

Auditor Ethics: Do Experience and Gender Influence Auditors' Moral Awareness?

Nieves Carrera

&

Berend Van Der Kolk

IE Business School, IE University

Madrid, Spain

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Abstract

Purpose – The purpose of this paper is to examine how experience and gender relate to the auditors' moral awareness.

Design/methodology/approach – Hypotheses are informed by a neurocognitive approach of ethical decision-making and tested using survey data from 191 auditors of a Big Four audit firm in The Netherlands.

Findings – The main findings indicate that more experienced auditors (i.e., those with more years of work experience, a higher rank, and older) show higher levels of moral awareness. This positive relationship is stronger for morally questionable situations related to accounting and auditing, compared to general business moral dilemmas. In addition, the results support the expectation that on average, female auditors have higher moral awareness than their male counterparts.

Originality/value – To our knowledge, this is the first study that considers a neurocognitive approach to inform hypotheses about the antecedents of auditors' moral awareness. The findings suggest that the involvement of experienced auditors in ethical decision-making processes may be beneficial given their enhanced ability to identify ethically disputable situations as such. Furthermore, increasing the number of females in senior positions may positively affect ethical decision-making in audit firms. Lastly, this paper presents directions for future research.

Keywords Auditors, Ethical Decision Making, Moral Awareness, Experience, Gender

Paper type Research paper

Introduction

Auditors' decisions are of paramount importance in today's economies, as they inform key stakeholders about the reliability of financial statements. Cases such as the Wirecard fraud¹ have put ethical decisions of auditors in the public spotlight again, while accounting bodies increasingly emphasize issues such as ethical conduct and integrity (IFAC, 2016; IESBA, 2018). To date, however, it is still unclear which factors affect auditors' ethical decision-making processes. Particularly little is known about the crucial first step in an ethical decision-making process: moral awareness (Rest, 1986; Butterfield et al., 2000), i.e. being able to "interpret a given situation and to realize that a moral problem exists" (Karcher, 1996, p. 1034). A better understanding of factors that affect moral awareness is warranted for various reasons, including the potential to improve the quality of ethical decision making in audit firms and its implications for the training and education of auditors. Prior research has provided some clues regarding the potential impact of experience and gender on auditors' ethical decisions, yet failed to consider the potential role of unconscious decisions guided by so-called schemes or ethical prototypes. This has, at best, led to a partial understanding of auditors' ethical decision making, since recent studies point out that a significant amount of decisions with ethical implications are made unconsciously (cf. Kahneman, 2011; Schwartz, 2016). Our study extends the literature on auditor ethics by studying the impact of experience and gender on auditors' moral awareness, while mobilizing a neurocognitive approach that facilitates the theorization of conscious and unconscious decisions (Reynolds, 2006). In addition, we provide evidence that these relations are contingent on the types of ethical problems faced by auditors.

¹ "Whistleblower warned EY of Wirecard fraud four years before collapse", Financial Times, September 30, 2020.

The extant literature on auditors' ethical decision making has focused on identifying factors that influence their moral judgments. This research found that individual factors (e.g., Bernardi and Arnold, 2004), organizational and institutional factors (e.g., Martinov-Bennie and Pflugrath, 2008) and situational characteristics (e.g., Arnold *et al.*, 2013; Johari *et al.*, 2017) influence auditors' ethical decision making. These studies typically examined later stages in the decision-making process (e.g., intention to act, moral judgment), while paying significantly less attention to whether auditors are morally aware (see Shaub *et al.*, 1993; Karcher, 1996; Abdolmohammadi and Owghoso, 2000; Arnold *et al.*, 2013 for notable exceptions). For auditors, moral awareness is particularly important because failing to identify an ethical problem as such (as happened in numerous accounting scandals) can harm society at large and compromise the reputation of the auditor, the audit firm, and the audit profession in general (Humphrey *et al.*, 1993; Karcher, 1996; Gagnon and Gould, 2019). Our goal is to respond to calls for more research into auditor ethics and improve the understanding of the first step of the ethical decision-making process: moral awareness (e.g., Butterfield *et al.*, 2000; Fiolleau and Kaplan, 2017; Massey, 2017).

To theorize our expectations, we draw on a novel stream of research that proposed a “neurocognitive approach” to studying ethical decision making (Reynolds, 2006a; Schwartz, 2016; Robertson *et al.*, 2017).² In contrast to cognitive approaches used in prior studies on auditor ethics, a neurocognitive perspective accounts for both unconscious (intuitive) and conscious (deliberate) ethical decision making, which helps to understand the ethical decision-making process more accurately. Following Reynolds (2006a), we argue that

² Although this study relies on a 'neurocognitive' model, we want to make clear that we do not study the brain using methods such as neurocognitive imaging. Rather, we draw on insights from neuroscience (cf. Reynolds, 2006a; Robertson *et al.*, 2017; Ryan, 2017) and neuroethics (cf. Salvador and Folger, 2009) to inform our hypotheses.

experience helps to build and refine ethical prototypes, which in turn play a critical role in unconscious ethical decision making. Following this reasoning, more (refined) ethical prototypes lead to higher levels of moral awareness. We hypothesize that auditors with higher levels of experience (i.e., more years of work experience, a higher rank, and older) have more (refined) prototypes and can identify ethical issues better than their less experienced counterparts. We expect this effect to be stronger for accounting-related situations compared to non-accounting, general business situations, because auditors have more experience in dealing with the former type of situations. Furthermore, on the basis of findings from neuroscience and neuroethics, we expect that female auditors have generally higher levels of moral awareness. We test our hypotheses using survey responses from 191 auditors working in a Big Four firm in the Netherlands, and we find support for our expectations.

Our contribution is twofold. First, to our knowledge, this is the first study that examines auditors' moral awareness while mobilizing a neurocognitive model to theorize the findings. This approach is instrumental as it helps to understand how individual factors and moral awareness are related, and allows for both conscious and non-conscious decision making. Second, while experience and gender have been examined as antecedents of auditors' ethical judgment (e.g. Cohen *et al.*, 2001; Bernardi and Arnold, 2004), few papers have looked at their influence on moral awareness (for exceptions, see Shaub, 1989; Karcher, 1996). We demonstrate the importance of these two individual attributes and addresses the call for further research on moral awareness in the context of accounting and auditing (Butterfield *et al.*, 2000; Fiolleau and Kaplan, 2017; Massey, 2017).

The following section discusses the literature on auditors' moral awareness and develops the hypotheses. Our method choices and findings are disclosed in the next two

sections. The discussion and conclusions section situates our findings in the literature, indicates the limitations of our study and provides suggestions for further research.

Literature review and hypothesis development

A critical discussion of the auditor ethical awareness

Moral awareness is the first step in an ethical decision-making process and sets the premises for intentions or actions that follow (cf. Butterfield *et al.*, 2000, pp. 983-984). Although it is true that identifying an ethical problem as such does not necessarily result in (more) ethical behavior, prior research has suggested that moral awareness is positively associated with actual ethical conduct (Rest, 1986; Butterfield *et al.*, 2000; Johari *et al.*, 2017). But what impacts an auditors' moral awareness?

Although other steps in the ethical decision-making process received substantial attention in the literature (see reviews by Jones *et al.*, 2003; Craft, 2013), relatively little attention has been paid to the antecedents of auditors' moral awareness (Jones *et al.*, 2003; Massey, 2017). Following cognitive developmental perspectives (e.g., Rest, 1986; Jones 1991), these studies have examined how auditors' awareness³ relates to other steps of the four-component model (Rest, 1986) showing a positive association between moral awareness and auditors' moral development (Bernardi, 1994) and ethical orientation (Cohen *et al.*, 2001; Johari *et al.*, 2017). Studies examining the relation between professional experience and auditors' moral awareness show inconclusive results, and offer at best, partial explanations

³ Some of these studies use "sensitivity" instead of "awareness" as proposed by Rest (1986).

of this relation (Shaub, 1989; Bernardi, 1994; Cohen *et al.*, 2001). For instance, Shaub (1989) tested whether auditors' ethical sensitivity was dependent on the level of experience and found that experience did *not* contribute to ethical sensitivity. He found, however, that age was positively associated to ethical sensitivity arguing that general life experiences, rather than professional experience, make an individual sensitive to ethical issues. Similarly, Karcher (1996) found *no association* between experience and auditors' sensitivity to ethical issues and a positive association between age and auditors' sensitivity. Abdolmohammadi and Owhoso (2000) also found that, compared to inexperienced auditors, experienced auditors were *not sensitive* to ethical information regarding the client, suggesting that experience did not lead to higher moral awareness. Besides following a cognitive approach to ethical decision making, these studies have in common the use of samples of auditors with relatively limited professional experience (4.4, 7.6 and 7.3 years of experience respectively), thereby limiting their ability to capture differences among subjects based on their years in practice. Other studies, however, found *small differences* in moral awareness contingent upon auditors' experience. Bernardi (1994) explored auditors' ability to detect fraud in an experimental setting, and found that (experienced) managers were *better able* to detect fraud compared to relatively inexperienced auditors, while this relation was moderated by the respondents' level of moral reasoning⁴. In a study of internal auditors, O'Leary and Stewart (2007) found that experience had a *positive effect* on auditors' ability to identify ethical issues, suggesting that experienced auditors were more conservative in their ethical interpretations than their less experienced counterparts. The study was based on a sample of 66 individuals, 23 percent of which had more than 20 years of professional experience.

⁴ The study does not include information about the years of experience of the subjects.

Summarizingly, the relation between professional experience and moral awareness is inconclusive.

In a similar vein, research examining the relationship between gender and moral awareness is also inconclusive (cf. the overview by You *et al.*, 2011). For instance, while Cohen *et al.* (1996; 2001) found that women consistently displayed a *higher* level of moral awareness than men, Shaub (1989), Karcher (1996) and Owhoso (2002) suggest that *no such differences existed* between male and female auditors. Furthermore, Bobek *et al.* (2015) found that female and male accountants appear to use a different decision-making process with respect to ethical situations.

Not only is the current body of research inconclusive, the theories used to examine and interpret the relations among experience, gender and moral awareness have also been criticized. The reason for this is that prior studies on ethical decision making predominantly assumed that moral decisions involve a “logical, rational and deliberative cognitive process” (cf. Schwartz 2016, p. 758; Rest, 1986; Jones, 1991). Although empirical studies adopting rationalist perspectives have provided some insights into how individuals react to moral issues, the assumption that ethical decisions always include a conscious (rational) basis has been challenged convincingly (cf. Haidt, 2001; Schwartz, 2016). Ethical decisions indeed may require a ‘conscious’ cognitive process, but neuroscience research found that (ethical) decisions can also be taken *unconsciously* (cf. Kahneman, 2011). This has implications for how we understand the ethical decision-making process, yet this has not been integrated in prior research into auditor ethics. Reynolds (2006a, p. 741) explains: “[n]either Rest’s model nor any of the others in the field [...] describe key elements of reflexive or intuitive decisions. Given that reflexive decision making may be the most common form of ethical decision

making, this omission is quite significant.” In other words, not taking such unconscious decisions into account likely leads to a flawed understanding of ethical decision making and an unjustified overemphasis on the importance conscious decision making.

The neurocognitive approach

One of the most promising approaches that does take into account both conscious and unconscious decisions as well as the process of moral rationalization, is the neurocognitive model to ethical decision making, proposed by Reynolds (2006a). Relying on brain research, Reynolds (2006a) posits that two systems within the brain are involved in the ethical decision-making process: 1) the *reflexive system* - those parts of the brain most closely associated to unconscious, automatic processing, implicit learning and intuition - and 2) the *conscious system* - allowing humans to consciously process complex thoughts about perceptions (cf. Kahneman, 2011). Compared to previous theoretical frameworks on which the auditor ethics literature relied (cf. Kohlberg, 1981; Rest, 1986), the neurocognitive model adds an important element, namely the *reflexive system*, which acknowledges that not all ethical decisions are taken consciously.

The *reflexive system* (X-system) conducts most of the processing of everyday life and using this system does not per se involve a conscious (rational) effort. The X-system depends mainly on so-called prototypes. Prototypes are base patterns of “neural electrochemical units that encapsulate the sensory experience to create a material imprint of the external world” that can be used to 'store' information about complex issues such as concepts, scenes,

situations and social interactions (Reynolds, 2006a, pp. 738-739).⁵ Reynolds (2006a) argues that moral issues like bribery and fraud have prototypical characteristics. When facing a moral issue, the individual not only considers the prototypical characteristics of the situation, but also how it is perceived by society and which moral standards are relevant for the situation. The processes within the *reflexive system* can thus be seen as a search process to find a fitting prototype in order to make a quick decision. Ethical prototypes, then, allow individuals to recognize ethical issues automatically (Reynolds, 2006a). To enhance ethical decision-making, ethical prototypes must be accurate (i.e., they must match widely accepted moral norms), although as noticed by Sturm (2017, p. 41), “it is not that individuals’ ethical prototypes are either accurate or not, it is that they are either more or less accurate”.

The *conscious system* (C-system) involves a deliberate analysis. It can develop prototypes based on such active analyses and thus supplies prototypes to the X-system (Reynolds, 2006a, p. 740). When an individual is confronted with a new situation, the C-system actively tries to understand it and develops a new prototype, which is stored in the memory. This prototype can be used in the future when a similar situation is identified, without the C-system needing to intervene.

Moral awareness is the “critical midpoint of the neurocognitive model where the reflexive pattern matching cycle concedes that the issue is an ethical issue and must be analyzed” (Reynolds, 2006a, p. 741). Moral awareness occurs when an ethical issue is identified as such by the search, comparison and apply processes (X-system) or the structuring, refining and adding processes (C-system), all related to a person’s ethical

⁵ As explained by Reynolds (2006a), the concept of prototype is consistent with the concept of schema used in prior research (e.g., Jones, 1991; Jordan, 2009; Fiolleau and Kaplan, 2017).

prototypes (cf. Sturm, 2017). Given that reflexive decisions may be the most common form of ethical decision-making, it is reasonable to assume that the first step in the process, i.e., recognizing ethical issues, is closely associated with non-conscious responses.

In summary, the neurocognitive model suggests that most ethical decisions are associated to prototype matching and reflexive judgments rather than active judgment and conscious responses (Reynolds, 2006a, p. 741). Under this framework, moral awareness is conceived as the product of unconscious processes related to how individuals pay attention to and retrieve stimuli (Reynolds, 2006b). When an individual faces an ethical situation, “a reflexive pattern-matching process is enacted unconsciously to find the best prototype that matches the new situation, together with the normative evaluations” (Dedeker, 2015, p. 445). So, ethical prototypes allow individuals to recognize ethical situations automatically, even before the C-system is involved. The more refined a person’s ethical prototypes are, the better is s/he probably able to recognize an ethical issue as such (Reynolds, 2006a).

Hypotheses

Hamilton and Knouse (2011) argue that ethical prototypes are created and refined mainly through (new) experiences (see also Dane and Sonenshein, 2015). Thus, the type and magnitude of previous experiences shape existing prototypes (cf. Jordan, 2009). Individuals with experience in a field will be able to provide reflexive responses to complex yet prototypical situations, so that the C-system can focus on novel situations (Reynolds, 2006a). It follows that people with more experience have had more opportunities to refine their ethical prototypes and are thus likely to display higher levels of moral awareness.

In auditing, it has been argued that professional experience generates 'decision schemas' that are available for future decision-making (Frederick, 1991). Furthermore, prior research studied whether experienced auditors have a better ability to *search for* and *structure* information, the two key mental processes that characterize the functioning of the *unconscious* X-system (cf., Bédard and Mock, 1992; Bédard and Chi, 1993; Earley, 2002). Such studies indicated that in real-world problems, expert (i.e., experienced) auditors are better to distinguish between relevant and irrelevant information (Bédard and Mock, 1992; Bédard and Chi, 1993) and that they use different types of information when forming judgments about the client-provided information compared to novices (Earley, 2002). Research has also shown that, compared to less-experienced auditors, experienced auditors are not influenced by the presence of irrelevant information (Shelton, 1999, p. 223), are less affected by irrelevant affective information (Bhattacharjee and Moreno, 2002), and are more efficient in the process of information search to perform an audit task (Bédard and Mock, 1992). Evidence also suggests that experience has a positive effect on knowledge, knowledge structures and general problem-solving ability in an audit context (e.g., Bédard and Mock, 1992; Bédard and Chi, 1993). Summarizing, extant research comparing experienced and non-experienced auditors suggests that the former seem to have better processes of gathering information and a higher ability to match this information with certain patterns, processes associated to the reflexive system (X-system).

Contrary to the arguments above, Jordan (2009), using a social cognition framework to examine moral awareness, found that expert businesspeople (managers) are slower and less accurate when making decisions about ethical issues than non-experts and argued that expertise may lead to schema-based cognitive mechanisms that do *not* respond to moral

stimuli. In her view, expertise in a particular area (e.g., strategy-related expertise) may inhibit the individual's attention to other (e.g., moral) issues, thus negatively affecting moral awareness. Prototypes are developed by life and learning experiences. Given auditors' exposure to ethical training and ethical dilemmas in their professional career, we expect that, compared to other businesspeople, auditors may have developed and stored moral prototypes that can be activate when confronting morally questionable situations.

Thus, following the neurocognitive approach to ethical decision-making and the evidence provided by prior auditing studies, we contend that the more experience auditors accumulate, the more effective their process of gathering and structuring information will be, and the more refined their ethical prototypes will be, facilitating the recognition of ethical issues (i.e., moral awareness) by matching stimuli to existing prototypes. Thus, we expect a positive association between auditors' professional experience in years (*professional tenure*) and moral awareness. Following similar arguments, we expect that a higher rank in an audit firm (*auditor rank*) is positively associated with higher level of moral awareness. Professional rank relates to experience in that it reflects the outcome of internal evaluation and promotion policies. Individuals promoted to higher ranks are generally those who perform at the highest level and have received superior performance evaluations in the past (e.g., Tan and Libby, 1997; Bhattacharjee and Moreno, 2002). Prior studies have therefore used professional rank as a proxy for auditor experience (e.g., Martinov-Bennie and Pflugrath, 2009). Finally, although age does not necessarily lead to higher levels of expertise, it does indicate more life experience (Shaub, 1989), which most likely correlates with (professional) experience. Chronological age relates to the biological maturation, psychological development, and life stage of individuals, and their professional experiences

and roles are tied to age (Settersten and Mayer, 1997, p. 234). Thus, the variable age has been used in prior research as an alternative proxy for potential experience (Dane and Sonenshein, 2015). We contend that older individuals are more likely to be experienced auditors and thus are positively associated with higher levels of moral awareness.

This prompts our first set of hypotheses:

H1a. Auditors' professional tenure is positively associated with moral awareness.

H1b. Auditor rank is positively associated with moral awareness.

H1c. Auditor age is positively associated with moral awareness.

The second set of hypotheses builds on the first set and takes into account the domain-specific experience of auditors. Shome and Rao (2009) found that the familiarity with a context helps individuals to better deal with a dilemma, highlighting the role of experience of an individual in a specific domain, such as auditing. Due to the gradual process of collecting and abstracting domain-specific knowledge, experience leads to superior schemas (Choo, 1989, p. 125). Specifically, more experienced individuals differ from less experienced individuals in terms of content and organization of their domain knowledge, technical competency, and mechanisms for matching problems with knowledge (Bédard and Mock, 1992; Pflugrath *et al.*, 2007). Moreover, Bédard and Chi (1993) explain that experienced auditors have developed specific domain-related strategies to address dilemmas, and that such strategies can be used to tackle issues in which they already gained experience, resembling the ideas further developed by Reynolds (2006a) about the working of prototypes. Bédard and Chi (1993, p. 739) continue by stating that, when confronted with a familiar situation, auditors “may have a schema containing both domain-related auditing strategies and domain

knowledge. For other problems where the knowledge base is not as well developed, he or she may still use the domain-related auditing strategies to solve the problem. Novices who do not have those strategies may then perform more poorly than experts.” Because experienced auditors have developed more refined ethical prototypes related to accounting and auditing issues, we expect to find a stronger effect of experience on moral awareness when the issues are related to accounting/auditing compared to other business dilemmas. Accordingly, we propose the following hypotheses for the three proxies for experience:

- H2a.** The positive association between auditors’ professional tenure and moral awareness (*H1a*) is stronger for accounting-related ethical issues than for non-accounting-related ethical issues.
- H2b.** The positive association between auditor rank and moral awareness (*H1b*) is stronger for accounting-related ethical issues than for non-accounting-related ethical issues.
- H2c.** The positive association between auditor age and moral awareness (*H1c*) is stronger for accounting-related ethical issues than for non-accounting-related ethical issues.

Recent developments in neurocognitive research show that female and male brains are different in their structure, function, and chemistry (Ruigrok *et al.*, 2014; Ryan, 2017). These biological differences are deeper than previously thought and they influence how individuals deal with ethical situations (Pierce, 2014; Ryan, 2017). Consistent with such findings, Reynolds (2006a) maintains that biological differences and physiological factors may influence the processes of matching patterns and ethical prototypes (see also Fumagalli *et al.*, 2010). Specifically, Reynolds (2006a, p. 744) states that “estrogen improves an individual’s ability to identify the predictors of certain outcomes, and thus women have something of a head start on the prototype matching process.” Thus, biological differences

between females and males may lead to differences in the recognition of ethical situations and the functioning of the reflexive (*unconscious*) system⁶ (Reynolds, 2006a; Pierce, 2014; Ryan, 2017). Neurocognitive research and evidence from earlier empirical studies in neuroscience suggest that “women are more apt to recognize more subtle cues of the prototypes of situations involving ethics and are more skilled at reflexively and intuitively acting on prototypes in an ethically acceptable manner” (Reynolds, 2006a, p. 744). We therefore expect female auditors to have higher ability to recognize moral issues than their male counterparts. This prompts the following hypothesis:

H3a. Female auditors have a higher moral awareness than male auditors.

Prior research has suggested that the neurological responses to ethical issues may vary depending on the nature of the moral dilemma (i.e., personal dilemmas vs. impersonal dilemmas, see Greene *et al.* 2001; Fumagalli *et al.*, 2010), which may imply that the difference between male and female auditor responses can be contingent on the type of moral dilemma they are confronted with and the extent to which moral judgments are driven by social-emotional responses (e.g., dilemmas involving emotionally salient actions; e.g., Fumagalli *et al.*, 2010). In the current study, we are interested in business-related dilemmas (accounting-related and non-accounting-related moral dilemmas), which are unlikely to differ in the emotional response involved in the process. Therefore, we do not expect to find a stronger effect of gender on the moral awareness related to one particular type of situation.

⁶ While we expect differences between the ability of men and women to recognize moral issues and in using the reflexive system, it is possible that they eventually reach similar ethical judgments. Harenski *et al.* (2008) examined the neural mechanisms underlying moral sensitivity and found differences depending on gender. While females and males showed similar behavioral evaluations of the moral stimuli, they engage different neural systems in generating these results.

In line with *Hypothesis 3a*, we hypothesize that female auditors have a higher moral awareness than male auditors when confronting accounting/auditing ethical dilemmas as well as when confronting other more general ethical business dilemmas. Thus,

H3b. Female auditors have a higher moral awareness than male auditors when facing accounting related ethical issues.

H3c. Female auditors have a higher moral awareness than male auditors when facing non-accounting related ethical issues.

In the next session we explain our research method.

Research method

Moral awareness construct

Measuring moral awareness is challenging (Jordan, 2009; Arnold *et al.*, 2013; Miller *et al.*, 2016). In the literature, moral awareness constructs are usually measured using experimental instruments where researchers directly ask participants whether an issue presents an ethical dilemma (e.g., Butterfield *et al.*, 2000; Jordan, 2009). Papers examining auditors' moral awareness have followed similar approaches (e.g., Shaub *et al.*, 1993; Karcher, 1996). Other studies have examined individuals' ascription of importance to ethical issues, using Likert scale scores as a proxy for moral awareness (e.g., Radtke, 2000; Cohen *et al.*, 2001; Fiolleau and Kaplan, 2017).

Consistent with the latter approach, we measure moral awareness using a 7-point Likert scale instrument. We employ a multiple vignette approach where respondents were asked to evaluate the degree of acceptance of situations that may contained moral content. The vignettes have been previously tested in research examining moral awareness and attitudes (e.g., Vynoslavka *et al.*, 2005; Conroy *et al.*, 2010). With this instrument, we intend

to assess the importance each auditor ascribes to a potential ethical issue embedded in each vignette (Vynoslavka *et al.*, 2005, p. 291). More specifically, when we ask an individual to evaluate how s/he perceives the described behavior from a moral standpoint, rather than issuing an ethical judgment, s/he is merely acknowledging whether moral standards are relevant for the issue at hand and whether s/he can justifiably apply tools of moral analysis to the situation (Reynolds, 2006b, p. 233). This approach reduces the concerns about distinguishing moral awareness and moral judgment when using Likert-scale responses (e.g., Miller *et al.*, 2016).

Survey instrument

The instrument included 30 vignettes of morally questionable issues adopted from Conroy *et al.* (2010) and a demographic questionnaire. For each morally questionable issue, respondents were asked to evaluate whether they perceived the described behavior as ‘1 = never acceptable’ (indicating high moral awareness) or ‘7 = always acceptable’ (indicating low moral awareness) on a seven-point Likert-scale. A short description and descriptive statistics for the vignettes can be found in the Appendix. Below we give an example of two vignettes (M and N) as reported in Conroy *et al.* (2010, pp. 191-192):

Situation M

“Jones Energy, Inc., transfers an asset to an off-balance sheet entity. The entity uses the asset to obtain debt financing from a bank for 97% of the asset’s fair market value. Because the bank requires a guarantee for the loan, the company’s management uses the company’s stock as collateral to obtain the bank financing.”

Situation N

“An engineer discovered what he perceived to be a product design flaw that constituted a safety hazard. His company declined to correct the flaw. The engineer decided to keep quiet, rather than taking his complaint outside the company.”

Reynolds (2006a) suggests that instruments from prior studies can be used to explore the process of prototype matching (see also Sturm, 2017). Following Reynolds (2006a), the responses to our survey can be thought of as the output of a pattern matching process where auditors examine the information received in each scenario to match existing prototypes.

Sample

We use data collected via an online survey. The survey method is “especially useful for obtaining data on respondents’ perceptions, attitudes, and beliefs” (Speklé and Widener, 2018, p. 3) and therefore fits the purpose of our study, as moral awareness relates to perceptions, attitudes and beliefs.

The different work environments in Big 4 and non-Big 4 affect auditors’ ethical views (Pierce and Sweeney, 2010; Hassink *et al.* 2010). In order to avoid confounding possible differences in auditors’ ethical awareness due to the audit firm size, the survey was sent to 1,312 auditors working in one Big Four audit firm in The Netherlands.⁷ Employing only one audit firm allows us to control for differences in auditors’ ethical attitudes due to the organizational culture and socialization processes (e.g., Douglas *et al.*, 2001). This is important as in this study we are interested in individual-level variables. After two weeks, a reminder was sent, and after three weeks we closed the survey. 227 responses were received, yielding a response rate of 17.3 %. Out of the 227 questionnaires received, 36 cases had to be removed from the initial sample.⁸ This results in a final dataset of 191 usable responses,

⁷ The Big Four audit firms (Deloitte, EY, KPMG and PWC) dominate the audit market in The Netherlands. See for instance a report by Audit Analytics in 2020: <https://blog.auditanalytics.com/who-audits-public-companies-2020-edition/>, retrieved on December 4, 2020.

⁸ Removed because of missing data (26), removed because the respondent was only temporary employed as an intern at the audit firm (7), and removed because outliers were found in the response (3), such as only filling out ‘7’ for all situations.

yielding an effective response rate of 15%. To test for the potential non-response bias, we conducted an independent samples *t* test, comparing the means of the moral awareness index (MAI_ALL), our variable of interest (described below), for the first and last 10 (and the first and last 50) responses of the full survey with the remainder of the sample and found no significant differences ($p < 0.1$, two-tailed). This suggests that the non-response bias is not observable in our data (cf. Speklé and Widener, 2018).

The definition of the variables and the demographic characteristics of the sample are reported in Table I and Table II, respectively. The majority of the auditors (54.5%) are below 31 years old, with the second largest age group being individuals between 31-35 years old (22.5%). The sample includes 66 (36%) audit staff, 51 (27%) supervisors, 56 (29%) managers and 15 (8%) partners. Around 64 auditors (34%) have less than 4 years of auditing experience, 36 individuals (19%) have between 4-6 years of experience and 33 (17%) more than 15 years of experience. The sample includes a mix of male (70%) and female (30%) auditors. Most auditors self-identify as conservative (80%) when it comes to political preference. Finally, most auditors (66.5%) are certified auditors consider themselves non-religious (68.1%).

<<<INSERT TABLE I ABOUT HERE>>>

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The survey was pre-tested for issues such as face validity (cf. Bedford and Speklé, 2018) by sending it to fifteen auditors and ten auditing students. Feedback from the pre-test

group was favorable and resulted in only small adjustments to the wording of the instrument to enhance clarity.

Measurement of variables

We compute a *moral awareness index* per respondent (MAI_ALL) as the average of an individual's evaluations of all 30 vignettes (cf. Longenecker *et al.*, 2006, p. 180). Furthermore, we distinguish between accounting and auditing situations (e.g., situation M above) and other business situations (e.g., situation N above), to calculate a moral awareness index for both categories.⁹ The variable MAI_ACC indicates the moral awareness index using an individual's evaluations of the 14 morally questionable situations related to accounting and auditing. Finally, the variable MAI_OTH measures the average moral awareness related to the other 16 morally questionable situations, which do not directly relate to accounting. These three constructs are rescaled to a 0-1 (continuous) scale, and subsequently reversed, so that 0 indicates the lowest moral awareness and 1 the highest moral awareness. The Cronbach's alpha scores for MAI_ALL, MAI_ACC and MAI_OTH are respectively 0.82, 0.63 and 0.76, indicating good values for construct reliability (Bedford and Speklé, 2018).

We use *years in professional practice* (cf. Shaub, 1989; Karcher, 1996; O'Leary and Stewart, 2007), *rank* (cf. Karcher, 1996; Owhoso, 2002; Pflugrath *et al.*, 2007), and *age* (cf. Dane and Sonenshein, 2015) as proxies for auditors' professional experience. Hence,

⁹ Conroy *et al.* (2010) indicated that only 6 situations (D, L, M, Q, U, DD, see Appendix) are "accounting related", without providing details about the classification criteria. To verify the code suitability of the vignettes, the classification was tested by a panel of five experienced accounting professors who were asked to independently classify each of the situations as "accounting-related" and "other". They indicated that 14 situations (including the 6 vignettes selected by Conroy *et al.*, 2010) relate to accounting and auditing (indicated with an * in the Appendix). In the robustness analyses we repeat our analysis using Conroy's *et al.* (2010) classification and find that our findings also hold for this classification.

EXP_TEN is experience measured as a natural logarithm of 1 plus the number of years of tenure, EXP_RNK is a dummy variable that takes a value of 0 for relatively junior ranks (staff, supervisor) and 1 for senior ranks (managers and partners), and EXP_AGE is the natural logarithm of 1 plus age, in years. Although related, these proxies contain different information related to auditors' professional experience. While prior studies have recognized that tenure plays a key role in the development of expertise (e.g., Choo, 1989; Bédard and Chi, 1993), professional rank reflects the outcome of internal evaluation and promotion policies (e.g., Bhattacharjee and Moreno, 2002). Chronological age is a powerful piece of information about an individual (Settersten and Meyer, 1997) and it has been used as a proxy for seniority in prior research (e.g., Dane and Sonenshein, 2015; Månsson *et al.*, 2013). GENDER is a dummy variable that takes value 1 if the auditor is female.

Lastly, we collected information about several factors that according to prior research may influence moral awareness (Craft, 2013). The variable CON captures the self-reported political preference (conservative vs. progressive) and it takes value 1 if the auditor's political preference is conservative. CER is a dummy variable that takes value 1 if the auditor is a certified auditor and REL is a dummy variable that captures whether the respondent self-identifies as a religious person. The correlations among variables are reported in Table III. As expected, the different proxies for professional experience (EXP_TEN, EXP_RANK and EXP_AGE) were highly correlated.

<<<INSERT TABLE III ABOUT HERE>>>

Findings

Regression analysis is used to test the hypotheses and the results are presented in Table IV.¹⁰ In Models 1, 2, and 3 professional experience is proxied by tenure (EXP_TEN), in Models 4, 5, and 6 professional experience is proxied by rank (EXP_RNK) and in Models 7, 8 and 9 it is proxied by age (EXP_AGE). In Models 1, 4 and 7, the dependent variable is the overall moral awareness index (MAI_ALL), in Models 2, 5 and 8, the dependent variable is the moral awareness index for accounting and auditing-related issues (MAI_ACC), and in Models 3, 6 and 9, the dependent variable is the moral awareness index for other business issues (MAI_OTH). In each regression, we control for political orientation (CON), certification as a public accountant (CER) and religiosity (REL).¹¹

<<<INSERT TABLE IV ABOUT HERE>>>

Multivariate regressions

There is a positive and significant effect ($p < 0.05$, two tailed) of auditors' experience proxied by rank (Model 4) and age (Model 7) on the overall moral awareness index (MAI_ALL), while tenure (Model 1) had no significant effect. Thus, hypotheses H1b and H1c are supported by our data.

¹⁰ We conducted several tests to check whether our data meets the requirements for multivariate analyses (Hair *et al.*, 2006, pp. 204-208). To check for data nonnormality, we calculated the values for skewness (maximum score 0.238) and kurtosis (maximum score -0.104) of MAI_ALL, MAI_ACC and MAI_OTH, which suggests that the assumption that the data is normally distributed is not violated. The Kolmogorov-Smirnov test and the Shapiro-Wilk test also do not indicate nonnormality of the dependent variables at the $p < 0.1$ level. We tested for multicollinearity using the Variance Inflation Factor (VIF). The VIF scores did not exceed 1.3, which is well below the maximum acceptable score of 10.0 (Hair *et al.*, 2006, p. 230), suggesting that multicollinearity is not an issue in our analysis.

¹¹ We do not include EXP_TEN, EXP_RNK and EXP_AGE in the same analysis as this leads to multicollinearity issues given their high correlations (see Table III).

The results for auditors' ability to identify moral content in accounting and auditing situations (MAI_ACC) indicate that experience, proxied by tenure (Model 2), rank (Model 5), has a significant and positive effect at the $p < 0.05$ level, while for age the effect is significant at the $p < 0.01$ level (Model 8). The coefficients of all three proxies for professional experiences are not statistically significant when auditors are confronted with morally questionable situations related to general business issues (Models 3, 6 and 9). Therefore, H2a, H2b and H2c are supported.

Furthermore, gender (GENDER) has a significant and positive effect on moral awareness in all nine models, thereby supporting *H3a*, *H3b* and *H3c*. Together, these findings largely support the main hypotheses. The coefficients for control variables (CON, CER and REL) are not statistically significant.

Additional analyses

We conduct various additional tests to check whether our findings are robust.

First, we compare the moral awareness indices using independent sample *t* tests at two-tailed significance level with different split points of TENURE, RANK, AGE and GENDER. We test the mean differences between two groups using the following split points: TENURE (11 years of experience), RANK (staff/supervisor level and manager/partner level) and AGE (33 years of experience). We include a mean differences test for GENDER. The results are reported in Table V.

<<<INSERT TABLE V ABOUT HERE>>>

The results suggest that more experienced auditors (proxied by tenure, rank and age) display significantly higher overall moral awareness (MAI_ALL) at the $p < 0.05$ and $p < 0.01$ level (two tailed) than their counterparts with less experience. As expected, a similar result is found for accounting and auditing-related situations (MAI_ACC). However, when examining moral awareness for other, general business, morally questionable situations (MAI_OTH), no differences were found between the two groups (staff/supervisors and managers/partners). These results suggest that the relationship between auditors' experience and moral awareness depends on the content of the situations.¹² Furthermore, the results indicate that the average of the three moral awareness indices for females is higher than males' averages, although only the differences for MAI_ALL and MAI_OTH are statistically significant ($p < 0.01$ level, two-tailed). These results largely confirm our expectations.

Third, we also conducted our analyses by using a narrower subset of six accounting-related vignettes (D, L, M, Q, U, DD) identified by Conroy *et al.* (2010). The results (not reported here) corroborate the main results, indicating that experienced auditors possess higher moral awareness (H1a, H1b, H1c), particularly for accounting-related morally questionable issues (H2a, H2b, H2c).

Discussion and conclusions

We began this paper by stressing the importance of auditor ethics in today's economies (cf. Humphrey *et al.*, 1993; IFAC, 2016) and by posing the question how professional experience and gender relate to auditors' moral awareness. We used a neurocognitive approach to

¹² We also calculated the differences using alternative split points for TENURE (9 and 13 years of experience). The results (untabulated) indicate that the significant differences between the scores of auditors with more experience hold for different split points.

hypothesize that auditors with more experience would have higher moral awareness when confronted with morally questionable issues (*H1a, H1b, H1c*), and that this relationship would be stronger when the issues relate to auditing and accounting compared to other (non-accounting related) morally questionable dilemmas (*H2a, H2b, H2c*). Furthermore, we expected that female auditors display a higher moral awareness than their male counterparts (*H3a*), and this expectation holds for both accounting (*H3b*) and non-accounting related (*H3c*) moral dilemmas. We find largely support for these hypotheses and the results are robust for alternative analyses.

We contribute to the literature on auditors and ethical decision making in two ways. First, we bring in the neurocognitive approach (Reynolds, 2006a) and apply it to inform and examine factors associated with auditors' moral awareness. Older approaches that have been used extensively in the field of auditing, such as Rest's (1986) and Kohlberg's (1981) moral reasoning models, have been critiqued for overemphasizing the 'conscious' reasoning cycle, while ignoring the processes related to intuition and reflexive decisions (cf. Haidt, 2001). The neurocognitive approach (Reynolds, 2006a) allows for both types of processes (i.e. the X-system and C-system) and is instrumental in explaining why people make different ethical judgments while using their intuition. Second, we found support for our hypotheses that auditors with more experience display higher moral awareness. In addition, we found that this effect is stronger when the content of the morally disputable issue is related to accounting and auditing. This finding extends the literature on auditor ethical decision making (O'Leary and Stewart, 2007) by stressing the importance of gaining experience to develop more accurate prototypes for ethical decision making. Furthermore, we provide evidence for a

difference in moral awareness between male and female auditors, confirming suggestions from earlier research (e.g., Bobek *et al.*, 2015).

We contend that using a neurocognitive perspective brings clarity about how individual factors may affect auditors' moral awareness through both conscious and non-conscious decision-making processes. But we also acknowledge that conducting a study able to test the neurocognitive model proposed by Reynolds (2006a) would require research methods that account for and assess reflexive decision making. In this study, we do not directly test auditors' reflexive response to morally questionable situations. Instead, we use the lenses provided by neuroscience and neuroethics research, and in particular the neurocognitive model of the ethical decision-making process proposed by Reynolds (2006a), to reinterpret the insights provided by past research on auditors' decision making and formulate our hypotheses.

Although a survey method is a recommended method to “tap into relatively complex, multi-faceted phenomena as they occur in their natural setting” (Speklé and Widener, 2018, p. 3), it has limitations, like all research methods. Our findings should be seen in the light of these limitations. We surveyed auditors in a big-four audit firm in The Netherlands, and although we have satisfying levels of variance for the demographic variables and the moral awareness indices, the generalizability of our findings is likely limited to similar institutional settings. Furthermore, a survey method runs the risk that the responses are distorted by the social desirability bias, i.e., the distortion of responses in the direction of social norms. We followed conventional approaches such as assuring anonymity and relying on a pretested instrument (Conroy *et al.*, 2010) to reduce the potential social desirability bias (cf. Speklé and Widener, 2018). Furthermore, in our study we are most interested in the *differences*

among respondents instead of the *absolute values* of the moral awareness index, which reduces the potential impact of the social desirability bias on our findings. Although the potential presence of a common method bias cannot be ruled out, our main independent variables (work experience in years, rank, and gender) are demographic, which reduces the potential impact of the common method bias.

Findings from neuroscience and neuroethics (e.g., Reynolds, 2006a; Robertson *et al.*, 2017; Ryan, 2017) could further enrich research on auditors' moral awareness by informing why and how experience and gender differences have an impact on auditors' ethical decision-making processes. In-depth interviews could be mobilized to learn more about the differences in moral awareness among auditors with different levels of experience, and may help explore the role of gender differences. In our study, we focused on moral awareness (not on actions). Although moral awareness is an essential step in the ethical decision-making process, it is not sufficient to explain (un)ethical behavior, i.e., the correlation between moral awareness and moral actions is not perfect. It has been suggested that 'moral courage' plays an important role in activating professionals to act ethically (Smit, 2017) and put their values into practice. Research using experiments or retrospective interviews could further explore under which conditions auditors (with high moral awareness) indeed behave more ethically, and how audit firms can facilitate and support the ethical conduct of auditors. Using experiments, future studies could also investigate the nature of auditors' ethical prototypes and the process of prototype matching.

Our study bears implications for auditing education, as it points to the importance of having accurate prototypes regarding ethically disputable situations. Such prototypes can be developed by critically reflecting on accounting practices in textbooks (cf. Van der Kolk,

2019) and in class, while using real-life, complex and original teaching cases. Furthermore, Reynolds (2006a) suggests that ethics training should consider not only the *content* but also the *delivery methods* as they will have a different impact on the reflexive pattern matching cycle and the conscious reasoning cycle. Future research could explore the impact of ethical training on auditors' ethical prototypes, to better understand how they are constructed, restructured and refined. Also, given that males and females seem to have different levels of moral awareness and likely make ethical decisions in different manners, audit firms and educational settings could take this gender difference into account when training current and future auditors. We would like to stress the importance of these differences for educational settings and highlight that indeed "gender is an under-researched area in accounting" (Bobek *et al.*, 2015, p. 73) that deserves more attention. Lastly, our findings may trigger audit firms to contemplate decisions regarding ethical training programs, audit team composition, hiring policy and internal decision-making policies. For example, many audit decisions are made by teams. Our findings about the link between moral awareness and professional experience and gender at individual level may have implications for audit team composition (e.g., Chen *et al.*, 2019), as individual ethical awareness may influence on audit team ethical decision processes, including team ethical awareness (e.g., Chen *et al.*, 2020). We hope to have provided a steppingstone for future research that wishes to study moral awareness in an audit context.

Appendix

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