Investors' attitudes toward source credibility

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Abstract

Purpose – To inform research on source credibility by providing insight into investors' perception and use of common information sources.

Design/methodology/approach – In total, 235 individuals with investing experience or intent ranked the perceived credibility of nine common sources that report unaudited corporate earnings estimates and nine sources of non-financial performance measures. Respondents also assessed the relative value of source credibility to their investment decisions and indicated which common sources of information they use when investing.

Findings – Results indicate no significant differences in the rankings between more and less experienced investors. Respondents seemed to impute accountability or independence to certain sources without warrant. Source credibility was less valued in the non-financial performance measurement context than in the earnings estimate setting. A surprisingly low proportion of investors reported using the auditor's report and financial statement notes in combination with financial statement data.

Research implications/limitations – Theory can usefully be expanded to address investors' assumptions about source accountability or independence and the data context's effect on the relative value of source credibility. Using US-based participants potentially limits the ability to generalise results. More extensive lists of sources may refine the observed differences.

Practical implications – Results suggest that investors should question their assumptions about a source's typical behaviour. Similarly, financial reporting professionals may need to promote more heavily the value of credible sources of non-financial performance measures while reminding investors of the importance of common financial reporting vehicles.

Originality/value – In addition to providing investor feedback on source credibility, this paper reveals areas for theory to address and raises questions for further performance measurement research.

Keywords Financial reporting, Information media, Decision-making, Performance measurement (quality)

Paper type Research paper

Introduction

Research has shown that the perceived credibility of the source of information often plays a critical role in decision-making (see Pornpitakpan (2004) for a summary of the literature). The importance of source credibility in accounting and investment has emerged in studies of auditors' judgements (Bamber, 1983; Beaulieu, 2001; Goodwin, 1999; Hirst, 1994), audit committee decisions (DeZoort *et al.*, 2003), lenders' deliberations (Beaulieu, 1994; Beaulieu and Rosman, 2003), and investor confidence (Hirst *et al.*, 1999). The experimental framework typically featured in these and related studies requires a focus on two or three sources of the experimenter's choosing, leaving

open the question of how investors actually rank a wider range of common sources of corporate accounting information. Such rankings can provide insights into the role that these sources play in investors' perceptions of the business reporting network. Similarly, it is commonly assumed that investors value source credibility in their decisions, but the extent to which they value this factor across decision contexts bears examining, particularly since most studies of source credibility focus on financial reporting data while investors increasingly have access to non-financial data as well. Further, knowing the propensity of investors to use particular sources contributes to our understanding of investment decision-making.

This study aims to fill a gap in accounting research on source reliability in three ways: by furnishing data on investor perceptions of credibility over a wider range of sources than a typical experimental setting can accommodate, by comparing these perceptions across decision contexts, and by shedding some light on current use of sources. To accomplish this goal, this work shows how investors rank common sources of accounting information across different decision contexts and how they value the source of the information compared to the information itself. Finally, this study provides data on the use of common information sources in investor decisions.

From a practical perspective, knowledge of how individuals rank different common sources, how they value source credibility in investing contexts, and what sources they use in their decision-making can help investors to be mindful of how they are arriving at their decisions and can improve reliable communications in the financial reporting community. It also can facilitate discussions about business reporting and inform efforts such as the AICPA's financial literacy project (AICPA, 2005). At the same time, understanding these perspectives – getting feedback from investors in practice – can point to new directions for research and refinements in theory.

The survey reported here examined attitudes toward source credibility by asking investors to rank a list of nine common information sources for unaudited corporate earnings estimates and a list of nine sources for corporate non-financial performance measures based on their perceived credibility. The lists were then used in an investment allocation experiment, after which participants compared the decision-making value of the sources' credibility to the value of the reported information. Finally, participants answered questions about the sources of information that they use when making investing decisions.

The survey's results show general consistency between more experienced and less experienced investors in ranking sources of earnings estimates and non-financial performance measures. In some instances, however, investors appear to attribute activities or qualities to the sources that may be unwarranted. Source credibility appears more highly valued in the financial earnings context than in the non-financial performance measurement setting. A seemingly low proportion of respondents report using the notes to the financial statements and the auditors' report when making their decisions, and a surprisingly low proportion use both of these sources in combination with financial statement data. The results point to the importance of the context in which the source is reporting and suggest a need to remind investors of the role played by basic financial statement components.

The paper continues with a brief look at the importance of source credibility in financial reporting. The method used in the investigation and its results follow. After analysis and discussion of the results, the paper concludes with suggestions for future research.

Source credibility and financial reporting

Beaulieu (2001, p. 85) provides a concise working definition of source credibility as that quality that determines "whether sources of information inspire belief in their representations." Credibility has been held to be based on the perceived competence of the source and its perceived lack of bias, as well as on the judge's perspective on the issue being communicated (Birnbaum and Stegner, 1979). Determinants of how source credibility is used in decision-making include the judge's involvement in the issue, the importance of the task, and the ambiguity in the message's content (Chaiken and Maheswaran, 1994).

The general finding of source credibility research is that sources with low credibility either have their messages discounted in various ways or cause decision makers to expend more effort in coming to a decision (Beaulieu and Rosman, 2003). (Pornpitakpan (2004) describes some exceptions). Most prior source credibility research in accounting has focused on auditors and lenders. Some of these studies have examined the credibility of the actors directly involved in auditing – e.g. audit seniors (Bamber, 1983), sources of audit evidence (Hirst, 1994), and auditee management (Beaulieu, 2001). Others have investigated how the content of the source's message affects individuals' judgement of the source's reliability. For example, management's prior forecast accuracy can affect investors' confidence in management earning predictions (Hirst *et al.*, 1999), and if evidence from external and internal sources is inconsistent, auditors are more likely to regard the trustworthiness of the source (Goodwin, 1999). The importance of a consistent, factual message has also been shown in lenders' decisions (Beaulieu, 1994) and audit committee deliberations (DeZoort *et al.*, 2003).

Extrapolating from these studies to a broader investing context, one would expect investors to treat messages of corporate performance with scepticism when coming from sources with low credibility. But investors can learn about a company's performance through many different common channels of communication (e.g. a trade publication or a company's web site). Since, investors may be unaware of the particular aspects of a given individual source within the common group (e.g. the level of expertise of Beverage World or of an individual blog), it is likely that the perceived credibility of the individual source is influenced initially by the investor's perceived credibility of the class to which the source belongs. It is reasonable, therefore, to ask which classes of common sources are seen as more or less credible when announcing corporate performance. Further, during everyday decision-making, the source of the information is not separate from the information it reports. This argues for the importance of knowing whether the source's value to the decision depends on the kinds of data reported. The design of the survey described below reflects these concerns about the credibility of common sources and the perceived value of that credibility.

Method
Rationale

The research was designed with three aims in mind: to elicit rankings of common sources of information about companies' performance, to reveal the perceived value of source credibility in investing decisions, and to show how prevalent the use of common sources of financial reporting information is. Details about participants, the research instrument, and the procedure used appear below. Before

turning to those details, it is useful to consider the general rationale behind the research approach. Asking participants to rank sources rather than rate them avoids complications in comparing subjective ratings across individuals. It also requires participants to distinguish among the sources, rather than group sources together under the same rating. Having participants separately rank sources of financial information and sources of non-financial performance information allows an investigation into whether the information context affects the perceived relative value of source credibility for investment decisions. Similarly, requiring a source's credibility to be judged in a trade-off with the information the source imparts allows a focus on the value of credibility relative to the data itself. Taken together, these features address the desired goal of revealing investors' perceptions of the credibility of a range of sources and the perceived relative value of source credibility to their investment decisions. To uncover the prevalence of use of common sources, participants were asked simply to check items off a list. Other design details and background follow.

Participants
Advertisements at ten US schools of business or public policy sought graduate students, staff, and administrators who were interested in investing to participate in the experiment within which the survey was embedded. About 249 participants completed some part of the survey. Ten observations were omitted from the analysis of the rankings because the respondents did not complete both sets of rankings. A further four were dropped because participants did not express investment experience or interest. Of the final sample of 235[1], 74 percent said they were enrolled in a master's degree program, 39 percent of these in accounting or finance and 51 percent in another business discipline. Of the participants, 37 percent said they already held a master's degree or higher. About 53 percent of respondents were male. About 77 percent reported that they invested in stocks (equities) or mutual funds; the remainder said they intended to invest in these in the future. Of the 221 participants who provided information on their work background, 26 percent had 10 years' experience or more and 13 percent had 20 years' or more. The average was 7.8 years' experience (SD = 8.0).

Instrument
Survey questions appeared as four separate sections of a longer experiment on investment decision-making. The four sections consisted of two sets of source rankings, a group of questions on how the individual valued sources of information relative to performance data, and questions about the information media the respondent uses when making investment decisions. The instrument was delivered via the internet, with interested individuals responding by e-mail to advertisements and receiving the instrument's URL and a unique access code in reply.

Procedure
Sections 1 and 2 – rankings. The first set of rankings involved nine sources for unaudited earnings estimates; the second featured nine sources of non-financial performance measures – specifically, measures for customer satisfaction, intellectual property (knowledge) management, and product quality. The instrument included definitions of accounting and financial terminology, such as "earnings estimates" or

"non-financial performance measures" to provide a common background for participants. Items were chosen for inclusion in the list based on whether they were commonly cited in the business press as a likely source of information on the particular corporate data. Thus, the first list included such items as analyst forecasts, press releases, CEO conference call comments, internet web sites, and personal connections[2]. (See Panel A of the Appendix.) The second included analyst reports, industry newsletters, chartered accountant (CPA) assurance reports, CEO conference call comments, and internet web sites, among others. (See Panel B of the Appendix.) The sources appeared in alphabetical order, with five items common to both sets in order to aid in the analysis of decision contexts. Each participant ranked both lists separately, working on other tasks as discussed below in the interval between the two rankings.

In each set, individuals were asked to choose from the respective list the four sources that they trusted the most. The computer program generating the instrument displayed these four and asked the participant to rank them from top to bottom. The program then showed the five remaining sources of the set and asked the individual to rank the four they trusted least from bottom up. This two-stage process was designed to produce an individualized, fully ranked list by set while reducing the cognitive effort that would have been required to rank nine items at once.

Section 3 – valuing source credibility. As each full ranking was completed, the program proceeded to the exercises that formed the main part of the extended experiment referred to above. These exercises featured three investment candidates whose earnings estimates or performance measures were announced via three different information sources that were based on the individual's rankings. Participants allocated investments to candidates based on the combination of the reported data and its source in a test of psychological theories of comparison methods (Schwarzkopf, 2003, 2005). Since, the results of the experiment are not germane to the rankings or other survey questions reported here, they are not discussed further[3].

At the end of the experiment, participants answered the following two "trade-off" questions:

(1) Compared to the company's estimated earnings, how important was the credibility of the source of that information to your (investment) decision?

(2) Compared to the company's performance measures (such as customer satisfaction, intellectual property management, or product quality), how important was the credibility of the source of that information to your (investment) decision?

For each question, individuals marked their responses on an 11-point scale, anchored by "Source credibility was completely unimportant (1)" and "Estimated earnings [Performance measures] were completely unimportant (11)" with "Source credibility and estimated earnings [performance measures] were equally important" marked as the midpoint.

Section 4 – Information media. Finally, respondents identified the media they used when making an investment decision by choosing from a list of eight items that included such media as the internet, newsletters, industry publications, auditors' reports, and financial statement data and notes. (See Panel C of the Appendix). Participants also provided information on their investment background by rating the

frequency with which they read about business or finance and their experience in investment analysis (see Panel D of the Appendix).

Results

Experience levels
Responses to the investment background questions divided participants into two groups by investing experience. Individuals were categorized as "more experienced" if they:

- indicated that they had ever invested in stocks or mutual funds;
- rated their frequency of reading articles on business and finance above the midpoint of a 7-point scale anchored by "hardly ever" and "almost always"; and
- rated their experience in investigating mutual funds, individual stocks (equities) and bonds, recent equity issues, or industry fundamentals above the midpoint of a 7-point scale anchored by "hardly any" and "very experienced."

This resulted in 83 of the 235 participants (35 percent) being classified as "more experienced". The remainder were considered "less experienced."

Determining and testing rankings
Responses in each of the two sets of rankings were separated by the two experience levels. The resulting four experience-level-by-set groups were then randomly divided approximately in half to produce split samples. Overall, rankings for one of the split samples within each of the four groups (the "in-sample") were determined as discussed below and then tested for reliability by comparison to the other split sample in the group (the "out-sample"). Table I shows the organization of this process and the sample sizes.

Overall, rankings were determined for each split sample by summing each item's rank across individuals in the sample. Using this method, an item that is ranked first by ten respondents, second by eight, and third by four has a summed ranking of 38 (Cook and Kress, 1992; Siegel, 1956). Items whose summed rankings were within 10 percent of the sample n of each other were considered ties and were given the average of the ranks they would have received in the absence of a tie (Siegel, 1956). These overall rankings were tested for internal consistency using Kendall's coefficient of concordance (W). In each case, rankings were found to be moderately consistent (Ws $= 0.36$-0.51, ps < 0.001). The in-sample rankings then were compared to their related out-sample rankings, using Kendall's rank correlation coefficient (τ). In all cases, in- and out-samples were in high agreement with each other (τs $= 0.80$-0.94, ps < 0.01). Therefore, the in- and out-samples were combined, leading to the rankings by experience level and by set that appear in Table II. The four rankings were once

	Ranking set 1: sources of unaudited earnings estimates	Ranking set 2: sources of non-financial performance measurement	
More experienced	In-sample $n = 41$ out-sample $n = 42$	In-sample $n = 41$ out-sample $n = 42$	**Table I.** Split samples –
Less experienced	In-sample $n = 77$ out-sample $n = 75$	In-sample $n = 77$ out-sample $n = 75$	arrangements and sample sizes

| | Ranking (summed rank score) | | |
Item	Cumulative ($N = 235$)	More experienced ($n = 83$)	Less experienced ($n = 152$)
Set 1: sources of unaudited earnings estimates			
Analysts' consensus	1 (556)	1 (224)	1 (332)
Self	2 (812)	2 (266)	2.5 (546)
Press release in *The Wall Street Journal*	3 (843)	3 (292)	2.5 (551)
Friend in industry	4 (1070)	5 (378)	4 (692)
CEO comments	5 (1099)	4 (338)	5.5 (761)
Individual analyst	6 (1215)	6 (450)	5.5 (765)
Company web site	7 (1381)	7 (475)	7 (906)
Internet chat room	8 (1769)	8.5 (655)	8 (1114)
Unsolicited newsletter	9 (1830)	8.5 (657)	9 (1173)
Set 2: sources of non-financial performance measures			
CPA assurance report	1 (558)	1 (221)	1 (337)
Individual analyst	2 (697)	2 (254)	2 (443)
Press release in *The Wall Street Journal*	3.5 (1074)	3 (362)	4.5 (712)
Industry study	3.5 (1077)	5 (404)	3 (673)
Trade newsletter	5 (1144)	6 (434)	4.5 (710)
CEO comments	6 (1292)	4 (392)	7 (900)
Local business reporter	7 (1331)	7 (469)	6 (862)
Company web site	8 (1567)	8 (535)	8 (1032)
Internet chat room	9 (1835)	9 (664)	9 (1171)

Table II.
Cumulative rankings and
rankings by participant
experience level

Notes: See Appendix Panels A and B for full source descriptions. Ties (summed rank scores within 10 percent of n of each other) are assigned the average of the rankings they would have in the absence of a tie

again tested and shown to maintain their internal consistency (Ws $= 0.35$-0.49, ps< 0.001). Further testing showed that there was no significant difference in the rankings between experience levels ($\tau = 0.93$ and 0.76 for sets 1 and 2, respectively, ps< 0.01), leading to the cumulative rankings shown in Table II.

As shown in Table II, highly ranked sources of unaudited earnings estimates include a consensus of analysts, one's own analysis, and a company press release published in *The Wall Street Journal*. Internet chat room comments and unsolicited investment advisor newsletters are ranked lowest. In the performance measurement context, a CPA's assurance report and an individual analyst's report are highest ranked, while the firm's web site and internet chat rooms are at the bottom of the table. The "Analysis and Discussion" section delves further into these findings.

Testing the relative value of source credibility
Responses to the two trade-off questions described earlier are summarized in Table III. As above, responses generally are similar across experience levels, but show important differences across contexts. In particular, if one considers ratings of nine, ten, or eleven on the 11-point scale as "high value to source credibility relative to quantitative data" and one, two, or three as "high value to quantitative data relative to source credibility" the difference between the sets in the "high value to source credibility" cumulative

Rating	Sources of unaudited earnings estimates			Sources of non-financial performance measures		
	Overall $N = 234$	More experienced $n = 82$	Less experienced $n = 152$	Overall $N = 234$	More experienced $n = 82$	Less experienced $n = 152$
Relatively high value to source credibility						
11	0.04	0.01	0.05	0.02	0.00	0.03
10	0.12	0.12	0.12	0.03	0.02	0.03
9	0.18	0.20	0.18	0.10	0.07	0.11
Moderate trade-off between source credibility and quantitative data						
8	0.19	0.21	0.18	0.15	0.13	0.16
7	0.10	0.10	0.10	0.16	0.16	0.16
6	0.21	0.26	0.18	0.35	0.46	0.29
5	0.06	0.06	0.06	0.09	0.09	0.10
4	0.07	0.04	0.09	0.06	0.06	0.07
Relatively high value to quantitative data						
3	0.02	0.01	0.02	0.03	0.00	0.04
2	<0.01	0.00	0.01	0.01	0.00	0.01
1	<0.01	0.00	0.01	<0.01	0.00	0.01

Notes: Amounts may not sum to 1.00 because of rounding; proportions responding overall and by experience level to the following: "Compared to the company's estimated earnings (performance measures), how important was the credibility of the source of that information to your [investment] decision?" 11 = "Estimated earnings (performance measures) were completely unimportant"; 1 = "Source credibility was completely unimportant"

proportion (34 percent overall for sources of earnings estimates vs 15 percent overall for sources of performance measurement) is striking.

The relative importance of source credibility in the earnings estimate context holds when results are tested individually in a "within-subjects" fashion across settings. The value of source credibility compared to quantitative data was higher in the unaudited earnings estimate context than in the performance measurement setting for 113 participants (48 percent). It was higher in the performance measurement context than in the earnings estimate setting for only 34 participants (15 percent). (About 87 rated the value the same across contexts.) This difference is statistically significant at $p < 0.001$ (Wilcoxon matched-pairs signed-ranks $z = 5.20$).

Use of information media
The proportions of respondents saying they used any of the eight listed information media appear in Table IV. More than half of the respondents reported using each of the listed sources, except for internet chat sites. Important distinctions are noted in the following section, however.

Auditors and financial analysts often discuss the importance of viewing financial reporting as a whole, including the financial statement data, the notes to the financial statements, and the auditors' report. Figure 1 shows the proportion of respondents using these three related sources in their various combinations[4]. The following section examines these results more closely.

Information medium	Overall $N = 233$	More experienced $n = 81$	Less experienced $n = 152$
Financial statement data	0.88	0.95	0.84
Financial analyst or brokerage firm newsletter or report	0.81	0.85	0.79
General business or investment newspapers or magazines	0.80	0.93	0.74
Auditors' report on financial statements	0.65	0.68	0.63
Company data on firm's website	0.64	0.80	0.56
Notes to financial statements	0.63	0.67	0.61
Industry newsletters or periodicals	0.56	0.64	0.51
Comments on internet chat site	0.11	0.19	0.07

Table IV.
Information media used

Note: Proportions overall and by experience level reporting use of different media for investment guidance
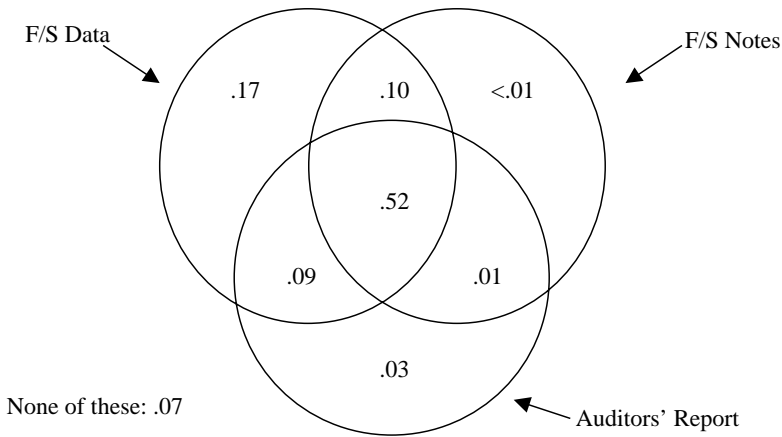
Figure 1.
Cumulative proportions of respondents using financial statement data, notes to financial statements, and auditors' report alone or in combination

Note: Circles and intersections show cumulative proportions and are not drawn to scale. $N = 233$

Analysis and discussion
Rankings
The results of this survey reveal several items worth noting and point the way for future investigations into source credibility. First, the rankings show many consistencies across the decision contexts as well as between the experience levels. Faced with few specifics on any particular item, participants presumably are revealing their perception of the credibility of a typical source or instance in the given class of sources, based on their understanding of the class or their experience with members therein. This suggests that investors of different backgrounds bring to the exercise a similar sense of typicality for sources in these classes. Focusing on the relative standing of selected items in the sets thus provides us with practical feedback on theoretical constructs in source credibility. For example, among the sources of

unaudited earnings estimates, the consensus of analysts was clearly top-ranked. Of the respondents, 48 percent ranked it first and 81 percent included it among their top three sources[5]. The CPA's assurance report heads the list of non-financial performance measurement sources. Here, too, 48 percent of participants ranked it first and 81 percent included it among their top three. These results appear reasonable, given our understanding of the role played by source independence and expertise in credibility (Birnbaum and Stegner, 1979). In fact, in the US the AICPA appeals to the presumed competence and independence of the CPA when describing the advantages of having CPAs enter the field of providing assurance on non-financial information (AICPA, 2004). Reinforcing the value of independence and expertise, the convergence of multiple opinions among outsiders that is represented in the consensus view of analysts presumably accounts for that source's strong showing over the individual analyst's forecast. By contrast, when participants did not have a consensus view available for ranking among performance measurement sources, they ranked the individual analyst more highly.

Other items continue to show results expected from theory, but shift the focus from a simple internal-external division to a view of the source's likely motivation as well as expertise. Thus, external sources such as internet chat rooms or unsolicited newsletters from unknown investment advisors were not ranked highly. In either context, fewer than 10 percent of respondents had chat rooms ranked in their top four sources, while 60 percent placed them eighth or ninth. This low ranking stands in contrast to popular concerns that internet chat rooms exert undue influence on the public as a source of uncontrollable rumours. Further, research may help explain how a source with low reputation can still influence a community.

The relative positions of some items on the lists are harder to explain from a theoretical perspective unless one assumes that the respondents' mental representations of a typical instance included some qualities or activities imputed to the source that elaborate on the internal/external division. In particular, the CEO's conference call comments, the company's web site, and a press release reported in *The Wall Street Journal* show clear differences in rankings in each context, yet these communication channels use the same data from the same internal source. One can hazard a guess at a possible explanation for their relative position, with the caveat that further research is needed to clarify the situation. It may be that investors viewed the corporate web site as anonymous and wholly controlled by the firm – that is, an internal source without accountability – leading to its relatively low rank. The CEO, on the other hand, is an identifiable figure and thus appears accountable, even if an obvious insider. It is plausible to assume that respondents thought *The Wall Street Journal* would investigate a company's press release before printing it, giving a sense of independent review to the data. Apparently, the newspaper does check that press releases come from their purported senders, but of course, *The Wall Street Journal* is not responsible for the accuracy of press release data[6]. If confirmed by further research, the presence of imputed accountability or imputed independence reinforces Beaulieu and Rosman's (2003, p. 81) view that credibility is affected by a complex of factors that can be seen as the "prior behavior of the source." However, these results suggest that investors may be defining this "prior behavior" by making unfounded assumptions about typical members or instances within the class. Knowing what these assumptions are is important in order for us to understand what makes a source

credible, particularly since violations of these assumptions (e.g. a CEO who is unwilling to communicate) have serious implications for investors.

The relative positions of the CEO conference call, the company web site, and the press release are the same in both the earnings estimate and the performance measurement lists. However, each item is consistently lower ranked in the performance measurement context. (Their cumulative rank scores are higher in that context by nearly one rank across all participants). While 52 percent of respondents ranked the press release in their top three earnings estimate sources, only 36 percent had it among their top three performance measurement sources. The respective percentages for the CEO's comments (34 vs 21 percent) and for the web site (11 vs 6 percent) show a similar trend. The lower proportion of participants assigning these items to their top three sources suggests less decisiveness about which sources would be credible in the performance measurement setting. The responses to the trade-off questions underscore this contextual difference.

Relative value of source credibility

The analysis of the trade-off questions shows approximately one third of respondents in the more experienced and less experienced groups gave a high value to source credibility (a rating of nine or above) in the earnings estimate setting. Yet only 9 percent of experienced and 17 percent of less experienced participants valued source credibility high relative to non-financial performance measures. This suggests that source credibility is not equally highly valued across different quantitative contexts, perhaps because the non-financial measures are less familiar evidence of corporate performance than estimated earnings are (Pornpitakpan (2004, p. 249) discusses similar findings in the literature of interpersonal relations). Tied to the notion of familiarity are two aspects of non-financial performance measures whose effects on source credibility merit further testing. First, financial measures are directly connected to the financial statements and so are amenable to manipulation as part of earnings management. Being aware of this possibility, a prudent investor would likely emphasize the importance of the source reporting these estimates. On the other hand, non-financial measures are connected to financial performance at a remove. Perhaps investors see their content as more ambiguous, thus affecting perceived source credibility (Chaiken and Maheswaran, 1994), or perhaps the measures are seen as not being readily subjected to management manipulation, thus diminishing the importance of the source. Second, it may be that investors are unsure of how to use non-financial performance measures for investment purposes, meaning their source is less important overall. This poses a problem for the wider use of such measures in the financial reporting network. The lack of strong feeling over the importance of the source's credibility suggests that sources need to emphasize the value of these measures while sending signals of their own credibility in reporting them. If investors are not sure of the extent to which credibility should matter here, it may open avenues for misreporting or misuse of the measures. In turn, this possibility may be a force for standardizing such data or reports.

Use of information media

Examining reported use of information media reveals some significant differences by experience level. A high proportion of both groups reported frequent use of financial

statement data. However, the proportion of more experienced participants using these data is significantly greater than that of less experienced investors (0.95 vs 0.84, $z = 2.60$, $p < 0.01$). Similarly, a larger proportion of more experienced investors use corporate web sites (0.80 vs 0.56, $z = 3.65$, $p < 0.001$). These two results may be artifacts of the way the groups were defined, since more experienced investors generally had more background in investigating firms' financial performance. However, perhaps surprisingly, more experienced participants are also more likely to use internet chat rooms (0.19 vs 0.07, $z = 2.49$, $p < 0.02$).

Given that the different experience levels report using common sources in different proportions, it is intriguing that both more and less experienced investors trusted their own analysis quite highly when estimated earnings were involved. Approximately, 53 percent of less experienced and 63 percent of more experienced respondents had this item among their top three sources. Yet, when one looks at the information media these investors use to inform their own analytical abilities, curious gaps appear.

Approximately, two thirds of respondents say they use the auditors' report when investing and about five out of eight report using the notes to the financial statements. While these are relatively high proportions, it is worrisome that they are not larger. As shown in Figure 1, when these sources are mapped together with the notes to the financial statements, barely over half of the respondents say they use all three, and only 62 percent use both the financial statement data and related notes. At the least, this is a discouraging result from the perspective of those in the accounting and auditing community who support the value of the auditors' report. It is also disconcerting to see a substantial portion of respondents do not use the notes to the financial statements. Uncovering some of the reasons for this relative neglect can be the focus of future research. Considering that many from each experience level place high trust in their own analytical abilities, this patchy use of financial sources makes an intriguing statement about investor confidence.

Conclusion
This study was designed to further accounting research in source reliability by showing how investors value and use a range of common sources of accounting information across decision contexts. In meeting this goal, this work reveals that perceptions of source credibility may at times be influenced by questionable attributions of source accountability and independence. Decision context affects the value that investors place on the source of the information compared to the information itself. "Textbook" uses of common sources of information may not be as frequent as supposed. Discussion of the implications of these findings for theory and practice follows a brief reminder about the inherent limitations of the study.

The present study is based on US investors, therefore one cannot speculate about its generalisability to other financial reporting regimes. The study used two sets of nine items each for the rankings. Whether the relative rank of a particular item would be robust if it appeared among other sources is open to question, although the relative positions of the items common to these two sets suggest that relative ranks would not change substantially. A larger set may refine differences among the items, however, gathering those data also would increase the likelihood of fatigue or wavering participant attention.

This study holds implications for practice and research. As noted, the relative standing of most of the items can be rationalised by appeal to models of source credibility in the literature. To that extent, these results provide some feedback on source credibility theory. At the same time, the apparently imputed qualities seen in the rankings of press releases, CEO comments, and corporate websites point to practical and theoretical issues. Whether these rankings reflect a lack of detailed understanding of a source's actions (as in the case of *The Wall Street Journal*'s role in press releases) or from stereotyping (as perhaps with CEO accountability and corporate web site content), assuming these qualities in a source can trip up an investor through over-reliance on the source's credibility. Addressing this would require that a particular source expend the effort to send a signal of credibility – for example, by announcing that the content of one's web site is "audited" by an external party. From the research perspective, it remains to be seen which signals would prove credible and how easily investors' views of a class of sources can be changed. Alternatively, individual investors can make an effort to be mindful of how they are treating the source of the information they are using, but this requires a degree of metacognition. The extent to which metacognition features in investors' credibility judgements is open to investigation.

From the variation shown in the value of source credibility between measurement contexts we can see that credible sources alone do not increase the value of credibility. This raises the question of what does increase its value. Is it investor experience with use of the measure (e.g. non-financial performance data)? Is it a sense that the measure has been generally accepted in the community? Is it a particular source's advocacy for use of the measure or the data? In fact, these questions parallel concerns about investor acceptance of auditors' involvement beyond the financial statements, such as external-source verification of online customer order and payment systems like the AICPA's WebTrust (e.g. Kovar *et al.*, 2000; Odom *et al.*, 2002).

The relatively low proportions of investors reporting use of basic financial reporting elements raise their own set of concerns. Only five out of eight respondents say they use the notes to the financial statements together with the financial statement data. For the remaining three out of eight, are the notes deemed unnecessary or just too difficult to interpret? What serves as a proxy for the explanations provided in the financial statement notes? What assumptions do the 26 percent of respondents who use the data alone make about the data? Finally, the finding that barely half of those surveyed used the auditors' report together with the financial statement data and notes seems to signal the need to focus investor attention on the importance of the combination of these elements. While efforts such as the AICPA's financial literacy project are primarily aimed at inexperienced users of financial information, these results suggest that even more experienced investors could use a reminder about the basics of financial reporting.

Notes

1. The number of participants in the analyses of the trade-off questions ($N = 234$) and the use of information media ($N = 233$) varies slightly from this because of unusable or omitted replies in those sections.

2. Since, earnings estimates were presented as unaudited numbers, CPAs did not appear on the first list.

3. It is important to note, however, that of the 84 possible three-source combinations that can be made from the nine sources in each list, 75 were used in the experiment in the earnings estimate context and 71 in the performance measure context, suggesting that responses to the survey's trade-off questions reported below were not biased by a particular source combination.

4. The only categories in which proportions differed by more than five percentage points between experience levels were in the use of all three sources together (financial statement data, notes to the financial statements, and auditors' report), 56 percent for more experienced investors vs 49 percent for less experienced, and in the use of none of the three sources, 2 percent for more experienced vs 10 percent for less experienced.

5. These data are not reported in the tables.

6. Personal communication.

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Appendix. Survey items
Panel A. Sources for earnings estimates

- Comments made by other individuals that you read while visiting an internet chat room for investors.
- The company CEO's comments made during a discussion (conference call) with analysts that you heard live on the internet.
- A company press release reported in *The Wall Street Journal*.
- The company's internet web site.
- A consensus forecast of financial analysts, polled for the industry's monthly newsletter.
- A discussion with a friend who works in the industry (not at the company).
- An individual financial analyst's prediction, which you saw on television or read about on the internet.
- An unsolicited newsletter sent to you by mail or e-mail from an investment advisor that you had not previously heard of.
- Your own financial analysis.

Panel B. Sources for non-financial performance measures

- A business reporter's column in the local newspaper, based on an interview with company executives.
- Comments made by other individuals that you read while visiting an internet chat room for investors.
- The company CEO's comments made during a discussion (conference call) with analysts that you heard live on the internet.
- The company's internet web site.
- A company press release reported in *The Wall Street Journal*.
- A CPA's report (assurance report).
- A financial analyst's report.
- The monthly newsletter published by the industry's trade association.
- A study conducted by a nationally recognized polling organization and paid for by the industry's trade association.

Panel C. Investment media used. (Respondents marked all that apply.)

- Background information provided on the company's internet website.
- Comments on an internet chat site.
- A financial analyst's or brokerage firm's newsletter or report.
- The auditors' report on the company's financial statements.
- The company's financial statement data.
- The notes to the company's financial statements.
- General business or investment newspapers or magazines.
- Industry newsletters or industry periodicals.

*Panel D. Investing experience. (Rated on 7-point scale: 1 = "hardly ever or hardly any";
7 = "almost always or very experienced")*

- How often do you read articles about business or finance in your local newspaper?
- How often do you read articles about business or finance in business-related publications (like *Wall Street Journal, Forbes, Fortune, The Economist,* or *Financial Times*)?
- How much experience do you have in investigating mutual funds? That is, how experienced are you in looking up mutual fund ratings or a fund's investment objectives?
- How much experience do you have in investigating individual stocks or bonds? That is, how experienced are you in looking up an individual company's financial or business fundamentals for your investment decisions?
- How much experience do you have in investigating recent issues of stock? That is, how experienced are you in looking up the financial or business fundamentals of a company that has only recently begun selling its stock to the public?
- How much experience do you have in industry analysis? That is, whether you invest in stocks or not, how experienced are you in investigating the financial or business fundamentals of an industry?

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