RESEARCH PAPER

The Choice of Accounting Method in UK Mergers And Acquisitions

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SUMMARY

This paper investigates the choice of accounting method in a sample of 373 combinations between UK quoted companies during the period 1976 to 1987. The main findings are as follows:

It is relatively easy to structure a combination to qualify for merger accounting in the UK. However, the main benefit of merger accounting is also available under acquisition accounting in the UK, where the effect of SSAP22 is that goodwill does not have to be amortised through the P&L. A move to bring the UK into line with international practice by requiring goodwill to be amortised through the P&L would be likely to renew interest in merger accounting, and may prove ineffective unless merger accounting tests are tightened. (SECTION 2)

The majority of UK business combinations use acquisition accounting and the great majority of these now take S131 'merger relief' in order, in effect, to net-off goodwill and share premium. However, a significant minority of combinations make use of merger accounting. During the period 1985-1987, 16% of the sample [20 combinations] were accounted for in this way. 69 combinations in the sample apparently could have used merger accounting under the SSAP 23 tests, so only about 30% of companies took the option to use merger accounting. (SECTION 3)

The Seventh Directive, to be implemented in the UK by the 1989 Companies Act, seems to tighten the test for merger accounting by limiting the cash consideration to a proportion of the nominal rather than the market value of the equity consideration. I found that had this requirement been in place over the period under review, it would have only slightly reduced the number of combinations qualifying for merger accounting, and would have excluded none of the combinations which actually used merger accounting. Hence I expect this provision to be largely ineffective in limiting the use of merger accounting. (SECTION 3)

It is important for the user of the bidder's accounts to be able to piece together the 'acquisition equation' for significant acquisitions, that is, the fair value of the consideration paid and its representation in the fair value of acquired assets and goodwill. In the period under review I was able to construct the acquisition equation from data disclosed in the accounts in less than half the cases. There were two main reasons for this: companies taking merger relief often would not disclose the market value of equity issued; and though the fair value of acquired assets is often disclosed in aggregate, multiple acquisitions were common. (SECTION 3)

Whereas the average ratio of the goodwill in an acquisition to the bidder's net worth was around 3% from 1976 to 1983, it has soared to over 40% between 1984 and 1987. This change is largely caused by the rise in the stock market over the period. In recent years, goodwill was almost invariably netted against reserves, through the operation of SSAP22. This has had the effect of depleting the book equity of acquisitive firms. (SECTION 3)

I tested various hypotheses on the choice between merger and acquisition accounting. In terms of attributes which could be observed in the published accounting data, merger and acquisition accounted combinations were indistinguishable, with two exceptions. Merger accounting tended to be used when the target was historically more profitable than the bidder, and when the target was relatively large compared to the bidder. Though bidder and target are of truly comparable size in only a few combinations, this relative size finding may provide some reassurance that the spirit of merger accounting is being adhered to. But the finding on relative profitability is consistent with the belief that merger accounting is used to enhance the current and historic performance of the bidder. I encountered several companies making multiple acquisitions which used merger accounting for some combinations and acquisition accounting for others, apparently 'cherry-picking' on the basis of targets' pre-acquisition performance. (SECTION 4)

I found evidence that equity was more likely to be used as a means of payment in the acquisition of targets with a large goodwill component; goodwill was particularly significant in explaining the trend through time in the means of payment. The other significant factors were the bidder's liquid assets position and its recent share price performance relative to the market. Though these relationships were less well-defined in sub- periods, the evidence is consistent with the hypothesis that accounting considerations affect the choice of means of payment in combinations. (SECTION 4)

1. INTRODUCTION

Mergers and acquisitions have had a central role in industrial restructuring in the United Kingdom and activity is again running at very high levels both domestically and internationally[1]. This has focussed attention on UK accounting practices. Two sources of concern have arisen: on the one hand merger and acquisition accounting rules are accused of being too permissive in terms of reporting post-combination performance; at the same time it is widely considered that the rules concerning goodwill have led companies into difficulty. Behind both of these concerns is a belief that accounting 'matters' and may affect resource allocation.

Financial markets require companies to report their financial performance in a way which is informative, consistent and comparable. The availability of unbiased measures of company performance is also vital for regulation and for shaping public policy towards business. However, there is a widespread view that accounting rules in the UK permit similar business combinations[2] to be reported in quite different ways. Opportunities for acquisitive companies to use accounting to mislead have been widely reported: examples have been the creation of excessive stock write-offs or reorganisation provisions which can be fed back into earnings in subsequent periods, and the reporting of extraordinary gains from the sale of recently acquired assets. According to this view, mergers and acquisitions offer companies a major discretionary opportunity for influencing the pattern of their reported performance and may allow acquisitive companies to achieve their performance goals by accounting means alone. This will have real effects if, for instance, by flattering the growth in earnings per share, companies can enhance their market capitalisation. A report by the CBI commented:

The variety of methods of accounting for mergers and acquisitions makes it possible for two firms of a similar size undertaking acquisitions in similar circumstances to report widely differing profit trends depending on the accounting method used. The distortion in profits can lead to a distortion in the market place... The present high level of merger activity may have been encouraged by the laissez-faire atmosphere in accounting which has often had the effect of disguising the full cost of acquisitions. Some mergers and acquisitions may have taken place for the wrong reasons. (CBI (1987))
On the other hand, companies have been concerned to prevent accounting rules from imposing artificial constraints on commercially sensible

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[1] See Table 1.

[2] A note on terminology here - as far as possible I shall restrict the words 'merger' and 'acquisition' to their technical legal / accounting sense, and use 'takeover' and the less appealing 'combination' as more general words embracing both.

transactions. The central preoccupation here has been the treatment of goodwill. Such is the size of the goodwill component in many recent combinations that acquisitive companies which write off goodwill directly to reserves, as is encouraged under UK rules, may be at risk of entirely depleting book equity. This could have real effects if financial markets down-graded companies with depleted book equity; or if the companies themselves anticipated this degradation and expended real resources to repair their net worth, for instance by valuing brands, or if companies concerned about the structure of their reserves applied to the courts to reclassify share premium or felt driven to use a less preferred means of payment.

Commentators have also argued that accounting differences may cause international resource misallocation. For instance, it has been argued that the more restrictive US accounting rules create an 'uneven playing field' for UK bidders: 'Arguably, the laxer UK standards have led to higher prices being paid by the companies for businesses in North America, possibly to the detriment of UK shareholders.' (Rutteman (1987)).

Some of these claims about the effects of accounting may be simplistic. On a robust 'efficient markets' view different accounting treatments of similar events are mutations of no consequence. Efficient capital markets value debt and equity claims on the basis of expected cash flows, and variations in accounting treatment are unlikely to matter if financial markets are competitive and analysts are able to unravel the accounting. There is an impressive array of research evidence in support of the view that capital markets are indeed efficient in this respect[3]. But it would be dangerous to dismiss lightly the widely held view amongst managers and commentators that the structuring of a combination to achieve a particular accounting result can affect the market's evaluation of the firm. Disclosure is the oxygen of market efficiency. To operate efficiently financial markets require sufficient information in the public domain to permit an unravelling of the accounting, and it is not clear that this has been available in the case of mergers and acquisitions. In a recent example John Mullin (The Independent. 10.02.89) reported that shares in Gray Electronics, which had made about 12 acquisitions in two years, fell 14p to 164p when it announced its intention to use merger accounting for its latest purchase, GRP. Though Mullin notes that analysts had also become unhappy with Gray's rising borrowing levels, one analyst was quoted as follows: The main problem created by merger accounting is in splitting organic and acquisition growth. We are all pretty cheesed-off, and no-one really has a clue how they are performing.

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[3] For a recent review of the efficient markets literature in the context of accounting see Barwise, Higson, Likierman and Marsh (1989), or Higeon (1986).

THIS STUDY In outline, 'merger accounting' treats the combination as a conjoining of continuing entities, whereas 'acquisition accounting' treats the event as a purchase of one firm's assets and liabilities by the other. However, the force of the merger/acquisition distinction is considerably reduced in the UK, where even under acquisition accounting, firms can take 'merger relief' and effectively net-off goodwill against any share premium that arises, and are encouraged to write off any remaining goodwill directly to reserves. As a result, the choice of accounting method appears to rest on other considerations, concerning the effect of restating net assets at 'fair values', and the relative pre-acquisition performance of bidder and target. However, there may be financing implications, since UK firms can only enjoy 'merger relief' to the extent that acquisitions are equity financed. The topics of merger accounting, and the treatment of goodwill under acquisition accounting are intimately connected and are both addressed in this report.

Accounting for business combinations has been widely discussed in the professional and popular press, but little systematic research has been published on the choice of accounting method in this area in the UK and on the effects of this choice. The purpose of this study is to inform the current debate by describing the accounting treatment of a large sample of combinations between UK quoted firms over the last decade and, within the limitations of available data, to test various hypotheses and beliefs about the factors which have influenced the choice of accounting method. Results are also reported from a related study of the relationship between accounting and the means of payment used in combinations. A sample of 373 sets of bidders' published accounts was surveyed. Data collected from these reports were combined with accounting and share price data from tape on bidder and target, as well as data on the means of payment. This provides a comprehensive economic database comprising a significant proportion of the combinations between UK quoted firms during the period 1976-1987.

Section 2 surveys the regulatory background to accounting for business combinations in the UK and develops some implications for corporate policy. Section 3 contains the descriptive findings of this study. Section 4 contains the empirical results, and Section 5 collects the conclusions of the study.

2 THE REGULATORY FRAMEWORK AND SOME IMPLICATIONS FOR CORPORATE POLICY

In this section I briefly outline the regulatory framework to merger and acquisition accounting, and discuss some implications for corporate policy, generating hypotheses which are tested later. I suggest that in the UK the combination of SSAP22 and S131 merger relief has largely sidelined the classic merger versus acquisition accounting issue, since the major 'benefit' to merger accounting, that goodwill does not have to be carried and amortised through the P&L is also available under acquisition accounting. The choice between merger and acquisition accounting rests on subtler issues, with many commentators arguing an advantage to acquisition accounting. This section proceeds by reviewing the regulations concerning the treatment of mergers and acquisitions, and of goodwill in the UK, and contrasting it with overseas practice. I then discuss the implications of these rules for corporate behaviour in the UK. In a later section these implications are expressed more formally as a set of hypotheses which I test.

A THE REGULATORY FRAMEWORK

There are two basic methods of accounting for business combinations. Under **acquisition,** or **purchase, accounting** the individual assets of the acquiree company are recorded in the group balance-sheet at their 'fair values' at the time of acquisition. To the extent that the consideration is in shares, the excess of the fair value over the nominal value of the shares is recorded as share premium, and the excess of the fair value of the consideration as a whole over the fair values of the identified net assets acquired is recorded as 'goodwill'. By contrast, under **merger accounting** or **pooling** the net assets and the consideration are entered at their existing book values, nominal value in the case of the shares issued, and no share premium or goodwill is created.

Both accounting methods are consistent with a strict interpretation of historic cost accounting. The issue is whether one company is effectively purchasing the assets of the other, so that the reference point for the historic cost of these assets is updated to the time of the acquisition, or whether the combination simply involves the coming together of two continuing entities. In merger accounting the group accounts are prepared as though the companies have always been together, so in the profit and loss account the full year's earnings of both companies are combined, and their comparative figures and five-year summaries are added together.

In most jurisdictions acquisition accounting is the normal method of accounting for business combinations, with merger accounting permitted in limited circumstances. Differences between countries centre on how goodwill

is treated under acquisition accounting, and the tests for merger accounting. In the UK, the principles of acquisition and merger accounting are defined in SSAP 14 'Group Accounts' [1978], SSAP 22 'Accounting for Goodwill' [1984,1989], and SSAP 23 'Accounting for acquisitions and mergers' [1985]. However, in the UK a third accounting method is available - a hybrid of acquisition and merger accounting which we will call **acquisition accounting with merger relief.** Merger relief was provided in the Companies Act 1981 and subsequently under Sections 131 and 133 of the Companies Act 1985, and relieves the acquiror from setting up a share premium account when shares are issued with respect to a combination. Under CA 1985 merger relief may be taken when this key test is passed:

a. as a result of an arrangement involving equity the bidder secures at least 90% of each class of the equity in the target.

The 1981 legislation was a relaxation in the law following the 1980 ruling in Shearer vs Bercain, which effectively ruled merger accounting illegal. It is often suggested that merger relief had originally been intended by the legislators to facilitate merger accounting but because the tests are accommodating, merger relief is now very commonly taken with acquisition accounting in the UK. SSAP 23 imposes some further tests for full merger accounting:

b. the combination results from an offer to holders of all shares not already held, and
c. immediately prior to the offer, the bidder should not hold more than 20% of the target's equity, and
d. not less than 90% of the fair value of the total consideration given for the shares in the company must be in the form of equity.

Merger accounting is optional rather than mandatory for UK combinations which pass these tests. This will remain the case when the 1989 Companies Act implements the EC Seventh Directive, though test (d) will become more restrictive, so that merger accounting will only be permitted where the non-share element of the consideration does not exceed 10% of the nominal value of the shares issued. It is relatively straightforward to structure a combination to qualify for merger accounting. Various devices have been employed to circumvent test (d) when the target shareholders require cash. One such device exploits the fact that SSAP 23 excludes preference shares from the definition of the target's equity: the target issues preference shares before the bid is agreed, and cash is paid for these preference shares. Another method is to organise a vendor placing or vendor rights. In the former case the bidder formally issues equity in exchange for shares in the vendor but a financial adviser or other third party agrees to take up unwanted equity for cash. In the latter case, existing bidder shareholders are offered rights to the new shares and the proceeds pass on to the vendor. Test (c) can also be circumvented. When a bidder has a prior holding or 'toe-hold' greater than 20% in the target

it may arrange for these shares to be temporarily sold to a financial adviser around the bid-date.

'True' mergers, the coming together of equals as equals, are probably rare, but regulators have apparently found it hard to codify the concept, so that in practice many other combinations may qualify for merger accounting. Three types of test for a merger have been proposed. One criterion is that no material resources leave the combined entity. Test (d), above, enshrines this principle in the UK regulations. A second criterion which is sometimes proposed is that in a true merger there should also be a continuity of shareholders, so that the shareholders of both the combining firms are shareholders in the new firm. This implies a shareholder-centred rather than a company-centred notion of merger, and it appears to be against this principle that vendor placing offends. If the aim is to restrict merger accounting to true mergers, an appealing criterion which would be relatively easy to codify might be that partners in a merger should be of similar scale. At the time of writing there is no size test in the UK rules.

GOODWILL In the UK the principle of valuing purchased assets and goodwill at fair values in an acquisition is well established. In 1978 SSAP 14 'Group Accounts', para 29, stated:

> When subsidiaries are purchased, the purchase consideration should be allocated between the underlying net tangible and intangible assets other than goodwill on the basis of the fair value to the acquiring company....... Any difference between the purchase consideration and the value ascribed to net tangible assets and identifiable intangible assets such as trade marks, patents or development expenditure, will represent premium or discount on acquisition [ie, goodwill].

It should be noted, in the context of the recent popularity of brand valuation, that SSAP 22 encourages the identification and valuation of intangibles not recorded in the acquiree's books. Though SSAP 22 is not specific on how fair values should be measured, fair value is generally identified with 'value-to-the-business' in current cost accounting (see ASC (1988)).

There are three commonly discussed treatments of goodwill:

1. Carry goodwill in the balance sheet, writing it down only when a permanent diminution in its value is recognised.
2. Carry goodwill but amortise it over a finite period.
3. Write goodwill off immediately to reserves.

SSAP 22 'Accounting for Goodwill' permitted either amortisation or write-off, with a preference for write-off. In the former case no upper limit on the

amortisation period was prescribed. However, which reserves are available to absorb the write-off of goodwill on consolidation? The first issue is whether goodwill should be written-off against **realised** or **unrealised** reserves. SSAP 22 suggests that if the write-off takes place immediately, it should be against unrealised reserves if they are available, a transfer then being made from realised to unrealised reserves period by period to reflect the erosion in economic value of the goodwill. The second issue is which 'unrealised' reserves may be candidates. Most companies will use a **merger reserve,** or a **capital reserve** arising from previous negative goodwill, subject to availability. The use of **revaluation reserves** and the existing **share premium** is more problematic. Some ambiguity in the Companies Act 1948 had encouraged companies to consider that the write-off of goodwill might be amongst the uses to which revaluation reserves could be put. However, in 1985 the DTI expressed the opinion that revaluation reserves could not be used this way, and the forthcoming Companies Act confirms this. The 1948 Act was clearer in prohibiting the use of the share premium account for the write-off of goodwill, though some companies have circumvented the problem by applying to the High Court under Sec 135, CA 1985 to cancel their share premium account.

Finally, companies have used two variations of a device which does not require any reserves at all to be available to absorb goodwill. One is to show goodwill as a 'dangling debit': a negative liability adjacent to shame capital and reserves. The other is to create a 'goodwill write-off reserve' with a zero balance and write-off goodwill against this, creating a negative balance[4]. There appears to be no regulatory constraint on either of these at present.

OVERSEAS PRACTICE, AND REGULATORY DEVELOPMENTS

It is sometimes suggested that the relatively accommodating UK accounting rules give an advantage to UK bidders as against, say, US bidders. There are three major differences between US and UK practice. Firstly, in the US, pooling <u>must</u> be used for a combination which meets all of the qualifying tests. There are twelve tests including tests which attempt to prohibit planned transactions such as the subsequent repurchase of common stock. As in the UK, there is no relative size test. In practice pooling is still apparently used for a significant minority of combinations in the US. Secondly, there is no merger relief for acquisitions in the US. Thirdly, goodwill must be amortised through the P&L over not more than 40 years.

In the UK, as noted, goodwill is generally written off directly to reserves in contrast to practice in other countries. Internationally, the maximum life of goodwill for amortisation purposes varies. The maximum life tends to be

[4] For a further discussion of these issues see Holgate (1985).

longer where amortisation is compulsory. In Canada, as in the US, goodwill is amortised over its 'useful life' of up to 40 years, whereas in Australia the maximum is 20 years and in Japan 5 years. In Germany the commercial code specifies a maximum of five years, though in practice firms will often use the tax-life of 15 years. In France the period is 20 years, while in the Netherlands practice is split between amortisation and write-off to reserves, though if amortised this must be over a period of not more than 5 or sometimes 10 years. The question which is left open in the Seventh Directive is the treatment of goodwill once established; either write-off or amortisation is permitted. UK rules appear to be unique in encouraging write-off straight to reserves, though this is consistent with the existing IAS22. However though the draft revised SSAP22 perpetuates the existing UK practice, the proposed revision to IAS22 switches to US/Continental European practice - the proposal is that goodwill be amortised to income on a systematic basis over its useful life and that this period should not exceed 5 years unless a longer period can be justified, with a maximum of 20 years.

B IMPLICATIONS FOR CORPORATE POLICY

THE EFFECT OF THE ACCOUNTING CHOICE ON REPORTED PERFORMANCE AND FINANCIAL STRUCTURE

The spirit of a 'true merger' is that of the coming together of equals and if the accounting method is to reflect this spirit then this would lead to the following hypothesis: merger accounting is more likely to be used when the two parties are of similar size.

However, the existence of merger relief, and the injunction of SSAP22 to write off any remaining goodwill direct to reserves, largely removes the classic motive for merger accounting in the UK. In a regulatory environment such as the US, where goodwill must be amortised through the P&L, companies will, *ceteris paribus,* report higher earnings per share under merger accounting to the extent of the avoided goodwill amortisation charge, and return on capital employed will be doubly enhanced because the goodwill asset is also excluded from the denominator[5]. An advantage to merger accounting will also accrue if the fair values of acquired tangible assets tend to be higher than book values, generating higher depreciation charges on fixed assets and higher cost of sales from inventories.

The effect of SSAP22 and S131 on the treatment of goodwill has been largely to sideline the merger/acquisition accounting distinction in the UK. The subjective nature of 'fair value' has led many writers to suggest that the reporting advantage may lie with acquisition accounting (Rutteman (1987), Paterson (1988)). Companies may be tempted to avoid revaluing depreciable assets, or may more than compensate for the effects of positive revaluations by making excessive write-offs of inventories and provisions for reorganisation costs. The write-offs and provisions create sumps of credit that may be leaked back into profit in future periods. Such practices have been facilitated in the UK by the fact that companies were not required to disclose the fair value adjustments they make. Furthermore (in contrast to IAS 22) SSAP 22 specifically encourages companies to make provisions against anticipated future losses associated with the combination. If fair values are being assigned objectively we might predict that acquisition accounting is more likely to be used when inventories are a higher proportion of target net worth and less likely when depreciable fixed assets are a higher proportion. Since companies have only rarely chosen to disclose their fair value adjustments, data is unavailable to test the possibly more interesting issue of the scope for exploiting the fair value exercise.

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[5] Abraham Briloff was the great scourge of 'dirty pooling'. See his classic 'Unaccountable Accounting' [Briloff (1972)].

Though merger accounting and acquisition accounting with goodwill write-off tend to flatter return on capital employed by understating equity, the corollary is that the gearing ratio is inflated. In the UK, acquisitive firms, especially in service industries with low tangible asset bases, have reported declining and in some cases negative net worth. One reaction of these companies has been to identify a component of goodwill as a non-depreciable asset such as brands, with the effect of restoring the asset base to acceptable levels without affecting earnings per share.

In both the US and the UK there are no tax consequences of the choice of accounting method as the tax and accounting rules are principle independent[6]. Until recently there was tax relief, in the US, if fair values of assets could be used by the bidder to step up the basis for tax depreciation without a corresponding capital gain arising in the target. The Tax Reform Bill 1986 has removed this concession for acquisitions after I January 1989. However, there was no necessity to use the fair values in accounting. No such step up in basis is available in the UK. Goodwill depreciation is not tax deductible in either the UK or the US. Other intangibles may be tax depreciated in either country, though in the UK the list of depreciable intangibles is limited. Whether tax and accounting are truly independent, or whether auditors and tax authorities will look to the other for evidence remains an open question.

In an efficient capital market equity and debt claims are valued on the basis of expected cash flows. From an 'efficient markets' perspective companies should not add value by achieving EPS targets simply through accounting means, and a company's ability to borrow should be independent of changes in book net worth brought about by accounting means. Hong, Kaplan and Mandelker (1978) investigated the effect on stock prices of the use of pooling in a sample of combinations on the NYSE over the period 1954-1964. They studied a sample of 205 combinations of which 138 used pooling 62 used purchase accounting and 5 were unclassified. The authors found no evidence of abnormal returns accruing to companies which used pooling. However, they did find evidence that companies opting for purchase accounting had experienced strong positive market performance in the 12 months prior to the combination. Pooling also tended to be used for larger acquisitions than was purchase accounting. Hence the Hong et al study appears to support the hypothesis that markets see through the accounting method used in combinations.

THE EFFECT OF THE ACCOUNTING CHOICE ON DISTRIBUTION POLICY

Traditionally, under acquisition accounting the target's distributable reserves

[6] Dicker (1988) provides an excellent description of these issues.

were crystallised as 'pre-acquisition', and the bidder lost the 'option' of distributing from the target's historic reserves. Hence this hypothesis would be suggested: Merger accounting will be preferred when the bidder has a relatively high ratio of current dividend to revenue reserves, or has declining dividend cover. However, although protecting pre-combination distributable reserves is still often held to be an important motive for using merger accounting, there are reasons to question its importance in practice. First, for many companies the likelihood of a need to distribute future dividends from this source must be very low. Second, and more fundamentally, since the 1981 Companies Act the view has gained ground that distributions up to the parent are a realised profit, though the parent should consider writing down its investment in its subsidiary. However to the extent that merger relief is taken in the parent's books then the appropriate measure of the cost of acquisition is the nominal value of shares issued in consideration, so that target assets are apparently available for distribution down to this level.

Since merger accounting treats the bidder and target as though they had always been together, current year earnings in the target, pre-combination, are reported in the consolidated profit and loss account, and the comparative figures and historic summary are restated to incorporate the target's results. Hence merger accounting is more likely to be preferred the higher the quality of the target's current earnings, suggesting these hypotheses: merger accounting will be used when the target is more profitable relative to the bidder; and, if the target is making profits merger accounting will be preferred if the combination takes place close to the bidder's next accounting year-end. In practice the effect of the accounting choice on the historic trend in earnings per share is not always unambiguous, since even when the target's EPS growth is stronger, merger accounting assumes that the newly issued shares have always been outstanding and this may well depress apparent EPS growth.

In the presence of an accounting standard encouraging the write-off of goodwill to reserves, companies will often want to take 'merger relief' and effectively net goodwill against share premium. But merger relief is only available to the extent that the combination is financed by equity. In a recent, study of more than 2,500 takeovers in the UK and the US over a thirty year period Franks, Harris and Mayer [1988] report that in the US, cash acquisitions increased from a negligible proportion of all acquisitions in the 1950's to over 60% in the 1980's. In the UK, by contrast, cash averaged 64% in the years 1976-1978, yet only 33% in the years 1985-1987 (See Table 1). In 1988 the use of cash as consideration soared to around 70% of the total in the UK, limiting the scope for merger relief to be used. There is anecdotal evidence that the ability to take merger relief has been a significant consideration in structuring the financing of UK mergers and acquisitions. A

controlled investigation of the influence of accounting on the choice of means of payment requires modelling of the other factors which are likely to be relevant. I report results form a separate paper which addresses this issue in Section 4.

3 DESCRIPTIVE FINDINGS

This section describes my findings on the accounting methods used for UK mergers and acquisitions. The section starts by describing the construction of the sample and the methods used to collect the data. Part B analysis the use of merger and acquisition accounting in this sample and part C estimates how many firms could have used merger accounting, relative to those which did. Part D addresses the extent to which the 'acquisition equation' was disclosed after the combination, and part E charts the growth of the goodwill component of mergers and acquisitions in the sample.

A RESEARCH SAMPLE

To observe the accounting method, and to test the hypotheses on the determinants of the accounting method, required the following data for combinations in the research sample:

1. Annual accounts for bidder and target for two years prior to the combination, and for the bidder in the year following.
2. Share price data on bidder and target around the combination date.
3. Details of the 'financing' or consideration used in the combination, and of the timing of the first bid.
4. Data on any existing prior holding or 'toehold' by the bidder in the target.
5. The method of accounting used for the combination (merger; acquisition; merger relief) and the extent and method of elimination of goodwill on consolidation.

Accounting and share price data are available for UK firms on the Exstat accounting data tape and the London Share Price Data tape (LSPD) respectively. LSPD reports market data for all UK quoted companies since 1975, and about two thirds of quoted companies from 1948 to 1975. Exstat collects published accounts data, starting in 1970 on a population consisting of quoted UK firms, and other members of the Times 1000. The Exstat coverage was similarly expanded in 1975/76 to include smaller quoted firms. Financing data is available from the Stock Exchange Yearbook, and bid dates and data on prior holdings are available from Extel cards. Data on the method of accounting for the combination (5 above) is not available on Exstat, and necessitated the search of company reports held in hardeopy and on microfiche in the LBS Corporate Library, obtaining additional data from companies or from the Registrar of Companies where necessary. The revision of the bidder's prior year accounts figures which takes place when merger accounting is used is also recorded by Exstat and would generate serious risk of estimation bias. Therefore for bidders in mergers prior year

annual accounting data was also collected from company reports to replace data from tape.

My sample includes UK mergers and acquisitions over the period 1976-1987; the latest combination in the sample occurred in October 1987. I restricted the sample to combinations since April 1976. This ensures topicality, and has advantages from a data collection perspective, since both the Exstat and LSPD populations were broadened around 1976, and hardcopy and microfiche records of company accounts are more problematic before that time. The requirement that both parties be recorded on Exstat and LSPD restricts the sample to combinations between UK quoted companies. Some combinations involving relatively small companies, including USM stocks, are included, but sales of subsidiaries and combinations involving overseas companies, both of which are significant in this period, are excluded from the study. Exstat predominantly covers the industrial and commercial population so financial combinations are largely excluded. I also excluded purchases by investment trusts, mergers involving no apparent change of control, and a small number of combinations for which we could not obtain accounts data in hard-copy or on fiche.

620 companies on Exstat are recorded as being taken-over by UK bidders since 1976. Of these, 373 met the selection criteria listed above. Hence my selection method provides a research sample with known economic and financial attributes, and contains a significant proportion of major combinations between UK quoted industrial and commercial companies since 1976. Table 11 shows the number of combinations in each year, and the size' distribution within each year, in terms of the value of the consideration paid for the target[7]. The combinations within our sample range from sonic very small targets with values of less than £0.5 m to bids worth many hundreds of millions of pounds. Because the size distribution is rather skewed to the lower end, Table 11 shows the median as well as mean values. The average combination in our sample is rather larger than for the population as a whole (see Table 1), reflecting the fact that the sample is restricted to quoted companies.

B. THE ACCOUNTING METHODS USED FOR UK COMBINATIONS

Table III shows the distribution of the sample through time by type of accounting treatment, using the following classification:

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[7] In most mergers there was no difficulty in identifying the target and the bidder. But where this was not clear, the continuity of the chairman and board of directors was used as the criterion for dominance.

1. 'merger' - merger accounted
2. 'merger relief' - acquisition accounted, but with some netting of goodwill and share premium
3. 'other' - acquisition accounted, with either share premium recorded in full, or with no shares included in the consideration.

Since my concern is with the accounting effect achieved, rather than with the particular regulations being invoked, in the case of 'merger' and 'merger relief' I include combinations which were accounted for in the way we would now associate with these terms, though in some cases this was before the relevant regulations were implemented. The results are divided into three-year periods, 1976-1978, 1979-1981, 1982-1984, 1985-1987, according to the date of the combination, which I take as the first bid date. This is a convenient sub-division for analysis and approximately corresponds to epochs of accounting regulation. In fact, there is little point in attempting a more precise time allocation. For one thing the event date is the bid date, whereas accounting rules relate to the accounts period in which the combination occurs; it is also clear that some SSAPs are 'anticipated' before they become mandatory. Table III suggests that full merger accounting is used in a significant number of combinations in the UK. 16% of combinations [20 out of 136] which took place in the period since January 1985 were merger accounted, and 10% [9 out of 911 in the previous three years. Occasional examples of what was effectively merger accounting were also found in the 1970's. Successive editions of Financial Reporting have contained surveys of the incidence of different accounting methods (Wild (1988), Paterson (1989)), and the London Society of Chartered Accountants undertook a post-implementation review of SSAP 23 (London Society (1987)). The last study examined acquisition involving listed UK companies in the two years to 31 March 1986. As regards merger accounting, the results reported are broadly consistent with my findings. Of the 72 bidder reports surveyed, 81% used acquisition accounting; the remaining 19% used merger accounting.

Clearly by 1985-7 the 'netting' of goodwill and the share premium were the norm when the consideration for the acquisition involved shares, and acquisition accounting with merger relief was the dominant method of achieving this. 71% of companies using acquisition accounting in the recent period (82 out of 116) took merger relief, whereas the proportion was 23% in 1982-1985, 3% in 1979-1981, and 5% in 1976-1978; only one or two companies were netting share premium and goodwill in the 1970's. The 1981 Companies Act made merger relief available in the UK, and a puzzling phenomenon is the apparent slowness of many companies to take advantage of merger relief between 1981 and 1984.

A corollary of the fact that it has become the norm to take merger relief, either with merger or acquisition accounting, is that it has become much less

common for goodwill to be carried in the balance-sheet. Table IV shows the proportions of acquisitions in which goodwill was carried. In those few cases was carried in the latest period, it was almost invariably as a 'dangling debit'. Under this practice, goodwill remains as an asset but is 'stored' as a negative item [debit] near or amongst the reserves on the balance sheet. In some of the cases which I reviewed it is not at all clear whether goodwill is being written-off at all or is merely 'dangling' in reserve

C WHO USES MERGER ACCOUNTING?

It is often suggested that merger accounting will tend to be for most combinations which qualify:

In respect of any significant combination which meet the criteria, it would appear that most companies adopt merger accounting... Examples of combinations which meet the merger criteria but which have been accounted for as acquisitions are more difficult to find. Often where this is the case, the acquit company is significantly smaller than the acquiring company. (Wild (1988), Financial Reporting, p21/32)

I estimated which combinations qualified for merger accounting in terms of the key SSAP 23 tests - those in which the bidder had a toe-hold of less than 20%, and where at least 90% of the fair value of the consideration was equity. 'Toehold' data, ie data on existing ownership stakes held by the bidder, was collected from Extel cards. The problem of determining the acquisition equation' in some cases is described in the next section, and it is noted that the need to estimate it from offer data in these cases might introduce bias. However, in the present context the bias would appear to be conservative, understating the number of companies qualifying to use merge accounting.

Many of the companies using acquisition accounting appeared to meet the merger accounting criteria. In the period since 1985, 69 companies in the sample could have used merger accounting. In fact 20 did so, 44 used acquisition accounting with merger relief, and 5 used acquisition accounting and recorded share premium in full. 1-lence the tests for merger accounting in SSAP 23 do not appear to have placed a binding constraint on most companies: less than one third of companies which might have used merger accounting did so.

Following the EC Seventh Directive, the Companies Act 1989 includes an apparently much stricter test for merger accounting, since the cash component in the consideration is limited to 10% of the nominal value of new equity. I estimated how many of the sample could have used merger accounting if these new rules had applied at the time. Strikingly, the new

rules do not alter the effective constraint on the use of merger accounting. If they had been in force in the period 1982-1984 three existing qualifiers would have been disqualified but, for instance, from 1985 to 1987, 61 instead of 69 would have qualified to use merger accounting under the new rules. Overall, none of the firms which had actually used merger accounting would have been prevented from doing so by the new rules.

D. DISCLOSURE OF THE ACQUISITION EQUATION

One would presume that a minimum requirement for any reader of the accounts of a company making acquisitions, is to see the acquisition equation', that is:

Net assets acquired at fair value + Goodwill
= Consideration at fair value

For this study I needed both the goodwill figure, and the structure of the consideration at fair value. Ideally the accounts would disclose this equation for each material acquisition. Very few companies in my sample did this; a notable case being the Guinness treatment of its acquisition of Distillers. Though only a handful of companies report the full acquisition equation, the reader can construct it given any two of its components. Since goodwill is the residual, the key components are the net assets acquired and the consideration.

Table V reports the frequency with which companies in the acquisition sample disclosed either or both of net assets acquired and consideration for the individual acquiree. In about 70% of cases the fair value of the consideration could be deduced from the accounts. However, though acquirers very often disclosed an analysis of net assets acquired - commonly as an addendum to the source and application of funds statement -this was usually for acquisitions in aggregate, and since multiple acquisitions were common (as seen in Table IV), separate net assets data was available only in around half the cases. The cases where both fair value of consideration and fair value of net assets were available for individual acquirees, thus revealing the acquisition equation, were still less frequent.

Where the bidder did not fully disclose the acquisition equation, I estimated it using other data. In many cases the bidder would indicate the mix of cash, equity and other consideration used but, because 'merger relief' was being taken, recorded the equity at par and did not disclose its market value elsewhere. In these cases I estimated the fair value of the consideration using the bidder's share price at the bid date, as recorded on LSPD. More troublesome were cases where the structure of the consideration was not revealed. In these cases financing data was taken from the Stock Exchange

Yearbook, which in almost all cases records last-offer data. Again, the equity was valued using LSPD data. This imparts unavoidable bias for certain research purposes. It is accounts data on the consideration which are relevant to the test for using merger accounting, and offer data are likely to diverge from consideration data recorded in the accounts in precisely those cases where, say, vendor placing has been arranged in order to offer a cash alternative.

Readers need to see the fair value adjustments made to net assets in acquisitions and the nature of any provisions against future losses or reorganisation costs. Disclosure of these items has not so far been mandatory, and in the research sample they were disclosed in only one or two cases, precluding any research on these variables.

E THE GROWTH OF GOODWILL

It has become clear that in recent years acquisitive firms have found increasing difficulty in digesting the goodwill of their targets under the SSAP 22 requirements. Figure I (Table VI) shows the development of the goodwill 'problem' over time within the acquisitions in the sample. I calculated for each acquisition the ratio of the implicit goodwill to the bidder's net worth (= book equity) at the last balance-sheet. The goodwill is the true goodwill based on the estimated fair valuation of the consideration, before any netting due to merger relief. If the trend has been for this ratio to grow, several factors may have contributed. Goodwill may be forming a larger proportion of target values, targets may be of higher value relative to bidders, and finally the book net worth of bidders may be dwindling relative to their market value.

Table VI presents the average value of the ratio of goodwill to bidder net worth in each year, decomposed so as to enable identification of possible explanation for changes in the magnitude of goodwill. It is necessary to attempt to present an average of these series, since the profile of individual acquisitions tends to be idiosyncratic. However, averaging is peculiarly difficult for this data, since the data is skewed and the average is prone to be heavily influenced by outliers. Table VI uses two averaging procedures: Table VIa presents an equally weighted average based on the interquartile observations, that is, the top 25% and bottom 25% are excluded, while VIIb uses the interdecile observations, excluding the top and bottom 10%. The data of Table VIa is also presented graphically in Figure 2a and Figure 2b.

The results are striking. Whereas in the eight years 1976-1983 (in Table VIa) the goodwill element in an acquisition was usually around 3% of the acquiror's existing net worth, over the four years 1984-1987 this proportion grew to over 40%. Recent years have witnessed an explosion in 'goodwill', and this

perhaps explains why over this period companies have adopted stratagems such as brand accounting to protect and repair net worth. If anything, Table VI may understate the problem of goodwill. The proportions relate to single acquisitions, whereas in many cases there will be multiple acquisitions taking place in the year. Furthermore I exclude combinations which were merger accounted from this analysis.

This growth in goodwill reflects an increase in bid prices relative to the fair value of underlying target assets. On average, goodwill formed a little over 25% of the value of the average acquisition in 1976, and despite fluctuations this ratio was little changed in 1983. Between 1984 and 1987 however, the proportion climbed to over 40%. These comments are based on the middle 50% of cases (Table VIa). However the same story emerges from looking at data on the 25% of combinations showing the least goodwill. Whereas in the years before 1984 20%-30% of acquisitions would typically show negative goodwill, that is, be made at a discount to net worth, this is now very rare. This growth is coincident with the general rise in company valuation ratios; indeed, since there is no evidence that percentage control premiums are an increasing function of stock market prices, the rise in the market would seem to be the prime explanation. An alternative possibility is that there has been a shift towards acquisitions in the tertiary sector and the growth in goodwill may reflect a growing interest in the tertiary sector. Either way, companies are paying higher prices to secure tangible assets.

Reading the final two columns of Table VI together, the other major factor driving goodwill has been the growth in target value relative to bidder net worth. However, within this, two factors have to some extent been offsetting. Within our sample, the relative size of target and bidder in terms of market capitalisation was similar at the end of the period to its value at the beginning. However, the average ratio of bidder's market value to bidder's book net worth has increased fourfold over the period, reflecting, again, the increase in the market but also perhaps the accumulating depletion of bidders' book net worth due to previous acquisitions.

To what extent can these results be generalised? The averaging procedure of Table VIb uses the middle 80% of the distribution, rather than the middle 50% Because of the asymmetric nature of the underlying distribution, inclusion of more of the tails shifts several of the variables significantly. The growth in goodwill to bidder net worth is even more marked in this case, but the trends revealed in VIIa are also apparent in this data which appears to support the earlier conclusions.

4 EMPERICAL RESULTS

A THE DETERMINANTS OF THE CHOICE OF ACCOUNTING METHOD

Based on the discussion in Section II, I now test some specific hypotheses[8]:

H1 Merger accounting is more likely to be used when the two parties are of similar size

H2 Acquisition accounting is more likely to be chosen when inventories form a higher proportion of target net worth, and less likely when depreciable fixed assets are a higher proportion.

H3 Merger accounting will be used when the target is more profitable relative to the bidder

H5 If the target is making profits, merger accounting will be preferred if the combination takes place close to the bidder’s next accounting year-end.

The relative size of bidder and target [H1] were proxied by relative sales. H2 was measured in terms of the ratio of target stock, and of depreciable fixed assets net of depreciation, to total assets. Four measures were used to test for the influence of total assets. Four measures were used to test for the influence of dividends [H3], the bidder’s and the target’s ordinary dividend payout ratio, and the ratio of their ordinary dividend to ex div distributable reserves. In all cases the accounts data used were from the bidder’s and target’s last published accounts prior to the combination, as recorded on the Exstat tape. However, where merger accounting was used, it was necessary to go to original sources in the company accounts for bidder data, since Exstat incorporates the restatement of the previous years data which often follows merger accounting. In order to test H4 and HS I required a measure of the relative levels of the bidder's and target's current earnings, and their relative growth rates. However, in the case of the target, current year earnings were rarely reported in the bidder's accounts. Thus the proxy adopted in my study is the relative profitability of the bidder and target in the year prior to the combination. In order to abstract from the influence of financing, profitability was measured as earnings before interest and tax to total assets net of intangibles. To test H5 it was also necessary to estimate the date of the combination relative to the bidder's next year-end.

[8] All the following hypotheses should be construed as ‘other things equal’

Eleven empirical measures were constructed to proxy these variables, as detailed in Table VII, and the impact of these variables was tested on the set of 69 combinations in the period 1985 to 1987, where merger accounting could have been used. Merger accounting was actually used in 20 cases, hence I attempted to explain the choices the set-members actually made between merger and acquisition accounting. This was done on a univariate and a multivariate basis. In the former case the two subgroups were compared variable by variable, to establish if each variable was significantly different between the two sub- groups. Because many of the accounting variables are non- normally distributed, non-parametric difference of medians tests were used. In order to test for the mutual interaction of these variables, I undertook logistic regression analysis. Logistic regression is a statistical technique which permits the joint influence of multiple factors on a discrete variable - for instance the decision whether to merger or acquisition account - to be statistically assessed. This technique does not require normality in the data.

Table VII reports the medians of the two groups, merger accounted and acquisition accounted, for each of the eleven explanatory variables tested. Because of the unknown nature of the true distributions of the samples, several statistical tests for inter-group differences were undertaken. Since they gave broadly consistent results the chi-squared test of differences in medians, and the Kolmogarov-Smirnov (KS) statistic are reported.

There was no statistically significant difference between merger and acquisition accounted combinations in terms of the asset structure of the target (variables 9,10), the target or bidder's dividend payout ratio (7,8), relative growth in profitability (3,4), or in dividends relative to distributable reserves (5,6). The two variables which were significantly different between the merger and acquisition groups are size and profitability, and in both cases they work in the predicted direction. Targets which were merger accounted tended to be larger relative to their bidder than was the case under acquisition accounting. In the merger accounted group the median target was 43.5% the size of its bidder, as against 13.7% in the acquisition accounted group, and targets were more profitable than their bidder in the merger accounted group, but were roughly equally profitable in the acquisition accounted group.

We hypothesised that merger accounting would be used, for profitable targets, later in the bidder's accounts year. This indeed appears to be so, though this result is not statistically significant.

Logistic regression procedures were used to test the joint performance of these variables in distinguishing between the merger and acquisition accounting groups. Different model specifications involving all eleven

empirical proxies were estimated. Only profitability emerged as significant in this level of testing, and dominated the size variable, which was not significant in any specification of the model. This result may be partially accounted for by the fact that relative size and relative profitability are positively correlated (r = .21)

B THE EFFECT OF ACCOUNTING ON THE MEANS OF PAYMENT FOR MERGERS AND ACQUISITIONS

Though there is a growing literature on the role of the means of payment in mergers and acquisitions, no research has yet been done on the impact of accounting regulation on the choice of means of payment. However, in the UK there is a strong prima facie case for such a role. A combination of a rising market and the SSAP 22 write off requirements have forced UK acquirers to digest larger and larger quantities of acquired goodwill. If the acquisition is equity financed, goodwill may be netted against share premium under the 'merger relief' rules. Over the period 1984-1987 when the ratio of goodwill to bidder net worth grew dramatically, there was a corresponding shift to equity in the financing of UK combinations, in contrast to the trend in the US. A thorough test of the effect of accounting on the choice of consideration requires careful modelling of the other factors which are relevant to the choice. Provisional results are contained in a separate paper (Higson(1989)), from which the following comments are extracted.

Acquisitions were classified into three groups according to the proportion of the total consideration at market value which was equity, cash and 'mixed', including debt and convertibles:

1. Over 90% equity financed
2. Over 90% cash financed
3. Mixed

Because goodwill data was not available on merger accounted combinations, the analysis was restricted to the other 339 acquisitions. Table VIII shows the distribution of these classes through time for this group. The data shows a growth in importance of equity consistent with the aggregate data [Table 1]. A logistic regression model was fitted to explain the binary choice: equity/cash. Hence group 3 was excluded from the exercise. 15 explanatory variables were tested as defined in Table IX. In all cases accounting variables were drawn from the bidder and target's preceding year accounts. As a measure of the relationship between the bidder's actual and planned capital structure, the distance in standard deviations of the bidder's gearing from the industry mean gearing for that year was used. Several specifications were tested for the bidder's cash adequacy (variables 4-6) and for the goodwill variable (variables 7-9). In the latter case a measure of total goodwill in all the bidder's

acquisitions in the year was also included. Market conditions were proxied using measures of market returns, and bidder excess returns over one-, two-, three- quarters are included. Bidder excess returns were calculated assuming a unit beta.

Table X contains the results of the analysis. Using data for the whole period, 1976-1987, a parsimonious model containing only three explanatory variables best explained the equity versus cash choice: the bidder cash adequacy variable, cash/gross assets and the goodwill variable, goodwill/bidder net worth, were strongly significant and dominate other specifications of these effects. The relative size, and the capital structure variables had no explanatory power, nor did the market returns measures. However, excess returns were significant, and of the three specifications listed, the two-quarter excess return performed best.

The same model was fitted to the subperiods 79/81, 82/84, 85/87. On the hypothesis that the goodwill 'problem' will determine the choice of means of payment, we would not expect to see a significant goodwill variable, pre-1981. Table X shows that, indeed, the goodwill variable only becomes significant post 1981, lending support to the hypothesis of some impact of accounting regulation on the means of payment.

5 CONCLUSIONS

REGULATORY BACKGROUND In a regulatory environment where goodwill must be amortised through the P&L, companies will, ceteris paribus, report higher earnings per share and return on capital employed under merger accounting to the extent of the avoided goodwill amortisation charge. An advantage to merger accounting will also accrue if the fair values of acquired tangible assets tend to be higher than book values, generating higher depreciation charges on fixed assets and higher cost of sales from inventories. However, the effect of SSAP22 has been largely to sideline the classic merger/acquisition accounting distinction in the UK, and the subjective nature of 'fair value' has led many writers to suggest that the reporting advantage may lie with acquisition accounting, tempting companies to avoid revaluing depreciable assets, or to more than compensate for the effects of positive revaluations by making excessive write-offs of inventories and provisions for reorganisation costs. These write-offs and provisions create sumps of credit that may be leaked back into profit in future periods.

Though merger accounting and acquisition accounting with merger relief tend to flatter return on capital employed by understating equity, the corollary is that the gearing ratio is inflated. In the UK, acquisitive firms, especially in service industries with low tangible asset bases, have reported declining and in some cases negative net worth. One reaction of these companies has been to identify a component of goodwill as a non-depreciable asset such as brands, with the effect of restoring the asset base to acceptable levels without affecting earnings per share. Of course, in an efficient capital market equity and debt claims are valued on the basis of expected cash flows. From an 'efficient markets' perspective companies should not add value by achieving EPS targets simply through accounting means, and a company's ability to borrow should be independent of changes in book net worth brought about by accounting means.

The purpose of this study has been to describe the methods used for merger and acquisition accounting in the UK, and to throw some light on the factors which may have influenced the accounting choice. My sample included 373 UK mergers and acquisitions over the period 1976-1987.

THE CHOICE OF ACCOUNTING METHOD Clearly by 1985-7 the 'netting' of goodwill and the share premium were the norm when the consideration for the acquisition involved shares, and acquisition accounting with merger relief was the dominant method of achieving this. 71% of companies using acquisition accounting in the recent period (82 out of 116) took merger relief, whereas the proportion was 23% in 1982-1985, 3% in 1979-1981, and 5% in 1976-1978; only one or two companies were netting share premium and

goodwill in the 1970's. Full merger accounting was used in a significant number of combinations in the UK. 16% of combinations [20 out of 1361 which took place in the period since January 1985 were merger accounted, and 10% [9 out of 911 in the previous three years. Occasional examples of what was effectively merger accounting were also found in the 1970's.

I estimated which combinations qualified for merger accounting in terms of the key SSAP 23 tests - those in which the bidder had a toe-hold of less than 20%, and where at least 90% of the fair value of the consideration was equity. Many of the companies using acquisition accounting appeared to meet the merger accounting criteria. In the period since 1985, 69 companies in the sample could have used merger accounting. In fact 20 did so; 44 used acquisition accounting with merger relief, and 5 used acquisition accounting and recorded share premium in full. Hence the tests for merger accounting in SSAP 23 do not appear to have placed a binding constraint on most companies: less than one third of companies which might have used merger accounting did so. It is relatively easy to structure a combination to qualify for merger accounting in the UK. A move to bring the UK into line with international practice by requiring goodwill to be amortised through the P&L would be likely to renew interest in merger accounting, and may prove ineffective unless merger accounting tests are tightened.

The Seventh Directive, to be implemented in the UK by the 1989 Companies Act, seems to tighten the test for merger accounting by limiting the cash consideration to a proportion of the nominal rather than the market value of the equity consideration. I found that had this requirement been in place over the period under review, it would have only slightly reduced the number of combinations qualifying for merger accounting, and would have excluded none of the combinations which actually used merger accounting. Hence I expect this provision to be largely ineffective in limiting the use of merger accounting.

DISCLOSURE Readers need to see the fair value adjustments made to net assets in acquisitions and the nature of any provisions against future losses or reorganisation costs. Disclosure of these items has not so far been mandatory, and in the research sample they were disclosed in only one or two cases, precluding any research on these variables. It is also important for the user of the bidder's accounts to be able to piece together the 'acquisition equation' for significant acquisitions: that is, the fair value of the consideration paid and its representation in the fair value of acquired assets and goodwill. In the period under review I was able to construct the acquisition equation from data disclosed in the accounts in less than half the cases. There were two main reasons for this: companies taking merger relief often would not disclose the **market** value of equity issued; and though the fair value of

acquired assets was often disclosed in aggregate, multiple acquisitions were common.

The additional disclosure requirements now included in the 1989 Companies Act are to be welcomed, and should remedy many of the limitations of accounting disclosure revealed in this study. Inter alia, UK companies are now required to disclose the method of accounting, merger or acquisition, for each undertaking required; and to disclose the acquisition equation, detailing in the case of acquisitions the fair value adjustments made.

GOODWILL A major finding of this study is the evidence it presents on the growth of goodwill over the period. Whereas the average ratio of the goodwill in an acquisition to the bidder's net worth was around 3% from 1976 to 1983, it has climbed to over 40% between 1984 and 1987. This growth is coincident with the general rise in company valuation ratios; indeed, since there is no evidence that percentage control premiums are an increasing function of stock market prices, the rise in the market would seem to be the prime explanation. An alternative possibility is that there has been a shift towards acquisitions in the tertiary sector and the growth in goodwill may reflect a growing interest in the tertiary sector. Either way, companies are paying higher prices to secure tangible assets. The other major factor driving goodwill has been the growth in target value relative to bidder net worth. Within this, two factors have to some extent been offsetting. Within my sample, the relative size of target and bidder in terms of market capitalisation was similar at the end of the period to its value at the beginning. However, the average ratio of bidder's market value to bidder's book net worth has increased fourfold over the period, reflecting, again, the increase in the market but also perhaps the accumulating depletion of bidders' book net worth due to previous acquisitions. In recent years, goodwill was almost invariably netted against reserves, through the operation of SSAP22. This has had the effect of depleting the book equity of acquisitive firms.

EFFECTS ON CORPORATE BEHAVIOUR I tested various hypotheses on the choice between merger and acquisition accounting. In terms of attributes which could be observed in the published accounting data, merger and acquisition accounted combinations were indistinguishable, with two exceptions. Merger accounting tended to be used when the target was historically more profitable than the bidder, and when the target was relatively large compared to the bidder. Though bidder and target are of truly comparable size in only a few combinations, this relative size finding may provide some reassurance that the spirit of merger accounting is being adhered to. But the finding on relative profitability is consistent with the belief that merger accounting is used to enhance the current and historic performance of the bidder. I encountered several companies making multiple

acquisitions which used merger accounting for some combinations and acquisition accounting for others, apparently 'cherry-picking' on the basis of targets' pre- acquisition performance.

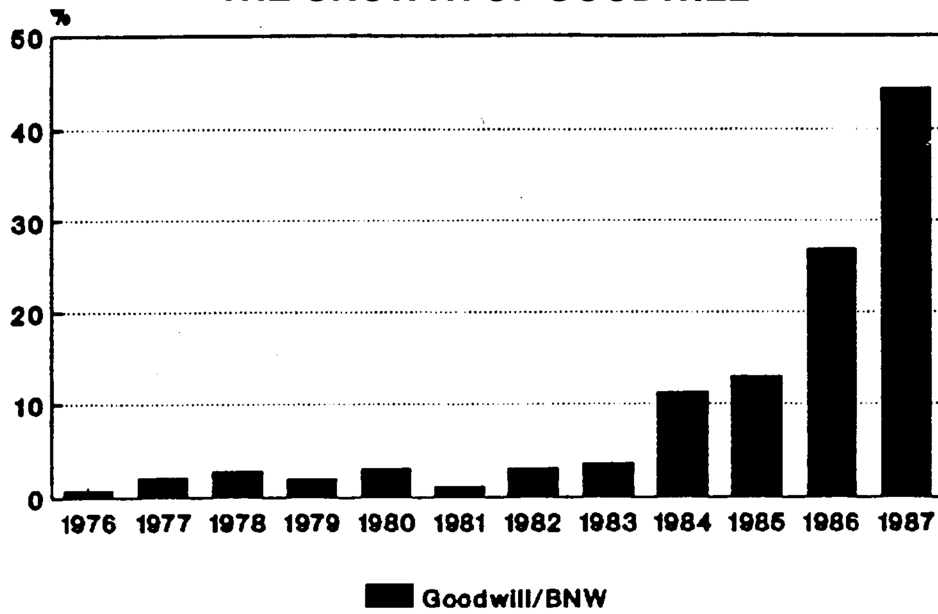
In the presence of an accounting standard encouraging the write-off of goodwill to reserves, companies will want to take $merger relief', thereby effectively netting goodwill against share premium. But merger relief is only available to the extent that the combination is financed by equity. There is evidence that in the UK the use of equity as consideration in mergers and acquisitions has risen sharply in the mid-eighties though in 1988, post-crash, the use of cash as consideration soared to around 70% of the total in the UK, limiting the scope for merger relief to be used. There is anecdotal evidence that the ability to take merger relief has been a factor in structuring the financing of UK mergers and acquisitions. I found evidence that equity was more likely to be used as a means of payment in the acquisition of targets with a large goodwill component; and goodwill was particularly significant in explaining the trend through time in the means of payment. The other significant factors were the bidder's liquid assets position and its recent share price performance relative to the market. Though these relationships were less well-defined in sub-periods, the evidence is consistent with the hypothesis that accounting considerations affect the choice of means of payment in combinations.

The UK accounting standards pertaining to mergers and acquisitions, SSAP 22 and SSAP 23, are currently under review, with some likelihood that UK firms will be required to carry goodwill in the balance sheet rather than writing it off to reserves, and that there will be a tightening in the merger accounting tests. It seems likely that any change in the treatment of goodwill will need reinforcement of both the merger accounting and intangibles rules, in order to reduce the scope for 'accounting arbitrage' as firms seek the most advantageous accounting presentation. There is some evidence in this study that firms do seek such advantage, and I have referred to preliminary evidence that accounting considerations may have influenced the method of financing of UK mergers and acquisitions during the period. Further work is needed on the relationship between accounting and the financing choice. Though companies do appear to seek advantage through accounting means, the intriguing question, outside the scope of the present study, is whether such advantage actually exists. It is hoped that future research can address the impact of the accounting choice on the firm's market capitalisation.

FIGURES AND TABLES

FIGURE 1

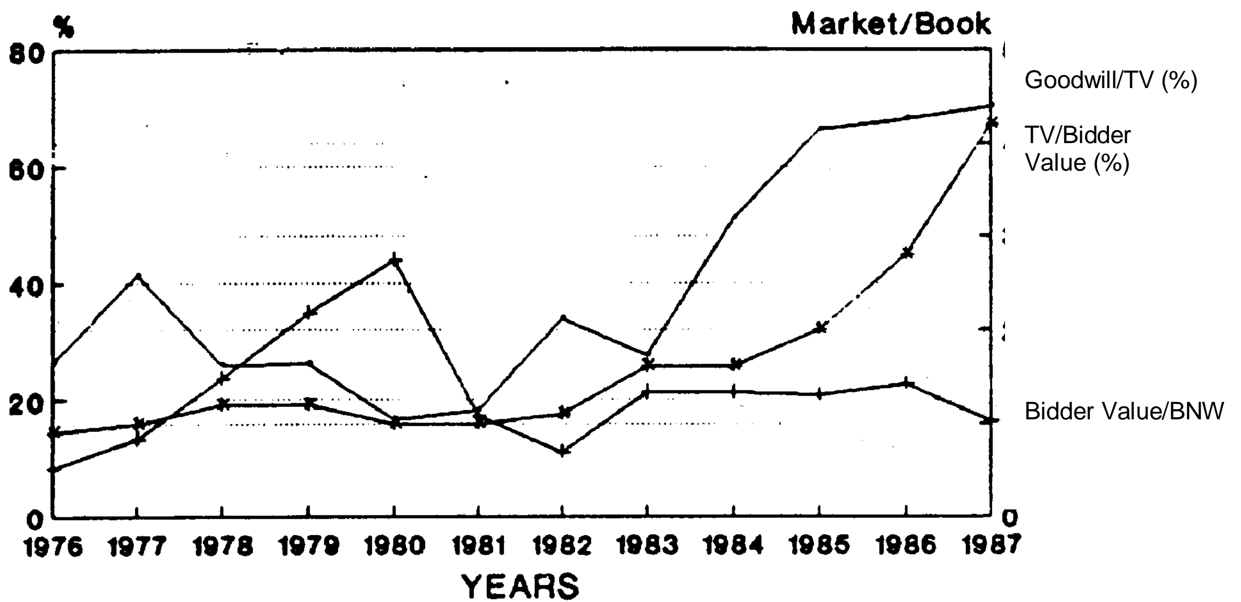
THE GROWTH OF GOODWILL



BNW = Bidder Net Worth

FIGURE 2

COMPONENTS OF GOODWILL GROWTH



BNW = Bidder Net Worth TV = Target Value

TABLE 1 UK MERGERS AND ACQUISITIONS BETWEEN INDUSTRIAL AND COMMERCIAL COMPANIES 1972-1988

	Sales of independent firms		Sales of subsidiaries		% of total expenditure		
	No.	Value* £m	No.	Value* £m	Cash %	Equity %	Fixed Interest %
1972	938	11536	272	910	19.5	57.6	22.9
1973	951	4753	254	1109	53.0	35.7	11.3
1974	367	1761	137	188	68.3	22.4	9.3
1975	200	672	115	213	59.4	32.0	8.6
1976	242	937	111	269	71.7	26.8	1.5
1977	372	1672	109	215	62.1	36.9	1.0
1978	441	2076	126	396	57.4	40.6	2.0
1979	417	2700	117	392	56.3	31.1	12.6
1980	368	1987	101	330	51.5	45.5	3.1
1981	327	1250	125	371	67.7	29.6	2.7
1982	299	1827	164	1048	5801	31.8	10.1
1983	305	2386	142	545	43.8	53.8	2.4
1984	398	5215	170	1343	53.8	33.6	12.6
1985	340	7054	134	216	40.3	52.3	7.4
1986	537	13319	159	2527	25.6	57.9	16.5
1987	905	11818	202	4282	32.2	62.3	5.5
1988	937	16870	287	5253	69.7	21.9	8.4

Source: CSO Business Trends (Aug 1989)
* At 1988 prices

NOTE Though merger and acquisition activity reached a relative peak in 1978, only since 1986/7 has it rivalled 1972 levels in value terms. In 1972, 120 companies were acquired for £12,446 m (at 1988 prices), while 1988, 1227 companies were acquired for £22,123 m. A striking feature of recent years is the apparent trend from cash to equity as the means of payment in combinations. In 1976, 71.7% of takeover expenditure was in cash and 26.8% in equity, while in 1987 the figures were 32.2% and 62.3% respectively. In 1988 there was a dramatic reversal, with almost 70% of all consideration in the form of cash. This shift away from equity followed the stock market crash of October 1987.

TABLE II SIZE DISTRIBUTION OF THE TARGET SAMPLE

	Target Values (£m)				No of
Year	Mean	Median	Min	Max	Companies
1976	3.7	2.0	0.3	17.8	14
1977	7.8	4.5	0.2	25.1	37
1978	9.9	6.2	0.8	54.9	30
1979	22.8	13.1	1.3	151.2	20
1980	19.5	6.0	0.5	107.0	22
1981	10.0	5.0	1.2	60.0	23
1982	50.2	10.8	0.3	258.2	22
1983	26.5	7.5	2.5	236.7	21
1984	44.4	10.6	0.6	607.0	48
1985	45.1	19.6	0.7	2695.0	56
1986	48.8	14.5	1.8	789.5	56
1987	43.7	17.1	1.5	328.0	24
					373

TABLE III ACCOUNTING METHODS USED

Period	Number In Sample	Merger Accounting	Acquisition Accounting Merger Relief	Acquisition Accounting Other
76/78	81	3	4	74
79/81	65	2	2	61
82/84	91	9	19	63
85/87	136	20	82	32
	373	34	107	232

TABLE IV TREATMENT OF GOODWILL AND MULTIPLE ACQUISITIONS IN THE ACQUISITION ACCOUNTED SAMPLE

Period	Number of Acquisitions	Goodwill carried %	Multiple Acquisition %
76/78	78	38	62
79/81	63	14	55
82/84	82	16	65
85/87	116	6	77
	339		

TABLE V DISCLOSURE OF THE ACQUISITION EQUATION

Period	Number of Acquisitions	Fair value of net assets disclosed %	Fair value of consideration disclosed %	Both disclosed %
76/78	78	38	55	35
79/81	63	55	70	50
82/84	82	52	69	51
85/87	116	47	72	44
	339			

TABLE VI THE EVOLUTION OF GOODWILL

VIa Excluding quartiles

Year	Goodwill / Bidder Net Worth %	Goodwill / Target Value %	Target Value / Bidder Value %	Bidder Value / Bidder Net Worth X
1976	0.7	26.3	8.5	0.9
1977	2.1	41.3	13.3	1.0
1978	2.8	26.0	23.7	1.2
1979	2.0	26.2	34.8	1.2
1980	3.1	16.7	43.9	1.0
1981	1.2	18.3	17.4	1.0
1982	3.1	33.9	11.1	1.1
1983	3.6	27.6	21.3	1.6
1984	11.2	51.2	21.2	1.6
1985	12.9	66.3	20.7	2.0
1986	26.9	68.2	22.6	2.8
1987	44.3	70.2	16.3	4.2

VIb Excluding deciles

Year	Goodwill / Bidder Net Worth %	Goodwill / Target Value %	Target Value / Bidder Value %	Bidder Value / Bidder Net Worth X
1976	-1.0	8.0	14.6	0.9
1977	2.9	29.6	25.0	1.0
1978	3.9	15.5	23.2	1.3
1979	10.7	14.7	38.9	1.3
1980	3.1	7.7	56.0	1.0
1981	1.2	6.6	41.0	1.1
1982	3.1	27.5	32.7	1.3
1983	3.6	24.1	27.8	1.7
1984	15.3	50.1	24.9	1.9
1985	39.9	65.2	28.5	2.2
1986	45.2	71.2	25.7	2.8
1987	57.6	74.3	18.9	3.9

Note: Because of the averaging procedure used, columns will not multiply across.

TABLE VII UNIVARIATE DISCRIMINATORS: MERGER VS ACQUISITION ACCOUNTING

Variables		Median Values		Statistical success in a univariate test	
		Mergers	Acquisitions	Median chi^2	KS
1.	Date	176.5	210	0.2	0.1
2.	Relative Size	43.5	13.7%	7.3***	0.17***
3.	Growth : 1 year difference:	-2.35%	0.1%	0.96	0.1
4.	Growth rate 2 year difference	-0.85%	-0.8%	0.02	0.06
5.	Dividend / Reserves : target	9.15%	7.5%	0.36	0.09
6.	Dividend / Reserves : bidder	7.85%	10.9%	0.20	0.09
7.	Dividend / payout : target	26.2%	25.8%	0.01	0.05
8.	Dividend / payout : bidder	31.2%	29.4%	0.01	0.01
9.	Stock / Assets (target)	15.9%	16.2%	0.01	0.04
10.	DFA / Assets (target)	11.1%	14.3%	0.95	0.1
11.	Relative Profitability	6.6%	0.5%	3.3*	0.18*

(significant at 1%***, 5%**, 10%*)

1. Date = number of days of bid prior to bidder's next account y/e
2. Relative Size - percentage of target sales to bidder sales.

3,4. Growth rate difference - excess of target's over bidder's growth rate in Profitability (defined in 11) over one and two years.

5,6. Dividend/Reserves - ordinary dividend to distributable reserves (ex div) 7.8. Dividend Payout - ordinary dividend payout ratio

9. Stock/Assets - Ratio of target's stock to its gross assets.
10. DFA Assets = Ratio of target's depreciable fixed assets, net of depreciation, to its gross assets
11. Relative profitability - excess of target's over bidder's return (earnings before for interest and tax) on gross assets

TABLE VIII DISTRIBUTION OF MEANS OF PAYMENT

	'Equity'	'Cash'	'Mixed'	Total
76/78	17	30	31	78
79/81	19	22	22	63
82/84	20	29	33	82
85/87	61	20	35	116
TOTAL	117	101	121	339

TABLE IX MEANS OF PAYMENT MODEL VARIABLES

RELATIVE SIZE

1. Target sales / bidder sales

CAPITAL STRUCTURE

2. Bidder book gearing (long plus short-term debt to book equity)
3. Bidder book gearing less industry mean gearing divided by standard deviation of industry gearing.

CASH ADEQUACY

4. Bidder liquid assets bidder gross assets.
5. Bidder liquid assets target market capitalisation.
6. Bidder plus target liquid assets / target market capitalisation.

GOODWILL

7. Goodwill 1 bidder net worth.
8. Goodwill / bidder distributable reserves.
9. Total goodwill for all bidders acquisitions in the year / bidder net worth.

MARKET CONDITIONS

10. Market return over last quarter.
11. Market return over last two quarters.
12. Market return over last three quarters.
13. Bidder return less market return, last quarter.
14. Bidder return less market return, last two quarters.
15. Bidder return less market return, last three quarters.

TABLE X MAXIMUM LIKELIHOOD ESTIMATES OF THE EQUITY/CASH CHOICE

	Whole Period	1979-1981	1982-1984	1985-1987
Intercept	0.55	0.29	0.60	1.55
	(7.61)	(0.43)	(1.56)	(12.07)
Cash / Total	-6.22	-4.88	-15.6	-6.97
Assets [Bidder]	(10.01)	(1.22)	(6.20)	(3.59)
Goodwill / BNW	1.32	0.70	2.8	0.53
	(16.79)	(0.85)	(5.53)	(2.15)
2 Quarter	0.13	0.27	-0.53	2.48
Excess Return	(4.24)	(0.50)	(0.18)	(3.69)
Degrees of Freedom	249	38	*55*	98
Likelihood Ratio	300.25	53.23	58.82	86.64

Note: chi-square values of individual variables are in brackets.

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