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The Effects of Continuous Auditing and COVID-19 on Employees' Likelihood of Complying with the Internal Control System: The Role of Conscientiousness

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Abstract: This study investigates whether continuous auditing and a (COVID-19) crisis interact with the personality trait of conscientiousness among auditees to affect compliance with internal controls. Using a between-subjects experiment and manipulating internal audit frequency (continuous vs. traditional auditing) and the current business situation (crisis vs. business as usual) we analyze 125 responses from sales professionals. Findings suggest, that the effect of conscientiousness is more pronounced in a crisis setting, while the trait does not interact with continuous auditing. With regard to conscientiousness, less conscientious individuals operating under a crisis condition and being continuously audited are more likely to engage in non-compliance with internal controls, while we find an opposite effect for highly conscientious individuals.

Keywords: Continuous Auditing; Conscientiousness; Personality Trait; COVID-19; Crisis; Internal Auditing, Experimental Research

Die Auswirkungen von kontinuierlicher Prüfung und COVID-19 auf die Wahrscheinlichkeit der Einhaltung von Internen Kontrollen: Die Rolle der Gewissenhaftigkeit

Zusammenfassung: Diese Studie untersucht, ob kontinuierliche Prüfungen und eine (COVID-19) Krise mit dem Persönlichkeitsmerkmal der Gewissenhaftigkeit unter den Geprüften interagieren, um die Einhaltung der internen Kontrollen zu beeinflussen. Anhand eines zwischen den Probanden durchgeführten Experiments und der Manipulation der internen Prüfungsfrequenz (kontinuierliche vs. traditionelle Prüfung) sowie der aktuellen Geschäftssituation (Krise vs. Geschäftsalltag) analysieren wir 125 Antworten von Vertriebsexperten. Die Ergebnisse deuten darauf hin, dass der Effekt der Gewissenhaftigkeit in einer Krisensituation ausgeprägter ist, während das Merkmal nicht mit kontinuierlichen Prüfungen interagiert. In Bezug auf die Gewissenhaftigkeit sind weniger gewissenhafte Personen, die unter Krisenbedingungen und kontinuierlicher Prüfung arbeiten, eher geneigt, die internen Kontrollen nicht einzuhalten, während wir einen gegenteiligen Effekt für sehr gewissenhafte Personen feststellen.

Stichworte: Kontinuierliche Prüfung; Gewissenhaftigkeit; Persönlichkeitsmerkmal; COVID-19; Krise; Interne Revision, Experimentelle Forschung

1. Introduction

Against the backdrop of numerous accounting scandals, there have been increased global efforts to enhance the effectiveness of internal controls (ICs) (Chalmers et al., 2019). This effectiveness relies significantly on the individuals' compliance along with the oversight and monitoring by the management and audit committee (e.g., Carcello et al., 2020). In this regard, the internal audit (IA) activity as an independent and objective assurance and consulting function "helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of governance, risk management, and control processes" (IIA, 2024) and is "seen as a key component of corporate governance" (Chen et al., 2017, p. 21).

Encouraging compliance with ICs is of significant interest to organizations since it can reduce risk and create more reliability, continuity, and trust (Johnson et al., 2016). Against the ever-growing complexity and speed of business processes, continuous auditing (CA) provides a way to improve risk and control assurance (Stöckle, 2023) by continuously testing ICs (Warren & Smith, 2006). Thus, this study investigates whether the presence of CA and a crisis (proxied by COVID-19) are associated with the likelihood of complying with ICs and whether and how the trait of conscientiousness affects this relationship, as this trait is found to be associated with compliance behavior (Huels & Parboteeah, 2019).

CA is a near real-time automated audit process (Eulerich & Kalinichenko, 2018) that allows relevant business events, transactions, and/or processes to be monitored continuously for compliance with defined criteria. While prior research in this area investigated how external stakeholders are affected by CA (e.g., El-Masry & Reck, 2008; Malaescu & Sutton, 2015), little research has examined the effects on (auditees') behavior. Also, despite the increased audit scope and frequency provided by CA, anecdotal evidence suggests that auditees still violate ICs (as reported by the case company).

Simultaneously, crises are becoming more integrated into our business environment, as observed by Kovoor-Misra (2009), and are characterized by their predominantly unpredictable onset and impact. In this way, crises impose an environmental uncertainty that influences employees' behavior (Psychogios et al., 2019b) and alters their decisions (Sayegh et al., 2004; Montani et al., 2020). The COVID-19[1] pandemic is a crisis that changed the business environment and exposed employees to uncertainty, such as the threat of redundancies due to the deteriorating economic situation contributing to risk-seeking behavior. According to Tversky and Kahneman (1992, p. 298), this behavior "is prevalent when people must choose between a sure loss and a substantial probability of a larger loss." People who are afraid of losing their jobs due to the crisis thus tend to act in a riskier-seeking manner (e.g., non-compliance with ICs) to avoid a sure loss (e.g., a

1 Coronavirus Disease 2019 (COVID-19) was first discovered in Wuhan (China) in December 2019. In January 2020, the World Health Organization (WHO) declared the disease a health emergency of global relevance (Sohrabi et al., 2020). Its onset led to economic shocks, a slump in the stock markets, a shift to safe investments (McKibbin & Fernando, 2021) and caused millions of deaths worldwide (WHO, 2021). Consequently, governments took extraordinary measures such as stay-at-home orders or distancing rules, which led to massive economic contraction and a worldwide crisis.

customer or profits),[2] even if this could contribute to a larger loss with a substantial (but unsure) probability (e.g., dismissal due to non-compliance).

As persons and situations are found to interact to explain behavior (see Taylor & Morse, 2020), we follow the stream of research that explores the interface between personality traits, situational factors, and performance (e.g., Cassematis & Wortley, 2013). Thus, we consider traits to affect the likelihood of complying with ICs in addition to situations. In a work-related context, research by Judge and Zapata (2015) has established that the trait of "conscientiousness" serves as a reliable predictor of behavior. Additionally, findings from Borghans et al. (2008) indicate that conscientiousness surpasses all other traits in its ability to predict behavior at the workplace, and Williams et al. (2010) argue that low conscientiousness is the Big Five[3] variable most closely linked conceptually to rule violations (e.g., cheating). In contrast, elevated levels of conscientiousness have the most significant positive correlation with ethical perceptions within the business context compared to other traits (Bratton & Strittmatter, 2013).

Additionally, research has shown that conscientiousness affects compliance[4] (Huels & Parboteeah, 2019). Given our experimental setting, which is based on a work-related decision and measuring the likelihood of non-complying, we thus choose to analyze this trait in preference to others. Conscientiousness is defined as "the propensity to follow socially prescribed norms for impulse control, to be goal-directed, to plan, and to be able to delay gratification" (Roberts et al., 2009, p. 369). Thus, individuals with high levels of conscientiousness inherently possess traits and behaviors that align with compliance requirements. These include accuracy, ethical decision-making, a heightened awareness of risks, and adherence to rules and procedures.

While the literature on conscientiousness suggests a positive correlation between an employee's conscientiousness and the likelihood of complying, research on the person-situation debate (Judge & Zapata, 2015) demonstrates that considerable levels of behavioral stability and variability coexist (Funder & Colvin, 1991; Fleeson, 2004). Thus, behavior may result from personality and situational factors such as automated audits and the business environment. Although there is a broad field of research looking at the role of personality and situations in behavior, Taylor and Morse (2020, p. 5561) call for additional research on this topic to "more fully develop an understanding of the varied and complex ways in which traits and situations interact."

The study design allows us to investigate the joint effects of CA, crisis, and conscientiousness on the likelihood of complying with ICs, providing a comprehensive understanding of how these factors interact to influence compliance behavior. Studying their joint effect gains significance due to the puzzling delay in the actual adoption of CA (Gonzalez et al., 2012), which is particularly notable given the frequently emphasized benefits of CA (e.g., Kuhn & Sutton, 2006). Consequently, there is a prospect of shedding light on

2 Please see the experimental setting.

3 The Big Five personality traits include openness, conscientiousness, extraversion, agreeableness, and neuroticism and provide a framework to describe individual differences in personality based on these dimensions (see Mount & Barrick, 1995).

4 Non-compliance describes deviations from operating procedures, standards, or guidelines (Reason et al., 1998). We define it as the exhaustion or unintentional disregard of guidelines, not necessarily being willful. We intentionally are not using the term compliance, as our indicator measures the likelihood to engage in non-compliance, with higher-level discounts being interpreted as more likely to engage in non-compliance, contrary to more compliant.

previously unexplored adverse effects of CA, which may originate from a combination of situational factors and individual personality traits. Furthermore, the importance of examining the crisis lies in its continual influence, exemplified by current phenomena like wars causing a rise in inflation and shortages of goods. In conclusion, the significance of conscientiousness in this study's context relates to its earlier emphasized role in fostering compliant behavior. Studying these factors together in an experiment reflects the complexity of real-world situations, allowing for a more realistic and ecologically valid understanding of this behavior, which builds the motivation for this study.

We predict that a CA environment, compared to a traditional auditing environment, is associated with a lower likelihood of engaging in non-compliance with ICs. We also predict that the anticipated losses resulting from a crisis lead to risk-seeking behavior, which in turn indicates a higher likelihood of engaging in non-compliance. Further, we propose that the effect of the internal auditing approach (CA vs. traditional auditing) on the auditee's likelihood of complying with ICs is canceled when a crisis is present.

We also predict that a higher level of conscientiousness is associated with a lower likelihood of engaging in non-compliance with ICs. However, we predict this effect to be lower when individuals are subjected to a CA approach. Then, we suggest that situational aspects of the crisis are trait-relevant, enhancing the effect of conscientiousness and resulting in a lower likelihood of engaging in non-compliance.

We use a 2x2 between-subjects factorial design, manipulating the internal auditing approach (CA vs. traditional auditing) and the current situation (crisis vs. business as usual) to test our predictions. Our final sample consists of 125 sales professionals, covering 61 participants recruited through cooperation with a German wholesaler and 64 participants recruited via Amazon Mechanical Turk (MTurk).[5] Employees' likelihood of engaging in non-compliance with ICs is measured as the price discount granted to a customer ranging from 0 up to 99 percent (with higher values indicating a higher likelihood of non-complying). In this context, providing a discount exceeding 50 percent is a breach of the company's policies and, consequently, its ICs.[6] The task and guidelines were derived directly from the real-world tasks of the case company, representing its daily business activities. This deliberate choice was to avoid employing a generic instrument for measuring non-compliance, ensuring that the assessment closely mirrors the authentic scenario. Additionally, we collected the measurement variable "conscientiousness" using a short version of the Big Five Inventory (BFI), which is an existing and validated measure to capture personality traits (see Taggar & Parkinson, 2007). The study was pre-tested to assess and validate the experimental materials using employees based at the headquarters of the case company.

We do not find significant evidence for an overall effect of CA on the likelihood of engaging in non-compliance with ICs. However, in line with our predictions, the crisis environment is associated with a higher likelihood of engaging in non-compliance. We find that CA will not reduce the individual's likelihood to engage in non-compliance when

5 The experiment was collaboratively conducted with a wholesaler, and consequently, the case scenario was tailored to suit a wholesale store. Additionally, as outlined in Section III, MTurk participants were explicitly mandated to have experience in the wholesale, retail, or distribution industry.

6 We use the granting of a discount as a measure, firstly, because it is a suitable instrument to measure deviations from the guidelines presented in the case scenario and secondly, because it is a familiar task to our professional participants.

a crisis is present, provided that they inherently have low levels of conscientiousness. Thus, CA seems to be driving the effect of crisis.

Our results also indicate that more conscientious individuals are less likely to engage in non-compliance with ICs, except when business is as usual and CA is present. The effect of conscientiousness is even more pronounced in a crisis setting. Lastly, our results indicate that individuals with a higher level of conscientiousness are most likely to comply with ICs when exposed to a crisis and audited continuously. Therefore, our results suggest that an individual's likelihood of engaging in non-compliance with ICs is associated with the type of audit (continuous vs. traditional) used by the IA activity, the current business situation to which she/he is subjected (crisis vs. business as usual), and the individual's level of conscientiousness. Overall, our findings indicate that traits matter for understanding behavior in response to automated assurance in an (internal) auditing context.

We contribute to the literature in many ways. To our knowledge, this is one of the first studies that link situational factors to an individual's likelihood of complying with ICs considering the trait of conscientiousness. The literature generally encourages the use of CA (Chan & Vasarhelyi, 2011). However, our results suggest that this approach may be ineffective for less conscientious individuals in a crisis.

While CA has been discussed in the literature for more than 30 years, we know little about the behavioral effects of implementing automated assurance. The existing literature covers experiments on the effects of CA on investors' decisions (e.g., El-Masry & Reck, 2008) or the judgment of external auditors (e.g., Malaescu & Sutton, 2015), deals with the acceptance of the use and the areas of application of CA on the part of internal and external auditors (e.g., Omoteso et al. 2008), and recently discussed actual use cases (e.g., Codesso et al., 2020). We expand the literature in the field of CA by focusing on its effects on auditees' behavior. Additionally, experimental research on CA has been sparse.

This experimental study aims to provide valuable insights into the complex interplay between CA, crisis events, and an individual's trait, offering practical implications for auditors and organizations facing unprecedented challenges, such as the global COVID-19 pandemic. We further contribute to the literature by reporting the paradoxical effect of tightened controls on the likelihood of complying in a crisis depending on the level of conscientiousness, as research postulates that more research is needed to foresee the impact of CA on human and organizational behavior (Brown et al., 2007). Our findings empower practitioners and academics to gain a deeper understanding of the potential interplay between situational factors affecting individuals' risk tolerance and conscientiousness during the implementation of automated assurance tools like CA. These insights ideally help address some of the concerns that impede practitioners from adopting CA, leading to an implementation gap despite the anticipated benefits.

In the next section, we review the literature and derive our hypotheses. In section three, we introduce the experiment, the chosen variables, questions, and response types. We present our results in section four and our conclusion in section five.

2. Literature Review and Hypotheses Development

2.1 Literature Review

CA is defined as "data flowing through the system [being] monitored and analyzed continuously […] using a set of auditor-defined rules. Exceptions […] will trigger alarms

which are intended to call the auditor's attention" (Vasarhelyi & Halper, 1991, p. 114). On the other hand, the old-fashioned manual audit processes require a lot of effort and time, restricting audits to specific intervals. This also applies to finding instances of non-compliance with ICs, a task handled exclusively by the IA activity, emphasizing the importance of continuous assurance. The need for change is further evidenced by contemporary enterprise data processing and retention practices and the resulting demand to synchronize internal auditing with the evolving real-time economy (Chan & Vasarhelyi, 2011; Byrnes et al., 2018). One method for adapting internal auditing to these changes is the implementation of CA, a concept that originated over 30 years ago (Groomer & Murthy, 1989; Vasarhelyi & Halper, 1991).

One of the earliest implementations of CA took place at AT&T Bell Laboratories. While this system was designed to integrate various systems within the organization and facilitate the sharing of information through online or near-online processing for evaluation purposes (Vasarhelyi & Halper, 1991), a more recent CA system utilizes data from governmental organizations to verify the payroll information of the Brazilian Navy (de Freitas et al., 2020). This illustrates a shift in the utilization of CA or continuous monitoring toward supporting compliance-related internal auditing tasks. There is a particular emphasis on the automated monitoring of controls to meet the increasing internal control reporting requirements (Alles et al., 2006; Vasarhelyi et al., 2010). However, besides the evident benefits that result from more timely, efficient, and effective monitoring of ICs, little is known about the effects of automated audit procedures on organizational or, more specifically, auditee behavior.

The consistency and scope of testing applied by automated assurance processes such as CA might affect the auditees' behavior, especially regarding the likelihood of non-complying. Unlike preventive controls, CA does not hinder auditees from non-compliance but detects this behavior more timely and with a higher probability. Also, decision-making is affected by controls that motivate the decision-maker to adhere to explicit guidelines (Campbell et al., 2011). Increased chances of detection and prompt feedback on compliance breaches would lead to reduced probabilities of non-compliance with ICs overseen by the CA system. The altered behavior of the auditee should stem from heightened discomfort due to the reinforced controls offered by CA, resulting from more frequent and extensive audits. Additionally, the potential loss associated with non-compliance detection adds to the incentive for improved adherence (see Tayler & Bloomfield, 2011; Emett et al., 2019).[7]

However, auditees' likelihood of non-complying with ICs may be affected by other situational factors that change the perceived discomfort in case of detection – for instance, the environmental uncertainty imposed by a crisis (Psychogios et al., 2019b). The term crisis originally denotes the break with long-term and continuous development and can be defined as an unforeseeable or exceptional situation (Wu et al., 2012). Considering ongoing events like wars leading to inflation, natural disasters, or COVID-19, crises are increasingly becoming integral aspects of both our personal lives and work environments

7 Holt et al. (2017) demonstrate that active monitoring leads employees to perceive corporate ethics as lower, negatively affecting job satisfaction and acceptance. Consequently, excessive monitoring may prompt certain employees to engage in fraudulent activities and manipulate the system (Barra, 2010). Moreover, Campbell et al. (2011) found that employees in tightly controlled business units possess strong implicit incentives to adhere to decision guidelines.

(Kovoor-Misra, 2009). While crises of various types are becoming more frequent, they remain associated with uncertainty, as their exact onset, extent, and impact are unpredictable. A crisis alters the business environment and exposes employees to uncertain and adverse working conditions, such as the threat of redundancies due to the deteriorating economic situation, which might affect risk-seeking behavior.

According to the literature, the main elements of adverse working conditions are increased workload, negative employee attitudes, and job insecurity (Psychogios et al., 2019a), triggering negative emotions such as stress (Montani et al., 2020; Psychogios et al., 2019a). People under the strain of negative emotions show lower job satisfaction (Reisel et al., 2010) and a reduced feeling of duty and obligation towards the company (Markovits et al., 2014). Montani et al. (2020)[8] report that employees of the same department use (in spite of increased job insecurity) absences as a collective coping mechanism to mitigate the negative emotions caused by the threat of a crisis. Previous research also indicates that adverse working conditions resulting from crises harm employees' organizational citizenship behavior (Psychogios et al., 2019a). In conclusion, there is evidence that employee behavior becomes contradictory during a crisis.

Within our experiment, we thus manipulate two situational factors that might affect auditees' likelihood of complying. However, each individual possesses personality traits that are considered key factors in understanding their behavior in specific situations (John et al., 2008). Defined as "the relatively enduring patterns of thoughts, feelings, and behaviors that reflect the tendency to respond in certain ways under certain circumstances" (Roberts, 2009, p. 140), traits have been linked to a variety of work-related outcomes (Johnson, 2003). While every individual is believed to exhibit five personality traits, conscientiousness, in particular, has been demonstrated to be a more accurate predictor of workplace behavior than any other trait (Borghans et al., 2008) and across almost all types of jobs (Wang et al., 2019). Given its explanatory power, we consider this trait in favor of others. Individuals with higher conscientiousness demonstrate diligence, reliability, responsibility, organizational skills, and self-control (Atherton et al., 2020). They are naturally inclined to adhere to rules, contrasting with individuals characterized as lazy or disorganized (Costa & McCrae, 1992; Barrick et al., 2001; Salgado et al., 2020).

Previous studies indicate that lower conscientiousness is associated with tax non-compliance (Huels & Parboteeah, 2019) and emphasize its substantial impact on attitudes towards paying higher taxes (Olexová & Sudzina, 2019). On the other hand, the literature suggests that high levels of bright personality traits (e.g., conscientiousness) may have deleterious effects, referred to as too much of a good thing (Pierce & Aguinis, 2013). In this context, LePine (2003) shows that conscientiousness may harm team performance when change is required. Additionally, conscientiousness was found to be particularly beneficial in complex jobs but not as much in simpler ones (Le et al., 2011). Thus, while the trait is associated with positive characteristics, it can be counterproductive for people who lack relevant social skills to channel it in positive ways.

8 This introduces a theoretical tension, as a crisis diminishes job security, making job preservation more relevant. Conversely, it leads to an increase in job dissatisfaction and stress, resulting in contradictory behavior.

2.2 Hypotheses Development

Based on the previous remarks, the rhythm of a traditional audit leads to a time lag between the occurrence of the relevant event and its review and reporting (de Freitas et al., 2020), not arousing the fear of being caught immediately in the case of non-compliance. On the other hand, CA's increased audit frequency (Brown et al., 2007) reduces or eliminates the in-between period (Rezaee et al., 2002; Eulerich & Kalinichenko, 2018). Additionally, its automation allows for a review of the entire population (Rezaee et al., 2002), which raises the risk of being detected when non-complying. According to Cardinaels and Jia (2016), CA reduces information asymmetries, which, according to Kidder (2005), constrains agents' opposing behavior. In contrast, Stanton (2000) observes that when an automated system monitors work quantity, employees may be motivated to increase it at the expense of quality. Also, CA is often invisible to the auditees, but the resulting actions or increased responsiveness (of superiors/internal auditors) to any incident should affect behavior. In conclusion, behavioral research suggests that individuals tend to exhibit comparatively less selfish behavior when initially exposed to controls that are subsequently strengthened (Tayler & Bloomfield, 2011; Emett et al., 2019).

Concerning crises, these situations are often associated with losses. According to the prospect theory, individuals act more risk-seeking in the face of anticipated losses (Kahneman & Tversky, 1979). The theory describes how people make decisions under uncertainty. It challenges traditional economic theories by incorporating psychological factors that influence decision-making. According to the theory, individuals tend to be risk-averse in the domain of gains, preferring certain outcomes over risky ones. In the domain of losses, individuals are risk-seeking, taking gambles to avoid certain losses. The theory provides a more realistic and nuanced understanding of how individuals evaluate and respond to uncertain and risky situations, highlighting the role of emotions and cognitive biases in decision-making. Thus, following this theory, individuals may prefer an uncertain high loss to a certain but comparatively lower loss. We argue that if individuals fear losing their jobs due to the crisis, they might act in a risk-seeking manner, engaging in non-compliance to avoid the loss of a single customer and a potential profit reduction (certain but comparatively low loss). Despite the potential consequences under labor law, including the possibility of dismissal (representing an uncertain but high loss), this behavior illustrates a tendency to underweight a high probability, as Tversky and Kahneman (1992) described.

In conclusion, decision-making behavior is directly influenced by controls, guiding the decision-maker to adhere to explicit guidelines (Campbell et al., 2011). However, when confronted with a crisis, employees may reevaluate their priorities to tackle immediate challenges. As a result, the positive impact of CA on control adherence could be overshadowed by the demands of crisis management. These demands may lead auditees, similar to a traditional audit setting, to de-emphasize or allocate less attention to specific ICs, even in a more robust control environment. This potentially controversial employee behavior in response to crises is also supported by literature (e.g., Montani et al., 2020).

The presence of a crisis imposes heightened pressure and stress on organizations and their employees (Psychogios et al., 2019a; Montani et al., 2020). In such circumstances, auditees may feel compelled to prioritize immediate crisis response over strict adherence to controls, as crises often demand the reallocation of resources to address pressing needs. Thus, we expect the crisis to limit the effect of CA on the likelihood of engaging in non-compliance.

Our hypotheses read:

H1a: *The auditee will be less likely to engage in non-compliance with internal controls in a continuous auditing environment than in a traditional auditing environment.*

H1b: *The auditee will be more likely to engage in non-compliance with internal controls in a crisis environment than in a normal course of business.*

H1c: *The continuous audit will not reduce the auditee's likelihood of engaging in non-compliance with internal controls when the auditee is facing a crisis.*

The possibility of behaving non-compliantly exists for all employees. However, as conscientiousness is associated with achievement orientation (Mount & Barrick, 1995) and the state of being organized and dependable (Salgado et al., 2020), less conscientious individuals might feel more comfortable when non-complying and dealing with the resulting consequences. We theorize that conscientious individuals place a higher value on rules or guidelines. In contrast, less conscientious people may either be unaware of the rules or consider them less important. Consequently, they may engage in non-compliant behavior due to their less informed approach to decision-making.

Also, situational factors can interact with personality traits to affect workplace behavior (Felin et al., 2015; Judge & Zapata, 2015). However, one of the most common situational variables that might dampen the effect of a trait on workplace behavior is situational strength (Caspi & Moffitt, 1993), which represents "the degree to which situational constraints are present in the environment" (Judge & Zapata, 2015, p. 1150). Situational constraints are strong if there is a high level of control over the individuals' behavior (Peters et al., 1982), decision-making is centralized (Forehand & Von Haller, 1964), and the individuals have a low level of discretion (Barrick & Mount, 1991), characteristics that apply to CA. Consequently, these strong situational constraints will restrict individuals' ability to express their personality in decision-making (Cooper & Withey, 2009), suggesting that the impact of conscientiousness will be less pronounced.

High levels of situational strength typically imply a more uniform set of behavioral expectations for everyone in that situation despite varying levels of specific traits (Mischel, 1977). In such settings, individual differences, including conscientiousness, may be less visible or impactful, and everyone is expected to exhibit a similar level of adherence to established norms. This more uniform behavior is attributed to the simplification of tasks through situational strength, providing a clear roadmap for actions. Consequently, individuals may rely more on external cues and procedures than their conscientiousness to navigate tasks. The earlier discussion on CA suggests that it represents a higher degree of situational constraints compared to traditional auditing. Therefore, according to the theory, individuals may feel compelled to conform to external expectations defined by a strong situational setting, minimizing the need for conscientiousness as a distinguishing trait.

While conscientiousness is a personality trait associated with accuracy, organization, self-regulation, and risk awareness, it might manifest differently based on the context or environmental cues. Trait-activation theory suggests that certain situations or environments contain cues capable of triggering the expression of specific traits. According to this theory, personality traits are not static but can vary in manifestation depending on the situation. The relationship between trait expression and performance can be either strengthened or weakened by situational factors, a premise validated by empirical studies

(e.g., Zia et al., 2020). Given that the theory directs attention to individuals rather than the entire organization and considers situational factors, its relevance is particularly noteworthy in the context of our study.

Crises provoke multiple emotions (Kayes, 2004; James et al., 2011) and can be envisioned as uncertain, ambiguous, exceptional, adverse, or demanding (Hambrick et al., 2005). Also, crisis situations are (usually) negative and have a high loss potential, which is why they require quick action (Kovoor-Misra, 2009). Therefore, according to the trait-activation theory (see Judge & Zapata, 2015), a crisis is the type of context in which an employee's trait affects her/his behavior (Mischel, 1977; Baumeister et al., 2001). Tett and Burnett (2003, p. 502) argue that "[a] situation is relevant to a trait if it is thematically connected by the provision of cues, responses to which (or lack of responses to which) indicate a person's standing on the trait" (see also Tett & Guterman, 2000). Considering that crisis situations may require heightened self-regulation and adaptability, conscientious individuals renowned for possessing these attributes may perceive the situation as an opportunity to enhance these qualities, which could lead to an increased commitment to compliance with ICs.

The previous considerations lead us to the following hypotheses:

H2a: *The auditee will be less likely to engage in non-compliance with internal controls when being high on the personality trait of conscientiousness than being low on that trait.*

H2b: *The personality trait of conscientiousness will provide a lower reduction in the auditee's likelihood of engaging in non-compliance with internal controls when the internal audit activity uses a continuous auditing approach.*

H2c: *The personality trait of conscientiousness will provide a higher reduction in the auditee's likelihood of engaging in non-compliance with internal controls when a crisis is present.*

3. Methodology and Data

We conducted two 2x2 between-subjects experiments[9], manipulating the implemented internal auditing approach (CA vs. traditional auditing) and the current business situation (crisis vs. business as usual). Our dependent variable is operationalized as the percentage of discount granted to a customer, and this measure was adopted to reflect an actual situation within the case company. We measured the Big Five personality traits using a short version of the BFI by Rammstedt and John (2007).[10]

The study was designed and pre-programmed in Qualtrics, randomly assigning subjects to the experimental treatments, ensuring equal distribution, preventing multiple participation, and keeping the course of the experiment constant. The quality of the case materials was ensured through a pre-test conducted before the final data collection.

9 The author's university granted IRB approval for the experiment. Each participant consented to the study, and the conduct of the study was not in conflict with the ethical treatment of the participants.

10 Experiments were conducted in the subjects' native language (German for the wholesale employees and English for MTurks).

3.1 Experimental Setup 1

3.1.1 Participants and Setting

Participants are placed in the role of store managers and have to decide on granting a discount while receiving information about the business situation and the implemented internal auditing approach. Store managers regularly make decisions while considering the given guidelines. Thus, their decisions represent compliance behavior.[11]

For our experiment, we cooperated with a multinational wholesaler headquartered in Germany, and therefore, a unique dataset surveying actual auditees was generated. The parent company is represented in more than 30 countries, achieved sales of more than 20 billion euros, and employs more than 50,000 people.

Panel A: Data Cleaning for the Entire Sample

	Case Company	MTurk	Sample Size
Initial Number of Records	109	95	204
Exclusion	48	31	79
Final Sample (per Experiment)	61	64	125

Panel B: Data Cleaning for Experiment 1

	Condition 1 (CA=0, Crisis=0)	Condition 2 (CA=0, Crisis=1)	Condition 3 (CA=1, Crisis=0)	Condition 4 (CA=1, Crisis=1)	*Sample Size*
Initial Number of Records	28	28	23	30	109
Failed Manipulation Check 1 (CA)	11	14	4	2	31
Failed Manipulation Check 2 (Crisis)	3	10	7	7	27
Exclusion	11	18	10	9	48
Final Sample (per Condition)	17	10	13	21	61

Panel C: Data Cleaning for Experiment 2

	Condition 1 (CA=0, Crisis=0)	Condition 2 (CA=0, Crisis=1)	Condition 3 (CA=1, Crisis=0)	Condition 4 (CA=1, Crisis=1)	*Sample Size*
Initial Number of Records	24	23	30	18	95
Failed Manipulation Check 1 (CA)	2	2	6	6	16
Failed Manipulation Check 2 (Crisis)	2	9	4	6	21
Exclusion	4	11	9	7	31
Final Sample (per Condition)	20	12	21	11	64

This table presents the sample selection and cleaning process. (Exclusion: Participants that had to be excluded due to failed manipulations checks, not finishing the study, etc; Final Sample: Number of participants that were included in our final sample who form the main unit for our statistical calculations.)

Table 1: Records Collected and Final Sample

11 Employees enforcing ICs often work at the company's headquarters and may not directly sense the challenges faced by customers and employees during a crisis. Therefore, we posit that analyzing decisions made by lower-level executives offers the most robust opportunity to explore the impacts of CA and a crisis in this context.

For the experiment, the company reached out to over 250 professionals in Germany, inviting them to voluntarily participate in our study. Ultimately, we recruited 109 participants who actively took part in the study.[12] Taking a conservative approach in dealing with manipulation checks (e.g., Davidson et al., 2013; Malaescu & Sutton, 2015; Quick & Henrizi, 2019), we excluded 48 participants who failed either check 1 or 2, or even both checks, obtaining a final sample of 61 professional participants for experiment 1 (see Table 1, Panel B).[13]

3.1.2 Experimental Materials

Before starting the experiment, participants read a brief introduction and were assured of anonymity to increase their willingness to answer. Our case materials closely mirror the realistic characteristics, guidelines, and processes of a wholesale company, aiming to replicate the examined scenario as realistically as possible and to provide authentic information. They were developed in close cooperation with the case company to ensure accuracy.

The actual questionnaire consists of three (respectively four) sections (in the MTurk version, see Experimental Setup 2). Participants were placed in the role of a manager working on-site at a wholesale store of "THE" company, a wholesaler that sells goods and groceries to the food service industry. The case included background information about the company (only included in the MTurk version), the company's management, hierarchies, and remuneration structure, as well as the responsibilities associated with the role to be assumed. Participants are introduced to the purpose of discounts, provided with internal guidelines to follow, and informed that violating the company's internal guidelines may lead to consequences under labor law. Subsequently, the implemented auditing approach and the current business situation are described.

Finally, participants received a typical setting in which a store manager would have to decide and are asked to judge the probability (*Discount Probability*) and the amount of discount granted to the customer (*Discount in Percent*, our dependent variable). The experimental materials also include manipulation checks, post-experimental, and demographic questions.

3.1.3 Variables of Interest

Manipulated Factor 1:

The internal audit frequency is manipulated as the company's IA activity uses a manual and periodical (traditional) or automated and daily (continuous) auditing approach. The levels of our main independent variable are based on the manipulations used and validated

12 The study period stretches from May 19 to June 13, 2020. Incomplete data was excluded.

13 High failure might not necessarily indicate an issue with the manipulation (Hauser et al., 2018). Online experiments are associated with a higher probability of unintended disturbances, resulting in a lack of attention and subsequent failure of manipulation checks. We found significant differences in the presumed job insecurity and the perceived level of control for the merged sample (see Results; Note: These results did not affect the exclusion of participants with regard to the manipulation checks). While not all of our results (*CA* × *Crisis* and *CA* × *Crisis* × *Conscientiousness*) hold when running the ANOVA with the merged sample, including failed checks, we receive similar results when only excluding participants who failed check two – Check one is more demanding (e.g., sampled audit) for participants unfamiliar with auditing.

by Malaescu and Sutton (2015) and were adapted in cooperation with the case company, reflecting realistic situations within the wholesale stores before and after the implementation of CA.[14]

Manipulated Factor 2:

Secondly, we manipulate whether the company is in a crisis or business is as usual. The levels of our main independent variables are based on actual observations in the stores of the case company before and during the (COVID-19) crisis and consider two indicators (availability of goods and sales level) used by the company as benchmarks for a stable business situation (see the Appendix for the exact wording of our manipulated factor 1 and 2).[15]

Creation of a Setting Relating to the Prospect Theory:

In order to create a risky gamble-setting, we state that remuneration is performance-related depending on the market's revenue and EBIT and that a discount creates an incentive for the customer to generate revenue. Simultaneously, we clarify that discounts are associated with profit setbacks or losses. We further emphasize that violating the guidelines may lead to consequences under labor law, including the possibility of dismissal, while presenting a rationale for still granting a discount.

Given that COVID-19 reflects a significant threat to individuals' personal interests (both in terms of their economic livelihood and their physical health), granting a discount would reflect a maximization of short-term personal gains, given that remuneration depended on revenue, which in turn depended on sales. While lowering prices may not always lead to increased remuneration and potential consequences under labor law, the risk of losing sales due to high pricing ensures low remuneration, thereby posing a threat to personal interests.

In order to measure conscientiousness, subjects are asked to indicate to what extent the items presented to measure the Big Five personality traits (using the BFI-10 scale)[16] apply to them. Thus, this is a measurement variable. The reasons for choosing the BFI-10 were mainly 1.) the length of the measure, as it is very short and we were subjected to time restrictions, and 2.) the fact that the measure is available and empirically validated in German and English.

14 *Traditional auditing* is described as manual, sample-based, and directed backward, resulting in a time lag between the audit-relevant event and its review and reporting (Rezaee et al., 2002; de Freitas et al., 2020). *CA* is automated (Vasarhelyi & Halper, 1991) and is described as a transaction-based system that audits the entire population. While there is a discussion on differentiating between CA and continuous monitoring, which, according to Alles et al. (2006), would be a subset of CA, we use the term CA as the case company uses this term for the system described in our paper.

15 The *crisis* is characterized by stress (Wu et al., 2012) and an increased workload (Psychogios et al., 2019a) at simultaneous economic contraction (Halkos & Bousinakis, 2017), leading to a decline in demand (McDonnell & Burgess, 2013) and a loss of sales. The *business as usual* (as a condition) is described as not being accompanied by any stress or tension nor is there a need to consider special incidents.

16 The BFI-10 by Rammstedt and John (2007, p. 211) is the short version of the established BFI by John et al. (1991), but the company prohibited measuring openness. Despite the literature indicating that conscientiousness is the primary predictor of behavior at work, we examined whether any other trait influences the studied association, finding that it is not the case (results untabulated).

Dependent Variables:

After receiving the manipulations, we tasked participants with deciding on a discount they would grant to a customer, which measures the likelihood of engaging in non-compliance with ICs. The scenario outlined a situation in which a customer requests a discount for a coffee machine. Participants were free to choose any integer value between 0 and 99 percent (*Discount in Percent*). Beforehand, we asked them to provide their beliefs about the probability that they would grant a discount on a fully labeled scale ranging from 1 (= absolutely improbable) to 8 or 7 for MTurks[17] (= absolutely probable) to test the reliability of our dependent variable. In particular, if participants selected the probability of "absolutely improbable (1)" and then provided details about the discount value, we assigned a discount of zero to reconcile any potential contradictions in these statements. The company guidelines (described in the experiment) forbid any discount exceeding 50 percent. However, these are possible in practice. Additionally, the guidelines indicate that a discount above 10 Euro/dollar or 30 percent is associated with the need for justification, presenting a critical control issue. As the product considered in the experiment is worth 3,500 Euro/dollar, even small percentage discounts need proper justification.[18] Thus, we designed an indicator to measure the tendency to exceed the guidelines with higher values indicating a higher likelihood of engaging in non-compliance with ICs.

We deliberately chose a decision that participants encounter in their daily business and therefore refrained from using a standard measure for non-compliance. The task was adopted from the real situation within the case company. The company has a CA control on the allocation of discounts, and although the implementation of CA has significantly reduced non-compliance in this area, there are still employees who grant discounts in excess of the guidelines. Due to this observation, we test whether situational factors and the employees' personalities interact with CA to affect the likelihood of non-complying.

3.1.4 Additional Variables and Pretest

We also measured variables that served as manipulation checks[19] and variables that may influence the studied associations, such as gender, age, highest educational degree, and work experience. Participants were allowed to comment on the study, and the instrument was pretested by six employees working at the headquarters of the case company, who previously held positions similar to those of the actual participants addressed in our experiment.[20]

17 Scale points 4 and 5 were later combined to assess all the data collected from both experiments. A scale without a center point (forced choice) was deliberately chosen, as it is appropriate when it can be assumed that all participants should have an opinion on the relevant question (Friedman & Amoo, 1999).

18 While participants did not have the opportunity to comment or justify their decision within the setting, we do not consider this as a limitation of our experiment, as we pointed out that participants are "unable to obtain further information about the item or the customer due to a technical problem." We consider this approach as adequate in order to simplify reality.

19 Similar to Malaescu and Sutton (2015), we use rather simple manipulation checks. Participants were tasked with answering two questions designed to assess their comprehension of the primary aspects of the case: "Does the company's internal audit function, in the case described above, audit on a rotating and sampling basis or continuously and automatically?" and "Is the company, in the case described above, currently in a state of emergency or is business as usual?"

20 Additionally, four students tested the extended version for experiment 2.

3.2 Experimental Setup 2

As a power analysis indicated that our sample size was insufficient to calculate the desired effects (results untabulated), we decided to continue our data collection using professionals from MTurk. We required participants to be working in the "retail, wholesale, or distribution" industry (Selectable condition on MTurk: According to MTurk, the experiment is only presented to individuals with the specified qualification for participation) to address participants with similar experiences compared to our first experiment.[21] Additionally we asked participants to indicate the industry and the field in which they were working. Due to the fact that participants from MTurk do not have any basic knowledge about the company or its customers,[22] we extended the case materials with a brief description of the company,[23] the main target group, and the product range of the wholesale store participants should assume to work at. The materials described the structure of the company's IA activity, the general purpose of an IA activity, and the purpose of a discount in more detail. However, the relevant response variable (used in our final ANOVA) and the associated scenario remained unchanged. As with experiment 1, we also measured the additional variables.[24]

Additionally, we gathered supplementary information about MTurks, as we did know less about them, e.g., the country they are currently living in, their experience within the industry, and their current job function. Finally, we recruited 95 suitable professionals via MTurk, resulting in 64 usable responses after excluding failed manipulation checks (see Table 1, Panel C).[25]

3.3 Final Sample

Our final sample covers 125 participants (including the company's employees and MTurks) distributed among the various conditions and samples, as shown in Table 2, Panels A to C. Most participants (32.8 percent) had more than 26 years of work experience and were between 36 and 45 years old. 36.0 percent of the participants indicated they work in the retail industry, 62.4 percent in the wholesale industry, and 1.6 percent in the distribution industry. Most participants were male (61.6 percent) and completed vocational training (37.6 percent) as their highest educational degree. Also, 109 participants indicated "any kind of store" as their field of work (87.2 percent) (see all Table 3, Panels A and C).[26]

21 Although working in the retail, wholesale, or distribution industry does not ensure that all participants have appropriate customer contact and give discounts on a daily basis, employees from these industries should still be familiar with giving discounts, as well as the idea of customer loyalty behind them. Participants received 6 (was raised due to poor participation) or 8 dollars for their participation.

22 We translated the instrument from German into English for experiment 2. While minor discrepancies may occur, the instrument has been proofread and checked by researchers fluent in English and German.

23 The company's name has been changed in the MTurk version for data protection reasons.

24 Unlike in experiment 1, we were not bound by specifications and could explicitly request demographic data. However, for the purpose of analysis, the answers were recoded into the respective response categories used in experiment 1.

25 Participants who did not complete the study, indicated they were not working in the required industries , or were identified as duplicate entries were excluded from the initial sample. Additionally, participants who failed one or both manipulation checks were excluded from the final dataset.

26 The variables of *Industry* and *Field of Work* were manually supplemented for experiment 1.

Panel A: Sample Distribution based on the Final Sample

	Business as Usual	*Crisis*	*Total*
Traditional Auditing	37 (29.6)	22 (17.6)	59 (47.2)
Continuous Auditing	34 (27.2)	32 (25.6)	66 (52.8)
Total	71 (56.8)	54 (43.2)	125 (100.0) N = 125

Panel B: Sample Distribution based on the Company Sample (Experiment 1)

	Business as Usual	*Crisis*	*Total*
Traditional Auditing	17 (27.9)	10 (16.4)	27 (44.3)
Continuous Auditing	13 (21.3)	21 (34.4)	34 (55.7)
Total	30 (49.2)	31 (50.8)	61 (100.0) N = 61

Panel C: Sample Distribution based on the MTurk Sample (Experiment 2)

	Business as Usual	*Crisis*	*Total*
Traditional Auditing	20 (31.2)	12 (18.8)	32 (50.0)
Continuous Auditing	21 (32.8)	11 (17.2)	32 (50.0)
Total	41 (64.0)	23 (36.0)	64 (100.0) N = 64

This table presents the distribution of participants among the different (sub-)samples and conditions, providing the number of observations (in percent). See the Appendix for variable descriptions.

Table 2: Distribution of Participants among Conditions

Comparing our subsamples (see Table 3, Panel C), we find that in the MTurk sample, most participants are female (51.6 percent, N = 64). However, in the company sample, most participants are male (77.1 percent, N = 61). In both samples, most participants are between 36 and 45 years old (MTurk = 32.8 percent vs. company = 42.6 percent) and have more than 26 years of work experience (MTurk = 23.8 percent vs. company = 42.6 percent). While in the company sample, most participants indicated having completed vocational training (n = 32), most MTurk participants completed a bachelor's degree (n = 28).

Regarding the job function, all of our company participants work at a wholesale store, while for the MTurk sample, most participants (n = 45, 70.3 percent) work in the retail industry but also on-site at the store (n = 48, 75.0 percent).[27]

4. Results and Discussion

4.1 Descriptive Statistics

Table 3 provides demographic information of our participants for the merged sample (see Panel A) and for each subsample (see Panel C). Additionally, our randomization appears

27 We compared the level of conscientiousness for the subsamples and did not find a significant difference ($p > 0.05$; results untabulated).

to have been successful, as we could not detect any significant differences between the four experimental conditions in terms of gender, age, highest educational degree, work experience, industry, field of work, or conscientiousness.[28]

Table 3, Panel B shows descriptive statistics for our dependent variable, *Discount in Percent*. Across all four conditions, the minimum discount granted was zero. Concerning the maximum, the permissible value of 50 percent was exceeded in all four conditions. However, contrary to our predictions, the maximum is lowest in the control group (max = 56), compared to all other conditions (max = 90, 95, 99).[29] Also, the median in the *CA* and *Business as usual* condition is 20, and therefore clearly above that of all other conditions (p50 = 15, 12.5, 12.5), suggesting that most of the participants gave a discount above a value of 20 percent in this condition. The standard deviations imply that participants' behavior was most consistent in the control group (Sd. = 14.61), whereas it varied most under the *CA* and *Crisis* condition (Sd. = 26.53). Overall, the descriptive statistics indicate both an effect of *CA* (condition 1 vs. 3) and an effect of *Crisis* (condition 1 vs. 2), as the median and the maximum discount granted differ among conditions. Comparing the dependent variable for our subsamples, it appears that MTurk participants are very different from the sales professionals with respect to *Discount in Percent* (see Table 3, Panel D). This is also true when comparing the discounts granted in the subsamples before dropping participants who failed the manipulation checks (see Table 3, Panel E). Results imply that our participants from the case company are less likely to engage in non-compliance compared to MTurk participants. However, they should be different as we are not able to detect any significant results in case of missing variation.[30]

Evaluation of our post-experimental questions (these did not decide on the (non) passing of the manipulation check) indicates that our manipulations (at least partially) led to the intended effect on participants within the final sample (merged and cleaned). We find that the level of control is perceived as higher in the presence of *CA* than in its absence (df = 62, means 5.06 (Sd.=0.98) [n=32] vs. 4.22 (Sd.=0.31) [n=32], t = -2.37, p = 0.021)[31] and that the perceived uncertainty at the workplace is higher in the presence of the *Crisis* than in its absence (df = 123, means 8.48 (Sd.=3.41) [n=54] vs. 6.85 (Sd.=2.57) [n=71], t = -3.06, p < 0.01) (all results untabulated) which is following our theoretical considerations.

Panel A: Independent Variables for the Final Sample per Condition

	Condition 1 (CA=0, Crisis=0)	*Condition 2* (CA=0, Crisis=1)	*Condition 3* (CA=1, Crisis=0)	*Condition 4* (CA=1, Crisis=1)	*Total*
	n = 37	**n = 22**	**n = 34**	**n = 32**	**N = 125**
Gender					

28 To investigate whether there is a statistically significant relationship between the experimental conditions and the listed variables, we apply the chi-square test or the Kruskal-Wallis H test (depending on the kind of variable; results untabulated).

29 The case company confirmed to us that employees issued products at very low prices/free of charge in order to (according to their justification) promote customer loyalty in the past. However, the company does not approve of such behavior.

30 The case company implemented CA years ago, which could have affected participants' behavior besides our manipulation.

31 We use the MTurk subsample for evaluation, as the question was inconsistent between experiments. Still, results are comparable for the merged sample (df = 123, means 4.71 (Sd.=1.09) [n=66] vs. 4.15 (Sd.=1.49) [n=59], t = -2.41, p = 0.018, results untabulated).

Panel A: Independent Variables for the Final Sample per Condition

	Condition 1 (CA=0, Crisis=0)	*Condition 2* (CA=0, Crisis=1)	*Condition 3* (CA=1, Crisis=0)	*Condition 4* (CA=1, Crisis=1)	*Total*
	n = 37	**n = 22**	**n = 34**	**n = 32**	**N = 125**
Male	22	13	21	21	77
Female	14	9	13	11	47
Age					
18 – 25 years	3	2	2	3	10
26 – 35 years	8	3	10	6	27
36 – 45 years	14	6	12	15	47
46 – 55 years	8	7	4	5	24
56 – 65 years	4	4	5	3	16
66 years and above	0	0	1	0	1
Highest Educational Degree					
Vocational Training	12	9	10	16	47
Bachelor – Dual Study	8	0	1	3	12
Master – Dual Study	1	0	0	1	2
Bachelor	8	7	12	4	31
Master	3	1	2	4	10
Other	5	5	9	4	23
Work Experience					
None	0	0	0	0	0
1 -5 years	5	1	2	8	16
6 – 10 years	5	3	6	1	15
11 – 15 years	9	3	4	1	17
16 – 20 years	2	2	9	5	18
21 – 25 years	5	1	4	7	17
26 years and above	11	11	9	10	41
Industry					
Retail	14	7	14	10	45
Wholesale	23	14	19	22	78
Distribution	0	1	1		2
Field of work					
Store	32	19	29	29	109
Back Office	2	2	1	1	6
Headquarter	3	1	4	2	10
Conscientiousness -mean (Sd.)	8.35 (1.72)	9.00 (1.35)	8.91 (1.33)	8.59 (1.50)	8.48 (1.76)

Panel B: Dependent Variable for the Final Sample per Condition

	Condition 1 (CA=0, Crisis=0)	*Condition 2* (CA=0, Crisis=1)	*Condition 3* (CA=1, Crisis=0)	*Condition 4* (CA=1, Crisis=1)	*Total*
Number of Participants	**37**	**22**	**34**	**32**	**N = 125**
Discount in Percent					
min	0	0	0	0	0
p25	10.0	10.0	10.0	10.0	10.0
p50	15.0	12.5	20.0	12.5	15.0
p75	30.0	30.0	30.0	25.0	30.0
max	56	90	95	99	99
mean	19.51	19.55	21.82	23.41	21.14
(Sd.)	(14.61)	(19.63)	(20.74)	(26.53)	(20.50)

Panel C: Independent Variables for the Subsamples and Final Sample

	Company Sample	*MTurk Sample*	*Final Sample*
Number of Participants	61	64	125
Gender			
Male	47	30	77
Female	14	33	47
Age			
18 – 25 years	0	10	10
26 – 35 years	10	17	27
36 – 45 years	26	21	47
46 – 55 years	16	8	24
56 – 65 years	9	7	16
66 years and above	0	1	1
Highest Educational Degree			
Vocational Training	32	15	47
Bachelor – Dual Study	7	5	12
Master – Dual Study	2	0	2
Bachelor	3	28	31
Master	2	8	10
Other	15	8	23
Work Experience			
None	0	0	0
1 -5 years	2	14	16
6 – 10 years	4	11	15
11 – 15 years	9	8	17
16 – 20 years	9	9	18
21 – 25 years	11	6	17

Panel C: Independent Variables for the Subsamples and Final Sample

	Company Sample	*MTurk Sample*	*Final Sample*
26 years and above	26	15	41
Industry			
Retail	0	45	45
Wholesale	61	17	78
Distribution	0	2	2
Field of work			
Store	61	48	109
Back Office	0	6	6
Headquarter	0	10	10
Conscientiousness -mean (Sd.)	8.89 (1.16)	8.48 (1.76)	8.48 (1.76)

Panel D: Dependent Variable for the Subsamples and Final Sample

	Company Sample	*MTurk Sample*	*Final Sample*
Number of Participants	61	64	125
Discount in Percent			
min	0	0	0
p25	10	15	10
p50	10	25	15
p75	15	35	30
max	30	99	99
mean	10.70	31.09	21.14
(Sd.)	(7.13)	(23.94)	(20.50)

Panel E: Dependent Variable for the Subsamples without Excluding Failed Manipulation Checks

	Company Sample	*MTurk Sample*
Number of Participants	109	95
Discount in Percent		
min	0	0
p25	10	15
p50	10	30
p75	15	40
max	30	99
mean	10.45	35.47
(Sd.)	(6.81)	(24.83)

This table presents the descriptive statistics based on the different (sub-)samples. Panels A and C provide the number of observations per category (unless otherwise stated). We note that not all numbers add up to the total number of participants (125) as some participants left blanks for some demographic questions. See the Appendix for variable descriptions.

Table 3: Descriptive Statistics

4.2 Test of Hypotheses

Prior literature and underlying theories suggest that situational factors interact with personality traits, thus having implications with regard to auditees' likelihood of complying with ICs. The stated hypotheses are tested using univariate analyses of variance (ANOVA) to explore if the likelihood of engaging in non-compliance with ICs differs depending on the presence of CA, a crisis, and the level of conscientiousness. The analysis compares the effects of internal auditing frequency (CA vs. traditional auditing) and business situation (crisis vs. business as usual) on the likelihood of non-complying with ICs while considering conscientiousness.

Table 4, Panel B presents ANOVA results, including dummies for the presence of CA and a crisis and the BFI-10 measure for conscientiousness. Descriptive statistics for the discounts granted within each experimental condition differentiated according to high and low levels of conscientiousness (Low Consc. = equal to or below sample median; High Consc. = above sample median) are presented in Panel A and imply that the likelihood of engaging in non-compliance with ICs for more respectively less conscientious auditees differs in dependence on the internal auditing approach and the business situation.

Panel A: Cell Means (Standard Deviation) [Cell Size] for *Discount in Percent*

	Business as Usual	+Low Consc.	+High Consc.	**Crisis**	+Low Consc.	+High Consc.	**Average**
Traditional Auditing	19.51 (14.61) [37]	22.04 (16.34) [23]	15.36 (10.46) [14]	19.55 (19.63) [22]	20.83 (23.92) [12]	18.00 (13.98) [10]	19.53 (16.49) [59]
Continuous Auditing	21.82 (20.74) [34]	17.18 (10.23) [17]	26.47 (27.14) [17]	23.41 (26.53) [32]	28.59 (30.21) [22]	12.00 (9.19) [10]	22.59 (23.36) [66]
Average	20.62 (17.72) [71]	19.98 (14.12) [40]	21.45 (21.73) [31]	21.83 (23.83) [54]	25.85 (28.03) [34]	15.00 (11.92) [20]	

Panel B: ANOVA Results, Dependent Variable is *Discount in Percent*

Source	*df*	*Mean Square*	*F-statistic*	*p-value*
CA	1	213.94	0.66	0.417
Crisis	1	4292.25	13.32	<0.01
CA × Crisis	1	2914.19	9.05	<0.01
Conscientiousness	1	4691.15	14.56	<0.01
CA × Conscientiousness	1	174.76	0.54	0.463
Crisis × Conscientiousness	1	4326.91	13.43	<0.01
CA × Crisis × Conscientiousness	1	3138.65	9.74	<0.01
Error	117	322.18		

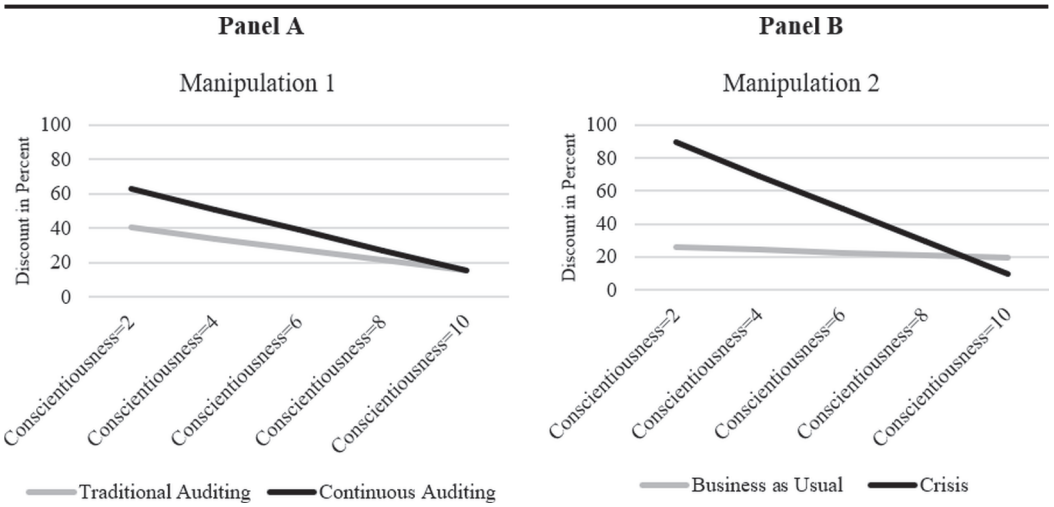
This table presents the cell means per condition (for participants low vs. high on conscientiousness) and ANOVA results based on the final sample (including experiments 1 and 2). See the Appendix for variable descriptions.

Table 4: Cell Means and ANOVA Results

H1a predicts that the auditee will be less likely to engage in non-compliance with ICs in a CA environment than in a traditional auditing environment. Panel A of Table 4 summarizes the descriptive statistics confirming the predicted directionality of the auditees' likelihood of engaging in non-compliance with ICs for auditees low on conscientiousness (22.04 vs. 17.18) when a crisis is absent. Participants in all conditions provided discounts with means ranging from 19.51 to 23.41 across treatments on a 0 to 99 scale.

Table 4, Panel B presents univariate ANOVA results testing for effects on the auditees' likelihood of non-complying with ICs. The likelihood assessment in the traditional audit vs. CA setting is 19.53 vs. 22.59 (see Panel A). We do not find a significant difference ($F = 0.66$, $p > 0.1$). Thus, H1a is not supported. This implies that CA does not independently affect the likelihood of engaging in non-compliance within the given setting.

The mean discounts for the crisis absent and present conditions are 20.62 and 21.83 (see Table 4, Panel A). According to Figure 2, Panel C, the amount of discount granted is higher in the crisis, than in the business as usual condition. Also, the graph for *Crisis* in Figure 1, Panel B implies that individuals tend to grant higher discounts in the presence of a crisis, as compared to when business is as usual, except for highly conscientious individuals. ANOVA results do support the effect of *Crisis* on the likelihood of engaging in non-compliance with ICs ($F = 13.32$, $p < 0.01$) (see Table 4, Panel B). H1b is supported, indicating that the auditee would be significantly more likely to engage in non-compliance with ICs in a crisis than in a normal course of business. More specifically, we find that auditees tend to grant higher discounts in the face of a crisis and thus show a higher tolerance for risk. Following our argumentation in H1b, this should be due to the enhanced risk-seeking in the face of anticipated losses evoked by the crisis setting.



See the Appendix for variable descriptions.

Figure 1: Plots of the two-way interactions for Participants' granted Discounts

ANOVA results support an interaction between *CA* and *Crisis* referring to H1c ($F = 9.05$, $p < 0.01$, see Table 4, Panel B). However, different from our prediction, figures indicate that auditees would significantly extend the discount granted to customers in a crisis when

continuously audited, instead of showing consistent behavior when facing a crisis whether continuously audited or not (20.83 vs. 28.59 for *CA* and *Crisis* present vs. absent, see Table 4, Panel A). Figure 2, Panel A provides some evidence that the percentage of discount granted decreases if the business situation is as usual and there is CA, given low conscientiousness. Yet, this effect is not statistically significant in our ANOVA (see Table 4, Panel B). On the other hand, in the presence of a crisis (see Figure 2, Panels B and D), the discount granted increases when audited continuously, given low levels of conscientiousness.

Concluding, we find statistically significant support for the interaction of *CA* and *Crisis* (see Table 4, Panel B) and results imply that CA even increases risk-seeking behavior in the face of a crisis (see Figure 2, Panel D). Thus, this effect does not support our predicted direction in H1c. One possible interpretation of this outcome is that faced with the need to reallocate resources in response to the crisis; individuals may feel overwhelmed by the simultaneous continuous audit, thereby increasing their willingness to accept risk. Stanton (2000) posits that automated controls can redirect the attention of the controlled person to specific aspects perceived as being monitored, potentially neglecting other crucial factors. Given that auditees may not be aware of the attributes monitored by the CA system, there's a risk of misdirected focus during the resource allocation process, increasing the likelihood of non-compliance.

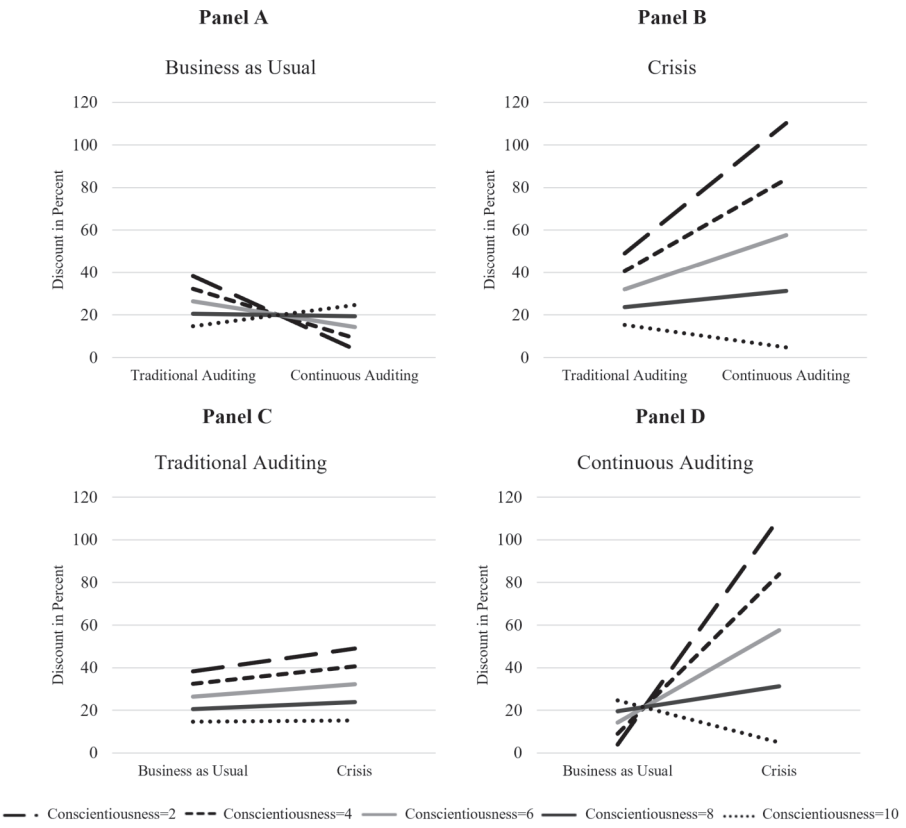
Regarding the second set of hypotheses, ANOVA results in Table 4, Panel B indicate a statistically significant difference between the likelihood of engaging in non-compliance with ICs for individuals with higher and lower levels of conscientiousness ($F = 14.56$, $p < 0.01$), respectively. The average means of *Discount in Percent* are 18.92 and 22.68 for high and low levels of conscientiousness (untabulated). Figure 2 indicates that more conscientious individuals grant lower discounts throughout all conditions (compared to less conscientious individuals), except for in the presence of CA when business is as usual. Thus, H2a is statistically supported. The effect aligns with our prediction, supporting the assumption that bright personality traits are associated with more compliant behavior. Specifically, we find that individuals with a higher level of conscientiousness grant lower discounts compared to their less conscientious colleagues.

Figure 1, Panel A, shows the interaction between *CA* and *Conscientiousness* in determining the likelihood of engaging in non-compliance with IC, referring to H2b. Although the graphs show some evidence of an interaction, ANOVA results do not support the presence of the specified interaction between *CA* and *Conscientiousness* ($F = 0.54$, $p = 0.463$, see Table 4, Panel B). Thus, there is no statistically significant support for H2b.

However, ANOVA results support the presence of the predicted interaction between *Crisis* and *Conscientiousness* ($F = 13.43$, $p < 0.01$, see Table 4, Panel B) with average means of 21.45 and 15.00 for auditees with high levels of conscientiousness in the absence or presence of a crisis (see Table 4, Panel A). Panel B of Figure 1 shows the interaction between a crisis and conscientiousness in determining the likelihood of non-complying with ICs. While the graphs show a slight effect of conscientiousness on the likelihood of non-complying in the *Business as Usual* condition, as conscientiousness increases in the crisis state, the likelihood of engaging in non-compliance with ICs decreases more heavily. We interpret this result as follows: The presence of a crisis strengthens the effect of conscientiousness on the likelihood of engaging in non-complying with ICs, holding all other factors constant. H2c is supported. Referring to our prediction in H2c, this result is

in line with the trait-activation theory, implying that the crisis is a trait-relevant situation strengthening the trait performance relationship.

Additionally, our ANOVA results support a statistically significant three-way interaction between *CA*, *Crisis*, and *Conscientiousness* (F = 9.74, p-value < 0.01, see Table 4, Panel B). To examine the nature of the interaction, we separately graph the interactions between *Crisis* and *Conscientiousness* and *CA* and *Conscientiousness* in the presence and absence of *CA* or *Crisis* (see Figure 2). The figures primarily indicate that individuals with higher conscientiousness are inclined to offer lower discounts, implying a lower likelihood of non-complying. Regarding the interaction between CA and a crisis situation (H1c), our findings suggest that CA amplifies the impact of a crisis, leading to an increased likelihood of non-compliance with ICs for individuals with low conscientiousness. Similarly, for individuals with high conscientiousness, CA intensifies the effect of a crisis, making the trait more significant in the specified situation and enhancing the relationship between the trait and performance.



See the Appendix for variable descriptions. Please note that the predicted margins exceed the maximum value of 99 given in the experiment.

Figure 2: Plots of the three-way interactions for Participants' granted Discounts

However, unlike individuals with low conscientiousness, those with high conscientiousness exhibit a reduced likelihood of engaging in non-compliance with ICs when faced with a crisis. Consequently, highly conscientious individuals decrease the discount granted during a crisis, aligning with the prediction in H2c, and this effect is more pronounced in the presence of CA. Conversely, less conscientious auditees exposed to both CA and a crisis tend to increase the discount granted to a customer, as indicated by the interaction of *CA* and *Crisis* (see Table 4, Panel B).Comparing means for conditions 1 (*CA*=0 and *Crisis*=0) and 4 (*CA*=1 and *Crisis*=1) in Table 4, Panel A, we accordingly find that for less conscientious auditees, the mean discount granted increases when continuously audited and exposed to a crisis (22.04 for condition 1 and 28.59 for condition 4). In contrast, it decreases for highly conscientious auditees (15.36 for condition 1 and 12.00 for condition 4). Results suggest an interaction between the trait of conscientiousness and our initial manipulations. Hence, it is essential to consider the trait when examining the behavioral impacts of situational factors such as a crisis and CA. Participants who are audited continuously and face a crisis show a lower likelihood of engaging in non-compliance with ICs, the higher their inherent level of conscientiousness is. Accordingly, less conscientious individuals are more likely to engage in non-compliance when being audited continuously and exposed to a crisis, as indicated by the interaction of *CA* and *Crisis*.[32] However, for both results, CA seems to drive the effect of the crisis.

We conclude that H1b, H2a, and H2c are supported since all predicted associations are statistically significant within the univariate ANOVA model, and we find support for the predicted directionality. Nevertheless, we do not find support for H1a and H2b. Also, the directional effect of H1c was not supported. To sum up, individuals with higher levels of conscientiousness show an overall lower likelihood of engaging in non-compliance with ICs compared to less conscientious individuals, and the effect of conscientiousness seems to interact with the situational setting to affect behavior, which is the main finding of our study.[33]

4.3 Supplemental Analysis

Our results are qualitatively similar to those reported in Table 4, Panel B, when we add a dichotomous variable indicating if the data was gathered during experiment 1 (*TURK* = 0) or 2 (*TURK* = 1) as a covariate into our initial ANOVA model (see Table 5, Panel A), although finding a statistically significant effect for the MTurk-dummy. This outcome reaffirms what was previously discussed in the descriptive statistics section, indicating a significant difference between MTurk participants and those from the company. Nonetheless, since our results and significance levels for the other variables remain consistent, this does not contradict our initial findings.

32 We find similar results for a three-way-interaction ANOVA based on the MTurk subsample (MTurks; results untabulated).

33 Calculating a regression model supports our main finding that the trait of conscientiousness affects the interaction of *CA* and *Crisis* (*CA* × *Crisis*: t = 3.01, p < 0.10, *CA* × *Crisis* × *Conscientiousness*: t = -3.12, p < 0.01; df(Model) = 7; df(Error) = 117, results untabulated). Also, calculating this regression for the MTurk subsample or including control variables, we continue to find our main result (*CA* × *Crisis*: t = 1.77, p < 0.10, and *CA* × *Crisis* × *Conscientiousness:* t = -1.79, p < 0.10; df(Model) = 7; df(Error) = 56, results untabulated) (Including controls: *CA* × *Crisis*: t = 2.04, p < 0.10, and *CA* × *Crisis* × *Conscientiousness:* t = -2.10, p < 0.10; df(Model) = 20; df(Error)=103, results untabulated).

Panel A: ANCOVA Results, Dependent Variable is *Discount in Percent* including a Dummy for Experiment 2

Source[34]	*df*	*Mean Square*	*F-statistic*	*p-value*
CA	1	57.48	0.23	0.634
Crisis	1	3296.77	13.09	<0.01
CA × Crisis	1	1785.85	7.09	<0.01
Conscientiousness	1	3129.15	12.43	<0.01
CA × Conscientiousness	1	24.56	0.10	0.755
Crisis × Conscientiousness	1	3051.63	12.12	<0.01
CA × Crisis × Conscientiousness	1	1723.46	6.84	0.010
Turk	1	8481.61	33.68	<0.01
Error	116	251.83		

Panel B: ANCOVA Results, Dependent Variable is *Discount in Percent* including Demographics

Source	*df*	*Mean Square*	*F-statistic*	*p-value*
CA	1	5.29	0.02	0.889
Crisis	1	3099.26	11.29	<0.01
CA × Crisis	1	1143.54	4.17	<0.05
Conscientiousness	1	827.44	3.01	<0.1
CA × Conscientiousness	1	6.14	0.02	0.881
Crisis × Conscientiousness	1	2863.26	10.43	<0.01
CA × Crisis × Conscientiousness	1	1212.44	4.42	<0.05
Gender	1	111.48	0.41	0.667
Age	1	31.38	0.11	0.736
Highest Educational Degree	5	104.09	0.38	0.862
Work Experience	1	1251.66	4.56	<0.05
Industry	2	1211.74	4.41	<0.05[35]
Field of Work	2	307.73	1.12	0.330
Error	103	274.73		

This table presents robustness tests for the initial ANOVA result, including a variety of control variables based on the final sample (including experiment 1 and 2). For Panel B: N=124, one participant did not indicate their work experience. See the Appendix for variable descriptions.

Table 5: Robustness Tests

34 We find similar results only including answers of participants from experiment 2 (Turk =1).

35 *Industry* and *Experience* are only jointly significant due to their high and significant correlation (untabulated), if only *Experience* is included, the variable is not statistically significant (untabulated), while *Industry* is highly correlated with *Experience* and *Age* (untabulated).

Results for a three-way interaction ANCOVA controlling for gender, age, highest educational degree, work experience, industry, and field of work are presented in Table 5, Panel B. Again, results are similar to those reported in our initial ANOVA (see Table 4, Panel B), besides some covariates having a statistically significant effect. Significance levels stay mainly as they have been reported. Nevertheless, the interaction effects of *CA* and *Crisis* and *CA, Crisis,* and *Conscientiousness* are only statistically significant at $p < 0.05$ (vs. $p < 0.01$), while *Conscientiousness* is only significant at $p < 0.1$ (vs. $p < 0.01$). However, we still find support for our main finding that the interaction effect of *CA* and *Crisis* is affected by the trait of conscientiousness.

5. Discussion and Conclusion

This study investigates whether situational factors of CA and a crisis relate to the likelihood of engaging in non-compliance with ICs and whether and how these interact with the trait of conscientiousness to affect the predicted association.

We surveyed 125 sales professionals, manipulating whether CA is implemented or not and whether there is an ongoing crisis or business is as usual. The likelihood of non-complying with ICs is operationalized as the price discount granted to a customer. The personality trait of conscientiousness is measured using a short version of the BFI. We predict a negative (positive) association between CA/the trait of conscientiousness (a crisis) and the likelihood of engaging in non-compliance with ICs. Additionally, we predict the effect of conscientiousness on the likelihood of engaging in non-compliance to be limited (enhanced) when exposed to CA (a crisis). We also suggest an interaction between CA and crisis.

We did not find significant evidence for an association between CA and the likelihood of engaging in non-compliance. However, CA could have effects on other behaviors (e.g., fraud) that were not considered in this study. We observe an association between crisis and the likelihood of engaging in non-compliance with ICs and that the crisis interacts with CA to affect behavior – In that less conscientious individuals are more likely to engage in non-compliance with ICs when facing a crisis along with a continuous audit. Our findings indicate a negative association between conscientiousness and the likelihood of engaging in non-compliance, providing evidence that the results by Huels and Parboteeah (2019) are generalizable to settings with varying internal control systems. We find that more conscientious individuals are more likely to comply when exposed to a crisis, and this effect is even more pronounced in the presence of CA. Thus, emphasizing that CA serves as a catalyst to magnify the impact of a crisis. Our results primarily suggest that conscientiousness interacts with CA and a crisis to influence the likelihood of non-complying. Specifically, compliance tends to decrease when individuals with low conscientiousness encounter both CA and a crisis simultaneously. However, this pattern does not hold true for individuals with high levels of conscientiousness.

Our study provides insights for practitioners using automated assurance techniques (e.g., CA) when assessing the company's risk exposure during a crisis. As personality tests might be part of corporate assessment centers, auditors could use that information to assess risk exposure in a given situation. In addition, our results may be of importance to researchers, providing them with an explanation of why CA still is no best practice and calling them to look at the dark sides of CA. Literature suggests that implementing CA can enhance desirable behavior (e.g., Pierce et al., 2015). On the other hand, crisis

research suggests that crises are associated with controversial behavior, which in turn suggests a lower likelihood of complying with ICs (e.g., Montani et al., 2020). Ultimately, the literature indicates that conscientiousness influences compliance behavior (e.g., Huels & Parboteeah, 2019).

In summary, our results imply that using CA when facing a crisis could strengthen ICs, given that auditees are highly conscientious. In contrast, less conscientious individuals are overwhelmed with the challenge of a crisis and simultaneous CA, which drives the negative effect of crises.

Our contribution is manifold. To our knowledge, we are one of the first to investigate the impact of implementing CA on auditees' likelihood of complying with ICs. The results suggest that the risk and, therefore, the workload for internal control functions can increase in a crisis, even if an automated assurance such as CA is implemented. CA does not necessarily strengthen ICs and decrease risk but may act as a driver for the effect of a crisis. We expand the literature in the field of CA by focusing on behavioral effects on auditees. Additionally, we use an experimental setup, a methodology sparsely used in a CA context. We further contribute to the literature by reporting the paradoxical effect of tightened ICs on the individual's likelihood of complying with ICs in a crisis depending on their level of conscientiousness, as researchers postulate that more research is needed to foresee the impact of CA on human and organizational behavior (Brown et al., 2007). Our results enable practitioners and academics to better understand the potential interaction between the situational setting that impacts individuals' tolerance for risk and conscientiousness when implementing automated assurance such as CA.

This study is subject to some limitations. Due to power issues, it was necessary to expand our initial sample. However, we observed distinct differences in behavior between MTurk participants and those from the company. Corporate participants not only share the same operational pressures but also values and norms derived from the parent company. By contrast, the MTurks, lacking this organizational context, exhibit more variation in their behavior. In this regard, organizational identity is found to be key to understanding decision-making (He & Brown, 2013). Strong organizational identification is associated with a heightened sense of responsibility toward the organization. Consequently, employees may perceive their compliance as a means of fulfilling their role within the organizational community (Scott & Lane, 2000). Nevertheless, we do not feel that this impairs our results, as we find similar results when controlling for the subsample effect. Also, using MTurks was our only chance to reach out to participants with similar experiences and generate a sufficiently big data set to study the predicted effects.

We measure the personality trait of conscientiousness using the BFI-10 to comply with time restrictions. But, since conscientiousness is a multidimensional construct, our proxy might not capture all the aspects of the trait that affect decisions. Similar to previous papers focusing on traits (e.g., George & Zhou, 2001; Dudley et al., 2006), our study documents associations, not causations. Thus, future research is needed to explore whether there is a causal link between our situational factors, conscientiousness, and the likelihood of complying with ICs. Next, our instrument refers to the wholesale industry, and the experiment was conducted with staff having a specific task area. Future research should transfer our setup to other work environments and apply it to participants with various task areas to test if our results hold.

We were not able to control for a possible confounding effect of our manipulation and the actual COVID-19 crisis. Additionally, the crisis manipulation places the participants at a specific point in time (e.g., economy-wise), while this is not true for the "business as usual" setting. However, we have evidence that our manipulations worked (at least partially) as intended. Finally, we did not test whether the participants of the second experiment[36] understood the company guidelines correctly. We are not studying causations but associations. Thus, the specific threshold value given in the guidelines is less important than the tendency to grant high or low discounts. As we are using a situation reflecting a risky gamble, we could have received other results when looking at a different internal control issue (e.g., password sharing, obtaining manager review). Conversely, during a crisis, employees might interpret violations of ICs without a direct impact on profits as a risky gamble, considering that the crisis threatens the company's existence either way.

Also, COVID-19 is not necessarily representative of other crises. Crises can take various forms, such as natural disasters, economic recessions, or conflicts. Each crisis type has its own set of causes, dynamics, and consequences. Thus, generalizing from the COVID-19 crisis to other crises may oversimplify complex issues. There are different approaches to implementing CA within the internal audit practice, limiting the generalizability of our results. However, creating a setting generalizable to all kinds of crises and CA is nearly impossible without losing reference to reality. Since our study reproduces a crisis (or else "business as usual") condition and a CA (or else traditional auditing) approach based on a real scenario within a company, we manipulated several factors in our design. We believe that these specific differences were necessary to reproduce the scenario as realistically as possible. Yet, future research could still examine if certain aspects of our manipulations drive our results. Finally, experimental answers are often subject to social desirability bias, and ours might not be an exception, even though, we have assured participants that we will not share their responses with the company and will not be able to identify them. Furthermore, in the case of bias, all of our participants are subject to the same level of bias. Since we are examining associations and not causation, this issue should be of minor importance for our study.

Our results offer a variety of opportunities for future research. Following our study, it could be interesting to investigate how different types of crises impact our work environment, as the onset and progression of a crisis might differ depending on the causation of the crisis (e.g., while COVID-19 is directly affecting health, this might not be true for other crisis), and we currently face a variety of crises all over the world. Another opportunity for future research is to complement our findings using field studies and to investigate how overall crisis or "business as usual" contexts combined with a continuous or traditional internal auditing approach affect the likelihood of complying with ICs and how individuals naturally use conscientiousness in different situational contexts.

The topic of CA generally offers extensive research potential, as, despite the long existence of the theoretical concept, the research on this topic is still sparse. Against the background of the limited implementation of CA systems in internal auditing practice to date, research should further explore the actual benefits of CA (Brown et al., 2007) but also drawbacks to identify best practices to prevent CA from failure. The ongoing techno-

36 We used the actual company guidelines. Thus, participants of experiment 1 should know and understand the guidelines regardless of the explanation given in the experiment.

logical progress also opens up more and more possibilities for the design of audit routines within the scope of CA. In this respect, researchers could provide insights into the linking of CA systems and other technologies (see, e.g., Codesso et al., 2020) in order to expand our theoretical knowledge on CA on the one hand and to provide practitioners with meaningful implementation options on the other hand. As the volume of data generated worldwide is continuously growing, researchers should consequently examine how CA can benefit from analyzing large and diverse datasets and explore methods for handling and analyzing unstructured data in the context of CA. Lastly, implementation guidance or updated CA frameworks could drive the practical implementation of CA and contribute to the existing literature.

The stream of research that explores the interface between personality characteristics, situational factors, and performance highlights the relevance of considering personality traits in behavioral studies. This finding is also relevant in light of the increasing usage of automated assurance systems, as their behavioral effects are largely unexplored. In summary, this path of research has the potential to provide us with new and practical insights for the practice of internal auditing.

Appendix

Traditional Auditing

The stores are **manually** and on a **rotating** basis audited by the company's internal audit function, with the result that the processes in the store are monitored on average **every four years** on site by an **auditor**. Otherwise, the internal audit department **has no opportunity to examine your course of action**.
You as a store manager are required on **your own authority** to daily check, justify and record the one-time credits and discounts from the day before and to **file them in a folder**.
These records serve as a basis for examination in case of an audit by the internal audit function. During the audit, the auditors gather information on one-time credits and discounts using the cash system and **your hand-written records**.
The documents generated by the cash system are **manually and randomly** reviewed by the auditors for unexpected abnormalities, errors and violations of the guidelines. If significant abnormalities, errors and/or violations of the guidelines are discovered during an audit, these are **reported by the internal audit department** to the regional manager in charge and the employees at the headquarter of the company responsible for the respective processes.

Continuous Auditing

The stores are **continuously** audited by the company's internal audit function, with the result that processes in the store are monitored **daily** by an automated system. On an ongoing basis, an **automated software** gathers information on one-time credits and discounts from the data warehouse and the SAP data of the stores.
Every transaction carried out is reviewed by the software for unexpected abnormalities, errors and violations of the guidelines. Significant abnormalities, errors and violations discovered by the software are **automatically reported** daily **via e-mail** to the respective manager of the store, the regional manager in charge, the employees at the headquarter responsible for the respective processes and the company's internal audit function.
In such a case, you as a manager must justify and record these incidents and your actions by writing in a specially designed **dashboard**. Your actions are thus **monitored daily** and fraudulent actions will not remain undetected for long.

Business as usual

Currently there are **normal business operations** in the store – apart from the normal daily business, there are no special incidents. The store is well attended, but there is not any stress or tension. The availability of goods is at the **usual level** and turnovers are currently **at a level comparable with the previous year**.

Crisis

Currently the store is, due to the international **pandemic COVID-19** (Corona), in a state of emergency. The government has largely shut down public life, and only systemically important businesses (e.g., food retailers, doctors, etc.) may be opened regularly.
As a food retailer Wholesale Ltd. is required to minimize the risk of infection for customers and employees. Due to special distance regulations at the cash desks, l**ong queues** are formed which reach far into the store. In addition, customers buy goods in large quantities (hoarding) and your employees **can hardly keep up** with refilling the shelves. This means that certain goods are **temporarily unavailable**.
The main target groups of your wholesale company, namely restaurants, hotels, and catering businesses, are largely closed due to special circumstances or may only be operated under special conditions. Many of your customers are ,therefore, **at risk of their existence**. As a result, the **turnovers** of your store are **strongly declining** compared to the previous year's level.
There is more activity than usual in the store, although your main target groups are almost completely breaking off. Despite the opening of the stores to all customers and the removal of the access restrictions for business customers, the resulting **loss of sales** cannot be compensated by the additional non-professional customers. The senior management of the company is therefore considering various possibilities for **cost reduction**.

Appendix 1: Manipulated Factors

Variable	Description
Discount in Percent	The likelihood of engaging in non-compliance with ICs is measured using the price discount granted to a customer on an open scale from 0 to 99 percent.
Continuous Auditing (CA)	A dichotomous variable indicating whether the IA activity description the participant assessed, described the audit as continuous (1) or traditional (0) (see manipulated factor: CA vs. traditional auditing).
Crisis	A dichotomous variable indicating whether the description of the current business situation the participant assessed, described the situation as a crisis (1) or business as usual (0) (see manipulated factor: crisis vs. business as usual).
Gender	A dichotomous variable indicating whether the participant is male (1) or female (0).
Age	A variable indicating participant's age, divided into the following sections: 18–25 y. (1), 26–35 y. (2), 36–45 y. (3), 46–55 y. (4), 56–65 y. (5), 66+ y. (6). The intervals as well as the sections themselves are always the same size, which is why the variable is considered to be continuous.

Variable	Description
Work Experience	A variable indicating participant's work experience, divided into the following sections: 1–5 y. (1), 6–10 y. (2), 11–15 y. (3), 16–20 y. (4), 21–25 y. (5), 26+ y. (6). The intervals as well as the sections themselves are always the same size, which is why the variable is considered to be continuous.
Highest Educational Degree	A categorical variable indicating participant's highest educational degree, participants were allowed to choose from "Vocational Training" (1), "BA Dual Study" (2), "MA Dual Study" (3), "BA" (4), "MA" (5) or "Other" (6).
Industry	A categorical variable indicating the industry participants work in, participants were allowed to choose from "Retail" (1), "Wholesale" (2), "Distribution" (3) or "Other" (4). (Note: Participants that indicated "Other" were excluded from the analysis.)
Field of Work	A categorical variable indicating participants field of work, participants were allowed to choose from "Store" (1), "Back Office" (2) or "Headquarter" (3).
Conscientiousness	Participants level of conscientiousness is measured using the row total of two items on a scale from 1 to 5, anchored at 1 = "disagree strongly" and 5 = "agree strongly" (questions 3 and 8 from the BFI-10, see Rammstedt and John, 2007).
Turk	A dichotomous variable indicating whether the participant was part of experiment 2 conducted using Amazon Mechanical Turks (1) or experiment 1 (0).

Appendix 2: Variable Descriptions

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