

A synthesis of the thesis

1 ***Introduction***

The purpose of this synthesis is to summarize the major findings and implications of the two studies that are the focus of the dissertation. In Section 2, the purpose of the two studies is reiterated. In Section 3, a summary of the findings is presented, following the research model that was presented in Chapter 1. The limitations are presented in Section 4. Finally, the studies' combined contributions and suggestions for further research are assessed in Section 5.

2 ***The purpose of the studies***

The objective of both empirical studies in this dissertation was to examine the association between auditors' skeptical characteristics and auditors' skeptical judgments and decisions. The main purpose of the first exploratory study in Chapter 2 was to examine how auditors' skeptical characteristics are related to auditors' skeptical judgments and decisions. Three skeptical characteristics (i.e., interpersonal trust, suspension of judgment, and locus of control) and a comprehensive professional skepticism scale developed for the field of auditing were related to six skeptical judgments and decisions. In order to examine the effect of client risks, the influence of control environment strength on the relationship between skeptical characteristics and auditors' judgments and decisions was also studied.

The purpose of the second study in Chapter 3 was to examine Rotter's Interpersonal Trust Scale (1967) in more depth by exploring the association between individual interpersonal trust factors (determined with factor analysis) and skeptical judgments and decisions, also considering interactive effects between control environment strength and skeptical characteristics. In particular, the relationship of the extracted factors to skeptical judgments and decisions was compared with the summated Interpersonal Trust Scale. Since individual constructs underlying interpersonal trust are more specific and focused than the summated scale, the expectation was that they better predict skeptical judgments and decisions. As an additional analysis, this study also looked at the relationship between auditor rank and interpersonal trust and skeptical judgments and decisions. The underlying reason was that it is very important to know whether, for example, partner's skepticism is higher than that of the audit team members since partners have the responsibility and authority for determining whether the audit evidence is sufficient and what type of audit opinion to issue.

3 *A summary of the findings*

In order to assess the combined contribution of the two empirical studies in this dissertation, the research model from Chapter 1 is repeated in Figure 1. The results of the studies will be discussed following the links (i.e., relationships) in the model.

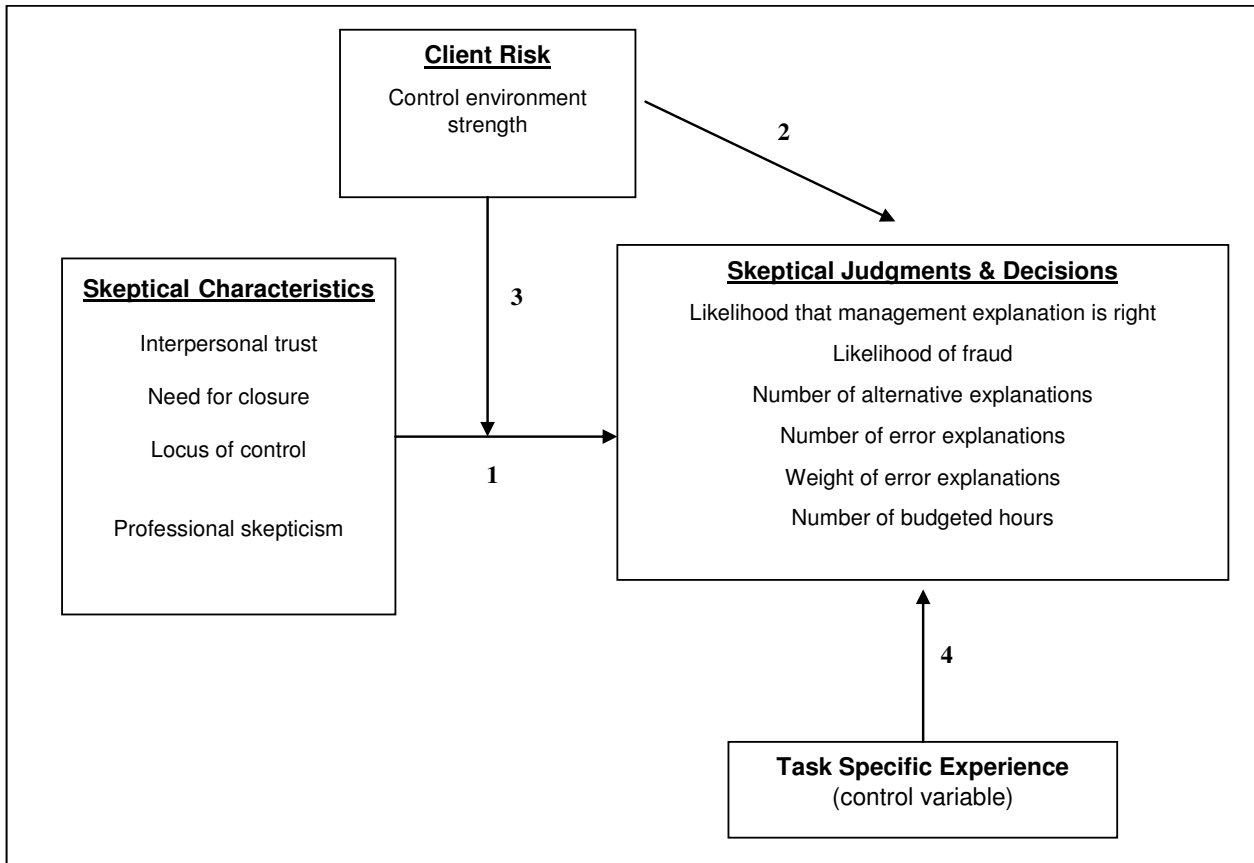


Figure 1 *Research model of the determinants of skeptical judgments and decisions.*

Link 1: skeptical characteristics and skeptical judgments and decisions

In Chapter 2, interpersonal trust shows the most significant main effects on judgments and decisions. In Chapter 3, the summated interpersonal trust scale and the derived factor Exploitation are the measures most significantly related to skeptical judgments and decisions as a main effect.¹ Although the main effect of Exploitation appears to be significant twice as many times as the summated scale (four times versus two times), it should be noted that two of the main effects of Exploitation are in a direction that is contrary to expectations. In addition, given the fact that the internal reliability of the Exploitation factor is low, this finding should be interpreted with care.

¹ Given the presence of interaction effects, the main effects should be interpreted with care.

Links 2 and 3: the influence of client risk

Control environment strength (used as a proxy for client risk) has a significant main effect in a majority of the models. For example, control environment strength has a significant main effect for all the regression models in Chapters 2 and 3 for the dependent variables likelihood of fraud, number of error explanations and weight of error explanations.

In Chapter 2 there are significant interaction effects found for the models concerning interpersonal trust, need for closure and locus of control. In Chapter 3 interaction effects with similar patterns are found for the derived interpersonal trust factors. As mentioned, the interaction effects are predominantly present for the likelihood of fraud, the number of error explanations and the weight of the error explanations. Although the interaction patterns are similar across most skeptical characteristics, the patterns of the interactions differ across skeptical judgments and decisions. For example, concerning 'assessment of the likelihood of fraud', the pattern was an almost horizontal line for the strong control environment setting and a downward sloping line for the weak control environment setting. Pertaining to 'the number of error explanations', the explanations generated are about equal for the low and high skepticism groups in the weak control environment setting, while in the strong control environment setting there is a difference between the mean number of total error explanations for the low and high skepticism groups. As discussed previously, contrary to expectations, the line is upward sloping which indicates that auditors with a greater skeptical disposition generate fewer alternative error explanations than auditors with a lower skeptical disposition. A potential explanation may be that skeptical auditors focus more on fewer errors.

For the derived interpersonal trust factor Exploitation in Chapter 3, there is an additional significant interactive effect with the number of budgeted hours. This effect is similar to the effect concerning the likelihood of fraud. Overall, the patterns of the interaction effects concerning the derived factors do not appear to differ significantly from the patterns already found in Chapter 2.

Link 4 and additional findings: the influence of task specific experience and rank

Link 4 was added to the model in order to control for task specific experience, as measured by years of experience with conducting analytical reviews. Task specific experience shows a significance positive association with number of alternative explanations generated, number of error explanations generated, the weight attached to the error explanations, and the number of budgeted hours.

Additional analyses in Chapter 3 show a positive significant relationship between position within the firm and the interpersonal trust score (i.e., the higher the rank the higher the interpersonal trust score). This finding suggests that skeptical disposition (as measured by the antithesis of trust) declines as an auditor moves up in the organization. In particular, there is a statistically significant difference between the partner and senior level and a marginally significant difference between the partner and staff level. Concerning the skeptical judgments and decisions, there are statistically significant differences across ranks within the firm for the number of alternative explanations, the number of error explanations and the weight of the error explanations). The differences in skeptical judgments and decisions are mainly present between partner-staff and manager-staff (and to a lesser extent between partner-senior). Overall, the findings suggest that auditors at higher ranks show more skeptical judgments and decisions.

4 Limitations

The study has limitations that should be considered when interpreting the results. First of all, not all firms had a representative sample in terms of experience and language, causing difficulties in disentangling potential experience, language, and firm effects. Further, due to limitations of time availability, participants completed only two of the four skeptical measures. Hence, this precludes a complete comparison between all four measures. Additionally, based on a review of the literature, a selection was made as to the dependent variables that depict skeptical judgments and decisions. While the sources consulted identify these as important skeptical behaviors, there is no normative source as to the most important variable(s) in impacting auditing performance. Also, the interpretation of the results in Chapter 3 regarding the Institutional Trust and Exploitation factors should be done with care, since the reliability of these scales is relatively low. Finally, there exists no normative solution to the case problem used in the research instrument so that it is not possible to determine which measure is most closely related to optimal judgments and decisions.

5 An appraisal of the combined findings, implications and suggestions for further research

Both studies in this dissertation show that skeptical characteristics (and factor-analyzed interpersonal trust dimensions) are related to skeptical judgments and decisions. This has not been strongly evidenced by previous studies.

Overall, auditors' skeptical judgments and decisions are more significantly associated with interpersonal trust, via the main and interaction effects, than any of the other three characteristics examined in Chapter 2. This suggests interpersonal trust is most closely associated with the skeptical judgments and decisions prescribed in the auditing literature and professional standards. The analyses in Chapter 3 showed that most significant main effects and interaction effects are present for the summated interpersonal trust scale as well as for the Exploitation factor. However, given the fact that the reliability of the Exploitation factor is rather low and the fact that the R-squares of the models with the summated interpersonal trust scale are higher, the summated interpersonal trust scale appears to be the best predictor of skeptical judgments and decisions from the second study in Chapter 3.

Hence, although there exists discussion on the use of trust as a proxy for skeptical disposition (see e.g., Hurtt, 2007), the studies in this dissertation show that interpersonal trust (factors) is (are) significantly associated with skeptical judgments and decisions. Given the wide range of responses in the summated Interpersonal Trust Scale and the derived factors, auditors differ in their levels of interpersonal trust which can result in different levels of skeptical judgments and decisions. This might be an issue audit firms want to take into consideration (see e.g., Rose, 2007). For example, firms may administer trust related tests to their personnel in order to assess their level of interpersonal trust (cf., Nelson, 2009) and to adjust team planning (e.g., audit teams should have some members with lower levels of interpersonal trust).

Control environment strength shows a significant main effect for all the regressions models concerning the dependent variables likelihood of fraud, number of error explanations and weight of error explanations in Chapters 2 and 3, indicating that auditors, as expected, are attuned to potential problems and risks associated with control environment strength. Also across interaction effects, although the slopes vary, the skeptical judgments and decisions are higher in the weak control environment setting. Apparently situational factors like control environment strength are related to skeptical judgments and decisions. Therefore, training auditors in judging situational factors can improve skeptical planning judgments. This is of particular importance since auditing firms use decision aids (e.g., checklists) to assess, for example, control environment risks. The contents and wording of these checklists influences auditor behaviors and may lead to omission of important situational variables (cf. Bedard and Graham, 2002). Therefore, auditors should never fully trust on these decision aids and need to be alert on client specific circumstances not captured by the decision aids.

It is interesting to note that the more comprehensive and specific Hurtt Professional Skepticism Scale does not show the strongest association with skeptical judgments and decisions. When the Hurtt Professional Skepticism Scale in this study is factor analyzed, the results (not tabulated) show almost identical factors as those identified by Hurtt (2007), indicating that the measure is quite stable in terms of its item structure. However, none of the derived factors significantly predicts skeptical judgments and decisions better than the summated Hurtt Professional Skepticism Scale. One possible explanation might be that only a limited number of proxies for skeptical judgments and decisions were examined. However, also in other settings the scale has not provided unequivocal results. For example, Hurtt *et al.* (2008) found mixed evidence of the Hurtt Professional Skepticism Scale predicting skeptical behaviors. They used a computer simulated review task in which participants were able to actually consult the audit working papers. A follow up study could test whether the Interpersonal Trust Scale also shows higher significance than the Hurtt Professional Skepticism Scale in predicting skeptical behavior in a computer simulated task where, for example, actual searching behavior can be traced. Another explanation for the low associations between the Hurtt Professional Skepticism Scale and the skeptical judgments and decisions found in this dissertation may be that the scale is not focused on the most significant skeptical constructs like interpersonal trust.

The findings of the studies in the dissertation warrant further research concerning the interpersonal trust construct. The interpersonal trust measure may be extended by adding relevant skepticism constructs. It is unclear, however, what constructs are the most appropriate candidates for inclusion. The study presented in Chapter 2 showed no strong evidence for other characteristics that strongly influence skeptical judgments and decisions.² Yet, as mentioned Chapter 3 showed that the Exploitation factor, in particular, seems to be an important factor. However, more reliable measures for Exploitation need to be developed. For example, more items need to be evaluated for inclusion.

The research model only focused on client risk (as measured by control environment strength) as an incentive influencing the relationship between skeptical characteristics and skeptical judgments and decisions. Future research could focus on other risks, as for example identified in ISA 315 (IFAC, 2008). Future research could also study other important auditor

² The number of observations for the Need for Closure Scale is too limited to conduct an appropriate factor analyses. However, if a factor analysis is conducted these factors do not show significantly better relationships to skeptical judgments and decisions than the summated Need for Closure Scale does (results are not tabulated).

incentives like budget pressure, audit quality, litigation and reputation loss (see Nelson, 2009, for an overview).

The two studies considered six skeptical judgments and decisions by auditors. It is not straightforward whether these judgments and decisions should be identified as a judgment or a decision. Some view the distinction between judgments and decisions as artificial since they both represent a process of making a choice among alternatives (cf. Mitchell, 2002, p.15). However, others find the division useful because it focuses on different facets of the decision making process (see e.g., Einhorn and Hogarth, 1981). Judgments are often related to likelihoods, probability assessments and risks, while decisions are more related to actions. Hence, the likelihood that the management explanation is right and the likelihood of fraud are of a more judgmental character and may be considered to be judgments. Number of budgeted hours is obviously a decision to allocate resources to the audit. The number of alternative explanations, the number of error explanations and the weight of the error explanations are somewhere in between. Concerning the summated interpersonal trust scale, all regressions except for the one predicting budgeted hours contain a significant main and/or interaction effect pertaining to interpersonal trust. If number of budgeted hours would be viewed as the only decision variable, apparently interpersonal trust (nor its interaction with control environment strength) has no effect on the budgeting decision. However, it should be noted that the Exploitation factor is significant in the regression with number of budgeted hours as a dependent variable. Across all skeptical characteristics studied there is no clear pattern of what skeptical judgments and decisions are most associated with skeptical characteristics. Future research can focus on the relationship between judgments and decisions, for example on the relationship between likelihood of fraud and substantive tests planned, by using mediation analysis (see e.g., Baron and Kenny, 1986).

Number of error explanations is explained by three of the four skeptical characteristics (via the main and the interaction effects) studied in Chapter 2 and number of alternative explanations is explained only by one characteristic. This finding is corroborated by the analyses in Chapter 3. Apparently skeptical characteristics are more related to a 'presumptive doubt' variable like number of error explanations than to a 'neutral stance' variable like number of alternative explanations. Interestingly, Boritz *et al.* (2008) find that fraud specialists, who allegedly have a more presumptive doubt perspective, appear to be more responsive to fraud risk and increase the time budget for useful standard procedures than the auditors involved in the Asare and Wright (2004) study. Future research can focus on the influence of presumptive doubt on successfully exhibiting skeptical behaviors.

Also task specific experience and rank are found to be important in explaining skeptical judgments and decisions: the more experienced the auditor is, the more skeptical judgments and decisions are exhibited. Hence, sharing experiences concerning client situations in which professional skepticism is imperative could be important. The additional finding that partners score the highest on interpersonal trust and its derived factors but show the most skeptical judgments and decisions deserves further study. This finding contradicts the findings of Shaub and Lawrence (1999) and Payne and Ramsey (2005). One explanation may be that auditors at higher ranks possess more experience and knowledge. However, it may also be a result of the difference between a ‘trusting stance’ and ‘faith in humanity’ as is suggested in the literature (see e.g., McKnight and Chervany, 2001).³

Another possible explanation for this paradoxical finding is the argument of some authors that trust and distrust are two different phenomena, i.e., one can be trusting and distrusting at the same time (see e.g., McKnight and Chervany, 2001; Webb and Worchel, 1986). This would imply that partners can still be distrusting and show skeptical behavior, while also having a high level of trust. Future research may also focus on the different effects of trusting stance versus faith in humanity and trust versus distrust.

Some authors assume auditors’ personality traits to be stable when they start audit training and practice (see e.g., Libby and Luft, 1993; Nelson, 2009). However, others have found auditor traits to be alterable (e.g., Carpenter, 2004). For example, disposition to trust may develop as people mature and is altered by experiences later in life (see e.g., McKnight and Chervany, 2001, p. 38; Kee and Knox, 1970). Future research could focus on whether and to what degree professional skepticism can be trained (cf. Fullerton and Durtschi, 2004) or may be induced by superiors (cf. Peecher, 1996). If so, audit firms can enhance the focus on professional skepticism, for example during team planning events.

The studies in this dissertation focused on the individual auditor’s professional skepticism. Hence, another promising avenue of research is professional skepticism in team settings. For instance, does the review process serve to enhance or diminish skeptical judgments? Do team members with varying levels of skeptical characteristics lead to a holistic desired level of skeptical judgments or does this vary by the hierarchical level of the various members?

³ Recall that a trusting stance means that a person assumes that he will achieve better outcomes by ‘dealing with people as they are well-meaning and reliable’ (McKnight and Chervany, 2001, p. 39), while ‘faith in humanity’ indicates that one assumes that people are usually honest, benevolent, competent and predictable (see e.g., McKnight and Chervany, 2001).

Another area of research that may be fruitful concerns critical thinking. There appears to be little debate on the value of critical thinking for auditors. Future research could focus on the influence of critical thinking on skeptical behaviors. Several measurement scales have been developed to assess a person's level of critical thinking. Three examples are the Watson Glaser Critical Thinking Appraisal (Watson and Glaser, 1964), the California Critical Thinking Disposition Inventory (Facione and Facione, 1992) and the Ennis-Weir Critical Thinking Essay Test (Ennis and Weir, 1985). Future studies could focus on the relationship between auditors' critical thinking, as measured by these scales and skeptical judgments and decisions. In all, the findings of this dissertation corroborate the idea that further study of the concept of professional skepticism is fruitful.