The Relationship between Non-Audit Services and Auditor Independence: An Analysis of the Impact on the Disclosure of Critical Audit Matters

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Abstract: I examine whether auditor independence, impacted by the provision of Non-Audit Services (NAS), affects the disclosure of Critical Audit Matters (CAMs). Furthermore, I split NAS into two different categories (tax fees and assurance fees) to see if the type of NAS has a different effect on CAM disclosure. Using a sample consisting of 9,027 observations from the U.S., I find that there is an insignificant relationship between NAS fees and CAM disclosure. Furthermore, I find that there is a significant relationship between tax fees and CAM disclosure, however the association is really weak, which makes the economic impact negligible. The relationship between assurance fees and CAM disclosure are also insignificant.

Keywords: Non-Audit Services, Critical Audit Matters, auditor independence, tax fee, assurance fee

1. Introduction

For many years, auditors have been providing Non-Audit Services (NAS) in addition to their audit services. NAS are any professional services provided by a qualified public accountant during the period of an audit engagement which are not connected to an audit or review of an institution's financial statements (*12 CFR § 621.31 - Non-audit services.*, n.d.). Although NAS provides significant benefits to companies, it is not without its challenges. The increasing growth of NAS raises concerns regarding the independence of auditors. This is because of the risk that auditors may be required to review their own work, or that companies could develop an economic dependency on auditors, leading to lower credibility and reliability of auditors (PCAOB, 2005). Because of these emerging concerns, the Public Company Accounting Oversight Board (PCAOB) released the Sarbanes-Oxley Act of 2002 (SOX). This act mandates audit committees to take direct responsibility for overseeing the engagement of their company's independent auditors (SOX, 2002). Based on the rules provided by the SOX, the Securities and Exchange Commission (SEC) created a standard to guarantee the independence of auditors from their audit clients. These new regulations implemented by the SEC has prohibited nine specific NAS, such as bookkeeping and internal audit outsourcing services (*SEC.gov | Audit Committees and Auditor Independence*, 2017).

The effect of NAS on impaired auditor independence has been an important research topic to investigate in recent years. When auditor independence is impaired, the entire audit process faces consequences. The disclosure of Critical Audit Matters (CAMs) is one aspect of the audit process that could be impacted by impaired auditor independence. The PCAOB introduced CAMs in 2017 to make audit reports more informative and defines CAMs as the following: “Any matter arising from the audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved especially challenging, subjective, or complex auditor judgment” (PCAOB, 2019). In this study I examine whether auditor independence, impacted by the provision of NAS, affects the disclosure of CAMs. As stated earlier, impaired auditor independence can directly impact the disclosure of CAMs, because reduced independence undermines the credibility and reliability of the auditor. Furthermore, according to the paper by Shi et al. (2021), Castillo-Merino et al. (2020) and Meuwissen et al. (2019) it is important to differentiate between different types of NAS, because they can have varying effects on the relationship between the company and auditor. Therefore, I will examine whether different types of NAS have a different effect on the disclosure of CAMs.

Despite the implementation of the SOX act concerning NAS, prior research has shown that NAS still impair auditor independence (Castillo-Merino et al., 2020; Meuwissen et al., 2019; Markelevich & Rosner, 2013; Causholi et al., 2014; Carcello et al., 2020; Ratzinger-Sakel, 2013; Geiger & Blay, 2013). In order to examine the NAS utilized by companies, I examine the fees associated with these services. The level of NAS fees indicates the amount of NAS utilized by a company. There are several papers that examined the effect of NAS fees on components that can lower the auditor independence. Prior research has indicated that higher NAS fees are positively associated with accounting frauds, such as issuing materially misstated financial statements (Markelevich & Rosner, 2013).

Additionally, a study conducted by Causholi et al. (2014) has shown that NAS fees are positively associated with earnings management. Carcello et al. (2020) demonstrated that NAS fees are negatively associated with the likelihood of recording a goodwill impairment. Furthermore, the study conducted by Ratzinger-Sakel (2013) observed that companies with high NAS fees tend to receive fewer going concern opinions from Big 4 auditors compared to non-Big 4 auditors. Based on the findings of these studies, it is evident that NAS fees play a crucial role in influencing the independence of auditors. Considering these studies, I predict that higher NAS fees will negatively impact the disclosure of CAMs. Due to the conflict of interest that arises, it is reasonable to predict that auditors are less likely to disclose CAMs.

There are a lot of different NAS that auditors can provide. For this research, I will follow the paper by Shi et al. (2021), which examines the following three types of NAS: 'tax services', 'assurance services' and 'other services'. It is limited to these three types of NAS, because these are the only three classifications the Audit Analytics database provides. However, for my research I will exclude "other services" as it does not specifically designate a specific NAS, making it less useful to investigate. Additionally, "other services" have a minor impact, making them statistically and practically insignificant for this study. As mentioned earlier, it is important to differentiate between different types of NAS, because they can have diverse impacts on the relationship between a company and its auditor (Shi et al., 2021; Castillo-Merino et al., 2020 and Meuwissen et al., 2019). Based on the studies conducted by Shi et al. (2021), Castillo-Merino et al. (2020) and Meuwissen et al. (2019) I predict that the two different NAS components will both have a negative relationship with CAM disclosure. However, I predict that the size of the negative relationship differs between the different types of NAS, because tax and assurance services represent differing NAS that have unique implications that can influence the disclosure of CAMs differently.

To empirically test these hypotheses, I gathered data for NAS fees and CAMs from the Wharton Research Data Services database under the heading "Audit Analytics". Furthermore, I gathered data for my control variables from Compustat under the heading "Fundamentals Annual". After merging my databases together I got a sample which comprises U.S. listed companies, spanning from 2019 to 2022, with a total of 9,027 observations. Because I only change the IV in each equation and all of these variables are related to NAS fees, the sample selection is the same for each analysis. Inconsistent with my prediction for H1, I find an extremely weak relationship between NAS fees and the disclosure of CAMs. Furthermore, the obtained results are not statistically significant, which indicates that there is not enough evidence to draw robust conclusions regarding the impact of NAS fees on CAM disclosure. Consistent with my prediction for H2A, the results are significant and the relationship between tax fees and CAM disclosure is negative. However the relationship is so extremely small that the economic impact is negligible. Inconsistent with my prediction for H2B, I observe an extremely weak relationship between assurance fees and CAM disclosure. In addition, as with H1, the results obtained are not statistically significant, which indicates that there is not enough evidence to draw robust conclusions regarding the impact of assurance fees on CAM disclosure. Furthermore I state that, the size between the relationships does not differ between the different types of NAS. However, the results for tax fees are significant, contrary to the results of NAS fees and assurance fees. This difference highlights that there is indeed a distinction between the impact of tax fees and assurance fees

on the disclosure of CAMs within my research. However further research should explore this difference further. To gain more insight into the relationship between NAS fees and CAM disclosure, I tested H1 on industry-level instead of firm-level. By adopting this approach, I can delve into industry-specific effects, enabling a meaningful comparison and assessing the consistency of results across different sectors. This additional analysis showed similar outcomes, which indicates that the relationship between NAS fees and CAM disclosure remains weak and statistically insignificant when examined at the industry-level.

This study makes several significant contributions to the existing literature. First, my study expands the existing literature by investigating the relationship between NAS fees and the disclosure of CAMs. Prior research indicates a negative relationship between NAS fees and independence of the auditor and that there is a significant relationship between auditor independence and the disclosure of CAMs. My study shows that there is not enough evidence to draw robust conclusions regarding the impact of NAS fees on CAM disclosure, due to insignificant results. Second, my research expands the studies conducted by Shi et al. (2021), Castillo-Merino et al. (2020) and Meuwissen et al. (2019) by looking at the difference between tax fees and assurance fees. My study shows that there is no difference between the relationships of both types of NAS fees and CAM disclosure. However, the results of tax fees are significant, which indicates that there is indeed a distinction between the impact of tax fees and assurance fees on the disclosure of CAMs within my research. However further research is needed to further investigate the effect of different types of NAS on CAM disclosure.

The study is not without its limitations. First, the results of H1 and H2B are insignificant, which could indicate that the observed relationships between NAS fees and the disclosure of CAMs, as well as between assurance fees and CAM disclosure, do not provide enough statistical evidence to draw robust conclusions about their impact. The lack of statistical significance raises questions about the robustness and reliability of these relationships, indicating that there may be other influential factors or variables that were not taken into account during the analysis. These unexplored factors could potentially have a more significant impact on CAM disclosure than the ones investigated in the study. Future research could add more control variables so that more variables are taken into account during the research. Secondly, there is a concern regarding generalizability. The data used in the study represents a specific subset of U.S. listed companies, which may restrict the broader applicability of the study's conclusions to other industries and regions. Furthermore, it is worth noting that in other countries, Key Audit Matters (KAMs) are issued instead of CAMs. These KAMs and CAMs exhibit distinct characteristics in several aspects, making it challenging to generalize the results across different contexts.

2. Literature Review and Hypothesis Development

2.1. *Impact of NAS on auditor independence*

The provision of NAS by auditors has been a long-standing practice for several years. However, concerns have emerged regarding its impact on auditor independence and the credibility and reliability of the audit processes. In order to see where these concerns originated, it is essential to examine the seminal study conducted by DeAngelo in 1981. In

this study the economic relationship between clients and auditors was investigated, revealing the potential threat it poses to auditor independence and the reliability of financial reporting (DeAngelo, 1981). Because of this study, more and more studies have been done over time looking for other potential threats that can affect auditor independence. For example, a study by Simunic revealed that companies with higher fees for management advisory services (a form of NAS) tend to receive lower audit fees from their auditors (Simunic, 1984). While this finding may suggest a cost-reducing effect, the study does raise concerns regarding the independence of auditors in such situations. As research about this topic progressed, an increasing number of studies began expressing concerns about the impact of NAS on auditor independence. These studies highlighted the need to understand and address the potential effects of NAS on the independence of auditors. For instance, in a research study conducted by Parkash & Venable (1993), companies recognize that stakeholders might have concerns about the independence of auditors due to the volume of NAS they receive. So, according to this study companies choose to limit the amount of NAS they receive from auditors to avoid any doubts about the objectivity of their auditors.

However, the world was only really shaken up when the accounting scandals such as Enron in 2001 and Worldcom in 2002 took place (Shi et al., 2021). These scandals have demonstrated the need to introduce strict financial reporting regulations to prevent subsequent accounting scandals. In response to these emerging concerns, the PCAOB introduced the Sarbanes-Oxley Act of 2002 (SOX). Title II of the SOX act introduces important regulations pertaining to auditor independence. This act mandates audit committees to take direct responsibility for overseeing the engagement of their company's independent auditors (SOX, 2002). According to the regulations established under the SOX act, the SEC has imposed restrictions on certain NAS. These restrictions have led to the prohibition of nine specific NAS, including services like bookkeeping and internal audit outsourcing. The goal of these restrictions is to safeguard auditor independence, maintain the integrity of the auditing profession, and address concerns regarding potential conflicts of interest (SEC.gov | Audit Committees and Auditor Independence, 2017).

Although the SOX act aimed to safeguard the auditor independence, recent studies still raise concerns about NAS affecting auditor independence (Castillo-Merino et al., 2020; Meuwissen et al., 2019; Markelevich & Rosner, 2013; Causholi et al., 2014; Carcello et al., 2020; Ratzinger-Sakel, 2013; Geiger & Blay, 2013). These concerns persist because the remaining permissible NAS still presents a potential risk to auditor independence (Shi et al., 2021). Examples of NAS that auditors can still provide are tax services and consultancy services. Returning to the articles addressing the impact of NAS on auditor independence, these studies have critically assessed the relationship between NAS and auditor independence, highlighting the potential risks and challenges associated with the provision of such services. According to the paper by Castillo-Merino et al. (2020) expected rents from NAS fees might impair auditor independence. Similarly, the study by Meuwissen et al. (2019) highlights that the provision of NAS is perceived as a negative effect on the independence of the auditor. According to these two studies NAS may introduce biases and conflicts of interest for auditors, which will impair their ability to remain objective and independent. Consequently, auditors might face challenges in making impartial judgments and decisions, as their financial incentives from NAS fees could potentially influence their behavior and

compromise the integrity of the audit process. Additionally, a study by Markelevich & Rosner (2013) has shown that higher NAS fees are positively associated with accounting frauds, such as issuing materially misstated financial statements. The correlation observed implies that the provision of NAS might create conditions that compromise auditor independence, allowing for the emergence of fraudulent reporting practices. The study conducted by Causholi et al. (2014) demonstrated that NAS fees are positively associated with two forms of earnings management: 'discretionary accruals' and 'classification shifting'. This finding suggests that higher NAS fees create more incentives for managers to engage in these forms of earnings management, which poses a high potential risk for auditors. In line with the findings of Castillo-Merino et al. (2020) and Meuwissen et al. (2019), the provision of NAS impairs auditor independence, preventing auditors from remaining objective and unbiased. Consequently, when auditors control a company that applies these types of earnings management, there are potential risks resulting from the impaired auditor independence. Furthermore, the study conducted by Carcello et al. (2020) demonstrated that NAS fees are negatively associated with the likelihood of recording a goodwill impairment. This is concerning, because this does negatively affect the credibility and the reliability of the auditor. Additionally, a study conducted by Ratzinger-Sakel (2013) observed that companies with high NAS fees tend to receive fewer going concern opinions from Big 4 auditors compared to non-Big 4 auditors. When auditors issue a going concern opinion, it is a signal to investors that there are higher financial risks, given that the future of the company is uncertain due to financial problems. It is therefore worrying that auditors can potentially give a wrong opinion about the financial condition of a company due to independence problems, since investors then make a decision about their investment based on misleading information. In addition, the study conducted by Geiger & Blay (2013) provides further evidence about the negative association NAS fees and auditor going-concern opinion decisions.

All the studies we have discussed above, contributes to the growing understanding of the relationship between NAS and auditor independence. Based on the findings of these studies, it is evident that NAS fees have a substantial impact on the independence of auditors. It is therefore important to investigate what the effect will be on the disclosure of CAMs.

2.2. *Impact of impaired auditor independence on CAMs*

The financial crisis of 2008 had a significant impact on the auditing profession. The crisis exposed weaknesses in the financial reporting and auditing processes. In response to these weaknesses, investors and other stakeholders have advocated for audit reports to be more informative and to provide more useful information about the financial statement audit (Jermakowicz et al., 2018). This change in the need for more informative audit reports has led to the introduction of CAMs in 2017. The PCAOB introduced the CAMs and defines them as "Any matter arising from the audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved especially challenging, subjective, or complex auditor judgment" (PCAOB, 2019). From now on, it is therefore mandatory for auditors to disclose CAMs, if any arises from the audit of the financial statements. The goal of implementing CAMs in the audit report is to increase the value of the audit report for investors by offering greater insights into management's financial

reporting choices (PCAOB, 2017). As observed from the second part of the definition of CAMs, it is important that the auditor applies professional auditor judgment. However, as previously discussed, it has been established that NAS can significantly compromise the independence of auditors, leading to a potential decrease in their objectivity (Castillo-Merino et al., 2020; Meuwissen et al., 2019; Markelevich & Rosner, 2013; Causholi et al., 2014; Carcello et al., 2020; Ratzinger-Sakel, 2013; Geiger & Blay, 2013).

According to the paper by Chen et al. (2023) companies that change their audit company have a tendency to provide more detailed and comprehensive information about CAMs. The effect of auditor rotation is examined by Ruiz‐Barbadillo et al. (2009) and Lennox et al. (2014). They found that auditor rotation led to an improvement in audit quality by mitigating auditor's incentives and by diminishing managements' ability to influence the auditor's decisions. When a company decides to work with a new audit firm, auditors put in extra effort to provide a deeper and more thorough description of CAMs in their financial reports. For example, the CAMs will consist of longer texts and will be better evaluated. In addition, this paper finds that when companies get a new auditor, it leads to increased auditor independence, fostering a renewed perspective within the company. As a consequence, auditors are incentivized to put greater effort in enhancing the quality of CAMs disclosures. In other words, the auditors are more committed to providing a high-quality, objective assessment of the CAMS. This research shows when companies change their audit firm, this change tends to lead to increased auditor independence, which subsequently results in a more thorough and high-quality CAMs disclosure. This suggests that a stronger sense of auditor independence is associated with more transparent, informative, and reliable CAMs reporting.

The study conducted by Carver et al. (2023) states that the disclosure of CAMs increases the credibility of the auditor. This is because CAMs provide a transparent view of the most challenging and complex aspects of the audit, demonstrating that the auditor is addressing key audit issues. However, there is a possibility of investors misinterpreting the financial statements. This misunderstanding may cause them to mistakenly believe that the auditor is uncomfortable with the company's accounting practices. This could lead to the perception that the auditor did not adequately address the CAM during the audit due to independence issues or a lack of competence. It's important to note that this doesn't establish a direct link between auditor independence and CAM disclosure. However, it does show that the misinterpretation of CAMs makes investors doubt the independence and competence of auditors. In other words, due to a misinterpretation of the CAM disclosure investors could doubt the independence of the auditor.

Based on the findings of the papers by Chen et al. (2023) and Carver et al. (2023) we can predict that there is an association between auditor independence and CAM disclosure.

2.3. *Hypotheses Development*

Based on the literature review conducted, several key findings have emerged regarding the impact of NAS on auditor independence and the relationship between impaired auditor independence and the disclosure of CAMs. The papers from Castillo-Merino et al. (2020), Meuwissen et al. (2019), Markelevich & Rosner (2013), Causholi et al. (2014), Carcello et al. (2020), Ratzinger-Sakel (2013) and Geiger & Blay (2013) have shown that NAS affects the independence of auditors. These papers have examined various aspects

within accountancy and explored the effects of NAS on these aspects. To examine the effect of NAS on auditor independence, these papers specifically analyzed NAS fees related to these services. NAS fees were used as an indicator because they indicate the extent to which a firm utilizes NAS services. However, there is still limited research on the specific impact of NAS on CAMs. The paper by Chen et al. (2023) has shown that when company's switch their auditor, the new auditors put more effort into the quality of the CAMs disclosure. According to this paper, this is because the auditor still has a very high independence and has hardly been influenced by the company. Therefore, this research provides evidence of a significant relationship between auditor independence and the disclosure of CAMs, because they are more likely to exercise professional judgment and provide comprehensive and detailed information about CAMs. The paper by Carver et al. (2023) demonstrated that investors could misinterpret the CAMs disclosed by auditors, which affects the perception of the investors about auditor independence. Based on these studies I predict that auditors might be motivated to manipulate their CAM disclosure for a company in order to enhance the perception of the investor about auditor independence. In other words, I predict that higher NAS fees will negatively impact the disclosure of CAMs. Given these arguments, I formulate the first hypothesis in the following way:

H1: *Auditors are less likely to disclose CAMs when they receive higher NAS fees.*

NAS is a broad concept that consists of many different types of services. Given the diversity within NAS, it is plausible to predict that different types of services may have varying effects on auditor independence. Therefore, previous studies have not only investigated the general impact of NAS on auditor independence but have also explored the potential differential effects of specific NAS. For example, the paper by Shi et al. (2021) distinguishes NAS between 'tax services', 'assurance services' and 'other services'. The purpose of providing tax services is for auditors to support their clients in effectively managing their tax obligations. Examples of tax services are tax planning and tax advisory. Assurance services are services that the auditors provide to examine the company's processes and controls. The goal is to increase the quality of these aspects within the organization. Examples of assurance services are internal controls and risk assessments. The other services component covers all other NAS fees except the tax and assurance fees.

In the papers conducted by Castillo-Merino et al. (2020) and Meuwissen et al. (2019), several findings have already been found that show that these different NAS have a different effect. The paper by Castillo-Merino et al. (2020) has categorized NAS into tax services, audit-related services and other or unspecified services. As discussed earlier, this paper found that expected rents from NAS fees might impair auditor independence. However, this is not the only thing this paper investigates. It also investigates the effect of future NAS on audit quality. This research shows that other service fees have a negative association with audit quality. However, according to this research there are insignificant results for the tax services and audit-related services. This suggests that the expected fees for these services does not affect audit quality. Higher CAM disclosure leads to higher audit quality and therefore it is relevant for my research to look at this relation. The paper by Meuwissen et al. (2019) has categorized NAS into tax consulting, financial information system (AIS) consulting, and

human resource (HR) consulting. AIS consulting and HR consulting are part of the assurance service fees. As previously mentioned, this paper examines the impact of these three types of NAS on auditor independence. According to this paper all three types of NAS have a negative impact on auditor independence. However the impact of HR consulting on auditor independence is significantly higher than the impact of tax and AIS consulting. The results of both papers show that not every type of NAS has the same effect. This indicates that tax and assurance services represent differing NAS that have unique implications that can influence the disclosure of CAMs differently. Therefore, it is important to distinguish NAS in two different components for my research to investigate whether the type of NAS will have a different effect. I will follow the paper by Shi et al. (2021) which distinguishes NAS in the following three different components: 'tax services', 'assurance services' and 'other services'. It is limited to these three types of NAS, because these are the only three classifications the Audit Analytics database provides. However, for my research I will exclude "other services" from consideration since it does not specify a specific type of NAS, making it irrelevant for investigation purposes. Based on the results of the papers by Castillo-Merino et al. (2020) and Meuwissen et al. (2019) I predict that the two different NAS components will both have a negative relationship with CAM disclosure. However, I predict that the size of the negative relationship differs between the different types of NAS. I will examine each type of NAS separately and compare the results in the results section. Therefore, I formulated the following two hypotheses:

> **H2A:** *Auditors are less likely to disclose CAMs when they receive higher tax fees.*
> **H2B:** *Auditors are less likely to disclose CAMs when they receive higher assurance fees.*

3. Research Design and Sample Selection

3.1. *Research Design*

3.1.1. NAS Fee model

For the first hypothesis I apply a regression model to test the relationship between the total disclosure of CAMs and NAS. I combined a number of variables from the regression models of Shi et al. (2021) and Chen et al. (2023) to create my own regression model:

(1) $$\#CAMs = \beta_0 + \beta_1 NAS\_Fee_{i,t} + \beta_2 Audit\_Fee_{i,t} \beta_3 LogAssets_{i,t} + \beta_4 MB_{i,t} + \beta_5 Lev_{i,t} + \beta_6 ROA_{i,t} + \beta_7 Big4_{i,t} + \beta_8 LitRisk_{i,t} + \beta_9 Loss_{i,t} + Year\ fixed\ effects + \varepsilon_{i,t\,g}$$

In this model *# CAMs* is the dependent variable and shows the number of CAMs that are disclosed in a fiscal year. So when company X discloses two CAMs in 2020, *# CAMs* will have an outcome of two. The independent variable in this model is *NAS_Fee*. This variable represents the total fee amount of all NAS provided by an auditor for a company. The other variables in the model are control variables and year fixed effects. For each variable, we examine the company it pertains to and the corresponding year of the information. The definitions and measurements of the control variables are presented in table 1.

3.1.2. NAS type models

The second hypothesis is split into two different hypotheses. I utilize the same regression model for each hypothesis, making adjustments only to the independent variable. Equation (2) tests the relationship between the total disclosure of CAMs and tax services. Equation (3) tests the relationship between the total disclosure of CAMs and assurance services. The models are presented here below:

(2) $$\#\ CAMs = \beta_0 + \beta_1\ Tax\_Fee_{i,t} + \beta_2\ Audit\_Fee_{i,t}\ \beta_3\ LogAssets_{i,t} + \beta_4\ MB_{i,t} + \beta_5\ Lev_{i,t} + \beta_6\ ROA_{i,t} + \beta_7\ Big4_{i,t} + \beta_8\ LitRisk_{i,t} + \beta_9\ Loss_{i,t} + Year\ fixed\ effects + \varepsilon_{i,t}$$

(3) $$\#\ CAMs = \beta_0 + \beta_1\ Assurance\_Fee_{i,t} + \beta_2\ Audit\_Fee_{i,t}\ \beta_3\ LogAssets_{i,t} + \beta_4\ MB_{i,t} + \beta_5\ Lev_{i,t} + \beta_6\ ROA_{i,t} + \beta_7\ Big4_{i,t} + \beta_8\ LitRisk_{i,t} + \beta_9\ Loss_{i,t} + Year\ fixed\ effects + \varepsilon_{i,t}$$

Similar to equation (1), in each model *# CAMs* is the dependent variable and represents the number of CAMs that are disclosed in a fiscal year. In equation (2) the independent variable is *Tax_Fee*. This variable represents the total fee amount of all tax services provided by an auditor for a company. In equation (3) the independent variable is *Assurance_Fee*. This variable represents the total fee amount of all assurance services provided by an auditor for a company. For each variable, we examine the company it pertains to and the corresponding year of the information. The other variables in the models are control variables and year fixed effects. The control variables are presented in table 1.

3.2. *Sample Selection*

In 2017, The PCAOB introduced the concept of reporting CAMs. For large accelerated filers it is required to report CAMs when the fiscal year ends on or after June 30, 2019. For all the other companies, it is required to report CAMs when the fiscal year ends on or after December 15, 2020 (PCAOB, 2019). Therefore the sample period for large accelerated filers is from 2019 until 2022 and for the other companies it is from 2020 until 2022. The data for NAS fees and CAMs comes from the Wharton Research Data Services database under the heading “Audit Analytics”. For some control variables I conducted some data from Compustat under the heading “Fundamentals Annual”. Because I only change the IV in each equation and all of these variables are related to NAS fees, the sample selection is the same for each analysis. The sample consists of 3,249 unique U.S. listed companies with 9,027 observations. There are more observations than companies due to the fact that companies disclose new CAMs every year, increasing the number of observations. For a better summarization the sample construction is presented in table 2.

4. Empirical Results

4.1. *Total NAS Fee Analysis*

4.1.1. *Descriptive Statistics*

Table 3, presents the descriptive statistics for the first hypothesis which examines the effect of the total disclosure of CAMs and NAS. The sample consists of 9,027 observations spanning from 2019 to 2022. The average *# CAMs* disclosed are 1.469 per fiscal year.

Furthermore, we can see that each company disclosed a minimum of 1 CAM and a maximum of 4 CAMs. The average *NAS_Fee* of a company is $726,108.161. Furthermore we can see that the minimum NAS reported is zero dollars, indicating that not each company has utilized NAS to some extent. In addition, table 3 also provides the statistics for the control variables. The average total *Audit_Fee* is $3,787,122.067 which indicates that the total audit fee consists of approximately 19.17% NAS. This shows the significance of NAS in the overall audit engagement. Additionally, the mean for *LogAssets* is 21.541. This is a good indicator for the overall size and scale of the companies in the sample. The mean Market-to-Book ratio (*MB*) in the sample is 2.848. This indicates that on average investors have a positive perception of the companies, and there is a healthy growth outlook in the future. The control variable *Lev* shows that the average leverage of the companies is 0.800. This implies that, on average, 80% of the assets of these companies are financed through liabilities. The mean of *ROA* is -0.038. This reveals that, on average, the companies in the sample are experiencing a small negative return on their assets. The average value for indicator variable *Big4* is 0.708. This shows that 70.8% of the sample had an auditor belonging to the Big 4. The mean for indicator variable *LitRisk* is 0.349. This indicates that 34.9% observations in the sample are operating in an industry with high litigation risk. Finally, the mean of indicator variable *Loss* is 0.354. This shows that 35.4% of the observations in the sample experienced a negative net income. The correlation matrix is shown in Table 4. The correlation matrix shows no significant multicollinearity concerns among most variables. However, there are high correlations with the variable *LogAssets* and other variables. As a result, it is essential to take into account some multicollinearity concerns when performing the regression analysis.

4.1.2. *Test of Hypothesis*

Table 5, presents the results of the test of H1. I predict that higher NAS fees will negatively impact the disclosure of CAMs. After controlling for other variables, *NAS_Fee* (coefficient = -0.000, p-value = 0.000) is negative but very close to zero, suggesting an extremely weak relationship between NAS fees and the disclosure of CAMs. Furthermore, the obtained results are not statistically significant. This indicates that due to the lack of statistical significance the observed relationship between *# CAMs* and *NAS_Fee* do not provide enough evidence to draw robust conclusions regarding the impact of NAS fees on CAM disclosure. Based on these results I can neither reject or accept H1.

4.2. *Tax Fee Analysis and Assurance Fee Analysis*

4.2.1. *Descriptive Statistics*

Table 3, presents the descriptive statistics for H2A which examines the effect of the total disclosure of CAMs and tax fees. The sample consists of 9,027 observations spanning from 2019 to 2022. The average *Tax_Fee* of a company is $290,036.484. In comparison to the total *NAS_Fee*, the total NAS fee consists of approximately 39.94% tax fees, which is a significant amount. Furthermore, we can see that the median of *Tax_Fee* is $125.000 and the maximum amount of *Tax_Fee* in the sample is $4,800,000.000. This indicates that the distribution of the *Tax_Fee* data is skewed to the right. As the control variables remain consistent throughout all analyses, the descriptive statistics for these variables can be found in

the 4.1.1. statistics section. The correlation matrix is shown in Table 4. This matrix shows no significant multicollinearity concerns among *Tax_Fee* and the other variables.

Table 3, presents the descriptive statistics for H2B which examines the effect of the total disclosure of CAMs and assurance fees. Similar to the previous analyses, the sample for this analysis comprises 9,027 observations covering the period from 2019 to 2022. The average *Assurance_Fee* of a company is $297,620.760. In comparison to the total *NAS_Fee*, the total NAS fee consists of approximately 40.99% assurance fees, which is a significant amount. Furthermore, we can see that the median of *Assurance_Fee* is $31.000 and the maximum amount of *Assurance_Fee* in the sample is $7,293,279.000. Similarly to the tax fee analysis, the distribution of the *Assurance_Fee* data is skewed to the right. As the control variables remain consistent throughout all analyses, the descriptive statistics for these variables can be found in the 4.1.1. descriptive statistics section. When the results from the descriptive statistics for *Tax_Fee* and *Assurance_Fee* are compared, it can be observed that the mean is almost the same. Furthermore, it can be observed that both variables are skewed to the right, so it looks like both variables have the same characteristics. The correlation matrix is shown in Table 4. Similarly to the *Tax_Fee* analysis, this matrix shows no significant multicollinearity problems between *Assurance_Fee* and the other variables.

4.2.2. *Test of Hypothesis*

Table 6, presents the results of the test of H2A. I predict that higher tax fees will negatively impact the disclosure of CAMs. After controlling for other variables, *Tax_Fee* (coefficient = -0.000, p-value = 0.000) is negative but very close to zero. This negative coefficient suggests that there is an association between tax fees and CAM disclosure. However, the coefficient value of -0.000 indicates that the effect size of this relationship is almost negligible, implying an extremely weak association between tax fees and CAM disclosure. Despite this weak association, the results reveal statistical significance contrary to H1. While the statistical analysis shows a significant association between the variables, the actual impact of tax fees on CAM disclosure is relatively small. Therefore we can conclude that *Tax_Fee* has no significant impact on the disclosure of CAMs. However, as the coefficient is significant at the 1% level, H2A is accepted, despite the negligible economic impact.

Table 7, presents the results of the test of H2B. I predict that higher assurance fees will negatively impact the disclosure of CAMs. After controlling for other variables, *Assurance_Fee* (coefficient = -0.000, p-value = 0.000) is negative but very close to zero, suggesting an extremely weak relationship between assurance fees and the disclosure of CAMs. Furthermore, similar to H1, the obtained results are not statistically significant. This indicates that due to the lack of statistical significance the observed relationship between *# CAMs* and *Assurance_Fee* do not provide enough evidence to draw robust conclusions regarding the impact of assurance fees on CAM disclosure. Therefore, we cannot definitively accept or reject H2B based on the current findings.

In the hypothesis development section I predicted that the size of the negative relationship between the different types of NAS differs. When comparing *Tax_Fee* from table 6 and *Assurance_Fee* from table 7 we see that the coefficient and the p-value are almost the same. However, the relationship between *Tax_Fee* and the disclosure of *# CAMs* are

statistically significant, while the relationship with *Assurance_Fee* lacks statistical significance. This difference shows that within this research there is indeed a difference between *Tax_Fees* and *Assurance_Fees* and their impact on the disclosure of *# CAMs*. However, further research needs to investigate the effect of various types of NAS better due to the fact that both variables show the same coefficient.

4.3. *Additional Analysis*

In the previous analyses of H1, I investigated companies individually and what the effect of NAS fees is on CAM disclosure. However for the additional analysis I will examine the analysis on industry-level. This approach allows me to explore specific effects within each industry, facilitating a meaningful comparison and helping determine if the results hold consistent across various sectors. By focusing on industry-level data, I can gain deeper insights into how different industries may have different NAS fees which affects the CAM disclosure differently. These results will enhance the robustness of the findings of H1.

For the new database I merged my data based on fiscal year and a four-digit Standard Industry Classification (SIC) code which classifies the industries in different groups. This new database consists of 1,291 observations. Subsequently, I calculated the mean values per industry code. However, I had to adjust the indicator variables *Big4* and *Loss*, as they originally ranged between 0 and 1 per industry (Since, for example, every company in an industry can have a different Big4 auditor). To address this, I took the mean value of both variables and transformed them into binary indicators, assigning a value of 1 if it exceeded the mean, and 0 otherwise. Table 8, presents the results of the test of the additional analysis. After controlling for other variables, *NAS_Fee* (coefficient = 0.000, p-value = 0.000) is positive but very close to zero. Furthermore, the obtained results are not statistically significant. This is in line with the results from the regression from H1.

5. Conclusion

This study aimed to examine whether NAS have a negative impact on the disclosure of CAMs. My results show that the relationship between NAS fees and CAM disclosure is insignificant. This indicates that due to the lack of statistical significance the observed relationship between CAMs and NAS fees do not provide enough evidence to draw robust conclusions regarding the impact of NAS fees on CAM disclosure. Additionally, this study aimed to examine if the type of NAS service (tax or assurance) has a different impact on CAM disclosure. The results show that the relationship between tax fees and CAM disclosure is significant. This indicates that there is a relationship between both variables, however the relationship is really weak, which makes the economic impact negligible. The relationship between assurance fees and CAM disclosure is insignificant. This indicates that due to the lack of statistical significance the observed relationship between CAMs and assurance fees do not provide enough evidence to draw robust conclusions regarding the impact of assurance fees on CAM disclosure. These findings contribute to the already existing literature by expanding our understanding of the relationship between NAS fees and CAM disclosure.

The insignificant results for H1 and H2B are a limitation for this study, indicating that there is insufficient statistical evidence for the relationship between NAS and CAM

disclosure. The statistical insignificance questions the relationships robustness and reliability, hinting at potential unconsidered influential factors that were not taken into account during the analysis. Additionally, the study's restricted scope to specific U.S. listed companies raises concerns about generalizability to other industries and regions, especially considering the distinct characteristics of KAMs in different contexts. Future research could address these limitations by incorporating more control variables and considering diverse audit reporting practices globally.

Finally, it can be concluded that there is a difference between the effect of tax fees and assurance fees on CAM disclosure due to the difference in significant and insignificant results, however further research is needed to further explore this relationship.

References:

12 CFR § 621.31 - Non-audit services. (z.d.). LII / Legal Information Institute. https://www.law.cornell.edu/cfr/text/12/621.31#:~:text=Non-audit%20services%20are%20any%20professional%20services%20provided%20by,or%20review%20of%20an%20institution%20%27s%20financial%20statements.

Carcello, J. V., Neal, T. L., Reid, L. C., & Shipman, J. E. (2020). Auditor independence and fair value accounting: An examination of nonaudit fees and goodwill impairments. *Contemporary Accounting Research*, *37*(1), 189-217.

Carver, B., Muriel, L., & Trinkle, B. S. (2023). Does the Reporting of Critical Audit Matters Affect Nonprofessional Investors' Perceptions of Auditor Credibility, Information Overload, Audit Quality, and Investment Risk?. Behavioral Research in Accounting, 35(1), 21-44.

Castillo-Merino, D., Garcia-Blandon, J., & Martinez-Blasco, M. (2020). Auditor independence, current and future NAS fees and audit quality: Were European regulators right?. European Accounting Review, 29(2), 233-262.

Causholli, M., Chambers, D. J., & Payne, J. L. (2014). Future nonaudit service fees and audit quality. Contemporary accounting research, 31(3), 681-712.

Chen, L., Xiao, T., & Zhou, J. (2023). Do auditor changes affect the disclosure of critical audit matters? Evidence from China. Economic Modelling, 122, 106245.

DeAngelo, L. E. (1981). Auditor independence,'low balling', and disclosure regulation. *Journal of accounting and Economics*, *3*(2), 113-127.

Geiger, M. A., & Blay, A. D. (2011). Auditor fees and auditor independence: Evidence from going concern reporting decisions. *Available at SSRN 1943124*.

Jermakowicz, E. K., PhD CPA, Epstein, B. J., & Ramamoorti, S. (2018). CAM versus KAM—A Distinction without a Difference? The CPA Journal. https://www.cpajournal.com/2018/02/19/cam-versus-kam-distinction-without-difference/

Lennox, C. S., Wu, X., & Zhang, T. (2014). Does mandatory rotation of audit partners improve audit quality?. *The accounting review*, *89*(5), 1775-1803.

Markelevich, A., & Rosner, R. L. (2013). Auditor fees and fraud firms. Contemporary Accounting Research, 30(4), 1590–1625.

Meuwissen, R., & Quick, R. (2019). The effects of non-audit services on auditor independence: An experimental investigation of supervisory board members' perceptions. Journal of International Accounting, Auditing and Taxation, 36, 100264.

Parkash, M., & Venable, C. F. (1993). Auditee incentives for auditor independence: The case of nonaudit services. *Accounting Review*, 113-133.

PCAOB. (2005, July 26). Ethics and independence rules concerning independence, tax services, and contingent fees (PCAOB Release No. 2005-014, PCAOB Rulemaking Docket Matter No. 017)

PCAOB. (2017). The auditor's report on an audit of financial statements when the auditor expresses an unqualified opinion; and related amendments to PCAOB standards. PCAOB Release No. 2017-001. Available at: https://pcaobus.org/Rulemaking/Docket034/2017-001-auditors-report-final-rule.pdf

PCAOB. (2019). Implementation of Critical Audit Matters: The Basics. In www.pcaobus.org. Accessed on 8 of May 2023, from https://pcaobus.org/Standards/Documents/Implementation-of-Critical-Audit-Matters-The-Basics.pdf

Ratzinger-Sakel, N. V. (2013). Auditor fees and auditor independence—Evidence from going concern reporting decisions in Germany. *Auditing: A Journal of Practice & Theory*, *32*(4), 129-168.

Ruiz‐Barbadillo, E., Go´ mez‐Aguilar, N., & Carrera, N. (2009). Does mandatory audit firm rotation enhance auditor independence? Evidence from Spain. *Auditing: A journal of practice & theory*, *28*(1), 113-135.

Sarbanes-Oxley Act of 2002. Public Law 107-2040. H.R. 3763

SEC.gov | Audit Committees and Auditor Independence. (2017, 12 May). https://www.sec.gov/oca/audit042707

Shi, L., S. Hong Teoh, and J. Zhou. (2021). Non-Audit Services in Audit Committee Interlocked Firms, Financial Reporting Quality, and Future Performance. Journal of Accounting, Auditing & Finance: 0148558X211015552.

Simunic, D. A. (1984). Auditing, consulting, and auditor independence. *Journal of Accounting research*, 679-702.

Appendix:

Table 1. Variable Definitions

Variable:	Definition:
# CAMs	The total number of CAMs disclosed by a company.
NAS_Fee	The sum of the total non-audit service fee for a company.
Tax_Fee	The sum of the total tax service fee for a company.
Assurance_Fee	The sum of the total assurance service fee for a company.
Audit_Fee	The sum of the total audit service fee for a company.
LogAssets	The natural log of total assets
MB	Market-to-book ratio which is calculated by dividing market capitalization with the total book value.
Lev	Leverage which is calculated by dividing total assets with total equity.
ROA	Return on assets is calculated by dividing net income with the total assets.
Big4	Indicator variable that equals to one if the auditor is a Big4 auditor (Deloitte, EY, KPMG and PWC), and zero otherwise.
LitRisk	Indicator variable that equals to one if the company operates in a high-litigation industry, and zero otherwise. High-litigation industries includes the industries with the following SIC codes: 2833-2836, 3570-3577, 3600-3674, 5200-5961, 7370-7474
Loss	Indicator variable that equals to one if the net income for the fiscal year is negative, and zero otherwise

Table 2. Sample Selection

Sample selection for NAS, Tax and Assurance Analysis	
Observations identified through the Audit Analytics Database for providing NAS in the US between 2009 - 2022	49,060
Less: Missing Values	(28,732)
Less: Interaction after merging the NAS database with the CAM database	(10,903)
Less: Interaction after merging the new database and control variable database	(398)
Number of observations of NAS provided in the US between 2019 and 2022	**9,027**

Note: Table 2 provides the sample selection for H1, H2A and H2B. It is the same sample, because I only changed the IV in each equation and all of these variables are related to NAS fees, which led to the same data with a different variable for the IV.

Table 3. Descriptive Statistics

Variable	N	Mean	Min	P25	Median	P75	Max
Audit_Fee	9,027	3,787,122.067	60.000	329,936.000	1,855,000.000	4,152,700.000	36,493,000.000
NAS_Fee	9,027	726,108.161	0.000	56.000	5,482.000	488,584.500	11,831,864.000
Tax_Fee	9,027	290,036.484	0.000	0.000	125.000	60,969.000	4,800,000.000
Assurance_Fee	9,027	297,620.760	0.000	0.000	31.000	3,438.500	7,293,279.000
# CAMs	9,027	1.469	1.000	1.000	1.000	2.000	4.000
LogAssets	9,027	21.541	15.358	19.975	21.619	22.987	26.793
MB	9,027	2.848	-127.517	-0.314	1.502	4.819	155.545
Lev	9,027	0.800	-36.774	1.464	2.216	3.823	24.813
ROA	9,027	-0.038	-1.489	-0.054	0.016	0.064	0.302
BIG4	9,027	0.708	0.000	0.000	1.000	1.000	1.000
LitRisk	9,027	0.349	0.000	0.000	0.000	1.000	1.000
Loss	9,027	0.354	0.000	0.000	0.000	1.000	1.000

Note: Table 3 provides the descriptive statistics for H1, H2A and H2B. All variables are in one table because each analysis uses the same control variables and only the IV is adjusted. All of the continuous variables are winsorized at the 1st and 99th percentile of the sample distribution. See table 1 for variable definitions.

Table 4. Correlation Matrix

	Audit_Fee	Assurance_Fee	Tax_Fee	NAS_Fee	# CAMs	LogAssets	MB	Lev	ROA	Big4	LitRisk	Loss
Audit_Fee	1	0.650	0.490	0.720	0.290	0.650	-0.040	0.170	0.180	0.350	-0.120	-0.210
Assurance_Fee	0.650	1	0.360	0.850	0.190	0.400	-0.030	0.100	0.080	0.170	-0.060	-0.110
Tax_Fee	0.490	0.360	1	0.740	0.110	0.350	-0.030	0.080	0.120	0.220	-0.060	-0.130
NAS_Fee	0.720	0.850	0.740	1	0.200	0.480	-0.040	0.120	0.130	0.250	-0.070	-0.150
# CAMs	0.290	0.190	0.110	0.200	1	0.210	-0.020	0.090	-0.010	0.090	-0.050	0.030
LogAssets	0.650	0.400	0.350	0.480	0.210	1	-0.020	0.340	0.480	0.610	-0.310	-0.450
MB	-0.040	-0.030	-0.030	-0.040	-0.020	-0.020	1	0.030	0.020	0.020	0.050	0
Lev	0.170	0.100	0.080	0.120	0.090	0.340	0.030	1	0.180	0.330	-0.360	-0.340
ROA	0.180	0.080	0.120	0.130	-0.010	0.480	0.020	0.180	1	0.320	-0.180	-0.590
Big4	0.350	0.170	0.220	0.250	0.090	0.610	0.020	0.330	0.320	1	-0.160	-0.270
LitRisk	-0.120	-0.060	-0.060	-0.070	-0.050	-0.310	0.050	-0.360	-0.180	-0.160	1	0.280
Loss	-0.210	-0.110	-0.130	-0.150	0.030	-0.450	0	-0.340	-0.590	-0.270	0.280	1

Note: Table 4 provides the correlation matrix of all analysis. See table 1 for variable definitions.

Table 5. Regression Analysis NAS Fee

	Dependent Variable: # CAMs	
	Coefficient	p-value
NAS_Fee	-0.000	(0.000)
Audit_Fee	0.000***	(0.000)
LogAssets	0.042***	(0.005)
MB	-0.0002	(0.0003)
Lev	0.004***	(0.001)
ROA	-0.108***	(0.039)
Big4	-0.123***	(0.020)
LitRisk	0.021	(0.016)
Loss	0.180***	(0.019)
Year2020	-0.105***	(0.021)
Year2021	-0.227***	(0.021)
Year2022	-0.323***	(0.026)
Constant	0.639***	(0.110)
Observations	9,027	
R^2	0.124	
Adjusted R^2	0.123	
Residual Std. Error	0.653 (df = 9014)	
F Statistic	106.128*** (df = 12; 9014)	
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 5 reports the results of the regression analysis of H1. The dependent variable is the number of CAMs disclosed by a company. All of the continuous variables are winsorized at the 1st and 99th percentile of the sample distribution. See table 1 for variable definitions.

Table 6. Regression Analysis Tax Fee

	Dependent Variable: # CAMs	
	Coefficient	p-value
Tax_Fee	-0.000***	(0.000)
Audit_Fee	0.000***	(0.000)
LogAssets	0.042***	(0.005)
MB	-0.0002	(0.0003)
Lev	0.004***	(0.001)
ROA	-0.108***	(0.038)
Big4	-0.120***	(0.020)
LitRisk	0.020	(0.016)
Loss	0.179***	(0.019)
Year2020	-0.106***	(0.021)
Year2021	-0.229***	(0.021)
Year2022	-0.324***	(0.026)
Constant	0.640***	(0.109)
Observations	9,027	
R^2	0.125	
Adjusted R^2	0.123	
Residual Std. Error	0.653 (df = 9014)	
F Statistic	106.887*** (df = 12; 9014)	
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 6 reports the results of the regression analysis of H2A. The dependent variable is the number of CAMs disclosed by a company. All of the continuous variables are winsorized at the 1st and 99th percentile of the sample distribution. See table 1 for variable definitions.

Table 7. Regression Analysis Assurance Fee

	Dependent Variable: # CAMs	
	Coefficient	p-value
Assurance_Fee	-0.000	(0.000)
Audit_Fee	0.000***	(0.000)
LogAssets	0.042***	(0.005)
MB	-0.0002	(0.0003)
Lev	0.004***	(0.001)
ROA	-0.108***	(0.039)
Big4	-0.123***	(0.020)
LitRisk	0.020	(0.016)
Loss	0.181***	(0.019)
Year2020	-0.105***	(0.021)
Year2021	-0.227***	(0.021)
Year2022	-0.322***	(0.026)
Constant	0.643***	(0.110)
Observations	9,027	
R^2	0.124	
Adjusted R^2	0.123	
Residual Std. Error	0.653 (df = 9014)	
F Statistic	106.008*** (df = 12; 9014)	
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 7 reports the results of the regression analysis of H2B. The dependent variable is the number of CAMs disclosed by a company. All of the continuous variables are winsorized at the 1st and 99th percentile of the sample distribution. See table 1 for variable definitions.

Table 8. Regression Additional Analysis

	Dependent Variable: # CAMs	
	Coefficient	p-value
NAS_Fee	0.000	(0.000)
Audit_Fee	0.000***	(0.000)
LogAssets	0.032**	(0.014)
MB	0.0002	(0.003)
Lev	0.004	(0.001)
ROA	-0.339***	(0.097)
Big4	-0.040	(0.033)
LitRisk	-0.055	(0.034)
Loss	0.080**	(0.032)
Year2020	-0.097***	(0.036)
Year2021	-0.251***	(0.036)
Year2022	-0.367***	(0.038)
Constant	0.866***	(0.294)
Observations	1,291	
R^2	0.167	
Adjusted R^2	0.159	
Residual Std. Error	0.441 (df = 1278)	
F Statistic	21.336*** (df = 12; 1278)	
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 8 reports the results of the regression from the additional analysis. The dependent variable is the number of CAMs disclosed by a company. All of the continuous variables are winsorized at the 1st and 99th percentile of the sample distribution. See table 1 for variable definitions.