Accounting, Organizations and Society 35 (2010) 316–333

Contents lists available at ScienceDirect

Accounting, Organizations and Society

journal homepage: www.elsevier.com/locate/aos

The effect of benchmarked performance measures and strategic analysis on auditors' risk assessments and mental models

W. Robert Knechel [a,*], Steven E. Salterio [b,1], Natalia Kochetova-Kozloski [c,2]

[a] Fisher School of Accounting, University of Florida, PO Box 117166, Gainesville, FL 32611, USA
[b] School of Business, 143 Union Street, Queen's University, Kingston Ontario, Canada K7L 3N6
[c] SB 318, Sobey School of Business, Saint Mary's University, 903 Robie Street, Halifax, NS, Canada B3H 3C3

A B S T R A C T

As the audit environment becomes more demanding and complex, so does the set of analytical tools available to an auditor. The purpose of this paper is to examine the effect of two complex audit technologies commonly used by auditors, benchmarking of performance measures and strategic analysis, on the risk judgments of auditors carrying out the initial planning of an audit. We conduct an experiment that utilizes a Balanced Scorecard for organizing and evaluating analytical evidence about the performance of business units within a large client. Our first principal finding is that external benchmarking can cause an auditor to focus on performance measures that are unique to a business unit and disregard performance measures that are common to multiple business units but not benchmarked. However, our second finding is that an in-depth strategic analysis completed prior to assessing a client's business risk or risk of material misstatement allows an auditor to incorporate more information from performance measures in risk assessments regardless of whether the performance measures are benchmarked. Strategic analysis facilitates a more balanced and accurate assessment of the risks across the business units being evaluated. We also provide evidence that the latter result occurs because in-depth strategic analysis allows auditors to develop a more complete mental model of a client, which has been a long time belief of advocates of business risk audit methodologies and consistent with current and emerging auditing standards on risk assessment.

Introduction

The analysis of a client's strategy and related business risks is an integral part of the auditor's process for evaluating the risk of material misstatements in a client's financial report.[3] In general, strategic analysis used in an audit includes assessing the competitive position (Porter, 1985) adopted by the firm, identifying its critical success factors, and evaluating obstacles that might cause a chosen strategy to be less successful than desired (e.g., Knechel, 2007). While the strategic management literature employs such analysis to identify investment or operating opportunities (Porter, 1979, 1985), auditors view threats to client business success as a source of audit risk. More specifically, the idea is to link the auditor's understanding of a client's business environment and strategic plans to the analysis of audit risk. Strategic analysis may be conducted at the corporate level and supplemented with an analysis of individual strategic business units (Morrison & Roth, 1992). Consequently, an auditor will often assess the relative business risks associated with a strategic business unit

* Corresponding author. Tel.: +1 352 273 0215; fax: +1 352 392 7962.
E-mail addresses: w.knechel@cba.ufl.edu (W.R. Knechel), ssalterio@business.queensu.ca (S.E. Salterio), Natalia.K@smu.ca (N. Kochetova-Kozloski).
[1] Tel.: +1 613 548 8079.
[2] Tel.: +1 902 420 5800; fax: +1 902 420 5011.

[3] For a comprehensive discussion of the business risk audits, also referred to as "strategic systems audits", see Bell, Marrs, Solomon, and Thomas (1997), Lemon, Tatum, and Turley (2000), Bell, Peecher, and Solomon (2002), and Knechel, Salterio, and Ballou (2007).

0361-3682/$ - see front matter © 2009 Elsevier Ltd. All rights reserved.
doi:10.1016/j.aos.2009.09.004

(SBU) as a precursor to assessing audit risk and allocating audit effort.[4]

One of the most frequently used tools in strategic analysis is the evaluation of performance data at either the corporate or business unit level (Kaplan & Norton, 1996). Management accountants emphasize that the use of performance measures at the unit level should reflect the individual unit's strategy for success (Kaplan & Norton, 1996, 2001; Simons, 2000). In the case of multiple business units, the same performance measures may be used for different units or they may be unique to a specific unit. Since auditors are required to use analytical procedures to assess the risk of material misstatement (ISA 315; SAS 107), performance measures can be used by an auditor to highlight situations where problems may exist in management's strategy that can be a source of audit risk (Kinney & McDaniel, 1996; McDaniel & Kinney, 1995; Waddington, Moreland, & Lillie, 2001). Unit-level performance measures can also be used to judge audit risks within an organization in more detail (Mediori & Steeple, 2000; Thomas, Pollock, & Gorman, 1999; Venkatraman, 1989). Further, organizations often use benchmarking to assist in the evaluation of their results so auditors can use the same benchmarks to facilitate their evaluation of audit risk (Knechel et al., 2007; Thompson & Strickland, 1998, pp. 121–123).[5] Finally, if benchmarks are used by a client, they are potentially most informative when combined with a top-down view of a client's strategic business plan (Murray, Zimmermann, & Flaherty, 1997).

The purpose of this study is to examine the joint effect of strategic analysis and benchmarking of performance measures on auditor judgment in assessing audit risk. First, we hypothesize that benchmarking can help the auditor to incorporate the implications of a broad set of performance measures when making judgments about audit risk. Second, we hypothesize that an auditor's use of strategic analysis influences the manner in which auditors evaluate performance measures, and more extensive strategic analysis allows auditors to incorporate more information from a broader set of performance measures into their risk assessments. We test our hypotheses with an experiment involving 87 audit seniors from a Big 4 audit firm in Canada. During the experiment, participants were asked to rate the performance and risk level of two business units in the same organization. To test our hypotheses, we manipulated (1) the presence or absence of benchmarks for different types of performance measures (unit-specific or common across units) and (2) the extent of strategic analysis available to the auditor (in-depth vs. superficial).

Our results indicate that auditors can incorporate more information into their risk assessments when given benchmarked performance measures that are common to multiple business units, as compared to when only unit-specific performance measures are benchmarked. With respect to our second hypothesis, we find that risk assessments incorporate a broader set of information available to the auditor when auditors have an extensive strategic analysis available to them, regardless of the type of performance measures and benchmarks that are available. Finally, we report supplemental results based the theory of mental models (e.g. Legrenzi, Girotto, & Johnson-Laird, 1993) indicating that auditors receiving an in-depth strategic analysis develop mental models that are more complete than those based on a superficial strategic analysis. These results support our assertion that differential cognitive processing of benchmarked performance is affected by the depth of strategic analysis.

The remainder of this paper proceeds as follows. First, we develop the theoretical basis for our hypotheses about the effects of benchmarks and types of performance measures on auditor risk judgments, as well as the ameliorating effects of in-depth strategic analysis. Second, we outline the experimental design and related procedures. Third, we present the results of our study. We conclude with a discussion of the study's limitations and contributions.

Theory and hypotheses

One of the most significant developments in the practice of auditing in the past 20 years has been the shift towards business risk based audit methods which require an auditor to develop a thorough understanding of a client's environment and business strategy as a basis for assessing risk in an audit (e.g., see ISA 315 or proposed PCAOB standards on risk assessment and responses to risk). Bell et al. (1997) presented one of the earliest articulations of the basic concepts underlying what they called strategic-systems auditing, now more broadly referred to as business risk auditing (BRA; Robson, Humphrey, Khalifa, & Jones, 2007). In general, business risk auditing is characterized by a top-down focus on a client's competitive environment, strategy for success, and critical internal processes (Bell, Peecher, & Solomon, 2005; Knechel et al., 2007). Potential breakdowns in the environment, strategy or processes of a client may become a source of risk that should be considered during the course of the engagement (Eilifsen, Knechel, & Wallage, 2001). Two critical elements of the BRA methodology are the focus on controls over important business risks within the client's environment and the use of analytical evidence as a basis for evaluating a client's operations and potential risk of material misstatement (Curtis & Turley, 2007, p. 448).

Various forms of the BRA methodology have been developed by the large international accounting firms (Curtis & Turley, 2007; Lemon et al., 2000). As originally envisioned, BRA was intended to improve the audit process by making it more sensitive to the underlying business conditions of the client, shifting the focus to the endemic risks the client faces, increasing attention to the design and operation of the client's internal controls, and providing a stronger foundation on which to base the audit opinion (Knechel, 2007). However, BRA processes were also ambiguous, difficult to implement, and experienced differing degrees

[4] This process of assessing the risk of material misstatement is required under current audit standards (e.g., ISA 315, SAS 109, or CICA HB 5141).

[5] Benchmarks may be established based on the performance of other units in the same firm, the industry as a whole, or specific leading competitors. See Elnathan, Lin, and Young (1996), Davis and Duhaime (1992), Chen (1996), and Ghoshal and Westney (1991). However, there may be limits to the quality and availability of external benchmark data. See also McGonagle and Fleming (1993) and Wouters, Kooke, Theeuwes, and van Donselaar (1999) for discussion of this issue.