PRACTICE NOTE

Internal control quality and audit quality: the role of financial analysts

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KEY TAKE-AWAYS

This project studies the role of internal control quality during the audit process and proposes a new source which auditors can use to gain information on control risk. The study aims at understanding the relevance of internal control quality for audit quality and identifying an information channel which may help auditors to assess internal control quality more accurately and efficiently. Since financial analysts are typically macroeconomic experts and have profound industry knowledge, they are arguably able to form a relatively precise assessment of fraud risk. In this context, the team views fraud risk and internal control quality as two sides of the same coin. Financial analysts have an incentive to acquire information on fraud risk (including governance and controls) as undetected fraud negatively affects the quality of financial statements, which are an essential information source of financial analysts' earnings…

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Internal Control Quality and Audit Quality: The Role of Financial Analysts

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Executive Summary

We study the role of internal control quality during the audit process and propose a new source which auditors can use to gain information on control risk.

Firms today are operating in an increasingly volatile environment. At the same time, they are constantly exposed to high performance expectations by capital markets' participants, suggesting that firms face huge pressure to achieve performance targets. Against this background, it seems to be easier and more tempting for managers to selfishly make use of managerial discretion, potentially endangering financial reporting quality. Effective internal controls may limit the scope for managerial opportunistic behavior (PCAOB AS 1101; Doyle et al. 2007; Donelson et al. 2016). However, assessing the quality of internal controls is challenging and induces monetary and nonmonetary costs for parties external to the firm, including auditors (Iliev 2010; Hoag and Hollingsworth 2011).

Our study aims at understanding the relevance of internal control quality for audit quality and identifying an information channel which may help auditors to assess internal control quality more accurately and efficiently. Since financial analysts are typically macroeconomic experts and have profound industry knowledge (Jennings 1987; Hutton et al. 2012), they are arguably able to form a relatively precise assessment of fraud risk. In this context, we view fraud risk and internal control quality as two sides of the same coin. Financial analysts have an incentive to acquire information on fraud risk (including governance and controls) as undetected fraud negatively affects the quality of financial statements, which are an essential information source of financial analysts' earnings forecasts (Brown et al. 2015). Moreover, analysts explicitly and implicitly include their assessment of fraud risk during earnings conference calls as well as in their analyst reports, which provide an overview of the information that analysts collected of their covered firms and include buy or sell recommendations. Consequently, we argue that the information provided by financial analysts may be a valuable information source for auditors to more accurately and efficiently assess inherent and control risk. Over the course of the project, we will combine proprietary data on audit-engagements of Dutch public and selected private firms provided by the Big 4 audit firms in the Netherlands through the *Foundation for Auditing Research (FAR)* with publicly available data from databases. To capture the information on fraud risk provided by financial analysts we will perform a textual analysis of earnings conference call transcripts and financial analysts' reports using Python.

The findings of our study are interesting for the auditing practice, standard setters, regulators, the scientific community as well as society at large. It deals with the fundamental issue of fraud risk and its influence on internal control quality assessment during the auditing process. Access to the proprietary data on audit-engagements provided by the *Foundation for Auditing Research (FAR)* provides us with precise measures of the major underlying constructs such as audit quality and internal control risk and, thereby, we make an important contribution to the literature on internal control quality.

Motivation

The accumulation of political (e.g., Brexit), social (e.g., refugee crisis), and environmental (e.g., climate change, Corona crisis) developments in recent years suggest that firms have to operate in an increasingly volatile environment these days. Baker et al. (2016) suggest that policy uncertainty has increased throughout the last years and Hassan et al. (2019) show an increase in firms' exposure to political risks. At the same time, capital markets' participants continue to formulate high performance and growth expectations for firms, suggesting that firms continue to face huge pressure to achieve demanding performance targets. Against this background, it seems to be easier and more tempting for managers to selfishly make use of managerial discretion, potentially endangering financial reporting quality and audit quality.

Effective internal controls reduce the opportunities for the firm's management to manipulate the financial statements and thus prevent material misstatements, ensuring financial reporting quality (PCAOB AS 1101; Doyle et al. 2007). However, auditors face difficulties in auditing the quality of internal controls, due to its complexity and the time constraints present during the audit process (e.g., Hoag and Hollingsworth 2011). Thus, assessing a firm's internal control quality leads to monetary and non-monetary costs for auditors (Iliev 2010). Our study includes two work packages which aim at investigating two related themes: Understanding the relevance of internal control quality for audit quality (Work package 1), and identifying

financial analysts as an information channel that may allow auditors to assess internal control quality more accurately and efficiently (Work package 2).[1]

Financial analysts' have an incentive to correctly assess a firm's fraud risk, as fraud is negatively related to the reliability of financial reports (Ball 2001), thus affecting financial analysts' forecast accuracy. They share this assessment of fraud risk during earnings conference calls and in their reports. As fraud risk is directly related to weak internal controls, this assessment provides a valuable source of information for auditors to assess internal control quality more effectively and efficiently, potentially increasing audit quality. Financial analysts are macroeconomic experts and have profound industry knowledge, suggesting that they have a precise assessment of the impact of external factors (e.g., GDP growth, interest rate changes, changes in energy cost) on firm performance (Hutton et al. 2012). Consequently, we expect financial analysts' assessment of the likelihood of managerial fraud to be the most precise assessment among firm outsiders. This assessment can be used to estimate the relevance of the effectiveness of internal controls over financial reporting. Thus, financial analysts may provide auditors with a valuable source of information to more effectively and efficiently assess inherent and control risk during the audit process.

Theoretical Framework

For more than two decades, researchers have been studying the concept of audit quality and its drivers (for a summary see Francis 2011; Knechel et al. 2013; DeFond and Zhang 2014). DeFond and Zhang (2014) define audit quality as a "greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics". Hereby, audit quality not only captures the binary outcome of 'violation of standards found' versus 'violation of standards not found' but rather a

[1] This practice note focuses on the second work package. For a structured overview of the literature on the importance of internal controls for audit quality, please refer to our research synthesis on the FAR homepage.

continuous construct assuring financial reporting quality (DeFond and Zhang 2014, Francis 2011). Following the PCAOB's audit risk model, the auditor has to assess the acceptable audit risk, the inherent risk, and the control risk to derive the permitted detection risk (i.e., the minimum required audit effort) in order to ensure audit quality. In line with PCAOB AS 1101 (07), we define inherent risk as the likelihood that, in the absence of internal controls, material errors or frauds enter the accounting system used to develop financial statements, and control risk as the likelihood that the client's internal control policies and procedures fail to prevent or detect a material misstatement.

In the audit risk model, the assessment of the quality of internal controls (i.e., control risk) is a significant determinant of audit quality. Since the passage of the Sarbanes-Oxley Act (SOX) in 2002 and similar legislature in other countries, internal control audits are required for large firms (i.e., firms with a market capitalization of over $75 million and revenues exceeding $100 million). For example, ISA 315 requires the assessment of internal controls. Hereby, auditors (1) issue an opinion on the effectiveness of internal controls, (2) perform intensive testing of internal control design and operating effectiveness, and (3) publicly disclose material weaknesses (Gupta et al. 2013; PCAOB AS 2). Prior studies provide evidence that auditing internal control as part of the regular audit increases financial reporting quality, suggesting that internal control audits contribute to financial statements' quality (Doyle et al. 2007; Carnes et al. 2019). More specifically, auditors are able to reduce the negative effect of poor internal controls on financial reporting quality through substantive testing (Hogan and Wilkins 2008; Doyle et al. 2007; Blankley et al. 2012). Figure 1 summarizes our theoretical framework for Work package 1:

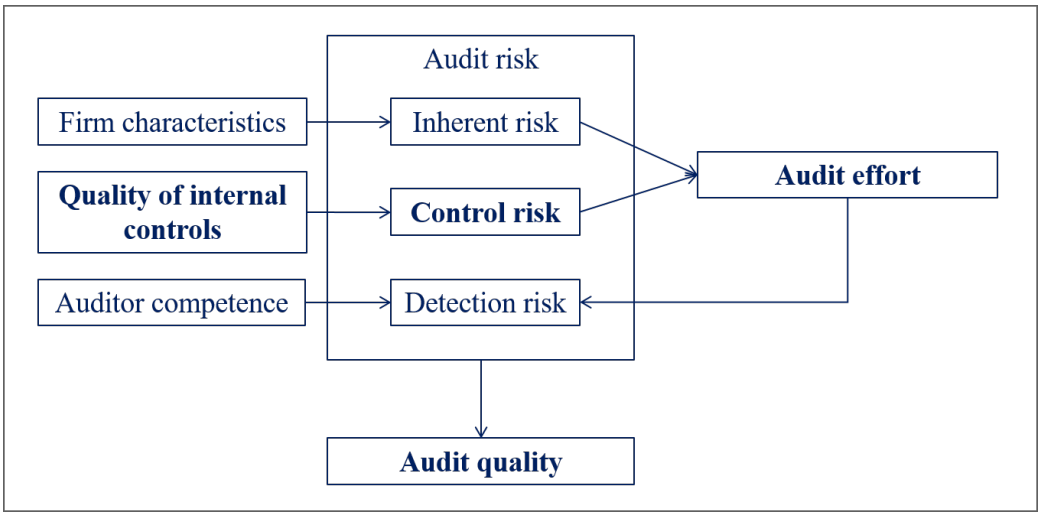

Figure 1: Theoretical framework. Major constructs are highlighted in bold

We argue that auditors have an incentive to *accurately* assess internal control quality for the following reasons: (1) Internal control audits of high quality improve audit quality (Knechel et al. 2013; Hogan and Wilkins 2008; Doyle et al. 2007), (2) accurate assessments of low control risk allow the auditor to scale back the audit procedures and, thus, reduce audit cost (PCAOB AS 2201, (8)), and (3) accurate assessments of high control risk allow the auditor to increase audit effort in order to prevent costly litigation and subsequent reputational damages. Moreover, auditors arguably have an incentive to *efficiently* assess internal control quality since assessing a firm's internal control quality is costly (Iliev 2010).[2] Further below, we will describe some initial evidence on the relations in Figure 1.

We predict that the information provided by financial analysts allows auditors to increase the accuracy and efficiency of internal control quality assessments. To the extent that auditors do not use financial analysts' information, this information will enable them to make more accurate assessments. To the extent that auditors do use financial analysts' information, we intent to make this information more easily accessible. Financial analysts work as information intermediaries by acquiring and interpreting (i.e., attracting and directing attention, clarifying

[2] As an aside, internal control audits are not only valuable from an external perspective but also from the firm's perspective. In particular, internal control audits may increase internal information quality, improving operating decision-making (Kinney and Shepardson 2011; Carnes et al. 2019).

or evaluating) information from public and private sources (Healy and Palepu 2001; Huang et al. 2017), resulting in earnings forecasts. Thereby, financial analysts provide valuable information to the capital market (e.g., Brown et al. 1987; Bradley et al. 2014). Financial analysts seek for (precise) information on firm performance in order to increase their forecast accuracy and, thus, their reputation (Stickel 1992; Chen et al. 2005; Scharfstein and Stein 1990).

Relative to financial analysts, auditors possess superior firm-specific information through their direct access to internal documents; in turn, financial analysts possess superior information on external determinants of firm performance due to their industry and macroeconomic expertise. Related, Hutton et al. (2012) provide evidence that financial analysts have a richer information set than managers in case of high macroeconomic uncertainty and a comparable information set in case of high industry risk. In particular, they find that financial analysts show a higher forecasting accuracy when the firm is exposed to macroeconomic factors which are outside of the management's control (e.g., regulation). Hutton et al. (2012) argue that financial analysts' forecasting ability originates in their industry and macroeconomic expertise. More specifically, the broader information set may enable financial analysts to combine several valuable sources of information, thereby increasing their ability to predict the influence of external factors on firm performance. Moreover, financial analysts may even have exclusive access to macroeconomic information sources (Jennings 1987). Consequently, financial analysts' expectations on firm performance are especially relevant to auditors when firms are more strongly exposed to macroeconomic risks.

We expect financial analysts' macroeconomic and industry expertise to be useful for auditors to more accurately and efficiently assess the inherent risk and control risk. In particular, financial analysts have a better assessment of the impact of macroeconomic factors on firm performance (e.g., Hutton et al. 2012), which determine managers' scope and incentive for opportunistic behavior to achieve given performance targets (see Newton 2019). The more

likely managerial opportunistic behavior, the higher the requirement for effective internal controls, as effective internal controls limit managers' opportunistic behavior. Consistent with this view, PCAOB AS 12 suggests that risks of material misstatements can arise from several sources, including external factors such as firms' industry, regulatory, and macroeconomic environment. Accordingly, these external factors may put pressure on managers to manipulate financial statements to achieve performance benchmarks (PCAOB AS 12). Consequently, auditors' use of information on financial analysts' assessment of fraud risk may decrease the cost of the internal control audit and increase the quality of their internal control assessment due to a more efficient allocation of auditor resources.

We expect financial analysts to provide information on their fraud risk assessments during earnings conference calls as well as in their reports. Earnings conference calls intend to inform investors on the current and future performance of the firm. Usually, the call starts with a presentation section where the CEO and CFO of the firm provide an overview on the macroeconomic environment of the firm (e.g., current trends and challenges), briefly summarize the past and current performance of the firm, and provide an outlook on future performance. Afterwards, in the questions and answers (Q&A) section, selected financial analysts have the opportunity to ask questions, which are usually answered by the CEO or the CFO. Typically the Q&A section is the most informative part of the call, as shown by the size of the capital market reaction (Matsumoto et al. 2011).

We argue that financial analysts' questions during earnings conference calls provide valuable information on financial analysts' assessment of fraud risk. Specifically, the topics discussed during the conference call and the financial analysts' question style (e.g., the tone of questions) may reflect information on financial analysts' assessment of fraud risk. Financial analysts have an incentive to acquire information on fraud risk (including governance and controls) during earnings conference calls as, for a given level of audit effort, fraud risk

negatively affects the quality of financial statements, which are an essential information source of financial analysts' earnings forecasts (Brown et al. 2015). In a survey conducted by Brown et al. (2015), 36 percent of the participating financial analysts indicate that the strength of corporate governance plays a very important role in their assessments of the firm's quality of reported earnings. Moreover, the respondents see weak corporate governance and material internal control weaknesses as the most informative indicators of management's effort to intentionally misrepresent financial statements. Consistently, Sarens and D'Onza (2017) provide survey-based evidence that financial analysts consider weak corporate governance and material internal control weaknesses to be the two most important predictors of misreporting. We expect financial analysts to combine several sources of information for their assessment of fraud risk, including macroeconomic uncertainty and firm specific information, such as the quality of internal controls. We summarize our theoretical framework extended by the role of financial analysts in Figure 2:

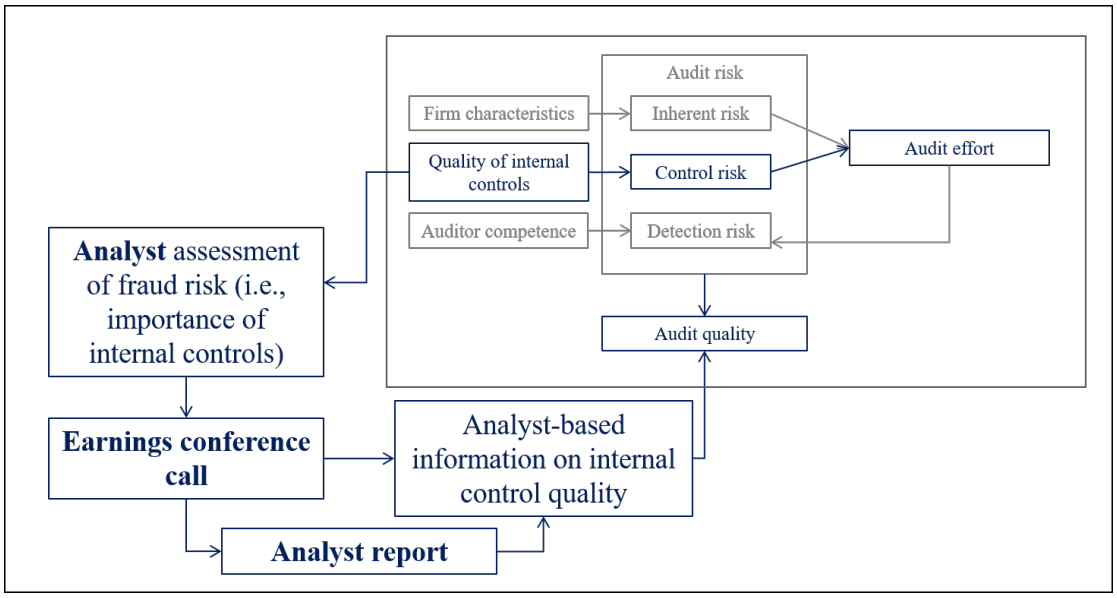

Figure 2: Theoretical framework extended by the role of financial analysts

Methodology

We will combine proprietary data provided by the Big 4 audit firms in the Netherlands accessed through the *Foundation for Auditing Research (FAR)* with public data from databases. In particular, the Big 4 audit firms in the Netherlands and the *Foundation for Auditing Research (FAR)* will provide us with proprietary data on audit engagements with Dutch public and selected private firms in the time-period 2017 to 2019. This allows us to use more precise measures of key constructs than current literature. For example, we will use actual staffed hours to measure audit effort, and auditor risk assessment to measure ex-ante aggregate risk. To examine to what extent financial analysts provide information on fraud risk, we analyze the transcripts from earnings conference calls as well as financial analysts' reports drawn from *Thomson Reuters Eikon* using Python. Data on financial analysts' characteristics will be collected from *I/B/E/S* and other public databases. Data on client controls will be drawn from *Orbis*. By getting access to proprietary data on audit engagements from the Big 4 audit firms in the Netherlands provided by the *Foundation for Auditing Research (FAR),* we have the opportunity to apply much more precise measures of key constructs compared to prior studies and, thereby, make a contribution to the literature on internal control quality.

First insights from the audit risk model and the informative role of conference calls in the U.S. setting

We provide preliminary insights into the role of internal control quality during the audit process by analyzing data from U.S. S&P 500 firms between 2006 and 2018. In particular, we use SOX 404 internal control weakness disclosures as a proxy for internal control quality, audit fees as a proxy for audit effort, and restatements as a proxy for audit quality. Following the audit risk model sketched in Figure 1, we expect that weaker control systems increase the likelihood of a future restatement. To the extent that the auditor correctly assesses the weakness of the control system, he will increase audit effort to keep overall audit quality constant.

An analysis of U.S. data shows that, controlling for inherent risk and all else equal, the likelihood of a restatement increases by 14.4% for firm years where ICMWs are disclosed. The auditor reacts by increasing audit fees by 5.6% in the presence of an ICMW.[3] These abnormal audit fees lead to a significant decrease in the likelihood of a restatement of around 2.5%. Taking the auditor's increase in effort into consideration, firm years with an ICMW are still almost 12% more likely to have financial statements restated.

These first insights demonstrate that assessing the quality of internal controls and reacting appropriately is a challenge for auditors. Even when auditors do correctly identify the firm's internal controls to be weak, they seem to struggle with the task of keeping financial reporting quality constant. We argue that using financial analysts as a source of information allows auditors to increase their efficiency in assessing internal control quality and adjusting audit effort, potentially decreasing the risk of misstatement in audited financial statements. In addition, this information channel may decrease the likelihood of restatement in years where the auditors did not find an ICMW although internal controls were not working effectively.

These preliminary results are subject to several limitations. For key measures such as audit effort and audit quality, public U.S. data only allow the use of imprecise proxies. Consequently, the explanatory power of such analyses is inherently limited. The use of auditor data provided by the *Foundation for Auditing Research (FAR)* will allow us to do similar analyses using audit firms' internal data, increasing the precision with which we measure key constructs.

To get first insights on financial analysts' information provision on risk assessments we analyze quarterly earnings conference call transcripts from U.S. S&P 500 firms in the time-

[3] We attempt to establish causality between the presence of an ICMW and the increased audit fees. However, we acknowledge that this increase in fees could represent a risk premium for the audit firm rather than an increase in audit effort. This ambiguity in using publicly available data is exactly the reason why the data provided by FAR enables a more precise measure of key constructs.

period 2010 to 2018, which we obtain from *Thomson Reuters Eikon*. We focus our analysis on the Q&A section of earnings conference calls. More specifically, we extracted the financial analysts' questions and the corresponding answers from earnings conference call transcripts using Python and cover in our analysis 346,777 Q&A pairs, while we only include the first answer to each financial analyst's question.

We find that for those firms which had an internal control weakness (detected by auditors after the conference call) in our sample period (i.e., 16,860 Q&A-quarter observations of 24 firms), financial analysts ask longer questions, use more negative words, talk about fraud and internal controls more often, and talk about internal control related issues more intensively.[4] The differences are statistically significant at the one percent level. In terms of economic significance, when there is an internal control weakness:

- financial analysts' questions are three words longer on average;
- analysts use at least one negative word in 49 percent of their questions, compared to 42 percent of questions when there is no internal control weakness; and
- financial analysts ask questions on fraud and internal controls while they ask no questions on fraud and internal controls when there is no internal control weakness.

The preliminary insights suggest that financial analysts may be able to predict internal control weaknesses.[5] We will follow up on these insights in our working papers.

[4] We measure the extent of negative words financial analysts use in their questions by applying the wordlist by Loughran and McDonald (2011). The results are consistent when we use the wordlist provided by Henry (2008). To measure the extent to which financial analysts talk about fraud we simply count how often financial analysts use the word "fraud" in their questions. Likewise, to measure the extent to which financial analysts talk about internal controls we count how often financial analysts use the word "internal control" in their questions. Finally, to measure the extent to which financial analysts talk about internal control related issues, we count how often financial analysts use at least one of the following words in their questions, which we collected from the labels of internal control categories provided by *Audit Analytics*: insufficient, inaccurate, incomplete, ineffective, inadequate, untimely, understaffed, non-existent, nonreliance, ethical, restatement, and weakness.

[5] Please note that the previously described results only represent bivariate statistics, i.e., we do not control for any variables, which may be associated with internal control quality (e.g., firm size, industry) as well as analysts'

Relevance

The findings of our study are interesting for the auditing practice, standard setters, regulators, the scientific community as well as society at large. The study deals with the fundamental issue of fraud risk and internal control quality assessment during the auditing process. By allowing auditors to assess internal control risk and fraud risk more accurately and more efficiently, we contribute to market transparency and the reliability of financial statements for individual as well as institutional stakeholders by lowering the information asymmetry introduced by the principal-agent conflict inherent in public firms.

The access to proprietary audit-engagements data provided by the *Foundation for Auditing Research (FAR)* allows us to examine the auditor's response to risk assessments in terms of planned audit effort (e.g., partner hours, manager hours, etc.), audit pricing (billing rates), the need for expert personnel, and their impact on audit quality. Moreover, we propose financial analysts' questioning during earnings conference calls as an information channel which might help auditors to more accurately and efficiently assess internal control quality during the auditing process. Among others, the outcome of our research will be a dictionary containing words or word sequences that signal a higher internal control risk, helping auditors to predict internal control quality as well as financial reporting quality based on the questions asked by financial analysts during earnings conference calls. We will estimate the extent to which auditors, relying on this dictionary, are able to more accurately and more efficiently assess internal control quality, thereby reducing audit cost and increasing audit quality and, thus, increasing financial reporting quality.

We intend to contribute to the auditing research community by promoting our understanding of the audit process and potentially identifying financial analyst questions as an

questioning (e.g., financial analysts' experience). Thus, any conclusions based on these results should be drawn with caution.

information channel that auditors may use to improve their own assessment of internal control quality, potentially translating into higher audit quality. Given the support by the *Foundation for Auditing Research (FAR)* in terms of data access, we also contribute to the literature by disentangling the effect of the auditor's assessment of inherent risk and internal control quality as well as audit effort on audit quality in order to understand the importance of accurately assessing internal control quality. Since prior studies in this research area had to rely on rather noisy aggregate proxies of these underlying constructs, which is the only data available in public databases, we expect our study to make a significant contribution.

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