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Analysts' perceptions of 'earnings quality'

Richard Barker and Shahed Imam*

Abstract—This paper examines sell-side analysts' perceptions of 'earnings quality'. Prior research suggests that analysts' stock recommendations, price targets, earnings forecasts and written reports are relevant to share price formation. One of the main inputs in analysts' forecasting and valuation models is earnings, and analysts' perceptions of earnings quality are therefore important. There is, however, little direct evidence in the literature on what these perceptions are and on what role they have in decision-making. This paper seeks first to understand earnings quality as interpreted by analysts, and it then tests this interpretation against its actual usage in analysts' research reports. An inductive approach is used that combines interview data with content analysis, and the findings are interpreted in the light of findings from market-based and other research. We find that the concept of earnings quality is both accounting-based (relating to notions of core or sustainable earnings, cash and accrual components of earnings, and accounting policies) and non-accounting-based (relating to information drawn from outside the financial statements). We find more non-accounting than accounting references to earnings quality, and that (relatively subjective) non-accounting references are especially widely used where analysts express positive or negative opinions about earnings quality. It is relatively unusual for an analyst's opinion to be both negative and accounting-based. If, however, an analyst does express negative, accounting-based views on earnings quality, then he or she is highly unlikely to be positive in other respects. We interpret this evidence to be consistent with analysts' economic incentives to generate trading volume yet to be favourably biased towards companies, while seeking to use value-relevant information relating to earnings. We also conclude that the importance of accounting-based information relating to earnings quality is more important than it might seem, and that it exerts a significant influence on the analysis and recommendations in analysts' reports.

Keywords: earnings quality; analysts' reports; analysts' opinions

1. Introduction

This paper examines sell-side analysts' perceptions of 'earnings quality'. Analysts are primary users of accounting information and their role as information intermediaries is well established in the capital markets (e.g. Schipper, 1991). Previous evidence suggests that their stock recommendations, price targets, earnings forecasts and written reports are relevant to share price formation (e.g. Womack, 1996; Barber et al., 2001; Brav and Lehavy, 2003, Asquith et al., 2005). One of the main inputs in analysts' forecasting and valuation models is earnings, and analysts' perceptions of 'earnings quality' are therefore important. There is, however, little direct evidence in the literature on what these perceptions are and on what role they have in decision-making.

This paper seeks first to understand earnings

quality as interpreted by analysts, and it then tests this interpretation against its actual usage in analysts' research reports. In the paper's research design, an inductive approach is used that combines interview data with content analysis, and the findings are interpreted in the light of findings from market-based and other research. We conducted 35 interviews with sell-side analysts from 10 leading investment banks and we carried out content analysis on 98 equity research reports for FTSE 100 companies covered by the interviewees.

The interview evidence is that earnings quality is a multifaceted concept and that analysts use both accounting-based and non-accounting-based information when assessing earnings quality. When using accounting-based information, analysts make adjustments to reported earnings that we find to be consistent both with prior survey evidence and with expectations from theory and prior market-based evidence. There is relatively little evidence in the literature, however, on the relative usage of accounting-based and non-accounting-based information, and we explore this issue further in the content analysis. We find that there is a greater prevalence of non-accounting-based information relating to earnings quality, and that this relative usage is consistent across sectors. Motivated by market-based and survey evidence that sell-side analysts are favourably biased towards companies but nevertheless motivated to sell news stories to the market, we explore whether

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the relative usage of accounting-based and non-accounting-based information varies depending upon whether analysts are expressing a positive or negative opinion about a company. Consistent with prior evidence on bias, we find that analysts are significantly more often positive than negative when discussing earnings quality. We also find a significantly greater relative use of non-accounting-based information when a directional opinion – either positive or negative (but not neutral) – is expressed; we interpret this to be consistent with analysts being motivated to sell news stories, because non-accounting information is more subjective and wide-ranging, and so inherently more amenable to analysts credibly expressing diversity of opinion. We also find, however, that in spite of being less frequently used, in general and in particular when positive or negative views are expressed, accounting-based information nevertheless plays an important role in anchoring and constraining analysts' views. Specifically, we find that, in cases where analysts are positive on accounting aspects of earnings quality, they are 'free' to be either positive or negative on non-accounting aspects, but that if they are negative on accounting aspects, then they are, in effect, constrained to be negative overall. This conclusion is reinforced by further evidence that analysts are most unlikely to issue a buy recommendation when they feel negative about accounting-based aspects of earnings quality, even though there is an overall bias in favour of buy recommendations. Accounting-based information is therefore argued to be more influential than it might at first seem.

The rest of the paper is organised as follows. Section 2 reviews theory and empirical evidence relating to earnings quality. Section 3 discusses research methodology. Interview findings are presented in Section 4, followed by evidence from analysts' reports in Section 5. Section 6 concludes the paper.

2. Earnings quality – theory and evidence

This paper addresses earnings quality from a users' perspective. The paper seeks first to understand earnings quality as interpreted by analysts, and it then tests this interpretation against its actual usage in analysts' research reports.

Earnings measurement is central to the use of financial statements in evaluating historical performance, forecasting future performance and valuing equity (Ohlson, 1995; Penman, 2004). A frequently-used term relating to the effectiveness of earnings measurement and the usefulness of earnings is 'earnings quality', whereby a company exhibiting high earnings quality is viewed more favourably by users of financial statements than a company with low earnings quality. Yet, as noted by Schipper and Vincent (2003), 'although the

phrase "earnings quality" is widely used, there is neither an agreed-upon meaning assigned to the phrase nor a generally accepted approach to measuring earnings quality.'

The literature contains several possible earnings quality constructs. One relates to the time-series behaviour of earnings. In empirical studies of the share price reaction to unexpected earnings, a larger earnings response coefficient is associated with earnings that are more persistent, sustainable or recurring (e.g. Kormendi and Lipe, 1987). This accords with theory, whereby earnings with greater persistence warrant a higher valuation multiple (e.g. Ohlson, 1995). A similar construct is predictive value, whereby earnings of a high quality are those that can better predict earnings in future periods. Although persistence and predictive value might typically go hand in hand, Schipper and Vincent (2003) note that volatile earnings might be high quality as measured by persistence (i.e. the earnings time series follows a random walk) but low quality as measured by predictive value (i.e. low serial correlation in the earnings time series). The actual time-series behaviour of earnings can be attributed jointly to inherent attributes of the entity's business environment and to the effectiveness of accounting in capturing these attributes. Accordingly, an alternative perspective on earnings quality is based upon understanding accounting choices and limitations. For example, Schipper and Vincent (2003) define earnings quality in terms of the unobservable benchmark of Hicksian economic income (Hicks, 1939), with the aim being to compare reported accounting income with the 'ideal' measure of change in economic value. Empirical tests of accounting measurement have focused on the use of discretionary accruals to measure the extent of earnings management; the higher the use of discretionary accruals, the lower the quality of earnings (Jones, 1991; Dechow et al., 1995; Burgstahler and Dichev, 1997). This approach differs from a time-series focus, although there is similarity to the extent that accruals exhibit lower persistence than operating cash flows (Sloan, 1996).¹

A consistent finding in prior research is that the stock market places substantial reliance on analysts' research (Fogarty and Rogers, 2005; Frankel et al., 2006), including earnings forecasts (Stickel, 1991; Francis and Soffer, 1997), recommendations

¹ Accrual accounting is typically argued to make earnings more *relevant* than cash flows for assessing firm performance, while cash flows may be more *reliable* than earnings because accruals require judgment and estimation. The use of cash flow as an alternative metric has gained increasing popularity in the literature (Dechow, 1994; Sloan, 1996; Barth et al., 2001; DeFond and Hung, 2003). The notion that cash flows are useful in validating the information in earnings that contain large accruals is consistent with Penman (2004) and Wild et al. (2003).

(Womack, 1996; Barber et al., 2001) and target prices (Brav and Lehavy, 2003). Moreover, it is not only the headlines in analysts' reports that convey value-relevant information but also the text of the reports and the justifications therein (Krishnan and Booker, 2002; Asquith et al., 2005).

Given this evidence of the importance of analysts and of their earnings forecasts and related information, it becomes important to understand how analysts interpret and communicate value-relevant information. In the context of the current paper, the focus is on analysts' usage of information relating to earnings quality. The evidence from market-based research is that the market places greater reliance on measures of earnings that have been adjusted by analysts for one-off or transitory items (Lin and Walker, 2000; Bradshaw and Sloan, 2002; Bhattacharya et al., 2003; Brown and Sivakumar, 2003). Gu and Chen (2004) find that, for any given category of earnings, analysts' subjective assessments are effective in determining which components of the category to include in sustainable earnings ('street earnings') and which to exclude. Survey evidence broadly supports these findings (Barker, 2000). In addition, studies employing either survey methods (such as Arnold and Moizer, 1984; Pike et al., 1993; and Barker, 1999), protocol analysis (Day, 1986) or content analysis (Bradshaw, 2002; Demirakos et al., 2004) find that the price earnings (PE) ratio is the dominant valuation model used by analysts, which reinforces the importance that analysts place on their measures of sustainable earnings (the E in PE), and hence on earnings quality.

Research directly investigating the concept of perceptions of earnings quality is rather limited. Siegel's (1982) survey identifies the concept of earnings quality as negatively associated with the number of accounting policy changes made by a company. Also employing a survey methodology, Graham et al. (2002) find that analysts associate a high quality of earnings with high growth, low risk and a high degree of persistence, and also with the source of the earnings in terms of segmental line of business and geographical breakdowns. Other factors mentioned by analysts included the quality of management, the level of disclosure and the accounting policies in use. Using a content analysis, Bricker et al. (1995) found that analysts focus on core earnings and associate high earnings quality with near-term earnings predictability (where the notion of predictability is both economic, in terms

of a low level of earnings volatility, and due to accounting, in terms of management discretion over the establishment and adjustment of certain conservative reserves, allowances, and off-balance-sheet assets).

3. Data and methodology

This paper employs two research methods – semi-structured interviews and content analysis. The interviews are used to provide an initial categorisation of analysts' perceptions of earnings quality and the content analysis is used to test this categorisation, and to derive findings from it. The two research methods are closely linked in order to enhance the validity of each: the content analysis is applied to the interviewees' descriptions of earnings quality in research reports written by the interviewees. The approach is inductive, building on prior research to investigate a little-understood area and to derive theory and insight from empirical evidence.

We conducted 35 semi-structured interviews with sell-side analysts from 10 leading investment banks selected from the Extel Survey. The Extel Survey every year ranks the top 25 pan-European brokerage firms across equity sectors. We selected the dominant 15 firms from these 25 from the 2002 Extel Survey to conduct 40-minute interviews within equity research departments. We selected the leading firms, in part because they dominate the market and also because there is evidence (Hussain, 2002; Jacob et al., 1999; Clement, 1999) that brokerage house size (a proxy for analysts' resources and support systems) is an important factor impacting the quality of analysts' research. Ten firms (66%) agreed to participate in the study, which is a similar response rate to comparable studies (Day, 1986; Holland, 1998; Barker, 2000).² The sample comprises five broad sectors (financial, industrial, media, retail and technology). The mean experience and number of companies covered by each analyst was 6.5 years and 11 firms respectively.³ The interviews were conducted in late 2002/early 2003. Table 1 presents details of the sample.

The interview questionnaire, which also formed part of a wider study, contained two questions relating to the definition of earnings quality. First, analysts were asked to indicate which items of profit or loss they typically exclude from their measure of earnings. The list of items included/excluded (see Table 2) was based on three principal sources, namely FRS 3 (ASB, 1992), UKSIP's 'headline earnings' (UKSIP, 1993) and S&P 'core earnings' (S&P, 2002). Second, analysts were asked an open, free-form question about what the term 'earnings quality' meant to them. Analysis of their responses to this question proceeded by first transcribing the interviews and by then highlight-

² The composition of brokerage firms' research reports content analysed by Hussainey et al. (2003) is also broadly similar.

³ Clement (1999) finds that forecast accuracy is positively associated with analysts' experience (a surrogate for analyst ability and skill) and negatively associated with the number of firms and industries followed by the analyst (measures of task complexity).

Table 1
Distribution of the sample (interview and content analysis)

| Sectors | Interviews | | | | Content analysis | | | |
|--------------|----------------------------|------------------------|--------------|----------------|------------------|-----------|------------------|--------------|
| | Total analysts interviewed | Total reports analysed | Total pages | Total words | Pages per report | | Words per report | |
| | | | | | Mean | Median | Mean | Median |
| Financial | 5 | 17 | 527 | 106,099 | 31 | 28 | 6,241 | 4,877 |
| Industrial | 9 | 15 | 429 | 87,550 | 29 | 24 | 5,837 | 4,365 |
| Media | 4 | 19 | 710 | 126,699 | 37 | 32 | 6,668 | 4,986 |
| Retail | 4 | 26 | 930 | 187,904 | 36 | 26 | 7,227 | 6,079 |
| Technology | 9 | 21 | 761 | 124,720 | 36 | 28 | 5,939 | 4,965 |
| Total | 31 | 98 | 3,357 | 632,972 | 34 | 28 | 6,459 | 5,005 |

Note: 'Financial' includes bank and insurance. 'Industrial' includes engineering, aerospace and defence, electronics and capital goods, building materials, paper and packaging, mining and metal. 'Media' includes service and media. 'Retail' includes general retail and food retail. 'Technology' includes telecommunications and technology, and 'Other', not shown in this table, includes one strategist, one head of equity research and two analysts specialising in accounting aspects of equity research. We did not collect any reports for the four analysts in the 'Other' category.

ing frequently occurring themes to develop a keyword dictionary for content analysis (Miles and Huberman, 1994, and see below). Interviews are a means to understand how individuals construct the meanings and significance of their situations (Holland, 1998; Easterby-Smith et al., 2002) and in particular in this context to understand the constructs that the interviewee uses as a basis for his or her interpretation of earnings quality. In turn, content analysis can then be used to test the interview findings against the hard evidence provided in the published analysts' reports.

Content analysis relies on the content of communication as the basis of inference (Holsti, 1968). One of the main strengths of content analysis, as noted by Breton and Taffler (2001), is that it is particularly appropriate for research using analysts' reports, both because of its unobtrusive nature in analysing narratives prepared for other reasons and audiences and because of its ability to measure the implicit importance attributed to an information category by the report's author. Sell-side analysis is an unusually rich subject because the norm is for analysts to generate in-depth reports summarising, for the clients' benefit, the output of the analyst's research. It is not surprising that the content of analysts' reports is value-relevant (Asquith et al., 2005; Fogarty and Rogers, 2005).

Against these benefits of content analysis is the issue of whether analysts' reports provide an objective source of information. The evidence is that they are actually biased, which we therefore take into consideration in the interpretation of the re-

ports and the analysis of findings. Specifically, prior research finds that analysts' forecasts contain an optimistic bias, particularly when the analysts act as underwriters (Dugar and Nathan, 1995; Michaely and Womack, 1999) or investment bankers (Hussain, 1996; Lin and McNichols, 1998) of the companies whose earnings they estimate. O'Brien et al. (2005) suggest that this optimism is due, among other things, to analysts aiming to maintain good relationships with corporate management and to good stories being easier to sell than bad ones. Forbes and Skerratt (1992) present evidence that the market recognises this bias. Consistent with this, Hirst et al. (1995) find that, when an analyst issues an unfavourable report about a company, it is given greater weight by investors if the analyst is affiliated to the company, because the analyst's stated view is unfavourable notwithstanding his or her inherent bias. Similarly, Frankel et al. (2006) find that negative forecast revisions are more informative than positive revisions. This evidence suggests that there is something to be learned from a distinction between analysts' positive and negative perceptions of earnings quality, which we therefore explore in this paper.

For the purposes of the content analysis, we used the Investext Plus database to select equity research reports for FTSE-100 companies for each interviewee. In order to provide a controlled experiment, we limited our study to only the five sectors and the 10 investment banks in the interview sample. Out of the FTSE 100, for the period July

2000 to June 2003, 52 companies were covered by the interviewees and have reports available in the Investext Plus database. We selected reports for these companies that were at least 15 pages in length (comprehensive company reports were considered more relevant than 'morning notes' or sector reports).⁴ If there was more than one report for a particular company in a single year, we took the most recent report. We limited each analyst to a maximum of three reports on any given company. Our resulting sample comprised 98 reports in total, as summarised in Table 1.

An essential element of content analysis research design is the selection and development of categories into which content units can be classified. There are two alternative approaches: 'form oriented' (objective) analysis, and 'meaning oriented' (subjective) analysis (Smith, 2003). 'Form oriented' involves routine counting of words whereas 'meaning oriented' involves the analysis of the underlying themes in the texts. Weber (1990) argues that word categories inferred from covariation among high-frequency words are more reliable than themes. However, Krippendorff (1980) suggests that for many content analyses, thematic units, which require user judgment in the determination of the hidden messages conveyed in the narratives, may be preferable despite difficulties in application. In this study, like previous studies (Clatworthy and Jones, 2003; Smith and Taffler, 2000), content analysis was both form- and meaning-oriented.

The research design of the content analysis was driven by the interview findings. For the form-oriented content analysis, the words used by interviewees to describe earnings quality formed a keywords dictionary in TextQuest (Weber, 1990; Neuendorf, 2003).⁵ We categorised the keywords into two broad categories of information relating to earnings quality – accounting-based and non-accounting-based.⁶ In all cases, we categorised the keywords according to their context; whenever out of context, keywords were eliminated from consideration – for example, the word 'growth' was used in relation to earnings sustainability in the interviews and we excluded it in content analysis if it was used in relation to growth in GDP or some other factor.⁷ Hence the keywords from the interview data were the basis for the content analysis of the reports, and there was not a simple count of word frequency but instead of words in appropriate context. This is important because (for example) some words may have multiple meanings or be used in different contexts.

In their theme-based content analysis of the chairman's statement, drawing on theory and evidence that accounting narratives are likely to be self-serving rather than objective, Clatworthy and Jones (2003) make a distinction between narra-

tives that concern good news as opposed to those that concern bad news (see also Smith and Taffler, 2000). Similarly, we are guided in this paper by evidence that analysts are favourably biased towards the companies they research, and so our theme-based content analysis is structured around a distinction between positive and negative perceptions of earnings quality. For example, if an information unit discussed reported profit in excess of expectations, we classified this as accounting-positive. We assigned '1' to each unit mentioned in the narratives and added those up to calculate the total score for 'positive' and 'negative' and then divided this by the total number of sentences to get a theme score. By focusing on those cases where the analyst expresses a directional opinion – positive or negative, as opposed to neutral – we are able to gain insight into the extent to which analysts' opinions and recommendations are driven by accounting-based as opposed to non-accounting-based information.

In addition, for the theme-based analysis, consistent with the findings of Asquith et al. (2005) on the importance of the strength of an argument, we were able to test the extent to which there was both strength and direction in the analysis. This methodology is similar to both Breton and Taffler (2001) and Smith and Taffler (2000).

As noted by Clatworthy and Jones (2003) and Abrahamson and Amir (1996), it is difficult to develop a reliable coding scheme and any coding scheme is best carried out more than once in order to test inter-coder reliability. To verify the reliability and consistency of the adjustments of word variable according to keywords-in-context (KWIC) and calculation of theme score, a second researcher conducted independent adjustment and coding.⁸ In addition, we analysed the text twice for theme-based content analysis.⁹

It must be acknowledged that there are two important limitations to content analysis. The first is that any classification rule is necessarily objec-

⁴ Morning notes are typically only a few pages long and sector reports consist of summarised information about the comparable companies in the sector (the analysts' cover) with a special focus on the sector and market outlook.

⁵ TextQuest is a program designed for analysis of texts. See Neuendorf (2003) and <http://www.textquest.de/eindex.html>.

⁶ Keywords were included only if they were used by analysts in the interviews, and all such words were included.

⁷ By only examining keywords in context, the risk of spurious word counts is minimised; while all included words are implicitly and unavoidably assumed to be of equal importance, out-of-context words are excluded.

⁸ We used Cohen's Kappa test and the agreement percentage was satisfactory (70%). See Neuendorf (2003) for details of inter-coder reliability testing.

⁹ A unit was not coded as positive or negative if the sentence or clause was neutral or ambiguous. This is one of the reasons why the theme score in Table 5 is much lower than the keyword count in Table 6.

Table 2
Earnings adjustments

| <i>Please indicate which items you include or exclude for adjusted earnings</i> | <i>Include</i> | <i>Exclude</i> | <i>Depends/Not sure</i> |
|---|----------------|----------------|-------------------------|
| Depreciation | 35 | 0 | 0 |
| Interest expenses | 33 | 1 | 1 |
| Pension (service cost) | 32 | 3 | 0 |
| Pension (interest cost) | 31 | 4 | 0 |
| R&D expenses | 29 | 4 | 2 |
| Stock compensation | 21 | 8 | 6 |
| Operating expenses (one-off) | 14 | 9 | 12 |
| Provisions for future cash outflows | 13 | 8 | 14 |
| Restructuring costs | 10 | 11 | 14 |
| Gains or losses on financial assets | 6 | 22 | 7 |
| Impairment losses on fixed assets | 6 | 28 | 1 |
| Revaluation gains on fixed assets | 6 | 24 | 5 |
| Discontinued activities | 4 | 23 | 8 |
| Impairment of goodwill | 4 | 27 | 4 |
| Amortisation of goodwill | 3 | 28 | 4 |
| Gains or losses on asset disposals | 2 | 23 | 10 |
| Exceptional items | 1 | 16 | 18 |

tive to some extent. However, we only make two classifications (accounting-based vs non-accounting-based and positive vs negative) and we make the classification by reference to interview data. Second, by basing inference on the frequency of information that appears in the text, there is an implicit (and contestable) assumption that all items of information are of equal importance. However, here again there is an additional safeguard in our research design, which is that we only include keywords in context – i.e. we are not counting a given word every time it is used but instead are only including it when it is used in the reports in the same context that it was used in the interviews.

4. Interview findings

Table 2 reports interviewee responses on adjustments made to reported earnings. The findings are presented in order of the frequency with which they are typically included in the analyst's measure of earnings.

Consistent with theory and with the market-based and survey evidence reported in Section 2, the items included are those that form part of the ongoing earnings stream. Items that are excluded relate to activities that are one-off in nature or discontinued, or else they result from remeasurements – i.e. from valuation adjustments, resulting from revisions to the carrying amounts of assets or liabilities, that have a multiple of one and little or no predictive value for future earnings (Barker,

2004). In cases where there is not a clear-cut distinction between items that are included or excluded, the item in question could include items that are either ongoing or one-off. Specifically, 'one-off' operating expenses, restructuring costs or exceptional items could be reported as one-off but, given the inherent subjectivity in their determination and, in some cases, the regularity of these expense categories, analysts may not perceive them to be one-off. Provisions for future cash outflows could take place regularly and so be an ongoing expense, or there could be, for example, a gain or loss on the remeasurement of an asset retirement obligation, which would not form part of ongoing earnings. Finally, gains or losses on asset disposals may, or may not, be a part of ongoing earnings depending upon whether the entity is in the business of assets sales (e.g. with significant turnover of investment properties) or not (e.g. with the occasional disposal of a head office or similar asset). The only exception in Table 2 to this analysis is the amortisation of goodwill which, although recurring, is excluded. This can be regarded as a special case – as an accounting anomaly with no relevance to the prediction of future cash-flow generating capacity.

These findings are broadly consistent with both the theory and evidence reviewed in Section 2 (e.g. Kormendi and Lipe, 1987; Bradshaw and Sloan, 2002) that analysts use components of reported financial performance to generate a measure of sus-

tainable earnings. The most directly comparable survey evidence can be found in Barker (2000), which addresses analysts' treatment of items reported as exceptional under the accounting standard FRS 3 (ASB, 1992). Although limited in scope when compared with Table 2, Barker's findings are consistent: analysts universally included recurring exceptional items in normalised earnings, whereas most excluded items are typically one-off (non-recurring exceptional items, and profit or loss on asset sales and on sale/termination of operations), and the only item that generated mixed views was reorganisation costs, where the difference in opinion arose because some analysts viewed these as one-off while others did not.

Analysts were also asked in the interviews to elaborate on their understanding of the definition of earnings quality. A majority of analysts (27 out of 35) described earnings quality in terms of some aspect of the 'core' earnings of the firm. For example, revenue from core operations generates higher earnings quality than income from non-core, non-sustainable sources such as gains on the disposal of assets. In general, interviewees regarded organic growth in the core business as the most likely source of high quality earnings. These earnings are more likely to be sustainable in the future, and because they are more repetitive and perceived to be more controllable by the company, they can be forecasted with greater reliability.¹⁰ For example, a bank analyst described interest income and commission as high quality earnings since these are more readily sustainable in the future, whereas trading profit was viewed as more volatile and so lower quality. For a software analyst commenting on three sources of income – maintenance, service, and licence – licence income was considered relatively high quality because of its relative sustainability. The following quotations from the analysts' interviews are illustrative:

'We try to assess the earnings growth ... is it coming from the core business? Is it predictable or not? Low predictability means low earnings quality.' (Media analyst)

'High quality ... comes from long term contractual agreements. Low quality comes from few one-off contracts.' (Technology analyst)

The categorisation of sources of earnings, whether on the face of the income statement or in the notes, is therefore important to analysts. This is consistent with the earlier evidence presented in Table 2, and also with the evidence reported in Section 2, that the analyst is trying to isolate categories of earnings that have greater sustainability.

Consistent with theory and empirical research, analysts also mentioned the cash generating ability of the company. Out of 35 analysts, 17 perceived the relationship between earnings and cash

flow from operations to be an important determinant of earnings quality. They argued that the greater the component of accruals in reported earnings, the less reliable earnings become for the purpose of forecasting and valuation. Their comments were restricted to a high-level comparison between the flow statements – income statement and cash flow statement – and did not extend to a discussion of changes in the balance sheet as a route to understanding the impact of accounting policy choice on earnings quality. For example, one analyst commented as follows.

'We see how earnings are improving. Are these accounting manipulations? That is why we use adjusted earnings in PE because reported earnings may not reflect cash flow.' (Industrial analyst)

Consistent with the findings of Siegel (1982) and Bricker et al. (1995), some 11 analysts argued that consistently-applied, conservative accounting policies are important in judging earnings quality. Whether the company uses a consistent method was mentioned by seven analysts, with change being an indicator of low quality earnings. Whether a company adopts conservative accounting policies was mentioned by eight analysts.

'There are lot of ways you can measure it. The easiest way for retailers is depreciation. If you write off an asset more quickly then you are more conservative. You have positive or good earnings quality. We also look for exceptional costs in many years. Many exceptional items mean low quality.' (Retail analyst)

Finally, some 13 analysts described earnings quality in terms of non-accounting information, including factors such as the expected effectiveness of the company's business model in its chosen markets and the perceived quality of management, including the willingness of the management team to disclose information and provide guidance. For example, if the company has many divisions but only group activities are presented, then this is deemed to indicate low quality earnings. Management can be helpful in guiding the estimation of key value drivers, notably revenue, operating costs and capital expenditure. The following response reflects some of these wide ranging issues.

'It is subjective. It depends on the quality of disclosure. If there are lots of business lines, different products and you only have one accounting policy of revenue recognition which is only

¹⁰ An indication of the importance attached to management control is that several interviewees mentioned frequent change in earnings estimates as evidence of low predictive ability.

two lines long – this does not give you much confidence in terms of quality of earnings.’ (Accounting specialist)

The interview findings reveal that earnings quality is a multifaceted concept. Analysts broadly consider two types of information in defining earnings quality. The first, accounting-based information, which is sourced directly from the financial statements themselves, comprises income about the sources of earnings, the impact of accruals and the effects of accounting policies. The second, non-accounting-based information, which is derived from data outside the financial statements, is more broadly concerned with the markets in which the entity operates and the effectiveness of management in designing and implementing strategies to compete successfully in those markets. To illustrate, two entities may have the same level of earnings, but one may have a greater proportion of those earnings in core businesses, backed by cash and with consistently-applied underlying accounting policies, and so will have higher earnings quality, as judged using accounting-based information. Alternatively, earnings quality could be judged to differ on the basis of non-accounting information. For example, two entities may be equivalent in terms of the source of earnings, cash-backing and accounting policy, yet the entity with the management team that inspires greater confidence will be deemed to have the higher quality earnings.

An interesting implication of these findings is that non-accounting information is used to contextualise and add meaning to accounting data, i.e. the quality of earnings is not purely an accounting concept. This finding adds insight to previous studies, such as Barker (1999) and Breton and Taffler (2001), which have sought to contrast accounting vs non-accounting information, rather than viewing each as offering alternative perspectives on accounting data. A consistent finding of previous survey research, such as Pike et al. (1993), Barker (1999) and Holland (1998) is that perceptions of management quality and discussions with management on ostensibly non-accounting subjects are a more important source of information than the financial statements (see also Day, 1986). If, however, these non-accounting information sources are in practice important in the context of interpreting earnings quality (i.e. accounting data) then, especially in the light of the evidence reported earlier that the PE is the dominant valuation model, the importance of accounting information is perhaps understated by these studies. This interpretation is consistent with Hussain (2002), who finds a relationship between the size of firms of analysts and forecasting performance, which he suggests may be due to larger firms having superior access to company management; this finding suggests that non-accounting-

based information is used to enhance the assessment of the quality of current-period earnings and, so, the forecasting of future earnings.¹¹

5. Evidence from analysts’ reports

The data from the form-oriented analysis is summarised in Tables 3 and 4. It is worth repeating that this is not a simple word count but rather is a summary of keywords in context – i.e. words are counted only if, first, they were used by analysts in the interviews and, second, they were used in the same context as in the interviews. Hence the content analysis is a direct test of the evidence from the interviews.

Table 4 reports total accounting and non-accounting keywords by sector. In total, there are somewhat more non-accounting keywords used in the reports, which reinforces the interview evidence above that earnings quality is not an issue of financial statement data alone. In other words, while analysts will try to understand earnings quality from the financial statements themselves, they acknowledge the inherent limitations of financial statement data as a basis for understanding and predicting future performance, relying somewhat more heavily on information sources that are outside the financial statements. A chi-square test, as reported in Table 4, finds that this difference in usage between accounting and non-accounting information is highly significant.

While one might think that the reliance on non-accounting-based information would vary by sector, because the financial accounting model is more or less able to capture economic fundamentals across sectors (see, for example, Hand and Lev, 2003), a striking feature of Table 4 is that this is not the case. Viewed on a sector basis, there is a remarkable consistency in the ratio of accounting to non-accounting keywords, with the former in the narrow range 41%–46% across all five sectors. This consistency suggests that a standardisation of report-writing style and analytical approach dominates any inherent variation in the usefulness of accounting information that might exist across sectors. Possibly this is because fund managers’ valuation models and hence information demands are similar irrespective of sector and that they therefore prefer sell-side analysts to present information consistently. Alternatively, it demonstrates inherent limitation in fundamental analysis, because a ‘one-size-fits-all’ approach is employed in spite of underlying differences in economic and accounting fundamentals across sectors.

In Table 5, in addition to the accounting and

¹¹ Hussain (2002) notes that the significance of this effect appears to hold for short-term forecasts only. He notes but does not explore the issue of whether broker status has an incremental effect.

Table 3
Keywords dictionary (based on keywords in context from interview data)

| <i>Accounting-based</i> | <i>Frequency</i> | <i>Non-accounting-based</i> | <i>Frequency</i> |
|---------------------------------|--|---------------------------------|--|
| <i>Keywords (related theme)</i> | <i>In reports (percentage of total keywords in the category)</i> | <i>Keywords (related theme)</i> | <i>In reports (percentage of total keywords in the category)</i> |
| Growth | 3,294 (37.00%) | Market | 3,396 (29.53%) |
| Cash flow | 1,108 (12.45%) | Business model | 2,361 (20.53%) |
| Operating | 662 (7.44%) | Customer | 1,592 (13.84%) |
| Certain/Predictable | 403 (4.53%) | Acquisition | 923 (8.03%) |
| Core/Source | 401 (4.50%) | Management | 886 (7.70%) |
| Sustainable | 281 (3.16%) | Strategy | 564 (4.90%) |
| Adjusted/Normalised | 278 (3.13%) | Contract | 478 (4.16%) |
| Trading | 278 (3.13%) | Disclosure/Guidance | 458 (3.98%) |
| Organic | 243 (2.73%) | Disposal | 274 (2.38%) |
| Predictable/Stable | 220 (2.47%) | Restructuring | 133 (1.16%) |
| Conservative/Defensive | 203 (2.30%) | Credible/Reliable | 91 (0.79%) |
| Aggressive | 201 (2.26%) | Pessimistic (pessimism) | 89 (0.77%) |
| Underlying | 187 (2.10%) | Optimistic (optimism) | 88 (0.77%) |
| Consistent/Consistency | 177 (1.99%) | Manifest/Distort | 85 (0.74%) |
| One-off/Exceptional | 172 (1.93%) | Transparency | 65 (0.56%) |
| Continuing | 165 (1.85%) | Discretionary | 17 (0.15%) |
| Ongoing | 116 (1.30%) | | |
| Cyclical | 115 (1.18%) | | |
| Visible | 99 (1.12%) | | |
| Persistence | 88 (0.99%) | | |
| Variability/Volatile | 88 (0.99%) | | |
| Transitory | 56 (0.63%) | | |
| Unusual | 37 (0.41%) | | |
| Recurring/Repeat | 30 (0.33%) | | |
| Total | 8,902 (100%) | Total | 11,500 (100%) |

Note: We only selected those words that analysts used to define earnings quality during the interviews after doing appropriate adjustments by KWIC. Although these cover only a small percentage of total words, they capture the keywords that the interviewees used during the interviews in defining earnings quality.

Table 4
Total keywords across sectors

| Keywords | Financial | | Industrial | | Media | | Retail | | Technology | | Total |
|----------------------|-----------|----------|------------|----------|----------|----------|----------|----------|------------|----------|---------------|
| | Positive | Negative | Positive | Negative | Positive | Negative | Positive | Negative | Positive | Negative | |
| Total accounting | 1,488 | (45%) | 1,060 | (46%) | 1,588 | (43%) | 2,835 | (44%) | 1,931 | (41%) | 8,902 (44%) |
| Mean per report | 88 | | 71 | | 84 | | 109 | | 92 | | 91 |
| Total non-accounting | 1,815 | (55%) | 1,264 | (54%) | 2,081 | (57%) | 3,547 | (56%) | 2,793 | (59%) | 11,500 (56%) |
| Mean per report | 107 | | 84 | | 110 | | 136 | | 136 | | 118 |
| Total keywords | 3,303 | (100%) | 2,324 | (100%) | 3,669 | (100%) | 6,382 | (100%) | 4,724 | (100%) | 20,402 (100%) |

Note: This table is based on form-oriented content analysis. χ^2 for Accounting v. Non-accounting words across sectors is 22.1, ($p = 0.0002$).

Table 5
Theme score across sectors

| Classification | Financial | | Industrial | | Media | | Retail | | Technology | | Total |
|--------------------------|------------------------------|----------------|-----------------------------|---------------|-----------------------------|----------------|-----------------------------|---------------|-----------------------------|----------------|-----------------------------|
| | Positive | Negative | Positive | Negative | Positive | Negative | Positive | Negative | Positive | Negative | |
| Accounting | 105 (0.022) | 48 (0.01) | 81 (0.026) | 37 (0.012) | 83 (0.014) | 40 (0.007) | 182 (0.028) | 48 (0.007) | 151 (0.026) | 86 (0.015) | 602 259 |
| Non-accounting | 202 (0.042) | 186 (0.039) | 114 (0.037) | 86 (0.028) | 167 (0.028) | 166 (0.028) | 209 (0.032) | 241 (0.04) | 279 (0.045) | 206 (0.035) | 971 885 |
| Total | 307 | 234 | 195 | 123 | 250 | 206 | 391 | 289 | 430 | 292 | 1,573 1,144 |
| Chi-sq test (p-value) | $\chi^2 = 12.27$ (0.0005) | | $\chi^2 = 4.24$ (0.0394) | | $\chi^2 = 10.89$ (0.001) | | $\chi^2 = 66.54$ (0.000) | | $\chi^2 = 2.53$ (0.1117) | | $\chi^2 = 74.75$ (0.000) |

Note: The figures in parentheses show the theme variable which is calculated as total theme score divided by total sentences.

non-accounting classification used earlier, and in the light of evidence on analysts' bias towards companies, sentences are also classified according to whether keywords are used in a positive or negative context. This theme-based analysis adds power to Table 4 in that the emphasis is now more active – rather than simply counting keywords in context, the analysis is directional and indicates whether or not the analyst has a favourable view of the company being analysed. So, for example, in the industrial sector, there are 195 positive references to earnings quality, of which the majority (114) are from non-accounting sources, while there are 123 negative references.¹² Chi-square tests, reported in Table 5, show a significant difference within sectors in the frequency of positive and negative related themes relating to accounting vs non-accounting information; the results are significant at the 1% level for financial, media and retail, and at the 5% level for industrial (although not significant for technology).

Consistent with the evidence in Table 4, non-accounting keywords are used more often than accounting keywords. However, the directional data in Table 5 offer four additional insights. First, there are significantly more positive references to earnings quality than there are negative references. This is reassuringly consistent with the empirical evidence summarised earlier that analysts have a favourable bias towards companies, at least in the context of their public communications. Second, non-accounting words are used relatively more – approximately twice as often – than for the non-directional data reported in Table 4. Alternatively stated, when an analyst is expressing a positive or negative opinion about a company's earnings quality (as opposed to a neutral opinion), he or she is more likely to do so by reference to non-accounting information. This is consistent with analysts having the dual objective of generating commission income by introducing news stories to the market (in this case in the form of opinions about earnings quality) while also retaining credibility as reliable providers of information (Barker, 2000). Since accounting-based information is more readily verifiable than non-accounting-based information, analysts have more latitude in using non-accounting-based information without being shown to be wrong. Hence, they are more likely to use non-accounting-based information as the basis of news stories. This is consistent with Breton and Taffler's (2001) conclusions on the greater usage of non-financial information, as well as with Fogarty and Rogers (2005), who argue that while accounting information provides essential support for an analyst's arguments, it is typically not used as the main substance of a case. Finally, there is a parallel here with Clatworthy and Jones (2003), who identify inherent bias in the narrative of the

chairman's statement, relative to the more objective and audited financial statements; the present study identifies a comparable bias in the non-accounting-based elements of analysts' reports.

The third insight from Table 5 is that, in aggregate, there are similar numbers of positive and negative non-accounting references to earnings quality, whereas accounting references are more than twice as often positive as negative. This reinforces and adds to the first two insights above. Given that, first, analysts are inherently biased towards companies and, second, they are incentivised to generate non-refutable news stories, it is not surprising that negative opinions based upon readily-verifiable accounting information are used sparingly: of the total of 2,717 theme scores reported in Table 5, a little fewer than 10% are negative and from accounting sources. If an analyst has a biased predisposition towards a company, yet he or she cannot credibly report only positive opinions about the company, then making a relatively objective, accounting-based case against the company is less appealing than making a negative case using more subjective non-accounting-based information.

The final insight from Table 5, which is consistent with Table 4, is that the findings are broadly consistent across sectors. This applies in particular to the relative usage of accounting and non-accounting words, and also in most sectors to the observation that there is a similar number of positive as negative non-accounting references to earnings quality, whereas accounting references are more than twice as often positive as negative. Hence, for example, analysts' disincentive to report negative, accounting-based news is universal across sectors.

Table 6 explores further analysts' bias towards companies by classifying each report according to whether the analyst is (on balance) positive on both accounting-based and non-accounting-based information, negative on both, or positive on one and negative on the other. For example, if a report is placed in Category 2, then the analyst perceives earnings quality positively on the basis of accounting information but negatively on the basis of non-accounting information. This might arise, for example, if earnings are generated within core activities and backed by operating cash flow, but the management is perceived not to have in place an effective strategy for sustainable performance.

Overall, the reports are positive, which is again consistent with the evidence on analysts' bias (53% of reports are in Category 1 and uniformly positive, against 19% in Category 4 that are uniformly negative; the corresponding chi-square test,

¹² Note that the total number of keywords differs from Table 4 because neutral cases (i.e. where there is neither a positive nor a negative opinion clearly expressed) are excluded.

Table 6
Classification of individual reports

| | <i>Accounting information</i> | | Total |
|-----------------------------------|-------------------------------|--------------------|-------|
| | Positive dominance | Negative dominance | |
| <i>Non-accounting information</i> | | | |
| Positive dominance | Category 1 (53) | Category 3 (4) | 57 |
| Negative dominance | Category 2 (22) | Category 4 (19) | 41 |
| Total | 75 | 23 | 98 |

Note: The figures in parentheses show the number of reports in each category. 'Positive dominance' for accounting information means that within an individual report there were more positive than negative sentences concerning accounting-based information relating to earnings quality, i.e. 75 reports were on balance positive with respect to accounting-based information on earnings quality. Chi-square is 20.53 ($p = 0.000$) which suggests there are significant differences in accounting and non-accounting positive v. negative dominance).

as reported in Table 6, is highly significant). For the most part, there is a strong congruence between the analysts' views of earnings quality measured according to both accounting-based and non-accounting-based criteria – taken together, Categories 1 and 4 account for 72 of the 98 reports, or 73%. This is not surprising because it is likely that there are similar factors behind the analysts' perceptions of earnings quality from both accounting and non-accounting sources. Moreover, given that the analyst's aim is to persuade clients to trade based upon an authoritative analysis and recommendation, a report that contains conflicting signals is likely to be less effective.

Of the remaining two categories where the signals are conflicting, it is far more likely that analysts are positive based upon accounting sources while being simultaneously negative based upon non-accounting sources (Category 2, 22% of reports) rather than vice versa (Category 3, 4% of reports). Of the 57 cases where the analyst is positive with respect to non-accounting-based perceptions of earnings quality, it is most unlikely that he or she would be negative on accounting criteria (this happens in only four cases, or 7%). In contrast, however, if an analyst is, on balance, negative with respect to non-accounting-based perceptions of earnings quality, then he or she is more or less equally likely to be positive or negative on accounting criteria (54% and 46%, respectively). Hence, if, in spite of inherent bias in favour of companies, an analyst is willing to be, on balance, negative about accounting-based (and so relatively verifiable) earnings quality, then this is typically inconsistent with being positive about non-accounting (and so relatively subjective) perceptions of earnings quality. In other words, it is difficult for an analyst to be glowing about a company having great prospects and strong management if the

financials do not back up the claims. On the other hand, a positive view of accounting-based earnings quality does not guarantee that the non-accounting view will be positive also. Here the analyst has greater choice to express a subjective opinion, for example, that the company has done well but does not have the right strategy to sustain performance. Overall, an analyst can be sceptical if financial performance is strong but cannot be optimistic if financial performance is weak. On balance, therefore, accounting information matters more than at first apparent.

This conclusion on the relative importance of accounting information links in with the findings from Tables 4 and 5. Taking Table 4 alone, it would appear that non-accounting-based information is somewhat more important in analysts' perceptions of earnings quality, while Table 5 adds to this conclusion by showing that analysts' directional views are even more likely to be based upon non-accounting sources. Yet Table 5 also shows that accounting-based information is more discriminatory, in that negative views are relatively infrequent. The evidence in Table 6 suggests this infrequency of negative, accounting-based views understates its importance, because taking a negative accounting-based view effectively rules out taking a positive non-accounting-based view, whereas the reverse is not true. This finding supports and provides insight into market-based evidence that, given analysts' inherent bias in favour of companies, the market reacts more strongly to analysts' adverse opinions than to their favourable opinions (e.g. Hirst et al., 1995).

These findings complement prior research into qualitative information in financial reporting (see, for example, Smith and Taffler, 1992a, 1992b and 2000). To the extent that there is obfuscation and speculative content in analysts' reports, the evi-

Table 7
Association with recommendations

| | | <i>Financial</i> | <i>Industrial</i> | <i>Media</i> | <i>Retail</i> | <i>Technology</i> | <i>Total</i> |
|------------|------|------------------|-------------------|--------------|---------------|-------------------|--------------|
| Category 1 | Buy | 8 | 7 | 9 | 12 | 9 | 45 |
| | Hold | 1 | 2 | 0 | 1 | 2 | 6 |
| | Sell | 0 | 2 | 0 | 0 | 0 | 2 |
| Category 2 | Buy | 5 | 1 | 2 | 2 | 0 | 10 |
| | Hold | 1 | 0 | 3 | 3 | 3 | 10 |
| | Sell | 0 | 0 | 0 | 1 | 1 | 2 |
| Category 3 | Buy | 0 | 0 | 1 | 0 | 0 | 1 |
| | Hold | 0 | 1 | 0 | 0 | 1 | 2 |
| | Sell | 0 | 1 | 0 | 0 | 0 | 1 |
| Category 4 | Buy | 0 | 0 | 0 | 0 | 0 | 0 |
| | Hold | 1 | 1 | 3 | 1 | 1 | 7 |
| | Sell | 1 | 0 | 1 | 6 | 4 | 12 |
| Total | | 17 | 15 | 19 | 26 | 21 | 98 |

dence here is that this is more likely to arise where non-accounting information is being used. In contrast, accounting-based opinions are more reliably associated with analysts' overall opinions, and where there are conflicting messages in the analyst's report, which may confuse rather than assist the reader (as reported in a similar context by Smith (1993), greater weight should be assigned to the accounting-based signal.

This importance for accounting-based information is reinforced further in Table 7, which tests the validity of the findings reported so far by comparing the outcome of Table 6 with analysts' recommendations. There is an implicit assumption being made here, which must be acknowledged. In an efficient market, a company's share price, against which an analyst's recommendation is made, embodies a given information set, for example, publicly-available information in the case of semi-strong form efficiency. If an analyst is making a recommendation, then he or she is implicitly declaring a state of inefficiency, at least with respect to the information on which the analyst is recommending the trade. The assumption being made in Table 7 is that the analyst's positive or negative statements with respect to earnings quality correspond to his or her views on information that is not impounded in the share price, and which is therefore the basis of the recommendation. This is a fairly strong assumption but not an unreasonable one. After all, if the analyst is making the case to buy or sell, then he or she will stress the reasons for this in the report on the company and, consistent with the theory and evidence outlined in Section 2, earnings quality is likely to be a major focus.

Like other studies (Bradshaw, 2002; Demirakos et al., 2004), Table 7 reports a dominance of posi-

tive recommendations, which is again consistent with an underlying bias in favour of companies (there are slightly more than three times as many buy recommendations as sells). There is a strong relationship between buy recommendations and analysts being positive on both accounting-based and non-accounting-based information relating to earnings quality and, similarly, between sell recommendations and negative/negative. For example, out of 53 Category 1 reports, an overwhelming majority of reports (45 reports) had positive recommendations and only two had negative recommendations; similarly, there were no buy recommendations in Category 4. This evidence is reassuring because it is consistent with earnings quality as defined in this paper being decision-relevant (i.e. the concept of earnings quality as described by analysts in the interviews, and as then measured in the content analysis of reports by those analysts is indeed consistent with the investment recommendations made by the analysts).

Category 2 is noteworthy because it provides some exception to the rule. The evidence is that if accounting-based information on earnings quality is positive, then when it comes to a recommendation the analyst is unlikely to propose a sell, even if reservations based upon non-accounting information are expressed. This suggests that when analysts are positive on the basis of accounting data, they tend to provide at least neutral recommendations and hardly any negative recommendations. The reverse is not true. When negative accounting-based information dominates (i.e. 23 reports in Category 3 and 4), only one report had a positive recommendation and 13 reports had negative recommendations.

As reported in Panel A of Table 8, we fitted a logistic regression model to examine the association

between positive accounting dominance (i.e. Category 1 and Category 2) and buy recommendations. Logistic regression is a generalised linear model for binary dependent variables that uses the logit as its link function, and has binomially distributed errors. The model takes the form

$$\text{logit}(p_i) = \log_e(p_i/(1 - p_i)) = \beta_0 + \beta_1 x_i \quad (1)$$

where p_i is the predicted probability of Buy for report i given values for the explanatory variable x_i . Model (1) can readily be rearranged to give the following expression for p_i

$$p_i = \exp(\beta_0 + \beta_1 x_i) / \{1 + \exp(\beta_0 + \beta_1 x_i)\}$$

The model parameters $\beta = (\beta_0, \beta_1)$ are estimated by iterative reweighted least squares and are interpreted as effects on the odds ratio. In the case of a dichotomous explanatory factor, with levels A and B, the antilog of the estimated parameter for that factor, $\exp(\beta_1)$, is an estimate of the odds-ratio of level A of the factor versus level B. For our dichotomous categories, the model takes the form

$$\hat{p}_i = \frac{\exp(\hat{\beta}_0 + \hat{\beta}_{\text{CAT}i})}{1 + \exp(\hat{\beta}_0 + \hat{\beta}_{\text{CAT}i})} \quad (2)$$

The predicted probability \hat{p} that analysts will recommend Buy for report i is given by substituting the parameter estimates from Panel A of Table 8 into equation (2). We find, at the 1% significance level, that positive accounting views relating to earnings quality are positively associated with buy recommendations. We infer that when analysts have positive accounting-based views relating to earnings quality, it is likely that they will recommend a buy, irrespective of whether the positive accounting view is expressed alongside either positive or negative non-accounting-based views.

We tested another version of the model to see which category individually best explains analysts' buy recommendations. Consistent with expectations, Panel B reports positive coefficients on Categories 1, 2 and 3. These are statistically significant on Category 1 and 2 at the 1% level, although not significant on Category 3.¹³ The odds ratio for Category 1 suggests that the odds of analysts recommending a stock 'buy', having both positive accounting and non-accounting views relating to earnings quality, is 28.6 times higher versus Category 4, as opposed to 17.1 (5.1) times in case of holding positive (negative) views of accounting while simultaneously holding negative

(positive) views on non-accounting – all other factors being equal. We infer that more positive accounting and non-accounting views relating to earnings quality should result in more buy recommendations, in particular when the accounting perspective is positive. These findings reinforce further the importance of accounting-based information on earnings quality, which plays a dominant role in analysts' recommendations despite a greater prevalence of non-accounting words and themes in analysts' reports.

6. Conclusion

Prior research has evidenced the importance of analysts and financial statement data (notably earnings) in the process of share price determination. There is relatively little evidence, however, on analysts' interpretation and use of earnings data. Combining survey research and content analysis, this paper contributes to the literature in this area by focusing on analysts' perceptions of earnings quality. It is shown that these perceptions are determined by both accounting and non-accounting information. Consistent with theory and prior evidence, analysts' primary concern regarding accounting-based information is to derive a measure of sustainable earnings. It is striking, however, that references to earnings quality in analysts' reports are more often based upon non-accounting information. This is especially the case when a directional opinion (positive or negative) is being expressed.

Prior research suggests that analysts' economic incentives lead them to introduce news to the market in order to generate commission income and to show a favourable bias towards companies. Analysts are therefore drawn towards making greater relative use of non-accounting-based information, because it is inherently subjective and more amenable to variation in opinion and to the generation of news. When using accounting-based information, analysts are particularly sparing in their use of negative references to earnings quality, because these are more readily verifiable and demonstrably inconsistent with analysts' inherent bias in favour of companies. Overall therefore, positive and non-accounting-based references to earnings quality are most common, which is evidence that analysts use information opportunistically.

It is shown, however, that the greater prevalence of non-accounting-based information does not suggest that such information dominates analysts' perceptions of earnings quality, but rather that the reverse is the case. First, when accounting and non-accounting information provide conflicting signals with regards to earnings quality, it is the accounting-based view that provides the dominant signal. Specifically, where analysts are positive on

¹³ The Hosmer and Lemeshow goodness-of-fit test divides reports up into deciles based on predicted probabilities, and then computes a chi-square statistic from observed and expected frequencies. The p-value = 0.432 (chi-square = 8.01) computed for the fitted model of equation (2) indicates that the model fits the data very well.

Table 8
Parameter and estimates for the model of equation (2)

Panel A: Association between positive/negative accounting dominance and Buy recommendations

| <i>Model</i> | <i>Term</i> | <i>Estimate</i> | <i>SE</i> | <i>t-ratio</i> | <i>exp(Estimate)</i> |
|---------------------|---|-----------------|-----------|----------------|----------------------|
| $\hat{\beta}_0$ | Constant | -0.262 | 0.421 | -0.62 | 0.7692 |
| $\hat{\beta}_{CAT}$ | Positive accounting dominance (Category 1 and Category 2) | 2.901** | 0.623 | 4.66 | 18.20 |

** Significant at 1% level

Model $\chi^2 = 25.244$, $p = 0.000$

Panel B: Association between four individual categories and Buy recommendations

| <i>Model</i> | <i>Term</i> | <i>Estimate</i> | <i>SE</i> | <i>t-ratio</i> | <i>exp(Estimate)</i> |
|---------------------|--------------|-----------------|-----------|----------------|----------------------|
| $\hat{\beta}_0$ | Constant | -0.539 | 0.476 | -1.13 | 0.5833 |
| $\hat{\beta}_{CAT}$ | [Category 1] | 3.352** | 0.754 | 4.44 | 28.56 |
| | [Category 2] | 2.842** | 0.88 | 3.23 | 17.14 |
| | [Category 3] | 1.64 | 1.25 | 1.31 | 5.143 |

** Significant at 1% level

Model $\chi^2 = 27.508$, $p = 0.000$

accounting aspects of earnings quality, they are 'free' to be either positive or negative on non-accounting aspects, but that if they are negative on accounting aspects, then they are, in effect, constrained to be negative overall. Second, when making investment recommendations, it is again the accounting-based signal that is dominant. If analysts are positive on accounting-based information they are very unlikely to recommend a sell, regardless of whether their non-accounting-based view is positive or negative. Yet if their accounting-based view is negative, they are effectively unable to recommend a buy. Overall, accounting-based information is argued to be more important than it might at first seem, because while it is not dominant in its frequency of usage, it is dominant in its impact on the analyst's overall assessment of earnings quality.

This paper raises several questions for future research. First, while the paper identifies bias in analysts' research, which affects the relative usage of accounting-based and non-accounting-based information in research reports, an open question is how investors respond to this information – for example, do they understand analysts' inherent bias and so compensate for it, or are they misled? Second, while the presentation of financial statements is audited and driven by the requirements of accounting standards, the relative freedom with which companies present non-accounting information serves to feed analysts' more liberal usage of the same. A question therefore is whether greater standardisation and audit in the reporting of non-accounting information would reduce bias in ana-

lysts' research reports. Third, the paper reports remarkable stability in the relative importance of accounting-based vs non-accounting-based information across sectors, which stands in contrast with inherent variation in the usefulness of accounting information, and which therefore warrants further investigation. Finally, while the paper provides evidence on analysts' adjustments to reported earnings, which supports prior evidence on the importance of the PE valuation model, it remains to be explored how, in practice, adjusted earnings are used in the forecasting of future earnings, how subjective notions of earnings quality feed into this process and how non-accounting-based information is used to supplement accounting-based information.

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