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Accounting for goodwill: an examination of factors influencing management preferences

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Abstract—This paper investigates factors that influenced the position of managements of UK-listed companies in the heated debate that surrrounded proposals for a new standard on goodwill accounting, i.e. the factors influencing whether managements preferred immediate write-off or capitalisation-based approaches. The factors investigated are derived from contracting cost theory, and include those associated with debt covenant restrictions and profit-based management schemes. They also include non-agency contracting costs. A key feature of the design is that, compared to prior research, we specify more rigorously circumstances where such contracting cost effects are, or are not, likely to be binding. In addition, the paper investigates the effects on management preferences of their beliefs about revisions in market perceptions of their companies resulting from changes in goodwill accounting. Our results support certain contracting cost-based hypotheses, but they also indicate that management beliefs about changes in market perceptions of their companies constitute a strong influence on their preferences.

1. Introduction

This paper reports the results of an investigation of factors that influenced the positions taken by managements of UK-listed companies during the heated debate surrounding proposals for a new standard on goodwill accounting. This was at a time when the UK Accounting Standards Board (ASB) had not decided upon an appropriate method and was canvassing various constituencies, including managements, on how it should proceed. One set of factors examined here to explain why managements favoured the mandating by the ASB of capitalisation or immediate write-off based approaches is based on contracting cost theory. This includes agency costs associated with debt covenants and management compensation schemes and other, non-agency, costs. Also examined are information effects deriving from managements' beliefs about the impact goodwill accounting would have on market perceptions of their companies.

Our paper adds to prior UK work on this issue by gathering information that is not publicly available about the nature of the bond covenants and management compensation schemes of large UK listed companies. Our results indicate that certain contracting cost factors, such as binding gearing-based debt covenant restrictions and applicable profit-based management compensation plans, do affect management preferences. They also show that such preferences are strongly affected by management beliefs about market perceptions. Our identification of such factors can assist policymakers in understanding what may influence management positions during future debates over other reporting standards.

The next section of the paper examines the development of goodwill accounting in the UK. Related studies are then reviewed and hypotheses developed. After describing the data and the variables used to operationalise hypothesis testing, we explain the model used. Our results and related sensitivity analyses are then discussed. Finally, a summary and conclusions are presented and implications for standard-setters discussed.

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2. The UK debate on goodwill

Accounting for goodwill has long been controversial in the UK. There is evidence that, in the absence of regulation, preparers have been divided over which approach to use. The *Survey of Published Accounts 1979* (Skerratt, 1980:158) shows that in 1976/77 38% of companies disclosing a goodwill accounting policy carried goodwill at original cost, 42% used immediate write-off to reserves and 20% capitalised and amortised it. Subsequently, the Companies Act 1981 prohibited the first of these methods. The Accounting Standards Committee's (ASC) SSAP 22 *Accounting for Goodwill* (ASC, 1984) was unusual in allowing alternative treatments: it stated that goodwill should normally be dealt with by immediate write-off direct to reserves but also permitted capitalisation and amortisation. However, the vast majority of UK companies chose immediate write-off, with the result that their reported profit figures were not adversely affected by amortisation of purchased goodwill, but their gearing (leverage) ratios were severely increased due to depletion of accounting equity. Weetman and Gray (1991) found that, for a sample of 41 UK companies in 1986, profits under UK GAAP were 10.2% higher than under US GAAP because of such goodwill accounting differences.

The often dramatic balance sheet effects of immediate write-off elicited considerable attention. Fierce debate arose over the capitalisation of intangibles such as brand names so as to ameliorate such adverse gearing effects (Barwise et al, 1989), and the possible concomitant incentives to revalue (upwards) fixed assets were also examined (Lin and Peasnell, forthcoming). Considerable argument was also generated over how goodwill itself should be accounted for (see, for example, Arnold et al; 1992). In particular, concerns were aired that the SSAP 22 position was at variance with the international norm of capitalisation and amortisation. Arguments were advanced for capitalisation, predicated, for example, on the desirability of international harmonisation and concerns that immediate write-off against reserves might give British companies an advantage in making international take-over bids (Choi and Lee, 1991; ASB, 1997). The fact that UK managements had discretion in choosing their companies' goodwill accounting treatment was also a cause for great concern.

Proposals by the ASC (Exposure Drafts 47 and 52: ASC, 1990a, 1990b) to impose capitalisation and amortisation of goodwill and other intangibles met with overwhelming opposition: 93% of corporate submissions and 73% of all submissions were against the goodwill proposals (ASB, 1993:12). In December 1993, the ASB, admitting it could not achieve agreement among its board members on this topic, issued a Discussion Paper (DP) *Goodwill and Other Intangibles* (ASB, 1993), outlining six alternatives for accounting for goodwill, three involving capitalisation and amortisation, and three immediate write-off.[1] The DP indicated that the ASB wished to adopt a single approach to goodwill accounting.

As as result of responses to the DP, the ASB issued a Working Paper (WP), *Goodwill and Intangible Assets* (ASB, 1995). This generally supported capitalisation and predetermined life amortisation, with impairment tests for goodwill or intangibles 'believed to have indefinitely long lives'. The ASB made a 'tentative conclusion' that goodwill should be shown as an asset, but still allowed the possibility that it would be shown as a separately disclosed deduction from reserves. After public hearings in September 1995, the ASB issued FRED 12 in June 1996 and the FRS 10 in December 1997 (ASB, 1996, 1997). Both required capitalisation of goodwill and other intangibles, with amortisation over their useful economic lives where these are regarded as of limited duration. These documents, like the WP, included a rebuttable presumption that such lives will not exceed 20 years. However, where goodwill or intangibles are regarded as having an indefinite life and are capable of continued measurement, they are not to be amortised, but are to be written down only if necessary, using annual impairment tests as a way of recognising the loss of value.

This paper focuses specifically on the goodwill accounting aspects of the debate and, in particular, on the period between the ASB's 1993 Discussion Paper and its 1995 Working Paper proposals, a time of uncertainty over which course of action the ASB would take. The inclusion by the ASB in the DP of both immediate write-off and capitalisation options provides the opportunity to study the preferences of UK-listed companies for the accounting treatment to be adopted in the future standard and also the factors that were driving their preferences.

3. Development of hypotheses

Studies examining the factors influencing accounting choice have been difficult to carry out in the UK due to limitations on data availability. Our work builds on earlier UK studies that examined contracting and other explanations for accounting choice decisions. Mather and Peasnell (1991), for example, studied the decision in 1988 by major

[1]The six alternatives were:
i. capitalisation with predetermined life amortisation.
ii. capitalisation subject only to impairment tests.
iii. a combination of capitalisation approaches i and ii.
iv. immediate write-off direct to unspecified reserves.
v. immediate write-off to a separate reserve.
vi. combination of immediate write-off to reserves with impairment tests.

British companies to capitalise brands. They found that capitalisation was associated with high leverage and the implications of Stock Exchange Class 1 transactions (discussed later). Grinyer et al. (1991) examined factors that influenced the proportion of a company's purchase price assigned to net tangible assets and therefore to goodwill. They found that a contracting cost-related variable, the post-acquisition gearing ratio, influenced this decision. However, such British studies have been hampered by the lack of publicly available information about many of the variables widely assumed to drive accounting choices, e.g. company debt covenant restrictions and profit-based management compensation plans. To overcome this problem we collect data by survey and use them in conjunction with published financial data.

Other UK studies have examined the form of restrictions in UK debt covenants, relevant here in our measurement of contracting cost variables. Citron (1992a) examined 25 UK bank loan contracts and found that the great majority were based on rolling (extant) GAAP, and all were based on consolidated amounts. Non-GAAP approaches were adopted in net worth covenant restrictions relating to some intangibles and to goodwill, but apparently not in the gearing- or profit-based restrictions that we use in our study. Earlier, Citron (1992b) had found by survey that bankers claimed they would be understanding in dealing with technical breaches caused by changes in GAAP, and that costs imposed on borrowers resulting from such breaches are therefore likely to be smaller than for other breaches.

Citron (1995) found in 108 UK public debt issues (over an earlier period than our study) that, unlike US public debt agreements, UK accounting-based covenants are mainly affirmative, i.e. applying at all times while the debt is outstanding. He conjectured (p. 148) that such covenants potentially influence managements' accounting policy choices more than where covenants only become operational at the time of specified actions such as raising new debt. Day and Taylor, in similarly orientated research, interviewed 18 officials from financial institutions (Day and Taylor, 1995), 44 corporate treasurers from major UK companies (Day and Taylor, 1996) and examined a sample of loan agreements. They reported (Day and Taylor, 1994) that gearing and interest cover, used in our paper, were two of the main accounting variables used in bank loan covenants in the UK. Studies, summarised in Leuz et al. (1998), found that dividend based covenants were not widely used in the UK.[2]

We now set out the hypotheses to be tested.

3.1. Contracting cost hypotheses

We use costly contracting theory to identify factors, which include both agency and non-agency costs, expected to underlie management preferences for particular accounting treatments of goodwill (Watts and Zimmerman, 1990: 134-5).

3.1.1. Agency contracting costs

The paper focuses on three primary agency relationships discussed in the literature, between 1) management and shareholders, 2) shareholders/managers and debtholders, and 3) the company and outside regulators ('political costs'), and frames hypotheses in terms of the standard variables used to measure 'opportunistic' management behaviour (Watts and Zimmerman, 1990: 138-140).

Based on such a framework, we would predict company preferences for goodwill accounting to take the following forms:

- Where there are management compensation schemes based on accounting profits[3], influenced by the effects of goodwill accounting, there will be a preference for methods not impacting adversely on reported profit, i.e. immediate write-off to reserves methods. We therefore predict a negative association between capitalisation-based approaches and the existence of such compensation plans.
- Where a company has debt covenant restrictions based on balance sheet ratios such as gearing, we hypothesise a positive association between capitalisation-based preferences and the presence of such restrictions. However, if debt covenant re-

[2]Other non-accounting policy choice research on goodwill, based on US data, has focussed on the relationship between the amount of reported goodwill in that country and the market capitalisation of equity. For example, Chauvin and Hirschey (1994), using a simultaneous equations approach, examined interrelationships between goodwill, net income and market capitalisation. McCarthy and Schneider (1995) also examined the relationship between equity market capitalisation and goodwill, including income-based explanatory variables within an Ohlson-type framework (Ohlson, 1995). They concluded that, for US firms, the market does seem to treat acounting goodwill as a value component. Jennings et al. (1996) report a strong cross-sectional association between equity values and recorded goodwill balances for US firms, but only a weak negative relationship between goodwill amortisation and equity values. Barth and Clinch (1996) examine the effects of international accounting differences and their effects on share prices. Their US findings are consistent with the above studies and they find that for UK companies share prices seem to act as if goodwill were an asset, but with a lower coefficient than other assets.

[3]In our questionnaire we asked about the existence of *accounting profit*-based management compensation plans and *accounting*-based debt covenant restrictions, in the full knowlege that such contracts also contain a wide range of other non-accounting indicators (e.g. see Smith and Warner, 1979 and Citron, 1992b and 1995). We make the assumption that other contracting provisions do not mask such first order effects in our study. We also specifically adduced information about the treatment of goodwill in such contracts. Unfortunately, as in many other studies, we are not able to examine the upper and lower bounds of management compensation contracts discussed by Healy (1985).

strictions are based on income statement-based ratios, companies will prefer methods that do not reduce profits, i.e., immediate write-off to reserves methods. Thus we hypothesise a negative association between capitalisation-based preferences and the presence of interest cover-based restrictions.

- In politicially visible companies, we use size to proxy for political costs (Watts and Zimmerman, 1990: 139) and hypothesise that capitalisation-based approaches would be preferred by large companies since they reduce reported profit compared to immediate write-off ones (i.e., a positive association between capitalisation-based approaches and size). Size variables are ambiguous to interpret, and can be characterised as control variables. We also employ a dummy variable in our models to assess effects unique to utilities, which are more heavily regulated; however, as regulation is complex, we do not predict the direction of this relationship.

We predict that company preferences would only be affected where such accounting-based management compensation contracts and debt covenant restrictions are near contract limits ('binding') and based on accounting numbers calculated using rolling GAAP; no effect is predicted if they are based on UK GAAP 'fixed' at the time the agreement was signed.

3.1.2. Non-agency contracting costs

These take many forms, for example transaction costs (e.g. brokerage costs), renegotiation costs and other differential costs. We examine two potentially differential costs incurred by UK-incorporated listed companies: whether companies have a US quote and whether they have had to consider a (UK) Stock Exchange Class 1 transaction. Since US GAAP requires capitalisation and amortisation, companies having a US quote already have to produce accounts on this basis (or a reconciliation between US GAAP and their accounts produced under UK GAAP) regardless of the method that they choose for UK reporting purposes. If the ASB required capitalisation, such companies would incur fewer extra compliance costs than companies not quoted in the US. We would thus predict a positive association between preference for capitalisation-based approaches and having a US quote.

Listed companies incur transaction costs, such as obtaining shareholder approval or preparing and circulating certain prospectus-type information, if they engage as bidders in take-over deals classified by the Stock Exchange as Class 1 transactions. In periods leading up to the study, Class 1 status was attributed to a take over deal if the fair value of the assets being acquired (or disposed of) exceeded the book value of the acquiring (disposing) company by 15% or more (Yellow Book, Section 6). Furthermore, the book value of the acquiring company included goodwill as an asset only if capitalisation was the accounting policy used in its financial statements. We would thus predict that companies planning takeover bids which had to consider Class 1 transactions would prefer capitalisation of goodwill so as to increase their book value relative to the fair value of (probably less acquisitive) target companies and thus minimise the chance of such transactions falling within the relevant Class 1 criteria, i.e. a positive association between a preference for capitalisation and the fact that the company has needed to consider Class 1 transactions in planning bids.

3.2. Information effect ('IE') hypotheses

As noted earlier, many of the concerns about possible changes to goodwill accounting requirements in the practitioner-orientated accounting literature seem to be directly related to balance sheet and income statement impacts of goodwill accounting (e.g. Pearce, 1994). To test such alternative explanations for company preferences, we examine whether such preferences are influenced by finance directors' beliefs about how analysts will interpret any change in reported ratios and profits, particularly if they have naïve beliefs about how analysts will react. For example, would companies have a preference for the ASB to choose capitalisation-based alternatives if they believed that analysts would treat increased gearing as a sign of increased riskiness? Also, would they prefer immediate write-off methods if they believed that reduced reported profits resulting from goodwill amortisation would cause analysts to downgrade their assessment of the company?

The existence of a strong relationship between corporate management preferences and their beliefs about how analysts will react could be interpreted as suggestive of a naïve view of how the market operates—see for example the discussion in Collinson et al. (1993). Sometimes, however, there may be more complex linkages between beliefs and preferences (O'Keefe and Soloman, 1985). For example, suppose companies preferred the ASB to choose immediate write-off as the sole approach and expressed the belief that analysts consider that the immediate write-off of goodwill gives UK firms an international competitive advantage. Such a belief could stem from finance directors having a naïve view of the effects of accounting numbers and how analysts interpret them, and preferring immediate write-off because of higher reported profits under that approach. On the other hand, it could be that they believe that such competitive advantage arises because of the differences in profit-based management compen-

sation in different countries owing to the different reported profit figures (Lee and Choi, 1992).

We also examine a number of possible other, information effect (IE)-related, beliefs. We hypothesise a positive association between the preference for capitalisation-based approaches and finance directors' beliefs that:

- capitalising goodwill would enable analysts and other users better to assess their group size relative to other groups than not doing so;
- analysts would consider the company less risky if goodwill were capitalised and gearing ratios consequently improved;
- the increased gearing ratios caused by immediate write-off compared to capitalisation and amortisation has a negative effect on the way that analysts perceive the company;
- immediate write-off distorts the inferences that analysts draw in making comparisons between companies that have grown by acquisition and those that have grown by internal growth.

We hypothesise a negative association between the preference for capitalisation-based approaches where finance directors believed that:

- analysts would downgrade their rating if their profits were lower due to enforced goodwill amortisation;
- that the widely used UK practice of immediate write-off to reserves, which results in no profit and loss account charge, gives UK companies an international competitive advantage compared to similar non-UK companies.

4. Sample, data and variables

4.1. Data sources and sample selection

Two main data sources were used for our study: Extel's Company Research CD-ROM database and the results of a postal questionnaire survey. We utilised the former to compile a dataset giving 1994 year-end financial statement information that enabled the calculation of variables such as gearing levels and interest cover. The survey provided company data relating to contracting cost hypotheses, such as the existence and nature of debt covenant restrictions and senior management profit-based compensation contracts. Certain interaction variables, discussed later, make use of both sources.

In the survey, we asked for and obtained specific and detailed information on how goodwill was explicitly or implicitly treated in contracts—whether its treatment was based on UK GAAP, another form of GAAP or a non-GAAP basis, and for GAAP treatments, whether they were based on rolling (extant) or frozen (fixed at the time of the covenant) GAAP. As far as we are aware, this survey, sent out in December 1994, was the first of this type to be sent to all large UK listed companies. This information constitutes the only data source on the treatment of goodwill in debt covenant restrictions and management compensation contracts extensive enough for our purposes. Compared to previous UK studies (e.g., Citron, 1992a, 1995; Day and Taylor, 1995, 1996), based on smaller samples, we identified a smaller proportion of companies having non-GAAP goodwill accounting methods specified in their contracts.

Standard survey design procedures, including pre-testing, feedback meetings, and a pilot survey were utilised. To reduce response bias due to lack of knowledge of the proposals, we sent with the survey instrument a one-page summary of the ASB's Discussion Paper on goodwill accounting. We also asked about prior familiarity with the proposals and included control questions to check answer consistency. Our sampling frame comprised finance directors of those UK-incorporated companies within *The Times 1000* (1994 edition) having a stock market listing. Of the 502 such companies, 21 were used for the pilot study and 481 companies in the main survey. *Prima facie* these companies were more likely than others to be involved in take-over activity and hence have material levels of goodwill, to have formalised debt covenants and management compensation schemes, and to have an active interest in new accounting proposals. The survey instrument was mailed early in December 1994, with a second request four weeks later.[4]

The overall response rate of 58.4% (281 companies) is high for this type of survey, as is the usable response rate of 44.1% (212 companies). Analysis of the 69 unusable responses reveals no systematic biasing factors: 52% of these stated that it was company policy not to take part in surveys, 16% did not wish to take part in this particular survey, 13% cited time pressures, and the remaining 19% comprised a variety of other reasons. Respondent companies were from a broad spread of business sectors, as shown in Table 1. A Z-test showed that in 14 out of the 15 industry categories there was no significant difference between the proportion of companies responding and the proportion in the population.

Further, to assess response bias we compared respondents and non-respondents by industry grouping, gearing ratio, interest cover ratio, total assets and turnover. Kruskal-Wallis and Mann-Whitney tests showed no significant difference between the two groups. We also compared responses to first and second mailings using Chi-squared and Mann-Whitney tests. These showed that differences in responses between the groups were in line with what might be expected by chance. Financial statement characteristics, in

[4]A copy of the survey instrument is available from the authors on request.

Table 1
Industry profile of sample and overall sampling frame

	Respondents		*Total UK-incorporated listed companies in Times 1000*	
Industry	*Number*	*%*	*Number*	*%*
Engineering	42	19.8	84	16.7
Consumer goods	24	11.3	71	14.1
Light industrial	23	10.9	66	13.1
Building materials and construction	23	10.9	55	11.0
Leisure	19	9.0	52	10.4
Chemicals, metals and other materials	22	10.4	43	8.6
Agriculture and food	19	9.0	26	5.2
Utilities	12	5.7	25	5.0
Transport services	9	4.2	21	4.2
Oils, gas, mines and nuclear	6	2.8	12	2.4
Business services	3	1.4	11	2.2
Financial	4	1.9	7	1.4
Communications	2	0.9	4	0.8
Property	1	0.5	4	0.8
Miscellaneous	3	1.4	21	4.2
Total	**212**	**100.0**	**502**	**100.0**

Based on *The Times 1000* (1994 Edition), Times Books 1994.

terms of quartiles, of respondents and of the sampling frame as a whole are shown in Table 2.

Of individual respondents, 52% were financial directors, 23% financial controllers and 23% other accountants or managers: only 2% were comparatively junior or undeclared. Results of tests with and without such junior or undeclared respondents are very similar: those reported include this last group. All respondents were either professionally qualified and/or had an extensive background in accounting.

We are confident that preferences expressed to us reflect a corporate rather than a personal view. The questionnaire objectives made clear that we sought 'the views and preferences of large companies...'. We deliberately targeted finance directors and financial controllers so that responses would reflect appropriate seniority and decision-making power. Our analysis of respondents illustrates that our targeting strategy was successful.

5. The model and variables used

Because of the non-normality of the explanatory variables and the binary nature of the dependent variable, PREF, we used logistic regression to

Table 2
Characteristics of respondents and sampling frame

Characteristic	*Total (usable) respondents (212) Quartiles*			*Total UK Listed companies in The Times 1000 (502) Quartiles*		
In £m	*25%*	*50%*	*75%*	*25%*	*50%*	*75%*
Sales	152.08	327.95	1,258.58	149.42	316.57	1,102.41
Total assets	110.59	285.77	1,134.70	111.63	275.64	999.45
Profit before interest and tax	5.83	22.23	92.33	6.13	20.09	75.85
Gearing	17.46%	31.07%	48.59%	16.64%	29.18%	45.38%
Interest cover	3.28	6.17	12.27	3.35	6.56	12.95

Source: Extel Company Research 1994 data.

Table 3
Description of variables used in logistic regression model

Variable	*Description*
PREF	= 1 if company expresses a first preference for the ASB to adopt capitalisation of goodwill, and = 0 if preference is for immediate write-off.
GEAR	High gearing dummy = 1 if gearing level > upper quartile gearing of sampling frame companies. The gearing ratio is calculated from Extel definitions as (Total borrowings+Preference capital)/(Total borrowings+Preference capital+Ordinary capital+Reserves+Minorities − Intangibles), winsorised at 100%. The Extel definition uses the immediate write-off basis for measuring gearing. This is justified in this study on the assumption that lenders assess the relative tightness of debt covenant restrictions between companies by using a common UK comparative framework, and only then do they reformulate such restrictions in terms of the actual goodwill accounting approach used by the company
GEARI(1)	High gearing × Restriction. Restriction dummy = 1 if company has gearing-based debt covenant restriction[1]
GEARI(2)	High gearing × Restriction × Rolling GAAP. Rolling GAAP dummy = 1 if company has a rolling GAAP restriction[2]
INTCOV	Low Interest cover = 1 if < lower quartile interest cover of sampling frame companies. Interest cover ratio defined as (Profit before interest and taxation/Interest charge), winsorised at 50 times
INTCOVI(1)	Low Interest cover × Restriction. Restriction dummy = 1 if company has interest cover-based debt covenant restriction[1]
INTCOVI(2)	Low Interest cover × Restriction × Rolling GAAP. Rolling GAAP dummy = 1 if company has a rolling GAAP restriction[2]
MCOMP	= 1 if profit-based management compensation scheme exists[1]
MCOMPI	Profit-based management compensation scheme × Rolling GAAP. Rolling GAAP dummy = 1 if company compensation scheme has a rolling GAAP restriction[2]
USQ	= 1 if US quote[1]
CL1	= 1 if company needed to consider the implications of London Stock Exchange Class 1 transactions in the previous five years[1]
UTIL	= 1 if company is in utilities sector
LOGSALES	Natural logarithm of sales
BSZ	= 1 if company felt that capitalising goodwill would enable analysts and other users better to assess their group size relative to other groups[1]
DRATE	= 1 if company felt that analysts would downgrade their rating if their profits were lower due to enforced goodwill amortisation[1]
LRISK	= 1 if company felt that analysts would consider the company less risky if goodwill were capitalised and gearing ratios consequently improved[1]
INTCADV	= 1 if company felt that the UK practice of immediate write-off to reserves, resulting in no profit and loss account charge, gives UK companies an international competitive advantage over similar US companies[1]
WGEAR	= 1 if company felt that the increased gearing ratios caused by immediate write-off compared to capitalise and amortise has a negative effect on the way that analysts would perceive the company[1]
DCOMP	= 1 if company felt that immediate write-off distorts analysts' inferences when making comparisons between companies that have grown by acquisition and those that have grown by internal growth[1]
IND_i	Eight industry categories based on the London Business School database

[1]Established by survey question. The information effect variables included an 'unsure' category, which was included in our tests, but not reported in Table 5 to preserve clarity of presentation.
[2]We established through the questionnaire that the relevant debt covenant included goodwill in the restriction calculation and did not contain a special treatment for goodwill.

evaluate the validity of our hypotheses. PREF takes the value of one if management's first preference is for capitalisation-based approaches (61 respondents) and zero for immediate write-off approaches (151 respondents).[5] Our model contained both contracting cost variables and information effect (IE) variables.

$$PREF = \beta_0 + \beta_1\ GEAR + \beta_2\ GEARI(1) + \beta_3\ GEARI(2) + \beta_4\ INTCOV + \beta_5\ INTCOVI(1) + \beta_6\ INTCOVI(2) + \beta_7\ MCOMP + \beta_8\ MCOMPI + \beta_9\ USQ + \beta_{10}\ CL1 + \beta_{11}\ UTIL + \beta_{12}\ LOGSALES + \beta_{13}\ BSZ + \beta_{14}\ DRATE + \beta_{15}\ LRISK + \beta_{16}\ INTCADV + \beta_{17}\ WGEAR + \beta_{18}\ DCOMP + \Sigma\ \beta_i\ IND_i$$

The variables are described in Table 3. In testing the contracting cost issues discussed above we use a model based on categorical variables. In this model, main effect variables include the existence of profit-based management compensation plans (MCOMP); and debt covenant restrictions (for which we used one type of balance sheet restriction, gearing level (GEAR), which takes the value one for high-geared firms and zero otherwise, and one income statement-based restriction, interest-cover (INTCOV), which takes the value one for low interest cover firms and zero otherwise); the presence of a US quote (USQ); the active consideration of Class 1 Transactions (CL1); whether or not the company is a utility (UTIL); and size (LOGSALES). The variables used to test the information effect hypotheses directly relate to the hypotheses outlined earlier and so are not discussed further here.[6]

The earliest studies on contracting costs and accounting choice used only continuous main effect explanatory variables, such as gearing and interest cover ratios, to measure the effects of debt covenant restrictions. Such an approximation for measuring 'binding' restrictions was criticised as being inexact (Duke and Hunt, 1990; Press and Weintrop, 1990). Later studies used simple interaction effects to refine measurement, by measuring the effects of gearing or interest cover designated 'high' or 'low' relative to medians (e.g. Ayres, 1986; Dunne, 1990). Our study contains further refinements: we use quartiles to reflect more plausibly the point at which gearing and interest cover restrictions become binding, and categorical variables to challenge the assumption implicit in the continuous model that the degree of 'bindingness' (and therefore the consequences of breakage of debt covenant restrictions) increases in a linear fashion beyond the upper or lower quartile point. We argue that it is more reasonable to assume that debt covenant restrictions only become binding beyond a particular point and not before (though we find similar results, discussed later, when continuous variables are used). In addition, we focus on higher level interaction terms to target more exactly firms having binding restrictions of the relevant type, i.e. based on rolling GAAP (Mohrman, 1996).

Our hypotheses and modelling are thus based on interaction and not main effect terms. For example, GEAR, with its coefficient, β_1, is the incremental effect in log-odds ratio terms of high-geared firms over low-geared firms. GEARI(2), the highest level interaction variable, with coefficient β_3, can be interpreted as the incremental effect of the simultaneous presence of high gearing and rolling GAAP debt covenant restrictions over merely the presence of high gearing and debt covenant restrictions which are *not* based on rolling GAAP. Thus, $\beta_1+\beta_2+\beta_3$ measures the contracting cost effect for high geared firms with gearing restrictions based on rolling GAAP. $\beta_1+\beta_2$ measures the effect for the remaining highly geared firms with gearing restrictions, but not based on rolling GAAP. β_1 measures the effect for the rest of the firms which are high geared but do not have gearing debt covenant restrictions. We do not model all possible main effects and interaction terms, for example measuring the existence of a debt covenant restriction per se, as we are only interested in incremental effects relating to gearing.

Our main contracting cost hypotheses relate only to highest-level interaction terms such as GEARI(2), where we predict that β_3 will be significant and positive, i.e. a positive association between management preference for capitalisation-based approaches and gearing level for high geared companies (above the top quartile) where there is *also* a rolling-GAAP debt covenant restriction. If any of these conditions were not met, for example if GAAP were non-rolling, contracting cost theory would not predict any particular association. Similarly we predict that the coefficient of INTCOVI(2) will be negative, i.e. the incremental interest cover effect for companies with binding interest cover restrictions, having rolling GAAP-based interest cover restrictions and with interest cover below the bottom quartile. We also hypoth-

[5]The former are alternatives i, ii, and iii in the ASB's 1993 DP, as detailed in footnote 1, and the latter alternatives iv, v and vi. Alternative specifications were also tested: see Section 6.

[6]Many of the survey questions upon which our variables are based allowed responses of 'yes', 'no' or 'unsure'. The 'unsure' category was included in our tests for information effect variables. While this reduces the power of the tests somewhat and therefore makes our results conservative, it avoids artificially constraining the responses. We only report results for 'yes' versus 'no' in our tables because reporting the 'unsure' results would overload with detail an already complicated presentation, and we do not have formal hypotheses for the comparisons with 'unsure'. (As might be expected though, the results for 'yes' versus 'unsure' were generally in a similar direction to those for 'yes' versus 'no' but showed less significance.) We did not include an 'unsure' category for the contracting variables because to do so would have exponentially increased model complexity. There were also fewer such answers.

esise that only where there are rolling GAAP-based profit-based management compensation plans will this influence management preferences, so we predict that β_8 the regression coefficient of MCOMPI, will be negative.

Our use of non-interaction (GEAR, INTCOV and MCOMP) and lower level interaction variables (e.g. GEAR (1)) is merely to proxy for omitted variables. We also use industry to control for omitted variables correlated with industry effects, e.g. capital intensity and differential financing regimes.

A correlation matrix for the main effect variables is shown in Table 4. A number of significant correlations are apparent but the following points may be made. The correlation between interest cover and gearing level is dealt with in our sensitivity analyses where we fit models with each individually. As might be expected, industry classification (which includes utilities) is correlated with two contracting cost variables. This may lead to some understatement of the strength of our results, and thus they should be seen as conservative. LOGSALES is correlated with our transaction cost variables. We hypothesise that they operate in the same direction, and so would not expect the effect of each to mask the others. We specifically address correlations between contracting cost and information effect variables by also fitting separate models for each category of variables (see Section 6). The correlation between some of the information effect variables is significant, but this does not prevent many of these variables proving individually significant in the tests reported later, though the level of significance of individual variables may therefore again be understated.

6. Results

The main results are shown in Table 5. The model has very good overall explanatory power as shown by its log-likelihood ratio (model chi-square), overall fit and goodness-of-fit statistic. Individual variables act generally in the directions hypothesised and a number of them are highly significant.

Results for individual variables provide considerable support for contracting-cost effects. Binding highest level interaction gearing and management compensation contracting effects are in the directions hypothesised, GEARI(2) being positive and MCOMPI negative, and are highly significant. The binding interest cover contracting effect, INTCOVI(2) is not significant, although its sign is as predicted. Other, non-agency, contracting variables are of the hypothesised sign, except the consideration of Class 1 transactions, CL1, which has the opposite sign to that predicted, but none are significant.[7] Certain control variables are significant (INTCOV) or marginally significant (INTCOVI(1) and MCOMP).

Four IE variables are also significant at the 5% level or better, and five have the predicted sign. BSZ, the belief that capitalisation and amortisation would enable analysts better to assess the size of the company, is very highly significant. Significant at the 5% level are DRATE, the belief that capitalisation and amortisation leads to analysts down-rating the company, INTCADV, the belief that the practice of immediate write-off to reserves gives UK companies an international competitive advantage, and DCOMP, the belief that the method of goodwill accounting distorts comparisons between companies that have grown by acquisition and those which have grown by internal means.

Sensitivity analysis included fitting a model where gearing and interest cover levels were measured as continuous variables consistent, as discussed earlier, with previous studies: other sensitivity analyses on the model were conducted as follows:

i) Measuring the tightness of debt covenant restrictions both in terms of population medians and industry quartiles.[8]

ii) Fitting models with debt covenant restrictions based on gearing variables only, and then with interest cover variables only.

iii) Fitting models based on contracting variables only and information effect variables only, for each of the sensitivity runs in i) and ii).

v) Restricting contracting and information effect only models to the same cases as the main model.

iv) Remeasuring the dependent variable PREF using different groupings of the six goodwill accounting alternatives given in the ASB's 1993 DP.[9]

[7]One reviewer has pointed out that our results for the US-quote variable, USQ, may have been contaminated to a certain extent by our survey questions not distinguishing between a full US quotation and where company securities are traded as American Depository Receipts. With hindsight it would have been better to distinguish these. We address this ambiguity by instead re-running the model using a variable based on another survey question, whether the company produces a reconciliation to US GAAP, such as the SEC form 20-F. This use of the redefined variable produces a similar result to that reported, indicating that not distinguishing between the two types of US listing is unlikely to have affected the results.

[8]This was to capture any tendency for lenders to set the values of individual covenants to industry levels (even though they would also recognise individual company circumstances as well). This also addresses industry-specific accounting effects.

[9]The six alternatives are given in footnote 1. Differentiating capitalisation (alternatives i, ii and iii) and immediate write-off approaches (alternatives iv, v and vi), as in our main tests, is undeniably best for capturing balance sheet effects. It also captures income statement effects to a large extent, since alternatives i, ii and iii all have income statement effects. However, case vi also has some income statement effect. Therefore the second specification used differentiated alternatives i, ii, iii and vi from alternatives iv and v (which have no income statement

Table 4
Correlation matrix of base variables: Spearman rank correlations

Variable	GEAR	INTCOV	MCOMP	USQ	CL1	IND	LOGSALES	BSZ	DRATE	LRISK	INTCADV	WGEAR
GEAR												
INTCOV	0.273***											
MCOMP	0.091	0.041										
USQ	(0.124)*	(0.029)	0.016									
CL1	(0.113)	0.048	(0.097)	(0.008)								
IND	(0.092)	0.036	(0.128)*	(0.093)	0.131*							
LOGSALES	0.176**	(0.138)**	(0.057)	(0.359)***	(0.116)*	0.123*						
BSZ	0.009	0.018	0.004	(0.082)	(0.057)	0.160**	(0.044)					
DRATE	0.100	0.003	0.070	0.006	0.010	(0.079)	(0.196)***	0.071				
LRISK	0.131*	0.037	0.028	0.006	(0.099)	0.062	(0.103)	0.345***	0.297***			
INTCADV	0.054	0.063	0.064	(0.057)	(0.050)	0.047	0.028	0.111	0.171**	0.054		
WGEAR	0.092	0.124*	(0.054)	(0.093)	(0.110)	0.072	(0.142)**	0.225***	0.255***	0.416***	0.058	
DCOMP	(0.035)	0.059	(0.009)	0.091	(0.063)	0.070	(0.099)	0.287***	0.119*	0.311***	0.169**	0.446***

* significant at 10% level
** significant at 5% level
***significant at 1% level
Bracketed figures are negative correlations

Table 5
Results of logistic regression of company preference for desired ASB goodwill treatment (1 = capitalisation, 0 = immediate write-off) against contracting and information effect variables

Model:
$PREF = \beta_0 + \beta_1\ GEAR + \beta_2\ GEARI(1) + \beta_3\ GEARI(2) + \beta_4\ INTCOV + \beta_5\ INTCOVI(1) + \beta_6\ INTCOVI(2) + \beta_7\ MCOMP + \beta_8\ MCOMPI + \beta_9\ USQ + \beta_{10}\ CL1 + \beta_{11}\ UTIL + \beta_{12}\ LOGSALES + \beta_{13}\ BSZ + \beta_{14}\ DRATE + \beta_{15}\ LRISK + \beta_{16}\ INTCADV + \beta_{17}\ WGEAR + \beta_{18}\ DCOMP + \Sigma\ \beta_i\ IND_i$

Variable name	*Hypothesised coefficient sign*	*Coefficient*	*Significance level*
Intercept		−5.734	(0.525)
GEAR		−2.760	(0.571)
GEARI(1)		−0.104	(0.984)
GEARI(2)		8.375	(0.003)***
INTCOV		3.926	(0.028)**
INTCOVI(1)		−4.057	(0.065)*
INTCOVI(2)	−	−0.009	(0.499)
MCOMP		2.746	(0.086)*
MCOMPI	−	−4.445	(0.010)***
USQ	+	0.976	(0.286)
CL1	+	−0.786	(0.212)
UTIL		−2.423	(0.391)
LOGSALES	+	0.224	(0.292)
BSZ	+	7.158	(0.000)***
DRATE	−	−2.461	(0.037)**
LRISK	+	1.970	(0.150)
INTCADV	−	−2.200	(0.025)**
WGEAR	+	−1.965	(0.101)
DCOMP	+	1.729	(0.050)**
IND		all neg	(0.456)
No. of cases		148	
Overall fit (% of correct classifications)		92.57%	
Model χ^2		111.605	(0.000)***
df		29	
Goodness-of-fit		83.394	

Figures provided for each variable are the regression coefficient and the p value (*significant at 10% level, **significant at 5% level, ***significant at 1% level). Where hypothesised coefficient signs are given, the p value for such directional hypothesis is for one-tailed test: otherwise tests are two-tailed.

Variations in the results of the analyses are greatly outweighed by their common features. The effect of measuring gearing and interest cover as continuous variables hardly changes the overall model fit. Contracting cost effects in this model are very similar to the main model, except that the management compensation variable is significant at the 5% rather than the 1% level. IE effect variables in the continuous model are more highly significant than contracting cost variables.

In nearly all the sensitivity analyses the binding rolling GAAP gearing restriction variable is highly significant in the hypothesised direction, while the binding rolling GAAP management compensation variable has the predicted sign in all sensitivity tests and is significant at the 5% level in the great majority of runs. The binding rolling GAAP interest cover variable is rarely significant. Although as expected, the explanatory power of the median-based model is lower, it is one of only two to indicate any statistical significance for this variable. It also shows lower significance for some information effect variables, but BSZ retains its pre-eminence. In the industry-based quartile model, the binding rolling GAAP gearing restriction variable is less significant than in all the other runs.

When interest cover variables are run without gearing variables, the model χ^2 falls, which confirms our impression that management preferences were not greatly driven by interest cover contract-

effect). An even better specification of major income statement effects might have been to differentiate alternatives ii and iii from the rest, but the smaller number of cases in these categories results in a loss of test power. To the extent that there is any mis-specification, our results for variables defined in income statement terms will be too conservative.

ing cost variables. Whether a company is in the utilities sector is generally not significant, giving only very weak support to the political costs hypothesis. Contracting cost-only models have less explanatory power than information effects only models, and tend not to have a significant fit, whereas the latter are all highly significant. Shifts in coefficients between partial models and the main model suggest, as might be expected, omitted variables.

Restricting the overall models to the same cases produces no major changes. Changing the definitional groupings for the dependent variable results in lower significance for the binding rolling GAAP gearing variable and higher significance for the rolling GAAP management compensation variable, as might be expected, while the main information effect variables continued to be significant.

The overall results of the sensitivity analysis therefore suggest a high level of robustness of the model to alternative specifications.

7. Summary and conclusions

Our study examines empirically factors influencing UK corporate managements' preferences for goodwill accounting. In so doing, it utilises the window of opportunity that arose in 1994 when the UK Accounting Standards Board was undecided on the issue and was canvassing constituents on how it should proceed towards the development of a standard. The study is novel in that it combines financial data derived from a commercial database with survey data to specify contracting cost hypotheses more precisely than in previous studies. We use interaction variables more exactly to specify binding factors likely to influence management. Our study is also novel in examining non-contracting factors reflecting management's beliefs about market perceptions of their companies.

Our results indicate that management's preferences for accounting for goodwill were influenced by factors consistent with a contracting cost framework. Both binding gearing-based debt covenant restrictions and profit-based management compensation schemes were found to be significant in the direction hypothesised, but interest cover-based covenant restrictions much less so.

In addition, our results show that corporate managements' goodwill accounting preferences are also influenced to a great extent by their beliefs about how the stock market (represented by financial analysts) would respond to the financial statement impact of changes in standards. The most significant IE variables relate to management's belief that capitalisation of goodwill would allow analysts better to assess the size of their company; that analysts would downgrade their rating if their company's profits were lower due to enforced goodwill amortisation; that immediate write-off methods gives UK companies an advantage in international take-over contests; and that immediate write-off causes difficulties for analysts when compairing companies that grew organically and those that grew by acquisition. However, the impacts of these last three are not as strong as that relating to beliefs about the assessment of size. This particular variable could be interpreted in a number of ways:

- in terms of managements having 'omitted asset' concerns, believing that the absence of goodwill from their balance sheet gives a false view of the company and possibly that it is 'better' accounting to include it;
- in functional fixation terms, that management wished the company to be seen as a larger company; or
- in 'market' terms, that management intuited what has been found in US empirical studies (see footnote 2) that there is correlation between reported balance sheet goodwill and market values.

Overall, our sensitivity analyses indicate that our results are robust to differing model specifications.

Two of the novel features of our study are showing the importance of utilising high-level interaction terms in modelling contracting cost variables, and of defining bindingness more rigorously, e.g. using quartiles rather than medians. We feel that a similar approach could also usefully be applied to similar empirical studies in other areas of accounting. Further research is needed on a number of issues: into modelling more explicitly the costs of covenant breaches, the relative magnitudes of different types of contracting costs, and on gaining a better understanding of the sources and development of management beliefs.

Our work also has policy implications. It indicates that the ASB needs to take account of potential contracting costs imposed on companies by changes in accounting standards. The Board should also be sensitive to managements' concerns about how such changes will affect the way that the market perceives their companies. Failure sufficiently to appreciate the perceived importance of both issues may result in unwelcome adverse reaction to proposed changes and lobbying against them. The factors we find driving preparers' thinking are relevant as a starting point for its deliberations on future accounting issues.

In arriving at these conclusions, the usual caveats about using survey data should be noted, though such an approach was the only way to collect important non-publicly available data.

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