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# Investigating Presentational Change in UK Annual Reports: A Longitudinal Perspective

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# Investigating Presentational Change in UK Annual Reports: A Longitudinal Perspective

## ABSTRACT

This paper examines the change in the structure and form of the annual reports of UK listed companies from 1965 to 2004. There is a particular focus on graph use. The paper compares a new sample of 2004 annual reports with pre-existing samples by Lee, *Accounting Historian's Journal* (1994) in 1965, 1978 and 1988 and with Beattie and Jones, *Accounting and Business Research* (1992). The trends identified by Lee (1994) have continued. There has been a sharp increase in total page length, voluntary information and narrative information particularly among large listed companies. A detailed analysis of voluntary disclosure indicates changes in the incidence and pattern of generic sections which can be variously attributed to an overall 'normalization' process, and specific triggers of change such as the anticipation of legislation, changing social attitudes and advances in technology. Graph usage is now universal. However the incidence of key financial graphs has declined slightly, being replaced by graphs depicting other operating issues. Impression management through selectivity, measurement distortion of graphs and manipulation of the length of time series graphed is common. Overall, the annual report continues to exhibit many features of public relations rather than a financially driven, statutory document and the analysis on graph usage suggests a need for policy guidelines to protect users.

Keywords: annual report; graphs; impression management; longitudinal study; narratives; pictures

# Investigating Presentational Change in UK Annual Reports: A Longitudinal Perspective

## INTRODUCTION

Over the last few decades, the corporate annual report has, for many modern corporations, been transformed from a rather dull financial document to a colorful marketing and public relations document in which the financial statements are relegated to a technical 'appendix'. This transformation, it appears, is a result of the changing corporate reporting environment, in terms of technological, legislative and regulatory change, as well as changing business management practices. The change in the form and structure of UK annual reports is, however, relatively unstudied (Bartlett and Jones (1997) and Lee (1994) are notable exceptions). In a significant editorial, Hopwood (1996, p.5) observes that the 'changing form of the report as a whole has been subject to relatively little systematic investigation'. Furthermore, Hopwood contends that the focus on accounting methods is a very partial one that 'largely ignores the wider influences on the document within which the accounting components are embedded' (1996, p. 55).

Very few studies document change in the annual report as a whole (Stanton and Stanton, 2002). To gain any depth of analysis, studies must have a common focus such as a particular section of the annual report, a particular format or a particular subject matter. A variety of theoretical lens and analytical tools have been employed. However, there has been a particular neglect of the presentational aspects of the annual report, such as graphs and pictures (Beattie, 2005, pp.103-4).

This paper is set against the background of the increased significance of the presentational aspects of the annual report. It provides new evidence which documents the changes in the structure and broad content of annual reports over time; in particular, the changes in the amounts of non-financial, voluntary, narrative, graphical and pictorial information. These changes are interpreted using the lens of impression management, whereby managers are conceptualised as 'having incentives to represent their company's performance in the best possible light' (Tweedie and Whittington, 1990, p.97). In this study, we focus on one particular presentational format (graphs), given the prior research conducted in this area.

There are three specific objectives which relate to the changing content of annual reports and of graph usage.

- First, to replicate the key elements of Lee (1994) for a sample of large listed UK companies in 2004 to assess how the structure and form of annual reports have changed. In particular, this study seeks to assess whether there has been a continuing growth in non-financial, voluntary and presentational disclosures. These findings will provide additional evidence to that of Davidson and Skerratt (2007), who replicate some aspects of Lee's study with some surprising results.
- Second, to compare the 2004 sample with new unpublished information extracted from the sample used by Beattie and Jones (1992a) that looks, in detail, at the structure and form of annual reports. These findings will throw some light on whether the annual report is continuing to evolve as a presentationally-led document.
- Third, to replicate Beattie and Jones (1992a) to establish how graph use has changed by 2004. These findings will help to establish whether impression management, as identified by Beattie and Jones (1992a) in terms of selectivity, impression management and presentational enhancement, continues to thrive.

In addition, the research as a whole provides new evidence on change processes within external financial reporting, drawing upon the theoretical propositions of Rogers (1983), Gibbins, Richardson and Waterhouse (1990) and Camfferman (1997). In particular, it sheds some light on the process of the diffusion of financial reporting practices and looks at how financial practices gradually become adopted by the majority of companies over time (we term this latter process 'normalization').

The remainder of this paper is structured as follows. Section two offers a review of the relevant literature. We examine four strands of empirical research into the form of the annual report: the changing overall structure and form of the annual reporting package; studies of the narrative sections; studies of financial graphs; and studies of pictures. We then look at theoretical propositions regarding the change processes of diffusion and normalization in accounting. Section three outlines the methods adopted. The results are presented and discussed in section four. A final section summarises and concludes.

## LITERATURE REVIEW

Since company management have discretion (of varying degrees) in relation to the form and content of the annual report, the financial reporting process has been described as 'selective financial misrepresentation' (Revsine, 1991). An underlying theme here is that annual report preparers engage in impression management (i.e. seek to convey a more favorable impression of the organisation than is warranted). A possible outcome of such behavior is that the message conveyed is no longer neutral or unbiased. The impression management thesis has been adopted to explain observed accounting practices across the entire range of formats (e.g. earnings management literature; narratives; graphs; and pictures).

While accounting standards seek to ensure that reported accounting numbers are neutral, there is very little regulation regarding other presentational formats. The UK's standard setting body, the Accounting Standards Board (ASB), in a discussion paper that examined ways of improving communication with private shareholders, identifies graphs as a powerful medium of communication and makes recommendations about the use of graphs in annual reports, including selectivity (which refers to the decision to include or exclude performance graphs in annual reports) and measurement distortion (ASB, 2000, pp.28-29).

### *Structure and form of the annual report*

Lee (1994) represents one of the first attempts systematically to examine the changing form of the modern corporate annual report. Drawing upon Ewan's (1988) thesis of corporate image management in corporate business, in a seminal paper Lee argues that visual images are used powerfully to influence a range of external stakeholders. Analyzing the annual reports of a small sample of 25 large UK industrial companies over 23 years at three points in time (1965, 1978 and 1988)<sup>1</sup>, Lee examines report characteristics that include, *inter alia*: total volume of annual report, split into voluntary and mandatory material; relative size of voluntary versus mandatory content; the use of narrative and pictorial material; the ordering of voluntary/mandatory content; and the incidence of specific image management techniques (e.g., employment of design consultants; existence of corporate logo).

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<sup>1</sup> This represents a random sample drawn from *The Times 1000*, a listing of the top UK companies.

Lee (1994) finds clear trends in the reports as follows:

- The total volume of the annual report increased by 108% (a mean of 54 pages in 1988 compared to 26 pages in 1965).
- The proportion of voluntary material rose from 42% in 1965 to 54% in 1988 (although there was a dip to 39% in 1978).
- The amount of voluntary material increased faster than the regulatory material (164% compared to 67%).<sup>2</sup>
- The proportion of pictorial material in voluntary material rose slightly from 27% to 34%.
- The percentage of companies placing the voluntary material *before* the regulatory accounting material rose from a minority of 36% in 1965 to 100% in 1988.
- Finally, there was a very rapid increase in the use of specific image management techniques. In 1965, 12% of companies acknowledged their use of design consultants in their annual report, compared to 80% in 1988, and in 1965 28% of companies used prominent logos in the annual report to assist in corporate identification and association compared to 96% in 1988.

Lee (1994) concludes that with a relative increase in non-financial, presentational, voluntary disclosures and a relative decrease in financial, mandatory disclosures, companies are increasingly using the annual report 'as a stylistic means of establishing corporate identity in a consumer-oriented world' (p.215). These trends are particularly evident in the UK and the US. For example, Valentine (1999) reports that by 1999, 94% of the UK FTSE 250 companies employed external design consultants and Neu *et al.* (1998) confirm that the annual report is being used to construct a particular image of the organisation for relevant stakeholders.

Bartlett and Jones (1997) look at the disclosures of a single company, Bulmers plc, a UK listed company from 1970-1990. They find that voluntary, mandatory and total disclosures all rose rapidly during this time. The number of lines used to disclose voluntary disclosures rose by 142 % and mandatory disclosures rose by 84%. Over this period, the company also increasingly used alternative presentational formats such as pictures.

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<sup>2</sup> Unfortunately, there is some ambiguity in that it is not clear from Lee's (1994) paper exactly which material was classified as voluntary and which was regulatory.

Beattie, McInnes and Fearnley (2004, pp.49-50) present evidence on the size and structure of the narrative sections in the 1999 annual reports of 27 listed UK companies in three industry sectors. The sampling is stratified across the entire company size range (measured by market capitalisation). The mean number of annual report pages was 54.5. The mean number of narrative pages (defined to include tables, graphs and pictures) was 14.4. The mean percentage of narrative was 22%, ranging from a minimum of 5% to a maximum of 41%.

Davison and Skerratt (2007) (hereafter D&S) update certain aspects of Lee's study, based on a sample of the 2002 year-end reporting documents of the UK FTSE 100. The samples are not strictly comparable in that D&S focus on the very largest companies and include financial companies as well as industrial companies. D&S find the mean report length to be 98 pages in 2002 – an increase of 81% over 14 years.<sup>3</sup> D&S also provide information on the relative balance of the voluntary and mandatory information. The proportion of voluntary material was found to be only 17% in 2002. This is a somewhat surprising result that is likely to be (at least in part) a function of the classification scheme adopted.<sup>4</sup> D&S analyse the format of the non-financial statement sections of the reports into three categories: words; pictures and graphs. The proportions found are 77%, 20% and 3%, respectively which suggest a slight increase in the relative amount of words compared to Lee's (1994) findings.

Overall, prior research examining the structure and form of the annual report up until 1990 has indicated a substantial change in the reports over time as measured by the size of the reports, the volume of voluntary information provided and the use of presentational materials such as pictures and graphs. In other words, there appears to have been a general trend away from a financially-driven, statutory document towards a more design-oriented

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<sup>3</sup> D&S report separate annual report document data for the 35 companies that produce one annual report document and the 65 companies that produce two documents (typically an annual report and an annual review). We report here the figures for the pooled samples of 100 companies; these have been derived from the two sets of results reported in D&S. Thus, for example, 35 'annual report only' companies have a mean total page count of 90 while the 65 'two document' companies have a mean of 103. This gives a mean for the pooled sample of 98.34.

<sup>4</sup> D&S classify regulatory materials as: financial statements and notes; operating and financial reviews; corporate governance disclosures; and corporate social responsibility statements. However, it is not clear why the operating and financial reviews and corporate social responsibility statements are classed as regulatory, since there were no mandatory requirements in relation to these areas. The operating and financial review was, for companies reporting in 2002, the subject of best practice guidance (ASB, 1993).



document. The more recent study by D&S covering the 2002 period, however, indicates a trend back towards a statutory document with a corporate focus principally on regulatory information.

### *Narratives in annual reports*

Narratives are an important scene-setting device. In the UK, accounting narratives can be broadly divided into those that tell a story and those that present specific data. Story-telling narratives include the chairman's statement, the chief executive's review and the operating and financial review.<sup>5</sup> Chairmen, chief executives and senior management can use well-crafted accounting narratives to contextualize their results (Hyland, 1998 and Smith and Taffler, 2000). More descriptive narratives include a directors' report, a statement of directors' responsibilities, a remuneration report and a corporate governance report.<sup>6</sup> Accounting narratives can prove useful in that they can be used to manage the impression that a user will gain of the company's annual performance. Virtually all studies are partial, in that they focus either on specific topics (e.g. social and environmental information) or specific sections of the annual report (e.g. chairman's statement). There are several types of analysis of accounting narratives: disclosure index studies, thematic content studies, syntactic readability studies and attributional framing studies (for reviews and discussions of these different types of study, see Marston and Shrives, 1991; Jones and Shoemaker, 1994, and Aerts, 2001, 2005). In addition, these studies are, in the main, cross-sectional and provide little meaningful, comparable information on trends over time.

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<sup>5</sup> A chairman's statement provides a personalized overview of the company's performance over the past year. It covers strategy, financial performance and future prospects. The chief executive's review is a natural complement to the chairman's statement. The chief executive discusses (normally in some detail) business or geographic segments. The operating and financial review normally has two parts - sometimes consolidated, sometimes separate. The operating review discusses a company's results, income and dividends whereas the financial review covers capital structure and treasury policy. The voluntary operating and financial review has recently been supplanted by a mandatory business review which is similar but less detailed (for more details see Jones, 2006).

<sup>6</sup> The directors' report presents supportive material not covered elsewhere in the report such as changes in a company's activities, proposed dividends or charitable and / or political gifts. The statement of directors' responsibilities spells out what the directors must do to keep proper accounting records and comply with the UK Companies Act. The remuneration report sets out details of the directors' pay and compensation packages. Finally, the corporate governance report covers items such as risk management, treasury management, internal control, going concern and auditors (see Jones (2006) for more detail).

### *Financial graphs in annual reports*

Graphs offer several potential advantages over the traditional alpha-numeric table for the communication of financial information. Graphs, especially color graphs, are more likely to attract attention and stimulate interest. Our capacity to remember visual patterns is vastly superior to our memory for text or numerical tables, and graphs are particularly useful for highlighting trends. Company management are free to choose whether to use graphs or not (this is ‘selectivity’: the primary graphical choice). If graphs are used, management can choose to present them in a fair and unbiased manner, complying with the principles of graph design and construction, or can distort the graph. The key defining feature of an accurate graph is that the physical measurement on the surface of the graph should correspond to the underlying numerical values – violations of this principle are termed ‘measurement distortion’ (Beattie and Jones, 1992a). Other violations of design and construction principles are categorized as ‘presentational enhancement’ (Beattie and Jones, 1992a). An underlying theme of many of the studies in accounting on graph usage is that annual report preparers may deliberately engage in graphical violations to convey a more favorable impression of the organisation than may be warranted. A possible outcome of such behaviour is impression management, in which the message conveyed is no longer neutral and unbiased.

In the first UK study undertaken to investigate graph use in annual reports, Beattie and Jones (1992a, b) examine the graphical reporting practices of 240 top UK companies. They found that 79% use graphs, with 65% graphing at least one key financial variable (sales, income (i.e. profit) before taxes, earnings per share and dividend per share). There was strong evidence of selectivity for key financial variables (i.e., companies with relatively good performance included graphs, those with relatively poor performance did not). The mean level of measurement distortion was +11% and, consistent with impression management theory, a significantly greater proportion of distortions were favorable compared to unfavorable (both favorable and unfavorable distortions can arise due to graphical incompetence). Examples of presentational enhancement that were detected included the use of sloping graphs, sloping columns, and the use of color, all designed to emphasize a rising trend. Beattie and Jones (2002) explore the impact on users’ perceptions of aspects of graph distortion using an experimental approach. They show that measurement distortion in excess of 10% is just perceptible to users. Since 1992, there have been a succession of financial graphics studies (e.g., Beattie and Jones,

2000 and 2001; Courtis, 1997; Frownfelter-Lohrke and Fulkerson, 2001; Mather, Ramsay and Serry, 1996; Mather, Ramsay and Steen, 2000; and Mather, Mather and Ramsay, 2005) all of which have developed, and reinforced, the earlier findings of selectivity, measurement distortion and presentational enhancement.

#### *Pictures in annual reports*

A 1996 issue of *Accounting, Organizations and Society* contained a set of three seminal papers on the use of pictographic imagery in annual reports. Graves *et al.* (1996) examine the visual design that has characterised US annual reports since the 1960s (brilliant color pictures, gloss, novelty formats). They argue that these visual aspects of annual reports, and their significance, arise from the pervasive television epistemology of the late twentieth century English-speaking world. By 'television epistemology', they mean commercial, newscasts, prizes and gags. In this climate, 'for any discourse to be perceived as valid, it must be presented in a television format, that is, one that is at once kaleidoscopic, glamorous, and entertaining' (Graves *et al.*, 1996, p.59).

Preston *et al.* (1996) argue that visual images are integral elements in annual reports. Some are straightforward realist representations while others make use of symbolism and metaphor. They identify three different ways that images can be seen by the reader: representational (transparently conveys an intended corporate message); ideological (conveys deeply embedded social significances); and constitutive (conveys multiple, contradictory, shifting and equivocal meanings).

McKinstry (1996) looks at the use of design, especially pictures, in the annual report and accounts of Burton plc from 1930 to 1994. Pictures first appeared in 1979, when profits were at an all-time high. Then, in 1980, income fell, and pictures were dropped. From 1981 to 1994, pictures were always used, but the proportion varied directly with income levels. In other words, there was evidence of impression management in which performance and presentational formats were matched and, as such, the annual report was transformed into a public relations document in good times.

Overall, prior research into pictures in annual reports has highlighted their importance as a technique of impression management in making the reports visually more attractive and conveying particular types of messages. The universal use of pictures, their relative

importance compared to textual material and the non-financial contexts in which they are used has, however, received limited attention.

### *Change processes*

For many years, it has been recognized that accounting is embedded in its social context and that it is a reflective (and reflexive) activity (see, for example, Hopwood, 1976). This accounting context comprises a range of structural factors (in particular, social and cultural attitudes, technology, and the institutional and regulatory setting) that are fairly stable and change only slowly. However it is changes in these factors that instigate broadly-based changes in corporate reporting practice. For example, a broad socio-cultural shift such as the proliferation of television has resulted in the use of television formats being essential for discourse to be acceptable to the public (Graves *et al.*, 1996). As a result, there is growing use of pictures in annual reports. Technological advances have meant that the nature of business has changed radically in recent years, with value creation processes increasingly reliant on intangible assets that are not recognized in the traditional financial reporting model. Consequently, there is a growing need for supplemental accounting disclosures (narrative and visual) to meet users' information needs (e.g., ICAEW, 2003). Changes in the institutional and regulatory setting include changes in company law, corporate governance codes and accounting standards and guidelines, which directly affect the mandatory component of corporate reporting practice.

Rogers (1983; 1995) observes that many processes in both the natural and social worlds follow a diffusion process. 'Diffusion' refers to the spreading of an innovation throughout a population. Diffusion is also applicable to accounting and most innovations have occurred in the field of management accounting (e.g. Ax and Bjørnenak, 2005). There has been less attention to innovation in financial reporting which takes place mostly in voluntary information. However, the longitudinal nature of the present study provides a good opportunity to study innovation in financial reporting.

The importance of norms to disclosure strategy has been established by Gibbins, Richardson and Waterhouse (1990) and Camfferman (1997). Gibbins *et al.* (1990) develop a model of corporate disclosure strategy based on interviews with individuals intimately involved in disclosure decisions across a range of organisational types. This model indicates that disclosure is influenced by, *inter alia*, the company's disclosure

position. The disclosure position (defined as a relatively stable preference for the way disclosure is managed) is in turn either ritualistic or opportunistic. Companies that prefer ritualism are those which adhere to prescribed norms for the measurement and disclosure of financial information.

Camfferman (1997) carries out a comprehensive study of annual report disclosure by listed Dutch companies over several decades (1945-1983). He studied the disclosure of individual items such as sales, comparative figures, taxation, employment-related disclosures, consolidated financial statements, the funds statement, current cost data, earnings per share and segmental reporting. He found that a similar pattern occurred for nearly all items. There was innovation by a few high profile companies. Then more companies suddenly adopted the practice. Finally, a few laggards adopted. There is thus a normalization process, by which an accounting practice becomes the norm. The normalization process essentially stems from Rogers' (1983) generic innovation and diffusion process.

Overall, while a number of studies have examined the narrative information and presentational formats in annual reports, few studies have examined the evolution of these discretionary, non-financial elements over time. This study seeks to contribute to the limited literature (i) by replicating the key elements of Lee (1994) in order to capture a larger corporate population and to cover more recent time periods; and (ii) by replicating Beattie and Jones (1992a) to assess change in the presentational formats in detail through the corporate use of graphs. New evidence is presented by analysing additional aspects of an existing sample of annual reports from 1989 (Beattie and Jones, 1992a) as well as an up-to-date, fully comparable sample from 2004. Longitudinal comparisons are made with the findings of Lee (1994) and Beattie and Jones (1992a) in the context of the twin related processes of diffusion and normalization (Rogers, 1983; Camfferman, 1997).

## METHODS

Given the general unavailability of corporate annual reports going back more than 10 years, it was necessary to develop a novel research design to undertake a longitudinal study over several decades. The present study makes use of existing relevant research dating back to 1965, and the availability of an archive of corporate reports from 1989/90. In addition,

new data is collected from 2003/4 reports, the latest reports available at the time that data collection for the present study commenced. The 2003/4 data is believed to give a fair and reasonable reflection of contemporary UK accounting because the factors that drive the general presentational features, that is institutional and cultural factors, are fairly stable and change only slowly. Moreover, there have been no significant legislative developments since 2004.

The UK is considered to be an interesting country for study because it is believed to influence strongly reporting practices internationally (Nobes and Parker, 2004, p.13). The other country to exert a similarly strong influence internationally is the US. In many respects, these two countries are similar. Both have a common law legal system; the capital markets have breadth, depth and liquidity, with dispersed share ownership; and there is strong investor protection (La Porta *et al.*, 1997; 1998; 1999; 2000). However, there are some differences. First, private share ownership dominates in the US, whereas institutional ownership (which is believed to place greater short-term pressure on company management) dominates in the UK (Frost and Pownall, 1994). Second, the extent of litigation is less in the UK, and this may affect the extent of informative disclosure or the nature of impression management (Elliott and Jacobson, 1994). Third, the regulatory framework is more principles-based in the UK, that is, grounded more in a conceptual context compared to the more rules-based approach of the US that emphasizes detailed rules for financial reporting. This difference may encourage more detailed, compliance-based disclosures in the US as compared to the UK.

The focus of the current study was on the top listed companies, the FTSE 500 companies. For the 1989/90 sample, Beattie and Jones (1992a) randomly selected 250 companies from the FTSE 500, subsequently eliminating ten companies for reasons such as non-response, de-listing or merger. The 2003/4 sample comprised 100 companies randomly selected from the FTSE 500 list, of which six were subsequently eliminated. Table 1 details the data collected for the two sample periods and compares it to that in Lee (1994) and Beattie and Jones (1992a, b).

[Insert Table 1 about here]

Content analysis was employed to collect the data from the annual reports. Accordingly, a checklist was designed to capture the relevant aspects of report structure and form, and graph usage to facilitate comparison with Lee (1994) and Beattie and Jones (1992a). Detailed rules and definitions were developed for each individual data item covered in the checklist to ensure that the data collected were objective and reliable (Milne and Adler, 1999). For example, rules were established to distinguish between voluntary and regulatory information and to deal with blank pages in the reports. In addition, further checks were undertaken to ensure that the data was collected accurately; for example, in situations where the annual report content was split according to mutually exclusive categories (financial and non-financial or regulatory and voluntary), the page numbers for individual categories were totaled and cross checked against the total page count. All discrepancies were investigated and rectified.

The checklist comprised two parts: part one covered the structure and form of the reports to enable comparison with Lee (1994) and part two covered graph usage to enable comparison with Beattie and Jones (1992a). In part one therefore, data were collected on (i) financial vs. non-financial information; (ii) regulatory vs. voluntary information; and (iii) narrative vs. other presentational (pictorial, tabular, graphical and chart) information. In addition, for all non-financial information, a detailed analysis of the different generic sections of the annual report (e.g., contents, financial highlights etc.) was undertaken to establish their incidence and the use of presentational formats i.e. pictorial, tables, graph and charts information. Finally, the extent to which companies used corporate logos on their front covers and external design companies was recorded.

To enable comparison with Beattie and Jones (1992a), a similar checklist to that adopted by Beattie and Jones (1992a) was used in part two. Specifically, data were collected on: graph usage (key financial variable graphs and non-key financial variable graphs); aspects of graph design; and details concerning the incidence and degree of measurement distortion and the specific causes of any distortion. For the non-key financial graphs, all the graph titles were recorded and subsequently grouped into appropriate categories (such as social responsibility, net assets, product information etc).

A graph discrepancy index (GDI) was used to calculate measurement distortion. Following Beattie and Jones (1992a), this was defined as:

$GDI = (a/b - 1) * 100\%$ , where

a = the percentage change (in cm to one decimal place) depicted in the graph, (i.e. height of last column less height of first column/height of first column); and

b = the percentage change in the data over the same period.

A value of zero indicates no distortion; a positive value indicates the exaggeration of the trend (i.e., data distorted in the company's favor if the trend is favorable); and a negative value indicates an understatement of the trend (i.e., data distorted to the company's disadvantage if the trend is unfavorable).<sup>7</sup>

## RESULTS

The presentation of results is in three parts. First, Tables 2 and 3 compare Lee (1994), Beattie and Jones's (1992a) 1989 sample and the 2004 sample. In assessing the trends over time in these two tables, differences in the composition of the samples must be borne in mind. The 1988 sample in Lee's (1994) study is based on only 25 of the largest UK companies, whereas the 1989 full sample in Beattie and Jones (1992a) (one year later) is based on 240 companies drawn from the top 500 (approximately one third) of all listed UK companies. The 2004 full sample was based on 100 companies from the top 500 UK listed companies. In addition, to facilitate closer comparison with Lee (1994), who focused on large companies, a restricted 'large company sample' of 25 companies was drawn from both the Beattie and Jones' (1992a, b) sample and from the 2004 sample. Second, Table 4 provides a detailed analysis of the content of the 1989 and 2004 samples. Finally, Tables 5-12 focus on graph use, comparing the results from the 2004 sample with those from Beattie and Jones' (1992a, b) 1989 sample. As the sample sizes vary over time in all tables, the percentage figures offer the key basis for comparison.

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<sup>7</sup> In certain special circumstances, as identified by Mather, Mather and Ramsay (2005), the researchers used discretion. Examples include where the values of a or b were close to zero, actual data was undisclosed, or the columns were very small.



*i. Comparison of Annual Report Structure and Form: 1965 to 2004*

In Table 2, a comparison between Lee (1994), Beattie and Jones (1992a) and the 2004 sample is provided. This enables an evaluation to be made of changes in the structure and form of annual report content over a time period spanning 30 years. Panel A shows results for the full Beattie and Jones (1992a) and 2004 samples, while Panel B shows the large company subsets. This subset, although less statistically representative of the population, more closely equates to that used by Lee (1994). We first compare panel A and panel C (full samples). Several clear trends are apparent. There is an increase in the size of the annual report from 26 pages in 1965 to 75 pages in 2004. This threefold increase reflects a rise in both the regulatory and voluntary material; while regulatory information rose at a rate of 186% (from 15 pages to 43 pages), voluntary information rose at a greater rate of 245% (from 11 pages to 32 pages). The increase was not, however, uniform over time. While the regulatory page count witnessed a dip between 1978 and 1989 and then rose sharply between 1989 and 2004 at a rate of 115%, the voluntary page count rose consistently with the highest rise at a rate of 71% between the 1978 and 1989 period. This was so despite the countervailing trend of successive regulatory capture, whereby voluntary items, such as corporate governance and statement of directors' remuneration reports have become mandated over time. The proportion of voluntary page count to regulatory page count was stable at 42% at the beginning and at the end of the period studied, although during the 1980s more than half the page count volume was voluntary in nature. Our data thus contradicts D&S's (2007) finding that voluntary material was only 17% in 2002. This is probably accounted for by their rather restrictive definition of voluntary information (see footnote 4). Nevertheless, the rising trend of voluntary material representing an overall majority in the reports between 1965 (16%) and 1988 (72%) was reversed from then on so that by 2004 only 17% of the companies disclosed more voluntary information than regulatory information. This result, together with that of the proportion of voluntary page count to regulatory page count, confirms the higher variation (standard deviation) in reporting practice in relation to voluntary material.

[Insert Table 2 about here]

Two important presentational formats for the non-financial information were narrative and pictorial. The narrative information has increased from 8 pages in 1965 to 38 pages in 2004 (almost a 400% increase). In particular, the period from 1978 to 1988 saw the

narrative pages rise threefold from 6 pages to 19 pages. However, the percentage allocated to pictorial material (mainly pictures) has not risen so fast over the entire time period (the percentage fluctuates over the 30 years, doubling from 1965 to 2004). The percentage of companies presenting their financial statements at the back of the annual report has risen markedly over time and constitutes 100% of the companies studied by 2004.

When panels B and C are compared (the large company sub-sample), we find the same trends as with the full sample comparison. However, these trends are magnified. The total page count increases by 265% rather than 188%. The regulatory pages and voluntary pages increase by 253% and 281%, respectively. Narrative and pictorial information also rise markedly. However, the rise in narrative information is the most impressive. It increases by 525% whereas for the full sample it was 375%. These larger companies, being in the public spotlight, are likely to be in the vanguard of financial reporting and are under special pressures to be accountable. Where they lead, others are likely to follow.

In section 3 of Table 2, information is provided on high-level design features of the annual report. There has been a major increase in the use of prominent corporate logos on the front cover of the annual report from 28% in 1965 to 79% in 2004. The table also shows an increase in the use of external design consultants from 12% in 1965 to 72% in 2004. While practices of the large companies (panel B) are broadly not dissimilar to those of the total sample (panel A), in 1989, a smaller proportion of the large firms relied on logos or external consultants. Overall these design features reinforce the general tendency for presentation to become more important.

#### *ii. Comparison of Annual Report Content: 1989 and 2004*

Table 3 investigates in detail the content of annual reports in 1989 and 2004. Nineteen generic sections other than the financial statements and related notes (the financial accounts) are identified. Two of these sections were mandatory in both sample years: auditors' report and directors' report. Two other sections were mandated by 2004: statement of directors' responsibilities and corporate governance. The remuneration report, though introduced since 1989, was mandated only in 2002. The sections are shown in the order in which they commonly appear in annual reports. For each section, four key attributes are reported: (i) whether a particular section was present or absent; (ii) whether the section was presented before or after the financial accounts; (iii) the number (and

percentage) of companies that included pictures, graphs, charts and tables in each section; and (iv) the mean number of pages devoted to each section.

[Insert Table 3 about here]

The popularity of several voluntary sections has remained relatively static. Table of contents, financial highlights, chairman's statement, advisors, board of directors and historical record have all remained popular sections. However, the inclusion of several voluntary sections has changed substantially over time. The inclusion of a combined operating and financial review has grown from 2% to 22%. This reflects the introduction of a recommended operating and financial review statement in 1993. However, it is interesting to note that, of the two component parts of the operating and financial review, the operating review has become less popular than the financial review. While the inclusion of a separate operating review has fallen (from 51% to 36%), the inclusion of a separate financial review has risen (from 9% to 67%). Companies, in general, preferred to report separate operating and financial reviews rather than combine them. In 2004, it was expected that the operating and financial review would become mandatory (DTI, 2002), and the overall rise reported was in anticipation of legislation.<sup>8</sup>

There was also a marked increase in the number of chief executives' statements (from 23% to 56%). This reflects the need for a more detailed narrative explanation of the results, perhaps in place of the less commonly used operating reviews as mentioned above. Another interesting change is the increase (from 10% to 51%) in companies providing a separate section dealing with corporate social responsibility issues (e.g. social, environmental and community issues). This change reflects changing social attitudes to corporate responsibilities. Finally, while the inclusion of information for shareholders rose markedly (27% to 65%), the inclusion of details regarding the annual general meeting and financial calendar both fell markedly. This may reflect the fact that listed companies are no longer required to send a full annual report and accounts to all shareholders and also the growing use of the internet by shareholders to access investor relations information.

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<sup>8</sup> In actual fact, this legislation failed to arrive.

The positioning of several sections relative to the financial accounts has changed since 1989. The majority location of two sections has changed over the time period. In 1989, the vast majority of companies (91%) placed the list of advisors before the financial accounts; by 2004 a slight majority placed it after (53%). In the case of the auditors' report, in 1989 a slight majority (53%) placed it after the financial accounts. By 2004, the vast majority (83%) placed it before. Only four sections have been consistently placed *after* the financial accounts by the majority of companies (historical record; shareholder information; annual general meeting; and financial calendar). All the other 15 sections have consistently been placed *before* the financial accounts by the majority of companies.<sup>9</sup> In addition, there has been a steady increase in the consensus positioning of individual sections either before or after the financial statements, and a consequent reduction in variation of placing. This is the case for the auditors' report, the historical record, shareholders' information, the annual general meeting and the financial calendar. Only the list of advisors has been subject to growing diversity. In 1989, the consensus location was before the financial accounts; by 2004 it appears that we are in the process of the consensus moving from a 'before' to an 'after' location.

Columns 6-9 of Table 3 report the number (and percentage) of companies that included pictures, graphs, charts and tables in their annual reports in each generic section. In 1989, in individual companies' annual reports, the three sections in which pictures occurred most frequently were the operating review, the chief executive's statement and the corporate social responsibility statement. By 2004, this had changed slightly to the operating review, the chairman's statement, and the board. By 2004, picture use for several of the individual sections had declined, with a marginal decline across the annual report as a whole. As for graphs, in 1989 the most popular three sections were the financial review, financial highlights and the operating review, emphasizing the financial performance of the companies. By 2004, this had changed slightly to the remuneration section, followed by the financial highlights and then the financial review. Interestingly, however, for the two sections common to the 'top three' in the two sample years, graph usage had significantly declined. This was compensated by a greater use in graphs elsewhere.

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<sup>9</sup> Except for the auditors' report in 1989.

There were relatively few sections that included charts in the annual reports. However, there were numerous tables with a significant rise from 1989 to 2004. Specifically, while the historical record section was always presented in a tabular form in both sample years, there was a marked rise in table use in the operating and financial review and its components (the operating review and the financial review). Comparing table use with graph use, there remains a possibility that companies have, to some degree, replaced graphical presentations with tabular presentations. Without this substitution, graph usage would have increased even more than as demonstrated by Table 3.

The final column of Table 3 reports the mean number of pages for each section, based on those companies which had the section. Figures excluding the white space surrounding each section were very similar and so are not reported here. The three sections in Table 3 that constitute the highest mean page count in 1989 are: operating and financial review (12.4 pages); operating review (11.5 pages); and chief executive's statement (6.9 pages). In 2004, the top three sections are: operating review (10.2 pages); operating and financial review (8.2 pages); and remuneration report (7.2 pages). Of the components of the operating and financial review, it is noticeable that the operating review, though less common amongst the sample firms, typically takes at least twice as much space as the financial review. It is also interesting to compare the page counts of 1989 with 2004. Six sections had more mean pages in 1989 than 2004. Significantly, five of these were important accounting narratives: chairman's statement (2.8 pages vs. 2.7 pages), chief executive's statement (6.9 pages vs. 5.0 pages), operating and financial review (12.4 pages vs. 8.2 pages), operating review (11.5 pages vs. 10.2 pages) and directors' report (3.1 pages vs. 3.0 pages). These are some of the 'story-telling' narratives of the report. There is thus a suggestion that the increase in non-financial accounts material is accounted for by new factual and descriptive sections such as remuneration reports and corporate governance, rather than enhanced narratives about corporate performance. For example, despite the overall increase in non-financial accounts material, five key 'story-telling' narratives (namely the chairman's statement, chief executive's statement, the operating and financial review, operating review and financial review) have in aggregate declined from 36.9 pages to 30.7 pages from 1989 to 2004. By contrast, two 'agency type' disclosures on corporate governance and remuneration have increased from zero to 10.7 pages.

### *iii. Comparison of Graph Usage: 1989 and 2004*

The remaining results focus on graph usage, comparing the findings of Beattie and Jones (1992a) in relation to the 1989 sample with those from the 2004 sample (15 years later). These two samples are drawn from the top 500 listed UK companies. Table 4 compares graph usage over time. It is clear that there has been a reinforcement of the tendency to use graphs. By 2004, graph usage had increased from 79% to 99%. To all intents and purposes, therefore, graph usage had become universal. Interestingly, this increase was generally accounted for by non-key financial variable graphs. For all four key financial variable graphs, there was a decline in graph usage (ranging from 9.1% for income graphs to 16.7% for dividend per share graphs). This suggests that an increasingly broad range of measures is being emphasized through graphical presentation.

[Insert Table 4 about here]

Table 5 presents a detailed analysis of graphs by topic. All graphed topics constituting more than 1% of the total for each sample are listed. The mean number of graphs per annual report rose from 5.9 in 1989 to 6.9 in 2004. Overall, the topics graphed have become more concentrated. In 1989, the top ten topics accounted for 65.0% of all graphs; by 2004 they accounted for 71.9%.<sup>10</sup> However, the mix of these graphs has changed – only the four key financial variables and segmented, non-time series sales remained in the top 10 in both periods. The proportion of total graphs represented by key financial variables fell markedly from 30.7% in 1992 to 24.4% in 2004. Indeed, cash flow with 23 graphs as opposed to sales with 31 graphs is emerging as a fifth potential key financial variable.

There were several other trends. First, the number of segmental income and sales graphs more than halved over the period, representing 27.8% of all graphs in 1989 and only 11.3% of all graphs in 2004. Given the importance that financial analysts and investors place on segmental information (Hussain, 1997; Lobo, Kwon and Ndubizu, 1998), this is a curious result that we are currently unable to explain. These changes were compensated by a marked increase in graphs of income and profitability (other than the key financial variable income before taxes) from 1.8% in 1989 to 6.2% in 2004. This seems to indicate

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<sup>10</sup> The key financial variable graphs were treated as four separate topics

a focus on a broader range of income measures. There was a severe decline in many of the graphs which were present in 1989. There was, for example, a complete absence of market indices and asset portfolio graphs. In other cases, new graphs emerged. The most significant of these is the performance graph. These graphs benchmark company performance in terms of share price (specifically, total shareholder return) against an appropriate industry performance benchmark. They are now mandatory under remuneration report rules, which is the first case, in the UK, of the provision of a graph being mandatory. In addition, in 2004 product information and corporate social responsibility graphs were common, reflecting the increasing attention paid to non-financial information in the annual report. Indeed, there were 83 such graphs in 2004, but at best less than 1% in 1989.

[Insert Table 5 about here]

Table 6 provides comparative data for the type of graphs used to portray key financial variables. In the 1989 sample, there was some diversity in graph type used. Although over 80% used a column/bar graph, a sizeable minority used line graphs (4.5%) or other, more original, customized graphs such as pictograms (11.2%). However, by 2004, ‘normalization’ of graph type had emerged. The standard presentational form had become the column/bar graph, representing 97% of all key financial variable graphs.

[Insert Table 6 about here]

Table 7 reports the results of tests for graph selectivity in each sample year. Graph selectivity is said to occur when the use of a particular graph is contingent upon ‘good’ performance. Performance was classified as good or bad based on two alternative measures: (i) the direction of change in earnings per share in the current year; and (ii) the direction of change in the particular variable graphed in the current year. Using each of these measures, selectivity was assessed in relation to the inclusion of: *at least one* key financial variable graph; a sales graph; an income before tax graph; an earnings per share graph; and a dividend per share graph. The results indicate that, in general, selectivity continues to occur. This was particularly true for income before tax and dividend per share. Graph usage in these two variables was significantly associated with the change in earnings per share at the 5% level and with the change in the key financial variable itself at

the 1% level. In both 1989 and 2004, therefore, graphs (with the exception of sales graphs in 2004) were more likely to be included when favorable, rather than unfavorable, performance was reported. Nonetheless, overall the results were less strong in 2004, indicating that graphs are being included on a less selective basis than in 1989. This perhaps reflects less concern with the key financial variable graphs generally as fewer are included in the 2004 annual reports.

[Insert Table 7 about here]

Table 8 shows the length of time series presented in key financial variable graphs in 2004 compared to 1989. The majority of graphs in both years showed 5 year time series. However the percentage showing this ‘norm’ has declined from 72% in 1989 to 63% in 2004. In 2004, the more common alternative to this norm is a period less than 5 years. The pattern across all four key financial variables was similar. The percentage showing less than 5-years has increased from 13% in 1989 to 27% in 2004. However, for sales and income there was an increase from 11% to 29% and 12% to 30%, respectively.

[Insert Table 8 about here]

Interestingly, this is a graph attribute for which the practice in 2004 has become more diverse than in 1989. This is perhaps because in 2004 the economic cycle was at a stage where shorter time series displayed more favorable trends. In 1989, the UK economic cycle reached a peak after a sustained period of growth lasting over five years, whereas in 2004 there had been a small growth after a three year decline (HM Treasury, 2005). In 1989, five year time series would show sustained increases. However, in 2004 cutting the time series to three years would offer a lower benchmark for comparison of current period performance. Thus, the incentives for management to impression manage in some cases appear to have overridden the desire to comply with reporting norms.

We investigate this interesting phenomenon in Table 9. In particular we examine the relationship between company performance over the ‘normalized’ period of five years and the management decision to include graphs and the number of years chosen. Specifically, distinguishing between companies whose performance improved and those whose performance declined, Table 9 reports the number of companies that chose to exclude



graphs or present their key financial variables for a period of less than five years compared to those that presented the key financial variables for a period of five years.<sup>11</sup> The performance data was collected from the historical tables published in the annual reports (or from Datastream, where the former were unavailable). Consistent with Table 7, change in performance was measured in terms of a change in the performance of the earnings per share (panel A) and in terms of a change in the performance of the key financial variable (panel B), over the ‘normalized’ five year period. The results presented relate only to the 2004 period as Beattie and Jones (1992a) did not undertake a similar evaluation.

Results in both panels A and B indicate management tended to present information in a positive light. Specifically, companies whose performance had declined over the five year normalized period were more likely to either omit the key financial variable (selectivity) or present data for a period of less than five years as compared to those companies with improved performance. Results for pre-tax income and dividend per share were striking, as were those for all key financial variables combined. Results for earnings per share were also statistically significant, although those for sales were not. The sales result perhaps confirms the earlier evidence that this key financial variable is declining in importance. Moreover, results of a further analysis restricted to graph users only (Table 9, note 7) confirms statistically significant selectivity in the number of years graphed at an aggregate level: graph users with favorable performance were more likely to chart graphs for five years than graph users with unfavorable performance. Unfortunately, the chi-squared values for this analysis were not valid for all of the individual key financial variables when the sample was restricted to only graph users. Collectively, these results explain why the five year period over time has not become normalized and also identify a new way in which companies engage in impression management.

[Insert Table 9 about here]

Tables 10-12 report on aspects of graph measurement distortion in key financial variable graphs. Table 10 shows the incidence of materially discrepant graphs, using a materiality threshold of both 5% (following Beattie and Jones, 1992a) and 10% (the level at which

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<sup>11</sup> Graphs with data for over five years were omitted from the analysis because they represented a small proportion of the total graphs and thus resulted in void Chi squared tests.

Beattie and Jones (2002) found user perceptions to be distorted). At the 5% cutoff (Panel A), 30% of graphs exhibited material distortion in 1989, rising to 60% in 2004. At the 10% cutoff (Panel B), the corresponding figures are 20% in 1989 and 49% in 2004. Clearly, therefore, the incidence of material distortion has risen dramatically. This increase may be associated with the decline in selectivity noted above. If companies feel less able to avoid including graphs showing unfavorable performance trends, they may distort the graphs to reduce the unfavorable impression conveyed.

Several further observations can be made from Table 10. In both years, all the key financial variable graphs, except for income, were more likely to be materially exaggerated than materially understated, although the relative incidence of material understatement had risen markedly by 2004. In both sample years, income before taxes was the one key financial variable not to be exaggerated.<sup>12</sup> By 2004, users' perceptions of key financial variable performance are likely to be affected in approximately half of the cases (Beattie and Jones, 2002).

[Insert Table 10 about here]

Table 11 gives a breakdown of the magnitude of measurement distortion found in key financial variable graphs. It is apparent that the greater incidence of material measurement distortion reported in Table 10 above seems to occur especially at the extremes. In the 2004 sample, 12% of key financial variable graphs contain distortion in excess of 100% compared to 4% in the 1989 sample. At the other extreme, 6% of key financial variable graphs contain distortion below -50% compared to 0% in the 1989 sample. Moreover, if the number of graph discrepancy indices exceeding 25% is taken, the difference between the two samples is further emphasized. In 1989, only 11% of the sample had graph discrepancy indices greater than 25%; however, by 2004 it was 35%. Finally, Table 12 indicates the cause of material distortions. It appears that, by 2004, the obvious, identifiable causes of distortion (such as the use of a non-zero or broken vertical axis or a non-arithmetic scale) have disappeared, leaving behind more subtle distortions. For example, graphs with identifiable non-arithmetic scales have now been replaced with graphs with no stated scales – distortion here is easier to conceal. In addition, in a small number of cases, companies have failed to indicate the precise values that are being

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<sup>12</sup> We currently have no explanation for this surprising result.

graphed on their columns/bars. With relatively small graphs being used to chart what can be widely varying values, there is thus heightened scope for mis-interpretation.

[Insert Tables 11 and 12 about here]

## SUMMARY AND CONCLUSIONS

There is a paucity of research that examines the manner in which the discretionary elements of corporate annual reports have evolved over time. These discretionary elements concern the overall structure and form of the annual report and the usage of narratives, graphs and pictures. The present study contributes to the limited literature in this area. There is a particular focus on graphs, which represent an important presentational format. New evidence is presented by analyzing additional aspects of an existing sample of corporate annual reports from 1989 (Beattie and Jones, 1992a, b) as well as an up-to-date, fully comparable sample from 2004. Longitudinal comparisons are made with the findings of Beattie and Jones (1992a) and Lee (1994). In the latter case, comparisons were made using a restricted 'large company' sample as well as the full sample of 1989 and 2004 reports.

The main findings relating to structure and format over three decades were as follows when compared with the full sample.

- First, the corporate annual reports of large listed UK companies continue to grow in size (a mean of 26 pages in 1965 compared to 75 pages in 2004), with the amount of voluntary material growing at a marginally faster rate than regulatory material (190% compared to 186%), despite the progressive regulatory capture of voluntary material.
- Second, the amount of narrative material increased by 375% (a mean of 8 pages in 1965 compared to 38 pages in 2004), while the amount of pictorial material increased by 100% (a mean of 3 pages in 1965 compared to 6 pages in 2004). This increase in textual material is accounted for principally by new factual, descriptive sections such as the remuneration report and corporate governance.
- Third, by 2004, all of the companies studied presented their financial statements at the back of the annual report, thereby giving prominence to the mainly voluntary material.

- Fourth, the extent of use of prominent corporate logos and external design consultants shifted from a minority in 1965 to a majority by 2004.
- Fifth, when the large company subset was compared with Lee (1994), then these trends were even more pronounced, particularly for voluntary and narrative information.

A more detailed analysis of structure and format based on the comparison of 1989 with 2004 (a 15 year period) was possible. Nineteen generic annual report sections (excluding the financial statements and related notes) were identified and the incidence, positioning (before or after the financial accounts), use of non-text formats (pictures, graphs, charts and tables) and size of each section were examined. Changes in the incidence of generic sections were variously attributed to the anticipation of legislation (the rise in operating and financial review sections), changing social attitudes (the rise in the corporate social responsibility section), actual legislation and advances in technology (the decline in annual general meeting and financial calendar sections). In general, the diversity of positioning of individual sections has declined. Of note was the finding that the majority positioning of the auditors' report has moved from after the financial statements to before them. It is likely that this has been a consequence of the loss of credibility caused by, *inter alia*, the Enron scandal and reflects an attempt by companies to restore confidence in the financial statements by increasing the prominence of the assurance statement.

Pictures were concentrated into the chairman's statement, chief executive's statement, operating and financial review (combined and separate), board of directors and corporate social responsibility sections. Graphs commonly featured in the financial highlights section and the newly mandated remuneration report section (2004 only). Relatively few charts were found. Tables, a commonly used format, appeared frequently in the historical record, remuneration report (2004 only), directors' report and operating and financial reviews (combined and separate). In both years, the combined operating and financial review and the separate operating review were the two sections having the highest mean size (in terms of pages). By 2004, the newly mandated remuneration report ranked third in terms of size. Overall, however, there was a clear decline in the amount of 'story telling' narratives.

Key findings in relation to graph usage in 2004 compared to 1989 were as follows.

- First, the use of graphs among the population of large listed companies has become universal and the mean number of graphs has risen from 5.9 to 6.9. This growth in graph use is accounted for by graphs of *non*-key financial variables, such as the newly mandated performance graph, other profitability graphs and corporate social responsibility graphs.
- Second the incidence of each of the four key financial variable graphs (sales, income before taxes, earnings per share and dividend per share) has declined slightly, perhaps attributable to the less favorable stage in the economic cycle in 2004, compared to 1989. The incidence of segmental graphs has also declined markedly.
- Third, the type of graph used for key financial variables has normalized further towards the column/bar graph.

There is continued evidence that financial graphs are used, in a variety of ways, for impression management purposes. First, there has been a decline (from 72% in 1989 to 63% in 2004) in the number of companies using the 5 year norm for length of time series portrayed. However, the doubling of key financial variable graphs showing less than five year trends appears to reflect judicious choices to avoid highlighting adverse financial trends. This indicates that the incentives for management to impression manage in some cases overrode the desire to comply with reporting norms. Second, the selective inclusion of key financial variable graphs continues to be found in 2004, although the evidence is less strong than in 1989. Third, the incidence of material distortion in key financial variable graphs has risen markedly (from 20% to 49% using a 10% cutoff). These forms of impression management are alternatives, as the fact of adverse performance can be softened either by simply not including a graph or by distorting the graph. Interestingly, the easily detectable causes of distortion (e.g. a non-zero axis) have disappeared by 2004.

The findings of the present study have two important implications for the nature and content of the annual report itself and more broadly for the nature of accounting change. First, the annual report has clearly continued the trend, identified by Lee (1994) and McKinsty (1996), away from a financially-driven, statutory document towards a more design-orientated document. This is shown by the increase in size of the annual report, the increase in voluntary aspects, the increase in general design, and the increase in graph use. Particularly impressive since Lee (1994) is the increase in narrative information.

Collectively, these trends have changed the nature of the annual report over the last 30 years from a financially-driven document where the financial results dominated to one where design and presentational aspects appear to motivate the content and presentation. These broad-based changes across the population are attributed to gradual shifts in social, cultural and technological factors, which are reflected in the annual reports.

Second, and more broadly, there is evidence of a 'normalization' process at work in relation to the annual report. This confirms the findings of Camfferman (1997) and conforms to the generic pattern of diffusion of new ideas proposed by Rogers (1983). The diversity that was present in early experimentation has narrowed as companies adopt similar reporting practices in order to adhere to emergent reporting 'norms'. This is manifested in several ways. First, there has been a marked standardization in the positioning of the sections in the annual report – either before or after the financial statements. Second, all companies now use graphs – it is a universal, voluntary phenomenon. Third, almost all key financial variables are presented using one basic graph type - the column/bar graph. Finally, graphs for a five year period are the norm, although the selectivity process takes precedence in situations of unfavorable trends in performance.

A limitation of the study is that the sampling frame used by Lee (1994) in relation to the earlier time period is different from the sampling frame used by Beattie and Jones (1992a, b) and the present study. There may, therefore, be methodological problems when comparing the findings of these studies. However the findings from all of the studies are generally consistent, complementary and robust. In the overall patterns and trends identified, there appears to be little doubt that significant change has occurred, with the general patterns of change over the three decades being clear.

A major policy implication of this research relates to the use of graphs in annual reports. Given the popularity of graphical presentation and its use as an impression management tool, users would benefit from preparers' adherence to a set of graphical guidelines. These guidelines could be prepared by appropriate standard-setting bodies (such as the UK's ASB, the US's Financial Accounting Standards Board or the International Accounting Standards Board) or by regulatory bodies (such as the Securities Exchange Commission in the US). A step in this direction has already been made by the ASB in a discussion paper that examined ways of improving communication with private shareholders (ASB, 2000).

This emphasized the need for graphs to convey information in an objective and balanced manner. However, our results indicate that much more remains to be done to take the agenda forward. One possible set of recommendations to overcome problems related to selectivity, measurement distortion and the length of time series graphed would be a requirement for companies to include all four key financial variable graphs, accurately constructed and covering five years. Once included in annual reports, these graphs should not be discontinued (nor should the length of time series be varied) without adequate explanation.

At a broader level, the annual report appears to have changed beyond all recognition over the last generation. Accounting is not a neutral, static activity – rather, it is a constantly evolving, socially-embedded practice. In 1965, annual reports were relatively compact documents (26 pages) clearly centred around a hard core of financially regulated data with financial statements being afforded the central primacy and presentational aspects taking a backseat. Today's annual reports, by contrast, are lengthy (75 – 95 pages) and dominated by voluntary data which dwarf the financial statements in both quantity and prominence and with presentational aspects being pushed to the fore. These changes are consistent with the view that the annual report's function has largely changed from a regulated, financial document to a presentationally-driven impression management tool. As a consequence, investors should exercise caution when reading these documents. In addition, regulators should consider more actively intervening to ensure that the voluntary status of the reports is more closely scrutinized by auditors.

Additional future research is required to understand more closely the longitudinal nature of change in annual report design. Possible lines of enquiry include a detailed investigation of a small number of companies (case studies); an examination of changes in practices over time in other countries, such as the US and emerging economies where economic climates and institutional environments will differ; an exploration of how company-specific determinants of disclosure (for example company size, industry, cross listing) influence practice; and an exploration of the impact of these changes in accounting practice on different stakeholder groups. Taken together, such research will enable us to better understand the factors that drive reporting change and its influence on stakeholder behavior.

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**Table 1: A Summary of the Sample Characteristics and Data Collected**

	Current Study		Beattie and Jones (1992a, b)	Lee (1994)
<b>Time Period Examined</b>	2004	1989	1989	1965, 1978 1988
<b>Sample Characteristics</b>				
<i>Sample population</i>	FTSE 500	FTSE 500	FTSE 500	Top UK firms
Number of companies	94	240	240	25
<b>Data Collected</b>				
<b><i>Change in the Structure and Form of Annual Reports</i></b>				
<i>Page count</i>	•	•		•
<i>Change in general report structure and form</i>	•	•		•
<i>Design features</i>	•	•		•
<i>Further analysis of non-financial accounting information</i>	•	•		
<b><i>Changes in the usage of Graphs in Annual Reports</i></b>				
<i>Graph usage</i>	•		•	
<i>Analysis of graphs by topic</i>	•		•	
<i>Type of graphs for key financial variables</i>	•		•	
<i>Relationship between graph usage and corporate performance</i>	•		•	
<i>Length of time series graphed: key financial variables</i>	•		•	
<i>Relationship between length of time series graphs and corporate performance</i>	•			
<i>Incidence of materially discrepant graphs</i>	•		•	
<i>Frequency of distribution of graph discrepancy index scores</i>	•		•	
<i>Cause of materially discrepant key financial variable graphs</i>	•		•	

Note:

1. The table details the data collected in the present study for the two sample periods and compares it to that in Lee (1994) and Beattie and Jones (1992a, b).

**Table 2: Changes in the Structure and Form of Annual Reports: 1965-2004**

		Present study Full sample		Present study Large company sub-set		Lee (1994)		
		<i>Panel A</i>		<i>Panel B</i>		<i>Panel C</i>		
		2004 n=94	1989 n = 240	2004 n = 25	1989 n = 25	1988 n = 25	1978 n = 25	1965 n = 25
<i>Section 1: Change in Annual Report Page Count - Main Elements</i>								
Total page count <sup>1</sup>	Mean SD.	75 25	44 13	95 36	46 13	54 10	36 8	26 8
Regulatory page count <sup>2</sup>	Mean SD.	43 13	20 6	53 18	22 20	25 4	23 4	15 3
Voluntary page count <sup>2</sup>	Mean SD.	32 16	24 10	42 23	24 12	29 8	14 7	11 7
Narrative page count <sup>3</sup>	Mean SD.	38 16	21 7	58 26	20 7	19 8	6 3	8 4
Pictorial (other) page count <sup>3</sup>	Mean SD.	6 5	6 5	6 5	6 5	10 4	7 5	3 4
<i>Section 2: Change in General Report Structure and Form</i>								
Financial accounts towards back	No. %	94 100	232 97	25 100	25 100	25 100	23 92	9 36
Voluntary material a majority	No. %	16 17	83 35	6 24	13 52	18 72	8 32	4 16
Pictorial material a majority	No. %	0 0	0 0	0 0	0 0	5 20	0 0	3 12
<i>Section 3: Annual Report Design Features</i>								
Corporate logos prominent on front cover	No. %	73 78	136 57	18 72	12 48	24 96	17 68	7 28
External design consultants used	No. %	68 72	132 55	19 76	11 44	20 80	6 24	3 12

Notes:

1. Total page count excluded external covers and any blank pages.
2. Regulatory and voluntary information were defined as follows: regulatory information included the financial accounts, and any narrative information that was mandatory at the time. For the 1989 accounts, this included the auditors' report and directors' report and for the 2004 accounts, it included the auditors' report, directors' report, corporate governance, and directors' remuneration report. Voluntary information was defined as all information that was not regulatory.
3. The narrative and pictorial page counts here refer to the separation of all non-financial accounts information (regulatory and non-regulatory) into these two categories.

**Table 3: Further analysis of non-financial accounts information: usage, location, incorporation of pictures, graphs, charts and tables, and size (page count)**

Generic annual report section <sup>1</sup>	Sample <sup>2</sup>	Present/absent	Location before/after financial accounts		Companies with pictures	Companies with graphs	Companies with charts	Companies with tables	Size
		No. % <sup>3</sup>	No. % <sup>4</sup>		No. % <sup>4</sup>	No. % <sup>4</sup>	No. % <sup>4</sup>	No. % <sup>4</sup>	Mean page count <sup>5</sup>
			Before	After					
Table of contents	1989	230	230		35	2	5	1	1.03
		96	100		15	1	2	1	
	2004	92	92		15	1	1	-	1.00
		98	100		16	1	1	-	
Financial highlights	1989	182	182		17	112	1	37	1.20
		76	100		9	62	1	20	
	2004	79	79		13	37	3	9	1.47
		84	100		16	47	4	11	
Chairman's statement	1989	229	227	2	154	30	2	11	2.88
		95	99	1	67	13	1	5	
	2004	84	84		63	13	2	6	2.73
		89	100		75	15	2	7	
Chief executive's statement	1989	54	54		49	15	4	2	6.89
		23	100		91	28	7	4	
	2004	53	53		38	17	2	9	4.96
		56	100		72	32	4	17	
Operating & financial review	1989	4	4		4	4		1	12.42
		2	100		100	100		25	
	2004	21	21		12	8	4	15	8.17
		22	100		57	38	19	71	
Operating review	1989	122	122		120	44	12	15	11.46
		51	100		98	36	10	12	
	2004	34	33	1	28	12	6	14	10.15
		36	97	3	82	35	18	41	
Financial review	1989	22	22		14	15		3	3.26
		9	100		64	68		14	
	2004	63	63		41	24	1	31	4.67
		67	100		65	38	2	49	
Directors' report	1989	240	233	7	15	3		96	3.07
		100	97	3	6	1		40	
	2004	90	88	2	3	2		32	3.03
		96	98	2	3	2		36	
Statement of directors' responsibilities	1989								
	2004	47	46	1		2			0.85
		50	98	2		4			
Remuneration report	1989								
	2004	92	86	6		92	4	83	7.15
		98	93	7		100	4	90	
Corporate governance	1989								
	2004	80	76	4	4	1	3	21	3.53
		85	95	5	5	1	4	26	
Auditors' report	1989	240	113	127	1			1	0.70
		100	47	53	1			1	
	2004	94	78	16					1.12
		100	83	17					

[cont.]

**Table 3 (cont.): Further analysis of non-financial accounts information: usage, location, incorporation of pictures, graphs, charts and tables and size**

Generic annual report section <sup>1</sup>	Sample <sup>2</sup>	Present/ absent	Location before/after financial accounts		Companies with pictures	Companies with graphs	Companies with charts	Companies with tables	Mean page count <sup>5</sup>
		No. % <sup>3</sup>	No. % <sup>4</sup>	No. % <sup>4</sup>	No. % <sup>4</sup>	No. % <sup>4</sup>	No. % <sup>4</sup>		
		Before	After						
Advisors	1989	129 54	118 91	11 9					0.81
	2004	40 43	19 47	21 53	6 15	1 3	3 8		1.02
Board of directors	1989	192 80	188 98	4 2	105 55	1 1			1.26
	2004	84 89	82 98	2 2	61 73			2 2	1.72
Corporate social responsibility	1989	24 10	23 96	1 4	17 71				2.10
	2004	48 51	46 96	2 4	22 46	5 10	3 6	3 6	2.92
Historical record	1989	190 79	71 37	119 63	6 3	27 14	1 1	190 100	1.23
	2004	73 78	5 7	68 93	1 1	3 4		73 100	1.36
Shareholders’ information	1989	64 27	27 42	37 58	4 6	6 9		13 20	1.23
	2004	61 65	3 5	58 95	1 2	4 7	2 3	18 30	1.47
Annual general meeting	1989	197 82	50 25	147 75	6 3			1 1	1.58
	2004	30 32	1 3	29 97			1 3		2.21
Financial calendar	1989	114 48	60 53	54 47	1 1	2 2	1 1	3 3	0.59
	2004	20 21	3 15	17 85				2 1	0.76
Total <sup>6,7</sup>	1989	-n/a-	-n/a-	-n/a-	210 88	185 77	22 9	190 79	22.2
	2004	-n/a-	-n/a-	-n/a-	81 86	93 99	28 30	76 81	36.8

Notes:

1. Sections that were mandatory in 2004, but not in 1989, are shown in bold (the directors' report and audit report were mandatory in both years).
2. For 1989 and 2004, n = 240 and 94, respectively.
3. % based on total sample for the year.
4. % based on those companies with generic section. All % values between 0 and 1 are recorded as 1 to indicate the presence the presentational format in at least one company's generic section.
5. Means based on those companies with generic section.
6. The total for pictures, graphs, charts and tables stated here refers to the number of companies that had these features in at least one of the 19 sections of disclosure examined.
7. The total mean page counts refers to that for the 19 sections of disclosure examined. It is not comparable to the voluntary page count results recorded in Table 1 because it includes all regulatory non-financial accounts information and excludes pages that were dedicated to sections other than the 19 included above.

**Table 4: Use of Graphs by Top Listed UK Companies**

Graph topic	Present study 2004 n = 94		Beattie & Jones (1992a, Table 3) 1989 n = 240	
	No.	%	No.	%
Any financial or non-financial graph <sup>1</sup>	93	99	189	79
At least one key financial variable graph <sup>2</sup>	58	62	156	65
Sales	31	33	91	38
Income	47	50	131	55
Earnings per share	42	45	127	53
Dividend per share	38	40	116	48

Notes:

1. There is a small discrepancy between tables 3 and 4 in the number of firms that included a graph in their 1989 annual reports: 185 companies versus 189 companies, respectively. While information presented in table 3 was collected as part of the current study that in table 4 is taken from Beattie and Jones (1992a). We were unable to resolve this discrepancy.
2. Key financial variables are: sales, income before taxes, earnings per share and dividend per share.



**Table 5: Analysis of Graphs by Topic (arranged in 1989 order)**

	Present study 2004 n = 94		Beattie & Jones (1992a, Table 3) 1989 n = 240	
	No.	%	No.	%
<i>Panel A: Topics Reported in Beattie and Jones (1992a)</i>				
Key financial graphs	158	24.4	438	30.7
Other income measures and profitability	40	6.2	26	1.8
Segmented sales non-time series	32	5.0	109	7.6
Segmented income non-time	19	2.9	87	6.1
Segmented sales time series	16	2.5	88	6.2
Return on capital employed and return on equity	9	1.4	16	1.1
Net asset value per share	8	1.2	33	2.3
Assets	8	1.2	18	1.3
Share price / share price movement	7	1.1	27	1.9
Segmented income time series	6	0.9	113	7.9
Capital expenditure (various definitions)	6	0.9	14	1.0
Shareholders' funds	3	0.5	22	1.5
Return on sales	2	0.3	18	1.3
Dividends (various definitions)	2	0.3	15	1.1
Asset portfolio analysis	0	0	65	4.6
Market indices	0	0	35	2.4
Measure of market size	0	0	21	1.5
Other (see Panel B)	333	51.3	281	19.7
<b>Total</b>	<b>649</b>	<b>100</b>	<b>1426</b>	<b>100</b>
<b>Mean</b>	<b>6.9</b>		<b>5.9</b>	
<i>Panel B: List of 'Other' Topics in the 2004 Sample</i>				
Performance graphs	131	20.2	Data for the 1989 sample for these graphs was unavailable from Beattie and Jones (1992a), as the authors had only presented results for graphs that constituted 1% or more of the total sample	
Product information (e.g. sales volume)	52	8.0		
Corporate social responsibility (e.g workforce gender, nationality)	31	4.8		
Cash flow/cash	23	3.5		
Debt and debt related	14	2.2		
Processing information (e.g. no. of distribution channels, stores etc)	13	2.0		
Sales and related graphs (not key financial graphs)	11	1.7		
Funds under management	11	1.7		
Various	47	7.2		
<b>Total</b>	<b>333</b>	<b>51.3</b>		

**Table 6: Type of Graph for Key Financial Variables**

		Present study 2004 n = 94					Beattie & Jones (1992a, Table 4) 1989 n = 240				
		Sales	Income	EPS <sup>1</sup>	DPS <sup>1</sup>	Total	Sales	Income	EPS <sup>1</sup>	DPS <sup>1</sup>	Total
Column /	No.	31	47	40	36	154	78	113	103	98	392
Bar	%	100	100	95	95	97	86	86	81	84	84
Line	No.	-	-	2	2	4	4	2	8	7	21
	%			5	5	3	4	2	6	6	5
Other <sup>2</sup>	No.	-	-	-	-	-	9	16	16	11	52
	%						10	12	13	10	11
<b>Total</b>	<b>No.</b>	<b>31</b>	<b>47</b>	<b>42</b>	<b>38</b>	<b>158</b>	<b>91</b>	<b>131</b>	<b>127</b>	<b>116</b>	<b>465</b>

Notes:

1. EPS and DPS refer to earnings per share and dividend per share, respectively.
2. In the 2004 reports, there was a complete absence of the 'other' (geometric and pictorial) graphs present in the 1989 reports.

**Table 7: The Relationship between Graph Usage and Directional Performance Indicators for the Current Year**

	<i>At least one KFV graph<sup>1</sup></i>	Sales graph	Income graph	EPS graph <sup>1</sup>	DPS graph <sup>1</sup>
<i>Panel A: Change in earnings per share (measured as an increase /decrease in current year)<sup>2, 3</sup></i>					
Present study 2004 n = 94	10.73 (0.001) ***	1.983 (0.159)	6.287 (0.012) **	3.472 (0.062) *	5.212 (0.022) **
Beattie & Jones (1992a, Table 5) 1989 n = 240	18.80 (0.000)***	6.97 (0.004)***	13.08 (0.000)***	15.56 (0.000)***	12.05 (0.001)***
<i>Panel B: Change in key financial variable (measured as an increase /decrease in current year)<sup>2, 3</sup></i>					
Present study 2004 n = 94	n/a	1.029 (0.31)	8.428 (0.004)***	3.472 (0.062) *	6.783 (0.009) ***
Beattie & Jones (1992a, Table 5) 1989 n = 240	n/a	0.41 (0.262)	13.50 (0.000)***	15.56 (0.000)***	13.60 (0.000)***

Notes:

1. KFV, EPS and DPS refer to key financial variable, earnings per share and dividend per share, respectively.
2. The table reports chi-squared values and, in parentheses, associated p values.
3. \*\*\*, \*\* and \* indicate that the results are statistically significant at the 1%, 5% and 10% levels, respectively.

**Table 8: Length of Time Series Graphed: Key Financial Variables**

		Present study 2004 n = 94					Beattie & Jones (1992b, Table 9) 1989 n = 240				
		<i>Sales</i>	<i>Income</i>	<i>EPS</i> <sup>1</sup>	<i>DPS</i> <sup>1</sup>	<i>Total</i>	<i>Sales</i>	<i>Income</i>	<i>EPS</i> <sup>1</sup>	<i>DPS</i> <sup>1</sup>	<i>Total</i>
Under 5	No.	9	14	12	8	43	10	16	18	16	60
years	%	29	30	29	21	27	11	12	14	14	13
5 years	No.	20	30	25	24	99	66	98	90	83	337
	%	65	64	59	63	63	73	75	71	72	72
Over 5	No.	2	3	5	6	16	15	17	19	17	68
years	%	6	6	12	16	10	16	13	15	15	15
<b>Total</b>	<b>No.</b>	<b>31</b>	<b>47</b>	<b>42</b>	<b>38</b>	<b>158</b>	<b>91</b>	<b>131</b>	<b>127</b>	<b>116</b>	<b>465</b>

Note:

1. EPS and DPS refer to earnings per share and dividend per share, respectively

**Table 9: The Relationship between the Length of Time Series Graphed and Directional Performance Indicators over a Five-year Norm.**

	Sales graph	Income graph	EPS graph <sup>1</sup>	DPS graph <sup>1</sup>	All KfV graphs <sup>1</sup>
<i>Panel A: Comparison of performance information (as measured by the earnings per share) for companies with graphs for less than 5 years and 5 years<sup>2</sup></i>					
<i>No graph or graph for period of under 5 years<sup>3</sup></i>					
Less favorable trend	40	38	37	39	154
Favorable trend	27	18	23	21	89
<i>Graph for period of the 5- year norm<sup>3</sup></i>					
Less favorable trend	9	10	10	8	37
Favorable trend	11	20	14	15	60
Total <sup>4</sup>	87	86	84	83	340
Chi-squared tests <sup>5</sup>	1.353	9.411	2.782	6.181	17.926
(p values) <sup>5, 6</sup>	(0.245)	(0.002) ***	(0.095) *	(0.013) **	(0.000) ***
<i>Panel B: comparison of performance information (as measured by the key financial variable) for companies with for less than 5 years and 5 years<sup>2</sup></i>					
<i>No graph or graph for period of under 5 years<sup>3</sup></i>					
Less favorable trend	29	38	37	23	127
Favorable trend	32	19	23	22	96
<i>Graph for period of the 5- year norm<sup>3</sup></i>					
Less favorable trend	7	10	10	3	30
Favorable trend	12	20	14	19	65
Total <sup>4</sup>	80	87	84	67	318
Chi-squared tests <sup>5</sup>	0.670	8.83	2.782	8.738	17.157
(p values) <sup>5, 6</sup>	(0.413)	(0.003) ***	(0.095)*	(0.003)***	(0.000)***

Notes:

1. EPS,DPS and KfV refer to earnings per share, dividend per share, and key financial variable respectively.
2. Change in the performance variable (KfV or EPS) over a five year period is considered to be positive if the current year value is the highest over the five year 'norm'.
3. The analysis is restricted to graphs charted for a period of less than five years and graphs charted for a period of five years. Graphs charted for period of over five years are excluded due to the relatively small sample size, which prohibited a meaningful interpretation of the chi-squared tests.
4. The total values for graphs for each KfV are smaller than the total sample of 94 companies because (i) a small number of firms included graphs for over five years, which are excluded; and (ii) in a small number of cases, the financial performance data were unavailable through the sources employed. In addition, in the case of DPS, several companies did not pay a dividend.
5. The table reports chi-squared values and, in parentheses, associated p values.
6. \*\*\*, \*\* and \* indicate that the results are statistically significant at the 1%, 5% and 10% levels, respectively.
7. We also examined the relationship between the number of years graphed (1 – 5 years) and company performance for the restricted sample of graph users only. While the chi-squared values were not valid for all of the individual KfVs due to the resulting smaller sample size, those for the pooled (total) KfV graphs were 7.293 (0.007)\*\*\* and 4.835 (0.028)\*\* for performance measured by EPS and the KfV, respectively.

**Table 10: Incidence of Materially Discrepant Graphs**

		Present study 2004 n = 94					Beattie & Jones (1992a, Table 6) 1989 n = 240					
<i>Panel A: Cutoff for Material GDI = 5% (consistent with Beattie and Jones, 1992a)</i>												
GDI		Sales	Income	EPS <sup>1</sup>	DPS <sup>1</sup>	Total	Sales	Income	EPS <sup>1</sup>	DPS <sup>1</sup>	Total	
Material	No.	10	12	15	13	50	25	26	27	25	103	
exaggeration	%	32	26	36	36	32	27	20	21	22	22	
Material	No.	7	16	10	10	43	5	9	14	11	39	
underestimation	%	23	34	24	28	28	6	7	11	9	8	
No material	No.	14	19	17	13	63	61	96	86	80	323	
discrepancy	%	45	40	40	36	40	67	73	68	69	70	
<b>Total</b>	<b>No.</b>	<b>31</b>	<b>47</b>	<b>42</b>	<b>36</b>	<b>156</b>	<b>91</b>	<b>131</b>	<b>127</b>	<b>116</b>	<b>465</b>	
<i>Panel B: Cutoff for Material GDI = 10% (consistent with Beattie and Jones, 2002)</i>												
GDI		Sales	Income	EPS <sup>1</sup>	DPS <sup>1</sup>	Total	Sales	Income	EPS <sup>1</sup>	DPS <sup>1</sup>	Total	
Material	No.	9	11	14	9	43	Variable specific data for the 1989 sample not available from Beattie and Jones (1992a)					73
exaggeration	%	29	23	33	25	28						16
Material	No.	6	11	9	7	33						20
underestimation	%	19	23	21	19	21						4
No material	No.	16	25	19	20	80						372
discrepancy	%	52	54	46	56	51						80
<b>Total</b>	<b>No.</b>	<b>31</b>	<b>47</b>	<b>42</b>	<b>36</b>	<b>156</b>						<b>465</b>

Notes:

1. EPS and DPS refer to earnings per share and dividend per share, respectively.
2. Results for the 'DPS' and 'total' are based on 36 and 156 graphs respectively (compared with the recorded values of 38 and 158 respectively in table 6) as prior dividend per share information was not available for two graphs.

**Table 11: Frequency Distribution of Graph Discrepancy Index (GDI) Scores of Key Financial Variables**

Graph Discrepancy Index (GDI)	Present study 2004 n = 94		Beattie & Jones (1992a, Table 7) 1989 n = 240	
	No.	% <sup>1</sup>	No.	% <sup>1</sup>
GDI ≤ -50%	10	6	1	1
-50% < GDI ≤ -25%	9	6	4	1
-25% < GDI ≤ -10%	14	9	15	3
-10% < GDI ≤ -5%	10	6	19	4
-5% < GDI ≤ 5%	63	40	323	70
5% < GDI ≤ 10%	7	5	30	6
10% < GDI ≤ 25%	8	5	30	6
25% < GDI ≤ 50%	9	6	15	3
50% < GDI ≤ 100%	8	5	12	3
100% < GDI	18	12	16	3
Total	156	100	465	100

Notes:

1. All % values between 0 and 1 are recorded as 1 to indicate the presence of the GDI in at least one of the sample firms.

**Table 12: Cause of Materially Discrepant Key Financial Variable Graphs**

Cause	Present study 2004 <sup>1</sup> n = 94		Beattie & Jones (1992a, Table 8) 1989 <sup>1</sup> n = 240	
	No. of graphs	% <sup>2</sup>	No. of graphs	% <sup>2</sup>
Graphic distance not in direct proportion to the numerical values being represented	93	100	118	83
Non-zero vertical axis	-	-	17	12
Broken vertical axis	-	-	2	1
Non-arithmetic scale	-	-	6	4
Negative value truncated	-	-	1	1
No scales stated	38	41	-	-
The individual values represented by the graphs (column /bar etc). were not stated	9	10	-	-

Notes:

1. The 2004 values exceed the total number of materially discrepant key financial graphs as some graphs suffered from more than one cause. The same may have applied to the 1989 results.
2. % calculated on the basis of the total number of materially discrepant graphs beyond the 5% level (that is 93 graphs in 2004 and 142 graphs in 1989). All % values between 0 and 1 are recorded as 1 to indicate the relevance of the cause of discrepancy in at least one key financial variable graph.