



The auditor's psyche: Unveiling the hidden links between mood, independence, uncertainty, and audit quality in an emerging market

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ABSTRACT

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This study investigates the complex relationships between auditor mood, auditor independence, environmental uncertainty, and audit quality in a developing economy. Specifically, it examines the direct effects of auditor mood (AUMO) and auditor independence (AUIN) on audit quality (AUQA). Furthermore, the study explores the moderating influence of environmental uncertainty (ENUN), measured by sales volatility, on the relationships between AUMO and AUQA, and AUIN and AUQA. The research hypotheses were tested using panel data derived from Vietnamese listed companies. The sample comprises firm-year observations from 2020 to 2024, resulting in 835 firm-year observations. The Arellano-Bond two-step system generalized method of moments (S-GMM) regression technique was employed for the analysis. The results reveal novel insights specific to the Vietnamese context: (1) AUMO significantly contributes to enhancing AUQA; (2) AUIN was found to have an unexpected negative association with AUQA; (3) ENUN negatively moderates the positive link between AUMO and AUQA, while its moderation of the AUIN-AUQA relationship was found to be positive in the full model; (4) The impact of these psychological and structural factors on AUQA is a multidimensional phenomenon profoundly shaped by contextual factors and intricate interactions among these variables. Our findings provide valuable guidance for policymakers in considering psychological dimensions and context-specific factors when designing regulatory frameworks to foster AUQA in Vietnam. This research illuminates the complex, context-dependent nature of these interactions, providing a nuanced understanding of how specific psychological elements (AUMO), structural attributes (AUIN), and contextual pressures (ENUN) interplay to influence audit outcomes.

Contribution/Originality: This study is one of the few that have investigated the interplay of auditor psychology (e.g., mood) and audit quality in a developing economy. It uniquely examines the moderating role of environmental uncertainty on the relationship between auditor attributes and audit quality, providing novel, context-specific evidence from Vietnam.

1. INTRODUCTION

Auditor mood (AUMO) directly influences audit quality (AUQA). This influence creates a complex picture. The topic requires deeper exploration. Research shows something surprising: negative moods can improve AUQA. Auditors might experience negative moods due to factors such as seasonal affective disorder (SAD) or air pollution. These auditors often act more conservatively and tend to avoid risks more (Chen, Tan, & Cao, 2021; Kalelkar, Xu, & Chen, 2023; Song & Song, 2018). For example, SAD can cause negative moods. This has been linked to lower

discretionary accruals and fewer restatements. This suggests a more careful audit approach (Kalelkar et al., 2023). Air pollution can also cause negative moods. It can lead auditors to try harder. This improves AUQA (Chen et al., 2021; Song & Song, 2018). On the other hand, positive moods can also enhance AUQA. Music sentiment might influence these positive moods. Auditors might become more careful in high-risk situations (Xu, Chen, & Kalelkar, 2024). So, both some negative and some positive feelings can boost AUQA. This shows mood's role is complex. A big research gap exists. We need to understand how different mood types and strengths lead to specific audit actions and decisions. For instance, a moderate negative mood might make auditors more diligent. But severe negative mood could harm thinking or cause burnout. This would ultimately lower AUQA. Also, different negative emotions like anxiety or sadness might have different effects. Their impact on specific audit tasks is not well studied.

Environmental uncertainty (ENUN) makes the audit world more complex. It directly affects auditor behavior and AUQA. Factors such as economic policy uncertainty and unclear roles can harm auditors' integrity. They also impact decision-making skills. This can potentially weaken AUQA (Ha, 2024; Syafidinal & Susiani, 2019). Auditors facing high ENUN often feel more stress and role conflict. This reduces their ability to conduct thorough audits (Syafidinal & Susiani, 2019). Regulatory and litigation risks also influence how auditors behave. High regulatory risk, such as strict PCAOB inspections, might be a factor. It could reduce the motivation from litigation risk. Auditors might focus more on regulatory rules than on broader lawsuit concerns (Chen, Moul, & Reffett, 2025). The connection here is complex. ENUN usually creates problems. However, negative moods from some environmental stresses (like air pollution) can surprisingly encourage careful, detailed auditing. This is helpful in uncertain times (Chen et al., 2021). This points to a delicate balance. A key research area is still open. We need to separate the many effects of different ENUN types (like macroeconomic, technological, or regulatory). How these affect auditor thinking and actions needs more study. Moreover, how auditors see and handle various uncertainties is important. We need to investigate if specific coping methods change the impact on AUQA.

The link between ENUN and auditor independence (AUIN) is very important. Independence is fundamental for audit credibility. ENUN, along with unclear roles and conflicts, can negatively affect internal auditors' integrity. This can then hurt the quality of internal audits (Syafidinal & Susiani, 2019). The feeling of widespread ENUN can create ethical problems for auditors. This could weaken their independence. It could also weaken AUQA (Syafidinal & Susiani, 2019). Environmental stressors like air pollution can cause negative moods. These moods can impair auditors' thinking abilities. This reduces their ability to perform high-quality audits. It might also compromise independence through poor professional judgment (Chen et al., 2021; Li, Liu, Pei, & Xia, 2025). This shows how outside environmental conditions can quietly damage the psychological basis of AUIN. An important research gap remains. We need to find the exact psychological and situational ways in which different ENUN aspects threaten various parts of AUIN. For example, this includes independence in fact versus independence in appearance.

Luckily, some factors can lessen these adverse effects. Strong corporate governance in audit firms can reduce ENUN's negative impacts on AUIN. Consequently, it can also reduce impacts on AUQA (Abdeljawad, Oweidat, & Saleh, 2020). Audit committees also play a vital role. Their presence and effectiveness help maintain AUIN. This is especially true in very uncertain external environments (Abdeljawad et al., 2020). It is interesting to note something. High professional skepticism is usually beneficial. However, it might negatively affect how auditors handle complex and uncertain situations. This could lead to less positive audit behavior (Sun, Jia, & Liu, 2022). This surprising finding shows we need a detailed understanding. We must understand how auditor traits and contextual factors interact. Audit firm features such as size, reputation, and auditor experience also matter. They influence how ENUN affects independence and AUQA. Larger, well-run firms are often better able to handle such pressures (Hien & Tuan, 2025). A major research path involves studying the combined effects of these helpful factors, AUMO, and ENUN.

Therefore, the primary research objective of our paper is to examine and clarify the impact of AUMO and AUIN on AUQA in a developing economy, Vietnam. Furthermore, the study investigates the potential moderating effects of ENUN on the AUMO-AUQA and AUIN-AUQA relationships. This research reveals a significant positive

relationship between AUMO and AUQA, suggesting that the heightened vigilance or diligence potentially cultivated in such demanding environments can enhance audit outcomes. Conversely, the study presents a counterintuitive finding where the specific structural measure of AUIN employed was negatively associated with AUQA, prompting a critical re-examination of how such formal independence mechanisms translate into effective oversight and performance, particularly within the study's context. Critically, the research illuminates the significant moderating role of ENUN. It was found to negatively moderate the positive mood-quality link, indicating that excessive external pressures or cognitive load can diminish or negate the benefits of stress-induced diligence. However, uncertainty appeared to positively moderate (or make less detrimental) the independence-quality relationship in the full model. This study offers several important additions to auditing knowledge. It primarily improves understanding through an empirical review. Our results present new ideas. We show a positive link between AUMO and AUQA. This indicates that elements encouraging positive feelings can improve audit results. This finding might differ from some older studies that highlighted benefits from negative moods. Moreover, we found an unexpected negative link. This was between our specific formal measure of AUIN and AUQA. This finding points to a serious need for review. We must reconsider how formal independence rules create real quality, especially in places like Vietnam. Very importantly, this research is among the first to study ENUN as a key moderating factor. We show ENUN can weaken the positive AUMO-AUQA connection. However, it also surprisingly lessens the negative link between the AUIN measure and AUQA. These detailed results give practical advice. Audit firms can use them for managing work settings. Audit committees can use them for effective supervision that goes beyond just following rules. In theory, this study makes models of auditor actions more complete. It does this by showing how psychological conditions and complex outside factors work together.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Key Concepts and Underlying Theory

AUMO refers to the transient affective state experienced by an auditor, which can range from positive to negative and is distinct from stable personality traits. Many factors influence this emotional state. External environmental conditions can affect moods. For example, Seasonal Affective Disorder (SAD) or the air quality around us are known to cause specific mood states (Chen et al., 2021; Kalelkar et al., 2023; Song & Song, 2018). More direct things, like feelings from music, can also influence moods (Xu et al., 2024). Very importantly, the professional work environment itself strongly shapes AUMO. For instance, it is argued that auditors working for large, often global, audit firms may experience heightened levels of stress, fatigue, and pressure. This can stem from consistently high workloads, tight reporting deadlines, the inherent complexity of auditing large and diverse clientele, intense performance scrutiny, and a more demanding up-or-out culture compared to auditors in smaller firms, who might face different, potentially less pervasive, stressors. Such sustained occupational pressures can predispose auditors in larger firms towards more frequent or intense negative moods (e.g., anxiety, exhaustion, irritability). Regardless of its origin be it broader environmental factors or specific work conditions the significance of AUMO lies in its demonstrated capacity to influence cognitive processes. This, in turn, can lead to tangible changes in professional judgment, behaviors such as risk aversion or diligence, the overall effort exerted, and the degree of conservatism applied during an audit engagement, thereby impacting the final AUQA.

AUIN is a very important idea in the auditing field. It means an auditor is objective and fair. They must also make decisions without outside influences. These influences could hurt their professional judgment or honesty. AUIN includes two main parts. One part is independence in fact. This means the auditor truly has an unbiased mind. The other part is independence in appearance. This means reasonable people see the auditor as unbiased. In this research, we look closely at AUIN. We especially study its connection to ENUN. ENUN can create ethical problems for auditors (Syafidinal & Susiani, 2019). It can also weaken their thinking abilities (Chen et al., 2021; Li et al., 2025). These issues then threaten the auditor's fairness. Certain factors are key to protecting AUIN from these pressures.

Strong corporate governance is one such factor. Effective audit committees are also very important (Abdeljawad et al., 2020).

AUQA concerns two key things. An auditor must discover serious errors in a client's financial statements. The auditor must also report these errors. It is a complex idea. We often see its signs in various ways. These signs include an auditor's level of caution and how diligent they are. Auditors might issue modified opinions when necessary; this is another sign. Lower levels of discretionary accruals also suggest good quality. Fewer financial report corrections after an audit are another indicator (Kalelkar et al., 2023). The provided studies show something important. An auditor's psychological state, their mood, significantly affects AUQA. The external environment also has a large impact. Sometimes, negative moods can actually improve quality. This happens because auditors might work harder or be more cautious (Chen et al., 2021; Song & Song, 2018). However, high ENUN generally poses a threat. It increases stress or can impair decision-making (Ha, 2024; Syafidinal & Susiani, 2019).

For this research, ENUN describes the level of unpredictability. It also includes complexity and volatility. These are features of the external conditions. Auditors work and make decisions in these conditions. ENUN covers a range of factors. These factors include economic policy uncertainty (Ha, 2024). They also cover role ambiguity and conflict for auditors (Syafidinal & Susiani, 2019). Regulatory and litigation risks are also included (Chen et al., 2025). Even outside environmental stressors like air pollution are part of ENUN. Air pollution can create negative feelings, and it can impair thinking (Chen et al., 2021; Li et al., 2025). High ENUN is generally thought to negatively affect auditors. It impacts their integrity and their decision-making. It also affects their ability to think clearly. So, high ENUN creates major challenges. These challenges make it harder to maintain AUIN and to achieve high AUQA.

Research on AUMO, independence, quality, and ENUN utilizes several theories derived from psychology and decision-making. The Affect Infusion Model (AIM) by Forgas (1995) is particularly relevant. AIM posits that an individual's mood can significantly influence their judgments and decisions, especially in complex, ambiguous, or novel situations that require more extensive cognitive processing. Auditing in uncertain environments often exhibits these conditions. The model indicates that different moods have distinct effects: negative moods tend to promote more systematic, detailed, and analytical thinking, whereas positive moods may foster more general or creative thought processes. Empirical findings suggest that negative moods can be triggered by factors such as air pollution or Seasonal Affective Disorder (SAD). These negative moods often lead to more conservative, risk-averse, and diligent auditing behaviors (Chen et al., 2021; Kalelkar et al., 2023). These results match AIM's prediction. AIM predicts that negative feelings can lead to more effortful and cautious information processing. This more careful thinking during a negative mood could be an "adaptive benefit" (Chen et al., 2021). This benefit can occur in uncertain environments. It increases the chance of finding and dealing with potential errors. This then improves AUQA. On the other hand, ENUN itself can also affect decision-making. It increases mental load and stress (Syafidinal & Susiani, 2019). This can interfere with the best choices. ENUN might even override or mix with mood effects in complicated ways. This further highlights a need. We must understand these complex psychological dynamics within the audit context.

2.2. Hypotheses Development

Auditors' emotional states greatly influence their decisions (Bhattacharjee & Moreno, 2013). Research shows that some specific negative moods can lead to better quality audits. Some positive moods can also do this. Surprisingly, certain negative moods can make audits more thorough. For example, SAD causes a negative mood. This can make auditors more risk-averse. This increased caution means they accept less aggressive client reporting. Studies link SAD to lower discretionary accruals and fewer restatements. These are signs of more conservative and higher-quality auditing (Kalelkar et al., 2023). Negative moods from air pollution can also increase auditors' effort. This directly leads to more careful work, and so it improves AUQA (Chen et al., 2021). Air pollution can also harm cognitive functions (Li et al., 2025). However, the specific finding about increased effort highlights a path. Through this path, negative feelings can positively influence audit results.

Positive moods also play a helpful role. This is in addition to these surprising benefits from negative moods. Research used music feelings to represent AUMO. It found a link between positive feelings and higher AUQA (Xu et al., 2024). This matches the mood maintenance idea. It suggests auditors in a positive mood try to keep that feeling. They do this by being more careful and detailed, especially in risky situations. This improves audit thoroughness and reliability. In short, both negative moods and positive moods can improve AUQA. Negative moods work through increased risk avoidance and effort. Positive moods work through enhanced carefulness. These improvements happen under certain conditions. We must understand these detailed dynamics. This understanding is important. It helps us see the complex connection between auditor psychology and their work performance. We hypothesize the following:

H₁: AUMO can improve AUQA.

AUIN is essential for high AUQA. However, AUIN can weaken due to various pressures and situations. This weakening can lead to very negative outcomes for financial reporting. The reliability and accuracy of reports can suffer. Several factors noted in studies can negatively affect AUIN. This then puts AUQA in danger. One major concern is when audit firms provide Non-Audit Services (NAS) to their clients. This is especially a problem in developing economies (Doan, Pham, Nguyen, Vu, & Pham, 2020; Quick, 2012). Auditors might also offer profitable services such as tax advice or management consulting. A potential conflict of interest then arises. This financial dependence can pressure auditors. They might feel pushed, subtly or openly, to maintain good relationships with client management. This could occur instead of careful checking. Therefore, their independence is weakened, leading to lower AUQA.

Furthermore, auditors staying too long with one client can also negatively affect AUQA. It does this by weakening their independence. Sometimes, being familiar with a client can help understanding (Mayoral & Sanchez-Segura, 2007). However, very long relationships can be an issue. Relationships lasting more than five years especially might create too much closeness. This closeness can reduce professional skepticism and objectivity (García Blandón & Argilés Bosch, 2013). This familiarity can lead to complacency or an unwillingness to challenge long-standing clients, potentially resulting in a less thorough audit and an increased risk of undetected misstatements. Even regulatory attempts to bolster independence can sometimes have mixed or unintended negative perceptions; for instance, certain mandated measures might be perceived as impairing AUQA if they disrupt continuity without a clear perceived benefit to independence (Quick, 2012; Quick & Schmidt, 2018). Therefore, this study proposes the second hypothesis:

H₂: AUIN can lessen AUQA.

The interplay between an auditor's mood and the resultant AUQA is a recognized phenomenon, with particular attention given to how negative affective states can, perhaps counterintuitively, enhance audit outcomes. ENUN, often perceived as a detrimental force, can act as a crucial positive moderator in this relationship, amplifying the beneficial effects of certain AUMOs on the quality of their work. Several studies underscore that negative mood, whether induced by factors like air pollution or SAD, can foster increased audit effort, heightened risk aversion, and more conservative decision-making (Chen et al., 2021; Kalelkar et al., 2023; Song & Song, 2018). For example, auditors can experience negative moods due to air pollution. These auditors tend to put more effort into their tasks. SAD also induces negative moods. Auditors with these moods show a reduced willingness to accept aggressive financial reporting (Chen et al., 2021; Kalelkar et al., 2023). These tendencies are increased diligence and conservatism. They are naturally beneficial for AUQA.

ENUN is marked by economic changes or crises like the COVID-19 pandemic. It brings greater complexity and risk into the audit process (Alharasis, Alkhwaldi, & Hussainey, 2024; Persakis & Tsakalos, 2024; Xiang & Ma, 2025). Such environments inherently require more scrutiny from auditors. They also demand adaptability and a more cautious approach. It is in these situations that ENUN can positively influence the relationship. This relationship exists between a negative mood and AUQA. If an auditor is already predisposed by a negative mood to be more risk-averse and diligent, a highly uncertain environment validates and amplifies the utility of these traits. The increased

complexity and risks necessitate behaviors such as thoroughness, skepticism, and conservatism traits that a negative mood might promote. For example, during the COVID-19 pandemic, which significantly increased audit complexity and risk, the heightened effort and cautious judgment potentially stemming from a stress-induced negative mood would align directly with the amplified needs of the audit, thereby positively contributing to maintaining or even enhancing AUQA under duress. In this context, the auditor's heightened sense of caution, driven by mood, becomes particularly effective and necessary when navigating an unpredictable landscape. Therefore, ENUN presents challenges, but its presence can positively strengthen the link between an effortful, conservative mood state and the achievement of higher AUQA, as the auditor's mindset becomes especially well-suited to demanding conditions. This leads to the study's third hypothesis:

H₃: ENUN moderates the positive relationship between AUMO and AUQA.

High ENUN acts as a potent negative moderator, eroding the strength of the positive relationship between AUIN and AUQA. In such volatile conditions, even a genuinely independent auditor may struggle to deliver optimal AUQA due to the overwhelming pressures and complexities introduced by the uncertain environment. One primary way ENUN exerts this negative moderating effect is by directly increasing the difficulty of conducting a high-quality audit, thereby diminishing the impact of an auditor's independent stance. Economic uncertainty, for instance, has been shown to adversely affect both input-based (e.g., audit fees, tenure) and output-based (e.g., restatements, accruals) measures of AUQA (Persakis & Tsakalos, 2024). In times of economic instability, financial forecasting becomes more challenging, business models may be under severe stress, and the risk of material misstatement can escalate. Under these circumstances, an independent auditor, while still striving for objectivity, faces a much tougher task in identifying and assessing risks. The sheer complexity and opacity introduced by economic turmoil can overwhelm the benefits of an independent mindset, making it harder for that independence to manifest as high AUQA. The increased likelihood of errors or overlooked issues is not necessarily a failure of independence per se, but rather a consequence of the environment making the independent application of audit procedures less effective.

Furthermore, ENUN can exacerbate existing threats to AUIN, thereby indirectly weakening its positive influence on AUQA. For example, the perception of ENUN, coupled with role ambiguity and conflict, negatively affects the integrity of internal auditors, which in turn compromises AUQA (Syafidinal & Susiani, 2019). If external uncertainties create internal pressures or ethical dilemmas for auditors, their resolve to maintain independence can be strained. Similarly, the familiarity threat associated with long auditor-client relationships can become more potent in uncertain environments (Nurdiono, Junaidi, & Hartadi, 2016). During uncertain times, clients may exert more pressure on auditors to present a favorable financial picture, and a long-standing, familiar auditor might find it harder to resist such pressures, thus compromising their independence and the subsequent AUQA. Even supportive governance structures, such as institutional ownership and board independence, which typically bolster AUIN and quality, can find their positive influence strained under high ENUN (Daoud, 2024). This suggests that uncertainty creates an environment where the mechanisms designed to uphold independence become less effective. We hypothesize as follows:

H₄: ENUN moderates the negative relationship between AUIN and AUQA.

3. METHODS

3.1. Data and Sample

Vietnam presents a particularly compelling and relevant context for investigating the intricate relationships between AUMO, AUIN, AUQA, and ENUN, drawing upon the dynamics highlighted in the provided research. As a rapidly developing nation and a prominent emerging economy, Vietnam likely embodies many characteristics of high ENUN that the literature suggests significantly impact audit processes. This uncertainty manifests in many ways relevant to our study. One way is economic policy uncertainty (Ha, 2024; Persakis & Tsakalos, 2024). The country is growing rapidly. It is also changing its regulations and joining the global economy. These conditions can create a

challenging environment for auditors. Their integrity and decision-making might be affected (Syafidinal & Susiani, 2019).

Furthermore, challenges to AUIN are often significant in emerging economies. Studies show that providing NAS can harm AUIN. This is a particular concern in such places (Doan et al., 2020; Quick, 2012). Vietnam's corporate governance rules are also evolving. This may create unique pressures on AUIN. Therefore, Vietnam is a suitable place to study how these pressures and ENUN affect AUQA. The impact of company features is also important; for instance, institutional ownership and board independence influence AUQA through AUIN (Daoud, 2024). This is a critical area to study within Vietnam's specific company structures.

Finally, we can effectively study the impact of AUMO. Environmental stressors like air pollution might influence AUMO (Chen et al., 2021; Song & Song, 2018). Air pollution is a known problem in rapidly industrializing cities. These cities are often found in developing countries. AUMO affects audit effort and how conservative auditors are. These mood effects interact with widespread ENUN. This interaction ultimately shapes AUQA. This makes Vietnam an ideal setting. Economic energy, changing rules, potential environmental mood stressors, and specific AUIN challenges all come together in this emerging market. This mix provides a rich and detailed background. It is perfect for testing the theoretical ideas in this research. The data we finally used includes 835 observations. Each observation represents one company for one year. It forms a balanced panel. This information covers 165 big public companies located in Vietnam.

The years studied are 2020 to 2024. The COVID-19 pandemic and its long aftermath greatly influenced the 2020-2024 period. This situation created severe ENUN. Many factors increased this ENUN. These included major economic upsets, shifting government policies like lockdowns and financial aid, and changed business operations. This observation fits well with existing studies. Those studies stress how economic policy uncertainty and outside pressures affect the audit field (Chen et al., 2021; Syafidinal & Susiani, 2019). Such strong ENUN definitely impacted AUMO. It probably led to negative feelings. These feelings arose from increased stress, health worries, and the difficulties of remote work. This reflects research on mood changes caused by stress (Chen et al., 2021; Song & Song, 2018). Furthermore, economic pressures and operational changes during these years likely posed new difficulties for AUIN. Consequently, AUQA was also likely challenged. Companies faced financial troubles, and auditors had to learn new audit methods. The latter part of this period, 2023-2024, shows ongoing adjustments. Economic uncertainties lingered. Regulatory responses in Vietnam also continued to evolve. Vietnam is a developing country constantly changing. Therefore, this specific time offers a rich, current setting. We can examine the connections between AUMO, ENUN, and AUIN on AUQA during these significant shifts. This examination provides timely knowledge about auditor behavior and performance.

We started with information on 821 non-financial firms from the Refinitiv Eikon database. Then, we applied specific rules to select the final sample. Following this careful selection process helps make our study reliable.

3.2. Measurement and Model Specification

This research will employ a series of established and theoretically grounded proxies, drawing from existing literature, to operationalize these variables. The dependent variable, AUQA, will be assessed using the market-to-book value of net assets (MTB) model, as utilized by Elmashtawy, Almaqtari, Che Haat, and Ismail (2025). This market-based measure reflects investors' valuation of a firm's net assets relative to their accounting book value. A higher MTB ratio can indicate market confidence in the firm's future prospects and the reliability of its reported earnings, which is often indirectly associated with higher perceived AUQA. While multifaceted, this proxy provides a quantifiable, output-based perspective on audit effectiveness as perceived by the market. This market-based proxy reflects investor confidence in a firm's reported financials and future outlook. A higher MTB often suggests reliable reporting. Reliable reporting is an outcome indicative of high audit quality. This metric offers a quantifiable, external assessment. It captures the market's perception of audit effectiveness.

AUMO is operationalized by proxying the stress level experienced by auditors, determined by their employing firm's category. This is a dichotomous variable, coded 1 if the auditor is affiliated with a Big-4 firm and 0 otherwise. The rationale for this approach stems from the widely recognized premise that Big-4 environments typically subject auditors to significantly higher levels of professional stress. This heightened stress is often a result of a confluence of factors: intense work pressure, demanding workloads, extended working hours (especially during peak audit seasons), stringent deadlines, and the high expectations and complexities associated with servicing large, often multinational, clientele. Conversely, while auditors in smaller (non-Big 4) firms undoubtedly face their own professional demands and stressors, such as potentially limited resources or varied responsibilities, the systemic, high-intensity, and pervasive pressure characteristic of the Big-4 operational model is generally considered less pronounced. Additionally, this choice stems from the well-documented high-pressure environment within Big-4 firms. These firms are characterized by intense workloads and demanding deadlines. Such conditions are strongly associated with increased stress levels. Stress is a significant driver of auditor mood. This structural variable offers a practical way to capture a pervasive work environment factor. It directly influences AUMO. Therefore, by using Big-4 affiliation as an indicator, this study captures a structural element of the work environment strongly correlated with elevated stress levels.

AUIN will be measured using an AUIN score based on the composition of the audit committee, following [Algrady, Huang, and Al-Matari \(2025\)](#). This focuses on the structural independence of a key governance body tasked with overseeing the audit function, with greater external representation presumed to enhance the committee's objectivity and, by extension, support AUIN. Moreover, the audit committee's structure is a vital governance element. The independence of its members is especially important. This structure is designed to bolster the auditor's objectivity. It also enhances their ability to withstand undue influence. Therefore, this proxy captures a crucial structural safeguard. This safeguard underpins AUIN.

Fluctuation in a company's sales directly mirrors instability. It also shows the unpredictability of its market conditions. Adjusting sales by total assets allows for a fair comparison between firms of different sizes. This specific metric offers a tangible measure of the external uncertainty each firm confronts. Thus, ENUN is quantified by employing a coefficient of variation (CV) methodology centered on the instability of sales figures, a technique adapted from [Nguyen, Abu Afifa, Thi Truc Dao, Van Bui, and Vo Van \(2025\)](#).

$$CV(S_{it}) = \frac{\sqrt{\sum_{t=1}^5 \frac{(S_{it} - S_{mean})^2}{5}}}{S_{mean}}$$

The procedure entails deriving the CV for sales revenue ($CV(S_{it})$) for every individual enterprise (i) within each specific year (t). To ensure comparability, these sales figures are systematically adjusted by the total assets of the firm in question. This asset-standardized CV of sales is designed to capture the degree of oscillation in a company's revenue generation, considered in proportion to its operational magnitude. Such a metric effectively mirrors the lack of stability and foreseeability within the broader market conditions, thereby yielding a numerical indicator of the ENUN confronting each entity.

Finally, a set of control variables will be included to account for firm-specific characteristics that might otherwise confound the relationships of interest. Firm size (FSIZE) is measured as the natural logarithm of total assets at the beginning of the year. Firm age (FAGE) is the natural logarithm of the number of years since the firm's inception. Leverage (LEV) is operationalized as the ratio of total debt to total assets. Lastly, liquidity (LIQ) is captured by the proportion of current assets to current liabilities, and the sector (SECT) is coded based on the GICS sector code. These are standard controls in accounting and finance research, helping to isolate the unique effects of mood, independence, and uncertainty on AUQA by controlling for differences in scale, experience, financial risk, and short-term financial health.

3.3. Estimation Method

The proposed research hypotheses have been examined sequentially using the models outlined below. These models are developed by progressively incorporating variables, where i signifies the company and t denotes the year.

$$AUQA_{i,t} = \beta_0 + \beta_1 AUMO_{i,t} + \beta_2 AUIN_{i,t} + \beta_3 FSIZE_{i,t} + \beta_4 FAGE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 LIQ_{i,t} + \beta_7 SECT_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$AUQA_{i,t} = \beta_0 + \beta_1 AUMO_{i,t} + \beta_{1a} AUMO_{i,t} * CV_{i,t} + \beta_2 AUIN_{i,t} + \beta_3 FSIZE_{i,t} + \beta_4 FAGE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 LIQ_{i,t} + \beta_7 SECT_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$AUQA_{i,t} = \beta_0 + \beta_1 AUMO_{i,t} + \beta_2 AUIN_{i,t} + \beta_{2a} AUIN_{i,t} * CV_{i,t} + \beta_3 FSIZE_{i,t} + \beta_4 FAGE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 LIQ_{i,t} + \beta_7 SECT_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$AUQA_{i,t} = \beta_0 + \beta_1 AUMO_{i,t} + \beta_{1a} AUMO_{i,t} * CV_{i,t} + \beta_2 AUIN_{i,t} + \beta_{2a} AUIN_{i,t} * CV_{i,t} + \beta_3 FSIZE_{i,t} + \beta_4 FAGE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 LIQ_{i,t} + \beta_7 SECT_{i,t} + \varepsilon_{i,t} \quad (4)$$

For analyzing panel datasets, fixed effects (FEM) or random effects (REM) models are conventional starting points. However, in datasets where the number of cross-sectional units (e.g., firms) significantly exceeds the time periods (T), the reliability of estimates can be challenged by non-constant error variance, a condition known as heteroskedasticity. To diagnose this, specific evaluations were conducted. Adopting the methodology of [Abu Afifa and Nguyen \(2024\)](#) the modified Wald test was applied to the FEM framework and the Breusch-Pagan test to the REM framework to assess for variance constancy. In the absence of such issues, the Hausman test would subsequently guide the selection between FEM and REM. Conversely, the presence of heteroskedasticity would necessitate an alternative approach, such as the two-step generalized method of moments (GMM). For enhanced robustness, the application of GMM at the national level was also considered. Our dataset has a common characteristic. It features many firms (cross-sectional units) observed over relatively few time periods. This structure often leads to non-constant error variance. This issue is known as heteroskedasticity. We specifically tested for this problem. Tests like the modified Wald and Breusch-Pagan were applied. The likely presence of heteroskedasticity, alongside potential endogeneity concerns, guided our choice towards a more robust approach. Therefore, the S-GMM was chosen for our primary analysis. This method offers several key advantages. It effectively addresses both heteroskedasticity and endogeneity at the same time. These are significant challenges that simpler models might not fully resolve with our specific data. The two-step GMM estimator also generally provides more precise results than its one-step alternative. Given these strengths and our dataset's particular nature, S-GMM emerged as the most appropriate and robust estimation technique. We further ensured the reliability of our S-GMM models. Hansen/Sargan tests were used to validate the instruments. This confirmed the credibility of our findings.

Our primary analytical strategy adopted the two-step GMM. This preference is well-founded; GMM offers superior capabilities in concurrently addressing both heteroskedasticity and potential endogeneity concerns when compared to alternatives like autoregressive distributed lag (ARDL) models or standard instrumental variable techniques. Furthermore, the two-step GMM estimator is generally recognized for yielding more precise estimates than its one-step counterpart. Consequently, to achieve the most accurate and efficient outcomes, the Arellano-Bond two-step system GMM (S-GMM) was specifically selected.

Given the characteristics of our dataset, S-GMM emerged as the most appropriate estimation technique (e.g., [Abu Afifa and Nguyen \(2024\)](#)). This S-GMM methodology was employed to estimate all models within this research, and the subsequent discussion of findings is predicated on these S-GMM outputs. To ensure the credibility of the S-GMM estimations, Hansen/Sargan tests were performed to validate the instruments utilized in the GMM procedure.

4. FINDINGS

4.1. Descriptive Summary

Table 1 furnishes a summary of the descriptive statistics for all variables utilized in this study, based on a consistent sample size of 835 firm-year observations. The dependent variable, AUQA, demonstrates considerable dispersion, with a mean of 1.241 and a notably high standard deviation of 1.648. Its values range widely from a

minimum of 0.053 to a maximum of 16.102, indicating significant heterogeneity in AUQA outcomes across the sampled firms. Regarding the key independent variables, AUN has an average score of 0.149. The standard deviation of 0.485, which is substantially larger than the mean, along with a range from 0 to 2.564, suggests that while the average independence score is relatively low, there is considerable variation among firms. AUMO, proxied as a binary variable (likely with 1 indicating a higher stress environment such as Big 4 affiliation and 0 otherwise), has a mean of 0.137. This implies that approximately 13.7% of the firm-year observations fall into the category associated with higher auditor stress levels. The ENUN index (CV) presents a mean of 1.033 and a standard deviation of 0.784, with values spanning from 0.057 to 6.816, signifying moderate average levels of market volatility but with substantial differences experienced across the sample. The control variables also exhibit notable variation. FSIZE averages 17.564, FAGE has a mean of 10.094 years, LEV averages 0.197, and LIQ shows a mean of 2.876, with a particularly high standard deviation suggesting some firms are exceptionally liquid. SECT codes range from 10 to 60, indicating a diverse representation of industries.

Table 1. Variables Summary.

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
AUQA	835	1.241	1.648	0.053	16.102
AUN	835	0.149	0.485	0	2.564
AUMO	835	0.137	0.344	0	1
CV	835	1.033	0.784	0.057	6.816
FSIZE	835	17.564	2.074	12.981	24.214
FAGE	835	10.094	5.397	1	23
LEV	835	0.197	0.188	0	0.973
LIQ	835	2.876	4.752	0.033	60.474
SECT	835	28.293	16.935	10	60

Note: AUQA – audit quality; AUN – auditor independence; AUMO – auditor mood; CV – CV index; FSIZE – firm size; FAGE – firm age; LIQ – liquidity; LEV – firm leverage; SECT – firm sector.

Table 2 presents the results of multicollinearity diagnostics conducted to assess the potential for problematic linear relationships among the independent variables in the regression models. AUN and AUMO exhibit a strong positive correlation of 0.773. Similarly, FSIZE shows a strong positive correlation with AUMO (0.730) and a moderately high positive correlation with AUN (0.611). Other significant correlations include those between FSIZE and CV (0.287), FSIZE and SECT (0.285), LEV and FSIZE (0.273), AUMO and SECT (0.204), and LEV with both AUMO (0.160) and CV (0.170).

Table 2. Multicollinearity test.

Variable	AUQA	AUN	AUMO	CV	FSIZE	FAGE	LEV	LIQ	SECT
AUQA	1								
AUN	0.015	1							
AUMO	0.083 ⁱ	0.773 ⁱ	1						
CV	0.033	0.017	0.064	1					
FSIZE	0.045	0.611 ⁱ	0.730 ⁱ	0.287 ⁱ	1				
FAGE	-0.102 ⁱ	0.063	0.001	-0.088 ⁱ	-0.055	1			
LEV	-0.098 ⁱ	0.114 ⁱ	0.160 ⁱ	0.170 ⁱ	0.273 ⁱ	-0.127 ⁱ	1		
LIQ	0.029	-0.067	-0.009 ⁱ	-0.085 ⁱ	-0.147 ⁱ	0.009 ⁱ	-0.316 ⁱ	1	
SECT	0.096 ⁱ	0.157 ⁱ	0.204 ⁱ	0.006	0.285 ⁱ	-0.019	-0.115 ⁱ	-0.003	1
VIF		2.57	3.43	1.17	2.78	1.04	1.25	1.12	1.15
Tolerance		0.389	0.291	0.851	0.359	0.964	0.797	0.893	0.870

Note: ⁱ: Significant at 5% level;
AUQA – audit quality; AUN – auditor independence; AUMO – auditor mood; CV – CV index; FSIZE – firm size; FAGE – firm age; LIQ – liquidity;
LEV – firm leverage; SECT – firm sector.

While some of these pairwise correlations, particularly those exceeding 0.7, might initially suggest a potential for multicollinearity, a more definitive assessment is provided by the variance inflation factor (VIF) and tolerance

statistics, presented in the lower panel. The VIF values for all predictor variables are comfortably within acceptable ranges. For instance, AUIN has a VIF of 2.57, AUMO has a VIF of 3.43, CV stands at 1.17, and FSIZE is 2.78. All other VIFs are even lower, clustering well below 1.3. Crucially, all these VIFs are substantially below the commonly cited problematic threshold of 10, and also beneath the more conservative threshold of 5. Complementing the VIF results, the tolerance values (the reciprocal of VIF) are all well above the critical lower limit of 0.1.

For example, AUIN has a tolerance of 0.389, AUMO is 0.291, CV is 0.851, and FSIZE is 0.359. Taken together, despite the presence of some significant inter-variable correlations, these diagnostic VIF and tolerance values strongly indicate that multicollinearity is unlikely to pose a significant threat to the stability, reliability, or interpretability of the regression estimates in this study.

Prior to the main model estimation, an essential preliminary step involved conducting unit root tests to ascertain the stationarity characteristics of our dataset. In line with the recommendations of [Abu Afifa and Nguyen \(2024\)](#), the Levin-Lin-Chu (LLC) test was employed. Furthermore, the Augmented Dickey-Fuller (ADF) test, a method well-suited for our balanced panel data configuration, was also utilized. The outcomes from both examinations confirmed the stationarity of all variables included, as evidenced by p-values consistently below the 0.05 threshold, thereby allowing for the rejection of the unit root hypothesis. Subsequently, an assessment of initial estimation methodologies, namely ordinary least squares (OLS), FEM, and REM, was undertaken.

Table 3. Heteroscedasticity test.

Estimation	Test statistic	Model (1)	Model (2)	Model (3)	Model (4)
FEM	χ^2	1.4e7	1.5e7	1.5e7	1.5e7
	(p-value)	(0.000)	(0.000)	(0.000)	(0.000)
REM	χ^2	518.60	514.00	516.06	514.30
	(p-value)	(0.000)	(0.000)	(0.000)	(0.000)
OLS	χ^2	94.18	90.01	91.17	96.73
	(p-value)	(0.000)	(0.000)	(0.000)	(0.000)

Consistent with our earlier discussion, these frameworks were scrutinized for potential heteroskedasticity. The diagnostic findings, detailed in [Table 3](#), revealed the presence of heteroskedasticity across all three techniques (OLS, FEM, and REM), as indicated by test p-values of 0.000 (statistically significant at $p < 0.05$). Given these findings of pervasive heteroskedasticity, coupled with the imperative to address potential endogeneity issues inherent in the model specifications, GMM was identified as the most appropriate estimation technique for this research.

4.2. Hypothesis Tests

In [Table 4](#), hypothesis 1 (H1) receives consistent support across all four models. The coefficient for AUMO is positive and statistically significant in Model 1 (4.134), Model 2 (4.236), Model 3 (3.793), and Model 4 (5.656). This suggests that higher AUMO, as proxied (likely indicating higher stress levels, e.g., Big 4 affiliation), is associated with an increase in AUQA. This finding aligns with prior research suggesting that certain negative moods or stress-induced states can lead to more diligent or conservative auditing.

Hypothesis 2 (H2) presents intriguing results. The coefficient for AUIN is consistently negative and statistically significant across all models: -3.776 in Model 1, -1.252 in Model 2, -1.302 in Model 3, and -2.779 in Model 4. This indicates that, contrary to some conventional expectations but depending on the specific measure of independence used (here, audit committee composition), an increase in this particular AUIN score is associated with a decrease in AUQA as measured. This counterintuitive finding warrants further discussion, potentially relating to the nuances of the independence measure or specific contextual factors.

In terms of hypothesis 3 (H3), the interaction term AUMO*CV is introduced in Model 2 and Model 4. In both instances, the coefficient is negative and statistically significant (-1.599 in Model 2 and -2.402 in Model 4). This

suggests that ENUN negatively moderates the positive relationship between AUMO and AUQA. In other words, as ENUN increases, the positive impact of the stress-proxied AUMO on AUQA is weakened or diminished.

Table 4. S-GMM results.

Nexus	Model (1)	Model (2)	Model (3)	Model (4)
H1: AUMO → AUQA	4.134 ⁱ	4.236 ⁱ	3.793 ⁱ	5.656 ⁱ
H2: AUIN → AUQA	-3.776 ⁱ	-1.252 ⁱ	-1.302 ⁱ	-2.779 ⁱ
H3: AUMO*CV → AUQA		-1.599 ⁱ		-2.402 ⁱ
H4: AUIN*CV → AUQA			-1.047 ⁱ	1.436 ⁱ
<i>Control components</i>				
FSIZE → AUQA	-0.253 ⁱ	-0.212 ⁱ	-0.345 ⁱ	-0.274 ⁱ
FAGE → AUQA	-0.090	-0.233 ⁱ	-0.129 ⁱ	-0.218 ⁱ
LEV → AUQA	-3.677 ⁱ	-3.482 ⁱ	-4.216 ⁱ	-3.757 ⁱ
LIQ → AUQA	0.060	-0.024 ⁱ	-0.046 ⁱ	-0.031 ⁱ
SECT → AUQA	0.188 ⁱ	0.087 ⁱ	0.107 ⁱ	0.083 ⁱ

Note: ⁱ Significant at 5% level;

AUQA – audit quality; AUIN – auditor independence; AUMO – auditor mood; CV – CV index; FSIZE – firm size; FAGE – firm age; LIQ – liquidity; LEV – firm leverage; SECT – firm sector.

* is a calculation to create an interaction variable between two variables to determine the moderating effect.

Regarding hypothesis 4 (H4), the interaction term AUIN*CV is included in Model 3 and Model 4. The results are mixed across these models. In Model 3, the coefficient for AUIN*CV is negative and significant (-1.047), implying that ENUN exacerbates the negative relationship observed between AUIN and AUQA. However, in the full Model 4, which includes all variables and interactions, the coefficient for AUIN*CV becomes positive and significant (1.436). This suggests that, when considering all factors simultaneously, higher ENUN may actually buffer or make less negative the observed association between this specific measure of AUIN and AUQA.

Regarding the control components, FSIZE, FAGE, LEV, and LIQ generally show negative and often significant associations with AUQA across the models, suggesting that larger, older, more leveraged, and more liquid firms, under these model specifications, tend to exhibit lower AUQA. Conversely, SECT consistently shows a positive and significant relationship with AUQA. These results highlight the importance of controlling for firm-specific characteristics when examining the core relationships of interest.

The suitability of the estimated models was evaluated against goodness-of-fit benchmarks advocated by Abu Afifa and Nguyen (2024). These benchmarks stipulate a χ^2 -square p-value greater than 0.05, a standardized root mean square residual value below 0.05, a root mean square error of approximation value ranging from 0.05 to 0.08, and both comparative fit index and Tucker-Lewis index values exceeding 0.9. Our empirical analysis demonstrated that all computed fit statistics comfortably achieved these established thresholds, signifying satisfactory model fit.

4.3. Robustness Testing

Table 5 presents a series of robustness checks designed to further validate the distinctiveness of key variable groupings and their relationships with other components. These tests include t-tests and one-way ANOVA analyses. Part A examines differences in AUQA, AUIN, and CV based on the AUMO proxy, which distinguishes between Big-4 (n=115) and other (n=720) audit firms. The difference mean test indicates statistically significant differences between these two groups for both AUQA and AUIN. Specifically, firms audited by Big-4 firms (AUMO=1, associated with higher stress/mood effects) exhibit a significantly different mean AUQA compared to those audited by other firms (Difference = -0.398, p-value = 0.016). Assuming the difference column represents (Others - Big-4), this would imply Big-4 firms have higher AUQA (Mean_Big4 = 1.585 vs. Mean_Others = 1.186). Similarly, AUIN is significantly different between the groups (Difference = -1.088, p-value = 0.000), with Big-4 firms having a substantially higher mean AUIN (1.088 vs. 0 for Others), suggesting a strong association between Big-4 auditors and firms with higher structural independence scores. The mean CV index also differs, with Big-4 firms facing slightly

higher ENUN (1.158 vs. 1.013), although this difference is only marginally significant ($p\text{-value} = 0.064 > 0.05$). The results support the notion that Big-4 audited firms operate in a distinct environment concerning AUQA and AUIN structures.

Part B employs a one-way ANOVA to test whether the means of AUQA, AUMO, and CV differ significantly across groups defined by varying levels of AUIN. The results show no statistically significant difference in mean AUQA across AUIN groups ($F = 0.22$, $\text{Prob}>F = 0.997$), nor in mean CV ($F = 0.84$, $\text{Prob}>F = 0.611$). This suggests that, when firms are grouped by their AUIN scores, their average AUQA and the ENUN they face do not systematically differ. However, a highly significant difference is found for AUMO ($F = 140.72$, $\text{Prob}>F = 0.000$). This implies that the likelihood of being audited by a Big-4 firm (our AUMO proxy) varies significantly depending on the firm's AUIN score. This aligns with the t-test results, indicating that firms with higher AUIN scores are substantially more likely to engage Big-4 auditors.

Table 5. The robustness results.

Part A: Difference in AUMO (T-test)								
Components	Total		Other firms		Big-4 firms		Difference mean test	
	Mean	Std.dev	Mean	Std.dev	Mean	Std.dev	Difference	p-value
AUQA	1.241	1.648	1.186	1.663	1.585	1.512	-0.398	0.016
AUIN	0.149	0.485	0	0	1.088	0.833	-1.088	0.000
CV	1.033	0.784	1.013	0.743	1.158	0.998	-0.145	0.064
Part B: Difference in AUIN (Oneway ANOVA test)								
Components	Analysis of variance							
	Total		Between groups		Within groups		Difference test	
	SS	MS	SS	MS	SS	MS	F	Prob>F
AUQA	2266.072	2.717	7.261	0.605	2258.810	2.747	0.22	0.997
AUMO	99.161	0.118	66.694	5.557	32.466	0.039	140.72	0.000
CV	513.444	0.615	6.203	0.516	507.241	0.617	0.84	0.611
Part C: Difference in SECT (Oneway ANOVA test)								
Components	Analysis of variance							
	Total		Between groups		Within groups		Difference test	
	SS	MS	SS	MS	SS	MS	F	Prob>F
AUQA	2266.072	2.717	88.147	11.018	2177.925	2.636	4.18	0.000
AUMO	99.161	0.118	21.284	2.660	77.876	0.094	28.22	0.000
AUIN	196.771	0.235	29.467	3.683	167.304	0.202	18.19	0.000
CV	513.444	0.615	5.434	0.679	508.010	0.615	1.10	0.357

Note: AUQA – audit quality; AUIN – auditor independence; AUMO – auditor mood; CV – CV index; SECT – firm sector.

Part C investigates differences across firm sectors (SECT) for AUQA, AUMO, AUIN, and CV. The ANOVA results reveal that firm sector is a significant differentiating factor for several key variables. Mean AUQA differs significantly across sectors ($F = 4.18$, $\text{Prob}>F = 0.000$), as does the AUMO proxy ($F = 28.22$, $\text{Prob}>F = 0.000$), indicating that the prevalence of Big-4 auditors varies by industry. Furthermore, mean AUIN also shows significant differences across sectors ($F = 18.19$, $\text{Prob}>F = 0.000$). These findings underscore the importance of controlling for industry effects, as different sectors appear to have inherently different levels of AUQA, varying tendencies to employ Big-4 auditors, and distinct AUIN structures. However, ENUN (CV) does not significantly differ across sectors ($F = 1.10$, $\text{Prob}>F = 0.357$).

Collectively, these robustness tests reinforce the validity of the AUMO grouping (Big-4 vs. Others) by demonstrating significant differences in key audit characteristics. They also highlight the strong association between AUIN structures and the choice of auditor type, and strongly emphasize the impact of firm sector on AUQA, auditor type, and independence structures, justifying its inclusion as a control variable in the main analyses.

5. DISCUSSION

In terms of H1, the results consistently demonstrate a positive and statistically significant relationship between AUMO and AUQA across all models. Given that AUMO is proxied by Big-4 affiliation, implying higher stress levels, this finding suggests that auditors operating in these higher-stress environments are associated with higher AUQA. This aligns intriguingly with a segment of prior research. Studies by [Chen et al. \(2021\)](#), [Kalelkar et al. \(2023\)](#) and [Song and Song \(2018\)](#) indicated that negative moods, induced by factors like air pollution or SAD, can lead to increased audit effort, heightened risk aversion, and consequently, higher AUQA. If the stress associated with Big-4 environments induces a similar negative or vigilant affective state, then the current findings are congruent. The AIM posits that negative affect promotes more systematic, detailed, and analytical processing, especially in complex situations. Audits conducted by Big-4 firms often involve complex clients and environments, demanding substantive processing where affect infusion, as per AIM, would be more pronounced. Thus, the stress-induced vigilance could lead to the observed higher AUQA. However, this contrasts with [Li et al. \(2025\)](#), who suggested air pollution-induced negative mood could impair cognitive functions and lower AUQA, and the general notion that extreme stress or burnout (which could be an outcome of sustained Big-4 pressure) might reduce cognitive efficiency ([Kalelkar et al., 2023](#)). The current positive finding suggests that, for this sample and AUMO proxy, the diligence-enhancing aspects of the stress-induced mood may outweigh potential cognitive impairments, or that the burnout level aspect of AUMO is manifesting as heightened alertness rather than debilitating exhaustion within the range observed.

Regarding H2, the relationship between AUIIN and AUQA consistently emerges as negative and statistically significant across all models. This implies that higher scores on the specific AUIIN measure employed (percentage of external/non-board members on the audit committee) are associated with lower AUQA. This finding is notably counterintuitive and stands in stark contrast to the predominant body of literature. [Daoud \(2020\)](#), [Sawaya, Al Maalouf, Hanoun, and Rakwi \(2025\)](#), [Brown, Falaschetti, and Orlando \(2010\)](#), and [Hien and Tuan \(2025\)](#) all assert that AUIIN significantly enhances AUQA. Similarly, [Abdeljawad et al. \(2020\)](#) emphasized that strong corporate governance, including effective audit committees (a proxy for which is used here), is crucial for maintaining independence and enhancing AUQA. The current finding might stem from several factors: the specific operationalization of AUIIN focusing solely on audit committee composition might not fully capture independence in fact or its effective exercise within the Vietnamese context. It is conceivable that in certain situations, a highly structurally independent audit committee might lead to more bureaucratic or less agile oversight, or it could be associated with firms that have inherently more complex reporting challenges that are difficult to fully resolve, thus leading to a lower measured AUQA (e.g., via MTB). This divergence from established theory warrants significant further investigation into the contextual nuances of AUIIN and its measurement in Vietnam. AIM is less directly applicable here, as independence is more a structural attribute than an affective state, though compromised independence could create situations of ethical conflict which might induce negative moods.

With H3, the interaction term AUMO*CV is consistently negative and significant, indicating that ENUN negatively moderates the positive relationship between AUMO (Big-4 stress) and AUQA. This suggests that as ENUN increases, the beneficial impact of the stress-proxied AUMO on AUQA diminishes. This finding presents a complex picture when compared to prior literature. [Chen et al. \(2021\)](#) suggested that negative moods induced by environmental factors (a form of uncertainty/stressor) can have adaptive benefits in uncertain environments by making auditors more conservative. However, [Persakis and Tsakalos \(2024\)](#) and [Alharasis et al. \(2024\)](#) found that economic uncertainty and pandemic-induced uncertainty negatively impact AUQA, potentially by exacerbating mood-induced biases or increasing stress beyond an optimal threshold, as also noted by [Syafidinal and Susiani \(2019\)](#) and [Ha \(2024\)](#). The current result aligns with the latter perspective, suggesting that while moderate stress (AUMO) might enhance diligence, high ENUN might introduce cognitive overload or excessive stress, thereby reducing the effectiveness of mood-induced vigilance. From an AIM perspective, while ENUN signifies complexity (which should enhance affect infusion), this finding points to a boundary condition. Extreme uncertainty might surpass an auditor's

cognitive capacity to engage in effective systematic processing, even if their mood initially primes them for it. This suggests that AIM could be supplemented by considering cognitive load theory; the benefits of mood-induced systematic processing may diminish or reverse under conditions of overwhelming cognitive demand imposed by high uncertainty.

The moderation effect of CV on the AUIN-AUQA relationship (H4) presents mixed results. In Model 3, the interaction AUIN*CV is negative and significant, suggesting that ENUN intensifies the negative relationship between the employed AUIN measure and AUQA. However, in the full Model 4, the interaction term becomes positive and significant. Preferring the more comprehensive Model 4, this finding implies that in highly uncertain environments, the negative association between this specific measure of AUIN and AUQA becomes less pronounced or potentially even reverses to become positive. This is a complex interpretation given H2's baseline negative finding. Abdeljawad et al. (2020) argued that strong corporate governance (including audit committee independence) is particularly crucial for maintaining AUQA in uncertain settings. If the structural independence measured by AUIN serves as a genuine safeguard, then under high uncertainty (when threats to integrity might be higher, as per Syafidinal and Susiani (2019) its role in preserving some semblance of objectivity could become more critical, thus mitigating its otherwise observed negative association with the MTB measure of AUQA. This suggests that the value or effectiveness of this structural independence might only manifest or become less detrimental under high-stress, uncertain conditions.

6. CONCLUSION

In conclusion, the study offers valuable insights, particularly reinforcing the AIM by showing how stress-induced mood (proxied by AUMO) can enhance systematic processing leading to higher AUQA. However, it also critically extends AIM by highlighting ENUN as a potential boundary condition that can overwhelm these benefits, suggesting an interplay with cognitive load. The counterintuitive findings regarding AUIN (H2) and its interaction with uncertainty (H4 in Model 4) strongly emphasize the need for context-specific research and careful operationalization of constructs, particularly in emerging economies like Vietnam, and suggest that the simple application of Western-centric governance models may not yield expected outcomes without considering local dynamics.

6.1. Theoretical Implications

This research offers significant theoretical implications, primarily by advancing the integration of psychological constructs into the predominantly technical domain of auditing theory. The consistent positive association found between AUMO and AUQA lends empirical support to the AIM. It suggests that the heightened alertness or vigilance potentially induced by a moderately stressful environment a form of negative affect can lead to more systematic and detailed information processing, thereby enhancing AUQA, particularly in the complex tasks inherent in many audits. This resonates with findings from Chen et al. (2021) and Kallelkar et al. (2023), who found that certain negative moods enhance audit diligence and conservatism. Crucially, the study extends AIM by identifying ENUN as a significant boundary condition. The finding that high uncertainty diminishes the positive mood-quality link suggests that while negative affect can prime systematic processing, excessive cognitive load imposed by a highly uncertain environment may overwhelm an auditor's capacity, negating the mood's beneficial effects. This theoretical refinement, indicating that AIM's predictions may be attenuated or even reversed under extreme environmental pressures, aligns with research highlighting how high uncertainty can induce stress and role conflict, potentially undermining AUQA (Ha, 2024; Syafidinal & Susiani, 2019). It calls for incorporating cognitive load considerations more explicitly within AIM when applied to high-stakes, uncertain decision environments.

Conversely, the study presents a theoretical challenge concerning AUIN. The consistent negative relationship observed between the structural measure of AUIN and AUQA directly contravenes the widely accepted theoretical premise that stronger independence mechanisms lead to better audit outcomes, as posited by agency theory and

supported by numerous studies (e.g., (Abdeljawad et al., 2020; Brown et al., 2010; Daoud, 2020)). This suggests something important. The theoretical connection between structural independence (like audit committee makeup) and effective independence is often discussed. This effective independence should lead to higher AUQA. However, this connection might be weaker or more dependent on the situation than we usually think. This is especially true in developing economies. The mixed result for H4 makes this more complex. In the full model, ENUN positively moderates the AUIN-AUQA link. This implies something. The expected theoretical benefits of structural independence might only show up under conditions of high external threat. Or, they might become less damaging then. This shows a need. We need to improve theories of AUIN. These theories must better explain how structural measures actually lead to behavioral results. This understanding is needed across different institutional and economic environments. Overall, this research highlights an important point. We must move beyond purely structural theories of AUQA. We must also go beyond competency-based theories. It calls for a more detailed theoretical framework. This framework must clearly include auditor psychology. It also needs to include its dynamic interaction with the complex environmental context.

6.2. Managerial Implications

This research offers several useful managerial ideas. These ideas are for audit firms, client companies, and regulatory groups. Client companies should especially note this for their audit committees. The research stresses the importance of including psychological awareness. This awareness should be part of auditing practices and oversight. For audit firms, the findings highlight a complex connection. This connection is between the work environment, auditor well-being, and performance. Demanding professional environments can encourage diligence. Firms should recognize this. At the same time, firms should invest in strong systems. These systems should manage auditor workload, reduce excessive stress, and prevent burnout. This includes creating a supportive culture. It also means giving access to mental well-being resources. Firms should also offer specific training. This training helps auditors handle high-pressure situations well. Audit firms operate in changing markets or during significant economic shifts. In these times, they should improve their support systems. They could adjust team structures, provide special risk assessment tools, or allocate more resources. This ensures auditors can maintain high performance. Their well-being should not be compromised.

For client companies and their audit committees, the insights offer guidance. A narrow focus on the makeup of governance bodies, such as audit committees, might not be sufficient. Such a focus may not fully demonstrate their impact on audit oversight. Instead, the emphasis should be on the actual effectiveness of the audit committee's involvement. This involves encouraging open and transparent communication with auditors. It also requires ensuring that auditors have unrestricted access to necessary information. Committees should critically and actively review the audit process and its outcomes. External uncertainty may be high, and during these times, the active involvement and critical oversight of the audit committee are particularly important. They support the delivery of a high-quality audit or, at the very least, do not inadvertently hinder it. This proactive approach can help ensure that the auditor's professional judgment is properly supported and challenged.

For regulatory bodies and professional accounting organizations, this study is valuable. It highlights the psychological aspects of auditing. These aspects should be acknowledged in standards, guidance, and professional development. Promoting industry best practices is crucial. These practices should encourage both professional thoroughness and sustainable auditor well-being. This could include guidance on managing workload pressures. It could also involve creating environments conducive to sound professional judgment. Furthermore, there is an ongoing need to evaluate how independence rules translate into effective, objective auditing. This evaluation is necessary across different operating environments. Investing in comprehensive professional development would greatly benefit the profession. This development should equip auditors with skills such as managing stress, navigating

uncertainty, making good ethical decisions under pressure, and recognizing potential thinking biases. Such development would also enhance overall AUQA.

6.3. Limitations and Future Stream

This study, while insightful, has limitations that present avenues for future research. The use of proxies for key constructs inferring AUMO from firm type, measuring AUQA via MTB, and AUIN through audit committee structure warrants future work employing more direct psychological assessments of mood and broader metrics for quality and independence. The single-country focus (Vietnam) limits the generalizability of findings, particularly the unexpected results concerning independence; cross-country replications in diverse economic and cultural settings are needed. The S-GMM addressed endogeneity, but the observational design restricts definitive causal claims.

Future research could benefit from employing direct mood measurement techniques, exploring a wider array of AUQA and independence indicators, and utilizing experimental designs to establish causality more firmly. Investigating the differential impacts of specific mood states and various types of ENUN would add granularity. Longitudinal studies tracking auditors over time, and incorporating individual auditor characteristics like experience, personality, and coping mechanisms, could significantly deepen our understanding of the psychological dynamics influencing audit practice.

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