



Lessons learned: advantages and disadvantages of mixed method research

Advantages and disadvantages

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Mary A. Malina

University of Colorado Denver, Denver, Colorado, USA

Hanne S.O. Nørreklit

Department of Business Studies, University of Århus, Århus, Denmark, and

Frank H. Selto

*Leeds School of Business,
University of Colorado at Boulder, Boulder, Colorado, USA*

Abstract

Purpose – The purpose of this paper is first, to discuss the theoretical assumptions, qualities, problems and myopia of the dominating quantitative and qualitative approaches; second, to describe the methodological lessons that the authors learned while conducting a series of longitudinal studies on the use and usefulness of a specialized balanced scorecard; and third, to encourage researchers to actually use multiple methods and sources of data to address the very many accounting phenomena that are not fully understood.

Design/methodology/approach – This paper is an opinion piece based on the authors' experience conducting a series of longitudinal mixed method studies.

Findings – The authors suggest that in many studies, using a mixed method approach provides the best opportunity for addressing research questions.

Originality/value – This paper provides encouragement to those who may wish to bridge the authors' ideological gaps and to those who are actively trying to do so.

Keywords Qualitative research, Quantitative research, Research methods

Paper type Viewpoint

I. Introduction

In this paper, we respond to the special call by *Qualitative Research in Accounting and Management* for articles exploring the ways in which qualitative and quantitative research methods can be combined to advance our understanding of accounting, management and organizations. The purposes of this paper are to:

- discuss the theoretical assumptions, qualities, problems and myopia of the dominating quantitative and qualitative approaches;
- describe the methodological lessons that we learned while conducting a series of longitudinal studies on the use and usefulness of a specialized balanced scorecard (BSC) (Malina and Selto, 2001, 2004, Malina *et al.*, 2007); and
- encourage researchers to actually use multiple methods and sources of data to address the very many accounting phenomena that we still do not understand well.

Zimmerman (2001) famously argued that accounting research is firmly wedded to economic theory, and by that many have inferred that he refers to classical



microeconomic theory. Others (Hopwood, 2002; Ittner and Larcker, 2002; Luft and Shields, 2002; and Lukka and Mouritsen, 2002) responded vociferously that Zimmerman had overlooked the shortcomings of classic economic theory and the contributions of other behavioral theories to accounting research, such as social and cognitive psychology and sociology. We do not wish to continue this debate, but we observe that many accounting research papers currently seem devoid of axiomatic theory (unlike the heyday of the 1970s and 1980s) and are concerned with documenting empirical regularities. These efforts can be considered basic, pre-theory science, for which more-relevant tools seem to hold great promise for progress.

We echo Euske *et al.* (2010) and deeply regret that accounting researchers have separated into methodological camps that do not communicate well to refine or modify our incomplete theories and knowledge of practice. Furthermore, we observe that the methodological camps are divided on the nature of the data which are worthy of rigorous examination. In accounting, research and researchers are stereotyped as either “number crunchers” or “navel gazers” (a.k.a. hard or squishy). We, as the accounting research community, have to face the fact that both numbers and words convey meaning and both are needed if we are to understand the world. Gherardi and Turner (1987) suggest that the issue is one of knowing when it is useful to count and when it is “difficult or inappropriate to count at all”, when data are non-standardized and we have no clear rules for saying what is variation and what is error.

We think that the divides between quantitative versus qualitative methods and economic versus other behavioral theories are not constructive toward understanding accounting phenomena. We suggest that in many studies, using a mixed method approach provides the best opportunity for addressing research questions. We hope this paper provides encouragement to those that may wish to bridge accounting’s ideological gaps and comfort to those that are actively trying to do so.

II. Inherent value in quantitative and qualitative methods

Positivism searches for empirical truths. Positivism is not about confronting “things themselves” because direct observation of a phenomenon is subjective and hence not reliable. Likewise, a phenomenologically based methodology also does not create an immediate interpretation of phenomena to the level of concepts, theories or statements of fact. Concepts, for example, are not constructed by a direct confrontation with the phenomena but similarly by analyzing the data collected. For example, qualitative method might construct a phenomenological platform in the form of interview data (similar to a quantitative researcher’s statistical dataset), which is used to construct concepts or reflect on extant theory. This epistemic platform should openly and transparently bridge theory and phenomena, as does a publicly available statistical dataset, to dispel some of the concerns about bias, vagueness, imprecision and distortion of direct observations. If the phenomenological grounding is insufficient, then the evidence and data are likely to be misleading. In statistics, this means that the data are not representative or are missing observations of key variables. In qualitative method, this means that the interview material does not adequately cover the field of study (Nørreklit *et al.*, 2007).

Many accounting qualitative studies use word counts or frequency for content analysis. This assumes that we all use the same language and that there is an optimal length of message. If the number of occurrences is greater than a certain cutoff, for example, then the data are alleged to be saying something of importance. If the count

does not meet the cutoff, then the data are not saying anything. Such cutoffs meet many accounting researchers' comfort in making binary classifications, but this approach seems simplistic. Bliss *et al.* (1983) tell us that a word or phrase does not contain its meaning as a bucket contains water, but has the meaning, it does by being a choice made about its importance in a given context. Qualitative data analysis should bring meaning and understanding to the research question. This comes from the human judgment of context and is, therefore, subjective. Historically, we, as accountants, have not been visibly comfortable with judgment in academic research, although choice of research questions, methods and interpretations surely are subjective judgments. However, the European tradition seems to be more inclined to use qualitative methods than the American tradition (Panozzo, 1997; Bhimani, 2002).

Mixed method research employs both approaches iteratively or simultaneously to create a research outcome stronger than either method individually. Overall, combined quantitative and qualitative methods enable exploring more complex aspects and relations of the human and social world. Some of these aspects and relationships may be analyzed quantitatively and qualitatively. Ambiguity is not a matter of qualitative method versus quantitative method, but whether the underlying and revealed concepts are valid representations of the phenomenon. In both quantitative and qualitative methods, concepts can be imprecise and open to interpretation. Salomon (1991) argues that the issue is not quantitative versus qualitative methods at all, but whether one is taking an "analytic" approach to understanding a few controlled variables, or a "systemic" approach to understanding the interaction of variables in a complex environment. Firestone (1987) suggests that quantitative studies persuade the reader through de-emphasizing individual judgment and stressing the use of established procedures, leading to results that are generalizable to populations. However, qualitative research persuades through rich description and strategic comparison across cases, thereby overcoming the "abstraction inherent in quantitative studies" and permitting generalization to theory (Yin, 2004). Qualitative research typically answers research questions that address "how" and "why" whereas quantitative research typically addresses "how often" and "how many". The above reflections give reason to suggest that a mix of quantitative and qualitative methods can be fruitful for obtaining profoundly new empirical insights. As quantitative methods need valid conceptual grounding, qualitative methods are probably always a necessity to understand social phenomena. It should be noted that Einstein's mathematical work was conceptual, which later was investigated more empirically. Whether qualitative to quantitative research is staged iteratively from one to the other or simultaneously, it seems clear to us that both methods can contribute to understanding accounting phenomena.

III. An example of mixed method research

The aim of this paper is to highlight the lessons we learned while conducting a multi-year field study of a specialized BSC. Our research project began in 1999 when the BSC was just beginning to hit the academic literature. We gained access to a *Fortune* 500 company that had recently implemented a BSC for its distribution channel. At the time, the business community and consultants advocated the use of the BSC, but very few academic studies had been conducted on either its use or usefulness. The main focus of attention for both practitioners and academics was the novelty that the BSC expressed an organization's strategy via a combination of both financial and non-financial measures of performance. Most academic research focused on verifying one or more

putatively causal links between contemporaneous or leading non-financial measures and lagging financial measures (Ittner and Larcker, 1998).

We set out to examine the process and impact of managing an organization with non-financial performance measures, specifically in the context of a performance measurement model such as the BSC. We used both qualitative and quantitative methods and various theories to answer our research questions and to understand the phenomenon of an enduring, evolving BSC. The following paragraphs provide a brief summary of the papers as well as how qualitative and quantitative methods were utilized in the studies.

The first paper (Malina and Selto, 2001) reports evidence on the effectiveness of the BSC as a strategy communication and management-control device. We conducted 14 semi-structured interviews and used company-provided archival qualitative and quantitative BSC data. Based on business communication and management control theory, we used computer-aided qualitative data analysis to model the use and assess the communication and control effectiveness of the BSC. We relied almost exclusively on a qualitative method that cross-tabulated both a priori and *in vivo* coding of interview transcripts[1]. We conclude that this specific BSC, as designed and implemented, is an effective device for controlling corporate strategy. The results also indicate disagreement and tension between top and middle management regarding the appropriateness of aspects of the BSC as a communication, control and evaluation mechanism.

We were intrigued by this disagreement and tension and pursued why the company initially chose then made changes to specific performance measures on their BSC over time. We continued our investigation (Malina and Selto, 2004) by re-analyzing the interview data using resource-, systems- and contingency-based strategy theories. Again, we used interpretations of the interview data as well as cross-tabulated a priori and *in vivo* coding of interview transcripts. We found that performance measure attributes (e.g. objectivity, informativeness, causally related, etc.) are important considerations for choice and change of measures. Design attributes are more important than use attributes; the importance of attributes does not appear to differ according to strategy; and some individual attributes are traded off for other attributes. According to firm managers, one of the important attributes is the cause-and-effect relations among BSC measures.

The study continued with an attempt to validate relationships between key performance indicators in the BSC using econometric methods (Malina *et al.*, 2007). However, refutation of cause and effect in the BSC led us to consideration of alternative explanations for the company's continued use and professed satisfaction with the BSC. In this paper, we used qualitative and quantitative methods sequentially. Like most empirical studies, we initially steered from theory to data. However, the contradiction between our empirical findings and the firm's expanding use of the BSC lead us to return to the qualitative data. Our initial plan of conducting a theory-testing study was amended to conducting a theory-building study.

IV. Lessons learned from mixing methods

Conflicting data and theory

Our CAR 2007 paper brought to light the challenge of how to manage data inconsistencies. The accounting literature was replete with studies using linear regression to confirm correlations indicative of causality (Behn and Riley, 1999; Ittner and Larcker, 1998; Banker *et al.*, 2000). We, too, headed down the path of confirming causality

by using econometrics. As an improvement to the standard methods used to test causality in the accounting literature, we applied the “Granger causality” test, which is a more powerful method for refuting causality. Granger causality (Granger, 1969, 1980; Ashley *et al.*, 1980) dominated testing for cause and effect in economic models. Even with a more powerful econometric approach, we convincingly refuted hypothesized causality in the BSC that we studied.

A major advantage of a mixed method research design is that during the project, a researcher can return to the qualitative data and reread quotes in context of the larger document. Multiple runs of statistical analyses could be made on quantitative data until confirming evidence is found; however, non-results or obvious data-mining exercises are unlikely to be published. When we refuted the hypothesized causal relations, we, like most quantitatively leaning researchers, looked to robustness tests for a statistical explanation for the inconsistency. We “knew” the theory was right, so it must be a lack of power, management error, or an outlier company. It then occurred to us that we could better understand the company’s use of the BSC by integrating the numeric trend (or lack thereof) from the quantitative data with the specific details from the qualitative data. We could go back to our interviews to investigate “why.”

As suggested in Elharidy *et al.* (2008), we sought to be faithful to the data and open to the complexity of the context. We looked to broader theory for another reason the company keeps using and expanding the use of the BSC. We returned to our interview data and reassessed it with broader definitions of relations among measures. We found likely explanations in:

- our and interviewees’ confusion between causality, finality and accounting logic; and
- the viability of finality-based performance measurement models[2].

This additional qualitative analysis revised the conclusion in our *JMAR* 2001, and we find that the relations among performance measures perceived by BSC users are not cause-and-effect relations. In addition to the communication benefits found in *JMAR* 2001 and *MAR* 2004, the re-analyzed qualitative data provided evidence that users regard the BSC as an effective management control device because its communicated relations among measures create a complementary:

- credible story of success;
- reinforcement of the company’s pay-for-performance culture; and
- result control that is legitimate and fair.

The iterations of qualitative and quantitative data indicated new lines of thinking through attention to surprises or paradoxes, turning ideas around and providing fresh insight (Rossman and Wilson, 1984).

Theory building and theory testing

According to Keating (1995), qualitative studies can be used to discover, refine or refute theory. A theory development study explores unknown territory while a theory refinement study begins with a specific theory and clear objective then advances the theory by replacing constructs with low explanatory power with new constructs or establishes stronger linkages between constructs. Finally, qualitative studies can be used

to refute theory when the field data do not match the established theory. In contrast, quantitative methods in accounting research are best suited, or at minimum more frequently used, to confirm theory in quasi-experimental studies where true experimental control is not possible.

In particular, quantitative research in accounting strives for the statistical confirmation of causal linkages among sets of accounting information, business factors and financial success, management systems and performance, strategy and performance, etc. Not surprisingly, the results very often are mixed, with each lack of confirmation deemed a “failure” that is attributable to lack of statistical power, uncontrolled variables or management shortcomings (Ittner *et al.*, 2003). Alternatively and despite typically weak (e.g. adjusted R^2 in single digits) or mixed confirmation of relation and hence the rejection of hypotheses, researchers have continued to pursue the initial hypothesis (e.g. seeking ever larger statistical samples). This behavior is reinforced by the resistance of accounting journals to publish quantitative studies that do not support their hypotheses. However, a mixed outcome is an indication that the underlying conceptual model or theory is insufficient in representing the phenomenon under investigation. These signals of inadequacy should not be ignored or rationalized away *ex post*. A major advantage of blending research methods is that “it enables the researcher to simultaneously answer confirmatory and exploratory questions, and therefore verify and generate theory in the same study” (Tashakkori and Teddlie, 2003, p. 15).

In the case of our CAR 2007 paper, the initial research design was to attempt quantitative confirmation of causality in the BSC. Like most empirical studies, we initially steered from theory to data. However, knowledge of a phenomenon advances by continually cycling between theory and data. As Scapens (1990) suggests, if existing theories conflict with the patterns observed in the study, further analysis is in order to explain the conflicts. When the lack of confirmation occurred as the theory came in contact with empirical reality and because we collected both quantitative and qualitative data, we were able to shift from theory confirmation to theory refinement/refutation. We were able to provide insight into the unusual quantitative findings and advance theory.

Depth and breadth

Archival studies tell stories from inferences about the levels or changes in quantities of the “average firm”. What about firms at the tails, i.e. those that are very successful or failing? Numbers alone do not tell the story; in fact, these potentially very interesting “outliers” are often winsorized because they “distort” the statistical findings. Qualitative analysis includes context and adds understanding that numbers alone cannot. As researchers, we are not necessarily always worried about the “average firm” but rather about data from a specific, interesting firm or set of firms. In our case, purposive sampling led to our effort to understand how a specific *Fortune* 500 company created an effective and efficient distribution channel. The BSC is a good story which, in our setting, is more important than the numbers, although the distributors are evaluated based on the numbers. Our *JMAR* 2001 paper told the story of the perceptions of why the BSC is important. Our CAR 2007 paper then looked at the numbers as if they “should” work, but found that its role is more complicated than we thought. As researchers, we should use as much data as possible to explain the problem we are investigating. Had we stuck to a methodological camp, we would have found another BSC “failure” that did not advance our understanding of phenomenon.

Rigor of qualitative analysis

Unlike the stereotype of qualitative research as loose and random, theory building requires methodological rigor on par with quantitative methods. Although a compelling story makes a good read, the impact of a qualitative study comes from rigorous method. Our *JMAR* 2001 paper used a method of analysis that attempted to move management accounting field research in the direction of more internal validity and reliability than was apparent in most descriptive field research at the time. We utilized computer-aided data analysis tools to code and analyze interview data. According to Lillis (1999), “papers reporting the results of (qualitative) research studies disclose little detail regarding attributes of study design, analytical processes and methods actually used by researchers.” A major challenge was to convince accounting researchers that computer-aided data analysis is valid. The primary source of controversy for computer-aided data analysis appears to be relative emphasis on positive method promoted by computer methods versus insightful analysis allegedly sacrificed to the rigidity of the method (Coffey *et al.*, 1996; Lee and Fielding, 1996). To that end, we included a six-page appendix devoted to explaining our method. We justified the type of coding used as well as disclosing the perceived weaknesses in computer-aided data analysis.

Numerous seminal studies show that humans are infamously bad processors of information. For example, we tend to leap to conclusions based on limited data (Kahneman and Tversky, 1973), are overly influenced by a contextually rich story (Nisbett and Ross, 1980), and tend to ignore disconfirming evidence (Nisbett and Ross, 1980). We as researchers are not immune to these human tendencies. Studies need multiple coders of qualitative data, especially when the research crosses organizational and cultural boundaries. It is highly unlikely, in our experience, that one person can look at voluminous transcripts (or other sources of qualitative data) and have a holistic view of a complex organization based on one or even several readings. We used multiple coders and reported inter-coder reliability in all three of our BSC articles. Just as importantly, we thoroughly collaborated on the creation of a priori and *in vivo* codes and interpretations of the coding results, and we were open to alternative interpretations of the qualitative data. This led to an iterative, consensus-building approach that gave us confidence that we understood and fairly represented our rich qualitative data.

We believe that qualitative studies should fully disclose the research process so if researcher bias exists, it is evident. For example, our *CAR* 2007 paper found bias in the qualitative data and analyses used in our *JMAR* 2001 paper. We later found in 2007 that relations among performance measures which were perceived by BSC users were in fact not cause-and-effect. Our prior beliefs about cause and effect in the BSC were based on normative assumptions on our part. The qualitative analysis reflected our interpretations of statements by interviewees, who most likely used cause-and-effect language loosely. Hence, we expected cause-and-effect relations, and we found them. Do the conclusions depend on the subjects and conditions of the inquiry rather than on the inquirer? Can the researcher critically ask whether the concepts and the relationships are valid descriptions of the phenomenon in the face of contrary evidence? Bottom line: qualitative studies need to make researcher bias more obvious when it occurs.

Getting mixed method studies published

Publication issues can be a barrier to integrating qualitative and quantitative methods. The tendency for studies including qualitative methods to be lengthy can be a hurdle

to publication. Also, authors may choose to publish the qualitative and quantitative findings from mixed methods studies in separate journals articles for different audiences (Truscott *et al.*, 2010).

A major challenge we faced in publishing the multi-method research study was pleasing the blind reviewers. With each revision of our *CAR 2007* paper, we struggled to satisfy both reviewers. The more “quantitative” reviewer could not accept that the econometrics refuted causality, and requested more and more tests thinking that the “right” test was missing. As Eisenhardt and Graebner (2007) assert, “some reviewers who work on large-scale, hypothesis-testing research may misunderstand the method (e.g. expect random sampling), or simply regard their own methods as superior.” On the other hand, the more “qualitative” reviewer wanted a richer and more complex story than we were telling. This reviewer requested more and more elaboration thinking that the “right” story was missing. Needless to say, it was a challenge to convince the quantitative reviewer that the statistical refutations were valid and the qualitative reviewer that we had thoroughly exhausted the qualitative data. In the end and with the encouragement of a courageous editor, the review process resulted in a vastly improved article that extends extant accounting theory of the use and usefulness of a BSC.

Expanding the study of topics traditionally studied one way

Our *CAR 2007* paper used qualitative and quantitative analyses to answer a causality research question that has been studied traditionally only quantitatively. Miller and O’Leary (1997) successfully placed a mostly qualitative field research study on capital budgeting in the decidedly quantitative *Journal of Accounting Research*. We observe that the prestigious (and usually quantitative) *Journal of Finance* encourages qualitative studies that extend finance theory and applications beyond more typical econometric analyses. We wonder when these will become more commonplace in the accounting literature. For example, the accounting literature is replete with studies that infer financial analysts’ motives and behaviors from earnings forecast accuracy statistics. It might be interesting if someone who is well connected and trusted (both would be needed) to conduct a thorough qualitative study of analysts’ behaviors that could be matched to quantitative findings. We might learn, for example, that analysts are boundedly rational like the rest of us in some important ways. The accounting literature of the 1970s and 1980s featured influential studies of auditor’s decisions in the laboratory. It would be fascinating for (again well connected and trusted) researchers to qualitatively study auditors in their natural environment. We might learn, for example, how institutional relationships mitigate individuals’ biases and heuristics. We might also learn how audit fees reflect heretofore-unmeasured risks that have been proxied by size or number of business segments. It seems likely to us that many examples of quantitative accounting research could be examined meaningfully by complementary qualitative research. We need both to focus on the same research questions.

V. Observations and recommendations

Research is a learning process, perhaps more so than it is a theory testing exercise. Our theories are never so complete or irrefutable that they should emerge unscathed from any qualitative or (jointly) quantitative investigation. Thus, every project should educate the researchers as well as the readers. It is likely that the “finished” product that readers see is the result of much iteration of searching and interpreting the data, writing

the results and sparring with reviewers and editors. Yet, the goal of writing published research seems to be to make it appear as if the researchers knew all along what they wanted to do and that they found what they expected. It is possible that some of our most accomplished accounting scholars can indeed execute such projects, but it is unlikely that most of us can. Perhaps, *ex post* we believe that we should have known better, but we think that published research should reflect the learning that did occur, and why and how the researchers adapted their method(s) to the investigation. We suspect that in many cases both quantitative and qualitative data were used during many processes that have resulted in published research. Why hide this? Our aim is to encourage an open, blended approach wherein both the quantitative and the qualitative activities are as rigorously executed and reported as possible.

Executing the previous recommendation means we must educate ourselves on multiple methods or collaborate with co-authors that have the missing expertise, but who also appreciate the value of both qualitative and quantitative methods and data. We have done both and know that we, at least, have been enriched by the experiences. We hope that our research is also enriched when we have employed both qualitative and quantitative methods. A complete picture cannot be painted by any one method alone. Each source of data and methodological approach is an important piece of a jigsaw puzzle. This does raise the bar on empirical research that necessarily may address small samples of firms that can be examined thoroughly. Purposive sampling, not convenience sampling and extensive access to both types of data are *ex ante* requirements for these mixed method projects. Unfortunately, these are higher risk projects, because the researcher's access is usually at the mercy of the host firms.

The majority of accounting researchers invest decades in building strong quantitative analysis methods, such as econometrics. It is probably no overstatement that our colleagues' econometric knowledge and skills are at least on par with any business discipline. It is a bit disturbing to us, however, to observe recent financial accounting forays into qualitative analysis that seem unwilling to go beyond apparently objective word counts. Rather, we would like to see the average rigor of qualitative analysis employed in all accounting research to increase. This surely means going beyond word counts to extracting meaning from context with as much validity and transparency as possible. Quality criteria for quantitative research are well known and widely agreed, that is not necessarily the case for qualitative research. Several debates in recent accounting literature highlight this point (Chapman, 2008; Lillis, 2008; Vaivio, 2008; Scapens, 1990, 1992; Llewellyn, 1992).

We think that the current financial crisis provides ample evidence to reflect on the research assumptions used in accounting. The financial crisis came suddenly even though we have an unprecedented number of tools for measuring performance and ample research on performance measurement. Dominating accounting research is the assumption of an efficient market and linearity. Bank branches implementing the BSC outperformed on key financial measures the other bank branches within the same organization (Davis and Albright, 2004). The BSC system was inducing an increase in loan and deposit growth. However, was there consideration of the risk? Did the system induce some of the problems of the financial crisis? It is ironic that companies such as Fannie Mae and Chrysler were the normative examples of the BSC before the financial crisis. We should analyze how and why the financial crisis occurred with a critical eye toward the role of accounting and accounting research. What are the unintended

consequences of piece-meal optimization? We in accounting seem to focus on the tool of the day (ABC, BSC, etc.) that seems a panacea, but without the humility or prudence that our actual state of knowledge requires. We suggest that more mixed method research should be conducted with a careful consideration of whether the methods are appropriate for the particular research question and whether the methods have some crucial myopia, which should be taken into consideration by drawing on other methods.

We would also like to emphasize the importance of the method of questioning and reflective reasoning in creating important new insight. The Socratic method of questioning and logical reasoning is the backbone of academia and research. Questioning opens people's minds and creates a humble and reflective attitude toward all types of knowledge. Overall, we should be less ideological and more open minded and reflective to the particular research problem when we apply research methods. The research method(s) chosen should be those that provide the best opportunities for answering research questions.

Notes

1. See particularly the *JMAR* 2001 article which describes the method that was state of the art at the time. Software technology has advanced since then to greatly facilitate analysis of coding co-occurrences.
2. Causal relations exist when event X (the cause) and Y (the effect) are logically independent, when X precedes Y in time, and when X necessarily implies the subsequent observation of Y (Cook and Campbell, 1979; Edwards, 1972; Slife and Williams, 1995; Nørreklit, 2000). Finality relations exist when (a) one believes that a given action is the best or most desired means to an end, and (b) the belief, desire, action, and end are related by custom, policy, or value (Arbnor and Bjerke, 1997). Actions driven by finality are performed because the actions conform to the beliefs and wishes of a person or group. Logical relations exist by human thinking and reasoning. It is crucial for the creation of human constructs, such as mathematics, language and accounting (Nørreklit, 1987; Ijiri, 1978).

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About the authors

Mary A. Malina is an Assistant Professor of Accounting at the University of Colorado Denver. Mary A. Malina is the corresponding author and can be contacted at: mary.malina@ucdenver.edu

Hanne S.O. Nørreklit is a Professor of Management Accounting and Control at the University of Århus. She also holds a visiting appointment at the Norwegian School of Economics and Business Administration.

Frank H. Selto is Chair and Professor of Accounting at the University of Colorado at Boulder.