, unless such an activity is insignificant.

Moreover, some aspects of auditing in Germany differ from those in the USA, the UK and Australia (Köhler *et al.*, 2008). The civil liability of German auditors, for example, is capped and limited liability is provided to third parties such as shareholders (Gietzmann and Quick, 1998). Such a liability regime may result in reduced trust in audit quality and auditor independence and thus decrease the demand for NAS. In addition, the primary activities of most German audit firms were originally the provision of trust

and consulting services rather than auditing. This historical context explains why until recently German auditors have generally been allowed to provide NAS to audit clients (Quick, 2005). Consequently, German firms might perceive that the provision of advisory services is less problematic with respect to auditor independence.

The German setting has other peculiarities that might also result in different findings from those of previous research with regard to the impact of agency costs on the demand for NAS. These include the two-tier system of corporate governance (i.e. a management board and a supervisory board, Hackethal *et al.*, 2005, pp. 398-401), low equity ratios, shareholdings by important creditors, the lower relevance of private shareholders and the representation of investors and creditors on supervisory boards.

These particularities of the German setting could have an impact on the effect of agency costs on the purchase of NAS. The two-tier system of corporate governance, for example, which allows important investors as well as creditors to be represented on supervisory boards, might reduce information asymmetries and thus the relevance of audited financial statements for these types of users. In addition, the prohibition of several NAS could decrease the negative impact of NAS fees on independence in appearance. Therefore, the results of this study can contribute to the ongoing debate.

Overall, our results did not show an influence of agency costs on the demand for NAS. The demand is mainly driven by firm size, growth, the economic situation of the client, the firm's number of segments, the market to book ratio and auditor switch. The study described herein contributes to the body of knowledge on this topic in a number of ways. First, in contrast to previous studies carried out in the USA, the UK and Australia, it uses evidence from a continental European country. In addition, one of the proxies applied to measure agency costs (i.e. management compensation) has not been used previously in similar research. Finally, we provide evidence for periods after the implementation of stricter standards on the provision of NAS. Our findings should be of interest to German, European and international regulators when evaluating the impact of the provision of advisory services on perceived auditor independence.

The remainder of the paper is organised as follows. After a brief review of audit quality and a definition of auditor independence, Section 2 describes the benefits and threats of auditors who provide concurrent advisory and audit services and reviews previous research findings in this area. Section 3 discusses the impact of agency costs on NAS fees and presents a set of hypotheses. Section 4 describes the methodology and the results and discusses the main findings. In Section 5, we conclude and explicate the limitations of our study.

2. Background and literature review

External audits only provide valuable information about the appropriateness of the financial statements of a company if the audits are of an adequate quality. DeAngelo (1981a, p. 115, 1981b, p. 186) defines audit quality as the "market-assessed probability [. . .] that a given auditor will both discover a breach in the client's accounting system, and report the breach". This probability of discovery is determined by the level of professional expertise, skills and technologies available. However, the willingness of auditors to report breaches requires them to maintain their independence even in the face of pressure from their clients (Firth, 1997, p. 8). In particular, the provision of NAS can diminish auditor independence and thus lower audit quality. The IFAC distinguishes between independence in mind and independence in appearance

(IFAC, 2010, Section 290.6), and the suggested correlation between NAS and agency costs is related to independence in appearance.

The economic incentives for the joint provision of audit and NAS are related to the synergetic effects and a reduction in the costs that arise from knowledge spillovers (Simunic, 1984; Beck *et al.*, 1988). However, such joint provision is questionable when it compromises auditor independence (IFAC, 2010, Section 290.156). Independence might be compromised in a number of ways. First, threats may arise as a result of self-interest because of the additional fees derived from NAS. Second, auditors can be deterred from acting objectively because of intimidation by clients. Clients could threaten auditors with termination of the consulting contract. Third, threats from self-review can appear when professional accountants (re-)evaluate their previous consulting work (Bartlett, 1991, p. 14). Fourth, an advocacy threat may occur when auditors promote the positions or opinions of their clients. The more significant the provision of NAS, the higher is the risk that the auditor identifies with the client's interest. Finally, familiarity threats can result from close relationships. The provision of advisory services entails a degree of mutual trust between the auditor and the firm, which may result in excessive trust in the client and insufficient objective testing of the accounting data.

From the point of view of agency theory, the simultaneous provision of audit services and NAS may cause problems of moral hazard. Auditors who are driven by opportunistic behaviour may interpret accounting matters in accordance with the views of management, in order to assure future business for the firm. Such "hidden action" behaviour is invisible to investors, other stakeholders and the regulating authorities (Arrow, 1985). It is even possible that auditors may receive side-payments from the management of a company in return for an unqualified audit opinion (Antle, 1984, p. 9; Ewert, 1990, pp. 140-146). Moreover, advisory contracts could be used to conceal and legitimise such payments (Antle, 1984, p. 16). The mandatory disclosure of fees is intended to counteract such opportunistic behaviour by enabling the public to evaluate auditor activities. At the same time, a high degree of transparency strengthens independence when managers demand fewer NAS of the incumbent auditor (Dye, 1991, p. 356; Stefani, 2002, pp. 179-230)[4]. Any doubts about auditor independence that arise from unexpected fees can result in the impairment of the reputation of an auditor, which would thus reduce the usefulness of the audit to investors (Antle, 1984, p. 17)[5].

Most previous empirical evidence has suggested that the joint provision of audit services and NAS negatively affects perceived auditor independence (Swanger and Chewning, 2001; Frankel *et al.*, 2002; Raghunandan, 2003; Brandon *et al.*, 2004; Mishra *et al.*, 2005; Krishnan *et al.*, 2005; Quick and Warming-Rasmussen, 2005; Francis and Ke, 2006; Gul *et al.*, 2006; Khurana and Raman, 2006; Davis and Hollie, 2008; Dhaliwal *et al.*, 2008; Lim and Tan, 2008; Quick and Warming-Rasmussen, 2009; Dart, 2011; Chahine and Filatotschev, 2011)[6]. Thus, previous research supports a fundamental assumption of our study.

Agency costs comprise the:

> [...] costs of structuring, monitoring, and bonding a set of contracts among agents with conflicting interests, plus the residual loss incurred because the cost of full enforcement of contracts exceeds the benefit (Jensen, 1998, p. 153).

Investors in firms that have high levels of agency costs may be especially concerned about the economic bonding between client and auditor. Consequently, clients probably

want to reduce their costs of capital by improving the appearance of auditor independence. To achieve this objective, clients reduce the level of NAS that they purchase from their auditors (Beck *et al.*, 1988).

Parkash and Venable (1993) evaluated the effect of agency cost incentives and knowledge spillovers on the joint provision of audit services and NAS in listed US firms. In their study, agency cost proxies included management ownership, outside investment concentration and debt, and it was discovered that the dependent variable (recurring NAS) was correlated with these agency cost variables as hypothesized, i.e. the demand for NAS was less for clients who had high levels of agency costs. This connection was also evident for non-recurring NAS and management ownership, whereas outside investment concentration, debt and the level of non-recurring NAS were not correlated. Abbott *et al.* (2003) confirmed these findings for blockholdings but not for insider ownership and leverage. In contrast to this, Mitra and Hossain (2007) showed a negative association between institutional stock ownership and non-audit fees. A study by Ghosh and Pawlewicz (2009) even revealed a positive relationship between leverage and the demand for NAS. The most recently published paper by Abbott *et al.* (2011) showed a positive association with regard to management ownership but in contrast to the expectations, a negative impact of blockholding. Leverage was insignificant in this study.

Firth (1997) examined the relationship between NAS and agency costs for the 500 largest listed companies in the UK. The main variables of interest, namely the percentage shareholding of the directors, percentage of share ownership of the largest owner and leverage, were found to be statistically significant and had the expected directional signs. Thus, British companies who face potentially high levels of agency costs are likely to be especially cautious about jeopardising the perception of auditor independence.

Ye *et al.* (2011) analysed data on firms listed on the Australian Stock Exchange in the post-Enron year 2002, in which the provision of NAS was relatively unregulated. These authors found that the effect of the proxies for agency costs (namely ownership dispersion and leverage) on the demand of NAS was insignificant. However, they did report that the positive relationship between closer auditor-client relationships and NAS was moderated by the level of agency costs. Ng and Leong (2011) used a panel data sample of 195 Australian companies between 1999 and 2002, and documented an insignificance of ownership dispersion and leverage.

Overall, the results from studies examining the association between agency costs and the purchase of NAS are inconclusive. However, agency cost variables are less frequently significant in recent studies. Apart from variations in sample composition and the specification of the regression models, different regulatory environments and differences in the timing of the studies, and thus in the degree of regulation regarding the provision of NAS, may have caused these inconsistencies.

3. Hypotheses development

3.1 Ownership composition and NAS fees

The levels of investors' monitoring activities depend on the ownership structure of the firm in question. Various shareholder groups monitor the firm at different levels depending on their economic stakes (Mitra and Hossain, 2007, p. 349). In general, the economic incentive for monitoring is lower for minor shareholders than it is for

blockholders (Dutzi, 2005, p. 15). Monitoring is cost-effective for institutional investors because the potential benefit of parties that have large economic stakes outweighs the monitoring costs. By contrast, this expense may be prohibitively high for smaller investors (Mitra and Hossain, 2007, p. 349). In addition, a substantial concentration of ownership may lead to voluntary releases and a high level of disclosure in order to gain the confidence of institutional shareholders. Furthermore, it is common practice for blockholders to nominate members to sit on the supervisory board, which works to increase the level of information available to the blockholders (Picot *et al.*, 2005, p. 253). Major shareholders can thus use their voting rights to influence management decisions.

Because large equity holders have the necessary resources to monitor the performance and management of a company, they are less dependent on the information held within published financial statements. By contrast, smaller investors rely more heavily on audited financial statements to assess the performance of a company. Hence, we assume that institutional shareholders are less sensitive to auditor independence. The more concentrated the ownership of a firm, the more investors tolerate higher levels of NAS. Concentration of ownership can be reflected by free float, which is the percentage of shares held by investors with less than 5 per cent of total equity. We therefore hypothesize the following:

H1. The NAS fee ratio is negatively related to free float.

3.2 Management compensation and NAS fees

The aim of performance-based compensation is to lessen the divergence between the interests of management and those of investors, thereby reducing agency conflicts (Jensen, 1983, p. 326; Eisenhardt, 1989, pp. 58-68). Performance-based compensation aligns the interests of investors and managers by simulating management ownership (Kocabiyikoglu and Popescu, 2007, p. 834). Thus, there is less need for active management control. Consequently, the relevance of the information in the financial statements and the need for an independent auditor are less. In such a situation, the potential negative impact of the provision of NAS and related independence threats on perceived auditor independence is less severe and management is more willing to demand non-audit services. Hence, a high degree of performance-based compensation as a proxy for the level of convergent interests between management and investors is assumed to result in higher levels of NAS. In light of the foregoing, we hypothesize the following:

H2. The NAS fee ratio is positively related to the proportion of performance-based compensation for management.

3.3 Leverage and NAS fees

Parkash and Venable (1993) state that a high degree of leverage motivates wealth transfers from creditors to management/investors through dividend payments (Black, 1976, p. 7). In order to maximise their economic benefits in terms of receiving advantageous credit contracts, managers (and shareholders) have an incentive to issue incomplete or incorrect information in a way that is designed to mislead creditors. Furthermore, firms that have high leverage are more likely to violate their covenants and thereby opportunistically influence their financial statements (DeFond and Jiambalvo, 1994). Creditors may anticipate the increased risk of default that may occur as a result of opportunistic behaviour, and so demand an additional risk premium. Because of this

rising cost of debt, the cost of asymmetric information is passed onto investors (Watts and Zimmerman, 1986, p. 186). Hence, it is in the interests of investors to underline the trustworthiness of the reported financial data by using an independent auditor (Dhaliwal *et al.*, 2008). Because the perception of auditor independence by the creditor is relevant, especially when debt capital is high, we hypothesize that the level of auditor-provided NAS is negatively related to leverage:

H3. The NAS fee ratio is negatively related to leverage.

4. Methodology and empirical results

4.1 Sample data

We selected the consolidated financial statements of the largest German companies listed on the stock market segments DAX, MDAX, SDAX and TecDAX for 2005, 2006 and 2007 for our analysis[7]. From 480 firm-year observations, we eliminated financial services providers (48), banks (23) and insurance companies (12) because of their special balance sheet structures, which might have affected the homogeneity of the sample (Lenz and Ostrowski, 1999, p. 399). We further reduced the sample by removing 12 observations for which no auditor fees were available. Additionally, we excluded 33 foreign companies because German law was not applicable to them. Firms that underwent an initial public offering during the sample period have above-average NAS fee ratios because of the costs associated with the verification of their prospectuses, and we therefore excluded another 19 observations. Finally, the relevant share prices or management compensation plans were unavailable for ten companies. The sample therefore consisted of 323 reported firm-years. By considering joint audits for each auditor separately, the size of the final sample increased to 330 observations.

4.2 Definition of variables

4.2.1 Dependent variable. The NAS fee ratio defined as non-audit fees to total fees was used as the dependent variable[8].

Table I shows the NAS fee ratios by stock market segment and reporting period. The median fee ratio amounts to approximately 33 per cent. Mann-Whitney *U*-tests on the homogeneity of the variances indicate that there are no significant differences ($p > 0.05$) between specific years (2005 vs other years; 2006 vs other years; 2007 vs other years) or between specific segments (DAX vs others; MDAX vs others; SDAX vs others; TecDAX vs others).

Table II shows the NAS fee ratios by industries[9]. We used non-parametric tests to assess any significant differences between fee ratios of different industries. By comparing the fee ratios of telecommunication firms with those of other companies,

Fee ratio (FR_{index}) (%)

	Year														
	Min.			Max.			Mean			SD			Median		
Segment	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
DAX	0.0	0.9	4.7	82.9	60.6	62.2	34.0	34.8	33.1	19.3	16.0	16.5	32.8	37.1	33.3
MDAX	0.0	0.0	0.0	78.4	78.1	79.1	30.6	32.0	34.1	20.1	22.0	21.2	31.1	31.1	32.2
SDAX	0.0	0.0	0.0	82.0	86.2	90.7	31.2	35.3	35.3	22.2	24.1	26.0	33.8	31.9	31.8
TecDAX	0.0	0.0	0.0	83.6	54.5	89.7	35.1	29.1	28.3	25.7	19.5	23.2	36.2	32.3	23.2

Table I.
Fee ratios for different indexes (2005-2007)

Year	Fee ratio ($FR_{industry}$) (%) Industry												
	Consumer	Pharmacy and healthcare	Automobile	Transportation and logistics	Technology	Industrial	Utilities	Retail	Software	Chemicals	Construction	Media	Basic resources	Telecommunication
2005	39.6	34.2	31.2	41.8	4.6	31.8	33.9	27.8	35.2	29.6	29.5	36.4	9.8	57.8
2006	27.5	21.6	25.2	49.0	20.1	34.5	34.1	31.8	27.6	34.2	33.9	35.7	17.3	52.3
2007	18.8	23.3	27.5	40.6	16.0	33.2	40.1	33.5	27.3	29.8	32.2	56.9	33.9	56.1
Ø	28.6	26.4	28.0	43.8	13.6	33.2	36.0	31.0	30.0	31.2	31.8	43.0	20.3	55.4

Table II.
Fee ratios for different industries (2005-2007)

a significantly higher level of NAS ($p < 0.001$) is apparent. Similarly, the media ($p < 0.047$) and transportation and logistics ($p < 0.027$) industries demand relatively more advisory services from their auditors. By contrast, technology ($p < 0.001$) and pharmacy and healthcare ($p < 0.068$) firms demand fewer NAS from their auditors. The remaining industries show no significant differences[10].

4.2.2 Independent variables. The independent variables included the experimental and control variables. We used experimental variables (variables of interest) to test the hypotheses and control variables to increase the quality of the multiple regressions.

4.2.2.1 Variables of interest. We used the following variables of interest to represent agency costs: *ownership structure* (free float), *management compensation* (relationship between outcome-oriented bonuses and total salaries paid to the management board each year) and *leverage* (debt divided by total assets). Table III provides an overview of the variables of interest and Table IV offers some descriptive data.

4.2.2.2 Control variables. Total assets were used as proxy for company size (Chung and Kallapur, 2003; Hay *et al.*, 2006, p. 158). We presumed that large companies have a higher need for consultancy and therefore purchase higher amounts of NAS and that there is therefore a positive correlation between *Size* and fee ratio.

We measured *Growth* as the percentage change in gross sales compared with the previous year and expect a positive relationship between NAS fee ratio and *Growth*. An increase in gross sales might imply either the expansion of the firm or rapid changes in its economic environment. Large-scale changes therefore call for an update of the structure and organisation of a company, which could be achieved by external consultancies.

Firth (1997), Craswell (1999), Frankel *et al.* (2002) and Ashbaugh *et al.* (2003) all controlled for the economic performance of the firm by adding return on assets (*ROA*) to the model. We additionally introduced a dummy variable *Loss* to consider economically

Variable	Definition	+/−	Agency conflicts and characteristics	Previous research
Free float	Percentage of shares held by investors with less than 5 per cent of total equity	−	Management vs investors	Parkash and Venable (1993) and Firth (1997)
Management compensation	Performance-based compensation divided by total compensation	+	Management vs investors	Ghosh *et al.* (2006)
Leverage	Debt divided by total assets	−	Management/ investors vs creditors	Firth (1997) and Ghosh *et al.* (2006)

Notes: "+", Positive relationship between dependent and independent variable predicted; "−", negative relationship between dependent and independent variable predicted

Table III. Variables of interest

Variable	Mean	Median	SD	Variance	Q25	Q75
Free float	0.717	0.747	0.248	0.061	0.498	1.000
Performance-based compensation	0.547	0.594	0.213	0.046	0.437	0.721
Leverage	0.5845	0.6049	0.1697	0.0288	0.4786	0.7150

Table IV. Descriptive statistics on the variables of interest

extreme situations. The correlation between these variables (*ROA* and *Loss*) and NAS fee ratio is unclear. Although firms with low or negative earnings may need to change their business models, clients who face operating losses may not have sufficient liquidity (herein termed cash flow from operations; *CFO*) to purchase external expertise. Furthermore, the management of distressed firms may be reluctant to hire incumbent auditors for NAS, in order to improve the appearance of independence and thus help raise investor trust in the reported financial data. We do not predict signs of the coefficients.

The number of segments (*Segments*) represents the complexity of the client (Hay *et al.*, 2006, p. 158). In accordance with previous research, we assumed that the complexity of the activities of a firm increases alongside its number of reported segments. Therefore, we expect a positive association between *Segments* and the NAS.

We further integrated a *market-to-book ratio* into the model, which was the market capitalisation divided by the book value of equity. We expected a positive relationship between *market-to-book ratio* and NAS fee ratio, even though the converse is possible (i.e. when the negative expectations of investors initiate a high demand for NAS).

Volatility represents the systematic risk of a firm, which according to arbitrage pricing theory, determines its costs of capital (Ang *et al.*, 2006, p. 259). Under the assumption that investors are risk averse, high volatility leads to a positive risk premium, which in turn increases the costs of capital of a firm. At the same time, uncertainty is associated with an increase in shareholder demand for reliable information. Therefore, we expected that clients who have highly volatile shares tend to avoid asking their auditors for NAS in order to signal the high quality of an audit.

We used *Big4* as an indicator of audit quality (Barkess and Simnett, 1994; Firth, 1997; Craswell, 1999; Ashbaugh *et al.*, 2003; Hay *et al.*, 2006, p. 161). We expected a positive association between *Big4* and NAS fee ratio because international audit firms are able to deliver higher standards of NAS than their smaller competitors in view of their greater resources in terms of personnel and expertise.

We control for the length of the auditor-client relationship using a dummy variable *switch*. We expected a negative relationship between switch and NAS fee ratios in view of the fact that familiarity between auditors and clients increases over time, and thus the demand for NAS provided by the incumbent auditor increases.

The existence of an audit committee is voluntary in Germany and thus an indicator for good corporate governance. Audit committee handle the necessary independence required of the auditor. As a consequence, we expected a negative association between the existence of an *audit committee* and the purchase of NAS.

The industry expertise of industry specialists is above the average. Therefore, NAS provided by an *industry specialist* should be more attractive and we expected a positive coefficient for this variable.

A qualified *audit opinion* signals that the client's financial statements are not free from material misstatements. This could increase the demand for NAS whereby the causes for such misstatements are revealed and overcome. On the other hand, the qualification reduces client's willingness to engage auditor as consultant. Thus, we did not predict the direction of the relationship.

The issue of *new shares* causes a demand for financial advisory services. For this reason, we expected a positive association between the issue of new shares and NAS.

As shown in Table II, the use of NAS varies significantly according to the industry within which the firm operates. We therefore introduced additional industry-specific dummy variables (Hay *et al.*, 2006, p. 161). We also control for potential time period effects and include yearly dummies (*YEARj*) using 2005 as the base period. The control variables are summarised in Table V.

4.3 Results

4.3.1 Correlation analyses. Using Pearson and Spearman-Rho correlations, we herein investigated the relevance of agency conflicts to the demand for NAS. Although the suitability of the Pearson correlation was supported by means of a visual inspection of the normal distribution of the relative NAS fees, the results of the Kolmogorov-Smirnov tests indicated a slightly abnormally distributed population. We therefore additionally performed a Spearman-Rho rank correlation, and the results are shown in Table VI.

The variables of interest are *free float*, *performance based compensation* and *leverage*, all of which are used as proxies for agency factors. Table VI shows a statistically significant correlation of demand for NAS with free float, which also has the expected directional sign. Companies that have significant individual shareholders demand higher levels of NAS. Similarly, the Spearman-Rho non-parametric test, but not the Pearson correlation, shows a significant relationship between the level of debt financing and the NAS fee ratio. In contrast to expectations, the sign of the correlation coefficient was positive. However, the influence of management compensation on the demand for NAS was insignificant.

Tests for other factors showed the significant positive influence of growth (*Growth*), while the coefficients for *Loss* and *ROA* indicated that low-performing and distressed companies demand significantly more NAS from their incumbent auditors. As expected, a low familiarity (*Switch*) of management and auditors was relevant to the purchase of NAS. A significant negative correlation confirmed that firms demand fewer NAS during initial audit years. The issue of new shares was positively related to the purchase of NAS. Other variables such as *Size*, *CFO*, *Segments*, *Market-to-book ratio*, *Share price volatility*, *Big4*, the existence of an *audit committee*, *industry specialisation* and the *audit opinion* were not seen to be significantly related to NAS fee ratios.

4.3.2 Multiple regression analysis. The variables of interest (*free float*, *performance-based compensation* and *leverage*) were supplemented by various control variables in the following ordinary least squares (OLS) regression[11]:

$$\begin{aligned} Fee\ ratio = {} & \beta_0 + \beta_1 Free\ float + \beta_2 Performance\ based\ compensation + \beta_3 Leverage \\ & + \beta_4 Size + \beta_5 Growth + \beta_6 ROA + \beta_7 Loss + \beta_8 CFO + \beta_9 Segments \\ & + \beta_{10} Market\ to\ book\ ratio + \beta_{11} Share\ price\ volatility + \beta_{12} BIG\ 4 + \beta_{13} Switch \\ & + \beta_{14} Audit\ committee + \beta_{15} Industry\ specialist + \beta_{16} Audit\ opinion \\ & + \beta_{17} New\ Shares + \beta_{18} year\ 06 + \beta_{19} year\ 07 + \Sigma \beta_i Industry \end{aligned}$$

Table VII summarises the results of the regression.

Contrary to *H1*, Table VII shows that a negative association between NAS and *free float* cannot be confirmed. The positive correlation coefficient for *performance-based compensation* is in accordance with *H2*. However, it is insignificant. In contrast, the coefficient for *Leverage* did not support the predicted relationship between debt

Variable	Definition	+/−	Proxy for	Previous research
Size	Logarithm of total assets in million euros	+	Company size	Chung and Kallapur (2003) and Hay *et al.* (2006)
Growth	Growth in gross sales compared with previous year	+	Company growth	Firth (1997)
ROA	EBIT/total assets	+/−	Economic situation	Firth (1997), Craswell (1999), Frankel *et al.* (2002) and Ashbaugh *et al.* (2003)
Loss	Dummy variable coded 1 if operating profit is negative and 0 otherwise	+/−	(Extreme) economic situation	Reynolds *et al.* (2004) and Antle *et al.* (2006)
CFO	Cash flow from operations/total assets	+	Performance indicator	Chung and Kallapur (2003)
Segments	Number of prime-segments	+	Complexity	Hay *et al.* (2006) and Ye *et al.* (2011)
Market-to-book-ratio	Market capitalisation/book value of equity	+	The expectation of profitability by investors	Gul *et al.* (2007) and Huang *et al.* (2007)
Share price volatility	Volatility over the 250 days before the balance sheet date	−	Management vs investors	−
Big4	Dummy variable coded 1 if auditor is a Big4 firm and 0 otherwise	+	Audit quality	Barkess and Simnett (1994), Firth (1997), Craswell (1999), Ashbaugh *et al.* (2003) and Hay *et al.* (2006)
Switch	Dummy variable coded 1 if initial audit and 0 otherwise	−	Auditor switch	Chung and Kallapur (2003) and Antle *et al.* (2006)
Audit committee	Dummy variable coded 1 if an audit committee exists and 0 otherwise	−	Corporate governance quality	−
Industry specialist	Dummy variables coded 1 if the audit firm's market share is highest within the industry group and 0 otherwise	+	Industry expertise	Lim and Tan (2008)
Audit opinion	Dummy variable coded 1 if the firm received a qualified audit opinion in the current fiscal year and 0 otherwise	+/−	Qualified opinion	Whisenant *et al.* (2003), Larcker and Richardson (2004), Antle *et al.* (2006) and Ghosh and Pawlewicz (2009)
New shares	Dummy variable coded 1 if the number of shares outstanding increased by 10 per cent or more and 0 otherwise	+	Equity financing activities	Abbott *et al.* (2003), Ashbaugh *et al.* (2003), Whisenant *et al.* (2003), Mitra and Hossain (2007) and Ye (2011)
$Year_j$	Dummy variable coded 1 for the fiscal years 2006 or 2007 and 0 otherwise		Year	Köhler *et al.* (2010)
ΣIndustry	Frankfurt stock exchange industry dummies, coded 1 if client is active in one of the first 15 industry groups; otherwise 0		Industry (clients business activities)	Chung and Kallapur (2003) and Hay *et al.* (2006)

Table V.
Control variables

Notes: " + ", Positive relationship between dependent and independent variable predicted; " − ", negative relationship between dependent and independent variable predicted

Variable	Pearson Correlation	Pearson Significance	Spearman-Rho Correlation	Spearman-Rho Significance
Free float	−0.131**	0.014	−0.142***	0.008
Performance-based compensation	−0.058	0.273	−0.069	0.193
Leverage	0.079	0.139	0.123**	0.021
Size	0.336***	0.001	0.351***	0.001
Growth	0.173***	0.001	0.111**	0.038
ROA	−0.147***	0.006	−0.202***	0.000
Loss	0.111**	0.037	0.105 **	0.049
CFO	−0.023	0.670	−0.025	0.644
Segments	−0.035	0.511	−0.026	0.633
Market-to-book ratio	0.096	0.073	0.076	0.155
Share price volatility	0.060	0.274	0.061	0.263
Big4	0.023	0.660	0.027	0.619
Switch	−0.104**	0.050	−0.106**	0.045
Audit committee	−0.068	0.249	−0.054	0.362
Industry specialist	0.030	0.602	0.031	0.583
Audit opinion	−0.013	0.817	−0.005	0.992
New shares	0.111**	0.048	0.101*	0.072
Year06	0.003	0.952	0.011	0.646
Year07	−0.018	0.753	−0.022	0.694
ΣIndustry				

Note: Correlation is significant at: *10, **5 and ***1 per cent levels (two-tailed)

Table VI.
Results for Pearson and Spearman-Rho correlations

Variable		Coefficient	Significance
Constant term	β_0	−0.173	0.522
Free float	β_1	0.016	0.783
Performance-based compensation	β_2	0.028	0.701
Leverage	β_3	0.001	0.575
Size	β_4	0.024**	0.050
Growth	β_5	0.063*	0.053
ROA	β_6	−0.399*	0.054
Loss	β_7	0.047	0.430
CFO	β_8	0.030	0.870
Segments	β_9	−0.016*	0.095
Market-to-book ratio	β_{10}	0.016*	0.059
Share price volatility	β_{11}	0.265	0.146
Big4	β_{12}	−0.029	0.436
Switch	β_{13}	−0.086*	0.083
Audit committee	β_{14}	−0.020	0.759
Industry specialist	β_{15}	0.034	0.312
Audit opinion	β_{16}	0.095	0.557
New shares	β_{17}	0.047	0.196
Year06	β_{18}	−0.010	0.353
Year07	β_{19}	−0.035	0.171
ΣIndustry	β_{20}-β_{34}		

Notes: Correlation is significant at: *10, **5 and ***1 per cent levels (two-tailed); $F = 2.71$; $p < 0.000$; adj. $R^2 = 0.177$; $n = 330$

Table VII.
Influence of agency costs on the demand for NAS (fee ratio)

financing and the demand for NAS. However, this relationship was insignificant, too. Therefore, the results were inconsistent with the hypothesis that companies that have high levels of agency costs attempt to reduce the expected impairment of auditor independence in appearance from high levels of NAS. In contrast to early research findings, in particular Parkash and Venable (1993) and Firth (1997), the results for the German market did not document an influence of agency costs on the demand for NAS, in agreement with the more recent findings of Abbott *et al.* (2011), Ng and Leong (2011) and Ye *et al.* (2011).

A significant negative association between NAS and initial audits (*Switch*) was identified-, while a high *Market-to-book ratio* corresponded to a high level of NAS. In accordance with the results of the correlations, Table VII shows that underachievers (in terms of *ROA*) order significantly higher relative amounts of NAS from their incumbent auditors. *Growth* and *Size* were also positively correlated with the demand for consulting services, whereas the number of prime segments had a negative effect. As expected from the fee ratios in Table II, a significant negative correlation was apparent for the industry variables *Technology* ($\beta = -0.350$; $p < 0.032$). All other industry variables were insignificant. The variable *Switch* was not used as a control variable in previous research. Furthermore, this study is the first that identified a significant effect of *Growth* and *Market-to-book ratio*. In most cases, *ROA* was included in the regression models of other studies, however turned out to be insignificant. Only a few studies applied the variable *Segments*. However, in contrast to our findings, a positive effect was reported.

This model showed an adjusted R^2 of 0.177, which is comparable with previous research[12]. Furthermore, a correlation matrix indicated that multicollinearity was not a problem in our model. The variance inflation factor also did not signal a multicollinearity problem. These results demonstrated that an elimination of variables was unnecessary.

Differences between countries could be responsible for the lack of support for *H1*. Although private investors traditionally dominate firms in the USA (Parkash and Venable, 1993) and the UK (Firth, 1997), institutional ownership is more relevant for German companies. Where private shareholding is dominant, agency costs seem to affect the demand for NAS. By contrast, managers could assume that institutional investors have superior information-gathering resources and therefore place less emphasis on financial statements. Hence, the independence of auditors might be less relevant to this class of investors. Furthermore, large investors also use their voting powers as members of supervisory boards to strengthen corporate governance structures through the more rigorous design of NAS pre-approval processes. In contrast to the stated hypotheses, this reduces the joint provision of audits and NAS because corporate governance mechanisms become more reliable as blockholding increases (Mitra and Hossain, 2007, p. 355).

The lack of significant results regarding leverage might be because of the particular roles of blockholders in the German market. Large equityholders, in particular banks and insurance companies, also commonly provide considerable amounts of debt. Because creditors thus revert to the information obtained through their activities on supervisory boards of their debtors, auditor opinion and independence becomes less relevant to them.

4.3.3 Sensitivity analyses. To control the robustness of our findings, three alternative NAS fee measures were applied: natural logarithm of absolute NAS fees, NAS fees in relation to audit fees and abnormal NAS fees. In these alternative models the variables of interest remained insignificant.

According to the US Securities and Exchange Commission (SEC, 2000) and recent empirical research (Quick and Warming-Rasmussen, 2005, 2009), investors perceive a reduction in independence when the provision of NAS exceeds a critical level, namely between 25 and 30 per cent of the total fees. We therefore controlled for a significant relationship between agency costs and the demand for NAS for the observations from companies with a high demand for NAS. For this purpose, we split our sample between clients with a high (NAS fee ratio > 0.3) and those with a low demand for NAS and performed separate analyses. Again, we could not show a significant impact of agency costs on the purchase of NAS. We also replaced the continuous independent variable *fee ratio* by different dichotomous variables (cut-offs: NAS fee ratio < 0.1; NAS fee ratio > 0.3; NAS fee ratio > 0.5; NAS fee ratio $>$ median) and applied several binary logistic regression models. Likewise, these models did not reveal a significant impact of agency costs.

In addition, boxplots as a tool for exploratory data analysis were used to identify outliers. We eliminated them from our data set and re-estimated the OLS regression. Notwithstanding, the findings did not changed considerably. Moreover, separate regressions were performed for the years 2005, 2006 and 2007, but the agency costs variables stayed insignificant.

As a further sensitivity test, we replaced the variable *free float* by the variable *closely held shares* which includes, among others, shares held by officers, directors and their immediate families, and shares held by individuals who hold 5 per cent or more of the outstanding shares. However, this variable was insignificant and the other variables of interest remained insignificant, too. Likewise, an elimination of joint audits did not result in materially different findings with regard to agency costs variables.

Our basic regression models used the NAS fee ratio as dependent variable. It was defined as NAS fees divided by the total fees. Therefore, it is possible that the chosen fee variable was driven not only by alterations to NAS fees but also by changes in overall audit fees. To control for this we added *audit fees* as an independent variable to the model based on the natural logarithm of absolute NAS fees. Table VIII shows the results.

The variable *audit fees* was highly significant and positively correlated with the demand for consulting services. However, the variables which represent agency costs remained insignificant again. In comparison to all prior models this model showed a higher adjusted R^2 of 0.31.

5. Conclusion

Auditors who provide NAS to their clients may suffer a loss of independence in appearance over time. This reduces investor and creditor trust in their audit opinions, which is particularly disadvantageous for firms that face extensive agency conflicts. Companies that have high or increasing agency costs therefore may purchase lower levels of advisory services.

After investigating the 160 largest firms listed in the German indices over a three-year period, we failed to confirm a significant relationship between demand for NAS and the absolute magnitude or the change of agency costs.

The observed insignificances might have been caused by a number of factors. Managers might not take account of the way in which investors and creditors perceive auditor independence. It is also possible that investors do not perceive there to be a reduction in auditor independence as a result of the joint provision of audits and NAS,

Variable		Coefficient	Significance
Constant term	β_0	0.672***	0.000
Free float	β_1	0.246	0.606
Performance-based compensation	β_2	0.723	0.216
Leverage	β_3	0.017	0.148
Size	β_4	0.096	0.317
Growth	β_5	0.319	0.196
ROA	β_6	−0.869	0.589
Loss	β_7	0.547	0.246
CFO	β_8	0.176	0.120
Segments	β_9	−0.093	0.229
Market-to-book ratio	β_{10}	0.032	0.627
Share price volatility	β_{11}	−0.804	0.586
Big4	β_{12}	0.312	0.277
Audit Fees	β_{13}	0.092***	0.001
Switch	β_{14}	0.705	0.705
Audit committee	β_{15}	0.716	0.716
Industry specialist	β_{16}	0.539**	0.011
Audit opinion	β_{17}	0.592	0.442
New shares	β_{18}	0.207	0.462
Year06	β_{19}	−0.002	0.995
Year07	β_{20}	−0.250	0.371
ΣIndustry	β_{21}-β_{35}		

Notes: Correlation is significant at: *10, **5 and ***1 per cent levels (two-tailed); $F = 4.06$; $p < 0.000$; adj. $R^2 = 0.31$; $n = 330$

Table VIII.
Influence of agency costs on the demand for NAS (absolute NAS fees, audit fee variable included)

because large audit firms separate their advisory and assurance services into different departments. In light of this, management and/or investors might even appreciate the benefits of such a joint provision of services because of the potential for knowledge spillovers.

In the wake of major accounting scandals, German regulators banned several types of NAS in 2004. These prohibitions might have helped secure auditor independence and thereby protect investors, even if agency conflicts become prominent. Thus, managers might have no reason to adapt their demand for NAS to the level of agency costs. Furthermore, management may assume a high level of confidence of the capital market participants in the German corporate governance system because of the country's distinctive dual board structure. Moreover, the low liability exposure of German auditors may result in a reduced trust in auditor independence for which reason the purchase of non-audit services is less harmful even in high agency cost situations. Finally, the sample period of this study is more recent and the competition on the audit market was keener than in earlier times. Such a competition increases the relevance of audit firm reputation and consequently reduces threats to auditor independence.

This paper makes several contributions. Previous research was performed in common-law countries where the legal protection of shareholders is strong. It is the first paper analysing the impact of agency costs on the purchase of NAS for a civil-law country where investors have weaker legal rights (La Porta *et al.*, 1998). The hypothesis that agency costs negatively affect the demand for NAS is not supported and this may be caused by particularities of the German setting. In addition, we add

the use of performance-based management compensation as an alternative proxy for agency costs to prior literature. Finally, it provides evidence for a research setting with a relatively strict regulation regarding the provision of NAS to audit clients and in which many NAS are prohibited.

Our study suffers from a number of limitations Our study suffers from a number of limitations. First, the study described herein investigated only large listed companies in Germany. Consequently, the findings cannot be generalised to companies outside of Germany and to private or smaller firms for which agency conflicts might be less relevant. Moreover, the analysis only covered a relatively short period of three fiscal years, and the validity of the findings might increase by the examination of a longer period. In addition, we were unable to test statistically, whether the insignificance of agency costs is caused by specialties of the German setting or by other factors like stricter regulations on the provision of NAS. This could be an avenue for future research. Furthermore, we eliminated the banking, insurance and financial services industries from this study, and it would be of interest to apply our research instruments to these industries. Future studies should be performed in other civil-law countries to find out whether the lacking impact of agency costs on the purchase of NAS is caused by German particularities or a common observation for countries with weaker shareholder protection. Researchers could also analyse more recent data, to reveal whether the global financial and economic crisis has had an impact on the purchase of NAS. Another warranted research topic may be analyses on the relationship between the strength of corporate governance and the demand for NAS. Finally, further evidence on the impact of the provision of NAS on capital providers' perceptions of auditor independence from continental European countries is desirable.

Notes

1. However, the European Parliament potentially will not accept this suggestion, European Parliament (2012).
2. An exception is the dissertation authored by Bauer (2004). However, he analysed the years 2001 and 2002 for which there was no mandatory disclosure of auditors' fees in Germany. Instead of that, fees were surveyed which might have caused a response bias. In addition, only 58 companies responded.
3. Reynolds *et al.* (2004), Ashbaugh *et al.* (2003), Larcker and Richardson (2004), Brandon *et al.* (2004) and Hoitash *et al.* (2007) all identify a NAS fee ratio of approximately 50 per cent for the period 2000-2002. Huang *et al.* (2007) show NAS fee ratios that range from between 21 and 26 per cent of total fees in the post-SOX era.
4. Francis and Ke (2006) show that the disclosure of fees results in capital market reactions. The market reaction to the announcement of unexpected earnings depends significantly on the composition of auditors' NAS (Francis and Ke, 2006, p. 26). Hence, fee disclosure seems to provide additional information to investors, which is helpful for evaluating the reliability of the financial reporting.
5. An alternative theoretical approach, which is less relevant in our context, is the quasi-rent model (DeAngelo, 1981a).
6. Most research findings on the impact of NAS on independence in fact fail to show an impairment of independence: Lennox (1999), Craswell *et al.* (2002), DeFond *et al.* (2002), Ashbaugh *et al.* (2003), Chung and Kallapur (2003), Geiger and Rama (2003), Larcker and Richardson (2004), Kinney *et al.* (2004), Reynolds *et al.* (2004), Ruddock *et al.* (2006), Huang *et al.* (2007), Lim and Tan (2008) and Hope and Langli (2010).

7. DAX, MDAX, SDAX and TecDAX are the leading stock market indices of Germany. The DAX is the index of the 30 largest companies traded on the Frankfurt Stock Exchange. The 50 companies directly following the DAX companies (mid caps) form the MDAX. The SDAX includes small- and medium-sized companies (small caps) operating in traditional industries and the TecDAX is the leading index for technological companies.
8. As used by Craswell (1999), Frankel *et al.* (2002) and Ashbaugh *et al.* (2003).
9. This follows the industry classifications of *Deutsche Börse*.
10. Because Kolmogorov-Smirnov tests showed that the fee ratios of the sample are not perfectly normally distributed, we used Mann-Whitney *U*-tests.
11. Quick and Sattler (2009) presented an alternative regression model.
12. The coefficient of determination (R^2) describes the quality of the regression model. The higher the R^2, the better a model fits to the empirical observations. Firth (1997) reported $R^2 = 0.320$ (Firth, 1997, p. 17), whereas Parkash and Venable's (1993) models achieved an adjusted R^2 of 0.26 and 0.0068 (Parkash and Venable, 1993, p. 127), Abbott *et al.* (2003) had an adjusted R^2 of 0.174 and Abbott *et al.* (2011) reported an adjusted R^2 of 0.1702 and 0.2975. Only Ye *et al.* (2011) achieved a higher adjusted R^2 of 0.48 and 0.49. Mitra and Hossain (2007) examined the relationship between institutional ownership and NAS by investigating 335 companies and reported an adjusted R^2 of 0.117 (Mitra and Hossain, 2007, p. 354).

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