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An error management perspective on audit quality: Toward a multi-level model

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We take an error management perspective on audit quality. Drawing on 18 months of participant observations and 38 interviews conducted in a Big 4 accounting firm, we develop a multi-level model of error management. With this model, we propose how organizational structures, team procedures and practices, and individual cognitions and emotions interact to manage errors. The multi-level model of error management allows us to conceptually integrate previous behavioral and social research on audit quality, contributes to the rising accounting firm error management literature, and explains how and why two general approaches from the broader error management literature to errors that are usually considered as opposing each other, i.e., error prevention and error resilience, may interact and actually entail each other in accounting firms.

1. Introduction

How can we explain the differences in provided audit quality? This question has attracted considerable attention in the accounting literature since DeAngelo's seminal theoretical papers on this topic (DeAngelo, 1981a, 1981b). A substantial body of empirical research has emerged and converged, primarily around two approaches. A first and very popular approach to studying audit quality is embedded in the archival research stream. It assumes that the audit's context plays a decisive role in determining audit quality. Archival researchers have studied the influence of legal regulations (e.g., Francis & Wang, 2008), professional self-regulation (e.g., Grant, Bricker, & Shiptsova, 1996), accounting firm size (e.g., Francis & Yu, 2009), non-audit services (Firth, 1997), low-balling (e.g., DeAngelo, 1981a), auditor tenure (e.g., Carey & Simnett, 2006), client corporate governance (e.g., Lennox & Pittman, 2010), and the auditor's industry specialization (e.g., Dunn & Mayhew, 2004). Together, these archival studies have considerably advanced our understanding of how an audit's context influences audit quality. However, one main limitation of this approach is that it treats accounting firms mostly as a 'black box' (Francis, 2011; Hopwood, 1996). Thus, the specific mechanisms within the audit firm that may explain variances remain vague.

To understand the mechanisms within the 'black box,' a second approach to empirical audit quality research is embedded in the behavioral and social research stream. This stream uses social and cognitive psychology lenses to understand auditors' behaviors, cognitions, and emotions (Birnberg & Shields, 1989), along with sociological lenses for making sense of the influence of social structures, institutions, and roles on auditors' behavior (e.g., Cooper & Robson, 2006; Miller, 1994). Scholars following this stream have studied, e.g., the influence of quality control structures on auditors' behavior (e.g., Malone & Roberts, 1996), the role of workpaper reviews (e.g., Ramsay, 1994), auditors' judgment and decision making (JDM) (e.g., Bonner, 2008; for a review), the error management climate (e.g., Gold, Gronewold, & Salterio, 2014), and how social structures and agentic behavior reciprocally interact (e.g., Barrett, Cooper, & Jamal, 2005; Dirsmith, Heian, & Covaleski, 1997). One major contribution of the behavioral and social research stream is that it indicates the relevance of interactions of different levels of analysis within the organization to explain differences in audit quality (e.g., Barrett et al., 2005; Malone & Roberts, 1996). However, we argue that a crucial issue in this stream is not a lack of singular studies that investigate how particular organizational structures and procedures influence and interact with individual auditors' behaviors. Rather, a key issue is that there is little conceptual integration of how this interaction across multiple levels of analysis

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evolves over time and can be systematically explained.

Our study explores the relatively neglected multi-level interaction in the production of audit quality by importing insights from the broader error management literature (Goodman et al., 2011; Perrow, 1984; Weick, Sutcliffe, & Obstfeld, 1999). Error management is used as an umbrella term for organizations' joint efforts to prevent and handle occurring errors (Goodman et al., 2011). Error management has been highlighted as a key to understanding the production of quality in the wider fields of psychology, management, and sociology (Frese & Keith, 2015; Hofmann & Frese, 2011b; Perrow, 1984; Weick et al., 1999). Recently, it has also been introduced in the accounting field (Gold et al., 2014; Gronewold & Donle, 2011; Gronewold, Gold, & Salterio, 2013). The base literature on error management[1] is divided into two—largely unreconciled—main camps: error prevention and error resilience (Goodman et al., 2011; Weick et al., 1999). Whereas advocates of the error prevention camp emphasize the role of formal structures and procedures in preventing errors and their accumulation, advocates of the error resilience camp stress the role of individual resilience and informal (shared) practices to quickly address errors (Goodman et al., 2011). However, despite this divide between the two camps, we contend that both may offer valuable insights for understanding various aspects of error management on different levels of analysis.

Theoretically informed by the base literature on error management, we empirically investigate the multi-level interaction in audit error management based on an in-depth case study of a Big 4 accounting firm. Based on 18 months of participant observations (over three busy seasons in three consecutive years), 38 interviews, and the firm's internal archival materials, we examine the interplay between organizational structures, team activities (i.e., procedures and practices), and individual characteristics regarding error management. We focus on the management of audit (not accounting) errors mainly at the audit team level. However, we move one level down (i.e., individual level) and up (i.e., organizational level) to examine both how individual characteristics influence team activities and how organizational structures enable and constrain these activities (e.g., Hackman, 2003). The case study findings are condensed in a multi-level model of error management in accounting firms. The model suggests that error management—under ideal conditions—is a result of a self-reinforcing system in which organizational structures (e.g., quality and risk management system), team prevention procedures (e.g., workpaper reviews), team resilient practices (i.e., shared practices to quickly handle occurring errors), and individual characteristics (error anticipation and error coping) interact and jointly constitute and reconstitute each other. However, the multi-level model also outlines ruptures that explain why and how error management may fail, which suggests that error management in accounting firms is a fragile endeavor.

The multi-level model of error management contributes to the literature in several ways. First, it explains the emergence and execution of error management in accounting firms. This is novel because the audit error management literature has focused on relatively specific issues, namely, the error management climate and error reporting (Gold et al., 2014; Gronewold & Donle, 2011; Gronewold et al., 2013). Building on and extending this research, we capture error management as a broader construct and suggest a multi-level approach to understanding both how it emerges and how it is performed in accounting firms. Accordingly, audit team activities reside in nested arrangements and are affected by the bottom-up forces of the auditor's cognitions and emotions related to errors (i.e., error orientation) and by the top-down forces of social structures and systems. This multi-level research approach differs from typical behavioral and social studies in accounting, which usually either apply a behavioral or a structural lens alone or look selectively at unidirectional effects at a single point in time (e.g., how specific organizational factors influence individual judgments). A multi-level manner of theorizing enhances our understanding by moving the literature toward a more integrative and dynamic explanation of how audit quality is produced in practice.

Second, whereas previous behavioral and social research related to audit quality provided many insights into the functioning of quality control structures, of standard procedures such as workpaper reviews (e.g., Ramsay, 1994), of auditors' JDM (e.g., overview in Bonner, 2008), or more recently of an error management climate (e.g., Gold et al., 2014), this study contributes to the behavioral and social audit quality literature by addressing how these elements interact in preventing and handling errors in accounting firms. Outlining these interactions within the multi-level model suggests that aspects that have previously been treated in isolation are much more interrelated than the literature indicates. For instance, we describe and explain how preventive procedures such as workpaper reviews have a socializing effect on junior auditors' error orientation, which is crucial for the emergence of error resilient practices within audit teams. We therefore suggest that workpaper reviews have not only a direct effect on audit quality by correcting errors but also an indirect effect by socializing auditors with errors. Based on these findings, we suggest that considering the indirect socialization effects of standard procedures (see also Westermann, Bedard, & Earley, 2015) is more important than currently understood in the literature related to audit quality.

Third, the multi-level model may also inform the broader base literature on error management (Goodman et al., 2011). Although some studies have strived to understand the co-occurrence of error prevention and error resilience approaches within organizations (Vogus & Sutcliffe, 2007a, 2007b), those studies remain vague regarding 'the mechanisms through which these two approaches combine' (Goodman et al., 2011: 165). In this regard, the multi-level model of error management describes and explains one central mechanism by showing how preventive procedures (e.g., workpaper reviews) in accounting firms play a socializing role in individual auditors' dispositions regarding errors (i.e., error orientation), which is crucial for resilient practices to emerge within audit teams. Therefore, we outline how and why these prevention and resilient approaches to error management interact with and even entail each other within accounting firms.

2. Theoretical background

The production of audit quality has been subject to extensive research, despite ongoing discussion about its definition (e.g., Francis, 2011; McNair, 1991; Power, 1997, 2003). One key problem lies in the inherent 'obscurity' of the audit product and the assurance actually provided (Power, 1997). Because this assurance is neither observable nor exactly measurable, audits and the assurance provided are 'credence goods' that ultimately must be trusted by stakeholders (Causholli & Knechel, 2012; Power, 1997). However, while this obscurity inhibits exact measurement, it has not precluded scholars from defining audit quality conceptually. The majority of studies follow DeAngelo's (1981b) definition—as we do in this study—in which audit quality is the joint probability that a given auditor (a) finds breaches in the financial

[1] By the term 'base literature on error management,' we refer to the literature on error management outside of accounting and auditing that predominantly resides in the organizational behavior and psychology areas.