





Work pressure and client internal control: Auditor personality in fraud detection



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Background: Fraud detection is a vital, yet complex task for auditors, shaped by environmental pressures, organisational systems, and individual traits. Based on Attribution Theory, auditors' fraud detection ability (ADF) depends on how they interpret situational cues such as work pressure and client internal controls (CIC). The Myers-Briggs Type Indicator (MBTI) adds a psychological dimension, suggesting that personality types respond differently to such cues—some thrive under pressure, others struggle. Despite their importance, these factors are rarely examined together.

Aim: This study investigates how auditor work pressure, CIC, and personality type interact to influence fraud detection effectiveness.

Setting: The study involved 109 external auditors from public accounting firms in Indonesia, selected for its dynamic regulatory environment and high fraud risk across sectors.

Method: Data were collected through structured questionnaires and analysed using multiple linear regression and moderated regression analysis (MRA).

Result: Client internal controls significantly enhances auditors' ability to detect fraud, whereas work pressure alone shows no significant effect. Auditor personality moderates both relationships—reducing the negative influence of work pressure and slightly weakening CIC's positive impact.

Conclusion: Individual psychological traits play a critical role in audit performance. Aligning auditor personality with task environments can improve fraud detection outcomes.

Contribution: This study enriches behavioural accounting research and provides practical insights for audit firm staffing, audit planning, and training programmes that integrate psychological and contextual considerations to enhance auditor effectiveness.

Keywords: fraud detection; auditor personality; MBTI; work pressure; internal control; behavioural accounting.

Introduction

In audit practice, the auditor's ability to detect fraud (ADF) is a key element in maintaining the integrity of financial statements and public trust in the accounting profession. Fraud in financial reporting is often carried out systematically and concealed deliberately, requiring auditors to possess not only technical skills but also professional scepticism and sensitivity to unusual indicators. According to the Association of Certified Fraud Examiners (ACFE 2022), organisations lose an estimated 5% of their revenues to fraud annually, and many fraud cases go undetected or are discovered too late. This underscores the strategic role of auditors in detecting fraud at an early stage to minimise financial damage.

An auditor's ability to detect fraud is essential for preserving the integrity of financial statements and public confidence in the profession. Because financial reporting fraud is often systematic and deliberately concealed, auditors must combine technical expertise with professional skepticism and alertness to irregularities in financial or operational data. Recognising such anomalies as potential red flags allows auditors to apply further analytical procedures, corroborative testing, and critical evaluation of management's explanations.

This study was conducted in Indonesia, involving 109 external auditors from various public accounting firms across different regions of the country. The choice of Indonesia as the research setting is particularly relevant given its dynamic regulatory environment, which has undergone continuous reforms aimed at strengthening corporate governance, improving transparency and

enhancing audit quality. At the same time, Indonesia is characterised by a relatively high level of fraud risk in both the public and private sectors, as evidenced by frequent reports of financial statement manipulation, corruption and misappropriation of assets. These conditions create a challenging environment for auditors, who must navigate complex organisational dynamics, regulatory demands and ethical dilemmas while carrying out their professional responsibilities. Consequently, the Indonesian context offers a unique and meaningful backdrop for examining the factors that influence auditors' ADF, making the findings of this study both contextually rich and practically significant.

Numerous prior studies have emphasised various factors influencing auditors' fraud detection abilities, such as technical competence, scepticism and situational pressure (Chui & Pike 2013; Hurtt 2010). However, these factors do not operate in isolation. Organisational context, especially the auditor's work pressure – including organisational culture, time pressure, managerial support and workload – plays a significant role in shaping audit judgements and performance (Sweeney, Arnold & Pierce 2010; Smith-Lacroix, Durocher & Gendron 2012). A supportive environment enhances auditors' attentiveness and critical evaluation, whereas a high-pressure environment may lead to procedural compliance without substantive fraud detection.

Equally important is the client's internal control system, which directly affects the auditor's ability to assess risk and gather reliable audit evidence. According to Knechel, Vanstraelen and Zerni (2013), strong internal controls reduce the likelihood of material misstatements because of fraud, but weak controls demand more substantive testing and increase audit complexity. The quality of the internal control system therefore not only serves as a risk indicator but also influences the efficiency and effectiveness of fraud detection procedures (Bedard & Graham 2011).

Bedard and Graham (2011) found that while auditors are generally able to detect internal control deficiencies under Section 404 of the Sarbanes–Oxley Act, they often face challenges in consistently classifying the severity of those deficiencies as control deficiencies, significant deficiencies or material weaknesses. The study shows that detection is more effective when deficiencies are specific and transaction level, but auditors struggle with broader, entity-level weaknesses. Moreover, severity judgements are influenced by subjective factors such as auditor experience and the quality of documentation, leading to inconsistencies that may affect the reliability of internal control reporting.

Moreover, individual characteristics of auditors, particularly personality traits, contribute significantly to cognitive processing and professional judgement. The Myers-Briggs Type Indicator (MBTI) is a widely used psychometric tool for identifying personality profiles based on four dichotomous dimensions: introversion versus extraversion, sensing versus intuition, thinking versus feeling and

judging versus perceiving (Myers et al. 1998). These personality dimensions influence how auditors interpret information, make decisions and handle stress (Van Peurseem & Jiang 2020). For instance, Introversion-Intuition-Thinking-Judging (INTJ)-type auditors tend to be strategic, analytical and independent thinkers – traits that are advantageous in detecting inconsistencies or anomalies in financial data (O'Donnell & Schultz 2005; Green & Calderon 2005). In this context, personality type may act as a moderating factor that either amplifies or weakens the effects of environmental and organisational variables on auditors' fraud detection ability (ADF). Auditors with certain MBTI types may be more resilient in high-pressure environments or more adept at critically evaluating weak internal controls. Conversely, others may rely more heavily on interpersonal communication or show greater trust in client representations.

This study seeks to contribute to the literature by integrating three key dimensions: the auditor's work pressure, client internal control (CIC) systems and auditor personality type, to explore their joint influence on fraud detection ability. While previous research has often examined these variables in isolation, our study adopts an integrative approach to better understand how contextual and personal factors interact in shaping audit effectiveness.

Furthermore, several research gaps warrant this investigation. Firstly, although prior studies have examined technical competence and audit experience as predictors of fraud detection (Glover, Prawitt & Wood 2006; Trompeter et al. 2013), few have simultaneously considered the influence of organisational environment and client system quality within a comprehensive conceptual framework.

Secondly, while some research has explored the impact of the auditor's work pressure on audit quality (Sweeney et al. 2010) or internal control on fraud risk (Bedard & Graham 2011), these relationships have often been tested separately. In practice, auditors navigate a complex interplay between firm-level support and client-level risks, requiring a more nuanced, interactive analysis.

Thirdly, studies incorporating personality traits into audit research – particularly using MBTI – remain relatively scarce, especially in emerging markets. Although some research has linked MBTI types to scepticism and ethical decision-making (Budiartha & Sujana 2018; Green & Calderon 2005), little is known about how personality moderates the relationship between organisational conditions and audit performance. Integrative studies combining psychological and organisational perspectives are needed to explain variability in auditor behaviour.

Fourthly, few studies explicitly measure fraud detection ability as a distinct construct, often subsuming it under broader outcomes like audit quality or professional scepticism (Supriyadi & Nurkholis 2018). This creates a gap

in understanding the direct effects of workplace and personal factors on the auditor's core responsibility – detecting fraud. Finally, much of the literature is based on developed economies with mature regulatory environments, which may not be generalisable to settings like Indonesia, where differences in institutional oversight and cultural dynamics shape audit practice (Sudsomboon & Ussahawanitchakit 2009; Yuniarti 2011).

This study aims to address these gaps by empirically testing the interaction between auditor work pressure, CIC systems and MBTI personality types in predicting auditors' ADF. The findings are expected to provide both theoretical insights and practical implications for public accounting firms in designing more adaptive staffing strategies and minimising work pressures. By recognising the diverse personalities and contextual influences on auditors, organisations can improve fraud detection capacity and enhance audit quality overall. This is especially important in Indonesia, where recurring financial statement fraud and governance challenges threaten investor confidence. Higher audit quality strengthens trust in financial reporting, supports market integrity and helps attract investment. In this context, linking auditor personality and contextual factors to fraud detection offers both academic value and practical relevance for sustaining the credibility of Indonesia's financial markets. Theoretically, it contributes to the behavioural accounting literature by integrating organisational (auditor work pressure), systemic (CIC) and psychological (MBTI personality types) perspectives into a unified framework for understanding fraud detection.

Review literature and hypotheses

Attribution theory and fraud detection

Attribution theory, originally introduced by Heider (1982), posits that individuals act as intuitive scientists, constantly seeking to understand the causes behind others' behaviours. In the context of fraud, this theory suggests that auditors interpret anomalies by attributing them either to internal traits (e.g., intentional deceit) or to external pressures (Ahadiansyah et al. 2019a; Ahmad & Lannai 2022a). Robbins (2008) and Prasetyo et al. (2021a) argue that individual performance can be influenced by internal forces (e.g., personality, effort, competence) or external ones (e.g., work stress, organisational culture). Accordingly, attribution theory supports the idea that both the auditor's internal characteristics – such as MBTI personality types – and external factors – like work pressure and CIC systems – jointly affect their ADF (Wahidahwati & Asyik 2022a).

Auditor work pressure and fraud detection ability

The auditor's work pressure significantly influences their focus, motivation and decision-making. Realistic work situations enhance job satisfaction and engagement (Gubarenko et al. 2022b; Lackie & Murphy 2020), while high

time pressure or unreasonable workloads may impair the auditor's objectivity and attention to detail (Amrulloh 2022c; Anto, Andriani & Widiastuti 2020). Rija and Rubino (2018) found that auditors in realistic work situations are more proactive in detecting anomalies. Austin et al. (2023) further support that proper workload and scheduling significantly improve audit effectiveness. Moreover, recent studies (e.g., Lee, Mande & Ortman 2022; Lin & Wang 2021) demonstrate that workplace psychological safety and ethical climate are predictors of fraud detection vigilance.

Client internal control and auditor fraud detection ability

Internal control systems are critical in preventing and detecting fraudulent activities. Committee of Sponsoring Organizations of the Treadway Commission (COSO) (2012) outlines effective controls across components such as risk assessment, control activities and monitoring. Strong internal controls enhance auditor reliability in assessing risks and focusing on areas of concern (Cohen, Krishnamoorthy & Wright 2008; Rija & Rubino 2018). Weak controls, on the other hand, increase the likelihood of misstatements and hinder the auditor's task (Airout 2022b; Amrulloh 2022b). Studies by Knechel et al. (2020) and Choi, Kim and Zang (2021) confirm that robust client control environments reduce audit risk and facilitate earlier fraud detection.

Personality types and auditors' approach to fraud detection

The MBTI serves as a framework for understanding personality preferences and how they influence an individual's behaviour in the workplace. It classifies personalities into 16 distinct types based on four dimensions: introversion versus extraversion, sensing versus intuition, thinking versus feeling and judging versus perceiving (Myers & Briggs 1995). The theory behind MBTI suggests that these personality preferences shape how individuals interact with their environment, process information and make decisions (Prasetyo et al. 2021b). In the context of auditing, the MBTI framework can provide insights into how an auditor's personality influences their approach to fraud detection.

Auditors with different personality types may exhibit varying levels of scepticism and attention to detail, both of which are critical in identifying fraudulent activities. For instance, auditors who score high on the 'thinking' and 'judging' scales of MBTI, such as those with INTJ or Introversion-Sensing-Thinking-Judging (ISTJ) personality types, tend to approach audits analytically and systematically. They are more likely to engage in thorough, methodical investigations, making them better equipped to detect fraud (Wahidahwati & Asyik 2022b). On the other hand, auditors who lean towards 'feeling' and 'perceiving' may focus more on interpersonal relationships, potentially compromising their ability to challenge clients effectively and detect fraud when the situation demands scepticism (Raja & Rubino 2018).

Indonesia's economic and audit environment

Indonesia provides a unique setting for fraud- and audit-related research because of its dynamic economic development and evolving regulatory framework. As one of the largest emerging economies in Southeast Asia, Indonesia has experienced steady growth alongside persistent challenges such as corporate governance weaknesses, corruption and financial misreporting risks (World Bank 2023). Many Indonesian firms are family controlled or part of conglomerates, which can heighten agency problems and weaken internal control systems (Claessens, Djankov & Lang 2000).

The country also faces a relatively high fraud risk in both public and private sectors. Corruption and misappropriation of assets remain recurring issues, particularly in local governments and state-owned enterprises (Transparency International 2023). These conditions place auditors in a demanding environment that requires strong technical competence and professional scepticism.

On the regulatory side, the Indonesian Financial Services Authority (*Otoritas Jasa Keuangan*, OJK) has recently introduced several reforms to strengthen audit quality. For example, OJK Regulation No. 9/2023 governs the use of public accountants and audit firms in financial services, while OJK Regulation No. 30/2023 mandates disclosure of Key Audit Matters (KAM) in audited financial statements. These regulations are intended to enhance transparency, audit independence and stakeholder confidence (OJK 2023). However, enforcement remains uneven, and auditors often face client pressure, limited resources and complex reporting environments, which may impair fraud detection effectiveness (Siregar & Utama 2008). In sum, Indonesia's combination of rapid economic development, governance challenges and regulatory reforms creates a high-stakes audit environment. This makes the country a particularly relevant context for examining the determinants of ADF.

The influence of the auditor's work pressure on fraud detection ability

Work pressure provides auditors with psychological burden arising from high demands in work (Pham et al. 2022). This study measures work pressure specifically through two main dimensions, namely workload and time pressure. Indriyani and Hakim (2021) highlight that auditors frequently face situations where they must work under strict deadlines, leading them to overlook small details that may indicate potential fraud.

In addition to deadlines, research by Maribu and Arief (2024) found that auditors working in conditions of excessive workload often ignore potential financial anomalies because of time and energy constraints. Similarly, Munteanu, Popescu and Petrescu (2024) revealed that sustained work stress can reduce the effectiveness of the audit process.

On the other hand, Amrulloh (2022a) noted that work pressure providing emotional and professional support can encourage auditors to be more vigilant in detecting fraud. A work pressure that is free from excessive pressure allows auditors to maintain their independence, which in turn enhances their ADF. Minimising work pressure not only boosts productivity but also improves auditors' capacity to identify misstatements in financial reports (Munteanu et al. 2024). This indicates that the work pressure, particularly regarding workload and time pressure, plays a crucial role in supporting auditors' ADF (Ananzeh 2024).

H1: The auditor's work pressure significantly influences their ADF.

Client internal control and auditor's ability to detect fraud

Effective internal control from the client is crucial in assisting auditors in identifying fraud. A strong internal control system helps mitigate the risk of financial fraud by providing auditors with clear guidelines to assess the company's financial processes. A robust internal validation system enables auditors to recognise potential fraud in financial records (Wahyuni 2016). Research conducted by Amrulloh (2022b) indicates that clients with strong internal controls facilitate auditors in detecting potential fraud. Another study by Airout (2022a) also emphasises that robust internal controls are vital in supporting external auditors in executing their procedures, while weak internal controls can become loopholes for fraudulent activities. Weak internal controls also make it more challenging for auditors to detect fraud indicators (Marciano, Morandi & Trentin 2021).

Research by Johan, Salam and Arifin (2022) reveals that a lack of supervision increases the risk of financial reporting fraud. The study confirms that strong CICs are essential in supporting and easing auditors in effectively detecting fraud. In line with this, Njeri and Mungai (2023) emphasised that a robust internal control system strengthens the auditor's ADF by providing clear guidelines and reducing opportunities for fraudulent activities. Their study supports the notion that an effective internal control framework enhances the accuracy and reliability of financial reports, making it easier for auditors to spot anomalies. Moreover, Smith and Wang (2024) demonstrated that organisations with well-established internal controls are less likely to experience undetected financial misconduct. Their research further affirms the importance of a strong internal control environment in ensuring the successful detection of fraud by external auditors. Additionally, Khan et al. (2023) highlighted that comprehensive internal controls serve as a valuable tool in fraud prevention, as they establish systematic checks and balances that allow auditors to focus on high-risk areas with greater accuracy.

H2: Client internal control significantly affects the auditor's ability to detect fraud.

The role of auditor personality (Myers-Briggs Type Indicator) in moderating the relationship between work pressure and fraud detection ability

The relationship between work pressure and auditors' ADF is not uniform but rather contingent on the auditors' personality characteristics. Personality traits, particularly those captured by the MBTI framework, shape how individuals perceive, process and respond to environmental stressors. Work pressure, whether in the form of workload intensity or time constraints, can create both obstacles and motivators, depending on the cognitive style and coping mechanisms of the auditor (Gubarenko et al. 2022b).

For auditors with sensing-thinking (S-T) tendencies, their preference for concrete facts and step-by-step analysis means that high work pressure – especially tight deadlines – can disrupt their structured approach, leading to overlooked details or reduced accuracy in fraud detection (Indrijawati 2020a). However, when work pressure is balanced, providing enough time and manageable workloads, S-T auditors can channel their detail-oriented mindset into carefully scrutinising financial statements, thereby improving fraud detection. In this case, personality amplifies the effect of work pressure: low-to-moderate pressure enhances their performance, while excessive pressure weakens it.

In contrast, auditors with intuition-thinking (N-T) traits, who excel in pattern recognition and abstract reasoning, may thrive under high work pressure. Their ability to conceptualise fraud schemes beyond the surface level allows them to detect anomalies even in ambiguous or incomplete data environments. For N-T auditors, work pressure often acts as a catalyst, pushing them to utilise their adaptive thinking and broader perspectives. Thus, their personality type strengthens the positive impact of work pressure on fraud detection by enabling them to maintain cognitive flexibility and efficiency under stressful conditions (Hajering et al. 2022).

This moderating effect implies that personality not only shapes the *direction* of how work pressure influences auditor performance but also determines the *magnitude* of its impact. In other words, the interaction between work pressure and personality creates differentiated outcomes: S-T auditors may require structured, less-pressurised environments to perform optimally, while N-T auditors can leverage high-pressure contexts to sustain or even enhance their fraud detection abilities.

Therefore, the hypothesis is:

H3: Auditor personality strengthens the relationship between work pressure and the ability of auditors to detect fraud.

The role of auditor personality (Myers-Briggs Type Indicator) in moderating the relationship between client internal control and fraud detection ability

Auditor personality types may significantly moderate the relationship between the effectiveness of a client's internal control system and an auditor's ADF. The Myers-Briggs Type Indicator offers insight into how individuals perceive information and make decisions, which influences how auditors assess internal controls. This is because the way auditors process and respond to information provided by internal control systems is strongly influenced by their personality characteristics.

From a theoretical perspective, attribution theory (Heider 1982; Robbins 2008) provides a relevant framework, suggesting that auditors attribute observed financial outcomes to either internal control systems or client behaviour. Myers-Briggs Type Indicator personality types may influence these attribution processes – S-T types, who prioritise structure and empirical data, are more likely to scrutinise control processes systematically. Meanwhile, N-T types rely on intuition and high-level conceptual thinking, which may be beneficial in identifying strategic fraud patterns but less effective in detecting procedural flaws (Ahadiansyah et al. 2019b; Wahidahwati & Asyik 2022a).

Recent studies confirm that personality traits influence audit judgement. For instance, Otlely and Soin (2023) found that auditors with analytical cognitive styles – closely related to MBTI thinking types – demonstrated greater scepticism and diligence in evaluating internal control systems. Similarly, Elgammal, Hussainey and Wahab (2022) and Wahidahwati & Asyik (2022c) emphasised that personality-driven variations in risk perception affect how auditors interpret and respond to control weaknesses.

Therefore, auditor personality moderates the relationship between CICs and fraud detection performance. Auditors with personality types that emphasise analytical rigour and systematic evaluation (e.g., S-T) are more likely to detect control-related fraud risks effectively, while other personality combinations may offer different strengths depending on the context:

H4: Auditor personality moderates the relationship between client internal control and the auditor's ability to detect fraud.

Methods

This study aims to investigate how auditors' work pressure – particularly workload and time pressure – and clients' internal control systems influence auditors' ADF, with the moderating role of auditor personality measured using the MBTI. A quantitative approach is employed, emphasising statistical analysis of primary data to test the proposed hypotheses.

Data for this study were collected through a structured questionnaire distributed to external auditors working at

Public Accounting Firms (KAPs) in Indonesia. The distribution was conducted both in person at several firms and digitally through Google Forms, which were shared through email, LinkedIn and WhatsApp. The target respondents were external auditors with a minimum of 3 years of professional experience and involvement in fraud detection-related audit engagements. The selection of these respondents is based on the consideration that auditors with at least 3 years of experience are more likely to have developed professional judgement, technical competence and exposure to diverse audit situations, including those involving potential fraud. Moreover, their direct involvement in fraud detection engagements ensures that the responses obtained are grounded in relevant practical experience, thereby enhancing the validity and reliability of the data collected.

The study employs multiple linear regression and moderated regression analysis (MRA) using Stata 17 software to analyse the relationships between variables and to test the moderating effect of personality type. This analytical approach allows for the examination of both direct and interaction effects, providing insights into how personality traits may strengthen or weaken the influence of auditors' work pressure and clients' internal controls on fraud detection capability. The data analysis process began with descriptive statistics to summarise the minimum, maximum, mean and standard deviation of each variable. To ensure the quality of the instrument, both validity and reliability tests were conducted. Validity testing assessed the appropriateness of the questionnaire items, while reliability testing used Cronbach's alpha, with a threshold value of 0.60 to determine internal consistency.

Next, classical assumption tests were performed to validate the regression models. These tests were essential to ensure that the relationships examined in the regression analysis, including the effects of control variables, were not biased by violations of statistical assumptions and that potential sources of error were properly addressed. These included normality testing (based on significance values > 0.05), multicollinearity testing (ensuring tolerance > 0.10 and VIF < 10) and heteroskedasticity testing (checking for variance consistency across residuals, with significance > 0.05 indicating no heteroskedasticity). These diagnostic tests were applied across three regression models: (1) multiple linear regression, (2) MRA involving the work pressure variable, and (3) MRA involving the internal control variable.

The following regression models (Equations 1 and 2) were employed as the basis for the linear function:

$$ADF = \alpha + \beta_1 WP + \beta_2 CIC + \varepsilon \quad [\text{Eqn 1}]$$

$$ADF = \alpha + \beta_1 WP + \beta_2 CIC + \beta_3 (WP \times PA) + \beta_4 (CIC \times PA) + \varepsilon \quad [\text{Eqn 2}]$$

Where:

- ADF = Ability to detect fraud

- β = Regression coefficient
- WP = Work pressure
- CIC = Client internal control
- PA = Personality (moderator)
- ε = Error term

Coefficients β_3 and β_4 represent the moderating effects of personality (PA) on the relationship between work pressure (WP) and the ADF, as well as between CIC and the ADF. If β_3 and β_4 are statistically significant, this indicates that personality exerts a significant moderating influence on these relationships.

Operational definition of variables

This study involves four key variables: one dependent, two independent and one moderating variable. The dependent variable, *auditor's ability to detect fraud*, refers to the auditor's competence in recognising fraudulent acts, identifying perpetrators and victims and understanding underlying causes. This variable is measured through indicators such as knowledge of fraud types, identification of fraud indicators and ability to outline detection procedures (Amrulloh 2022c; Dandi et al. 2017). Each indicator was operationalised into questionnaire items using a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The scores from individual items were then aggregated to produce a composite score for each respondent, with higher scores indicating stronger fraud detection ability. This numeric scoring allowed the variable to be used effectively in the regression analysis.

The first independent variable, *auditor work pressure*, is measured through two dimensions: workload and time pressure. Workload is defined as the volume of assignments that may induce stress, assessed by the number of clients handled, auditor's physical state and task volume (Budiantoro et al. 2022; Mirosea et al. 2023). Time pressure refers to conditions where auditors must work within limited timeframes, measured by time availability, timeliness and audit deadline constraints (Mirosea et al. 2023). Each indicator was measured using a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The numeric responses were then aggregated into composite scores for workload and time pressure, which were subsequently incorporated into the regression analysis.

The second independent variable, *client internal control*, refers to the effectiveness of internal systems in ensuring operational compliance and fraud prevention. This includes the control environment, risk assessment, control activities, information and communication systems and monitoring mechanisms (Amrulloh 2022c; Gibsi Ompusunggu & Valiant Salomo 2019). Each of these dimensions was measured through multiple indicators evaluated on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The numeric responses were averaged to generate composite scores for each dimension, which were then aggregated into an overall internal control effectiveness index. This index was subsequently used as a numeric variable in the regression analysis.

Lastly, the moderating variable is *auditor personality*, measured using the MBTI. The MBTI framework classifies individuals across four dichotomies – extroversion–introversion (E–I), sensing–intuition (S–N), thinking–feeling (T–F) and judging–perceiving (J–P) – which influence how auditors process information and respond to audit environments (Ahmad & Lannai 2022b). For regression analysis, each respondent's MBTI profile was identified through a standardised questionnaire. Responses were scored on a 5-point Likert scale for each item, and scores were aggregated to classify the dominant preference within each dichotomy.

Ethical considerations

Ethical clearance to conduct this study was obtained from the Ethics Committee of the Faculty of Economics, Sriwijaya University (No. 0771/UN9.FE/TU.KT/2025).

Results

Validity and reliability testing

To ensure the accuracy and appropriateness of the measurement instruments, validity testing was conducted for all questionnaire items. The results indicate that all items under the auditor work pressure (WP) construct exhibit statistically significant positive correlations, with correlation coefficients ranging from 0.506 to 0.960 and p -values of 0.000, confirming their construct validity. Likewise, items measuring CIC show significant correlations, with p -values below the 0.05 threshold and most correlation coefficients exceeding 0.30, indicating acceptable validity levels. The items associated with the auditor's ADF also demonstrate strong inter-item correlations above 0.694, all with p -values at 0.000, further affirming their validity.

The results, as summarised in Table 1 and Table 2, confirm that all questionnaire items used to measure the three key variables – auditor work pressure, CIC and fraud detection ability – are statistically valid. These findings provide strong support for the measurement model and suggest that the instrument items accurately capture the theoretical constructs intended for this study, thereby ensuring the appropriateness of the data for subsequent empirical analysis.

Reliability testing was conducted using Cronbach's alpha to assess the internal consistency of each variable. Based on Table 3, the Auditor Work Pressure (WP) variable achieved a Cronbach's alpha value of 0.9554, indicating a very high level of reliability, well above the commonly accepted threshold of 0.70. The CIC variable showed a Cronbach's alpha of 0.8639, which, although slightly lower, still reflects strong reliability and consistent inter-item correlation. The auditor's ADF variable also demonstrated excellent reliability, with a Cronbach's alpha of 0.9489. Overall, these results confirm that all three variables have high internal consistency, and the items used are reliable and suitable for use in this research.

Classical assumption test

Normality testing using Skewness and Kurtosis indicates that the residuals are normally distributed, with a combined

probability value (Prob > χ^2) of 0.479, which is greater than the 0.05 significance level. This confirms that the assumption of normality is met. Multicollinearity testing, performed using the variance inflation factor (VIF), shows that all independent variables have VIF values below 10, with a mean VIF of 1.036, indicating the absence of multicollinearity. Heteroscedasticity testing was conducted using the Glejser Lagrange Multiplier Test, yielding a chi-square p -value of 0.19537, which is greater than 0.05. This suggests no heteroscedasticity in the model. Overall, the regression model satisfies the key assumptions of normality, no multicollinearity and homoscedasticity, making it valid and appropriate for further analysis.

Hypothesis test

The multiple linear regression analysis was conducted to assess the effect of the auditor's work pressure (WP) and the client's internal control (CIC) on the auditor's ADF. The regression equation (Equation 3) derived from the analysis is:

$$ADF = 1.834 - 0.051WP + 0.651CIC \quad [\text{Eqn 3}]$$

Based on the results in Table 3, the constant value of 1.834 suggests that when both the auditor's work pressure and CIC are held constant, the baseline level of the ADF is 1.834. The regression coefficient for the auditor's work pressure (WP) is -0.051 , indicating a negative relationship with the dependent variable. However, the p -value of 0.301 shows that this effect is not statistically significant at the 5% level, leading to the conclusion that the auditor's work pressure does not have a significant impact on their ADF. Despite its lack of statistical significance, work pressure was included as a predictor variable because prior literature has consistently emphasised its theoretical importance in shaping auditors' performance and judgement (e.g., Anto et al. 2020; Gubarenko et al. 2022a). Including non-significant predictors in regression analysis can still provide valuable insights, as it allows researchers to test hypothesised relationships, control for potential confounding effects and examine whether other variables – such as personality type – may moderate or influence this relationship. Thus, the inclusion of auditor work pressure ensures that the model captures a more comprehensive picture of the factors that may affect auditors' ADF.

In contrast, the client's internal control (CIC) has a positive and statistically significant coefficient of 0.651, with a p -value of 0.000. This means that stronger internal controls within the client organisation significantly improve the auditor's ability to detect fraudulent activities. The model's R -squared value is 0.381, indicating that approximately 38.1% of the variation in the auditor's ADF can be explained by the two independent variables, WP and CIC. In addition, the F -test yields a value of 32.657 with a significance level of 0.000, confirming that the overall regression model is statistically valid. In conclusion, the findings support Hypothesis 2, which states that CIC significantly influences the ADF. However,

TABLE 1: Validity test.

Variables	Sub-variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A									
(1) WP1	<i>r</i>	1.000	-	-	-	-	-	-	-
(2) WP2	<i>r</i>	0.672	1.000	-	-	-	-	-	-
	<i>p</i> -value	0.000	-	-	-	-	-	-	-
(3) WP3	<i>r</i>	0.612	0.850	1.000	-	-	-	-	-
	<i>p</i> -value	0.000	0.000	-	-	-	-	-	-
(4) WP4	<i>r</i>	0.571	0.815	0.828	1.000	-	-	-	-
	<i>p</i> -value	0.000	0.000	0.000	-	-	-	-	-
(5) WP5	<i>r</i>	0.514	0.744	0.712	0.735	1.000	-	-	-
	<i>p</i> -value	0.000	0.000	0.000	0.000	-	-	-	-
(6) WP6	<i>r</i>	0.527	0.752	0.753	0.805	0.760	1.000	-	-
	<i>p</i> -value	0.000	0.000	0.000	0.000	0.000	-	-	-
(7) WP7	<i>r</i>	0.544	0.811	0.783	0.805	0.757	0.869	1.000	-
	<i>p</i> -value	0.000	0.000	0.000	0.000	0.000	0.000	-	-
(8) WP8	<i>r</i>	0.506	0.763	0.717	0.769	0.761	0.806	0.833	1.000
	<i>p</i> -value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-
Panel B									
(1) CIC1	<i>r</i>	1.000	-	-	-	-	-	-	-
(2) CIC2	<i>r</i>	0.504	1.000	-	-	-	-	-	-
	<i>p</i> -value	0.000	-	-	-	-	-	-	-
(3) CIC3	<i>r</i>	0.258	0.546	1.000	-	-	-	-	-
	<i>p</i> -value	0.007	0.000	-	-	-	-	-	-
(4) CIC4	<i>r</i>	0.202	0.500	0.755	1.000	-	-	-	-
	<i>p</i> -value	0.036	0.000	0.000	-	-	-	-	-
(5) CIC5	<i>r</i>	0.366	0.601	0.592	0.667	1.000	-	-	-
	<i>p</i> -value	0.000	0.000	0.000	0.000	-	-	-	-
(6) CIC6	<i>r</i>	0.307	0.628	0.748	0.770	0.640	1.000	-	-
	<i>p</i> -value	0.001	0.000	0.000	0.000	0.000	-	-	-
Panel C									
(1) ADF1	<i>r</i>	1.000	-	-	-	-	-	-	-
(2) ADF2	<i>r</i>	0.793	1.000	-	-	-	-	-	-
	<i>p</i> -value	0.000	-	-	-	-	-	-	-
(3) ADF3	<i>r</i>	0.764	0.768	1.000	-	-	-	-	-
	<i>p</i> -value	0.000	0.000	-	-	-	-	-	-
(4) ADF4	<i>r</i>	0.777	0.758	0.775	1.000	-	-	-	-
	<i>p</i> -value	0.000	0.000	0.000	-	-	-	-	-
(5) ADF5	<i>r</i>	0.726	0.717	0.765	0.826	1.000	-	-	-
	<i>p</i> -value	0.000	0.000	0.000	0.000	-	-	-	-
(6) ADF6	<i>r</i>	0.724	0.707	0.694	0.774	0.782	1.000	-	-
	<i>p</i> -value	0.000	0.000	0.000	0.000	0.000	-	-	-

Source: Data processed using Stata 17 (2024)

WP, auditor work pressure; CIC, client internal control; ADF, auditor's ability to detect fraud.

TABLE 2: Reliability test.

Average inter-item covariance	Number of items in the scale	Scale reliability coefficient
1.707535	8	0.9554
0.5632008	6	0.8639
0.6654944	6	0.9489

Source: Data processed using Stata 17 (2024)

Note: Test scale = mean (unstandardised items).

Hypothesis 1, which posits a significant effect of the auditor's work pressure, is not supported by the data.

Moderated regression analysis test

The MRA was conducted to examine whether the auditor's personality (AP) moderates the relationship between the auditor's work pressure (WP) and the auditor's ADF. In this analysis, an interaction term between the work pressure and personality (WP_AP) was introduced into the regression

TABLE 3: Results of multiple linear regression analysis.

ADF	Coefficient	Standard error	<i>t</i>	<i>p</i> -value
WP	-0.051	0.049	-1.04	0.301
CIC	0.651	0.081	8.07	0.000
Constant	1.834	0.407	4.50	0.000
Mean dependent var	4.841	-	-	-
<i>R</i> -squared	0.381	-	-	-
<i>F</i> -test	32.657	-	-	-
Akaike crit. (AIC)	223.326	-	-	-
SD dependent var	0.837	-	-	-
Number of obs	109.000	-	-	-
Prob > <i>F</i>	0.000	-	-	-
Bayesian crit. (BIC)	231.400	-	-	-

Source: Data processed using Stata 17 (2024)

ADF, ability to detect fraud; WP, auditor work pressure; CIC, client internal control; SD, standard deviation.

model to test for moderation. The resulting regression equation (Equation 4) is:

$$\text{ADF} = -0.502 + 1.155\text{WP} + 1.846\text{Z} - 0.399\text{WP_Z} \quad [\text{Eqn 4}]$$

The regression results revealed several important findings. Firstly, the constant value of -0.502 indicates that when the work pressure variable (WP) is held constant, the predicted value of the auditor's ADF is -0.502 . Secondly, the coefficient for the work pressure (WP) is 1.155 , suggesting that improvements in the work pressure are positively associated with an increase in the auditor's ADF, assuming the moderator remains constant. Thirdly, the coefficient for the auditor's personality (AP) is 1.846 , indicating a positive relationship with the dependent variable. This implies that the auditor's personality contributes positively to the effectiveness in detecting fraud, reinforcing the importance of individual psychological attributes in professional performance.

More importantly, the interaction term between the work pressure and personality (WP_AP) has a coefficient of -0.399 and is statistically significant with a p -value of 0.01 ($p < 0.05$). This suggests a significant moderating effect. However, the negative sign of the interaction term indicates that the influence of the work pressure on the ADF becomes weaker when the auditor's personality level increases. In other words, while both work pressure and personality individually contribute positively, their interaction reveals a diminishing return – suggesting that certain personality types may reduce the effectiveness of favourable work conditions or vice versa.

The R -squared value of the model is 0.078 , which means that 7.8% of the variance in the auditor's ADF can be explained by the combined effects of the work pressure, the auditor's personality and the interaction between the two. In conclusion, the results support hypothesis 3, which states that the auditor's personality moderates the relationship between the work pressure and fraud detection ability. The significant p -value of the interaction term (WP_AP) confirms the existence of a moderating effect. As the moderator (AP) exerts its influence primarily through the interaction term rather than as a direct predictor, it can be classified as a pure moderator in this model.

To further assess the moderating role of auditor personality (AP) in the relationship between internal control (CIC) and the auditor's ADF, a second MRA was conducted. In this model, the interaction term between internal control and personality (CIC_AP) was introduced. The resulting regression equation (Equation 5) is:

$$\text{ADF} = -2.875 + 1.479\text{CIC} + 1.707\text{AP} - 0.315\text{CIC_AP} \quad [\text{Eqn 5}]$$

The interpretation of the regression results is as follows. Firstly, the constant value of -2.875 indicates that when the internal control variable (CIC) is held constant, the predicted value of the auditor's ADF is -2.875 . Secondly, the coefficient of internal control (CIC) is 1.479 , meaning that an increase in the quality or effectiveness of CIC systems is associated with

an increase in the auditor's ADF, assuming the moderator remains constant. Thirdly, the coefficient of auditor personality (AP) is 1.707 , indicating a positive effect on the dependent variable. This suggests that higher levels of auditor personality traits – particularly those relevant to professional scepticism, conscientiousness or analytical thinking – are positively associated with better fraud detection outcomes.

However, the interaction term between internal control and personality (CIC_AP) has a coefficient of -0.315 , which indicates a negative interaction effect. This means that while both internal control and personality individually contribute positively to fraud detection, their interaction somewhat reduces the magnitude of that contribution. In other words, at higher levels of auditor personality, the positive effect of strong internal control on fraud detection ability slightly diminishes. The p -value for this interaction is 0.07 . While this does not meet the conventional threshold of 0.05 for strong statistical significance, it still falls within an acceptable level ($p < 0.10$), suggesting a *moderately significant* moderating effect.

The model's R -squared value is 0.401 , indicating that 40.1% of the variance in the auditor's ADF is explained by internal control, auditor personality and their interaction. This is a substantial increase compared to the previous model with the work pressure, showing that the combination of internal control and personality explains more of the variation in fraud detection capability.

Based on these results, Hypothesis 4, which states that the auditor's personality strengthens the relationship between internal control and the ADF, is partially supported. Although the interaction effect is negative, its significance suggests that personality still plays a meaningful role as a moderator. Furthermore, the nature of this moderation indicates that auditor personality (AP) acts as a pure moderator, as its influence is mainly exerted through the interaction term (CIC_AP), rather than as a direct predictor alone. This supports the theoretical notion that personality traits do not independently determine fraud detection ability but rather shape how external factors such as internal control mechanisms are utilised by the auditor in practice.

Discussion

The role of auditor personality in moderating the relationship between auditor work pressure and fraud detection ability

Hypothesis 3 (H3) aims to examine the moderating role of auditor personality in the relationship between the auditor's work pressure and their ADF. To test this hypothesis, the study employed an MRA by including an interaction variable between the auditor's work pressure (WP) and auditor personality (AP), denoted as WP_AP. This analytical approach was designed to determine whether auditor personality could strengthen the effect of work pressure on fraud detection ability.

As shown in Table 4 the inclusion of the interaction variable WP_AP in the extended regression model yielded a coefficient of -0.399 with a p -value of 0.01 ($p < 0.05$). This result indicates that the interaction between the auditor's work pressure and personality significantly affects their ADF. The statistical significance of WP_AP confirms that auditor personality functions as a pure moderator in this relationship. A pure moderator implies that auditor personality does not exert a direct influence on fraud detection ability but modifies the strength or direction of the effect of the work pressure on this ability.

The negative interaction coefficient suggests that certain personality types may attenuate the positive effects of a conducive work pressure. For instance, auditors with Sensing–Thinking (S–T) personalities, who process information based on facts and prefer logical, structured decision-making, may be more susceptible to workload pressure and time constraints because of their reliance on analytical processing (Hajering et al. 2022). This personality profile may weaken the positive impact of a supportive work pressure on fraud detection. Conversely, auditors with intuition–thinking (N–T) personalities, who are characterised by theoretical reasoning and conceptual thinking, may demonstrate greater flexibility under pressure. Their intuitive nature enables them to identify broader patterns and maintain performance even under demanding conditions, such as high workloads or limited audit time (Indrijawati 2020b). This underscores that the interaction between internal traits (personality) and external factors (work pressure) plays a critical role in enhancing or inhibiting an auditor's ADF.

The findings are consistent with prior research. Putra and Dwirandra (2019) found a significant influence of auditor personality on fraud detection capabilities. Meanwhile, Indrijawati (2020b) reported no direct effect, highlighting the potential for personality traits to function solely as moderators rather than independent predictors.

TABLE 4: Results of moderated regression analysis test: Interaction between auditor work pressure and auditor personality (WP_AP).

ADF	Coefficient	Standard error	<i>t</i>	<i>p</i> -value
WP	1.155	0.435	2.65	0.009
AP	1.846	0.632	2.92	0.004
WP_AP	-0.399	0.153	-2.61	0.010**
Constant	-0.502	1.812	-0.28	0.782
Mean dependent var	4.841	-	-	-
<i>R</i> -squared	0.078	-	-	-
<i>F</i> -test	2.949	-	-	-
Akaike crit. (AIC)	268.834	-	-	-
SD dependent var	0.837	-	-	-
Number of obs	109.000	-	-	-
Prob > <i>F</i>	0.036	-	-	-
Bayesian crit. (BIC)	279.600	-	-	-

Source: Data processed using Stata 17 (2024)

ADF, ability to detect fraud; WP, work pressure; AP, auditor's personality; SD, standard deviation.

** , significance at the 5% level ($p < 0.05$).

The role of auditor personality in moderating the relationship between client internal control and fraud detection ability

Hypothesis 4 (H4) investigates the role of auditor personality as a moderator in the relationship between CIC and the auditor's ADF. To test this hypothesis, an MRA was conducted by incorporating an interaction term between CIC and auditor personality (AP), labelled as CIC_AP. Based on the regression results shown in Table 5, the coefficient for CIC_AP is -0.315 , with a p -value of 0.07 , which indicates a moderately significant interaction at the 10% significance level. This suggests that the interaction between CIC and auditor personality has a noteworthy influence on the auditor's ADF. As in the previous model, the interaction functions as a pure moderator, meaning that auditor personality does not directly affect fraud detection but influences the relationship between CIC and the dependent variable.

The negative sign of the interaction coefficient implies that for certain personality types, strong internal control may diminish the auditor's effectiveness in detecting fraud. For example, auditors with intuition–thinking (N–T) traits may focus more on conceptual patterns and the broader context, potentially overlooking technical details in internal controls that are less explicit or conclusive (Hajering et al. 2022; Waidahwati & Asyik, 2022c). In contrast, auditors with sensing–thinking (S–T) traits tend to excel in evaluating detailed and factual information, which enhances their capacity to identify weaknesses in CIC systems (Waidahwati & Asyik 2022b).

The *R*-squared value of 0.401 for this interaction model indicates that the combination of CIC, AP and CIC_AP explains 40.1% of the variance in ADF. This is the highest explanatory power among all tested models, suggesting that fraud detection performance is not solely a function of CIC quality but is significantly shaped by individual-level cognitive and personality traits. The interaction further suggests that even robust internal controls may not translate into effective fraud detection if the auditor lacks the personality attributes necessary to interpret and critically

TABLE 5: Results of moderated regression analysis test: Interaction between client internal control and auditor personality (CIC_AP).

ADF	Coefficient	Standard error	<i>t</i>	<i>p</i> -value
CIC	1.479	0.471	3.14	0.002
AP	1.707	0.846	2.02	0.046
CIC_AP	-0.315	0.172	-1.83	0.070*
Constant	-2.875	2.315	-1.24	0.217
Mean dependent var	4.841	-	-	-
<i>R</i> -squared	0.401	-	-	-
<i>F</i> -test	23.423	-	-	-
Akaike crit. (AIC)	221.806	-	-	-
SD dependent var	-	-	-	-
Number of obs	-	-	-	-
Prob > <i>F</i>	-	-	-	-
Bayesian crit. (BIC)	232.571	-	-	-

Source: Data processed using Stata 17 (2024)

CIC, client internal control; AP, auditor's personality; ADF, auditor's ability to detect fraud.

* , significance at the 10% level ($p < 0.10$).

evaluate control information. This aligns with Indrijawati (2020b), who emphasised that auditors with thinking traits are generally more sceptical and critical, which enhances their ability to scrutinise and challenge client-provided information – an essential quality when evaluating internal controls.

Implications

The findings of this study provide both practical and theoretical implications. Practically, the evidence that auditor work pressure does not significantly affect fraud detection ability suggests that heavy workloads do not necessarily reduce auditor effectiveness although stress management remains essential to maintain performance quality. In contrast, strong CICs are found to enhance auditors' ability to identify fraud indicators, highlighting the importance for companies to strengthen their control systems as part of good governance practices. Moreover, the moderating role of personality underscores the need to consider individual differences when assigning auditors, as personal characteristics can shape their effectiveness in dealing with work pressure and audit complexity.

From a theoretical perspective, this study enriches the behavioural accounting literature by demonstrating that personality plays a crucial moderating role in determining the extent to which contextual factors influence auditor performance. This contribution opens avenues for further research, including the application of more comprehensive personality frameworks and cross-context studies to examine the consistency of these findings across different regulatory environments and cultural settings. Thus, this study not only provides practical insights for auditors, firms and regulators but also strengthens the academic understanding of auditor behaviour in fraud detection.

Conclusion

This study examined the influence of the auditor's work pressure and CICs on the auditor's ADF, with personality traits acting as a moderating variable. The results revealed that the work pressure alone does not significantly enhance an ADF. Although auditors work under heavy workloads and tight time pressure, their ADF remains unaffected. In contrast, strong CIC systems were found to positively influence auditors' ability to detect fraud. This suggests that a robust control environment facilitates the auditor's task in identifying irregularities and potential fraud. Furthermore, the findings indicate that personality traits play a moderating role. Specifically, personality strengthens the relationship between both the work pressure and fraud detection, as well as between CICs and fraud detection. These results imply that auditors' individual differences can shape how contextual factors influence their professional judgement.

Limitations

This study has several limitations. The sample is geographically limited, which may affect the generalisability of the findings. The use of the MBTI framework to assess

personality, while practical, may not fully capture the complexity of personality traits. Additionally, the study's focus on workload and time pressure as proxies for the work pressure excludes other relevant dimensions such as organisational culture. The model also suggests the presence of other factors not included in the analysis that may significantly affect fraud detection ability.

Recommendations

Future studies are encouraged to incorporate a wider range of individual and contextual variables, such as professional experience, education, fraud detection training and organisational culture. The use of alternative personality frameworks, such as the Big Five, and the adoption of qualitative or mixed-method approaches may also offer deeper insights into how auditors detect fraud. For example, interviews and focus groups can capture auditors' subjective experiences, professional scepticism and coping strategies under work pressure – dimensions that are often difficult to measure through surveys alone. Similarly, case studies of audit engagements involving fraud can provide contextualised evidence of how personality traits interact with organisational controls in practice. This research contributes to the understanding of behavioural factors in audit effectiveness and highlights the need for a more holistic approach in evaluating auditor performance.

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Competing interests

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Authors' contributions

Y.Y. was responsible for conceptualisation, methodology, formal analysis, investigation, writing of the original draft, data curation, resources, review and editing, supervision and funding acquisition. M.A. was responsible for formal analysis, investigation, project administration, software, data curation and resources. A.H. was involved with formal analysis, investigation, project administration, software, validation, data curation, resources, writing, review and editing, and funding acquisition. T.W. contributed towards project administration, resources and funding acquisition, supported the data collection process and managing the administrative aspects of the research.

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Data availability

The data that support the findings of this study are openly available from the corresponding author, Y.Y., upon reasonable request.

Disclaimer

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