

STOCK MARKETS AND CORPORATE PERFORMANCE: A COMPARISON OF QUOTED AND UNQUOTED COMPANIES

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ABSTRACT

Stock Markets and Corporate Performance: A Comparison of Quoted and Unquoted Companies*

This paper examines the influence of stock markets on corporate performance. It compares large private and publicly listed companies in the UK. It finds that, controlling for size and industry, quoted firms invest more and grow more rapidly than unquoted firms. They earn higher profits and pay out a higher proportion of their earnings as dividends. They raise more equity finance but use this to purchase equity in other companies. In contrast, private companies are concentrated in low technology industries. There is therefore no evidence of adverse effects of stock markets on corporate performance. The proposition that firms are involuntarily driven to seek listings, however, cannot be rejected.

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NON-TECHNICAL SUMMARY

There is considerable uncertainty about the influence of stock markets on corporate performance. According to traditional textbook descriptions, stock markets play a central function in the operation of an economy: they supply risk capital; they offer incentives to entrepreneurs; they allow risks to be hedged and spread; they provide signals that assist in the allocation of resources; and they facilitate correction of managerial failure through takeovers.

The contending view is that stock markets cause firms to take short-term views about investment. There are few theories and little empirical evidence to support this proposition. There is a widely held belief, however, that financial institutions in other countries (particularly Germany and Japan) take longer-term perspectives than stock markets in the UK and US.

Previous work has reported the results of comparing corporate finance and investment in Germany and the UK (see Mayer and Alexander (1990)). This has the advantage of directly addressing the concerns about the operation of financial institutions expressed above. In an international context, however, it is open to the objection that capital markets are only one of several influences on corporate performance.

This paper takes the different approach of comparing the performance of large private and publicly quoted companies in the UK. It records the results of an analysis of all unquoted companies in the Times 1000 for which there were complete accounting records from 1980 to 1987. These were matched with three samples of quoted firms. The first two samples control for industry and to a certain extent, for size. The third provides a better control for size but does not control for industry.

The study traces the activities and performance of the three sets of firms over eight years from 1980 to 1987. It reports three sets of results: the characteristics of the samples, their real performance and their financial performance.

Characteristics

Size and industry

All the firms in this analysis are large and well established. The average age of both quoted and unquoted firms is in excess of fifty years.

The average size of unquoted companies in the Times 1000 is smaller than that of quoted firms. They are less diversified than quoted companies and are particularly concentrated in relatively low technology industries. Contrary to the

short termism proposition described above, there is a larger concentration of quoted than unquoted companies in high R&D industries.

Ownership

Unquoted firms are more closely held than quoted firms. They have a greater number of large holdings, frequently in the hands of directors and sometimes outsiders such as charities and trusts. While there are several large institutional shareholdings in quoted companies, these tend to be widely dispersed among several institutions.

Real performance

Attrition

65% of unquoted firms in 1980 remained unquoted and independent in 1987. The rate of attrition of quoted and unquoted companies over the eight years from 1980 was similar. The cause was quite different, however. Virtually all quoted companies disappeared through takeover. Unquoted companies became quoted and went into liquidation; a smaller proportion were taken over.

Rankings

There was a decline in the average ranking of unquoted companies that remained unquoted and independent. Disappearance of unquoted firms from the Times 1000 was largely offset by the arrival of new firms. The average ranking of all unquoted firms in the Times 1000, however, still declined over the period.

Sales, employment and investment

The change in ranking is reflected in differences in growth rates. Quoted firms grew much more rapidly than unquoted firms as measured by sales, employment and investment. Unquoted firms suffered larger falls in sales and investment in the cyclical downturn at the beginning of the 1980s and then recovered less rapidly during the mid-1980s. Labour productivity of quoted firms was greater than that of unquoted firms.

Financial performance

Profits

Profit margins (profits to sales ratios) were greater in quoted than unquoted firms. Where possible, current cost rates of return on equity and total capital were calculated. These confirmed that on average quoted firms were more profitable than unquoted firms.

Dividends

Quoted firms paid out a significantly higher proportion of their earnings as dividends. There were fewer instances of cuts in dividends among the quoted than the unquoted firms.

Financing

While quoted firms invested more than unquoted firms in absolute amounts, unquoted firms invested a larger proportion of their profits. This was primarily funded through higher retentions but also through more short-term loans.

Quoted firms raised more medium- and long-term loans. They also issued more new equity finance on a gross basis. They purchased more equity in other companies, however, and as a consequence there was a less significant difference in net than gross equity finance.

The remainder of the paper attempts to provide an explanation for these results. The most striking difference between large quoted and unquoted firms was their level of acquisition activity: quoted firms spent considerably more than unquoted firms on acquisitions. This is true whether acquisitions are measured in absolute terms or as a proportion of capital expenditure.

The faster growth of quoted compared to unquoted firms (and possibly the more diversified nature of their activities) can therefore in large part be attributed to acquisitions rather than internal expansion. New equity issues by quoted firms are mainly devoted to acquisitions of other companies rather than internal investment. That is why there was a less pronounced difference in net than gross new equity issues between quoted and unquoted firms.

Dividends may have been maintained at higher levels amongst quoted firms to assist in the issue of new equity to fund acquisitions. There is no indication that dividends were used as defence tactics to deter takeovers. If anything, there was a larger rise in the payout ratios of protected unquoted firms than unprotected quoted firms towards the end of the period of the study when takeover activity increased markedly.

One of the consequences of the higher payout ratios of quoted firms was that they finance less of their internal investment from retentions. There is no evidence, however, that investment levels, profitability, productivity or R&D suffered. On the contrary, on all these accounts quoted firms outperformed their unquoted counterparts. Furthermore, the ability of firms to expand through acquisition as well as internal investment augments the range of opportunities available to quoted firms.

This study has therefore provided no support for the view that stock markets have acted to the detriment of corporate performance.

The paper argues, however, that two caveats are in order before the short termism hypothesis is rejected. The first is associated with a paper by Shleifer and Summers (1988). They argue that growth through acquisition may come at the expense of other stakeholders (for example employees) in a firm. They view takeovers as breaching implicit contracts that exist between management and stakeholders in target firms. This can have *ex ante* consequences on the willingness of these stakeholders to make investments in anticipation of possible breaches of trust. Thus the superior performance of the quoted firms in this study may have come at the expense of performance in potential target firms.

We tested this proposition by comparing changes in employment and asset disposals in quoted and unquoted firms. If breaches of trust are more prevalent in quoted firms, then more significant falls in employment and asset disposals would be expected to be observed in quoted than in unquoted firms. This was not the case. While there was some evidence of larger asset disposals in quoted firms, the difference was for the most part insignificant.

The second caveat comes from observing how close the results reported in this paper are to the comparison of German and UK firms in Mayer and Alexander (1990). Large German firms look very similar to unquoted firms in the UK. They retain more than large UK firms, they issue less equity on a gross but not a net basis, they raise more short-term but less long-term finance and they grow less through acquisition.

The main distinction between Germany and the UK is that there are far fewer quoted companies in Germany. This may be because German banks provide more finance to medium-sized firms and they have less need to go to the stock market. Small and medium-sized UK firms that have to fund large investment programmes, pay inheritance taxes or pay off their heirs may be forced to the stock market involuntarily. The absence of alternative institutional arrangements may have encouraged too many firms in the UK to seek stock exchange listings.

The high proportion of quoted firms in the UK may not therefore be the result of a preference for quotation: the resulting loss of control may be thought undesirable. One of the consequences of this may be a requirement to pay high dividends to outside shareholders. Even quoted firms in Germany may be less subject to these external pressures: public German firms are protected through bank ownership of shares, proxy votes conferred on banks and cross-shareholdings.

The high dividends of quoted UK firms may in turn have biased their investment choice towards high cash flow generating projects. When firms make new equity issues it is conventional for them to maintain dividends in per share terms. As a

consequence new equity issues impose increased dividend obligations on firms. These may discourage investments in assets with long gestation periods and favour acquisitions that generate immediate cash flows.

While there is no evidence that stock markets have adversely affected the performance of firms, the converse proposition – that high dividend payouts and rapid growth through acquisition are symptomatic of precisely the short termism of which industrialists complain – cannot be rejected.

1. Introduction

The influence of the stock market on corporate behaviour is a subject of active debate. The conventional view of stock markets is that they provide firms with a source of risk capital, generate prices that assist with resource allocation, provide entrepreneurs with incentives and allow poorly performing managers to be disciplined by takeovers and external intervention of shareholders.

Recently, the accusation has been made that stock markets are a cause of "short-termism" on the part of companies. It has been suggested that they discourage firms from investing in long-term projects, in particular R&D. It is not clear how this is supposed to occur, but short holding periods of institutional investors and takeovers are frequently mentioned in this context. Comparisons are drawn with longer term attitudes of investors in German and Japanese financial markets and the claim is made that it is easier to fund long-term projects and strategies in these countries.

To our knowledge, there has been no substantive analysis of this issue. The work that has been done in this area has concentrated on efficiency in price setting in stock markets. For example, Nickell and Wadhvani (1987) examine whether the UK stock market places too much weight on dividends as against capital growth in valuing firms. However, this may not be the only way in which financial markets influence the time horizon of corporate investment decisions. For example, asymmetric information between investors and firms may encourage managers to invest in projects that convey information rapidly to the market about corporate performance (Stein (1988)). Alternatively, there may be contractual problems that cause implicit contracts between investors and stakeholders to be broken by hostile takeovers. As a consequence, investment is discouraged (Shleifer and Summers (1988) and Franks and Mayer (1990)).

Instead, therefore of examining share prices, a more direct approach to identifying the influence of stock markets on corporate activity is required. One approach described in Mayer and Alexander (1990) is to compare the performance of similar companies in different countries. The drawback with this approach is that differences in performance may be attributable to economic conditions other than financial markets. An alternative approach is to compare behaviour of firms with different ownership structures within one country.

This paper reports the results of comparing large public and private companies in the UK over the period 1980 to 1987. The companies have been drawn from a listing of the largest firms in the UK in 1980. Companies are matched by size and industry in 1980. The paper reports the result of comparing their development over the subsequent seven years. We choose this approach in preference to a regression model on the grounds that it provides a better control of the determinants of performance than a regression.

Section 2 of the paper describes the data and the method employed in selecting and pairing companies. Section 3 describes ownership, size and industry characteristics of unquoted and quoted firms. Section 4 compares the real behaviour of matched samples of unquoted and quoted firms. Section 5 reports on financial performance. Section 6 attempts to provide an explanation for the observations in this paper.

2. The Data and The Pairing

The companies in this analysis have been selected from the 1980 Times listing of the largest 1000 industrial companies in the UK. This ranks firms by turnover.

The Stock Exchange listing and Who Owns Whom were used to identify ownership. 166 of the top 1000 were unquoted. Of these 33 were either foreign owned or subsidiaries of overseas firms; there were therefore 133 independent unquoted UK companies. There were 544 UK quoted companies. The remainder were overseas companies not quoted on the London Stock Exchange.

87 of the 133 independent unquoted companies remained independent and unquoted throughout the 7 years of this study. Complete accounting data were available from Datastream on 56 of these 87 firms. These 56 firms formed the core of the analysis.

2 digit Standard Industrial Classifications of quoted and unquoted companies were identified from a Datastream tape. Unquoted companies were matched with quoted firms in the same industry for which complete information was available over the entire period of the analysis. Two such samples were constructed to establish the robustness of the results. The first were quoted companies that were closest in size by turnover; the second were the next nearest in size by turnover. 10 quoted companies in the first sample could not be matched in this way because there was no equivalent quoted firm and 12 in the second. We will refer to these samples as the first and second industry pairings respectively.

The aggregate value of sales of the matched firms in 1980 revealed a problem. The aggregate value of sales of quoted firms was 36% larger than that of unquoted companies in the first sample and 57% larger in the second sample, despite the fact that size as well as industry pairings were used. The reason for this is that the average size of quoted companies in the Times 1000

is larger than the average size of unquoted firms. Thus matching unquoted companies to quoted leads on average to larger quoted than unquoted companies being chosen and this problem is more serious for samples of quoted companies that are further away from their paired unquoted company.

To control for this, a third sample of companies matched by size irrespective of industry was constructed. Quoted companies that were alternately larger and smaller than their matched unquoted company were selected. This procedure forces the average size of unquoted and quoted companies to be equal but at the expense of losing the industry match. The total sales of the two groups of firms were within 2% of each other. There were 56 such pairings. We will refer to this as **the alternating size sample**. The approach of combining matching by industry and alternating ranking of size does not work because there are too many instances of unquoted firms not having a quoted equivalent in the same industry of smaller size.¹

Appendix 1 records the names, industries and rankings in the Times 1000 in 1980 of the 56 unquoted companies and their three sets of pairings. In total, the quoted and unquoted companies used in the alternating size sample together account for 1.7% of UK employment in 1984 and 2.0% in 1987.

Selecting companies on the basis of complete data introduces a potential bias into the analysis if there is a different incidence of attrition in the two samples and the causes of attrition are associated with behaviour or performance. To control for this, another sample was constructed that comprised 12 unquoted companies that were in the Times 1000 in 1980. These were matched with quoted companies that were in existence in 1980. The performance of the two groups of companies was compared over the common period for which they were in existence (up to 7 years) irrespective of the length of this period. The three matchings described above were used again.

Four sets of data were collected on each firm. The first relates to the ownership of firms. This was collected from company accounts, Datastream, Extel and the Stock Exchange register of transactions. Attempts were made to get behind nominee accounts from the Register of Beneficiaries.

The second set of information relates to the size and industry composition of firms. This was obtained from Datastream and the Times 1000 companies.

The third was the life cycle of the firms over the 8 years of the study. Data on changes in status were obtained from Who Owns Whom, the Stock Exchange Quarterly and Peat Marwick McLintock London Listing and USM Surveys. In addition, Textline news information service was used to identify main events in the lives of firms.

The fourth set of data were accounting measures and ratios. These were obtained from Datastream. A small sample of firms was comprehensively checked against original company accounts to establish the validity of the Datastream data. Internal consistency checks on equality between sources and uses of funds were also performed on all firms. An important advantage of using large private companies is that unlike their smaller counterparts they provide almost as much information as public companies. It is therefore possible to perform a much more thorough comparison of performance of this sample of unquoted companies than a representative sample of unquoted firms.

Data were collected on sales, profits, employment, investment, sources and uses of funds, expenditures on acquisitions, sales and disposals of assets. One problem with measures of performance is that profits are distorted by inflation. Fortunately, at the beginning of the period some companies in the UK, but not many unquoted companies, produced inflation adjusted (Current Cost Accounting) data. 19 unquoted companies published CCA data and these firms were matched with quoted companies using

the three pairing methods described previously.

Unfortunately, while companies are now required to disclose R&D expenditure, this was not the case over the period of this analysis. Furthermore, unquoted companies take much longer to publish their accounts than quoted firms (hence the terminal date of 1987). As a consequence, at the time of writing there is no published information on R&D expenditures by unquoted firms. However, comparisons of R&D expenditures of quoted and unquoted firms is an important part of the analysis. Instead of collecting individual firm information on R&D expenditures the paper reports industry wide expenditures. These were obtained from the Business Monitor M014.

3. Ownership and Industry Characteristics

During the period of this study, UK companies were required to disclose shareholdings in excess of 5%.² Table 1 compares rates of disclosure by companies in the unquoted sample and in each of the three quoted samples. It records a larger number of shareholdings in excess of 5% amongst unquoted than quoted companies. A majority of these are held by directors; the average size of disclosed director holdings was nearly 20%. This suggests that, even though companies in this study are large, management of unquoted firms are significant shareholders.

There were a small number of large holdings by outside investors. Several of these were charities and foundations but some were financial institutions and other companies. In contrast, amongst the three samples of quoted companies, there were a large number of holdings by financial institutions. However, the average size of each of these was small, thereby confirming that, while in aggregate institutions are important investors in the UK quoted sector, individually they only hold a modest proportion of any one company's shares. Concentration of ownership is therefore higher amongst the unquoted sample than any of its matched quoted samples.

Table 2 records the size decile of unquoted and quoted companies in the Times 1000 in 1980. It shows that the unquoted firms are concentrated in the lower deciles; quoted companies are more evenly spread throughout but tend to be concentrated in the larger size deciles. The average ranking of the unquoted companies in 1980 was 640 and the average ranking of the quoted companies was 452.

Table 3 reports 2-digit Standard Industrial Classifications of quoted and unquoted companies in the Times 1000. It shows that in only a small number of industries is the concentration of unquoted companies clearly in excess of quoted companies:³ 10 (agriculture and horticulture), 41 (food, drink and tobacco

Table 1

DISCLOSED SHAREHOLDINGS OF UNQUOTED COMPANIES
AND THREE SAMPLES OF QUOTED COMPANIES IN 1988

	QUOTED COMPANIES			
	UNQUOTED COMPANIES	First Industry Pairing	Second Industry Pairing	Alternating Size Pairing
Proportion of Companies with Disclosed Shareholdings	0.86	0.76	0.73	0.79
Total Rate of Disclosure per Company	2.29	1.64	1.88	1.81
Financial Institutions	0.06 (45.18)	0.84 (9.19)	1.15 (8.94)	0.66 (9.11)
Private Investors	0.30 (13.70)	0.04 (5.20)	0.35 (10.12)	0.26 (8.68)
Charities and Foundations	0.13 (59.54)	0 (0)	0 (0)	0.02 (10.00)
Other Companies	0.22 (35.77)	0.24 (10.13)	0.19 (12.82)	0.17 (19.92)
Directors	1.38 (18.74)	0.16 (18.60)	0.04 (6.10)	0.49 (14.35)
Government	0 (0)	0.04 (6.40)	0.04 (7.60)	0.04 (7.35)
Foreign	0.14 (30.73)	0.28 (45.36)	0.08 (16.60)	0.11 (19.87)
Unknown	0.06 (19.22)	0.04 (8.20)	0.04 (83.10)	0.06 (7.30)

Notes to Table 1:

Sources: Company accounts, Datastream and Extel.

1. Only shareholdings in excess of 5% are disclosed.
2. The rate of disclosure in line 2 is the number of holdings in excess of 5% divided by the total number of companies for which data were available.
3. Data on shareholdings were available for 69 unquoted companies, 25 quoted companies in the first industry pairing, 26 in the second industry pairing and 53 in the alternating size pairing.
4. Figures in brackets show the average size of disclosed shareholdings.

Table 2

RANKINGS OF UNQUOTED AND QUOTED COMPANIES IN THE TIMES 1000 IN 1980

(Percentage of Total)

	1-100	101-200	201-300	301-400	401-500	501-600	601-700	701-800	801-900	901-1000	Average Rankings (Number)
Unquoted Firms	3.0	4.8	3.0	8.4	12.6	6.0	15.7	12.0	18.7	15.7	640
Quoted Firms	14.3	11.4	12.7	9.6	9.2	8.8	8.5	9.4	7.0	9.2	452

Notes to Table 2:

Source: Times Top 1000 Companies

1. There were 166 unquoted and 544 U.K. quoted companies in 1980.

Table 3

DISTRIBUTION OF UNQUOTED AND QUOTED COMPANIES
ACROSS INDUSTRY IN 1980.

SIC	PERCENTAGE OF UNQUOTED FIRMS	PERCENTAGE OF QUOTED FIRMS
10	3.92	
11	0	0
12	0	0.39
13	0	0.20
14	0	0.98
17	0	0.39
22	1.96	0.20
23	0	1.95
24	0.98	0.59
25	1.96	4.88
26	0	3.32
30	0.98	0.20
31	0.98	0
32	4.90	3.91
33	0	11.72
34	1.96	0.78
35	0	4.88
36	0.98	2.73
37	0.98	0.98
41	8.82	1.17
42	4.90	3.32
43	2.94	5.08
44	0	2.54
45	0	0.20
46	0	2.54
47	4.90	1.17
48	1.96	3.52
49	0	1.95
50	11.76	0.59
61	22.55	7.81
63	1.96	9.38
64	5.88	0.39
		7.23

Table 3 continued:

SIC	PERCENTAGE OF UNQUOTED FIRMS	PERCENTAGE OF QUOTED FIRMS
65	4.90	5.86
66	0	0.39
67	0	0.20
72	1.96	0.78
74	3.92	0.39
75	0	0.59
76	0.98	0
77	0.98	0.59
81	0	0.20
83	0.98	1.76
84	0	0.39
92	0.98	0.39
97	0	1.17
98	0	0.59
99	0	1.76
Total	100%	100%

Notes to Table 3:

Source: Datastream

1. Industry classifications were available for 102 unquoted and 512 quoted companies.
2. Companies are allocated to their principal industry.

manufacturing), 47 (printing and publishing), 50 (construction), 61 (wholesale distribution), 63 (commission agents), 72 (other inland transport) and 74 (sea transport).

Table 3 refers to principal industries only. As Figure 1 and Panel A of Table 4 record, quoted companies are more highly diversified across industries than unquoted firms. The mean number of industries in which unquoted companies are recorded is 1.7 with a range from 1 to 5; quoted companies are on average recorded in 2.6 industries with a range from 1 to 11. However, one straightforward explanation for this is the larger average size of quoted than unquoted companies. As Panel B of Table 4 records, once correction is made for size, unquoted and quoted companies are on average recorded in approximately the same number of industries.

Unquoted companies are concentrated in low technology industries. Table 5 shows total R&D to sales and privately funded R&D to sales ratios in different industries. There are 7 industries groups with total R&D to sales ratios in excess of 1%: 25 and 26 (chemical industry and man made fibres), 32 (mechanical engineering), 33 (office machinery), 34 (electrical and electronic engineering), 35 and 36 (manufacture of transport equipment), 37 (instrument engineering), 49 (other manufacturing industries).⁴ Quoted companies are more heavily concentrated in each of these than unquoted companies. This is particularly evident in the high technology industries of SICs 32 to 37. In contrast to the short-termist views described in the introduction, high technology industries are dominated by publicly listed firms.⁵

To summarize, unquoted companies in the top 1000 UK firms are on average smaller than quoted companies, have a higher concentration of ownership particularly in the hands of directors, charities and foundations, are less diversified across industries (before but not after correcting for firm size), and are concentrated in low technology industries. In the next two sections we trace their

Table 4

DIVERSIFICATION OF UNQUOTED AND QUOTED COMPANIES
ACROSS INDUSTRIES IN 1980

Panel A: All Quoted and Unquoted Companies

		Number of 3 Digit SIC Codes Recorded			
	Mode	Median	Mean	σ	
Unquoted	1	1	1.73	1.17	1
Quoted	1	2	2.56	1.64	11

Panel B:

	Mean	σ
First Industry Pairing	1.87 2.02	1.36 1.15
Second Industry Pairing	1.79 2.48	1.31 1.63
Alternating Size Pairing	1.94 1.83	1.40 0.94

Notes to Table 4:

Source: Datastream

1. There are 102 unquoted firms and 512 quoted firms in Panel A.
2. In some cases, 1980 figures are not available. In those cases, the earliest available year has been used.

Table 5 R & D TO SALES RATIOS BY INDUSTRY IN 1981

SIC	Total R & D to Sales Ratio (%)	Privately Funded R & D To Sales Ratio (%)	Is there A Greater Concentration of Quoted or Unquoted Companies? (%)
11,12,13	0.30	NA	Quoted
22	0.23	0.29	Unquoted
24	0.50	0.51	Quoted
25,26	3.30	3.23	Quoted
31	0.24	0.24	Quoted
32	1.07	0.91	Quoted
33	11.94	11.76	Quoted
34	7.66	3.22	Quoted
35,36	5.36	2.41	Quoted
37	2.74	2.76	Quoted
41, 42	0.24	0.25	Unquoted
43	0.14	0.15	Unquoted
44,45	0.05	0.08	Quoted
46	0.02	0.05	Quoted
47	0.13	0.14	Unquoted
48	0.52	0.54	Unquoted
49	1.50	1.90	Quoted
50	0.03	0.05	Unquoted

Notes to Table 5:

Source: Business Monitor, MO14.

1. An industry is said to have a greater concentration of quoted firms if the percentage of quoted firms in that industry from the previous table is greater than the percentage of unquoted firms.
2. 1981 was the nearest year to 1980 for which R & D data are available.

development over time. The next section examines real performance and the subsequent section financial performance.

4. The Development of Firms: Real Performance

Of the 166 unquoted companies in our original sample we were able to monitor the development of 133 of them over the subsequent eight years. As Table 6a records, the overall rate of attrition of unquoted companies was 35%: 87 of the 133 remained independent and unquoted until 1988. 12 firms became quoted, 9 on the Unlisted Securities Market (USM) and 3 on the main market. 30 of the firms were acquired by other firms. 18 were acquired by UK firms, 8 by foreign firms and 4 by companies that we were unable to identify.⁶ 4 firms went into insolvency. Acquisition is therefore the main cause of death of large unquoted firms.

Section 2 described three pairings that have been used to compare the performance of unquoted and quoted firms. Table 6b records that the rate of attrition amongst paired quoted companies is not very different from that of unquoted firms. Takeovers are a still more important cause of death of quoted than unquoted firms. 25% of a sample of quoted firms selected on the first industry pairing basis, 33% of the second industry pairing sample and 32% of the alternating size sample disappeared between 1980 and 1988. In almost all cases these deaths occurred through acquisition.

Of the 87 companies that remained independent and unquoted, 66 retained their position in the top 1000. As might be expected, Table 7 shows that attrition mainly occurred from the lower half of the ranking. However, even the upper decile lost 3 of the 5 unquoted companies that were present in 1980. The average ranking of the remaining 66 companies was 570 as against 640 in 1980.

The change in representation of unquoted companies is in part offset by the arrival of new unquoted firms. In 1988, in total there were 153 unquoted companies present in the top 1000 representing a net outflow of 13 companies since 1980. Their average ranking was 642. As Table 7 demonstrates there has been

Table 6a

THE STATUS IN 1988 OF THE SAMPLE OF UNQUOTED COMPANIES

Remained Independent and Unquoted	Acquired by Another Company			Became Quoted		Insolvent
	U.K. Company	Foreign Company	Unknown	USM	Main Market	
87	18	8	4	9	3	4

Notes to Table 6a: Peat Marwick McLintock, London Listing

Sources: Who Owns Whom, Textline, Stock Exchange Quarterly, and USM Survey.

1. The table refers to 133 of the 166 independent, unquoted companies in 1980.
2. Of the 12 companies that became quoted, 2 were subsequently taken over by U.K. companies and 1 by a U.S. company.

Table 6b

THE STATUS IN 1988 OF THE SAMPLE OF QUOTED COMPANIES

Sample	Remained Independent and Quoted	Acquired by Another Company	Management Buyout	Cancelled	Not Known
First Industry Pairing	36	10	1	1	-
Second Industry Pairing	33	16	-	-	-
Alternating Size Pairing	54	22	-	2	1

Notes to Table 6b:

Source: Stock Exchange Quarterly List

1. The table records the status in 1988 of a sample of quoted companies matched with unquoted companies in 1980.
2. The number of remaining, independent companies is lower than the number of pairings because some quoted companies are matched with more than one unquoted company.

Table 7
RANKINGS OF UNQUOTED COMPANIES IN THE TIMES 100 IN 1980 AND 1988.

	1-100	101-200	201-300	301-400	401-500	501-600	601-700	701-800	801-900	901-1000	Average Ranking (Number)
1980											
3.0	4.8	3.0	8.4	12.6	6.0	15.7	12.0	18.7	15.7	640	
1988											
(A)											
3.0	6.1	9.1	16.7	7.6	9.1	10.6	12.1	9.1	16.7	570	
(B)											
1.3	3.9	7.2	9.1	6.5	11.8	12.4	14.4	14.4	18.9	642	

Notes to Table 7:

Source: The Times Top 1000 Companies

1. 1988 (A) refers to the 66 companies which were included in the 166 unquoted companies in 1980, (see table 2) and were still present in the Times 1000 in 1988. There were 153 of them.
2. 1988 (B) includes all unquoted companies in 1988. There were 547.
3. The 1980 average ranking of the 66 companies in 1988 (A) was 547.
4. Care has to be taken in comparing 1980 and 1988 rankings because between the two years public corporations were included.

some tendency for the distribution to become more heavily skewed towards the lower deciles than it was in 1980.

As might be expected of samples chosen from the largest 1000 firms in the UK, their average age is high: 50 to 60 years (Table 8). The mean age of the quoted and unquoted firms is similar. The median age of quoted firms is slightly greater than that of unquoted firms, suggesting that there are a small number of very long lived unquoted firms.⁷

Tables 9a, 9b and 9c record aggregate sales, investment and employment of matched pairs of firms that were in continuous existence between 1980 and 1987. Table 9a refers to the first industry pairing, Table 9b to the second industry pairing and Table 9c to the alternating size pairing. All three tables tell similar stories: growth rates of sales and employment of quoted firms were greater than those of unquoted firms. This is particularly pronounced in the alternating size pairing, suggesting that quoted firms have a larger representation in high growth industries as well as a higher growth rate within their own industries. The average level of investment of quoted firms over the period is also appreciably higher than that of unquoted firms.

The matched industry comparisons (Tables 9a and 9b) suggest that unquoted firms were more vulnerable to the cyclical downturn in 1981 than quoted firms: sales of unquoted firms were either stagnant (Table 9a) or fell (Table 9b). But it was in the boom period post 1983 that the growth rates of quoted firms really outstripped those of unquoted firms. The two matched industry samples record quoted company growth outstripping unquoted growth by 11% and 22% respectively. The alternating size pairing reports growth rates of quoted companies 87% in excess of those of unquoted companies.

Investment to sales ratios of quoted firms are in excess of those of unquoted firms in all three samples. In the first industry

Table 8

THE AVERAGE AGE OF THE SAMPLE OF FIRMS IN 1968

	First Industry Pairing		Second Industry Pairing		Alternating Size Pairing	
	Mean	Median	Mean	Median	Mean	Median
Unquoted	56.5	53.5	58.0	54.0	54.9	53.0
Quoted	59.9	61.0	60.4	63.5	58.0	61.0

Notes to Table 8:

Sources:

1. It was possible to trace the age of 34 of the 46 unquoted companies and 36 of the quoted companies in the first Industry Pairing, 32 of the 49 unquoted companies and 38 of the quoted companies in the second Industry Pairing, 40 of the 56 unquoted companies and 45 of the quoted companies in the Alternating Size Pairing.

Table 9a

SALES, EMPLOYMENT AND INVESTMENT OF THE SAMPLE OF UNQUOTED AND QUOTED
COMPANIES, 1960 - 1987: FIRST INDUSTRY PAIRING

	SALES (£,000)		INVESTMENT (£,000)		EMPLOYMENT	
	UNQUOTED	QUOTED	UNQUOTED	QUOTED	UNQUOTED	QUOTED
1980	4915636	6702669	199847	386425		
1981	4918776	7279695	147858	224060		
1982	5905066	8107554	251260	381176		
1983	6560796	9119521	234938	383185		
1984	7330947	10449741	309584	483770	176610	187488
1985	8067755	11728070	306795	611384	180084	198267
1986	8492883	13211745	242275	733729	187307	199588
1987	9207592	14254064	467721	689507	189360	205601
Average:	6924931	10106632	270034.7	486654.5	183340.2	197736.0
Growth:	87.31%	112.66%	134.04%	78.43%	7.22%	9.66%

Table 9b

SALES, EMPLOYMENT AND INVESTMENT OF THE SAMPLE OF UNQUOTED AND QUOTED
COMPANIES, 1980 - 1987: SECOND INDUSTRY PAIRING

	SALES (£,000)		INVESTMENT (£,000)		EMPLOYMENT	
	UNQUOTED	QUOTED	UNQUOTED	QUOTED	UNQUOTED	QUOTED
1980	4812390	7534509	192815	326446		
1981	4807506	8305400	146709	271286		
1982	5796042	9310003	243917	343279		
1983	6438033	9205155	227612	221221		
1984	7196163	12000525	297956	514826	151847	216953
1985	7923964	12140126	297793	552660	155282	223700
1986	8338802	13921487	237974	730166	161414	243409
1987	9044396	15752299	457085	898990	161903	258974
Average:	6794662	11021188	262732.6	482359.2	157611.5	235759
Growth:	87.94%	109.07%	137.06%	175.39%	6.62%	19.37%

Table 9c

SALES, EMPLOYMENT AND INVESTMENT OF THE SAMPLE OF UNQUOTED AND QUOTED
COMPANIES, 1980 - 1987: ALTERNATING SIZE PAIRING

	SALES (£,000)		INVESTMENT (£,000)		EMPLOYMENT	
	UNQUOTED	QUOTED	UNQUOTED	QUOTED	UNQUOTED	QUOTED
1980	5479413	5421214	261959	283379		
1981	5630435	5959714	141792	259168		
1982	6526350	7059567	292319	388951		
1983	7245503	8632168	274178	434525		
1984	8110581	10819835	328445	635143	193172	227189
1985	8852140	12519876	339606	451499	196877	234376
1986	9344541	16217148	271765	1136415	203798	285344
1987	10111559	22561306	512296	931388	205778	305246
Average:	7662565	11148853	302795.0	565058.5	199906.2	263038.7
Growth:	84.54%	316.17%	95.56%	228.67%	6.53%	34.36%

Notes to Tables 9a, 9b and 9c:

Source: Datastream

1. Table 9a refers to 46 company pairings; Table 9b refers to 44 company pairings; Table 9c refers to 56 company pairings.

pairing they average 4.82% and 3.90% for the quoted and unquoted firms respectively. In the second industry pairing they average 4.38% and 3.87% respectively and in the alternating size sample, they average 5.07% and 3.95% respectively.

The alternating size sample suggests that unquoted company investment was more seriously affected by the 1981 cyclical downturn than quoted company investment: the investment to sales ratio of unquoted companies fell by more than that of quoted companies between 1980 and 1981. However, this is not borne out by the pairings involving industry controls. Again this suggests that unquoted companies were concentrated in industries that were particularly vulnerable to the 1981 recession.

While quoted companies investment is larger and for the most part has grown more rapidly than that of unquoted investment, a large part of this is attributable to the faster growth in sales of quoted companies. While the unquoted companies' investment to sales ratio has grown over the period of this study, the investment to sales ratio of quoted companies has declined in two out of three of the pairings.

Comprehensive employment figures are only available from 1984. Again quoted firm employment has grown more rapidly than that of unquoted. In view of the much more rapid growth in sales that result is not very surprising. Of more interest is the fact that labour productivity was on average 38% higher in quoted companies in the first industry pairing over the four years from 1984, 11% higher in the second industry pairing and 30% higher in the alternating size sample.

Furthermore, labour productivity growth of quoted companies has exceeded that of unquoted companies by 6% in the first industry pairing and by 33% in the alternating size pairing. However, in the second industry pairing it has fallen short of productivity

growth of unquoted companies by 7%.

To summarize, rate of attrition of large quoted and unquoted firms is similar, though causes of attrition differ. More quoted than unquoted companies disappear through acquisition. Amongst surviving firms, quoted firms grew much more rapidly than unquoted firms, had higher investment to sales ratios, higher levels of labour productivity and, in general, higher growths in labour productivity. They were more resilient to the recession in part through being concentrated in less exposed sectors of the economy. Investment of quoted companies grew more rapidly than that of unquoted companies, but investment to sales ratios of unquoted companies grew more rapidly than those of quoted firms.

In the next section we turn to a comparison of the financial performance of unquoted and quoted companies.

5. Financial Performance

Tables 10a, 10b and 10c report the profit margins (profits to sales ratios), pay-out ratios (gross dividends divided by profits) and investment ratios (investment divided by profits) for the three pairings of unquoted and quoted firms. Profits are defined on a cash flow basis of internally generated funds, ie gross of depreciation and provisions but net of interest and taxation. This avoids problems of differences in depreciation conventions between different classes of firms.⁸

The UK imputation system introduces an endogeneity of profits to dividends. This results from the fact that, provided companies have adequate taxable profits, they can offset payments of income tax on dividends collected at source (known as Advance Corporation Tax) against corporate tax liabilities on profits. However, if they have inadequate corporate tax liabilities they are unable to recover all payments of Advance Corporation Tax and have to carry forward the residual to future years. As a consequence, profits net of tax can be sensitive to dividend distributions and it is conventional to define profits at zero distributions. The procedure used here is described in detail in Mayer and Alexander (1990).

Profit margins of both unquoted and quoted firms have been rising over the period. Profit margins of quoted firms are invariably higher than those of unquoted firms. The difference is appreciable, around 40%.

Still more strikingly, pay-out ratios of quoted firms are considerably in excess of those of unquoted firms. This is most noticeable at the beginning of the period. Towards the end, there is a large rise in the pay-out ratios of unquoted companies which pulls their pay-out ratios towards those of quoted firms.

It is interesting to note that the growth in pay-out ratios is associated with unquoted not quoted firms. At the end of the

Table 10a AVERAGE FINANCIAL RATIOS OF UNQUOTED AND QUOTED COMPANIES,
1980 - 1987: FIRST INDUSTRY PAIRING

	PROFIT/SALES		DIVIDENDS/PROFITS		(Percentage) INVESTMENT/PROFITS	
	UNQUOTED	QUOTED	UNQUOTED	QUOTED	UNQUOTED	QUOTED
1980	3.11	6.16	9.28	19.95	130.78	93.59
1981	4.03	5.58	5.20	22.44	74.59	55.15
1982	4.11	6.19	5.57	20.39	103.48	76.00
1983	4.14	5.54	7.03	23.55	86.48	75.78
1984	4.99	6.49	7.91	20.51	84.57	71.30
1985	5.08	5.09	10.59	26.11	74.93	102.41
1986	5.64	6.93	17.51	19.63	50.57	80.16
1987	5.43	7.69	15.76	20.84	93.57	62.89
Average:	4.57	6.21	9.86	21.68	87.37	77.16

Table 10b

AVERAGE FINANCIAL RATIOS OF UNQUOTED AND QUOTED COMPANIES,
1980 - 1987: SECOND INDUSTRY PAIRING

	PROFIT/SALES		DIVIDENDS/PROFITS		(Percentage) INVESTMENT/PROFITS	
	UNQUOTED	QUOTED	UNQUOTED	QUOTED	UNQUOTED	QUOTED
1980	3.03	4.97	9.44	21.67	132.35	87.22
1981	3.99	4.97	5.13	20.11	76.52	65.68
1982	4.06	5.59	5.49	17.94	103.66	65.94
1983	4.07	5.40	6.99	19.23	86.83	44.54
1984	4.93	6.95	7.92	16.05	84.05	61.73
1985	5.05	6.91	10.58	18.85	74.43	65.86
1986	5.62	8.42	17.76	16.51	50.82	62.28
1987	5.40	9.01	15.91	17.66	93.51	63.35
Average:	4.52	6.53	9.90	18.50	87.77	64.58

Table 10c **AVERAGE FINANCIAL RATIOS OF UNQUOTED AND QUOTED COMPANIES,**
1980 - 1987: ALTERNATING SIZE PAIRING

	PROFIT/SALES		DIVIDENDS/PROFITS		(Percentage) INVESTMENT/PROFITS	
	UNQUOTED	QUOTED	UNQUOTED	QUOTED	UNQUOTED	QUOTED
1980	3.70	5.70	9.12	20.25	123.97	102.13
1981	5.15	5.14	5.14	21.15	43.85	60.77
1982	4.27	5.48	6.88	19.53	103.52	85.44
1983	3.93	5.30	8.91	19.19	97.96	89.74
1984	4.85	5.92	10.22	18.57	84.40	81.12
1985	7.17	5.42	8.60	22.24	53.46	87.54
1986	5.80	5.92	19.39	24.01	47.77	81.72
1987	5.34	6.66	19.42	21.92	93.15	85.39
Average:	5.16	5.85	12.03	21.30	75.23	84.44

Notes to Tables 10a, 10b and 10c:

Source: Datastream

1. Profits are defined as internally generated sources net of interest and taxation but before depreciation and provisions. They are measured at zero dividend distribution with appropriate adjustments to mainstream corporation tax.
2. The payout ratio is gross dividends (gross of Advance Corporation Tax collected at source) divided by zero dividends profits.
3. One pair of companies has been dropped from this table. A large scale reorganisation of Imperial Tobacco by Hanson on acquisition caused its profits figures to be heavily distorted in 1986 and to a lesser extent in 1987. Its matched unquoted firm is J. Lewis.
4. Averages are weighted by company in the year in question but simple arithmetic averages across years. The weights are the denominator of the relevant ratio.
5. Much of the rise in the unquoted company payout ratios at the end of the period is attributable to Tioxide. If this company is dropped from the sample, the ratios become:

Year	First Industry	Second Industry	Third Industry
1980	6.22	6.24	5.91
1981	5.00	4.92	4.65
1982	5.12	5.03	5.87
1983	5.10	4.97	6.20
1984	5.04	4.95	6.68
1985	5.07	4.90	4.09
1986	9.97	10.06	10.37
1987	5.59	5.48	8.01
Average	6.05	5.98	6.57

1980's there was an appreciable rise in the UK corporate sector's aggregate pay-out ratio. This has been attributed to increased takeover activity, in particular hostile takeovers, and the use by target firms of dividends as a defence mechanism (see Bank of England (1990) for an exposition of this view). The fact that the increase in pay-out ratios in this analysis is associated with private companies that are not vulnerable to hostile bids not quoted companies contradicts this hypothesis.

The last two columns reveal that with the exception of the alternating sample, the investment ratios of unquoted companies are higher than those of quoted companies. This is despite the fact noted in the previous section that the investment to sales ratio of quoted companies is in excess of that of unquoted firms. The difference in investment to sales ratio does not offset the larger profit margins in the quoted sector.

The investment ratio confirms the impression from the investment to sales ratio that investment is even more vulnerable in the unquoted than the quoted sector. Unlike the investment to sales ratio, larger declines in the investment ratio in the unquoted sector are now observed in all three pairings in 1981.

The higher investment ratio of unquoted companies may in part be funded through retentions created by the lower pay-out ratio. Tables 11a, 11b and 11c confirm that this is indeed the case. They report the average gross and net sources of finance of unquoted and quoted companies over the entire period.⁹ Gross finance is the amounts raised from the different sources divided by total sources of finance. Net sources are sources net of investments in equivalent financial assets (eg bank loans minus bank deposits and new equity issues minus purchases of equity) divided by total net sources. Since financial plus physical investment are equal to total sources of finance, by identity total net sources are equal to physical investment in fixed assets and stocks.

Table 11a FINANCING PROPORTIONS OF UNQUOTED AND QUOTED COMPANIES,
AVERAGE 1980 - 1987: FIRST INDUSTRY PAIRING

Gross Financing as a % of Total Sources	Retentions	Equity	Medium &		Trade Credit	Total
			Long Term	Short Term		
Unquoted:	67.52	1.02	1.70	4.36	25.41	100.00
Quoted:	54.09	18.58	7.67	1.84	17.82	100.00

Net Financing as a % of Physical Investment	Retentions	Equity	Medium &		Trade Credit	Total
			Long Term	Short Term		
Unquoted:	112.35	-15.25	2.83	-2.76	2.84	100.00
Quoted:	102.68	2.30	14.55	-18.79	-0.74	100.00

Other Ratios:	Payout Ratio	Physical Investment/Gross Total Sources
Unquoted:	9.83	60.10
Quoted:	26.49	52.68

Table 11b

FINANCING PROPORTIONS OF UNQUOTED AND QUOTED COMPANIES,
AVERAGE 1980 - 1987: SECOND INDUSTRY PAIRING

	Gross Financing as a % of Total Sources	Retentions	Equity	(percentage)			Total
				Medium & Long Term	Short Term	Trade Credit	
Unquoted:	67.29		1.04	1.72	4.44	25.51	100.00
Quoted:	49.60		23.01	7.24	1.09	19.05	100.00
Net financing as a % of Physical Investment	Retentions	Equity				Trade Credit	Total
			Medium & Long Term	Short Term			
Unquoted:	112.25	-15.28	2.87	-2.72	2.88		100.00
Quoted:	104.73	-6.74	15.30	-15.12	1.83		100.00
Other Ratios:	Payout Ratio	Physical Investment/Gross Total Sources					
Unquoted:	9.85	59.94					
Quoted:	21.43	47.36					

Table 11c

FINANCING PROPORTIONS OF UNQUOTED AND QUOTED COMPANIES,
AVERAGE 1980 - 1987: ALTERNATING SIZE PAIRING

Gross Financing as a % of Total Sources	Retentions	Equity	Medium &		Trade Credit	Total
			Long Term	Short Term		
Unquoted:	69.66	0.88	1.91	3.66	23.89	100.00
Quoted:	32.51	27.77	17.00	4.51	18.21	100.00
Net Financing as a % of Physical Investment	Retentions	Equity	Medium &		Trade Credit	Total
			Long Term	Short Term		
Unquoted:	118.81	-16.31	3.26	-7.21	1.44	100.00
Quoted:	117.13	-26.16	61.25	-59.64	7.43	100.00
Other Ratios:	Payout Ratio	Physical Investment/gross Total Sources				
Unquoted:	9.29	58.63				
Quoted:	22.87	27.75				

Notes to Tables 11a, 11b and 11c:

Source: Datastream

1. Retentions = Funds generated from operations + exceptional profits and losses + changes in minorities + changes in short-term and other provisions - taxation - dividends - other expenditures.

2. On a gross basis:

New Equity = Total equity capital issued including preference capital.

Medium and Long-Term Loans = Change in loan capital.

Short-Term Loans = Change in borrowings repayable in a year or less.

Trade Credit = Change in creditors.

3. On a net basis:

New Equity = Gross - Investments in marketable securities - investments in subsidiaries and purchases of goodwill.

Medium and
Long-Term
Loans = Gross.

Short-Term
Loans = Gross - change in cash and equivalent.

Trade
Credit = Gross - change in debtors.

Physical
Investment = Net additions to fixed assets and change in stocks and work-in-progress.

4. Payout ratio = Gross dividends divided by zero dividends profit.

5. Averages shown are weighted by company and year where the weights are the denominators of the ratio in question.

The tables confirm that retention finance is a greater proportion of unquoted than quoted company sources on both a gross and a net basis. As would be expected, the main difference in financing that the tables reveal is that quoted companies raise appreciably more equity finance than unquoted companies. That is evident in all three samples. However, in the alternating size pairing, quoted companies raise less new equity finance on a net basis than unquoted firms. Thus in addition to raising more new equity, quoted firms have been purchasing more equity. This is unlikely to reflect a greater tendency to repurchase equity, since in the UK this has only been possible since 1985. Instead, it will be suggested below that it results from a greater propensity by quoted firms to acquire other companies. In addition to raising more new equity finance, quoted firms also raised more medium and long term loans. Unquoted firms raised more short term loans.

Tables 12a, 12b and 12c report tests of significance of differences in real and financial activities of the three pairings of unquoted and quoted companies. Two sets of test statistics are reported: t-statistics of differences in means between unquoted and quoted samples and non-parametric tests of the number of cases where unquoted companies financing proportions exceeded those of quoted companies. Confidence intervals for the non-parametric tests are derived on the assumption of binomial distributions.¹⁰

Quoted firms raise significantly more gross equity finance than unquoted firms, pay out a significantly higher proportion of their profits and, in general, grow significantly faster. However, they do not invariably raise significantly more equity finance on a net basis and there is some evidence that unquoted firms invest a significantly higher proportion of their total sources of finance in physical assets than quoted firms.

All the tables have suggested a pronounced difference in dividend policy between quoted and unquoted companies. Table 10 records

Table 12a TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN
MEANS OF UNQUOTED AND QUOTED SAMPLES, FIRST INDUSTRY PAIRING

	(Unquoted mean less quoted mean) Average	T-Statistic	-ve	Non-parametric Q	+ve
Sales Growth	-48.49	-2.873**	31	0	15*
Investment (£'000)	-4652.35	-1.807	29	0	17
Gross - Retentions	14.89	2.715**	16	0	29*
" - Equity	-14.86	-7.132**	36	5	4**
" - Medium Term	-7.42	-2.000*	22	0	23
" - Short Term	2.62	0.708	18	0	27
" - Trade Credit	4.78	1.535	23	0	22
Net - Retentions	36.01	1.678	23	0	23
" - Equity	-30.78	-2.574*	33	1	12**
" - Medium Term	-27.06	-1.397	25	0	21
" - Short Term	15.19	1.730	13	0	33**
" - Trade Credit	6.64	0.826	23	0	23
Payout Ratio	-17.48	-4.731**	40	0	5**
Investment/Profit	13.54	1.364	14	0	31*
Investment/Gross Total Sources	7.66	2.172*	17	0	28

Table 12b TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN
MEANS OF UNQUOTED AND QUOTED SAMPLES, SECOND INDUSTRY PAIRING

	(Unquoted mean less quoted mean) Average	T-Statistic	-ve	Non-parametric Q	+ve
Sales Growth	-50.51	-1.193	23	0	21
Investment (£'000)	-5035.91	-1.891	30	0	14*
Gross - Retentions	10.69	1.834	19	0	25
" - Equity	-17.30	-4.415**	39	3	2**
" - Medium Term	-2.85	-0.913	24	0	20
" - Short Term	13.21	2.381*	22	0	22
" - Trade Credit	-3.75	-0.685	20	0	24
Net - Retentions	15.67	1.090	22	0	22
" - Equity	-17.63	-2.178*	25	0	19
" - Medium Term	-9.72	-1.356	25	0	19
" - Short Term	25.45	1.696	18	0	26
" - Trade Credit	-13.78	-0.808	21	0	23
Payout Ratio	-12.22	-6.440**	37	0	5**
Investment/Profit	27.76	2.473*	15	0	27
Investment/Gross Total Sources	7.10	1.878	17	0	27

Table 12c TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS OF UNQUOTED AND QUOTED SAMPLES, ALTERNATING SIZE PAIRING

	(Unquoted mean less quoted mean) <u>Average</u>	<u>T-Statistic</u>	<u>-ve</u>	Non-parametric <u>0</u>	<u>+</u> <u>ve</u>
Sales Growth	-172.51	-2.007*	38	0	18**
Investment (£'000)	-4636.64	-1.828	32	0	24
Gross - Retentions	12.84	1.924	21	0	35
" - Equity	-16.92	-6.171**	47	7	2**
" - Medium Term	-4.38	-1.374	30	2	24
" - Short Term	1.95	0.593	26	0	30
" - Trade Credit	6.51	1.724	24	0	32
Net - Retentions	26.21	1.656	25	0	31
" - Equity	-11.24	-1.285	35	1	20*
" - Medium Term	-18.53	-2.200*	31	2	23
" - Short Term	-4.04	-0.339	27	0	29
" - Trade Credit	7.60	0.826	24	0	32
Payout Ratio	-13.42	-4.216**	47	0	8**
Investment/Profit	-9.86	-0.531	26	0	29
Investment/Gross Total Sources	5.47	1.272	20	0	36*

Notes to Tables 12a, 12b and 12c:

Source: Datastream

1. There are 46 pairings in Table 12a, 44 pairings in Table 12b and 56 pairings in Table 12c.
2. Unless otherwise shown the average differences are recorded as percentages.
3. The non-parametric tests report the number of cases where the unquoted company value less the quoted company value is positive, zero or negative.
4. The averages are weighted averages across years but simple arithmetic averages across companies. The weights are the relevant denominators of ratios where applicable.
5. The number of pairings included in the payout and investment ratio tests can fall below the total size of the sample because one or other company recorded negative average profits over the period of the analysis.
6. "Medium Term" is an abbreviation for medium and long term.
7. * denotes significant at the 5% level;
** denotes significant at the 1% level.

that during the recession of 1981 unquoted companies cut their dividend pay-out ratios by more than quoted firms. This probably in part reflects the larger growth in profit margins of unquoted than quoted companies as shown in the first two columns. However, it may also capture a greater degree of flexibility in holding or cutting dividends in the face of deteriorating financial conditions in the unquoted than the quoted sector. The closer control of unquoted companies may mean that dividends are not constrained by the signalling function that they perform in the quoted sector.

Table 13 provides some support for this proposition. In Panel A it reports the distribution of the number of cuts in dividends per share made by unquoted and quoted firms. Panel B reports tests of significance of the proposition of equal numbers of cuts by unquoted and quoted firms. With the exception of the alternating sample, the number of cuts of dividends per share by unquoted firms is greater than that of quoted firms. In the case of the first industry pairing, the difference is significant at the 5% level.

The profit measures reported previously referred to profit margins rather than rates of return on capital. Since historic cost accounting is used in the UK, measured rates of return are not in general informative. However, there was a brief period at the beginning of the 1980's when the UK experimented with current cost accounting. The experiment was later abandoned in the face of opposition from firms and declining inflation. Only some unquoted firms reported current cost information so that it is not possible to perform a complete analysis. However, an indication of the relative profitability of quoted and unquoted firms is available for the period 1980 to 1983. The sample of firms for which current cost accounting data were available are listed in Appendix 2.

Tables 14a to 14c confirm previous results that quoted firms are in general more profitable than unquoted firms. It reports three sets of statistics: rates of return on total capital employed, equity

Table 13

DIVIDEND CUTS

Panel A: Number of cuts in dividends per share

Complete samples

Number of Cuts (Maximum = 7) Pairing	Unquoted Quoted		Unquoted Quoted		Unquoted Quoted	
	First Industry Pairing	Second Industry Pairing	First Industry Pairing	Second Industry Pairing	Alternating	Quoted Size

0	27	41	26	35	32	34
1	11	4	11	5	14	11
2	5	1	4	2	6	7
3	2	0	2	2	3	4
4	1	0	1	0	1	0
Mean number of cuts	0.674	0.130	0.659	0.341	0.696	0.661

Incomplete samples

Proportion of maximum available cuts Pairing	Unquoted Quoted		Unquoted Quoted		Unquoted Quoted	
	First Industry Pairing	Second Industry Pairing	First Industry Pairing	Second Industry Pairing	Alternating	Size

0 - 10%	7	9	7	5	7	9
10 - 20%	1	1	1	2	2	0
20 - 30%	1	0	1	0	1	2
30 - 40%	1	1	1	2	1	0
40 - 50%	0	0	0	2	0	1
50 - 60%	1	0	1	0	1	0

Mean proportion of maximum available cuts

0.12	0.05	0.12	0.18	0.12	0.09
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Table 13 continued:

Panel B: Sample Pairings

<u>Complete samples</u>		Unquoted - Quoted:		Positive
Sample		Negative	Zero	
Alternating Size Pairing	14		26	16
First Industry Pairing	4		24	18*
Second Industry Pairing	5		25	14
<u>Incomplete samples</u>		Unquoted - Quoted:		Positive
Sample		Negative	Zero	
Alternating Size Pairing	3		5	4
First Industry Pairing	1		6	4
Second Industry Pairing	4		5	2

Notes to Table 13

Source: Datastream

1. The table refers to the number of reductions in dividend per share.
2. The maximum number of cuts in the complete samples is 7.
3. * denotes significant at the 5% level.

Table 14a

CCA SAMPLES: FIRST INDUSTRY PAIRING

Panel A: Profits plus total interest charges/Total capital employed

Year	Simple Averages		Weighted Averages	
	Unquoted	Quoted	Unquoted	Quoted
1980	18.16	17.09	7.75	7.75
1981	16.86	14.63	15.77	12.41
1982	14.26	22.12	12.06	22.75
1983	19.84	20.48	11.44	21.38
Average	16.54	17.90	12.39	13.77

Panel B: Profits/Total share capital plus reserves

1980	18.93	17.34	5.68	7.49
1981	16.07	13.42	15.42	11.27
1982	13.67	21.55	11.05	22.69
1983	19.44	22.85	10.18	24.26
Average	16.17	17.61	11.33	13.70

Table 14a continued:

Panel C: Sales/Total capital employed

1980	283.77	239.18	100.42	94.02
1981	251.86	260.39	168.71	260.83
1982	192.54	302.46	171.42	355.00
1983	189.36	419.53	159.34	513.17
Average	247.16	286.66	159.34	252.14

Panel D: Tests of significance

		(Unquoted-quoted)	Non-parametric	
		Average difference	T-Statistic	-ve 0 +ve
(1)	Profits plus total interest charges/Total Capital employed	-1.36%	-0.435	18 0 15
(2)	Profits/Total Share Capital plus reserves	-1.44%	-0.400	19 0 14
(3)	Sales/Total Capital employed	-39.49%	-1.114	17 0 16

Table 14b

CGA SAMPLES: SECOND INDUSTRY PAIRING

Panel A: Profits plus total interest charges/Total capital employed

Year	Simple Averages		Weighted Averages	
	Unquoted	Quoted	Unquoted	Quoted
1980	17.11	12.48	6.61	10.62
1981	18.00	12.26	13.16	13.53
1982	11.65	16.45	7.59	18.60
1983	9.18	21.40	6.49	16.26
Average	14.82	14.76	8.87	14.37

Panel B: Profits/Total share capital plus reserves

1980	17.20	9.72	3.80	9.45
1981	17.42	9.13	12.09	11.72
1982	10.28	15.19	5.36	18.67
1983	7.07	22.61	4.37	16.05
Average	13.98	12.85	6.92	13.80

Table 14b continued:

Panel C: Sales/Total capital employed

1980	296.51	228.92	134.55	136.90
1981	216.85	294.87	146.64	309.57
1982	172.67	357.83	141.62	319.00
1983	212.79	463.41	157.35	423.55
Average	225.44	319.06	145.77	278.04

Panel D: Tests of significance

		(Unquoted-quoted)	Non-parametric		
		Average difference	T-statistic	-ve	+ve
(1)	Profits plus total interest charges/Total capital employed	0.06%	0.018	14	0 13
(2)	Profits/Total share capital plus reserves	1.13%	0.253	14	0 13
(3)	Sales/Total capital employed	-93.62%	-1.740	14	0 13

Table 14c

CCA SAMPLES: ALTERNATING SIZE PAIRING

Panel A: Profits plus total interest charges/Total capital employed

Year	Simple Averages		Weighted Averages	
	Unquoted	Quoted	Unquoted	Quoted
1980	18.57	14.99	14.03	12.27
1981	15.63	18.54	13.92	21.29
1982	12.25	19.59	8.30	25.22
1983	18.78	21.74	11.80	19.59
Average	15.37	18.81	11.46	22.43

Panel B: Profits/Total share capital plus reserves

1980	18.10	15.60	12.80	11.52
1981	15.55	19.52	13.42	24.59
1982	11.72	22.83	6.64	33.15
1983	19.81	25.36	11.60	20.86
Average	15.25	20.75	10.53	26.90

Table 14c continued:

<u>Panel C: Sales/Total capital employed</u>			
1980	175.19	425.54	114.40
1981	284.06	347.27	178.00
1982	300.42	277.43	168.49
1983	239.94	307.13	132.06
Average	269.84	331.08	161.96

218.25
182.83
155.72
212.94
175.76

Panel D: Tests of significance

		(Unquoted-quoted)		Non-parametric		
		Average difference		T-Statistic	-ve	+ve
(1)	Profits plus total interest charges/Total capital employed	-3.44%		-1.199	26	14
(2)	Profits/Total share capital plus reserves	-5.50%		-1.601	26	14
(3)	Sales/Total capital employed	-61.24%		-0.957	23	17

Notes to Tables 14a, 14b and 14c:

Sources: Datastream, Dun's Europa and Key British Enterprises

1. The companies included in this sample are shown in Appendix 2. There are 16 pairs in Table 14a, 12 in Table 14b and 19 in Table 14c. There are 33 observations in total in Table 14a, 27 in Table 14b and 40 in Table 14c.
2. Both arithmetic and averages weighted by capital stock are shown.
3. Profits are internally generated sources of finance gross of depreciation and provisions as before.
4. Unlike the previous tables, tests of significance relate to individual observations, not to means over the sample period.
5. * denotes significant at the 5% level.

rates of return and output (sales) over capital ratios. In most cases, all three ratios are higher for quoted than unquoted firms, though the small size of samples makes it impossible to uncover any significant differences.

To summarize, this section has found quoted firms to be more profitable than unquoted firms, to pay out significantly more of their earnings in dividends, to cut their dividends less frequently than unquoted firms, to retain less, to raise more new equity finance on a gross but not so obviously on a net basis, to raise more medium and long term loans, to invest more in absolute terms but possibly less in relation to the total amounts of funds that they raise.

There is one important caveat to the results reported in this and the previous section. The samples of unquoted and quoted firms were selected on the basis of firms for which complete data were available over the period 1980 to 1987. Clearly a serious selection bias could have been introduced in the process. However, comparing the behaviour of incomplete samples raises difficult methodological problems. Ideally, a counterfactual question of the form what would have been the comparative performance of unquoted and quoted firms had they been in existence over the entire period should be answered. This is clearly not feasible. Instead, the following analysis was performed. A random set of 12 companies was selected from the 133 independent unquoted firms that were in the Times Top 1000 in 1980. These were matched with three sets of quoted firms in the same way as before. One of the unquoted companies could not be matched with an industry pair. The companies included in the sample are listed in Appendix 3. The performance of the unquoted and quoted firms was then compared over the common period for which they were in existence, irrespective of how long that period was.

There were 82 observations in the first industry pairing implying

a common survival period of 7.45 (out of 8 possible) years. There were 68 observations in the second industry pairing implying an average common survival period of 6.18 years. There were 78 observations in the alternating size pairing implying an average common survival period of 6.50 years. There were two incomplete cases (out of 11) in the first industry pairing and in both cases it was the unquoted company that was the cause of the truncation. There were 4 incomplete cases in the second industry pairing and in 3 cases it was the quoted company that was the immediate cause of the truncation. There were 6 incomplete cases in the alternating size pairing, with 4 of these being initially caused by a quoted company. The fact that truncation cannot in general be attributed to one or other class of firm reinforces the observation made above that rates of attrition of unquoted and quoted firms are similar.

Appendix 4 reproduces Tables 9 to 12 for the incomplete samples. The results reported previously still apply to this sample. Quoted firms grow more rapidly than unquoted firms. They invest more but there is some evidence that they invest a smaller proportion of their total sources of finance in physical investment. Quoted firms pay out a much higher proportion of their profits as dividends. They raise more equity finance on a gross but not necessarily on a net basis.

One result that is less transparent than before is the relative profit margins of unquoted and quoted firms. In some pairings quoted firms have higher profit margins than unquoted firms; in some it is the other way round. Another result that has to be treated with caution is the conclusion that unquoted firms are more willing to cut their dividends. Table 13 reports the result that the incidence of dividend cuts amongst quoted firms in the incomplete samples is higher than that in the complete samples. Dividend cuts are no longer invariably more prevalent amongst unquoted than quoted firms.

6. Interpreting the Results

This section attempts to provide an explanation for the observations of the previous sections. Table 15a reports the value of takeovers made by unquoted and quoted companies. It records a consistently higher level of takeovers by quoted companies. However, it was previously noted that quoted companies are also investing more than unquoted companies. The question therefore arises as to whether they are spending more on takeovers than unquoted companies in relation to their capital expenditure.

Table 15b shows that indeed they are. It reports the ratio of expenditures on takeovers to capital expenditures. While unquoted companies spend around 10% of their capital expenditures on takeovers, quoted companies spend appreciably more. Table 15c reports that the differences are highly significant.

The higher growth of quoted firms is therefore in large part attributable to takeovers rather than internal expansion. A significant proportion of quoted firms' external financing is going towards purchasing other companies. Hence while gross equity issues by quoted companies are significantly in excess of those of unquoted firms, differences in net equity issues are less pronounced.

By any account, the performance of the quoted firms is impressive in relation to that of the unquoted firms. The quoted firms grow more rapidly, they are able to expand through takeover, they can raise new equity to fund takeovers and internal investment, they raise more medium and long term finance, they display higher labour productivity, they have higher profitability and they pay out more dividends to their shareholders. Furthermore, high R&D industries correspond with those sectors in which quoted companies are comparatively more concentrated. There is therefore very little

Table 15a Acquisitions by Companies in the Three Samples (f.000)

Sample:	First Industry Pairing		Second Industry Pairing		Alternating Size Pairing	
	Unquoted	Quoted	Unquoted	Quoted	Unquoted	Quoted
Year:						
1980	8826	77365	8243	72469	8826	28217
1981	18057	59337	17735	82324	18320	46802
1982	25201	109850	24874	120225	91908	245884
1893	8344	102880	7349	67667	8415	194967
1984	47055	189558	44376	239168	47055	649573
1985	15001	192674	14807	384131	15027	543119
1986	24028	309119	22476	542640	24327	2342314
1987	60359	337240	58327	797078	60408	1332079
Average	25858.97	172252.8	24773.37	288212.7	34285.75	672869.3
Growth	583.88%	335.91%	607.59%	999.89%	584.43%	4620.84%

Acquisitions as a Percentage of Physical Investment

Table 15b

Sample	First Industry Pairing		Second Industry Pairing		Alternating Size Pairing	
	Unquoted	Quoted	Unquoted	Quoted	Unquoted	Quoted
Year:						
1980	4.42	20.02	4.28	22.20	3.37	9.96
1981	12.21	26.48	12.09	30.35	12.92	18.06
1982	10.03	28.82	10.20	35.02	31.44	63.22
1983	3.55	26.85	3.23	30.59	3.07	44.87
1984	15.20	39.18	14.89	46.46	14.33	102.27
1985	4.89	31.51	4.97	69.51	4.42	120.29
1986	9.92	42.13	9.44	74.32	8.95	206.11
1987	12.90	48.91	12.76	88.66	11.79	143.02
Average:	9.14	32.99	8.98	49.64	11.29	88.48
Weighted Average:	9.58	35.40	9.43	59.75	11.32	119.08

Table 15c

Tests of Significance of Differences Between Means of Acquisition/
Physical Investment of Unquoted and Quoted Samples

(Unquoted mean less quoted mean)

	<u>Average</u>	<u>T-statistic</u>	<u>Non - Parametric</u>	
			<u>-ve</u>	<u>+ve</u>
First Industry Pairing	-80.51	-1.529	34	1 11**
Second Industry Pairing	-55.96	-2.249*	34	0 10**
Alternating Size Pairing	-52.07	-2.734**	37	2 17**

Notes to Tables 15a, 15b and 15c:

Source: Datastream

1. Acquisitions are measured as investment in new subsidiaries plus purchase of goodwill on acquisition. Where available this was checked against consideration paid on acquisition. However, this information is incomplete and is shown net of funds received from disposal of subsidiaries.
2. To examine whether quoted companies are more heavily concentrated in high acquisition industries a second alternating sample was collected. There were 32 pairs of companies in this matching. Figures of acquisitions divided by physical investment were:

	<u>Unquoted</u>	<u>Quoted</u>
1980	3.27	14.70
1981	10.34	31.74
1982	38.66	90.88
1983	4.02	38.18
1984	15.22	28.25
1985	5.14	131.95
1986	8.80	63.85
1987	9.78	164.28
Simple Average	11.90	70.48
Weighted Average	12.41	80.32

This supports the hypothesis that quoted firms are concentrated in high acquisition industries.

Simple averages are weighted by physical investment of the company in question but not by the total across companies. Weighted averages are also weighted by total physical investment in the year.

4. * denotes significant at the 5% level; ** denotes significant at the 1% level.

support for criticisms that are levelled against stock markets.

However, before coming to this conclusion a number of caveats are in order. The first is that Shleifer and Summers have suggested that expansion through takeover may come at the expense of stakeholders in target firms. More generally, the impressive performance of quoted firms may be to the detriment of other stakeholders, most notably employees.

Table 16 attempts to shed some light on this by looking at the employment and asset disposal record of quoted and unquoted firms. It reports (a) the variability (the standard deviation) of employment in the various samples, (b) the incidence of large employment declines (in excess of 5% of the labour force) and (c) sales of assets as a proportion of purchases of assets. If the growth and earnings of quoted firms are coming at the expense of other stakeholders, a higher variability in employment, a larger number of significant employment declines and more asset disposals would be expected.

One problem that the asset disposal measure presents is that if quoted firms acquire more assets through takeover then they may be able to dispose of more assets without affecting their existing asset base. As a consequence, sales of assets are shown as a proportion of purchases of assets including as well as excluding purchases of new subsidiaries. Panel D of Table 16 reports tests of significance of differences between quoted and unquoted samples.

There is no evidence that employees in quoted firms face greater variability in employment or greater risk of substantial employment declines. Average standard deviations of employment and proportions of large employment declines are similar in quoted and unquoted firms. There is some weak evidence of more asset disposals in quoted than unquoted firms but for the most part, while the differences are consistently signed, they are not significant. The possibility remains that if target firms are

Table 16 Variability of Employment and Fixed Assets

	Employment: Average Standard Deviation	Employment: Falls >5%	<u>Sales of Assets</u> Purchases of assets (%)	<u>Sales of Assets</u> Purchases of assets and new subsidiaries (%)
<u>Panel A:</u>				
<u>First Industry Pairing</u>				
Quoted:	15.38	0.756	28.81	24.39
Unquoted:	14.63	0.956	22.65	21.39
<u>Panel B:</u>				
<u>Second Industry Pairing</u>				
Quoted:	13.69	1.159	26.86	23.17
Unquoted:	15.89	1.000	23.01	21.72
<u>Panel C:</u>				
<u>Alternating Size Pairing</u>				
Quoted:	17.03	1.148	26.37	22.06
Unquoted:	13.04	0.981	23.06	21.85

Panel D: Tests of Significance

Unquoted - Quoted

Sample Item:	First Industry Pairing Non-Para Mean T-Stat metric -ve 0 +ve	Second Industry Pairing Non-Para Mean T-Stat metric -ve 0 +ve	Alternating Size Pairing Non-Para Mean T-Stat metric -ve 0 +ve
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Employment: Average Standard Deviation	-0.75%	-0.237	27	0	18	2.20%	0.597	26	0	18	-3.99%	-1.242	34	0	20
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Employment: Falls >5%	0.200	0.964	11	18	16	-0.159	-0.954	17	15	12	-0.167	-0.845	18	18	18
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<u>Sales of assets</u> Purchases of Assets	-6.17%	-1.771	27	0	19	-3.84%	-1.180	22	0	22	-3.31%	-0.976	36	0	20*
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<u>Sales of Assets</u> Purchases of Assets and New Subs	-2.90%	-0.927	26	0	20	-1.45%	-0.482	23	0	21	-0.21%	-0.069	34	0	22
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Notes to Table 16: Source: Datastream

1. Column 2 (Row 2 in Panel D) shows the average number of years per company in which employment declined by more than 5%.
2. * denotes significant at the 5% level.

small in relation to acquiring firms that significant breaches of trust in targets will not be registered. However, to the extent that this evidence is reliable it provides little support for the breach of trust thesis.

A second reason for caution in interpreting the results is that the original decision to go public may not have been voluntary. One of the striking features of the results reported in this paper is how similar they are to those quoted in the comparison of large UK and German companies by Mayer and Alexander (1990). Large German firms look very much like the large unquoted firms in this analysis. They pay out less dividends in relation to their profits than UK firms, they retain more, they raise less medium and long term finance and they raise less new equity finance on a gross but not a net basis.

One explanation for these differences is the way in which German and UK corporations are financed and controlled. German companies enjoy long term relations with their banks. These have encouraged the provision of more long term finance by banks to German than UK firms. Owners of unquoted firms in the UK that have had to fund large investment programmes, pay death duty on inheritance of a firm or pay off some of the other heirs to a firm, have had to turn to the stock market rather than banks for finance.¹¹ If they had the option, some UK firms may not have chosen to go public in the first place. Furthermore, those that had gone public may have sort a very different type of ownership and control structure from the one that they encounter in the UK.

Through their long term relations with banks, German companies enjoy a large measure of protection from threats of takeovers. As holders of bearer shares, German banks are able to exercise proxy votes on behalf of individual investors. These have limited the degree of outside control that can be exercised through takeover. In the whole of the post second world war period there have been only three known cases of hostile

takeovers (two of which have been in the last three years).

One of the effects of this protection may have been to allow German firms to pay lower dividends and retain more for investment. Unlike their UK counterparts, German firms have not had to use dividends as a mechanism for deterring potential predators. Alternatively, high dividends may have been used by UK firms to allow them to access one of the few sources of long term finance available to them, namely new equity issues.

The high dividend distribution may in turn have encouraged growth through takeover rather than internal investment. The reason for this is that if firms are forced to maintain high dividends per share then they need to invest in activities that yield immediate cash flows. The gestation period in green field investments may be just too long to allow firms to maintain constant or growing dividend paths and takeovers that promise immediate cash flows therefore offer an attractive alternative.

In sum then a combination of lack of long bank term finance and the absence of dominant long term institutional investors may have forced firms to seek quotations on markets that thereafter extracted high dividends and encouraged expansion through takeover rather than capital expenditure. It is therefore difficult to reject the view that what appears to be strong evidence in support of stock markets is in fact symptomatic of precisely the problem of which industrialists have been complaining. High dividends and the balance of expansion between capital expenditure and takeover may be the best evidence available to us of a short-termism problem.

APPENDIX 1

COMPANIES INVOLVED IN THE STUDY AND THEIR PAIRINGS

Unquoted Company	First Industry Sample	Second Industry Sample	Alternating Size Sample
Littlewoods	Tesco	Booker	Asda
T: 64 SIC: 64	T: 33 SIC: 64	T: 74 SIC: 641	T: 63 SIC: 413
John Lewis	Great Universal Stores	Freeman Stores	Hanson Industries
T: 89 SIC: 656	T: 30 SIC: 656	T: 225 SIC: 656	T: 93 SIC: 483
C&J Clark	Kwik Save Group	Fitch Lovell	Simon Engineering
T: 169 SIC: 646	T: 176 SIC: 641	T: 107 SIC: 641	T: 175 SIC: 32
Palmer & Harvey	Vaux Breweries	Watson & Phillip	English China Clays
T: 171 SIC: 617	T: 493 SIC: 617	T: 550 SIC: 617	T: 167 SIC: 231
Tioxide	Laporte	Fisons	Bejam
T: 287 SIC: 251	T: 342 SIC: 251	T: 144 SIC: 251	T: 291 SIC: 641
Kaye Organisation ²	Dobson Park	Blackwood Hodge	Hartwells
T: 306 SIC: 325	T: 283 SIC: 325	T: 187 SIC: 325	T: 305 SIC: 656
TWIL	Bridon	Lee (A)	Portals Holdings
T: 351 SIC: 223	T: 295 SIC: 223	T: 577 SIC: 223	T: 349 SIC: 17
Witworths	Greenall Whitley	Bibby (J)	Armstrong Equipment
T: 369 SIC: 423	T: 274 SIC: 427	T: 271 SIC: 422	T: 363 SIC: 651
Shepherd Building	Mowlem	McAlpine (A)	Perry Group
T: 395 SIC: 500	T: 234 SIC: 500	T: 208 SIC: 500	T: 397 SIC: 325
Linpac	Chamberlain-Philpps	Aarons Bros	British Vita
T: 458 SIC: 483	T: 585 SIC: 483	T: 690 SIC: 483	T: 459 SIC: 723
Tennants ³	Coates Brothers	Croda Int	Saatchi & Saatchi
T: 465 SIC: 25	T: 405 SIC: 25	T: 199 SIC: 25	T: 480 SIC: 838
Oppenheimer	GEI International	Howden Group	Scape
T: 510 SIC: 32	T: 603 SIC: 32	T: 410 SIC: 328	T: 509 SIC: 43
Burgess (F)	Unitech	Lookers	Burnett & Hallamshire
T: 519 SIC: 614	T: 551 SIC: 614	T: 573 SIC: 614	T: 512 SIC: 612
Billington (E)	Carr's Milling	United Biscuits	Volex
T: 533 SIC: 41	T: 916 SIC: 41	T: 70 SIC: 41	T: 534 SIC: 34

Unquoted Company

Surridge Dawson
 T:566 SIC:642
 Napier Brown
 T:576 SIC:617
 OCS
 T:587 SIC:923
 Miller Group
 T:628 SIC:501
 Guardlan
 T:634 SIC:475
 Fenwick
 T:659 SIC:656
 Weetabix
 T:660 SIC:423
 Wiltshier
 T:673 SIC:501
 MAT International
 T:696 SIC:723
 Brintons Carpets
 T:717 SIC:438
 Longley (J)
 T:758 SIC:50
 Wood (J)
 T:759 SIC:32
 Harbutions
 T:767 SIC:419
 Kyle Stewart
 T:777 SIC:50
 Diggleworth
 T:823 SIC:616
 Tunnel Refineries
 T:826 SIC:416

First Industry Sample

Preedy (A)
 T:580 SIC:642
 Watson & Phillip
 T:550 SIC:617
 Rentokil
 T:489 SIC:921
 Lawrence (W)
 T:610 SIC:501
 Collins
 T:613 SIC:475
 Fine Art Development
 T:526 SIC:656
 Wolverhampton & Dudley
 T:616 SIC:427
 Turriff
 T:677 SIC:501
 British Vita
 T:459 SIC:723
 Corah
 T:803 SIC:436
 T:ilbury
 T:678 SIC:50
 EIS
 T:751 SIC:32
 Mathews (B)
 T:796 SIC:412
 T:ilbury
 T:678 SIC:50
 Brammer
 T:797 SIC:614
 Mathews (B)
 T:796 SIC:412

Second Industry Sample

Next
 T:627 SIC:645
 Vaux Breweries
 T:493 SIC:617
 Turriff
 T:677 SIC:501
 Grampian Holdings
 T:605 SIC:475
 Bentalls
 T:792 SIC:656
 Highland Dist
 T:609 SIC:424
 Lawrence
 T:610 SIC:501
 TDG
 T:205 SIC:723
 Dawson
 T:339 SIC:431
 Cleeson (M J)
 T:581 SIC:50
 Bullough
 T:735 SIC:32
 Cliffords Foods
 T:731 SIC:413
 Cleeson (M J)
 T:581 SIC:50
 Cowan de Groot
 T:791 SIC:615
 Carr's Milling
 T:916 SIC:41

Alternating Size Sample

Wills Group
 T:564 SIC:839
 Lookers
 T:573 SIC:614
 Baseetts Foods
 Next
 T:627 SIC:645
 Redearn
 T:647 SIC:247
 Electrocomponents
 T:662 SIC:247
 Whessoe
 T:658 SIC:320
 Waddington (J)
 T:663 SIC:472
 Myson
 T:695 SIC:32
 Diploma
 T:711 SIC:998
 BBS
 T:754 SIC:222
 Geers Gross
 T:765 SIC:838
 Geers Gross
 T:765 SIC:838
 Ruberold
 T:779 SIC:483
 Johnston
 T:827 SIC:328
 Ratcliffe Great Bridge
 T:822 SIC:224

Alternating Size Sample

Second Industry Sample

First Industry Sample

Unquoted Company

Forth Wines	Glover Glass	Clark (M)	Elis & Goldstein
T:839 SIC:617	T:880 SIC:617	T:688 SIC:617	T:832 SIC:645
Robinson & Sons	Lister & Co	Corah	EMAP
T:842 SIC:432	T:855 SIC: 43	T:803 SIC:436	T:843 SIC:475
MacMillan	EMAP	Trinity	Century Oils
T:852 SIC:475	T:843 SIC:475	T:733 SIC:475	T:854 SIC:140
Favor Parker	Bibby (J)	Greene King	Strong & Fisher
T:861 SIC:422	T:271 SIC:422	T:739 SIC:427	T:865 SIC:441
Unwins Wines	Preedy (A)	Austin Reed	Alexander's
T:878 SIC:642	T:580 SIC:642	T:860 SIC:645	T:876 SIC:614
Colt International	United Scientific	Time Products	Allied Colloids
T:885 SIC: 37	T:944 SIC:373	T:998 SIC:374	T:893 SIC:251
Tullis Russell	Associated Paper Ind	Bunzl	Newman-Tonks
T:892 SIC:471	T:784 SIC:471	T:386 SIC:471	T:883 SIC: 31
Belling	LEC Refrigeration		Western Motors
T:904 SIC:346	T:937 SIC:346		T:897 SIC:614
Berry Bros & Rudd	Glover Glass	Clark (M)	Reed Executive
T:909 SIC:617	T:880 SIC:617	T:688 SIC:617	T:907 SIC:839
Bayford & Co	Burnett & Hallamshire	AAH	Carr's Milling
T:910 SIC:612	T:512 SIC:612	T:163 SIC:612	T:916 SIC: 41
Prosper de Mulder	Mathews (B)	Northern Foods	Reed Executive
T:914 SIC:412	T:796 SIC:412	T:114 SIC:412	T:907 SIC:839
Clugston	Dyson (J&J)	Redfearn	Mander's Holdings
T:919 SIC:245	T:921 SIC:248	T:647 SIC:247	T:920 SIC:255
Lancer Boss	Dobson Park	Blackwood Hodge	Wellman Engineering
T:954 SIC:325	T:283 SIC:325	T:187 SIC:325	T:952 SIC:324
MW Mack	Glover Glass	Clark (M)	Parkland Textiles
T:957 SIC:617	T:880 SIC:617	T:688 SIC:617	T:958 SIC:?
Marshall's of Camb.	British Vita	TDG	Readicut International
T:485 SIC:722	T:459 SIC:723	T:205 SIC:723	T:483 SIC: 43
Frank Fehr	Vaux Breweries	Ferguson Ind	Vaux Breweries
T:491 SIC: 61	T:493 SIC:617	T:501 SIC:613	T:493 SIC:617

Unquoted Company	First Industry Sample	Second Industry Sample	Alternating Size Sample
Hostcombe T:993 SIC:?			Booth International T:991 SIC:502
Carter (RG) T:671 SIC:?			Tuxrill T:677 SIC:501
Roberts (T) T:674 SIC:?			Tuxrill T:677 SIC:501
Marshall (DB) T:916 SIC: 10			Reed Executive T:907 SIC:839
Grant (W) T:698 SIC:?			Banks (SC) T:700 SIC:611
Londis T:679 SIC:?			Tilbury T:678 SIC: 50
Bailey (NG) T:877 SIC:?			Glover Glass T:880 SIC:617
Swire (J) T:513 SIC:763			United Newspapers T:520 SIC:475
Ace Belmont ⁶ T:936 SIC:?			IEC Refrigeration T:937 SIC:346
Associated Octel T:639 SIC:?			Blagden Industries T:638 SIC:316
Notes:	1 now renamed as P&H(1925)		
	2 now renamed as The Linde Organisation		
	3 full name is Tennants Consolidated		
	4 was originally named James Miller and Partners		
	5 full name is The Guardian and Manchester Evening News		
	6 now renamed as Minstergate Plc.		
	T denotes ranking in the Times 1000 in 1980		
	SIC denotes Standard Industrial Classification		

APPENDIX 2

COMPANIES INVOLVED IN THE CCA SAMPLE AND THEIR PAIRINGS.

Unquoted Company	First Industry Sample	Second Industry Sample	Alternating Size
Associated Octel T:639 SIC: 25	Carlee Capel T:606 SIC:251	Sequa T:693 SIC:255	Sketchley T:640 SIC:981
Bailey, N.G. T:877 SIC: 34	Associated Lelure T:911 SIC:345	Life Sciences T:922 SIC:344	Glover Glass T:880 SIC:617
Belling T:904 SIC:346	LEC T:937 SIC:346	N/A	Ass. Book Publishers T:903 SIC:475
Brintons Carpets T:717 SIC:438	Debron Investments T:375 SIC:438	Shaw Carpets T:926 SIC:438	Diploma T:711 SIC:998
Burgess T:519 SIC:614	TC Harrison T:536 SIC:614	Unitech T:551 SIC:614	Hoveringham T:518 SIC:231
Clark, C.&J. T:169 SIC:646	Kwik Save T:176 SIC:641	B.H.S. T:142 SIC:645	Granada T:168 SIC:846
The Guardian ¹ T:634 SIC:475	Collins T:613 SIC:475	Grampian T:605 SIC:475	May & Hassell T:631 SIC:613
Haverhill Meat ² T:569 SIC:412	Mathews, B. T:796 SIC:412	F.M.C. T:131 SIC:412	Senior Engineering T:570 SIC:998
Linpac Containers T:458 SIC:483	Chamberlain Phipps T:585 SIC:483	Aaronson Brothers T:680 SIC:483	British Vita T:459 SIC:723
Littlewoods Organisation T: 64 SIC: 64	Woolworths T: 67 SIC: 64	Tesco T: 33 SIC: 64	Trafalgar House T: 65 SIC:502
O.C.S. T:587 SIC:923	Rentokil T:489 SIC:923	Pritchards T:473 SIC: 92	Chamberlain Phipps T:585 SIC:483

Unquoted Company	First Industry Sample	Second Industry Sample	Alternating	Size
P.&H. (1925) ³	Linford	Bishop's Stores	ML Meyer	
T:171 SIC:617	T: 68 SIC:617	T:297 SIC:617	T:174 SIC:?	
Higgs ⁴	N/A	N/A	Time Products	
T:989 SIC 10			T:998 SIC:374	
Roberts, T.	N/A	N/A	Turrliff	
T:674 SIC:?			T:677 SIC:501	
Shepherd Building	London & Northern	French Kier Holdings	L.A.S.M.O.	
T:395 SIC:500	T:268 SIC:500	T:244 SIC:500	T:394 SIC:130	
Tl oxide	Laporte	Fisons	Ass. Communications	
T:287 SIC:251	T:342 SIC:251	T:144 SIC:251	T:288 SIC:974	
Warburtons	Mathews, B.	Cliffords Foods	Geers Gross	
T:767 SIC:419	T:796 SIC:412	T:731 SIC:413	T:765 SIC:838	
Weetabix	Wolverhampton ⁵	Highland Distillers	Whessoe	
T:660 SIC:423	T:616 SIC:427	T:609 SIC:424	T:658 SIC:320	
Wiltshier	Turrliff Corporation	Lawrence, W.	Caffyns	
T:673 SIC:501	T:677 SIC:501	T:610 SIC:501	T:670 SIC:614	
Heron Corporation ⁶	Menzies, J.	A.A.H.	Smiths Industries	
T:181 SIC: 61	T:192 SIC:619	T:163 SIC:612	T:179 SIC: 37	
McLaughlin & Harvey ⁶	N/A	N/A	Diploma	
T:764 SIC:?			T:711 SIC:998	
Trentham, G.P. ⁶	W.G.I.	Anderson Strathclyde	Caffyns	
T:669 SIC:502	T:723 SIC:502	T:548 SIC:502	T:670 SIC:614	
United Baltic ⁶	European Ferries	Ocean Group	Stakis	
T:614 SIC:740	T:253 SIC:740	T:109 SIC:740	T:615 SIC:665	
Wallis, G.E. ⁶	Wilson Connolly	Booth International	F.G. Gates	
T:950 SIC: 50	T:973 SIC:501	T:991 SIC:502	T:951 SIC:998	

Notes to Appendix 2

- 1 Full name is The Guardian and Manchester Evening News.
 - 2 This company was excluded from the original main sample due to the fact that data is only available for the time period 1981-1987.
 - 3 Was originally called Palmer & Harvey.
 - 4 This company was excluded from the main sample due to the fact that it has a negative total Physical Investment figure for the period 1980-1987.
 - 5 Full name is Wolverhampton & Dudley.
 - 6 These companies were not included in the original sample due to the fact that they cease to be independent or unquoted during the 1980-1987 period. For the time period considered for the CCA sample this change of status does not pose a problem.
- T denotes ranking in the Times 1000 in 1980.
SIC denotes Standard Industrial Classification.

APPENDIX 3

COMPANIES USED IN THE "INCOMPLETE" SAMPLES AND THEIR PAIRINGS.

Unquoted Company	First Industry Sample	Second Industry Sample	Alternating Size
Macmillan T:852 SIC:475	EMAP T:843 SIC:475	Assoc. Book Publishing T:903 SIC:475	Martonaalr T:853 SIC:328
Bartfeld T:901 SIC:645	Austin Reed T:860 SIC:645	Elis & Goldstein T:832 SIC:645	Moben T:899 SIC:467
Tennants Consolidated T:465 SIC: 25	Coates Brothers T:405 SIC: 25	Croda International T:199 SIC: 25	Monk T:460 SIC: 50
J.C.B. T:462 SIC:325	Dobson Park T:283 SIC:325	Blackwood Hodge T:187 SIC:325	Extel T:486 SIC:645
Miller Group T:628 SIC:501	Lawrence, W. T:610 SIC:501	Turrliff Corporation T:677 SIC:501	Next T:627 SIC:645
Swire, J. T:513 SIC:763	N/A	N/A	NSM T:512 SIC:612
Guardian T:634 SIC:475	Collins T:613 SIC:475	Gramplan T:605 SIC:475	Blagden Industries T:638 SIC:998
Haverhill Meat Products T:569 SIC:412	Mathews, B. T:796 SIC:412	FMC T:131 SIC:412	Senior Engineering T:570 SIC:998
A.T. Mays T:824 SIC:770	LEP T:625 SIC:770	Horizon Travel T:547 SIC:770	Ratcliffe Great Bridge T:822 SIC:224
Oppenheimer T:510 SIC: 32	Newman Industries T:537 SIC: 32	Folkes Group T:567 SIC: 32	NSM T:512 SIC:612
P.H. (1925) T:171 SIC:617	Dee Corporation ¹ T: 68 SIC:617	Bishop's Stores T:297 SIC:617	Granada T:168 SIC:846
Overseas Containers T:155 SIC:740	Ocean Group T:109 SIC:740	European Ferries T:253 SIC:740	Granada T:168 SIC:846

Notes to Appendix 3

- ¹ Now called Gateway.
- T denotes ranking in Times 1000.
- SIC Standard Industrial Classification.

APPENDIX 4

Table 17a

SALES, EMPLOYMENT AND INVESTMENT OF THE SAMPLE OF UNQUOTED AND QUOTED COMPANIES, 1980 - 1987: INCOMPLETE SAMPLE - FIRST INDUSTRY PAIRING

	SALES (£,000)		INVESTMENT (£,000)		EMPLOYMENT	
	UNQUOTED	QUOTED	UNQUOTED	QUOTED	UNQUOTED	QUOTED
1980	1218215	2148372	121887	78379	10770	28661
1981	1400673	2394463	129796	38738	12466	29311
1982	1622350	2514034	76985	60449	12348	34338
1983	1751562	2387749	115813	62142	22217	37231
1984	1934079	3181794	76985	152845	22811	57905
1985	2031632	4199909	64117	218592	22128	73849
1986	1581702	3975928	15808	272432	22622	71798
1987	1794489	6026706	92879	385708	17504	107462
Average:	1666837	3353619	86783.75	158660.6	17858.25	55075.62
Growth:	47.30%	180.53%	-23.80%	392.11%	62.53%	274.94%

Table 17b

**SALES, EMPLOYMENT AND INVESTMENT OF THE SAMPLE OF UNQUOTED AND QUOTED
COMPANIES, 1980 - 1987: INCOMPLETE SAMPLE - SECOND INDUSTRY PAIRING**

	SALES (£,000)		INVESTMENT (£,000)		EMPLOYMENT	
	UNQUOTED	QUOTED	UNQUOTED	QUOTED	UNQUOTED	QUOTED
1980	1251622	1278631	121887	123207	10770	32626
1981	1430895	2185919	129796	75363	12466	28874
1982	1656668	2524861	76985	134881	12348	21430
1983	1679519	1403468	107506	-3688	19991	29907
1984	1364658	3232457	78003	254663	17664	48385
1985	1359947	2535216	44675	17058	16402	46695
1986	878195	2295917	34912	99702	12241	42143
1987	930947	2201092	60101	59977	1115	42587
Average:	1319056	2207195	653865	95145.37	14124.62	36580.87
Growth:	-25.62%	72.14%	-50.69%	-51.32%	3.20%	30.53%

Table 17c

SALES, EMPLOYMENT AND INVESTMENT OF THE SAMPLE OF UNQUOTED AND QUOTED COMPANIES, 1980 - 1987: INCOMPLETE SAMPLE - ALTERNATING SIZE PAIRING

	SALES (£,000)		INVESTMENT (£,000)		EMPLOYMENT	
	UNQUOTED	QUOTED	UNQUOTED	QUOTED	UNQUOTED	QUOTED
1980	1033746	906660	141729	60017	7535	28604
1981	1343902	1029155	93455	53829	9306	26612
1982	1347877	1327314	102501	129412	12448	35676
1983	1450605	1542760	111734	76942	22740	29104
1984	2147062	2223778	82654	185880	26052	51001
1985	2194362	2387971	81637	105179	25410	51416
1986	1677116	1789128	18384	130609	24360	41230
1987	1397224	2562543	74734	274196	17832	45523
Average:	1573986	1721163	88353.5	127008	18210.37	38645.75
Growth:	35.16%	182.64%	-47.27%	356.86%	136.66%	59.15%

Notes to Tables 17a, 17b and 17c:

1. The incomplete samples were constructed as follows. 12 unquoted companies were chosen at random from the total population of independent unquoted companies in the Times 1000 in 1980. The three sets of paired samples were then selected with no restriction on whether pairs survived over the entire sample period. One of the unquoted companies could not be matched with the industry pair. Comparisons were then made over the common period for which the unquoted and quoted companies survived.

2. There were 82 observations in the first industry pairing implying an average common survival period of 7.45 years (out of 8 possible years). There were 68 observations in the second industry pairing implying an average common survival period of 6.18 years. There were 78 observations in the alternating size pairing implying an average common survival period of 6.50 years.

3. The causes of incomplete data were:

	First Industry Pairing	Second Industry Pairing	Alternating Size Pairing
Unquoted Company	2	1	2
Quoted	0	3	4

Table 18a

AVERAGE FINANCIAL RATIOS OF UNQUOTED AND QUOTED COMPANIES,
1980 - 1987: INCOMPLETE SAMPLE - FIRST INDUSTRY PAIRING

	PROFIT/SALES		DIVIDENDS/PROFITS		INVESTMENT/PROFITS	
	UNQUOTED	QUOTED	UNQUOTED	QUOTED	UNQUOTED	QUOTED
1980	6.86	4.32	21.90	22.67	145.90	84.46
1981	5.51	3.06	66.72	33.46	168.26	52.88
1982	6.22	2.71	15.90	38.01	76.29	88.74
1983	5.68	7.21	8.78	13.37	116.34	36.08
1984	9.14	3.63	8.79	27.24	43.56	132.38
1985	5.74	5.87	15.58	16.77	54.94	88.70
1986	4.65	3.71	13.51	38.56	21.47	184.71
1987	4.60	4.62	4.97	30.52	112.47	138.45
Average:	6.08	4.45	17.47	25.89	85.63	106.27

Table 18b

AVERAGE FINANCIAL RATIOS OF UNQUOTED AND QUOTED COMPANIES,
1980 - 1987: INCOMPLETE SAMPLE - SECOND INDUSTRY PAIRING

	PROFIT/SALES		DIVIDENDS/PROFITS		INVESTMENT/PROFITS	
	UNQUOTED	QUOTED	UNQUOTED	QUOTED	UNQUOTED	QUOTED
1980	6.67	3.67	21.90	26.07	145.90	262.38
1981	5.39	4.22	66.72	23.02	168.26	81.73
1982	6.09	4.20	15.90	25.47	76.29	127.33
1983	5.72	3.76	9.10	39.25	111.93	-7.00
1984	12.67	7.04	8.98	20.69	45.11	111.88
1985	8.08	3.68	16.53	41.72	40.63	18.26
1986	6.34	7.14	17.87	17.56	62.74	60.78
1987	7.44	7.41	5.20	18.89	86.77	36.77
Average:	7.25	5.36	18.68	23.98	85.43	80.47

Table 18c

AVERAGE FINANCIAL RATIOS OF UNQUOTED AND QUOTED COMPANIES,
1980 - 1987: INCOMPLETE SAMPLE - ALTERNATE SIZE PAIRING

	PROFIT/SALES		DIVIDENDS/PROFITS		INVESTMENT/PROFITS	
	UNQUOTED	QUOTED	UNQUOTED	QUOTED	UNQUOTED	QUOTED
1980	10.54	4.93	18.45	26.32	130.12	134.21
1981	8.42	6.74	47.32	17.45	82.56	77.62
1982	7.95	8.92	17.67	11.86	95.61	109.36
1983	6.60	6.09	11.86	20.57	116.77	81.95
1984	8.11	9.96	12.21	14.65	47.49	83.92
1985	12.78	0.93	7.80	641.67	29.12	473.01
1986	3.47	9.92	26.82	17.31	31.59	73.56
1987	1.58	12.35	56.30	18.48	338.84	86.61
Averages:	7.62	7.73	18.25	30.22	73.65	95.48

TABLE 19A

FINANCING PROPORTIONS OF UNQUOTED AND QUOTED COMPANIES,

FIRST INDUSTRY PAIRING

Gross Financing as a % of Total Sources	Retentions	Equity	Medium and Long term	Short Term	Trade Credit	Total
Unquoted	68.82	2.96	1.20	-0.97	27.99	100.00
Quoted	28.29	44.09	-0.86	1.78	26.71	100.00
Net Financing as a % of Physical Investment	Retentions	Equity	Medium and Long term	Short term	Trade credit	Total
Unquoted	96.28	-3.12	1.68	-6.08	11.23	100.00
Quoted	69.74	-5.09	-2.13	-6.26	43.74	100.00
Other Ratios	Payout Ratio	P.I./Gross Total Sources				
Unquoted	17.47	71.48				
Quoted	25.89	40.56				

TABLE 19B

FINANCING PROPORTIONS OF UNQUOTED AND QUOTED COMPANIES,

SECOND INDUSTRY PAIRING

Sample

Gross Financing as a % of Total Sources	Retentions	Equity	Medium and Long term	Short Term	Trade Credit	Total
Unquoted	72.26	3.33	-1.42	2.39	23.44	100.00
Quoted	58.95	21.90	5.24	-5.10	19.01	100.00
Net Financing as a % of Physical Investment	Retentions	Equity	Medium and Long term	Short term	Trade Credit	Total
Unquoted	95.37	1.87	-1.87	-1.98	6.62	100.00
Quoted	94.45	7.84	8.39	-15.02	4.34	100.00
Other Ratios	Payout Ratio		P.I./Gross Total Sources			
Unquoted	18.68		75.77			
Quoted	23.98		62.41			

TABLE 19C

FINANCING PROPORTIONS OF UNQUOTED AND QUOTED COMPANIES,

ALTERNATIVE SIZE PAIRING

Sample		Retentions	Equity	Medium and Long term	Short Term	Trade Credit	Total
Gross Financing as a % of Total Sources	Unquoted	80.52	2.85	0.92	-6.03	21.74	100.00
	Quoted	30.25	44.22	10.79	-0.85	15.59	100.00
Net Financing as a % of Physical Investment	Unquoted	113.17	0.98	1.29	-22.36	6.93	100.00
	Quoted	82.74	-1.43	29.52	-10.62	-0.22	100.00
Other Ratios	Payout Ratio			P.I./Gross Total Sources			
Unquoted	18.25						71.15
Quoted	30.22						36.56

Table 20a

TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN
MEANS OF UNQUOTED AND QUOTED SAMPLES, FIRST INDUSTRY PAIRING.

	(Unquoted mean less quoted mean)		Non-parametric	
	Average	T-Statistic	-ve	+ve
Sales Growth	-38.16	-1.070	7	0
Investment (£'000)	-6029.67	-0.583	6	0
Gross - Retentions	-2.97	-0.188	4	0
" - Equity	-25.38	-2.450*	6	2
" - Medium Term	18.48	1.247	5	0
" - Short Term	1.54	0.473	4	0
" - Trade Credit	8.33	1.604	3	0
Net - Retentions	-4.38	-0.179	3	0
" - Equity	-15.29	-0.970	6	0
" - Medium Term	23.49	1.170	5	0
" - Short Term	-7.23	-0.433	6	0
" - Trade Credit	3.41	0.290	6	0
Payout Ratio	-18.36	-3.381**	8	0
Acquisitions/P.I.	-14.51	-0.931	5	0
Investment/G.T.S.	6.49	0.963	4	0
Investment/Profits	17.68	1.430	3	0
				7

Table 20b **TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS OF UNQUOTED AND QUOTED SAMPLES, SECOND INDUSTRY PAIRING.**

	(Unquoted mean less quoted mean) Average	T-Statistic	-ve	Non-parametric Q	+ve	
Sales Growth	40.23	-1.794		4	0	6
Investment (£'000)	-1595.80	-0.387		5	0	5
Gross - Retentions	23.11	1.664		3	0	7
" - Equity	-23.99	-2.250		9	1	0*
" - Medium Term	-1.89	-0.600		5	0	5
" - Short Term	10.44	0.618		6	0	4
" - Trade Credit	-7.67	-0.500		5	0	5
Net - Retentions	57.58	1.858		4	0	6
" - Equity	-15.44	-0.803		6	0	4
" - Medium Term	-3.80	-0.809		5	0	5
" - Short Term	15.68	0.394		5	0	5
" - Trade Credit	-54.01	-1.274		7	0	3
Payout Ratio	-13.90	-5.643**		9	0	0*
Acquisitions/P.I.	-34.65	-2.155		6	0	4
Investment/G.T.S.	2.69	0.345		5	0	5
Investment/Profits	9.35	0.455		4	0	5

Table 20c

TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN
MEANS OF UNQUOTED AND QUOTED SAMPLES, ALTERNATING SIZE PAIRINGS.

	(Unquoted mean less quoted mean)		Non-parametric	
	Average	T-Statistic	-ve	+ve
Sales Growth	-144.17	-1.203	7	0
Investment (£'000)	-6732.18	-0.689	7	0
Gross - Retentions	28.04	2.310	2	0
" - Equity	-31.53	-3.111**	9	1
" - Medium Term	-2.98	-1.122	6	1
" - Short Term	-6.49	-1.009	6	0
" - Trade Credit	12.96	1.213	4	0
Net - Retentions	50.93	1.730	2	0
" - Equity	-12.77	-0.746	7	0
" - Medium Term	-15.37	-2.258	7	1
" - Short Term	-32.89	-1.759	8	0
" - Trade Credit	10.10	0.503	6	0
Payout Ratio	-13.13	-5.695**	11	0
Acquisitions/P.I.	-60.51	-2.606	9	0
Investment/G.T.S.	10.38	0.979	3	0
Investment/Profits	1.65	0.100	7	0

0**

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1. This problem is reflection of the size composition of quoted and unquoted companies not merely of a restriction of the sample to the largest 1000 companies.
2. Since June 1990, all shareholdings in excess of 3% have had to be declared. In interpreting disclosed shareholdings, it must be borne in mind that the ultimate beneficiary of nominee accounts is not established. Concentrations of ownership can thereby be either under- or over-recorded.
3. These are industries where the proportion of unquoted minus quoted companies is in excess of 1%.
4. In SIC 32 the ratio of privately funded R&D to sales is slightly less than 1%.
5. Of course, the possibility that there are a small number of large unquoted companies in high technology industries cannot be ruled out. In the light of the relative sizes of quoted and unquoted companies this is unlikely. However, only individual firm data could provide conclusive evidence.
6. In addition 3 of the companies that became listed were taken over - 2 by UK companies and 1 by a US company.
7. Of the 65 unquoted companies whose age was available from Extel 10 were over 70 years old. Two companies, Favor Parker and Clarks were over 100 years old. The oldest company in our sample was a quoted company, Greenall Whitley, which was over 220 years old.
8. Even though we believe that this definition of profits is more robust than others commonly employed, it is still conceivable that companies have different incentives to disclose high and low profits. Thus quoted firms may wish to sustain high share prices by declaring high profits, while unquoted firms may wish to minimize tax liabilities by declaring low profits.
9. It is possible to calculate financing figures for a sample of listed and unlisted companies for the period 1969-1976 from the Business Monitor MA3. In principle this sample is supposed to be representative of all firms in the UK. The results from this are as follows:

Type of finance:	Listed:	Unlisted: (%)
Gross Retentions	51.27	50.53
" Trade Credit	25.59	30.18
" Bank Credit	8.98	10.55
" Long Term Liabilities	5.95	5.37
" Securities (Equity)	8.22	3.37
Net Retentions	84.10	74.42
" Trade Credit	11.36	8.33
" Bank Credit	4.91	9.89

" Securities -0.37 7.35

As was shown in Mayer and Alexander (1990) medium size quoted companies make more use of equity finance than large firms. Smaller unquoted companies are more reliant on bank finance than larger firms.

10. The few cases of equal values are equally distributed between positive and negative signs in the tests.
11. See Hay and Morris (1984) for evidence on the reasons why UK firms seek quotations.