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ABSTRACT

The Origination and Evolution of Ownership and Control*

In the first half of the twentieth century, the UK capital markets were marked by an absence of investor protection; by the end of the century, there was more extensive protection there than virtually anywhere else in the world. The UK therefore provides an exceptional laboratory for evaluating how regulation affects the development of securities markets and corporations. We investigate this question by tracing the ownership and board composition of firms incorporated around 1900 over the subsequent 100 years, and comparing the pattern of ownership and control with a sample incorporated around 1960. We find that at the beginning of the century there were active securities markets, firms were able to raise substantial outside equity finance, and there was rapid dispersion of ownership even in the absence of investor protection. The introduction of investor protection in the second half of the century was not associated with greater dispersion of ownership but with more trading in share blocks. We offer an explanation as to how UK capital markets could flourish in the absence of investor protection.

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1. Introduction

One of the best-established stylised facts about corporate ownership is that the ownership of large listed companies is dispersed in the UK and US and concentrated in most other countries. For example, Becht and Mayer (2001) report that in more than 50% of many European companies there is a single block of voting shareholders that commands a majority of shares. In contrast, in the UK and US the proportion of firms with a majority-voting block is less than 3%.

Why is this? Two theories based on regulation and law have been suggested. The first attributable to Mark Roe (1994) is that U.S. legislators responded to a populist agenda in the 1930's by limiting the power that large financial conglomerates could exercise. This was accomplished by introducing legislation that restricted the control rights of large blockholders. The second, associated with La Porta et al (1998), argues that concentrated ownership is a response to inadequate regulation. According to their view, in the absence of adequate protection, investors seek to protect their investments through the direct exercise of control by large share blocks. Concentrated ownership is therefore a response to deficient investor protection.

Both of these law and finance theories associate dispersed ownership with weak regulation. The difference between the ownership concentrations of the UK and the US on the one hand and Continental Europe on the other can be attributed to weak regulation in Continental Europe and strong regulation in the UK and US. La Porta et al (1998) produce data to support this conclusion. They distinguish between the common law systems of the UK and US and the civil law systems in Continental Europe. They show that common law systems have strong minority investor protection and civil law systems have weak protection.

But it was not always like that. According to the law and finance literature differences in legal structures are deep rooted with a long history. Whether or not this is true, it is certainly not the case that investor protection has always been strong in common law systems. On the contrary, there was a landmark case of unsuccessful litigation by an injured investor in the UK in 1843 that rejected the notion of minority investor protection for the greater part of the next century. Such was the strength of

the precedent set by the Foss v. Harbottle case that there was effectively no protection of minorities for the first half of the twentieth century. According to Lord Justice Hoffman, "The emancipation of minority shareholders is a recent event. For most of the first century of company law they were virtually defenceless, kept in cowed submission by a fire-breathing and possibly multiple-headed dragon called Foss vs. Harbottle. Only in exceptional cases could they claim protection of the court." [1999, Foreword to Hollington, Robin, 1999, *Minority Shareholders' Rights.*]

According to the law and finance literature, the remarkably unregulated UK would be predicted to have undeveloped financial markets with high concentrations of ownership. Essentially one would expect the UK at the beginning of the century to look quite different from the UK today and more like Continental Europe. We would predict that high levels of concentration of ownership persisted for much of the twentieth century at least until investor protection was introduced. Was this the case?

A second remarkable feature of investor protection in the UK is that it switched from being almost absent in the first half of the century to being one of the most stringent by the end of second half of the century. Goshen (1998), for example, characterizes minority protection in the UK has a "property rule" which prevents any transaction from proceeding without the minority owner's consent. In contrast, the US has a "liability rule" which allows transactions to be imposed on an unwilling minority but ensures that the minority is adequately protected in objective market value terms, primarily through the courts. According to the law and finance literature, we would therefore predict a significant increase in the rate of dispersion of ownership in the second half of the century in the UK. Did this occur?

In this paper we address these questions by looking at the evolution of ownership of UK firms over the twentieth century. The UK has an unusually rich source of data for undertaking this exercise since, for more than a century, Parliament has required that companies deposit important information, including accounts and a register of shareholders, at a central depository. We select two samples of firms, one chosen from around the turn of the century and the other from 1960; virtually all firms are traded on a stock exchange. We trace the share ownership of the firms, and analyse the factors associated with their evolution. We also examine board control and

evaluate the speed with which families relinquished both ownership and board control. The two samples provide a comparison of the speed with which ownership and board control altered in response to institutional and regulatory changes.

This analysis reveals that ownership did not remain concentrated at the beginning of the century. On the contrary, there is little evidence that rates of dispersion were different in the 1900 sample from the 1960 sample in the first 40 years after incorporation. An important cause of dispersal, especially for the 1900 sample, was the high incidence of takeovers involving equity as the medium of exchange.

These results appear inconsistent with the law and finance literature and they raise questions of how dispersion of ownership could have occurred in the absence of investor protection. We suggest that it was implicit contracts enforced by informal relations of trust that encouraged participation by outside investors, largely local to the company's operations and geographically concentrated. We report data on the listing of shares on provincial exchanges and examine the influence of various factors, including initial ownership, board representation, and takeovers on the speed of dispersion of outside ownership. We conjecture that as firms grew by takeover, the geographical concentration of their activities diminished. This in turn led to a breakdown of relations based on trust and eventually to a call for greater investor protection in the middle of the twentieth century.

If investor protection did not affect ownership patterns, what did it do? The data source is sufficiently rich to allow the names of individual shareholders to be identified. We were therefore able to examine turnover in shareholdings as well as concentrations and, in particular, the stability in composition of coalitions of controlling shareholdings (i.e. mutation). While rates of dispersion of ownership were similar in the first and second halves of the century, rates of mutation of ownership were markedly higher in the second. The average length of membership of controlling shareholding group diminished significantly between the first and second half of the century. Stronger investor protection may have been one factor contributing to the greater liquidity and turnover in shareholdings.

The above describes the evolution of ownership in the UK over the last century. But, since Berle and Means, much significance has been attached to the separation of ownership and managerial control. In addition to ownership, we were able to trace the composition of the boards. We find that while ownership is rapidly dispersed throughout the century, board control remains concentrated in the hands of founding families over an extended period. The Berle and Means picture of dispersed ownership being separated from a professional management is not an accurate picture of the U.K. Families retained board control well beyond the sale of their ownership stake.

This is consistent with Alfred Chandler's view of UK firms being dominated by founding families and their offspring rather than professional management. What emerges here as even more puzzling is that this occurred in the absence of substantial ownership stakes. Control without ownership might be expected to create particularly serious problems of exploitation of private benefits by families at the expense of outside investors. We examine this by evaluating whether the continuing presence of families discouraged outside investor participation.

The contrast with Continental Europe and with Germany in particular could not be greater. In most European countries not only does ownership remain concentrated in the hands of families but also management control is frequently separated from that of owners, most clearly with two-tier boards as in Germany. Regulation may have played a part in this process but in a quite different way from that suggested by the existing literature. Minority investor protection has not been the determining factor, at least in the UK. Instead, it is the development of the law of incorporation and limited liability, through common law cases that established the distinctive feature of the corporate entity as a legal person. How this differed across countries is a subject for another paper but we suspect that it was this innovation, rather than investor protection, that influenced the contrasting patterns of ownership and control that are observed around the world.

2. The structure and regulation of UK capital markets in the twentieth century

Section 2.1 reports data on the size and structure of the UK stock market in the twentieth century and section 2.2 describes the development of regulation over the century.

2.1 Size of capital markets and takeover activity

Rajan and Zingales (2002) examine the importance of stock markets around the world. They report the ratio of aggregate market value of equity of domestic companies to GDP for 26 countries between 1913 and 1999, at approximately ten-year intervals. Using their criterion, the U.K. has a large stock market ranking in first or second place in 6 out of the 9 decades and in the top five for the remaining three decades.

Michie (1999) reports estimates of the number of listed companies (industrial, commercial and financial) for various years between 1850 and 1914. He records that the number grew from 200 in 1853, to "many thousands" in 1914. The London Stock Exchange reports 4,409 listed companies in 1963, and 1,904[1] in 2000. If we restrict the data to industrial companies, Hart and Prais (1956) provide more precise estimates: 60 in 1885, 571 in 1907 and 1,712 in 1939. Both sets of statistics are consistent with Rajan and Zingales (2002) view of a flourishing U.K. stock market.

Whereas the UK today has currently only two stock exchanges, in the early twentieth century, there were 18 provincial stock exchanges, which collectively were as large as the London Stock Exchange.[2] According to *Phillips' Investors Manual* of 1885, 'the provincial exchanges are of almost greater importance in relation to home securities than London'. Thomas (1973) states that "the number of commercial and industrial companies quoted in the Manchester stock exchange list increased from 70 in 1885 to nearly 220 in 1906. Most of these were small companies with capitals ranging from £50,000 to £200,000" and "by the mid 1880s Sheffield, along with Oldham, was one

[1] Excluding AIM where there are about another 800 listed companies.
[2] In order of importance: Manchester, Sheffield, Newcastle, Cardiff and some 14 others.

of the two most important centres of joint stock in the country, with 44 companies, with a paid up capital of £ 12 million.'' (pages 133 and 124)

The importance of provincial stock markets has been widely recognized. According to Lavington (1921), writing on new shares issues, "local knowledge on the part of the investor both of the business reputation of the vendor and the prospects of his undertaking would do a good deal to eliminate dishonest promotion and ensure that securities were sold at fair prices fairly near their investment values." Concentrating ownership among local investors was recognised as a method of reducing information problems as well as fraud. Lavington (1921) cites the views of one broker: "the securities are rarely sold by means of a prospectus and are not underwritten, they are placed by private negotiation among local people who understand the [cotton] trade" (p. 280). Moreover there was a strong desire to trade the securities in the city where most investors resided. For example, shareholders in Manchester were anxious that the shares of the Patent Nut and Bolt Co.[3] of Birmingham should be listed in Manchester since most of the shareholders lived there (see Thomas (1973), p. 118).

In the first half of the century there was therefore geographic concentration of shareholders with informal relationships of trust between local businesses and local investors. The listings and trading of companies was often concentrated in a city that specialised in a particular industry, Birmingham was important for cycle and rubber tube stocks, Sheffield for iron, coal and steel and Bradford for wool. As Lavington (1921) describes, there was a strong link between local industry and the location of a stock market, reflecting the superior knowledge of investors about local companies and the relatively low costs that they incurred in acquiring information.

2.2 Regulation

There was a marked change in financial regulation and investor protection in the middle of the twentieth century. Although limited liability was introduced into the UK in the Companies Act of 1856, it was not until the landmark case of Salomon v. Salomon in 1897 that it was made effective. Such was the enhanced protection that it

[3] Patent Nut & Bolt Co. was owned by the Keen family, and merged with Dowlais Iron Company owned by the Guests which in turn developed into Guest and Keen, incorporated in Birmingham in 1900 – one of the companies in our sample and a company that we discuss further in section 5.

offered shareholders in the event of financial failure that many companies, including those in our sample, reincorporated after the 1897 ruling. Another seminal case earlier in the century, Foss v. Harbottle (1843), seriously restricted minority shareholder rights for the next hundred years. The judge made two important rulings: the proper plaintiff in an action of an alleged wrong to a company is the company itself and not the minority shareholder, and, where a transaction can be made binding by a majority of the shareholders, then no individual shareholder can sustain an action against the company. As Lord Justice Hoffman has noted, this case had repercussions for minority investor protection for over a century: "A statutory remedy was provided for the first time in 1948 but this proved relatively ineffectual. It was not until 1980 that Parliament forged the sword which is now section 459 of the Companies Act 1985 and which enables the unfairly treated minority shareholder to slay the dragon."[4]

Table 1 documents important regulatory changes categorised by minority protection rules, shareholder control thresholds, listing rules and disclosure rules. As the table records, significant minority protection was not introduced until the 1948 Companies Act and coincided with changes in the London Stock Exchange's (LSE's) listing rules that were designed to improve the quality of listed companies.

In Table 1, Panel A, we list significant minority protection rules and control thresholds for a minimum number of shareholders. The 1948 Act included anti-director provisions making it possible to remove directors by a vote of shareholders at an Extraordinary General Meeting (EGM), which could be called by 10% of shareholders. It also allowed proxy voting by mail for the first time. However, it was only in 1967 that provisions for a minority of 25% to block proposals by a majority were introduced. Still more significantly, the City Code on Takeovers and Mergers was introduced in 1967 and established the mandatory bid rule requiring a bidding company, with 30% or more of the target's shares, to tender for all remaining shareholders at the highest price paid for any shares purchased over the previous twelve months.

[4] Cited in the foreword to Robin Hollington's *Minority Shareholders' Rights*, 1999, Sweet and Maxwell, London.

Panel B describes changes to listing rules that were included in the 1948 Act and were accompanied by changes to LSE rules introduced in 1947. These listing rules abolished the rights of companies to have their shares traded on the LSE without being subject to the LSE's listing rules. This was designed to avoid abuses whereby a company would have its shares issued on an exchange (often without a prospectus) and arrange for its shares to be traded on the LSE (under a supplementary list). Furthermore, the new rules required newly listed companies to have a 10 years profit record, compared with 5 under 1948 Companies Act, and the support of 2 registered jobbers i.e. market makers. The new rules also required all funds raised in the issue to be returned to subscribers if permission to deal was refused by the LSE. Withholding permission to deal therefore effectively prevented new funds being raised from the public.

Panel C describes important disclosure rules. In 1900, the Companies Act required company information to be filed at a central depositary, Companies House, where it was on public access. Such a requirement does not exist in the US and therefore there is no central depositary for company information. In 1929 another Companies Act required the company to keep both a profit and loss account and balance sheet and both had to be filed at Companies House. In 1939 further legislation required directors to disclose contractual interests with the company. It was not until 1967 that the requirement to disclose share blocks was introduced, initially at 10%, then lowered to 5% and now currently at 3%.

3 Data and methodology

3.1 Sample selection and sources of data

Our sample consists of 50 companies, 25 of which are incorporated around 1900, and 25 around 1960, respectively. 40 of these companies are extant today and the remaining 10 died during the century. In table 2, we list the names of the companies, the city and date of incorporation, the date of the initial public offering and the exchanges on which the shares were traded. Table 2 records the fact that many companies were traded prior to a formal initial public offering (IPO). This reflects the absence of listing requirements on provincial exchanges and the London Stock Exchange (LSE) in the first half of the century. Therefore many of the formal IPOs occurred after the introduction, or in anticipation, of the more rigorous listing requirement introduced by the LSE in 1947.

We have collected individual firm data on the ownership, board representation and equity issues of 50 firms incorporated around 1900 and 1960. This unique data set has been collected from various sources: (i) archives of company accounts and share registers (including names and size of shareholdings) stored at Companies House in Cardiff, (ii) new issue prospectuses at the Guildhall Library in London, (iii) annual issues of the Stock Exchange Year Book which lists names of directors and the sources of any changes in issued capital, and (iv) Official Lists of trading of securities from the British Library in London. In addition, the share registers provide evidence of ownership changes that have taken place on an annual basis. The annual returns to Companies House give details of resignations of old directors and appointments of new directors.

From these data, we collected names of directors, their shareholdings (including those of their families), the date and amounts of capital issued in acquisitions, new share issues via public and private placements, and other changes in share capital, such as capitalisations of reserves. We traced the founding family ownership from incorporation until the last family member left the board by recording shareholdings and place of residence of family members. We took account of name changes across generations, when for example the daughter of a founder married. For outside

shareholdings, we limit ourselves to stakes greater than 1% of ordinary capital.[5] We use newspaper archives to document evidence of tender offers and trading in provincial Stock Exchanges, especially in the early 1900s. Finally, we collect share prices from the London Business School database.

An important feature of our 1900 sub-sample is that many firms were in existence well before incorporation (e.g. Cadbury Schweppes started in 1783, incorporated in 1886 and reincorporated in 1900). Firms that reincorporated did so to take advantage of the new court judgements on limited liability following Salomon v. Salomon (1897). An unavoidable survivorship bias in our sample is the result of Companies House not retaining records of companies that died (with a few exceptions); as a consequence, firms in existence in 2001, the year the study started, dominate the sample.

3.2 The growth and dispersion of ownership

Our sample allows us to examine factors contributing to growth in issued equity and declines in insider ownership. We examine the influence of IPOs, acquisitions, rights issues and placings on the changing pattern of ownership. We also trace the evolution of board control and examine how founding family representation on boards and occupancy of position of chairman change. We compute a measure of separation of family ownership and board control as the difference between family representation on boards and their share of ownership.

Table 3 describes the growth of issued equity for the 1900 sample in Panel A and for the 1960 sample in Panel B. It records that the mean annual growth of equity is 6.49% over a hundred years for the 1900 sample and 22.05% for the 1960 sample over the remaining 40 years of the century. In the 1900 sample, IPOs contribute a modest amount to this growth and, for the regulatory reasons previously described, only appear at all post 1940. In contrast, in the 1960 sample they account for 20% of growth in equity. Placings are important in the early years of both samples of firms but diminish in significance appreciably in the later years of the 1900 sample. Rights issues account for more than 50% of growth of the 1900 sample but less than 10% of

[5] Some shareholdings are held through a company.

the 1960 sample. The factor that is important in both samples is acquisitions. They contribute one-third and one-half of the growth of the 1900 and 1960 samples respectively.

The significance of takeovers for the growth of UK firms is consistent with evidence from elsewhere. Figure 1 reproduces Hannah's (1976) time series of takeover activity for the UK, which reports three major merger waves during the first half of the century, around 1900, 1920 and 1930.

Table 4 records proportions of shareholdings by directors and outsiders by decade for the 1900 sample in Panel A and for the 1960 sample in Panel B. Table 5 reports the factors contributing to changes in directors' shareholdings. For example, in the decade between 1900 and 1910, table 3 shows that directors' ownership went down by 33.64% from 91.61% in 1900 to 57.97% in 1910 and table 5 records that 47.78% of this decrease was due to acquisitions. Therefore the 18 stock acquisitions between 1900 and 1910 accounted for a decrease in directors' ownership of 16.07% (i.e. 33.64 x 47.78). Similar computations for our 1960 sample show that the 27 acquisitions during the decade 1960–70 accounted for a decrease of 28.32% in directors' ownership.

There are a number of striking features of tables 4 and 5. First, rates of dilution of insider ownership are high in both the 1900 and the 1960 samples. Within ten years directors' shareholdings had declined by around one half in both samples. Rates of dilution are somewhat higher in the 1900 than in the 1960 sample. Second, the main reason for dilution is not sales of shares by directors in the secondary market, at least in the first half of the century for the 1900 sample. Instead, over the period 1900 to 1950, issues of shares associated with acquisitions, rights issues and placings account for 61.6% of dilution. Third, of this dilution through issues of shares, more than half (36.2% of the 61.6%) is associated with acquisitions. Issue of shares in takeovers is the single most important cause of dilution of director holdings. This raises the possibility, which we do not pursue here, that differences in takeover activity across countries explain differences in dispersion of ownership.

Table 6 reports the dilution of family shareholdings. Around the time of incorporation, families held approximately half of total shareholdings. This declined steadily in the 1900 sample to around a quarter after 40 years. The decline is much sharper for the 1960 sample, from around one half to about 4% after 40 years.

3.3 Board composition

In addition to data on ownership, we collected information on the composition of boards of our samples of firms, to establish whether directors, including the chairman, were members of the founding families and to determine the extent of separation of family ownership and control. Panel A of table 7 shows that the average size of the boards of our 1900 sample increased somewhat from around 6 to 8 and of the 1960 sample from 3 to 7. Family representation on the boards of firms remained high. 40 years after incorporation outside representation on boards of the 1900 sample increased by less than 20% from 48.6% to 61.6% but in the 1900 sample it increased by nearly 40% from 46.7% to 83.6%. Furthermore, the number of firms in which families retained the position of chairman only declined from 20 to 14 in the 1900 sample as against from 21 to 3 in the 1960 sample. Thus, at the same time as family ownership of firms decreased rapidly, their representation on boards of firms only diminished gradually in the 1900 sample.

As a consequence, as table 8 shows, there has been a marked change in the separation of ownership and control. We measure separation as the difference between the proportion of founding family representation on the boards of firms and share ownership. A positive number in table 8 means that families have board representation that is disproportionate to their share ownership. It shows that at the beginning of the period, board representation was low in relation to share ownership in the 1900 sample and approximately in line with ownership in the 1960 sample. In both samples, within 40 years family board representation had become disproportionately large to their share ownership. Thus while families were relinquishing ownership, they retained control through representation on boards.

The picture that emerges is that firms grew rapidly in the first as well as the second half of the century largely through acquisitions and rights issues. As a consequence, there was rapid dilution of ownership of insiders and families in both the first and

second halves of the century. However, at the same time as families' ownership of equity was being diluted, their representation on boards of firms actually increased. Separation of ownership and control therefore occurred but in a quite different way from that documented by Berle and Means. Far from management becoming divorced from owners, family owners were taking disproportionate share of control of the boards of U.K. firms.

As Alfred Chandler (1990) describes, families have dominated the control of UK firms. However, the puzzle is that, unlike in most Continental European firms, this has not occurred through ownership but via board representation. The picture of the development of the UK firm is therefore the mirror image of the Continental firm. Board control by families in the UK was intensified at the same time as ownership was rapidly dispersed.

4. Dispersion and mutation of ownership

4.1 Methodology

In this section, we characterize the degree and nature of the ownership and board control of firms. By the degree of ownership and board control we mean the extent to which particular groups of shareholders are able to exercise control through their shareholdings and representation on the boards of firms. We do this by considering the number and names of shareholders able to exercise critical levels of ownership and board control. For some decisions the critical level of ownership is a particular percentage of shares outstanding, and for others it is a percentage of votes cast. For example, tender offers require a majority of votes cast whereas calling an EGM requires a minimum percentage of all shares outstanding.

We define the critical level of ownership control as a blocking minority, namely 25%, and of board control as 50%, though we intend to repeat the analysis for alternative critical levels. We define ownership control as the smallest coalition of shareholders necessary to pass the threshold of 25% of votes and board control in terms of coalitions of directors necessary to secure a majority of the votes on the board.

We compute these variables at ten yearly intervals for three groups: all shareholders, insiders and outsiders, respectively. We then compute two measures of changes in the control group: rates of dispersion of ownership control and rates of mutation of ownership and board control. The former is a measure of changes in the size of ownership of the control group and the latter in the stability of the coalition. We define the annual rate of dispersion from year t to t+T as

$$d = \{Y(t+T)/Y(t)\}^{1/T} - 1$$

where Y is the ownership control (minimum number of shareholders required to pass the threshold of 25% of cash flow rights and voting rights). We define mutation of ownership from year t to t+T as

$$m_o = 1 - \{Z(t+T)/Z(t)\}^{1/T}$$

where Z(t+T)/Z(t) is the proportion of members of the ownership coalition in year t+T who were present in year t. We define mutation of board control from year t to t+T is computed as

$$m_b = 1 - \{Z(t+T)/Z(t)\}^{1/T}$$

where Z(t+T)/Z(t) is the maximum number of directors who just commanded a majority of seats in year t and were still present on the board in year t+T. This is the most stable coalition of directors and therefore the minimum measure of mutation of board control.[6]

4.2 Results for dispersion and mutation of ownership and control

In this section we describe the results of a comparison of rates of dispersion of ownership and mutation of ownership and control across the two samples of firms.

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[6] The relation between dilution of founding family ownership, dispersion and mutation can be illustrated as follows. Let the control threshold be defined as x. The control group in period t is the smallest number of individuals i = 1 to I(t) such that:

$$\sum_{i=1}^{I(t)} a(i,t) = x$$

where a(i,t) is shareholding of individual i in period t.

Let i = 1 be the founding family then dilution of their ownership between t and t+1 is:

$$a(1,t+1) - a(1,t) = -\sum_{i=(I(t)+1)}^{I(t+1)} a(i,t+1) - \left(\sum_{i=2}^{I(t)} a(i,t+1) - \sum_{i=2}^{I(t)} a(i,t)\right)$$

The first term is related to dispersion through broadening of the control group and the second to mutation of the existing control group. The founding family's ownership can therefore be diluted by new issues or sales of their shares to new and existing shareholders.

The purpose of the comparison is to assess the impact of the regulatory changes introduced around 1950 described in section 2.

Table 9 reports rates of dispersion of ownership for both samples. The rates of dispersion describe the change in the size of the smallest coalition necessary to form a shareholding of at least 25%, annualized over the decade. Panel A considers the 1900 sample, and reports the rates of dispersion for all shareholders, and for inside and outside shareholders separately. For example, the rate of dispersion for all shareholders in the first decade is 7.86% per year. Thus, the number of shareholders required to form a coalition of at least a 25% shareholding increased at a rate of 7.86% per year over the decade. For example, if the number of shareholders required to meet the 25% threshold had been 5 in 1900 it would have been 10.66 in 1910.

For the 1900 sample, rates of dispersion in the first half of the century are generally higher than in the second half. In particular, rates of dispersion are high for the first and third decades, and close to zero from 1960 onwards, and actually negative in the eighties, suggesting an increase in concentration arising from the formation of blocks. Dispersion rates for directors are high for all decades up to 1940; they are also high for the period 1970 to 1990. The pattern is less clear for outside share holdings where dispersion is volatile in both halves of the century.

The rates of dispersion for the 1960 sample are shown in Panel B. In Panel C, we compare directly the dispersion rates of the two samples for the first four decades after incorporation. Focusing only on the comparison for 'all shareholders', we find that in three of the four decades the dispersion rates are higher for the 1960 sample although not statistically significant. In the second decade, the 1900 sample has a significantly higher rate of dispersion. Overall, rates of dispersion over the first four decades are not statistically different in the two samples. Thus, contrary to the law and finance hypothesis, there is no evidence that rates of dispersion are greater in the 1960 sample.

In the first decade, for both directors and outside shareholders rates of dispersion are higher for the 1960 sample and the differences from the 1900 sample look economically large and statistically significant. This appears to be attributable to the

relatively high rates of IPOs in the 1960's sample, 11 out of 25 companies, and the trading of shares post IPO (see Table 5). The fact that rates of dispersion do not differ for 'all shareholders' in the first decade for the two samples suggests that sales by directors in the 1960s IPOs were purchased by large outside shareholders.[7] In other words increases in dispersion for directors seem to be the result of mutation rather than dispersion of ownership, an issue to which we now turn.

In Table 10 we describe mutation of ownership and control, as defined in 4.1 above for the two samples. Mutation measures changes in the identity of the members of the coalition making up the 25% ownership threshold. In Panel A, for the 1900 sample, we report higher rates of mutation in the second half of the century than in the first. On average, in the 1900 sample 5.2% of the control group remained in place over a decade, while the corresponding figure for the 1960 sample was 0.6%. Panel C reports results from t-tests comparing rates of mutation for the four decades for both samples. The 1960 sample has strikingly higher rates of mutation than the 1900 sample, with high levels of statistical significance. These findings suggest that it was easier to sell large blocks in the second half of the century than in the first. However, these changes had little effect on the size of the smallest control coalition.

4.3 Regression results

We provide further evidence on differences in dispersion and mutation between the 1900 and 1960 sample by running regressions of the average annual rates of dispersion and mutation by decade in the first four decades of each sample. Tables 12 and 13 report the results of regressing dispersion and mutation in ownership on a dummy signifying whether the observations relate to the 1900 sample as against the 1960 sample and several other variables. Consistent with the conclusions in the previous section when no other variables are included then the dummy variable (columns 1 and 2) is positive but insignificant in the dispersion regression and negative and highly significant in the mutation regression. As previously noted, there is no significant difference in average levels of dispersion between the two periods but much higher levels of mutation in the 1960 sample.

[7] Although the post IPO outside blocks must have been smaller than the pre IPO blocks as indicated by the increase in dispersion of outside shareholdings.

We would expect initial rates of dispersion in a decade to influence subsequent dispersion and mutation in a fairly mechanical fashion: the lower the initial level of dispersion, the lower the likely level of subsequent dispersion and the larger the level of mutation of ownership.[8] We can also examine whether the nature as well as the level ownership and board control affect subsequent evolution. The law and finance literature emphasizes the importance of regulation in limiting exploitation of minority investors by large shareholders. According to the private benefits thesis, insiders extract private benefits to the detriment of external investors. Large insider shareholdings and family representation on the boards of firms would therefore be expected to diminish dispersal of ownership and trading in controlling shareholdings. We would therefore anticipate a negative relation between dispersal and mutation of ownership with director ownership and family board representation.

Columns 3 and 4 in tables 12 and 13 include dispersion of ownership control at the beginning of the decade in question as measured by the number of people required to exercise 25% of votes, the proportion of director ownership and the proportion of seats on the boards of firms occupied by families at the beginning of the decade as additional variables in regressions of dispersion and mutation. According to the private benefits thesis, we anticipate negative coefficients on the director ownership and family board control variables. The coefficient on dispersion should be negative in the dispersion and positive in the mutation regression.

Columns 3 and 4 of tables 12 and 13 record that lower levels of initial dispersion at the start of the decade are associated with faster rates of dispersion and lower rates of mutation in the subsequent decade, as predicted above. There is strong evidence of a negative relation between family representation on the boards of firms on dispersion but not on mutation of ownership. However, contrary to the private benefit thesis, the relation with director ownership is unclear: there is some evidence that director ownership is positively related to dispersion of ownership and negatively related to mutation of ownership but only in the absence of decade fixed effects. The 1900

[8] For example, in the 1900 sample rates of dispersion are significantly higher in the first forty than the last forty years of the decade when levels of dispersion are much greater, while rates of mutation of significantly higher in the last forty years.

sample dummy remains insignificant in the dispersion regression and significantly negative in the mutation regression.

The conditions that therefore appear to be most conducive to rapid rates of dispersion ownership are concentrated ownership at the start of the period, primarily in the hands of insiders with low representation of families on the boards. Thus dispersion was particularly rapid immediately after incorporation and in companies with high insider ownership. These are the conditions that have persisted in Germany. However, in Germany they did not give rise to dispersion and in the UK they did. Why and how? Why did rapid dispersion occur in highly concentrated companies in the UK and how did it occur, given that there was weak investor protection for the first half of the century.

We attempt to provide an answer in the next section by firstly describing an example of what happened in one prominent UK company and, secondly, seeing whether the message that it conveys is more generally applicable across our sample.

5 Takeovers and trust

5.1 Case study of GKN

During the first half of the century takeovers were usually made by the bidder approaching the directors and agreeing to purchase their shares. The directors then advertised in the newspapers informing shareholders of the sale of their shares to the bidder at a particular price and recommending shareholders to follow suit. In all 6 tender offers made by companies in our sample for other listed companies, the tender offer price to outside shareholders was the same as that paid to directors for their holdings and that the offer was made to all shareholders. The outcome was that more than 96% and in general 100% of shares were acquired. From this small sample, it appears that the UK did not follow the Continental European practice of purchasing a majority of shares and leaving a substantial residual minority on the market. The explanation for this difference is not as yet clear.

The case of GKN illustrates these observations. Dowlais Iron Company was set up in 1759 in the village of Dowlais near Merthyr Tydfil in South Wales. John Guest was appointed as manager of Dowlais in 1767, and his grandson became the company's

sole owner in 1851. The Dowlais Iron Company was at this stage the largest iron works in the world, operating 18 blast furnaces and employing more than 7,300 people. The business was the first licensee of the Bessemer process, constructing the world's most powerful rolling mill in 1857, and producing its first Bessemer steel in 1865.

The Keen family established the Patent Nut and Bolt Company in 1856 in Smethwick, England. In July 1900, Guest, Keen and Company Limited was incorporated in Birmingham with the purpose of taking over the Dowlais Iron Company and the Patent Nut and Bolt Co., Ltd. The shareholders of the two companies received 250,000 ordinary shares. At the same time, 400,000 ordinary shares were issued via public subscription and the company was floated with 546 ordinary shareholders and more than 2000 preference shareholders. Both classes of shares were traded on the London and Birmingham Stock Exchanges. There was no evidence of the company being dispersed before 1900: the company history suggests that both Dowlais Iron Co. and the Patent Nut and Bolt were 100% owned by directors and their families. Further evidence on this comes from comparing directors' holdings with the shareholdings of the two companies before the merger. Since directors' holdings after the flotation were 33.57%, only slightly below the fraction of shares before flotation at 38.46% (i.e. 250,000/650,000), directors must have held a substantial fraction of the shareholdings before acquisition.

In 1902 the company acquired Nettlefold and Company, one of the world's leading manufacturers of screws and fasteners set up in Smethwick in 1854, by issuing 315,000 new ordinary shares. The new company name was then called Guest, Keen, and Nettlefolds Limited, and Mr Edward Nettlefold joined the board. By 1910, the directors held 26.44% of issued ordinary shares.

In 1920, shares in Guest, Keen and Nettlefolds Ltd. (GKN) were quoted at Birmingham, Bristol, Cardiff, Edinburgh, Glasgow, Liverpool, Manchester and Sheffield, while the prices of the transaction were marked (i.e. reported) on the official list of the London Stock Exchange. A crucial decade in the evolution of ownership and control of GKN was then about to begin (Table 11). First, the company acquired John Lysaght Limited of Bristol (also quoted in Bristol and

London) by issuing 1,989,919 new ordinary shares and 2,652,331 preference shares. This acquisition was one of the largest of the period in the U.K. In January 1920, ordinary shareholders of John Lysaght Ltd were offered 4 new 2nd preference and 3 new ordinary shares in GKN for every 3 ordinary shares held. 1,995,860 shares (out of a total of 2,000,000) were tendered (99.79%) to GKN. The remaining minority shareholding in John Lysaght continued to be traded in Bristol and London until at least 1950 but little trade took place with just 4,140 ordinary shares publicly held.[9]

GKN then acquired D Davis and Sons of Cardiff (quoted at Cardiff, London, Birmingham and Bristol) in November 1923 offering 1 new ordinary share in GKN for every 5 ordinary shares in D Davis & Sons. 96% of shares were exchanged. Finally, GKN acquired Consolidated Cambrian of Cardiff (quoted at Birmingham, Bristol, Cardiff, Glasgow, Liverpool, Newcastle, Newport, Sheffield and Manchester) in November 1923 offering 2 new ordinary shares in GKN for every 5 ordinary shares held in Consolidated Cambrian. 96% of shares were exchanged.

These three tender offers were representative of the acquisition pattern of the early years of the century, as reported above. The bidders approached the target management, negotiating a price (i.e. an exchange ratio). Subsequently, the management wrote to the shareholders stating that "the offer has been unanimously accepted by the Directors of your company for the whole of their individual shares, and they have no hesitation in recommending its acceptance to the shareholders in John Lysaght, Limited."[10] The same terms would be offered to outside shareholders as the directors.

As a consequence of these acquisitions there was a huge increase in the number of shareholders: GKN had about 1,000 shareholders before 1920, and more than 20,000 in 1924. At this stage, GKN was one of the largest manufacturing businesses in the world, involved in every stage of manufacturing from coal and ore extraction to iron and steel making and finally to finished products including the nuts, bolts, screws, and fasteners for which it was renowned throughout the world during this period. GKN formally listed on the London Stock Exchange on June 14, 1946. By then the

[9] The 1948 squeeze out rule may have been used to take out the small minority.
[10] Quote from *Financial Times*, Monday 17 January 1920.

directors owned a negligible stake and the largest shareholder of the period was the Royal Bank of Scotland with 2.37% of issued ordinary shares. In the second half of the century, Prudential Assurance, Norwich Union Life Insurance, Schroder Investment Management, and Scottish Widows Investment Management amongst others alternated as the largest shareholders with stakes varying from 3% to 5.25% of issued equity capital.

5.2 Acquisitions and dispersion

The picture that emerges from GKN is of a firm whose shares were initially traded on local provincial exchanges, that expanded rapidly through acquisition, that broadened its shareholder base both numerically and geographically in the process, and that by the beginning of the second half of the twentieth century was widely held primarily by institutional shareholders. What emerges consistently throughout this analysis is the importance of acquisitions in explaining the evolution of ownership of firms. However, this does not occur as conventionally described so much through changes in ownership of the target firms as through the shareholdings of the acquiring firm - share issuance by the acquiring firm substantially broadened its shareholder base. But there is another feature that the case study illustrates about acquisitions. Not only did they increase the number of shareholders, they also brought in shareholders from outside the locality of origination of the firm. The relevance of trading on local exchanges therefore diminished as the investor base of firms expanded nationally.

We examine this further by evaluating the relation between dispersion and mutation and acquisitions by firms. We include two further variables in tables 12 and 13, namely the annual number of acquisitions by firms and secondly issuance of equity by firms outside their hometown. For the latter, we collected data on the geographical composition of shareholders and constructed a variable that measured the proportion of shares issued to investors outside the hometown in an acquisition or placement, divided by the firm's equity capital.[11] Columns 5 and 6 show that dispersion is positively related to both acquisitions and geographic dispersion of issues. The

[11] Unlike the other variables in the regression, number of acquisitions and geographical composition (geo) are not predetermined. They may therefore raise concerns about endogeneity, which we will be exploring further in subsequent drafts of this paper. However, we suspect that the number and location of acquisitions are for the most part driven by real rather than ownership composition considerations.

takeover process and issuance of shares outside the hometown were critical to the process of dispersal of ownership.

6 Conclusions

As far as we are aware, this is the first large sample analysis of evolution of firms over long periods. The UK is a particularly insightful laboratory, firstly, because of its rich source of data and, secondly, because of its remarkable development of regulation.

What emerges is that law does matter but in quite different ways from that suggested by the existing literature. Legal changes were critical to promoting the development of securities markets in the UK but it was not investor protection that was at the heart of this change. On the contrary, for much of the period during which there was substantial stock market activity, there was very weak investor protection. Instead, we conjecture that it was corporate law that fundamentally influenced the development of ownership and control. In particular, the creation of effective limited liability at the end of the 19th century may have laid the foundation for the rapid dispersion of ownership that was observed during the 20th century.

When investor protection was eventually strengthened in the second half of the 20th century, its impact on dispersion of ownership was muted. Dispersion had already occurred rapidly in the first half of the century through issuance to local investors on provincial exchanges. Regulation was not required in the presence of relations based on trust. But as firms expanded, they acquired companies outside their hometowns and, in the process of issuing their equity to the target shareholders, their investor base steadily broadened to a national level. In the process, the trust relation probably became strained, there were prominent failures and scandals, and eventually calls for reform gave rise to the more regulated securities markets of the second half of the century.

We have concluded that at one level, this change in regulation had little impact on dispersion of control because, to all intents and purposes, it had already taken place.

But this description is also misleading. While it is true that rates of dispersion of ownership were not significantly different in the second from the first half of the century, the nature of that ownership was very different. In the first half of the century, investors were predominantly individuals. In the second half, they were increasingly institutional. The significance of this is that if one traced ownership back to the ultimate beneficiaries, there is little doubt that dispersion increased dramatically, only it occurred through intermediaries not at the first tier. The idea that the UK did not have pyramid ownership structures is misleading. Intermediary holdings through pension funds, life assurance firms and mutual funds dominated the second half of the 20th century.

Notwithstanding this, we have suggested that the main impact of regulation on ownership control was not on dispersion but on mutation. Rates of mutation were significantly higher in the second than in the first half of the century, even at the first tier of ownership. Regulation probably established more liquid markets, which facilitated trading in controlling stakes. As a consequence, turnover of these stakes increased appreciably. We will not hypothesize about the impact of this save to note that faster mutation of ownership control may have been a response to, as well as a cause of, the changing nature of corporate activities during the century.

We do though have some evidence on how ownership related to corporate activities because we have data on board as well as ownership control. The picture of faster changing ownership control is mirrored in board control: board turnover increased appreciably in the second half of the century. But alongside this picture of rapid dispersion of ownership and board control, there is one element of stability. While originating families found their ownership stakes rapidly diluted, they retained board representation over extended periods of time.

In this regard, the UK is fundamentally different from most other countries. As described in the introduction, the feature of most countries around the world is the persistence of family ownership. Families typically pass own large share stakes across generations but bring in professional management to control the operations of firms. In a sense, the UK is the mirror image of this with, as bemoaned by Alfred Chandler, the continuing dominance of family management. Separation of ownership

and control occurred but in an inverse way to that described by Bearle and Means in the US. Ownership was dispersed but board control was retained by originating families.

Why? We have argued that the takeover process lies at the heart of the evolution of ownership and board control of UK firms. Takeovers were the main driver of growth of and dispersion of equity in our sample. In the process of acquiring firms, ownership of founding families was rapidly diluted. As the geographical spread of acquisitions expanded outside of the hometown so the geographical dispersion of ownership also increased. We suspect, but at this stage have no proof, that takeovers and their financing lie at the heart of difference between the evolution of ownership in the UK and Continental Europe. How prevalent were takeovers in Continental Europe during this period? Where they financed through equity issuance or bank loans? Did acquirors effectively purchase all of the shares of target, as in the UK, or did a significant minority remain on the market? These questions remain to be answered.

References

Becht, Marco, and Colin P. Mayer, 2001. "Introduction" in Barca, Fabrizio, and Marco Becht, (eds.), 2001, *The Control of Corporate Europe*. Oxford University Press, Oxford.

Berle, Adolf A., and Gardiner C. Means, 1932. *The Modern Corporation and Private Property.* Macmillan, New York: NY.

Cairncross, Alec K., 1958. The English Capital Market Before 1914. *Economica* 25, 142-146.

Cairncross, Alec K., 1953. *Home and Foreign Investment, 1870-1913*. Cambridge, UK.

Chandler, Alfred D., 1990. *Scale & Scope: The Dynamics of Industrial Capitalism*. Harvard University Press, Cambridge: MA.

Code Holland, R. H., and John N. Werry, (eds.), 1932. *Poley's law and practice of the stock exchange*. Sir Isaac Pitman & Sons, London.

Davies, Paul L. (ed.), 1979. *Gower's Principles of Modern Company Law* (4th ed). Stevens & Sons, London.

Demsetz, Harold, 1983. The structure of ownership and the theory of the firm. *Journal of Law and Economics* 26, 375-390.

Demsetz, Harold, and Kenneth Lehn, 1985. The structure of corporate ownership: Causes and consequences. *Journal of Political Economy* 93, 1155-1177.

Franks, Julian R., and Colin P. Mayer, 2001. Ownership and control of German corporations. *Review of Financial Studies* 14, 943-977.

Franks, Julian R., Colin P. Mayer, and Luc Renneboog, 2001. Who disciplines management in poorly performing companies? *Journal of Financial Intermediation* 10, 209-248.

Glaeser, Edward L., and Andrei Shleifer, 2002. The rise of the regulatory state. *Journal of Economic Literature,* forthcoming.

Goshen, Zohar, 1998. Voting in conflicts of interests in corporate law and minority protection. Mimeo.

Hannah, Leslie, 1976. *The rise of the corporate economy.* Methuen, London.

Hannah, Leslie, 1974. Mergers in British manufacturing industry 1880-1918. *Oxford Economic Papers* 26, 1-20.

Hart, P.E. and Prais, S.J., 1956. The analysis of business concentration: a statistical approach. *Journal of the Royal Statistical Society* 119, 150-191.

Hoffman, Leonard H. H., 1999. Foreword to Hollington, Robin, 1999, *Minority Shareholders' Rights.* Sweet and Maxwell, London.

Holderness, Clifford, Randall Kroszner, and Dennis Sheehan, 1999. Were the good old days that good? Changes in managerial stock ownership since the Great Depression. *Journal of Finance* 54, 435-469.

La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer, 1999. Corporate ownership around the world. *Journal of Finance* 54, 471-517.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1998. Law and finance. *Journal of Political Economy* 101, 678-709.

Lavington, Frederick, 1921. *The English Capital Market*. Methuen, London.

Michie, Ranald C., 1999. *The London Stock Exchange: A History*. Oxford University Press, Oxford.

Morgan, E. Victor, and William A. Thomas, 1962. *The Stock Exchange: Its History and Functions*. Elek Books, London.

Pagano, Marco, Fabio Panetta, and Luigi Zingales, 1998. Why do companies go public? An empirical analysis. *Journal of Finance* 53, 27-64.

Paish, Frank W., 1951. The London New Issue Market. *Economica* 28, 1-17.

Proceedings of the First Ordinary Meeting of the Session, 1946-47, held on November 27th, 1946, The President, The Rt. Hon. Lord Woolton, P. C., C. H., in the Chair. *Journal of the Royal Statistical Society* 110, 1-26.

Rajan, Raghuram G., and Luigi Zingales, 2002. The great reversals: The politics of financial development in the 20th Century. *Journal of Financial Economics,* forthcoming.

Roe, Mark J., 1994. *Strong managers, weak owners: The political roots of American corporate finance*. Princeton University Press, Princeton: NJ.

Schwabe, Walter S., and G. A. H. Branson, 1913. *A treatise on the laws of the stock exchange*. Butterworth and Co., London.

Shleifer, Andrei, and Lawrence H. Summers, 1988. "Breach of trust in hostile takeovers," in Auerbach, Alan J. (ed.) 1988, *Corporate takeovers: Causes and consequences*. University of Chicago Press, Chicago: IL.

Thomas, William A., 1973. *The Provincial Stock Exchanges*. Frank Cass, London.

White, Halbert S., 1980. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica* 48, 817-838.

Table 1 – The history of regulation of UK capital markets

The Table reports the evolution of capital markets regulation in the UK. Panel A reports Minority protection rules and control thresholds, Panel B reports listing rules, and Panel C reports disclosure rules.

Panel A: Minority protection rules and control thresholds

Year of rule	*Source*	*Rule*	*Description*
1843	Rule in Foss v. Harbottle	50%+	Majority of votes prevails in company law.
1948	Companies Act, S 209	90%	Squeeze out rule: large shareholder can buy out minority at bid price.
1948	Companies Act, S 11, Paras 50 & 62.	Anti-director rule	Notice of meetings with minimum of 21 days. Allows voting by proxy.
1948	Companies Act, S 184	Removal of directors	Made easier by special resolution
1948	Company law	Anti-director rule	10% of shares can force an EGM
1967+	Company law	25%	Blocking minority where there is a large shareholder
1967	Takeover Code	30%	Compulsory tender offer for remaining shares
1967(?)	Company law	75%	Supra majority rules for mergers, equity issues to new shareholders.
1980, 1985,	Companies Act, S 89.	Pre-emption rights	New share issues must be offered to existing shareholders first.

Panel B: Listing rules – London Stock Exchange

Year of rule	*Source*	*Description*
1915	Companies Act	Government required all bargains to be recorded in Official List or Supplementary List. Former is for companies with a quotation on LSE, and second is where there is no quotations but dealings are allowed.
1921	London Stock Exchange	Stock exchange published rules covering permission to deal and quotation in the Supplementary List
Post 1928	London Stock Exchange	Rules for admission to both lists tightened up: permission to deal and entry into Official List. Followed collapse of 1928 new issue boom.
1947	London Stock Exchange	Differences between official quotation and permission to deal were abolished. Conditions for granting an Official Quotation stiffened up: 10 years profit record compared with 5 under 1948 Companies Act and support of 2 jobbers. Also, if permission to deal is refused all funds raised in the issue must be returned to subscribers. Thus, it was not possible to raise money without permission to deal.

Panel C: Disclosure rules

Year of rule	*Source*	*Nature of disclosure*	*Description*
1900	Company law	Prospectus	Filed at Companies House. Specific material included in law.
1929	Companies Act, S 122-124.	Balance sheets and P&L accounts	Company must keep proper books including a P&L account and Balance Sheet. Public companies file a balance sheet with Registrar of Companies
1929	London Stock Exchange	Balance sheets and P&L accounts	Must be sent out at least 7 days before AGM
1939	Company law	Directors' interests	Disclosure of contracts with directors
1948	Companies Act, S 38 & Fourth Schedule	Prospectus	Disclosure in prospectus and penalties for non disclosure
1967	Companies Act, S 33.	10% block	Disclosure of outside block
1967+ (query)	City Code on Takeover & Mergers	15% block	Holder must express intentions to bid
1976	Companies Act, S 26.	5% block	Disclosure of outside block
1985	Companies Act, S 198.9	3% block	Disclosure of outside block

Table 2 – Sample description

The table lists the companies in our sample, their cities of incorporation, incorporation date, IPO date, and the earliest years for which we have evidence of the ordinary shares being traded at the London Stock Exchange and Provincial Exchanges, respectively, for the 50 companies of our sample.

Panel A: 1897 – 1903

Company Name	*City of Inc.*	*Inc. date*	*IPO date*	*Traded (LSE)*	*Traded (provincial)*
Barnaby Foods	Walthamstow (London)	26/07/1898	-	-	-
Cadbury Brothers	Birmingham	13/06/1899	-	1968	1961 (Birmingham)
Cadbury Schweppes	London	06/05/1897	19/12/1942	1897	1897 (Manchester)
Chamberlin and Hill	Walsall	03/04/1903	25/03/1973	1973	1956 (Birmingham)
De La Rue	London	01/07/1898	27/07/1947	1926	-
European Colour	London	18/04/1900	05/08/1956	1900	-
Exel	Liverpool	06/06/1902	12/03/1965	1965	1963 (Northern)
Gkn Holdings	Birmingham	09/07/1900	14/06/1946	1900	1900 (Birmingham)
Harvey Nichols Group	London	22/01/1902	26/04/1996	1996	-
Interserve Invt.	London	16/08/1902	12/10/1966	1928	-
Interserve	London	19/04/1902	-	-	-
Johnston Group	London	14/09/1898	24/03/1958	1921	1898 (?)
John Williams Industries	Cardiff	28/11/1899	Around 1950	1950	1950 (Midlands&West)
Laird Group	Sheffield	04/01/1898	23/06/1949	1904	1905 (Sheffield et al)
Leeds Group	Leeds	21/11/1900	24/08/1965	1965	1921 (Leeds)
Manganese Bronze Holdings	London	10/03/1899	24/04/1940	1899	1920 (Leeds, Manch.)
Marconi Corpn.	London	27/09/1900	30/11/1999	1919	1921 (Birm., Manch.)
Medical Solutions	West Bromwich	14/11/1903	06/11/1989	1989	1967 (Midland&West)
Reed International	London	28/05/1903	21/04/1948	1930	-
Stewart & Wight	London	29/04/1898	25/03/1960	1921	-
Swan Hill Group	New Malden (Surrey)	07/02/1898	11/07/1960	1960	-
Tate & Lyle	London	27/02/1903	09/12/1938	1929	1928 (Liverpool)
Walker Greenbank	Donnington (Newport)	03/05/1899	17/08/1998	1899	1899 (Birmingham)
Waterdorm	Manchester	07/06/1900	1927-30?	1907	1900 (Manchester, et al)
Yorkshire Group	Huddersfield, Yorkshire	19/05/1900	08/09/1947	1921	1900 (Leeds)

Panel B: 1958 – 1962

Company Name	*City of Inc.*	*Inc. date*	*IPO date*	*Traded (LSE)*	*Traded (provincial)*
Albert Fisher Group	Nelson (Lancashire)	06/02/1961	21/09/1973	1973	1965 (Liverpool)
Allied Domecq (Holdings)	London	13/04/1961	13/05/1961	1961	1961 (Birmingham etal)
Black Arrow Group	London	01/05/1959	25/03/1974	1974	-
Bradstock Group	London	15/12/1959	09/07/1985	1985	-
Bullers	London	07/05/1959	18/06/1959	1959	-
Clarke Foods	London	22//05/1962	-	-	-
Countryside Properties	London	14/11/1958	15/11/1972	1972	-
Electrocomponents	London	22/01/1960	14/06/1967	1967	-
Hampson Industries	Wolverhampton	02/07/1959	11/11/1968	1968	1968 (Midlands&West)
HAT Group	Bristol	27/02/1961	-	-	1963 (Bristol)
Haynes Publishing Group	Yeovil (Somerset)	18/05/1960	07/11/1996	1996	-
Hill & Smith Holdings	Brierley Hill, Staffordsh.	30/09/1960	26/03/1969	1969	-
Lowland Investment	London	20/09/1960	05/04/1966	1966	-
LPA Group	Leigh-on-Sea (Essex)	14/03/1961	29/02/1996	1996	-
Merivale Moore	London	20/06/1961	10/12/1985	1985	-
MS International	Doncaster (Yorkshire)	24/03/1960	24/03/1965	1965	-
Provident Financial	Bradford (Wt Yorkshire)	31/08/1960	16/03/1962	1962	-
Provincial North West	Altrincham (Cheshire)	29/03/1961	-	-	-
R.E.A. Holdings	London	27/09/1960	05/10/1960	1909	-
Silverscreen Print	Newcastle	21/07/1959	-	-	-
Sportsworld Media Group	Birmingham	18/11/1960	29/11/1996	1996	-
Tandem Group	London	15/12/1958	27/09/2000	2000	-
Town Centre Securities	Leeds	17/03/1959	21/09/1960	1960	-
Whatman	London	23/06/1959	17/11/1960	1960	-
Xpertise Group	Dalkeith	17/11/1960	05/01/1999	1999	-

Table 3 – Annual Growth - Total Ordinary Capital

This table reports annual growth in total ordinary capital for our sample, and percent contributions to annual growth in total ordinary capital from IPOs, acquisitions, rights issues, and placings, respectively. Total ordinary capital is the number of issued ordinary shares, normalized to hold constant the nominal value over time. Growth in total ordinary capital is normalized to exclude the influence of capitalization of reserves to existing shareholders. Panel A considers the 1900 sample, while Panel B considers the 1960 sample.

Panel A: Factors contributing to annual growth in total ordinary capital for selected years, 1900 sample

	Annual growth in total ordinary capital			Factors contributing to annual growth in total ordinary capital			
	Mean	Median	n. obs	IPOs	Acquisitions	Rights Issues	Placing
1900-1910	37.47	0	25	0	94.51	0.84	4.65
1910-1920	3.25	0	25	0	33.77	48.90	17.33
1920-1930	1.91	0	25	0	59.14	28.74	12.12
1930-1940	1.15	0	25	0	11.43	88.57	0
1940-1950	2.20	0	24	34.82	2.25	62.93	0
1950-1960	4.40	0	23	0	34.22	65.78	0
1960-1970	3.22	1.59	22	28.07	43.44	28.49	0
1970-1980	2.39	2.82	21	0	15.43	84.57	0
1980-1990	3.62	1.84	21	7.47	24.23	59.03	9.27
1990-2000	3.56	2.27	19	0	14.08	73.05	12.87
Mean	6.49	0		7.04	33.25	54.09	5.62

Panel B: Factors contributing to annual growth in total ordinary capital for selected years, 1960 sample

	Annual growth in total ordinary capital			Factors contributing to annual growth in total ordinary capital			
	Mean	Median	n. obs	IPOs	Acquisitions	Rights Issues	Placing
1960-1970	85.67	44.47	25	17.23	38.88	10.48	33.41
1970-1980	3.38	1.63	21	50.97	38.57	9.03	1.43
1980-1990	4.08	0	20	3.03	84.79	8.10	4.08
1990-2000	2.38	0	20	9.89	41.71	4.21	44.19
Mean	22.05	1.65		20.28	50.99	7.95	20.78

Table 4 – Directors shareholdings

This table reports the evolution of directors' and outsiders' shareholdings for our sample. Panel A considers the 1900 sample, while Panel B considers the 1960 sample.

Panel A: Shareholdings (%) held by Directors and Outsiders for selected calendar years, 1900 sample

	Directors		Outsiders		n. obs
	Mean	Median	Mean	Median	
1900	91.61	100	8.39	0	25
1910	57.97	57.50	42.03	42.50	24
1920	53.58	38.51	46.42	61.49	24
1930	40.86	24.24	59.14	75.77	23
1940	35.70	17.91	64.30	82.09	24
1950	28.65	11.99	71.35	88.02	22
1960	23.75	9.22	76.25	90.78	23
1970	17.80	9.43	82.20	90.57	22
1980	14.10	0	85.90	100	21
1990	8.30	0	91.70	100	21
2000	9.85	0	90.15	100	20
Mean	36.14		63.86		

Panel B: Shareholdings (%) held by Directors and Outsiders for selected calendar years, 1960 sample

	Directors		Outsiders		n. obs
	Mean	Median	Mean	Median	
1960	100	100	0	0	25
1970	48.42	37.57	51.59	62.43	25
1980	33.94	28.90	66.07	71.10	21
1990	20.17	18.65	79.83	81.35	20
2000	16.59	10.09	83.40	89.91	20
Mean	46.47		53.53		

Table 5 – Factors influencing changes in Directors' shareholdings

This table reports the reduction of directors' shareholdings (computed from Table 2). Impact is the proportion of such reduction attributed to different factors for our sample. Factors are IPOs, acquisitions, rights issues, and placings, respectively. Panel A considers the 1900 sample, while Panel B considers the 1960 sample.

Panel A: Factors influencing reduction in Directors' shareholdings for selected years, 1900 sample

	Reduction of Directors shareholdings		Factors influencing reduction in Directors' shareholdings							
			IPOs		Acquisitions		Rights Issues		Placing	
	Mean	Median	Freq.	Impact	Freq.	Impact	Freq.	Impact	Freq.	Impact
1900-1910	33.64	42.50	0	0	18	47.78	12	1.06	8	36.73
1910-1920	4.40	18.99	0	0	3	43.30	7	0	1	2.74
1920-1930	12.71	14.28	0	0	5	35.23	7	0	2	4.79
1930-1940	5.16	6.33	3	0	3	6.27	11	45.94	0	0
1940-1950	7.06	5.92	6	0.46	1	0	4	2.38	0	0
1950-1960	4.89	2.77	4	0	10	8.50	15	2.85	0	0
1960-1970	5.95	-0.21	4	48.66	24	17.74	8	19.92	0	0
1970-1980	3.70	9.43	1	0	9	2.75	19	21.72	0	0
1980-1990	5.80	0	1	5.48	4	19.00	14	14.58	2	0
1990-2000	-1.55	0	3	65.27	3	2.92	14	49.91	10	27.63
Mean	8.47		2.20	11.99	8.00	18.35	11.10	15.84	2.30	7.19

Panel B: Factors influencing reduction in Directors' shareholdings for selected years, 1960 sample

	Reduction of Directors shareholdings		Factors influencing reduction in Directors' shareholdings							
			IPOs		Acquisitions		Rights Issues		Placing	
	Mean	Median	Freq.	Impact	Freq.	Impact	Freq.	Impact	Freq.	Impact
1960-1970	51.59	62.43	11	11.42	27	54.52	17	4.61	6	21.35
1970-1980	14.48	8.67	3	17.42	23	6.32	6	4.97	3	6.74
1980-1990	13.76	10.25	2	34.22	4	12.99	10	4.85	2	9.93
1990-2000	3.58	8.56	5	4.28	4	12.73	4	22.49	5	78.34
Mean	22.57		5.25	16.84	14.50	21.64	9.25	9.23	3.25	29.09

Table 6 – Founding family shareholdings

This table reports mean and median founding family shareholdings for our sample. Panel A considers the 1900 sample, while Panel B considers the 1960 sample.

Panel A: Founding family shareholdings for selected years, 1900 sample

	Mean	Median	n. obs
1900	53.92	34.78	24
1910	48.82	31.86	24
1920	44.62	29.01	24
1930	28.85	5.82	24
1940	25.57	4.25	25
1950	19.79	0.02	23
1960	14.87	0	23
1970	8.28	0	22
1980	2.08	0	21
1990	0.61	0	20
2000	0.80	0	20
Mean	22.56		

Panel B: Founding family shareholdings for selected years, 1960 sample

	Mean	Median	n. obs
1960	52.17	51.25	25
1970	27.83	19.45	25
1980	16.69	4.75	22
1990	6.32	0	22
2000	4.44	0	20
Mean	21.49		

Table 7 – Board composition

This table reports board size and the percentage of board members that do not come from the founding family for the 50 companies in our sample. Panel A considers the 1900 sample, while Panel B considers the 1900 sample.

Panel A: Board composition for selected years, 1900 sample

	Board size		Family CEO	Board members outside founding family (%)		n. obs
	Mean	Median		Mean	Median	
1900	5.92	5.00	20	48.63	41.45	25
1910	6.74	5.00	20	45.92	52.75	25
1920	7.00	5.00	16	60.13	66.60	25
1930	7.40	6.00	14	63.03	72.35	25
1940	7.16	6.00	14	61.63	71.55	25
1950	7.63	6.50	12	68.40	87.50	24
1960	8.04	7.00	7	72.69	100	23
1970	9.00	8.00	4	79.12	100	22
1980	8.24	7.00	4	86.78	100	21
1990	8.24	8.00	2	90.68	100	20
2000	7.90	7.00	2	92.51	100	20
Mean	7.53		10.92	69.96		

Panel B: Board composition for selected years, 1960 sample

	Board Size		Family CEO	Board members outside founding family (%)		n. obs
	Mean	Median		Mean	Median	
1960	3.16	3.00	21	46.69	41.65	25
1970	5.72	5.00	15	67.94	77.50	25
1980	6.64	6.00	9	77.12	86.65	23
1990	7.09	7.00	4	84.14	100	22
2000	7.00	6.00	3	83.62	100	20
Mean	5.83		10.90	71.90		

Table 8 – Separation of ownership and control

This table reports mean and median separation of ownership and control for the 50 companies of our sample. Separation is defined as the difference between the proportion of founding family members in the board and family shareholdings. Panel A considers the 1900 sample, while Panel B considers the 1900 sample.

Panel A: Separation of ownership and control for selected years, 1900 sample

	Mean	Median	n. obs
1900	-4.58	0	24
1910	3.53	0	24
1920	-7.25	0	24
1930	6.33	0	24
1940	12.79	8.21	25
1950	10.41	7.40	23
1960	12.45	0	23
1970	12.60	0	22
1980	11.13	0	21
1990	8.71	0	20
2000	6.69	0	20
Mean	6.62		

Panel B: Separation of ownership and control for selected years, 1960 sample

	Mean	Median	n. obs
1960	1.15	0	25
1970	4.23	0	25
1980	6.09	0	22
1990	9.55	0	22
2000	11.94	0	20
Mean	6.59		

Table 9 – Dispersion of ownership

This table reports the annual rates of dispersion of ownership over time. Ownership is defined as the minimum number of shareholders necessary to pass the threshold of 25% of cash flow rights. Dispersion is defined as the change in ownership. The rates of dispersion are computed for all shareholders, for directors alone, and for outsiders, respectively. Panel A considers the 1900 sample, Panel B considers the 1960 sample and Panel C reports t-statistics of differences in means across the two samples, comparing the first four decades over the life cycle. Superscript letters a, b, c indicate significance at 1 percent, 5 and 10 percent level, respectively.

Panel A: Annual rates of dispersion of ownership – 1900 sample

	All shareholders	Directors	Outsiders	n. obs
1900-1910	7.86	17.50	6.66	25
1910-1920	2.28	9.99	12.37	25
1920-1930	4.79	16.77	11.95	25
1930-1940	1.81	16.23	-2.96	25
1940-1950	2.59	0.66	9.60	24
1950-1960	1.86	4.47	1.43	24
1960-1970	0.42	-7.47	10.03	23
1970-1980	0.07	8.81	-0.02	22
1980-1990	-5.65	13.82	-6.57	22
1990-2000	0.24	5.00	3.98	20
Mean	1.77	8.77	4.81	

Panel B: Annual rates of dispersion of ownership – 1960 sample

	All shareholders	Directors	Outsiders	n. obs
1960-1970	11.91	40.86	63.98	25
1970-1980	-1.78	1.54	8.91	23
1980-1990	6.08	31.41	9.97	20
1990-2000	-2.22	14.67	-1.13	20
Mean	3.80	22.48	22.51	

Panel C: 1900 vs. 1960 – Tests of Means (t-Statistics)

	First decade	Second decade	Third decade	Fourth decade	Overall
All shareholders	–0.82	2.06[b]	–0.40	–1.60	0.21
Directors	–1.89[c]	–0.71	–1.15	0.14	–1.19
Outsiders	–4.94[a]	–0.34	0.20	–0.78	–2.87[a]

Table 10 – Mutation of ownership

This table reports the annual rates of mutation of ownership over time. Ownership is defined as the number of shareholders necessary to pass the threshold of 25%. Mutation is defined as the change in the composition of ownership. The rates of mutation are computed for all shareholders, for directors alone (both in terms of cash flows rights and of simple board majority), and for outsiders, respectively. Panel A considers the 1900 sample, Panel B considers the 1960 sample and Panel reports t-statistics of differences in means across the two samples, comparing the first four decades over the life cycle. Superscript letters a, b, c indicate significance at 1 percent, 5 and 10 percent level, respectively.

Panel A: Annual rates of mutation of ownership – 1900 sample

	All shareholders	Directors	Outsiders	n. obs
1900-1910	4.89	0.54	18.95	25
1910-1920	14.60	9.95	24.35	25
1920-1930	19.71	14.46	24.80	25
1930-1940	18.45	21.01	25.01	25
1940-1950	30.25	32.36	24.94	24
1950-1960	24.59	8.12	25.29	23
1960-1970	21.86	23.17	40.57	22
1970-1980	33.97	26.56	24.13	21
1980-1990	55.03	26.84	60.04	21
1990-2000	42.03	30.74	42.09	20
Mean	25.64	18.87	30.35	

Panel B: Annual rates of mutation of ownership – 1960 sample

	All shareholders	Directors	Outsiders	n. obs
1960-1970	13.22	17.22	60.52	25
1970-1980	40.96	35.63	57.39	23
1980-1990	57.69	52.21	67.60	22
1990-2000	52.94	43.45	55.86	20
Mean	40.01	36.31	60.42	

Panel C: 1900 vs. 1960 – Tests of Means (t-Statistics)

	First decade	Second decade	Third decade	Fourth decade	Overall
All shareholders	–1.08	-2.23^{b}	-3.09^{a}	-2.72^{a}	-4.40^{a}
Directors	-2.25^{b}	-2.30^{b}	-3.54^{a}	-1.71^{c}	-4.41^{a}
Outsiders	-3.38^{a}	-2.60^{b}	-3.14^{a}	-2.45^{b}	-6.05^{a}
Directors (board)	-2.47^{b}	-1.92^{c}	-1.96^{c}	–0.83	-3.59^{a}

Table 11 – Case study GKN – Directors' shareholdings and measures of growth, dispersion and mutation

Panel A reports the holdings by directors and their families in Guest, Keen and Nettlefolds in 1900 (after the initial public subscription to acquire the private businesses of Dowlais Iron Co., Patent Nut and Bolt, and Guest and Co. of John Lysaght Ltd.), in 1902 (after the acquisition of Nettlefolds and Co.), and in 1930 (after the acquisition of John Lysaght Ltd., Consolidated Cambrian and D Davis and Sons). In Panel B, we compute our measures of annual growth in total ordinary capital, dispersion of control, mutation (cash flow), and mutation (board) for the 1920-30 decade, while Panel C reports the contributions of acquisitions, rights issues, and placings to annual growth in total ordinary capital, dispersion of control, mutation (cash flow), and mutation (board), respectively. Total ordinary capital is the number of issued ordinary shares, normalized to hold constant the nominal value over time. Control is defined as the minimum number of shareholders necessary to pass the threshold of 25% of cash flow rights. Dispersion is defined as the change in control. Mutation (cash flow) is defined as the change in the composition of the shareholders necessary to pass the threshold of 25% of cash flow rights. Mutation (board) is defined as the change in the composition of the directors necessary to pass the threshold of 50% of votes within the board (1 director – 1 vote).

Panel A: Directors' ownership and share turnover (IPO made in 1946)

	Directors	Share Turnover
1900	33.57	0
1902	27.77	8.95
1910	26.44	6.31
1920	19.45	7.13
1922	9.67	9.74
1930	9.34	6.07
1946	<1%	n.a.

Panel B: Measures of annual equity growth, dispersion, mutation (ownership), and mutation (board), 1920-30

Annual equity growth	8.31%	Total ordinary capital	1920	2,895,000
Dispersion	11.07%		1922	4,890,800
Mutation (cash flow)	11.77%		1930	6,304,474
Mutation (board)	0%			

Panel C: Factors contributing to annual growth in share capital, dispersion, mutation (cash flow), and mutation (board), decade 1920-30

	IPO	Acquisitions	Rights issues	Placings	Residuals (e.g. sales, inheritances, etc.)
Annual growth	0	100	0	0	0
Reduction in directors' ownership	0	70.17	0	0	29.83
Dispersion	0	83.49	0	0	16.51
Mutation (cash flow)	0	67.23	0	0	32.77
Mutation (board)	0	0	0	0	0

Table 12 – Determinants of dispersion of ownership

The dependent variable is the annual rate of dispersion of ownership by decade, for the first four decades over the life cycle. Independent variables are 1900 Sample dummy; Directors' ownership, defined as the percentage of ordinary shares owned by insiders, and Families representation on board, are computed at the beginning of each decade. Geo, defined as the equity issued or sold outside the city of incorporation as a proportion of outstanding equity; and Number of acquisitions, are computed over the decade. Regressions (2) , (4) and (6) include decade fixed effects (not reported). The standard errors reported in parenthesis are adjusted for heteroskedasticity using White's (1980) correction. Superscript letters a, b, c indicate significance at 1 percent, 5 and 10 percent level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
1900 Sample	0.004	0.040	0.003	0.049[c]	0.018	–0.020
	(.019)	(.026)	(.019)	(.027)	(.017)	(.043)
Directors' ownership			0.104[a]	0.051	0.081[a]	0.045
			(.035)	(.032)	(.029)	(.031)
Family representation			–0.084[a]	–0.077[a]	–0.087[a]	–0.082[a]
on boards			(.031)	(.029)	(.029)	(.027)
No. of acquisitions					0.029[b]	0.030[b]
					(.012)	(.013)
Geo					–0.008	0.021[b]
					(.007)	(.009)
Company Ownership			–0.004[c]	–0.005[c]	–0.009[b]	–0.009[a]
(i.e. no. people>25%)			(.002)	(.002)	(.004)	(.003)
Constant	0.038[b]	–0.022	0.015	–0.014	0.013	0.079[b]
	(.015)	(.021)	(.016)	(.019)	(.017)	(.040)
Decade fixed effects?	NO	YES	NO	YES	NO	YES
R^2	0.001	0.131	0.103	0.117	0.190	0.262
N obs	188	188	183	183	181	181

Table 13 – Determinants of mutation of ownership

The dependent variable is the annual rate of mutation of ownership by decade, for the first four decades over the life cycle. Independent variables are 1900 Sample dummy; Directors' ownership, defined as the percentage of ordinary shares owned by insiders, and Families representation on board, are computed at the beginning of each decade. Geo, defined as the equity issued or sold outside the city of incorporation as a proportion of outstanding equity; and Number of acquisitions, are computed over the decade. Regressions (2) , (4) and (6) include decade fixed effects (not reported). The standard errors reported in parenthesis are adjusted for heteroskedasticity using White's (1980) correction. Superscript letters a, b, c indicate significance at 1 percent, 5 and 10 percent level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
1900 Sample	–0.256[a]	–0.392[a]	–0.220[a]	–0.017	–0.203[a]	–0.318[b]
	(.059)	(.125)	(.058)	(.117)	(.059)	(.134)
Directors' ownership			–0.233[b]	–0.065	–0.253[b]	–0.095
			(.099)	(.126)	(.099)	(.125)
Family representation			–0.038	–0.055	–0.023	–0.043
on boards			(.113)	(.115)	(.114)	(.115)
No. of acquisitions					0.007	0.022
					(.016)	(.016)
Geo					–0.056	–0.064
					(.048)	(.069)
Company Ownership			0.014[b]	0.017[a]	0.013[c]	0.014[b]
(i.e. no. people>25%)			(.006)	(.006)	(.007)	(.006)
Constant	0.400[a]	0.577[a]	0.519[a]	0.224[c]	0.506[a]	0.537[a]
	(.050)	(.102)	(.070)	(.123)	(.071)	(.108)
Decade fixed effects?	NO	YES	NO	YES	NO	YES
R^2	0.094	0.189	0.174	0.213	0.175	0.212
N obs	190	190	184	184	182	182