Developing a research synthesis to provide a proof of concept regarding knowledge transfer from audit academic research to audit standard setters: The case of group audits and multiple auditor involvement

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Background

The Problem

The overall goal of this project is to provide a concrete example that illustrates how transfer of knowledge from audit research to audit standard setters might be achieved in an efficient manner. In our illustrative example, we set up a process that is grounded in evidence-based medicine (EBM) research on transferring knowledge from academic research to guideline- and standard-development committees. We (as synthesis authors) develop a practice problem based research synthesis in collaboration with a group of standard setters, following practices that have been well researched in the public health knowledge transfer setting (NICE 2009). Specifically, our practice problem is the group audit standard (ISA 600) revision undertaken by the International Auditing and Assurance Standards Board (IAASB) over the period of 2002 to 2007. Within that project, we identify on one central issue of debate among standard setters, as an example of where academic research knowledge transfer might have informed standard setters and improved the standard setting process. From a practice-based perspective, one advantage of the issue selected is that it had been identified early in the standard setting project, when there was still ample time to have a research synthesis prepared prior to issuing the initial standard setter's opinion (an exposure draft of the standard in 2003). The second advantage is that the IAASB's initial position on this issue was one of the key reasons that the first exposure draft was eventually withdrawn after public pressure, resulting in the need for the standard setter to issue a subsequent exposure draft (2005) and re-exposure (2006) draft.

The Specific Issue

The IAASB's group audit project began in 2002 with the formation of a project task force (IAASB 2007). The reason for formation of the task force was that "several bodies have requested requirements and guidance on the audit of group financial statements ("group audits"), including the European Commission, the International Organization of Securities

Commissions, the former Panel on Audit Effectiveness in the United States, and the International Forum on Accountancy Development" (IAASB 2007). The goal of the process was to revise ISA 600 in light of the concerns expressed.[1] At the IAASB meeting in South Africa (IAAS 2002a), the IAASB made a tentative decision that the existing practice of allowing the option for a division of responsibility in the consolidated financial statements audit opinion would be permitted to continue. At that time, when the group auditor did not audit every subsidiary of the overall group of companies, there were two audit report choices, based on two different levels of involvement that the group auditors could have with the audit of the subsidiary company. That is, the group auditor could be the sole named auditor in the audit opinion (*sole responsibility*, and hence a higher level of involvement with the subsidiary auditor and audit) or there could be explicit acknowledgement in the audit opinion of the work of the subsidiary auditor (*divided responsibility*, and hence a lower involvement with the subsidiary auditor and audit).

The minutes note: "As a result of the legal frameworks of certain countries, it was agreed that the division of responsibility provision in the existing ISA 600 should be retained" (IAASB 2002a). This decision was reconfirmed without discussion at the next meeting (IAASB 2002b) and again with limited debate at the following meeting (IAASB 2003a). However, in May 2003, initial questioning of this decision occurred at the meeting of the IAASB's Consultative Advisory Group. The European Commission representative stated "a preference for the group auditor to take sole responsibility for the auditor's report on the group financial statements" (IAASB 2003b). While the IAASB noted those comments, "After debate, it was concluded that, should the IAASB agree to retain division of responsibility as an alternative, the explanatory memorandum accompanying the exposure draft should provide the conceptual reason(s) for retaining it" (IAASB 2003b).

[1] Unfortunately, public data for IAASB deliberations is very limited prior to December 2002 with only limited minutes available for September and October meetings that year and nothing available for the earlier 2002 meetings. Requests to the IAASB for assistance with this project have not be answered as of the date of writing.

However, pointed questioning of the tentative decision occurred again in late June of 2003, where:

> *Although not originally planned for discussion, IOSCO[2] raised division of responsibility at a meeting of representatives of the IAASB and IOSCO Audit Working Party held on June 30, 2003. IOSCO indicated that they considered sole vs. division of responsibility as an important matter to be resolved by the IAASB, and was of the opinion that the IAASB should not provide for current practice, but for the best quality approach in the proposed revised ISA 600. IOSCO also indicated that it would be disappointed if the IAASB provided for both alternatives, and strongly urged the IAASB to decide on one approach.*
>
> IAASB 2003b

At the July meeting of the IAASB (IAASB 2003c), one of the members of the board (not identified in the minutes) asked, "It is not clear why one approach is considered better than the other, which is what is implied by the term "desirable." Does the one approach render a better outcome (audit)?" (IAASB 2003c)**.** The specific goal of creating this research synthesis is an attempt to answer that question. What can academic research tell us about whether a standard allowing for two different audit opinion types and two different involvement levels—sole versus divided responsibility for the audit—would achieve higher quality audits, and under what conditions might different outcomes be obtained?

How the Intervention Might Work

To develop an approach to overcoming barriers to knowledge transfer in the audit setting (i.e. from academic research to standard setters), we examined the literature on evidence-based policymaking (Campbell Collaboration 2015) and evidence-based management (Rousseau 2012). Both of these literatures draw from a robust set of findings in evidence-based medicine (EBM), which is the paradigmatic example of enhanced knowledge

[2] The International Organization of Securities Commissions (IOSCO) is responsible for coordinating individual countries' stock market regulators by developing common standards internationally that are enforced by national or regional bodies. The objectives of IOSCO are to protect investors; ensure fair, efficient and transparent markets; and reduce systemic risk (IOSCO 2010).

transfer from research to practice. We focus on EBM literature that examines the effective and prompt transfer of the vast academic research evidence to policymakers attempting to develop best practice guidelines, standard of care guidance and other medical standards of practice (e.g. Straus, Tetroe, Bhattacharyya, Zwarenstein and Graham 2013).

Research suggests that, prior to the impact of the EBM movement, most guidelines for diagnosis and treatment in health care drew on three resources: panels of "expert" practitioners who opined based on their experiences, medical textbooks, and attempts to apply individual basic research articles directly to clinical settings (Eddy 2005). We argue that the current state of affairs in audit standard setting is analogous to the state of affairs in medicine at the time EBM "movement" started. Internationally influential audit standards setters (i.e. IAASB) and national audit standard setters (e.g., Canadian Audit and Assurance Standards Board) are composed primarily of practitioners (the PCAOB in the USA being an exception due to its underlying legislation that restricts the membership of the Board to a maximum of two professional accountants out of the five members). These practitioners draw on their own direct experiences and the expert experiences of the other practitioners on their standard development task forces in drafting auditing standards. The main inputs in the evaluation and evolution of drafts of standards come from other practitioners via the comment letter process that tends to engage overwhelmingly accounting firms and practitioners (Tandy and Wilburn 1992; Kwok and Sharp 2005).

The EBM area most relevant to our examination is literature on developing evidence-based "best practice" guidelines and standard operating procedures (e.g., Scott and Guyatt 2014). This area of EBM research (e.g. Straus, Tetroe and Graham 2009) carefully examines how guidelines can be developed that are well-informed based on the evidence from research while accepting that such research cannot speak for itself (e.g. Timmermans and Mauck 2005; Legare et al. 2011) and must be translated into understandable and implementable guidance (e.g. Littlejohns 2001). Indeed, extensive

research exists on how to evaluate successful guideline development practices and procedures (e.g., Schunemann et al. 2014). Relevant EBM literature explores how various sources of evidence are employed in creating best practice guidelines and standard operating procedures at the national (e.g., NICE in the UK as in Atkins, Smith, Kelly and Michie 2013).

Some might argue that transferring ideas from EBM guideline development to accounting and auditing policymaking is a stretch. We suggest that the differences are in lack of surface similarity (Holyoak and Koh 1987) between the domains of medicine and accounting. Research in psychological (e.g. analogical reasoning) shows that those surface differences make it more difficult to identify the potential for knowledge transfer (Loewenstein, Thompson, and Gentner 1999). Hence, we believe this reaction is natural. However, psychology research also shows that locating deep structural analogs results in considerable benefits for knowledge transfer and learning (Novick 1988, Tsoukas 1993, Gentner et al. 2003). Further, there has been significant research in EBM that examines the conditions that need to be in place for such transfer to occur to policymakers as well as for evaluation of the transfer's success (e.g., Djulbegovic et al. 2015, Atkins et al. 2013, Kelly et al.).

There is substantial convergence in the EBM literature (Scott and Guyatt 2014; Kredo et al. 2016) about the underlying principles for knowledge translation to policymakers. Specifically, "a systematic review of all pertinent evidence (not just the evidence that supported a particular position), a critical analysis of the quality of the evidence, a synthesis of the evidence, a balancing of benefits and harms, an assessment of feasibility and practicality, a clear statement of the recommendation, and a detailed rationale" (Eddy 2005, p. 12) is a necessary condition. The seven steps in Table 1 trace the guideline development process from project inception (identification of a need for a

guideline) to completion (the publishing of an approved guideline)[3] using the public health practice guidelines creation process (Table 1 documents key elements of the guideline development process developed by the UK's National Institute of Health and Clinical Evidence (NICE)). Unlike the transfer of knowledge in the area of medical clinical practices (e.g., effectiveness of diagnostic tests, drug effectiveness), public health guidelines cannot be based solely on randomized clinical trials or what accounting researchers would call controlled experiments (e.g. Kelly et al. 2010, p. 1058).[4] Public health evidence explicitly includes observational, archival, and case study (or qualitative) research, in addition to experimental research[5] (Glasgow and Emens 2007).

Table 1: EBM guideline development process:
An Example of NICE guideline development in Public Health*

1. A technical team from among public health staff is assigned to support the production of the guideline. The scope of the project is determined including:
    a. Key questions to be answered in the guidance
    b. The populations, settings and interventions which would be included in the guidance
2. The scope of the project, including the key questions that evidence based answers will be sought for is exposed to the broader public health community so that the scope of the project is appropriately defined and some consensus is reached on what the problem is that the guidance is supposed to address.
3. The research evidence is then gathered that addresses each of the specific questions that are included in the scope of the project.
    a. Initial search is carried out by academic researchers
    b. Staff of NICE collaborate with the researchers to ensure that the responses are on point to the questions in the scope.
    c. Well-defined and agreed upon criteria are employed to evaluate the evidence uncovered.
    d. The findings of the reviews are summarized into evidence statements that are based on the strength of the evidence, appropriateness of the study design, the quality, consistency and the applicability of the findings to the

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[3] We tested our understanding of this process in a series of informal meetings with three leading figures in the EBM movement.

[4] Public health has one of the longest evidence transfer lags in health care at present – an average of 17 years from research to common practice and rough utilization rates estimated at 14% (Ammerman, Smith and Calancie 2014).

[5] Experimental research or RCTs are called the "gold standard" in acute care medical interventions when evaluating evidence. However, even in acute care settings RCT evidence employed alone is increasingly seen as limited in its ability to deal with more complex medical settings that involve multiple interacting health problems (e.g., McQuay 2011)

research questions.

4. An independent advisory group made up of various stakeholders (doctors, nurses, other allied health professionals, researchers (who were not involved in the evidence synthesis of step 4), economists, behavioral scientists, lay people and domain experts) develop the proposed recommendations based on the evidence synthesis and their direct knowledge and experience with the questions. Both the researchers in step 4 and the technical team from public health in step 1 are available to the advisory group during its deliberations.
5. The draft recommendations go through an exposure draft period to stakeholders for input to the advisory group.
6. While the input is being sought, the draft recommendations are tested in the field with those who will be responsible for implementing the recommendation and feedback is provided to the advisory group.
7. The advisory group considers the comments from stakeholders and the results of the field testing in drawing up the final guidance.

***** based on process description in Kelly et al (2012) with NICE (2009) as the primary source the description was checked against**.**

Research on how EBM has been put into practice (e.g. Légaré et al. 2011) cites the importance of defining a specific answerable research question (Table 1 item 1) and the process used to determine the nature and extent of the evidence that is used to answer the question (Table 1 Items 2 to 4). The standard or guideline development group needs to collaborate with the research experts (the synthesis authors) who are carrying out the systematic research to develop specific questions that the standard setter need answers to (Hollon et al. 2014). This requires an interactive process of creating an understanding on the guideline development group's side of the nature of the evidence that is likely to be available, as well as clarifying for them what the research question(s) mean in relationship to likely available evidence.

Why It Is Important To Do The Review

The rationale for picking the specific topic to review has been laid out in previous sections. The more general reason as to why we need to pilot the development of a research synthesis to transfer audit research to audit standard setters is the focus of this section.

Auditing researchers have published over 24,000 academic articles (Google Scholar

September 2016) using a variety of research methods since 1970. Yet auditing standard setters and regulators have frequently cited their inability to engage with and utilize this research to make evidence-informed standard setting and regulatory decisions. For society to benefit from the large research investment in accounting and auditing, the knowledge gained from that research needs to be transferred to auditing standard setters. Through our analysis of knowledge transfer theory and practice in other settings, we seek to understand and propose a tentative strategy to address the barriers between auditing research knowledge and standard setting.

The traction gained by the evidence-based medicine movement in transferring knowledge from academic biomedical research evidence into practice provides a potential model for audit standard setting. We argue that the auditing standard setting environment resembles the state of affairs at the start of the evidence-based medicine movement (late 1980's and early 1990's). We propose that production of academic-authored audit research syntheses would be an effective strategy to address the current barriers to knowledge transfer from academic research evidence to standard setting. Our research aims to apply this knowledge transfer tool by developing a research synthesis of academic evidence relevant to the well-specified questions that arose during the group audits standard setting process. The limited use of the vast body of research evidence suggests there is potential for improvement, and we seek to contribute to these outreach efforts by proposing specific practices drawn from EBM guideline development.

Objectives

The overall objective of creating this review is to provide proof of concept that a panel of audit standard setters and audit researchers can jointly develop specific research questions in the audit environment that are amendable to the transfer of audit research knowledge to knowledge that will inform standard setters via the research synthesis process. The specific objective of the research synthesis substantively is to provide a research based answer to the question: "It is not clear why one approach is considered better than the other, which is what is implied by the term "desirable." Does the one approach render a better outcome (audit)?" (IAASB 2003c). This requires the translation of this general question into specific researchable issues that the response to which is believed ex ante by standard setters to have potential to inform their decisions. The resulting research should answer the general question of under what conditions would sole responsibility by one audit firm for the audit opinion in a group audit be better/worse than an audit opinion that contained an explicit division of responsibility between two audit firms.

Methodology

Our methodology section describes both the overall process that we are employing to develop proof of concept about the ability of knowledge transfer to standard setters via the research synthesis approach as well as the specific steps to carry out the research on the group audit question. At an overall level, we follow the steps shown in Table 2.

Table 2 Research Syntheses Development*

Stage	Research Syntheses/Systematic reviews
Defining the focal question	Clearly defined and well-focused question that academic research can likely provide a specific answer to
Developing and writing a protocol to do review	Required. Developed with the advice of a practice-based committee that helps the researchers refine and understand

	what is the exact question to be answered
Methodology	Follows explicit process to ensure scope of coverage that will allow answer to question. May be done in conjunction with practice-based advisory committee to ensure that methods will be understood.
Searching for studies	• Exhaustive • Carried out across a variety of electronic databases, hand searching reference lists from relevant papers and journal table of contents. • Search unpublished literature (e.g., via SSRN or thesis databases) • Explicitly report how the search was carried out
Definition of studies inclusion and exclusion criteria	• Essential • Nature and scope of studies included defined including whether to include or exclude base discipline literature (e.g. psychology, economics, sociology etc.) that has direct implications for the well-defined research question.
Screening of papers via titles and abstracts	Systematic screening and selection Usually cross-checked (at least on a test basis) by an independent coder
Quality assessment of studies	Explicit criteria specified
Research studies' conclusions documented	Yes
Analysis and synthesis	Can be formal as in a meta-analysis or can be qualitative

*Adapted from Table 1.2 Dickson, Cherry and Boland 2014.

Specifically we carry out Steps 1-3 in Table 3 in consultation with our standard setters as discussed next.

Table 3 Process for Assessing Research Evidence with the Goal of Providing Information that will be Useful to Standard Setters in their Deliberations

Activity	Description
1. Defining the focal question that has the potential to provide information useful to auditing standard setters in development of standards	Based on consultation, establish a clearly defined and well-focused question that meets two criteria: 1. Academic research can likely provide an evidence-based answer to it 2. Standard setter representatives believe the evidence to be synthesized will have the potential to be useful in their deliberations

2. Develop a protocol that will guide the academics who carry out the systematic review and author the research synthesis	Interact with standard setter representatives to develop a joint understanding about what the academic researchers can (and cannot) hope to deliver in response to the question posed
3. Methodology of gathering the research evidence for inclusion in the response to the agreed question.	Discuss with standard setter representatives the explicit process to be used by the synthesis authors to locate potential relevant research. In particular, discuss research study inclusion/exclusion criteria: a. Published papers and working papers b. Extent to which research will be sought beyond the direct topical domain of the standard (i.e. research can be informative to the standard even if it is not directly on its topic) c. Extent to which research from fields outside auditing deal with the fundamental concepts in the standard setters' question

Table 4 describes the involvement of standard setter representatives, both as completed to date (Steps 1 and 2) and anticipated (Steps 3 and 4).

Table 4 Simulation of a Standard Setting Process around Group Audits

The goal is to simulate the interaction between researchers and standard setters in such a way that it can be done within the norms of the standard setting process, that is, be designed and executed between two board meetings that deal with the proposed standard. This requires standard setters' involvement in these four stages that we outlined in the invitation to participate in this simulation:

1. Review a short document (no longer than a project memo) outlining the detailed process that the simulation will follow and some background on the "research question" about group audits that will be the focus of the simulation. (Approx. one hour individually)
2. Meet with the research team to scope the project as to what information the committee would ideally like the researchers to provide, what the researchers think they can provide leading to the parameters of how the research team will address the question. (Approx. 90 minutes, in-person or Skype as a group)
3. Individually review the research synthesis document produced from the research team's systematic review, approximately 8 weeks after the scoping meeting. The synthesis will not exceed the length of a typical IAASB agenda item briefing note. (Approx. one to two hours individually)

4. Meet with the research team to understand how the committee viewed, in terms of its usefulness and impact, the researcher's synthesis of the literature (Approx. 90 minutes, in person or Skype as a group):
    a. How understandable was the researchers' synthesis report?
    b. How useful was it in providing information to standard setters?
    c. How the synthesis can be made more informative and useful to standard setters?

Based on the meeting with the standard setter representatives (Step 2 in Table 4) where we discussed the three items in Table 3, we arrived at the following understanding around the focal questions to be addressed as reported in Table 5.

Table 5 Developing a Researchable Question and Protocol as a Collaboration between Audit Research Synthesis Authors and Standard Setter Representatives

Stage	Approach for research synthesis
Defining the focal question – clearly defined and well-focused question	Is a group audit where the group auditor takes sole responsibility in the audit report for all component audits likely to be more, less or equally effective as when there is divided responsibility in the audit report between the group and component auditor?
Developing and writing a protocol to do review with the advice of a practice based committee so the researchers understand the exact question the standard setters want an answer to.	Based on initial interaction with the practice-based committee (i.e., the standard setters), the focal question on which one of the two approaches result in more effective audits involve two perspectives: • From the perspective of the auditing team carrying out the audit, under what conditions is audit effectiveness likely to occur? The practice-based committee interpret "effectiveness" here as less observable failures in a given approach compared to other approaches. • From the perspective of an external reader of the financial statements, what does the user believe the audit opinion communicates about the nature of the audit, the involvement of the auditors, and do their beliefs change with different language in the audit opinion? [6]

[6] Our discussions with standard setters discovered this second question. To be clear, under the sole responsibility opinion, there are still at least two auditors involved in auditing the overall entity but the sole responsibility opinion has never communicated to the readers the existence of a component auditor. In the past, the existence of different component and group auditors has been relatively rare and hence the assumption of the reader might be that without mention of the component auditor, they assume the existence of only one auditor for the entire group even though that would not be factually correct in a sole responsibility group audit opinion. However, with mandated auditor rotation, this might result in a much greater incidence of group and component auditor settings and hence issues about reader attribution of responsibility in this setting need to be examined. However, they are beyond the focus of this research synthesis. See our separate document elaborating on this scope decision.

Our overall method is based on the "Critically Appraised Topic (CAT)" approach (see Barends, Rousseau, and Briner 2017). CAT provides a quick and succinct assessment of what is known (and not known) in the scientific literature about an intervention or practical issue by using a systematic methodology to search and critically appraise primary studies. However, in order to be quick, a CAT makes concessions in relation to the breadth, depth and comprehensiveness of the search than a more traditional research synthesis for academic purposes would. Aspects of the search are limited to produce a quicker result than an academic synthesis:

- Focus: a specific question that can be posed regarding Who, What, Where, When and How
- Searching: a limited number of databases may be consulted, and unpublished research from well-established sources are consulted.
- Data Extraction: only a limited amount of key data is extracted, such as year, population, sector, sample size, main findings, and effect size.
- Critical Appraisal: quality appraisal is often limited to methodological appropriateness.

By adopting this convention of CAT, we can produce an informative to standard setters synthesis of the evidence in the time period between standard setting meetings (normally eight to ten weeks).

This information lead to the following scoping of the CAT based research synthesis:

3.1 Criteria for inclusion and exclusion of studies in the review

We devise the following search strategy:

1. All research studies (archival, case, experimental, survey) that examine any aspect of the group audit will be searched for and examined for relevance to our questions (See Table 5 for two questions).

Examining the first question developed in conjunction with our standard setters committee:

> Is a group audit where the group auditor takes sole responsibility in the audit report for all component audits likely to be more, less or equally effective as when there is divided responsibility in the audit report?

We first address it from the effects of the two regimes on the component auditor carrying out the audit. That is we ask under what conditions different audit outcomes could occur due to the differences in supervisory regimes. We based our evidence collection in this area on the following set of assumptions that appeared to be reasonable to our standard setter committee:

- Assume that more effective component audit can be translated as meaning leading to

more accurate accounting numbers in the component
    - as a result of or in anticipation of a more thorough component audit and/or
    - more attention and effort by the component auditor in carrying out the audit of the component and/or
    - the component auditor considering a greater set of more relevant information in arriving at a conclusion about the component accounting numbers.

- Assume the group auditor with sole responsibility implies greater involvement with component auditor in terms of the scope of the component audit (i.e. evidence collection process) and in reviewing the conclusions drawn from the evidence (i.e. audit outcomes).

- Assume the group auditor would (and is required by professional standards) put more effort into setting the scope of the component auditor's work and evaluating the results of that work if the group auditor was taking sole responsibility in the audit report than in a divided responsibility report.

We posit that evidence from accountability research about differential evidence collection and evaluation processes would inform standard setters about whether sole versus divided audit firm responsibility for the component audit would inform their conclusion about the likely effectiveness of requiring one approach over the other or allowing both to coexist.

2. We search the accountability research literature (in accounting, management, and psychology) for evidence on the effects of two types of accountability:
    a. specific accountability to a known superior (i.e. the group auditor in the sole responsibility audit) with known preferences about evidence collection process and nature of outcomes under the following scenarios
        i. A known superior (i.e. group auditor) preference for high quality evidence collection and accurate results.
        ii. A known superior (i.e. group auditor) preference for a focus on efficient low cost process of evidence collection.
    b. broad based accountability (i.e. by the component auditor in a divided responsibility audit) to an unknown set of potential parties (audit opinion readers) who the accountable party (i.e. the component auditor) does not know their specific preferences about process or outcomes.

Eligible articles are those that meet the following criteria:

1) The study was an evaluation of group audits or accountability pressure as described in 2a and 2b.
2) Studies may be experimental, quasi-experimental, field (i.e. interview based), case (in-depth study on one or a limited number of occurrences).
3) The study reports on at least one process result (i.e. quality of work carried out) or outcome result (i.e. accuracy of conclusions).
4) The study is written in English or French, but may be cross-national.
5) The study was published before 2003. We also collect studies post 2003 to update the study after this current review as described in Section X.
6) Published and unpublished studies are included up to 2003 and for the update from 2003.

3.2 Search Strategy for identification of relevant studies

Our search will include published and unpublished articles, reports, documents, and other readily available sources. As suggested by CAT we will tradeoff ability to inform standard setters with high quality evidence that has been evaluated versus the breathe of search that is traditionally included in academic based research synthesis (Barends et al 2017). The studies will be identified via a search of key online data bases and other sources using search terms. These databases and search terms are described below. In addition to the online searches, we will review the bibliographies of key articles that address:

1. Group audits
2. Accountability pressure on searching for and evaluation of evidence.
3. Attribution of responsibility by report readers.

The databases used in our search for *published* articles include:

- ABI INFORM – GLOBAL (also known as ABI at Proquest)
- ECONlit
- PsycINFO

We will supplement these sources by examining the citations for key article through the use of the Social Science Citation Index (also known as the Web of Science Core Collection) on a time available basis.

After conducting, the search for published documents described above we will conduct subsequent searches for unpublished studies in SSRN (Social Science Research Network). The SSRN is the leading source for working papers in social sciences and includes almost 782,529 research papers from 363,595 researchers across 30 disciplines. The collections are especially strong in accounting and auditing as well as finance and management.

We believe that this set of sources will result in CAT criteria based search of the research literature and provide an adequate base for developing evidence to inform standard setters about the research questions posed in Table 5.

The search terms we will employ include:

"Group Audit" and ("Accounting" OR "Auditing")
Accountability and Superior
Accountability and Preference
Accountability and "Known Preference"

The first task involving these searches is to keep track of the number of "hits" each search term reveals within each data base. Next, we will review all titles and abstracts to determine: (1) whether the article is relevant to our study; and (2) whether the article is evidence based or not (i.e. theoretical articles will be excluded). Next, we will sort the empirical articles by keywords across search engines to eliminate article redundancy between search engines. We will then identify articles that are eligible for complete coding based on the criteria defined in section 3.1.

3.3 Description of methods used in the component studies

We include studies that use a wide variety of methods, experimental, quasi-experimental, field (i.e. interview based); case (in-depth study on one or a limited number of

occurrences). The studies included will include various samples, including individuals (e.g., auditors, employees, students,), audit firms, specific corporate audits or geographical areas. The outcome variables included in our study will include measures of extent of evidence search, quality of evidence evaluation, and nature of evaluation outcomes.

3.4 Criteria for determination of independent findings

Many studies report more than one outcome that is relevant to our domain of interest. In archival studies, authors may publish more than one article using data from the same sample. This is rare in experimental, quasi-experimental, surveys and field/case studies. Hence, to the extent we use studies with archival data we must make ensure author/sample selection are independent for inclusion. We also must ensure that other forms of research are also using independent samples. Hence, as part of our codings we look for reference to related papers using the same data set.

3.5 Details of study coding categories

From each study, we collect information relevant to our Table 5 questions including year of publication, research design, sample size, population (e.g., industry, type of employees), outcome measures, main findings, and effect sizes. Following CAT recommendations (Barends, Rousseau, and Briner 2017) we focus on a limited number of categories of data extracted to focus on answering our specific question.

3.6 Evaluation of Methods

To determine the methodological appropriateness of effect studies and impact evaluations, we follow the CAT recommendations (Barends, Rousseau, and Briner 2017) that suggest that evidence be evaluated at six levels of appropriateness based on Shadish, Cook and Campbell (2002), and Petticrew and Roberts (2006).

Design	Level
Systematic review or meta-analysis of randomized controlled studies	AA
Systematic review or meta-analysis of non-randomized controlled and/or before-after studies	A
Randomized controlled study	
Systematic review or meta-analysis of controlled studies without a pretest or uncontrolled study with a pretest	B
Non-randomized controlled before-after study	
Interrupted time series	
Systematic review or meta-analysis of cross-sectional studies	C
Controlled study without a pretest or uncontrolled study with a pretest	
Cross-sectional study (survey)	D
Case studies, case reports, traditional literature reviews, theoretical papers	E

From Barends, Rousseau, and Briner. 2017. P. 15

3.6 Characterization of Effect Sizes

To determine the magnitude of an effect, we apply Cohen's rules of thumb (Cohen, 1988; see below) as suggested by CAT approaches ((Barends, Rousseau, and Briner 2017). According to Cohen a 'small' effect is an effect that is only visible through careful examination. A 'medium' effect, however, is one that is 'visible to the naked eye of the careful observer'. Finally, a 'large' effect is one that anybody can easily see because it is substantial.

Effect size	Small	Medium	Large
Standardized mean difference: d, Δ, g	≤ .20	.50	≥ .80
Correlation: r, ρ	≤ .10	.30	≥ .50
Correlation: r^2	≤ .01	.09	≥ .25
ANOVA: η^2, ω^2	≤ .01	.06	≥ .14
Chi-square: ω^2	≤ .10	.30	≥ .50
Simple regression: β	≤ .10	.30	≥ .50
Multiple regression: β	≤ .20	.50	≥ .80
Multiple regression: R^2	≤ .02	.13	≥ .26

From Barends, Rousseau, and Briner. 2017. P. 17

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Roles and responsibilities

- All members of the review team are trained as both public accountant and academics.
- All members of the review team have obtained CA, CPA designation with 10+ years' experience combined in big four public accounting firms in Canada. Thus, in terms of content expertise, group audit is familiar to all members of the review team.
- All members of the review team have had rigorous training at major Canadian or U.S. doctoral programs, of which statistical analysis, literature review and literature search (retrieval) are part of the training.

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Declarations of interest

Salterio has previously researched accountability in the audit context in his published research (e.g. Libby, Salterio and Webb 2004) and has published a literature review on the topic of accountability (Hayne and Salterio 2014).

Preliminary timeframe

February to April 2018

Plans for updating the review

The academic review team does not have plan to update the review with the exception noted below. The current review surveys up-to-date literature to provide academic evidence on a specific question posed when the standards are set up. Should the same question be posed by the standard setters again in post-implementation review, the review will be updated to answer the question posed at that time.

AUTHOR DECLARATION

Authors' responsibilities

By completing this form, you accept responsibility for preparing, maintaining and updating the review in accordance with Campbell Collaboration policy. Campbell will provide as much support as possible to assist with the preparation of the review.

A draft review must be submitted to the relevant Coordinating Group within two years of protocol publication. If drafts are not submitted before the agreed deadlines, or if we are unable to contact you for an extended period, the relevant Coordinating Group has the right to de-register the title or transfer the title to alternative authors. The Coordinating Group also has the right to de-register or transfer the title if it does not meet the standards of the Coordinating Group and/or Campbell.

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