

Can auditors be independent?

Experimental evidence

Christopher Koch

University of Mannheim
Department of Business Administration, Accounting and Auditing
National Research Center on Decision Making and Economic Modeling (SFB 504)
Research Associate

Yale University
Visiting Researcher

Prof. Dr. Dr. h.c. Martin Weber

University of Mannheim
Department of Business Administration, Finance, and Banking
National Research Center on Decision Making and Economic Modeling (SFB 504)

Prof. Dr. Jens Wüstemann*

University of Mannheim
Department of Business Administration, Accounting, and Auditing
National Research Center on Decision Making and Economic Modeling (SFB 504)

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*Corresponding author: Professor Dr. Jens Wüstemann, M.S.G. (Dauphine), Schloss Ostflügel, 68131 Mannheim, Germany, Tel. +49 (621) 181 2351, Fax: +49 (621) 181 1694, Email: wuestemann@bwl.uni-mannheim.de. The financial support of the German Research Foundation (DFG Grant SFB504) is gratefully acknowledged. We thank the two big audit firms that provided participants for our experiment for their great support. We also acknowledge the help of a small audit firm in pretests. The paper is available online at <http://ssrn.com/abstract=1004703>.

Christopher Koch, Martin Weber, and Jens Wüstemann:

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Abstract

The Sarbanes-Oxley Act of 2002 has transformed the institutional environment in the US by making the audit committee responsible for the appointment, compensation and oversight of the auditor. We examine whether this institutional change successfully resolves the alleged problem of an unconscious favoring of the management (Bazerman et al. 1997, 2002, 2006) by changing the effects of auditors' economic incentives and psychological pressure. In our experimental design, we make use of the particular features of the German institutional setting as it enables us to manipulate the client of the auditor in a realistic and clear-cut way. 72 German auditors with at least two years of job experience participated in our experiment. Following Turner (2001), we distinguish in our analyses between belief tasks (e.g. evidence evaluation) and action tasks (e.g. audit opinion). Our findings imply that certain institutional features seem to be helpful in ensuring auditor independence. First, we find that auditors demonstrate professional scepticism in belief tasks. This seems to counteract any potentially negative effect of the acceptability heuristic in actions tasks. Second, experience helped auditors in coping with psychological pressure. Third, making the auditor accountable to a supervisory board was helpful in reducing the risk that financial considerations would impair auditor independence.

1. Introduction

The Sarbanes-Oxley Act of 2002 transformed the US institutional environment. One key change is that an independent audit committee is now responsible for the appointment, compensation and oversight of the auditor (Section 301). Historically, the management has nominated the auditor and negotiated audit fees (SEC 2003b). One of the goals of this change was to weaken the accountability of the auditor towards the management board in order to improve auditor independence. First, the auditor's economic incentive to please the management should be reduced by granting the audit committee the authority to hire the auditor. Second, the audit committee should also "insulate the auditor from the pressures that may be exerted by management" (SEC 2003b). Nevertheless, Bazerman et al. (2006) and Moore et al. (2006) maintain that the problem would not be resolved and that auditor independence is still – as a matter of fact not as a matter of law – impossible due to psychological factors. (Bazerman et al. 1997; Bazerman et al. 2002). They argue that the auditor would still feel accountable towards the management board and would implicitly seek its approval. This would not only have the effect of tempting the auditor to willingly misreport (DeAngelo 1981), but, more importantly, unconsciously bias the judgment and decision making of the auditor towards the management. Meanwhile, Nelson (2006) believes that the change in the responsibility of auditors' appointment would belie the impossibility of auditor independence.

We make use of the German institutional setting to set up an experiment to generally test for the effects of placing the responsibility of appointing auditors with an independent board. Specifically, we test whether the strengthening of the accountability relationship between the auditor and the independent boards can improve auditor independence by reducing economic incentives and the psychological pressure to follow the preferences of the management of the audited company. The German institutional setting is especially suitable for an experiment addressing this research question as its particular features allows for a clearer cut and a more realistic experiment compared to experiments using the US institutional setting. It is more clear-cut as the management and supervisory board are more distinctly institutionally separated in the German two-tier system compared to the US one-tier system. Even more important, it gives us the chance to manipulate the client of the auditor in a realistic way as there are a large number of companies in Germany that are economically similar but differ with respect to the responsibility of auditor's assignment. There are about 20 000 companies that are required to be audited and that can choose whether to form a supervisory board or not. If they decide to do so, the

supervisory board is responsible for the appointment of the auditor; if they decide not to do so, the management board is responsible for it. In contrast, in the US, the independent audit committee is now responsible for the appointment of the auditor for all companies with a statutory audit with only very few exceptions.

We chose an experimental design for several reasons. First, this research method is appropriate for answering our research question as it allows for randomly manipulating relevant independent variables. It is also well-suited to test for effects of experience and to disentangle whether observed effects are mainly driven by economic incentives or psychological reasons. Second, an empirical study on those companies, which are comparable in economic terms and only differ with respect to the group responsible for auditors' appointment, would be difficult to conduct due to a lack of data as these companies are medium-sized and non-listed. Furthermore, it might suffer from a self-selection bias as these companies are free to choose whether to create a supervisory board or not.

In our experiment, we manipulated the client of the auditor (management board, supervisory board) between subjects in a randomized manner. We measured both the perceived economic incentives and the perceived psychological pressure for each auditor. To test for the effects of experience, we ensured that auditors from all hierarchical levels participated: The number of assistants, managers, senior managers and partners in our sample is reasonably balanced. Overall, 72 auditors from two of the Big 4 audit firms participated. They were given the task to evaluate the accounting method used by the audited company in the preliminary statement for two ambiguous accounting cases. We follow Turner (2001) and distinguish between belief and action tasks. First, auditors had to perform belief tasks by evaluating the meaning of different pieces of audit evidence and by judging the degree of conformance of the preliminary financial statement with GAAP. Second, they had to perform action tasks by choosing the appropriate measurement value for the respective balance sheet item and by deciding which type of audit opinion to issue. We classify the two later tasks as action tasks as they directly affect the financial statement, while the two former tasks do not.

Our results are as follows. First, we find no general impairment of auditor independence when auditors are accountable towards the management board. In fact, we even find that, to the contrary, auditors accountable towards a management board that has incentives to manipulate earnings are more skeptical in belief tasks, especially in the evaluation of audit evidence. We find no effect of client on action tasks. This suggests that professional skepticism is effective in

counteracting potential accountability effects. It seems that the suggestion by Moore et al. (2006) to improve auditor independence by making the auditor “preemptively self-critical” (p. 18) is already existent .

Second, we find that auditors who perceive economic incentives to be high and who are accountable towards the management tend to favor the position of the management in their audit opinion. This result holds for both inexperienced as well as experienced auditors. This danger of an impairment of auditor independence can be neutralized by making the auditor accountable towards a supervisory board.

Third, we find that auditors consider the accounting method used by the management to be more appropriate when they perceive the psychological pressure to be high. This effect can be observed both for auditors who are accountable towards the management and for auditors who are accountable towards a supervisory board. Therefore, it seems that the supervisory board is not able to insulate the auditor from psychological pressure exerted by the management. However, experience seems to help cope with psychological pressure as its effect is significantly weaker for experienced auditors in our experiment.

We contribute to auditing research by testing for the effects of making an independent board responsible for the appointment of the auditor by manipulating auditor’s client. Earlier research in auditing has generally assumed that the management board is the client of the auditor. Therefore, it has mainly concentrated on examining factors accentuating or alleviating the effects of client pressure, for example, litigation risk, business opportunities, fee pressure, client credibility, or goal commitment (e.g. Hackenbrack and Nelson 1996; Haynes et al. 1998; Gramling 1999; Jenkins and Haynes 2003; Kadous et al. 2003). Furthermore, we address the suggestion of Bonner (2007, Chapter 4.6) to disentangle the effects of economic incentives and psychological pressure on auditor judgment. We do so by measuring separately auditors’ perception of both factors.

We proceed as follows. In the next section, we describe the US audit setting with a focus on the recent changes in auditors’ appointment and show how it compares with the German setting. In section 3, we develop our hypotheses by drawing from the accountability theory of Tetlock (1983) and from earlier auditing research. Section 4 explains the experimental procedure and provides descriptive statistics. The results are reported in section 5, before the paper is concluded with section 6.

2. The audit appointment

2.1. Recent changes in the role of the audit committee in audit appointment in the US

Prior to the Sarbanes-Oxley Act, the board of directors was responsible for appointing the auditor and negotiating auditor compensation (Abdel-Khalik 2002). The consequence of this arrangement was that the auditor was, in effect, hired and compensated by the management of the audited company (SEC 2003b). In such a situation, one might agree with the statement that "it strains imagination to see the auditor as independent of the management" (Abdel-Khalik 2002, p. 100). Bazerman et al. (1997) even claim that auditor independence is impossible due to psychological biases for auditors who consider the management as the client (see also Bazerman et al. 2002; Bazerman et al. 2006; Moore et al. 2006).

These claims are very worrisome, given that "it is of utmost importance to the profession that the general public maintain confidence in the independence of independent auditors" (AICPA AU Section 202.03). Furthermore, auditors are mandated by law to "maintain total independence from the client at all times". They have a "public watchdog" function, and are obliged to "complete fidelity to the public trust" (United States v. Arthur Young & Co. et al., 465 U.S. 805 (1984)). The Securities Act of 1933 (Items 25 and 26 of Schedule A) and the Security Exchange Act of 1934 (Item 13 (a) (2)) also require the auditor to be independent. Specific independence requirements like the prohibition of certain nonaudit services (SEC 2003a) are stated in Item 10a of the Security Exchange Act of 1934. The PCAOB (2005) has promulgated ethics and independence rules, as has the AICPA in SAS 1 and in the Code of Conduct (AICPA 2006).

The SEC addressed this potentially problematic relationship between the auditor and the audited company already in the 1970s. In 1972, it recommended to public companies to form independent audit committees (SEC 1972). This recommendation was later on complemented by disclosure requirements (SEC 1974, 1978). In 1978, the NYSE required from listed companies to have an audit committee that is responsible for the assignment of the auditor (Vicknair et al. 1993). However, the effectiveness of these requirements and recommendations was dubious, as the audit committees were often not independent (Mace 1986). A number of initiatives tried to improve this situation, e.g. the Blue Ribbon Committee (1999) and the National Association of Corporate Directors (2000). The SEC (1999) addressed the situation by tightening disclosure requirements for audit committees.

With the Sarbanes-Oxley Act of 2002, the situation changed in three ways: First, the independence requirements for members of the audit committee were made more demanding (Section 301 SOX, SEC 2003b). Second, the audit committee was granted the responsibility for the appointment, compensation, and oversight of auditor's work (Section 301 SOX, SEC 2003b)). Third, the requirements were specified regarding auditor's communication with the audit committee (Section 204 SOX, SEC 2003a). These changes have the cumulative effect of making the audit committee the client of the auditor (Vera-Munoz 2005).¹

2.2. The role of the supervisory board in Germany

In Germany, a two-tier board structure is in existence for stock corporations (Aktiengesellschaften) and for private limited corporations with more than 500 employees² (Gesellschaften mit beschränkter Haftung). This means that the supervisory board (Aufsichtsrat) and the management board (Vorstand/Geschäftsführung) are two distinct bodies of the corporation, in which the former has the legal duty to control the later (Sect. 111 German Stock Corporation Act). Thus, the tasks of supervision and management are clearly separated by law (Leuz and Wüstemann 2004).

Regarding the accountability of the auditor to an independent board, one could hold that German legislation foreshadowed the respective US regulation. In Germany, the auditor has traditionally worked with the supervisory board on a basis of confidentiality and trust (Wüstemann 2004). With the passage of the Corporate Control and Transparency Act of 1998, the accountability relationship between the auditor and supervisory board was further developed (Ashbaugh-Skaife and Gassen 2006). The supervisory board was made responsible for nominating the auditor for election at the annual shareholder meeting, appointing the auditor, and negotiating the compensation terms (Sect. 111 German Stock Corporation Act, Sect. 318 German Commercial Act). The auditors, meanwhile, have extensive reporting duties towards the supervisory board. They must explain their audit findings in a confidential comprehensive auditors' report and have to be present at the supervisory meeting where the annual financial statement is discussed. Furthermore, they are bound to report urgent findings to the supervisory

¹ For those companies that do not have an audit committee, the board of directors is considered to be the audit committee. In this case, all members of the audit committee also have to fulfill the independence requirements (Section 205 SOX).

² Section 1 Paragraph 3 Gesetz über die Drittelbeteiligung der Arbeitnehmer im Aufsichtsrat, Drittelbeteiligungsgesetz) (One-Third Codetermination Act)

board, e.g. the immediate risk of insolvency or the discovery of fraud (Section 321 German Commercial Code).

Most important for our experimental design, the German institutional setting offers the peculiar feature that there are a large number of companies that are comparable in economic terms, but differ with respect to the body responsible for the appointment of the auditor. This scenario arises from two features: First, the number of corporations that are required by law to be audited is much larger in Germany than in the US, since all corporations that are at least of medium size must be audited without a restriction to companies with publicly issued securities (Section 316 German Commercial Code). Corporations are generally considered to be of medium size when they have more than 50 employees.³ Second, private limited companies with less than 500 employees are not required to have a supervisory board, but can decide to have one voluntarily.⁴ In case that they decide to have one, the supervisory board is responsible for the appointment of the auditor; otherwise this responsibility is with the management board (Section 318 German Commercial Code). Therefore, private limited companies with more than 50, but less than 500 employees have a statutory auditor that has either been appointed by the supervisory board or by the management board. The large number of about 20 000 corporations fall into this category as the private limited company is the dominant form of incorporation in Germany.⁵ Hence, the German setting provides the opportunity to set up an experimental design in which the client of the auditor is manipulated in a realistic manner.

3. Theory and hypotheses

3.1. Main effect of client

Auditors are accountable to various groups, e.g. management, audit committee, team members, superordinates, reviewers, investors, regulators, and the general public (Gibbins and Newton 1994; Emby and Gibbins 1988). In our experiment, we are interested in the effect that being accountable towards a client with known views has on auditors' judgment and decision

³ Section 267 German Commercial Code specifies the requirements. A corporation is of medium size when two of the following three requirements are fulfilled in two consecutive financial years: 1) more than 50 employees, 2) a balance sheet total of more than 4 015 000 Euro, 3) sales of above 8 030 000 Euro.

⁴ Section 52 Gesetz betreffend die Gesellschaften mit beschränkter Haftung, GmbHG (Private Limited Liability Company Act).

⁵ This number is based on information provided by the German statistical office (Statistisches Bundesamt Deutschland): On December 31, 2006, there were over 27 700 corporations with 50 to 250 employees. Subtracting the total number of operating stock corporations (7000) provides a conservative estimate of at least 20 000 private limited companies with 50 to 500 employees.

making. In such an accountability relationship, people tend to employ an acceptability heuristic which can lead to an attitude shift (Tetlock et al. 1989; Lerner and Tetlock 1999). This means that people unconsciously gravitate toward the preference of the other party and adopt a "socially acceptable" compliant position (Tetlock 1983; for auditing see e.g. Gibbins and Newton 1994; Messier Jr and Quilliam 1992; Blay 2005). The rationale behind this phenomenon is that "the simplest way of coping with accountability is by making decisions that one is reasonably confident will be acceptable to others" (Tetlock 1985, p. 311)

Antecedents for the use of the acceptability heuristic and the resultant attitude shift are (1) feeling an accountability pressure, (2) having the objective of gaining the approval of the other party, and (3) the need to achieve that objective in a way which minimizes cognitive efforts (Tetlock 1985). The appearance of an attitude shift is also bounded by a reasonableness constraint. That means that the attitude of the accountable person shifts towards the other's preference only as long as this preference is justifiable to some degree (Kunda 1990; Boiney et al. 1997). Connected with the acceptability heuristic is the theory of motivated reasoning. The focus of this theory is the predecisional judgment process. It assumes that people who are motivated to arrive at preferred conclusions tend to employ beliefs and strategies especially likely to lead to these conclusions (Kunda 1990, 1999; Brownstein 2003).

Turner (2001) suggests that the effects of accountability pressure vary with the nature of the task. Hereby, she distinguishes between belief tasks and action tasks. Action tasks directly affect the audit outcome, e.g. the decision what to disclose in the financial statement and what type of audit opinion to issue, while belief tasks are judgments that do not affect the audit outcome. However, as the formed beliefs have at least a vague effect on the audit outcome, the distinction between belief and action tasks is somewhat blurred. Therefore, the two types of tasks have to be considered as two extremes of a spectrum. Turner's categorization is based on psychology research where a distinction is made between judgments in which beliefs are expressed and choices in which actions are selected (Einhorn and Hogarth 1981; Payne 1982).

In action tasks, people experience most intimately feelings of responsibility (Tversky 1972; Turner 2001) which can intensify the felt accountability pressure. Furthermore, action tasks often involve a justification process (Slovic et al. 1982) in which the potential costs associated with potentially negative outcomes are considered (Brown et al. 1999). These two effects have the ultimate result that auditors are highly sensitive to known preferences of the parties that they

are accountable to and especially likely to follow the acceptability heuristic for those tasks (Turner 2001).

For belief tasks, the situation is different. While the audit outcome is externally communicated via the financial statement and the audit opinion, the documentation of beliefs in the working papers is not disclosed. Therefore, one could expect that clients are less concerned about the formed beliefs and that, therefore, auditors feel under less pressure from the client for these tasks. Rather, theory suggests that auditors are more concerned about quality in belief tasks (Turner 2001). One dimension of audit quality is professional skepticism (Gramling 1999) which is required by auditing standards like SAS 99. It shall be exerted especially in circumstances in which the client has strong incentives to manipulate financial statements. Therefore, contrary to the effects of the acceptability heuristic, auditors who face clients with preferences for overstating profits might be motivated to demonstrate a high level of skepticism. Consistent with this argument, prior research has shown that auditors are more skeptical when evaluating evidence when clients have high incentives to misreport (e.g. Beaulieu 2001; Anderson et al. 2004; Kizirian et al. 2005). Furthermore, documenting skepticism in the working papers might also be helpful for auditors in reducing their litigation risk (e.g. Rich et al. 1997; Johnstone 2000; Moreno and Bhattacharjee 2003).

One of the few published studies in which the client of the auditor was manipulated is Buchman et al. (1996). In their experiment, auditors were either accountable to no one, to the client in form of the management, or to the audit partner. The task of the auditors was to evaluate an ambiguous accounting case. They detected that auditors tended to favour the client in action tasks.

One reason for the limited number of studies that manipulate the client might be that the institutional setting in the U.S. does not provide a realistic scenario for manipulating the client. Therefore, research has mainly focused on manipulating the preference of the audit partner to which the auditor is accountable. Findings are that reviewees often succumb to the known preferences of the reviewer, e.g. when assessing the credibility of client's explanations of errors (Peecher 1996), when deciding to accept a client (Cohen and Trompeter 1998), or when deciding whether to sign off on statements that are materially misstated (Lord and DeZoort 2001).

In our hypotheses, we follow Turner (2001) and distinguish between belief and action tasks. For belief tasks, we predict that auditors are especially concerned about quality with the

effect that professional scepticism prevails over accountability pressure. For action tasks, we predict that the accountability pressure is higher with the result that the effects from the use of the acceptability heuristic prevail over the effects of the exertion of professional skepticism.

H1a: Auditors will show professional scepticism in belief tasks when they are accountable to a client with preferences for higher earnings

H1b: Auditors will employ the acceptability heuristic in action tasks when they are accountable to a client with preferences for higher earnings

3.2. Economic incentives

Having the objective of gaining the approval or escaping censure from the source of the pressure is a precondition for accountability (Tetlock 1985).

For the auditor, incentives to care about the client's approval may arise from the incentive of retaining the audit assignment. Auditors can earn rents from incumbent clients even in competitive markets (DeAngelo 1981). Auditors pay for these rents in the first period by pricing the audit below costs, which is called lowballing. Psychological research suggests that these sunk costs, from the first period, might additionally strengthen incentives to keep the client (Arkes and Blumer 1985; Dopuch and King 1996). Incentives from quasirents and lowballing can arise not only from audit fees, but also from nonaudit fees (Magee and Tseng 1990; Lee and Gu 1998). In order to improve auditor independence, the Sarbanes-Oxley Act has limited the opportunities for audit firms to cross-sell nonaudit services to their audit clients (SEC 2003a). Similar measures were enacted in the European Union (European Union 2006).

Experiments have found evidence that auditors react to economic incentives. In the experiment of Kadous et al. (2003), the goal commitment to keep the client was elicited. Their results revealed that auditors who showed a high degree of goal commitment were more likely to accept the accounting method favored by the client. In line with this finding, factors that endangered auditors' independence were client's importance (Lord 1992), a low litigation risk (Chang and Hwang 2003), and the perspective to generate additional fees from the client in the future (e.g. Farmer et al. 1987; Chang and Hwang 2003).

However, empirical research has not yielded convincing evidence on the potentially negative effects of relatively or absolutely high nonaudit fees on proxies for auditor independence. While Frankel (2002) observed an association between nonaudit fees and the level of discretionary accruals, latter research provided evidence that this result is not a robust one, but was driven by a small subsample of firms (Ashbaugh et al. 2003; Reynolds et al. 2004; Larcker and Richardson 2004). Antle (2006) even observed that high non-audit fees decreased the level of discretionary accruals. No significant results were also reported for the association between non-audit fees and other proxies for auditor independence, for example, the propensity to issue going-concern opinions (DeFond et al. 2002), the degree of conservatism (Ruddock et al. 2006), and the earnings-response coefficient (Higgs and Skantz 2006).

The empirical findings might be explained by the fact that auditors also face incentives for remaining independent (Watts and Zimmerman 1986). It has been shown that a loss of reputation for being independent can have real economic consequences, leading to lower audit fees (Beatty 1993; Craswell et al. 1995) or even to the loss of clients (Chaney and Philipich 2002; Krishnamurthy et al. 2006). Experiments have shown that litigation risk reduces the degree of concession to client pressure (Farmer et al. 1987; Chang and Hwang 2003; Blay 2005).

Therefore, in reality, auditors face incentives to seek approval of the client, as well as incentives to remain independent. The ultimate impact of the client on their behavior may depend on which of those incentives prevail. As the attitude shifts occurring in response to the acceptability heuristic depend on the strength of any perceived incentives to support the other's position (Krizan and Windschitl 2007), we put forth the following hypothesis:

H2: Auditors perceiving the economic incentives for keeping the client to be high will be biased towards the preferences of the client.

3.3. Psychological pressure

A further premise for such an attitude shift is that the person who is accountable to someone else actually experiences an accountability pressure (Tetlock 1985).

In auditing, this pressure can arise in meetings with the management board. These meetings are an essential part in the audit process, given that the auditor must communicate with the management in order to obtain the necessary information to conduct the audit. The

management often exercises pressure in these meetings to convince the auditor of its preferred accounting method (Johnstone et al. 2002). Often, management boards have the preference to manage earnings upwards (Nelson et al. 2002). Since the auditor's role is to enforce any adjustments towards the accurate accounting method (Gibbins et al. 2001; Sanchez et al. 2007), the financial statement can be considered to be the result of negotiations between the management and the auditor (Antle and Nalebuff 1991; Trotman et al. 2005).

Pressure can also arise from auditors' accountability towards the supervisory board/audit committee. In the US, the Sarbanes-Oxley Act emphasized this accountability relationship by expanding and clarifying auditors' reporting duties towards the audit committee (Section 204). In Germany, auditors are obliged to report their findings in a comprehensive audit report to the supervisory board (Section 321 German Commercial Code). Furthermore, they are required to explain these findings in a mandatory meeting with the supervisory board (Section 176 Para. 2 German Stock Corporation Act).

Therefore, in reality, auditors may experience pressure from the management board, as well as from the audit committee/supervisory board. As research has shown that the pressure felt affects the action taken (Gibbins and Newton 1994), we hypothesize that psychological pressure will especially affect the behavior of those auditors who perceive that pressure to be high.

H3: Auditors perceiving the psychological pressure to be high will be biased towards the preferences of the client

3.4. Experience

Buchman et al. (1996) state that "expectations about the relationship between experience and the social contingency model are unclear since the relationship has never been studied" (p. 384), and their experiment do not shed further light on this issue. Further studies provide mixed or inconclusive evidence on the question of whether experience interacts with accountability pressure. For example, Chang and Hwang (2003) suspect that experience influences the decision to succumb to client pressure, and use it as a covariate in their analysis, but the interaction effect is insignificant.

Some research suggests that perceived economic incentives and psychological pressure are stronger for more experienced auditors and for auditors at higher hierarchical levels.

Experienced auditors might perceive their economic incentives to be greater, as their performance evaluation and compensation often rely strongly on the fee which they generate (Emby and Etherington 1996). Haynes et al. (1998) use this reasoning to explain their finding that more experienced auditors favored the client position more often than inexperienced auditors. Trompeter (1994) provides evidence that the compensation scheme can influence auditors' decisions. Perceived psychological pressure might be stronger for senior managers and partners, whose longer careers have given them more opportunities to experience meetings in which members of the management board or the audit committee/supervisory board might have tried to exercise pressure. Therefore, they might have a more vivid image of that pressure, based on their real-life experience, than inexperienced auditor.

However, some research suggests the opposite, showing that more experienced auditors possess a higher degree of tacit knowledge such as communication or interpersonal skills (Bonner and Lewis 1990; Tan and Libby 1997), factors which play a critical role in one's promotion to senior manager and partner level (Bhamornsiri and Guinn 1991; Abdolmohammadi and Shanteau 1992; Abdolmohammadi et al. 2004; Blanthorne et al. 2005). This tacit knowledge might help more experienced auditors to better cope with economic and psychological pressure. Moreno and Bhattacharjee (2003) argue that it would help auditors to properly consider all incentives involving their decision. More experienced auditors would be better able to withstand the economic incentives to please the client by taking into account counteracting incentives, such as litigation risk or reputation loss. Farmer et al. (1987) also find weak evidence that more experienced auditors display a lower tendency towards client advocacy. A higher tacit knowledge might also enable more experienced auditors to resist pressure. For instance, having experienced meetings with clients in the past, senior managers and partners might have been able to develop strategies for coping with accountability pressure.

In light of both contradicting arguments, that experience might weaken or strengthen the effects of accountability respectively, we formulate the following research questions.

RQ1: The effects of perceived economic incentives interact with the experience of the auditor

RQ2: The effects of perceived psychological pressure interact with the experience of the auditor

4. Experimental design

4.1. Experimental procedure

Two of the Big 4 audit firms in Germany agreed to support the experiment by providing participants. Altogether 72 auditors participated in four sessions, among them 52 male and 15 female auditors; 5 participants did not indicate their gender.⁶ In each session, one of the authors was present, together with one or two research assistants, to ensure a controlled processing of the experiment. At the first audit firm, auditors participated in the experiment at the end of the first day of two-day training, which was designed for auditors with all levels of experience.

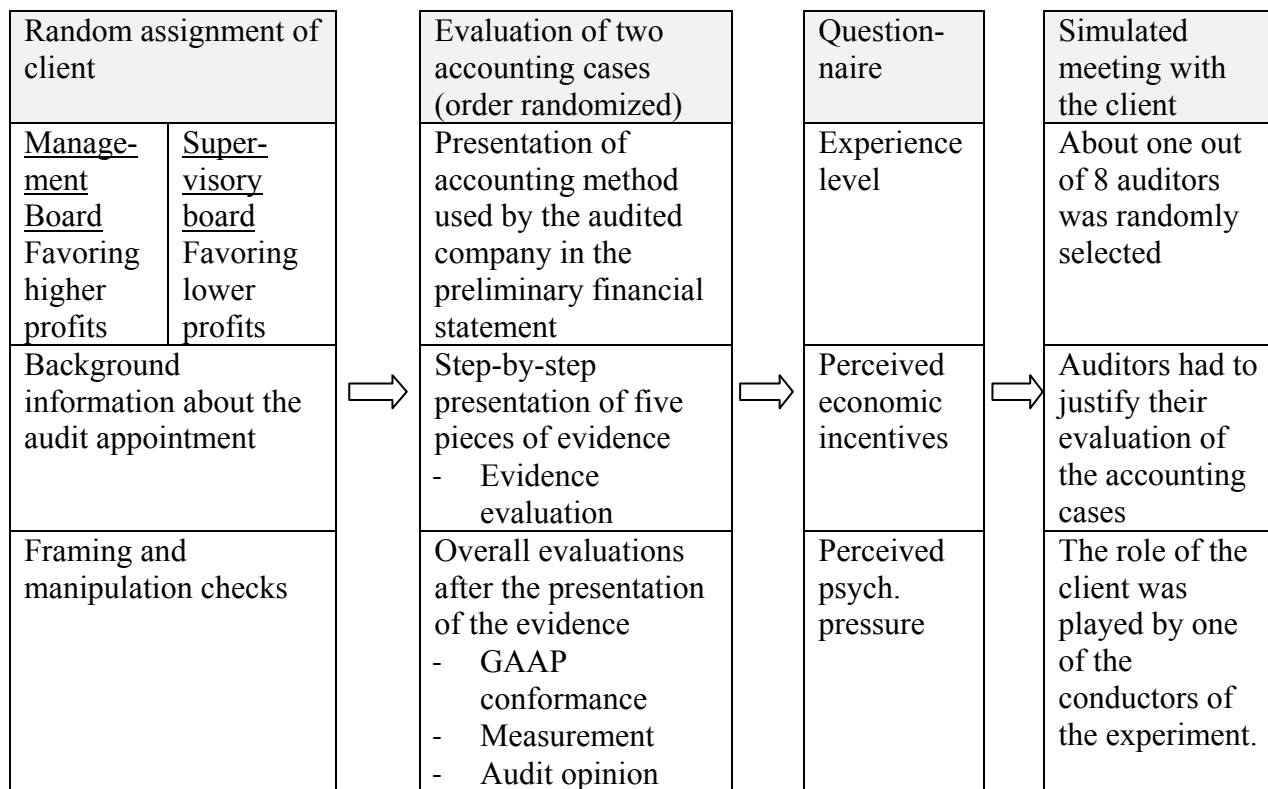
Experimental sessions were held in three different regions of Germany, with the number of participants ranging from 9 to 23 auditors per session. At the second audit firm, the experiment was conducted prior to a nationwide partner/manager meeting, and participants signed up for the experiment beforehand. 20 partner and senior managers participated. For both audit firms, the format of the experiment was the same.

In each session, the subjects were randomly assigned to one of two treatment groups (management board, supervisory board) by blindly drawing from a deck of cards. Each treatment group was then seated at a different table. At the beginning of the experiment, the general procedures were read aloud to all participants. These procedures did not indicate that there were two different treatment groups. The experimental materials consisted of three parts. First, auditors received the description of the audit appointment and the audit client accompanied by control questions to be answered about this scenario. Second, they were given the task of evaluating two controversial accounting issues. Each accounting case consisted of a description of the accounting method used by the audited company in the preliminary statement and five pieces of evidence accompanied by general accounting guidelines. The auditors had the task to evaluate both the meaning of each piece of evidence and the overall accordance with GAAP (belief tasks). They also had to choose which accounting method would be most appropriate and which audit opinion they would issue (action tasks). Third, auditors filled out a questionnaire which had both

⁶ In total, 84 subjects participated. We excluded 12 participants, as their main field was not auditing. Instead, their main fields were IT-auditing, tax consulting or consulting. Our main results hold, nevertheless, when we include all subjects in our analysis.

some general questions, and questions relating to their experience level, their perceived economic incentives, and their perceived psychological pressure. For the last part of the experiment, about one in eight auditors was randomly chosen for the simulated meeting with the client. The selected auditors had to defend their audit judgments and decisions in a face-to-face meeting with one of the conductors of the experiment. The experiment took about 30 to 60 minutes; the simulated meeting took about 5 to 10 minutes. At the end, the participants had the option of signing up to receive information about the purpose and the results of the study. The majority of the participants signed up.

Figure 1
Experimental Procedure



4.3. Dependent variables

In our experiment, auditors evaluated two case studies. The order in which these were presented was randomly varied across subjects. The first case covered the measurement of provisions for warranties and the second case covered the size of depreciations of doubtful accounts receivable. These accounting issues have often been used in the auditing research before

(e.g. Jambalvo and Wilner 1985; Buchman et al. 1996; Turner 2001). The topics of our respective cases are also highly relevant for auditor-client meetings as they affect the reported profit (Gibbins et al. 2001). We designed the cases in such a way that their solution was ambiguous, since ambiguity is one antecedent for an attitude shift (Chaiken et al. 1989; Boiney et al. 1997). This rationale is supported by research which suggests that the risk of auditors' impairment of independence is higher when no clear guidelines exist (Trompeter 1994; Salterio and Koonce 1997; Kennedy et al. 1997; Johnstone et al. 2002). The accounting rules to be applied were German GAAP, in both cases. General background information about the audited company was provided to enable the auditors to judge the materiality of the perceived misstatement. We describe the audited firm as a large, private limited liability corporation with sales of 1 800 Mio., earnings of 5.0 Mio. €, and a balance sheet total of 1 000 Mio €.

In each case study, the accounting method used by the audited company in its preliminary statement was presented at the beginning. Auditors then received five pieces of evidence, after each one rating its consistency with the account method being used by the audited company on a 11-point-Likert scale from -5 (= fully inconsistent) to +5 (=fully consistent). We combine the five ratings as an aggregate variable for evidence evaluation as our first dependent variable (aggregated scale from -25 to +25). After evaluating the evidence, auditors were asked to judge the conformance of the company's accounting method with GAAP on an 11-point-Likert scale ranging from 0 (=not in conformance with GAAP) to 10 (=fully in conformance with GAAP), our second dependent variable. Then, they chose the accounting method that they consider appropriate. The earnings effect that the hypothetical use of this method would have is our third dependent variable. The possible range of adjustment that auditor could consider appropriate went from an upward adjustment of earnings of 25 Mio. € to a downward adjustment of earnings of 225 Mio €. Finally, auditors decided what audit opinion they would issue if the audited company were to make no adjustments in their final statement by deciding between issuing an adverse (=0), a qualified (=1), and an unqualified opinion (=2), our fourth dependent variable.

Following Turner (2001), we distinguish between belief and action tasks. In our context, we classify the evaluation of evidence and the evaluation of the conformance with GAAP as belief tasks. We do so as they involve evaluations which are primarily conducted for documentation in the working papers and are only loosely associated with the externally communicated audit outcome. Furthermore, they fulfill the definition of judgment tasks, a concept related to belief tasks, as values are assigned in terms of a rating scale (Payne 1982). We

classify the decision of the measurement of the balance sheet item and of type of audit opinion to issue as action tasks. These decisions are both externally communicated in the financial statement. They also fulfill the definition of choice tasks, a concept related to action tasks, as they involve the selection of an explicit alternative (Payne 1982). We consider the audit opinion as our primary dependent variable, since the decision as to which audit opinion to issue is the auditor's primary task. It is also the decision in which justification needs and accountability pressure are strongest for the auditor (Buchman et al. 1996; Turner 2001). Furthermore, measures of auditor independence are widely based on the degree of truthful external reporting of audit findings (e.g. DeAngelo 1981).

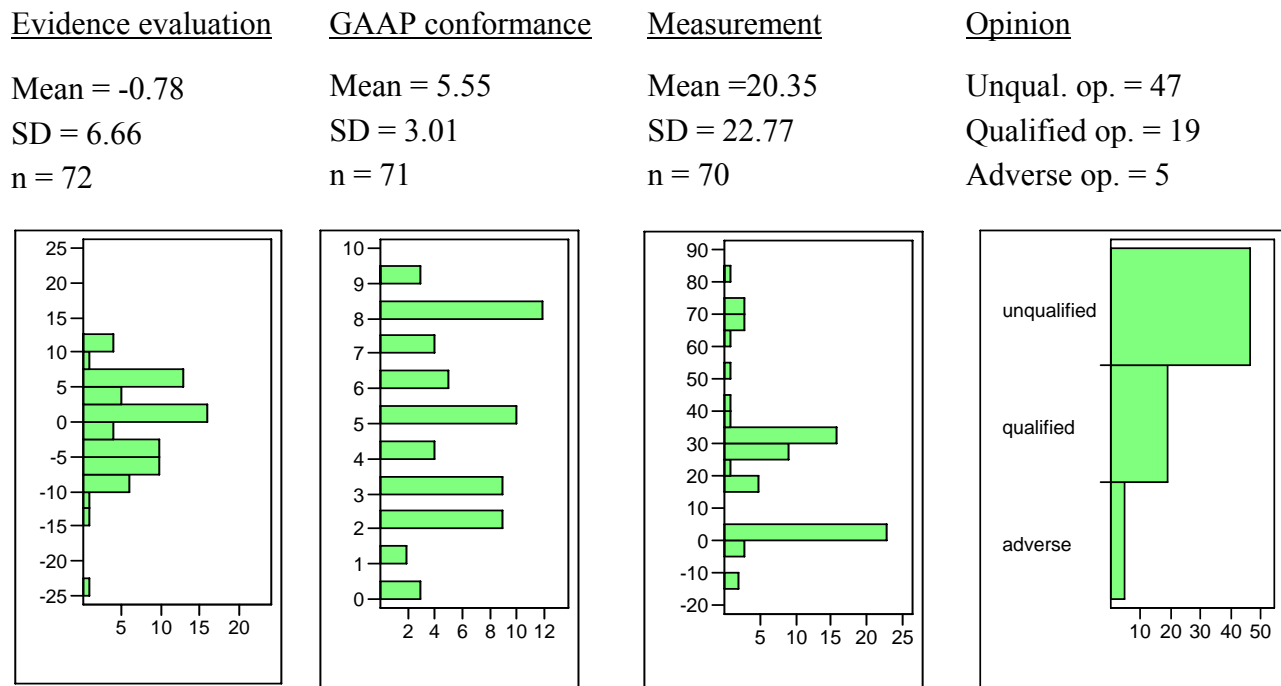
Figure 2
Dependent variables

Type of task	Dependent variable	Elicitation method	Characteristics
Belief task	Evidence evaluation	“Is the piece of evidence consistent with the accounting method used by the audited company?”	-5 (fully inconsistent) to +5 (fully consistent) for each piece of evidence. -25 to +25 summed up over all five pieces of evidence.
	GAAP conformance	“Is the accounting method used in conformance with German-GAAP?”	Scale from 0 (=not in conformance with GAAP) to 10 (=fully in conformance with GAAP).
Action task	Measurement	“What value should be reported in the financial statement for the balance sheet position in question?”	The earnings reduction when employing the accounting method suggested by the auditor was calculated. Possible ranges: -15 to 110 Mio. € for the provision case, -10 to 115 Mio. € for the receivables case, -25 to 225 Mio. € summed up over both cases)
	Opinion	“What audit opinion should be issued?”	adverse opinion (=0), qualified opinion (=1), unqualified opinion (=2). For calculating the total opinion, the average of both decisions was calculated.

The first case concerned the valuation of a new product's warranties. The audited company measured the provision at 110 Mio. € in the preliminary financial statement. Auditors rated the provided evidence to be, on average, in accordance with this accounting method (scale: -25 to +25; mean = -0.77; SD=6.66). They judged the accounting method used to be somewhat in

conformance with German GAAP (scale: 0 to 10; mean = 5.55; SD = 3.01). On average, they considered a measurement of 130 Mio € for the provision to be appropriate. Thus, they proposed an average downward adjustment in earnings of 20 Mio € (scale: -15 Mio. € to + 110 Mio. €; SD = 22.77). 47 auditors issued an unqualified opinion, 19 a qualified opinion and 5 an adverse opinion. On the whole, auditors considered the accounting case to be rather ambiguous (scale: 1 to 7; mean = 5.1; SD = 1.51).

Figure 3
The provision for warranties case



The second case concerned the valuation of a doubtful account receivable. The audited company measured the provision at 115 Mio. € in the preliminary financial statement. In their evaluation, auditors considered the evidence to be in general opposition to the accounting method used (scale: -25 to + 25; mean = -4.75; SD = 9.61), and believed that this method does not agree with German GAAP (scale: 0 to 10; mean = 2.96; SD = 2.77). They suggested that the doubtful accounts receivable should be depreciated by 59 Mio. € (scale = -10 Mio. € to 115 Mio. €; SD = 37.05) to a value of 56 Mio. €. 19 auditors stated that an unqualified opinion can still be justified,

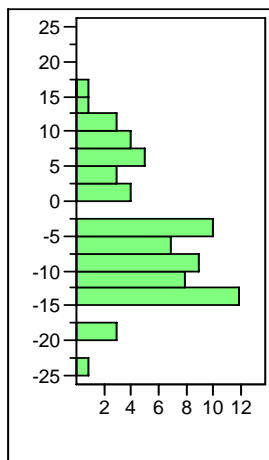
37 qualified the opinion and 14 issued an adverse opinion. They considered the accounting case to be less ambiguous than the provision case (scale: 1 to 7, mean = 4.3; SD = 1.45).

Figure 4
The accounts receivable case

Evidence evaluation

+25 = Evidence fully consistent with the accounting method used
-25 = Evidence fully inconsistent with the accounting method used

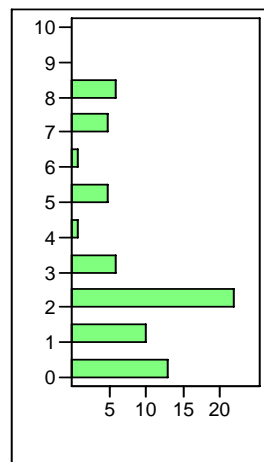
Mean = -4.75
SD = 9.61
n = 72



GAAP conformance

10 = Accounting method used is in full conformance with GAAP
0 = Accounting method used is not in conformance with GAAP

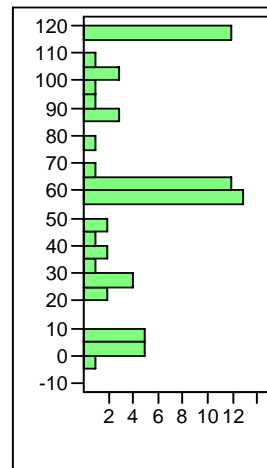
Mean = 2.96
SD = 2.77
n = 71



Measurement

Earnings reduction when using the accounting method considered to be most appropriate by the auditor instead of the one used in the preliminary statement.

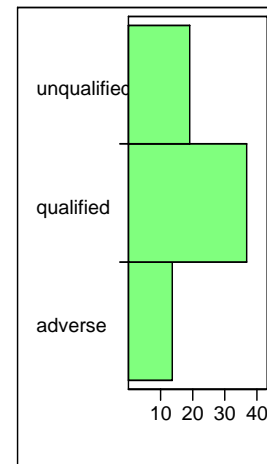
Mean = 55.99
SD = 37.05
n = 71



Opinion

Audit opinion if the company does not change its accounting method

Unqualif. op. = 19
Qualified op. = 37
Adverse op. = 14



4.4. Independent variables

4.4.1. Client

The particularities of the German institutional setting allow for a clear-cut and realistic manipulation of the client. As described above in more detail, this opportunity arises from the institutionalized separation of the management board and the supervisory board and the feature that there are a large number of companies that are comparable in economic terms, but differ with respect to the body responsible for the appointment of the auditor. We manipulated client type by

telling the subjects that either the management board or the supervisory board has been responsible for the appointment of the auditor. Auditors received information about the particular incentives of the client to which they were assigned. We ensured that auditors internalized this information by administering control questions about the preferences of their client.

The management board was described as having incentives to bias earnings upward, and wishing to maintain the aggressive accounting methods used in the preliminary financial statement. We stated that the board's incentives arose from the danger that the audited company would miss earnings forecasts otherwise, in which case board members would forfeit their bonus payments and would be at risk of replacement.

The supervisory board was described as having incentives to support downward adjustments in the preliminary financial statement. This board of the firm in question was dominated by bank representatives, as is often the case in Germany. We attributed the board's favoring of a conservative accounting method to its desire to ensure the repayment of debts. Furthermore, we emphasized the litigation risks for members of the supervisory board in the event of misstatements.

Thirty-seven subjects were randomly chosen to be accountable towards the management board, and 35 auditors were randomly chosen to be responsible towards the supervisory board. The manipulation of client preferences proved to be successful. Auditors with the management board as their client rated the client as preferring an aggressive accounting method (+4.3 on a scale from -5 (=conservative) to +5 (=aggressive)), while auditors with the supervisory board as a client rated the client as preferring a conservative accounting method (-3.0). The difference in ratings is highly statistically significant ($p < 0.001$).

4.4.2. Economic incentives

We created a situation in which the auditor has a high economic incentive to retain the client. For both client conditions, we explained that the previous auditor had been replaced because of disagreement with the client. We also stated that the client contributed to one-fourth of the total audit fees for the local office.

We measured the perceived economic incentives of the auditor indirectly. To do this, we asked in the questionnaire how large the proportion of audits is, in their experience, in which the auditor is likely to be replaced in the case of dissent between auditor and client. These incentives

are measured on an 11-point-Likert scale ranging from 0% to 100%, with 10% intervals. Our use of perceived economic incentive as a dependent variables has also been used in past studies, e.g. Trompeter (1994) or Kadous et al. (2003).

Answers ranged from 10% to 80% with a mean of 36% (SD = 23.94). For improving the robustness of our analyses, we performed a median split and classified the 10% to 30% range as perceiving the economic incentives to be low, and the 40% to 80% range as perceiving the economic incentives to be high. Such a median split was, for example, also performed by Kadous et al. (2003).

4.4.3. Psychological pressure

We created accountability pressure by requiring the auditors to justify their decisions, both in written form and face-to-face with the client. Such justification requirements have proven to be effective to this end (Lerner and Tetlock 1999; Brazel et al. 2004; DeZoort et al. 2006). We announced the possibility of a simulated face-to-face meeting with the client at the beginning of the experiment together with a general description of the audited company. The auditors were notified that about one in eight would be randomly selected at the experiment's end to participate in that meeting. The methodology of informing subjects of the chance of a review has also been used in earlier research, e.g. Tan (1995) or Tan and Kao (1999).

We tried to ensure that the auditors would clearly envision the scenario of a face-to-face meeting by asking them several questions related to that situation. They were asked how often they have participated in meetings in which the client hold preferences similar to those depicted in our study, and then had to describe a meeting with such a client. In the case that they had not yet participated in such a meeting, we requested that they evaluated how well they can visualize it. To preserve the salience of the potential face-to-face meeting during the evaluation of the accounting cases, we stated before each audit decision that the client will be informed about of it, and that this decision will constitute the main topic of discussion during the client meeting.

We measured the perceived psychological pressure by asking in the final questionnaire whether they would agree with the following statement on a 7-point-Likert scale (1=Do not agree at all, 7=Fully agree): Have you had the goal of avoiding conflicts during the prospective meeting with the client? A similar measure has also been employed as a dependent variable, for example, by Felix (2005).

Auditors rated the perceived psychological pressure on average to be 2.8. Here again, we performed a median split and classified the 43 auditors giving ratings of 1 or 2 as perceiving psychological pressure to be low, and classified the 28 auditors giving ratings ranging from 3 to 7 as perceiving psychological pressure to be high.

4.4.4. Experience

Our experimental setting required auditors to evaluate two rather ambiguous audit cases, provide a solution to each case, submit the appropriate audit opinion, and imagine a meeting with the client. As these tasks are rather complex, we required at least two years of audit experience. To test for experience effects, we did not further restrict the required level of experience for subjects.

The average work experience of the participants was 9.5 years, with a minimum of 2 years. The distribution of auditors over the different hierarchical levels was reasonably balanced: 21 staff members, 18 managers, 18 senior managers and 12 partners participated. Three participants did not indicate their level. For our analysis, we classify the auditors at staff and manager levels as inexperienced, and the auditors at senior manager and partner level as experienced.

Figure 5
Independent variables

	Elicitation method	Characteristics
Client	Random assignment	Management Board (37 auditors) vs. Supervisory Board (35 auditors)
Economic incentives	“In your experience, how large is the proportion of audits in which the auditor is likely to be replaced in the case of dissent between auditor and client?”	Scale: 0 to 100%; Median split: 10-30% (low) and 40-80% (high)
Psychological pressure	“Did you pursue the aim to avoid conflict with the client in the prospective client meeting?”	Scale: 1 (not at all) to 7 (fully) Median split: 1-2 (low) and 3-7 (high)
Experience	“What is your hierarchical level?”	Inexp.: staff (21), manager (18) Exp.: senior manager (18), partner (12)

5. Results

5.1. Main effect of client

We hypothesized that auditors show professional skepticism in belief tasks (H1a) and employ the acceptability heuristic in action tasks (H1b).

In accordance with Hypothesis 1a, the manipulation of the client has a statistically significant effect on our two belief tasks (evidence evaluation and GAAP conformance). While auditors appointed by the management board evaluated evidence to be contradictory to the accounting methods used in the preliminary statement (Mean=-5.56; SD=6.28), auditors assigned by the supervisory board evaluated that evidence to be neutral (Mean=0.19; SD=7.85). This difference between the two groups is highly significant ($p < 0.001$). It is also a very robust as the tendency holds for all ten pieces of evidence of the two accounting cases, is significant for 6 of the pieces and for the aggregated measure for each individual accounting case. Auditors appointed by the management board also evaluated the accounting methods to be significantly less in conformance with German GAAP (Mean=3.70; SD=2.25) than auditors that were hired by the supervisory board (Mean=4.94; SD=2.11) ($p=0.019$), an effect that is marginally significant when considering both accounting cases separately. The results that auditors even demonstrate bias against their client for belief tasks suggest that knowledge of the management board's preference to manage earnings upward makes auditors more skeptical in these tasks as predicted by Turner (2001). Auditors seem to rely on working papers to voice their skepticism, in order to reduce litigation risk, and seem to rely less on the acceptability heuristic when forming their beliefs.

Hypothesis 1b cannot be confirmed. The manipulation of the client had no significant effect on audit tasks for auditors who proposed an action. Auditors required, on average, adjustments that lowered earnings by 72.6 Mio. € (SD =44.8 Mio. €) when accountable to the management board, and by 66.0 Mio. € (SD=46.1 Mio €) when accountable to the supervisory board ($p=0.546$). Both groups also issue roughly the same audit opinions (mean = 1.33 vs. 1.34, when 0=adverse opinion, 1=qualified opinion, and 2=unqualified opinion). Therefore, while we do not observe that auditors favor the preferences of their client in action tasks, we find that the bias against the preferences of the client observed in belief tasks disappears. This suggests that the acceptability heuristic might play a role in choices involving action tasks.

Table 1
Main effect of client on belief and action tasks

***/**/*: significant on a 1%/5%/10%-level

Task	Type of Response	Response variable	Management Board		Supervisory Board		p (two-tailed t-Test)
			Mean	(SD)	Mean	(SD)	
Provision for Warranties	Belief	Evidence	-3.70	(6.20)	2.31	(5.71)	0.001***
		GAAP	4.89	(3.13)	6.23	(2.76)	0.060*
	Action	Measurm.	24.03	(23.96)	16.47	(21.09)	0.165
		Opinion	1.56	(0.69)	1.63	(0.55)	0.624
Accounts Receivable	Belief	Evidence	-7.40	(7.90)	-1.94	(10.54)	0.016**
		GAAP	2.43	(2.51)	3.53	(2.96)	0.098*
	Action	Measurm.	48.61	(36.72)	49.43	(37.92)	0.927
		Opinion	1.08	(0.73)	1.06	(0.65)	0.882
Overall	Belief	Evidence	-5.56	(6.28)	0.19	(7.85)	0.001***
		GAAP	3.70	(2.25)	4.94	(2.11)	0.019**
	Action	Measurm.	72.64	(44.84)	66.03	(46.12)	0.546
		Opinion	1.33	(0.57)	1.34	(0.49)	0.940

5.2. Economic incentives

In the following regression analyses, we concentrate on our primary dependent variable, the choice which audit opinion to issue, both combined over both accounting cases and segregated by accounting cases. The results reported below also hold qualitatively for our second dependent variable derived from an action task, the level of suggested adjustments in measurement. As these regression analyses involve the investigation of factors affecting the use of the acceptability heuristic, we do not consider the dependent variables derived from belief tasks in the following, because our results above suggest that the acceptability heuristic is not employed for those tasks.

We consider the audit opinion to be ordinal, because each audit opinion has only three levels in our experiment (unqualified, qualified, adverse). Therefore, we use an ordinal logistic regression analysis. This analysis is rather robust, given that no assumptions about the

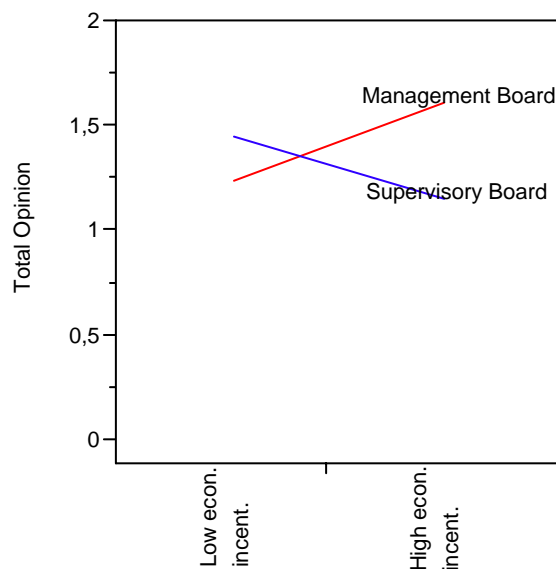
distribution of the target variable are necessary.⁷ In our regression analysis, negative estimates signify the tendency to accept the accounting method favored by the management board, by issuing an unqualified opinion.

We hypothesized that auditor who perceives the economic incentives to be high are at risk for impaired independence (H2). Our data confirms this hypothesis. We find a highly significant interaction between client and perceived economic incentives (L-R Chi-Square=6.631; p=0.010). This means that auditors who perceived economic incentives to be high were more inclined to issue an unqualified opinion when their client was the management board than when their client was the supervisory board. The effect is significant for the accounts receivable task (L-R ChiSquare=6.312; p=0.012), and holds in its tendency for the provision task (L-R ChiSquare=2.429, p=0.119).

Our results imply that auditors appointed by a supervisory board/audit committee are less prone to issue audit opinions which favor the management due to economic motives.

Figure 6
Interaction effect of perceived economic incentives and client

Dependent variable: total audit opinion (average audit opinion for both cases)
n=66



⁷ A logistic regression analysis has for example also been used by (Chang and Hwang 2003). Our main results do not change when qualifying the audit opinion as continuous and applying an OLS regression.

Table 2
Effects of client and perceived economic incentives

Dependent variable: total audit opinion (average audit opinion for both cases)
n=66, intercepts not reported, ***/**/*: significant on a 1%/5%/10%-level

Term	Estimate	Std Error	Chi Square	L-R ChiSquare	Prob> ChiSq	
Client[Management Board]	0,341	0,310	1,21	1,269	0,2599	
Economic Incentives [High]	-0,267	0,491	0,30	0,291	0,5894	
Client[Management Board]* Economic Incentives [High]	-1,284	0,509	6,37	6,631	0,0100	***

5.3. Psychological pressure

We hypothesized an interaction effect between perceived psychological pressure and client (H3). Our data does not support this hypothesis. However, we find a highly significant main effect from the perceived psychological pressure (L-R ChiSquare=7.882; p=0.005). Auditors tended to issue qualified opinions more often when they had the aim of avoiding conflict. This happened regardless of their type of client. The effect remains significant when considering the provision task (L-R Chi Square =4.663; p=0.031) and the accounts receivable task (L-R ChiSquare=6.210; p=0.012) separately.

Our results can be explained by the assumption that auditors still experience pressure from the management, even when employed by a supervisory board. Therefore, audit committees might currently still be of only limited usefulness in insulating the auditor from management pressure.

Table 3
Effects of client and perceived psychological pressure

Dependent variable: total audit opinion (average audit opinion for both cases)
n=68, Intercepts not reported, ***/**/*: significant on a 1%/5%/10%-level

Term	Estimate	Std Error	Chi Square	L-R ChiSquare	Prob> ChiSq	
Client[Management board]	-0,103	0,285	0,13	0,126	0,723	
Psych. Pressure [High]	-1,313	0,484	7,37	7,882	0,005	***
Client[Management board]*	0,357	0,463	0,60	0,616	0,432	
Psych. Pressure [High]						

5.4. Experience

We formulated the research questions whether the perceived economic and psychological factors interact with the experience level (RQ1 and RQ2).

Our findings suggest that the effects of perceived economic incentives do not differ across experience levels. When distinguishing between experienced and inexperienced auditors, we find that the interaction effect between client and perceived economic incentives does not strongly change with the experience levels. It is significant for experienced auditors (L-R ChiSquare=4.932; p=0.026) and marginally significant for inexperienced auditors (L-R ChiSquare=2.71; p=0.100). Accordingly, a three-way-interaction between client, perceived economic incentives, and experience level is insignificant.

There is also no difference between inexperienced and experienced auditors in their perception of economic incentives. While inexperienced auditors estimated the risk of client loss in the case of dissensions at 38.4 %, experienced auditors rated it at 34.0 %, which is an insignificant difference (p>0.45).

In contrast, for the perceived psychological pressure, we find a significant interaction between experience level and psychological pressure (L-R ChiSquare=3.936; p=0.047). The effects of perceived psychological pressure are significantly weaker for experienced auditors than for inexperienced auditors. Analyzing these two groups separately supports this finding. While the main effect of psychological incentives is highly significant when considering only

inexperienced auditors (L-R ChiSquare=7.941; $p=0.005$), it is insignificant for experienced auditors ($p>0.5$).

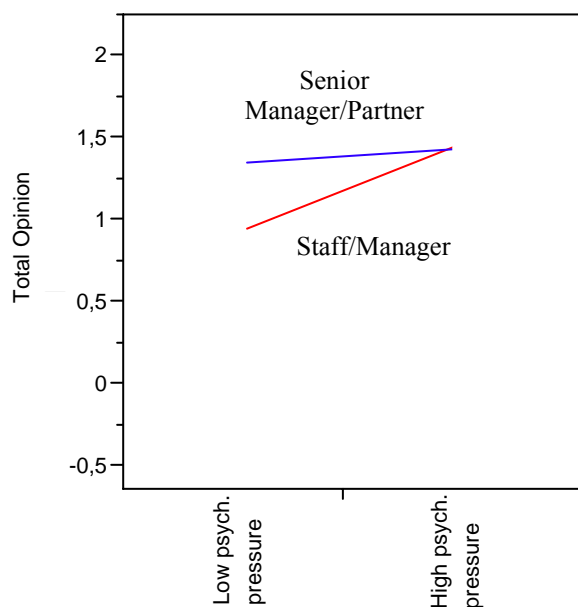
Furthermore, we find a marginally significant main effect of experience on the total audit opinion ($p=0.072$)⁸. More experienced auditors issued unqualified opinions more often than inexperienced auditors (1.45 vs. 1.23). This finding is in line with prevailing literature (e.g. Abdolmhamadi and Wright (1987)).

Our findings imply that while experience might be helpful in coping with pressure, it does not reduce the risk that economic incentives pose on independence.

Figure 7

Interaction effect of perceived psychological pressure and experience on the total opinion

Dependent variable: total audit opinion (average audit opinion for both cases)
 $n=67$



⁸ In this test, we classify the total opinion to be continuous, and perform a t-test. We deviate from our general assumption that the total opinion is ordinal as a chi-square test might be corrupted since there are too many cells with $n<5$. The p-value of the chi-square test is $p=0.0711$.

Table 5
Effects of perceived psychological pressure and experience

Dependent variable: total audit opinion (average audit opinion for both cases)
n=67, intercept not reported, ***/**/*: significant on a 1%/5%/10%-level

Term	Estimate	Std Error	Chi Square	L-R ChiSquare	Prob> ChiSq	
Client[Management board]	0,053	0,228	0,053	0,054	0,816	
Psych. Pressure[High]	-2,218	0,660	11,288	11,213	0,001	***
Manager/Partner[yes]	-1,505	0,608	6,130	6,373	0,012	**
Manager/Partner[yes]* Psych. Pressure [High]	1,874	0,968	3,748	3,936	0,047	**

5.5. Overall model

To test for the robustness of our results, we set up a model which includes all main variables (perceived economic incentives, perceived psychological pressure, experience) as main effects and in interaction with the variable of client. We also include the interaction of experience and conflict avoidance, since this effect turned out to be significant in our analysis above. We test our model using as the target variable the total audit opinion, as well as the audit opinions of each accounting case.

The overall models confirm our results. The interaction effect of perceived economic incentives and client is highly significant for the total opinion ($p=0.001$). It is also highly significant for the opinion in the receivable task ($p=0.003$), and significant for the opinion in the provision task ($p=0.015$).

We also find the main effect of perceived psychological pressure to be highly significant for both accounting cases, both separately ($p=0.004$ and $p=0.001$), and combined ($p=0.001$). As in our previous analysis, the interaction effect is not significant for all these conditions.

Furthermore, we find evidence for the tendency that more experienced auditors issue more often unqualified opinions. This effect is highly significant when combining both accounting cases ($p=0.001$). No significant interaction effect of client and experience appears. The interaction effect between experience and conflict avoidance is highly significant for the total opinion (0.001), and significant for the accounts receivable case ($p=0.023$).

Table 6
Overall model

Dependent variable: total audit opinion (average audit opinion for both cases)
n=65, ***/**/*: significant on a 1%/5%/10%-level

Term	Estimate	Std Error	Chi Square	L-R ChiSquare	Prob> ChiSq	
Intercept[0]	-2,692	0,806	11,165			
Intercept[0,5]	-1,349	0,564	5,724			
Intercept[1]	1,239	0,542	5,227			
Intercept[1,5]	3,378	0,658	26,337			
Client[Management board]	0,807	0,466	2,998	2,800	0,094	*
Economic Incentives [High]	-0,667	0,540	1,522	1,572	0,210	
Economic Incentives [High]* Client[Management board]	-2,029	0,598	11,515	13,297	0,001	***
Psych. Pressure [High]	-3,374	0,794	18,072	19,898	0,001	***
Psych. Pressure [High]* Client[Management board]	0,272	0,505	0,290	0,299	0,584	
Manager/Partner[yes]	-2,211	0,685	10,415	11,010	0,001	***
Manager/Partner[yes]* Client[Management board]	-0,365	0,492	0,551	0,562	0,453	
Manager/Partner[yes]* Psych. Pressure [High]	3,403	1,117	9,291	10,125	0,001	***

6. Conclusions

We tested experimentally for the effects of giving the authority for the appointment of the auditor to an independent board. Such a shift with the goal of improving auditor independence was enacted by the Sarbanes-Oxley Act (2002) in the US, and by the Corporation Control and Transparency Act (1998) in Germany. In our experiment, we made use of the German institutional setting since it provides a more clear-cut setting as the management and the independent board of the audited company are distinctly institutionally separated in the German two-tier board system. The German setting also allowed us to manipulate the client of the auditor in a realistic context. This is the case since either the management board or the supervisory board can be responsible for the assignment of the statutory auditor for a large group of companies that are comparable in economic terms and that differ only in institutional details.

First, we do not find support for the claim of "the impossibility of auditor independence". Auditors accountable to a management board which prefers an aggressive accounting method do not differ in their final audit opinion from auditors accountable to a supervisory board which prefers a conservative accounting method. Our findings suggest that accountability effects do appear for action tasks, but that they are counteracted by a high degree of professional skepticism demonstrated in belief tasks. Moore et al. (2006, p. 18) suggest, as a solution to independence problems caused by accountability, that regulators should "create countervailing interests that compel practitioners to become painfully self-conscious and preemptively self-critical about their auditing practices". According to our findings, the requirement that auditors should exercise professional skepticism when the client seems prone to managing its earnings already seems to constitute such a demanded interest.

Second, making the auditor accountable towards the supervisory board might help to overcome the danger of impaired independence stemming from economic incentives, but not that stemming from pressure. While auditors, who perceive economic incentives to be high, become more skeptical when accountable to the supervisory board, auditors perceiving psychological pressure to be high tend to support an aggressive accounting method regardless of client. We believe that a plausible explanation for this result is that auditors still perceive pressure from the management board, even though the supervisory board is nowadays their client. This would be consistent with remarks of some of the participants of the experiments and findings in the literature (e.g. Gibbins et al. 2001) that the executive management is the main source of pressure for the auditor, while the supervisory board plays a more neutral role primarily focused on accuracy (Gendron et al. 2004).

Third, it seems that more experienced auditors are better able to cope with pressure. This finding seems plausible, as research has demonstrated that more experienced auditors show higher tacit knowledge in areas like communication and interpersonal skills. Our findings, however, do not support the notion that more experienced auditors are more resistant to economic incentives. This might be explained by earlier findings revealing that more experienced auditors have greater economic incentives to retain clients, as their compensation is often linked to the fees which they generate.

Our findings imply that claims for the impossibility of auditor independence are exaggerated, and that various institutional features seem to be helpful in debiasing the auditor. First, the requirement for the exercise of professional skepticism in cases where the management

has incentives to manage earnings seems to generally counteract any potentially negative effect of the acceptability heuristic. Second, experience seems to help the auditor to cope with psychological pressure. Third, making the auditor accountable towards a supervisory board seems to be helpful in reducing the danger that the auditors' independence would be impaired due to financial considerations.

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Appendix A

Table A1

Effects of perceived economic incentives and experience

Dependent variable: total audit opinion (average audit opinion for both cases)

n=37 (only inexperienced auditors), intercepts not reported.

***/**/*: significant on a 1%/5%/10%-level

Term	Estimate	Std Error	Chi Square	L-R ChiSquare	Prob> ChiSq.	
Client[Management board]	0,266	0,431	0,38	0,411	0,522	
Economic Incentives [High]	-0,11	0,63	0,03	0,033	0,856	
Client[Management board]*	-1,03	0,645	2,56	2,709	0,100	*
Economic Incentives [High]						

Dependent variable: total audit opinion (average audit opinion for both cases)

n=28 (only experienced auditors), intercepts not reported.

***/**/*: significant on a 1%/5%/10%-level

Term	Estimate	Std Error	Chi Square	L-R ChiSquare	Prob> ChiSq	
Client[Management board]	0,4364	0,506	0,75	0,757	0,384	
Economic Incentives [High]	-1,106	0,885	1,56	1,708	0,191	
Client[Management board]*	-1,934	0,941	4,23	4,932	0,026	**
Economic Incentives [High]						

Table 2A
Effects of perceived psychological pressure and experience

Dependent variable: total audit opinion (average audit opinion for both cases)

n=37 (only inexperienced auditors), intercept not reported.

***/**/*: significant on a 1%/5%/10%-level

Term	Estimate	Std Error	Chi Square	L-R ChiSquare	Prob> ChiSq	
Client[Management board]	0,035	0,379	0,01	0,008	0,928	
Psych. Pressure [High]	-1,797	0,663	7,34	7,941	0,005	***
Client[Management board]*	0,306	0,615	0,25	0,254	0,614	
Psych. Pressure [High]						

Dependent variable: total audit opinion (average audit opinion for both cases)

n=28 (only experienced auditors), intercept not reported.

***/**/*: significant on a 1%/5%/10%-level

Term	Estimate	Std Error	Chi Square	L-R ChiSquare	Prob> ChiSq	
Client[Management board]	-0,142	0,453	0,10	0,096	0,757	
Psych. Pressure [High]	-0,481	0,774	0,39	0,406	0,524	
Client[Management board]*	0,141	0,769	0,03	0,035	0,851	
Psych. Pressure [High]						

Table 3A

Overall model for the provision accounting case

Dependent variable: audit opinion for the provision case

n=66, ***/**/*: significant on a 1%/5%/10%-level

Term	Estimate	Std Error	Chi Square	L-R Chi Square	Prob> ChiSq	
Intercept[0]	-2,193	0,675	10,542			
Intercept[1]	0,225	0,557	0,163			
Client[Management board]	0,847	0,532	2,532	2,445	0,118	
Economic Incentives [High]	0,019	0,679	0,001	0,001	0,979	
Economic Incentives [High]* Client[Management board]	-1,596	0,702	5,172	5,969	0,015	**
Psych. Pressure [High]	-2,470	0,959	6,632	8,403	0,004	***
Psych. Pressure [High]* Client[Management board]	0,865	0,723	1,432	1,583	0,208	
Manager/Partner[yes]	-1,768	0,757	5,454	5,950	0,015	**
Manager/Partner[yes]* Client[Management board]	-0,794	0,640	1,541	1,543	0,214	
Manager/Partner[yes]* Psych. Pressure [High]	2,023	1,386	2,132	2,070	0,150	

Table 4A

Overall model for the accounts receivables accounting case

Dependent variable: audit opinion receivables case

n=66, ***/**/*: significant on a 1%/5%/10%-level

Term	Estimate	Std Error	Chi Square	L-R Chi Square	Prob> ChiSq	
Intercept[0]	-0,650	0,521	1,557			
Intercept[1]	2,476	0,623	15,792			
Client[Management board]	0,490	0,482	1,031	0,972	0,324	
Economic Incentives [High]	-0,831	0,574	2,101	2,118	0,146	
Economic Incentives [High]* Client[Management board]	-1,773	0,620	8,186	9,019	0,003	***
Psych. Pressure [High]	-2,589	0,793	10,663	11,702	0,001	***
Psych. Pressure [High]* Client[Management board]	-0,106	0,529	0,040	0,041	0,839	
Manager/Partner[yes]	-1,219	0,668	3,330	3,346	0,067	*
Manager/Partner[yes]* Client[Management board]	0,177	0,518	0,117	0,118	0,731	
Manager/Partner[yes]* Psych. Pressure [High]	2,487	1,147	4,700	5,198	0,023	**

Appendix B: Research Instrument

Case studies: Provisions for warranties

The management board has made a provision of 110 Mio. Euro for warranties for the new product Z in the preliminary financial statement. There are no further explanations about the provision in the notes.

1. The manager responsible for external accounting estimates that the costs for warranties for the products sold so far will be somewhere between 80 Mio. and 140 Mio. Euro. He thinks that every value in that range has about the same probability. Therefore, the expected mean value of the costs for warranty is 110 Mio. Euro.
2. The product Z is a high value product. In the last year, six units of the product were sold.
3. The product Z was formerly produced in a different version. The historical costs for this product called Y were between 150 Mio. and 210 Mio. Euro. The costs were about uniformly distributed within this range.
4. The manager responsible for product development believes that the warranty costs for the new product Z will be significantly below the costs of the former product Y. He believes so as a major concern by redeveloping the product was the failure rate.
5. Evaluations of third parties about the improvements in quality of the product Z are not available.

Case studies: Accounts receivable

The company B has a claim against the company S of a size of 120 Mio. Euro. The company S sells as a wholesaler the products of the company B. The management board of the company B measures the accounts receivable of this transaction at a value of 115 Mio. Euro in the preliminary financial statement.

1. The claim derives from the sale of good that happened 9 months ago. The claim has been due for 8 months. Three dunning letters were sent out without any reaction of the company S.
2. The company B has not received any payments from the company S over the last three months with the exception of a smaller payment of 2 Mio. Euro last week.
3. The sales manager of the company believes that the situation of the company S has improved over the last couple of weeks after having declined in the months before. The sales manager believes so as the volume of orders of the company S has been increasing again over the last month after it had gone down by over 50%.
4. A well-known rating agency issued a B rating with a negative outlook for the company S. A rating of B suggests a medium probability of being not repaid, while the lower rating of C suggests a high probability of being not repaid. The rating of the company S was issued one year ago when the company S took up a major loan.
5. There are rumors that the solvent company H is interested in taking over the company S. The rumor was demented by the company S.