

Ownership: Evolution and Regulation

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This article is the first study of long-run evolution of investor protection and corporate ownership in the United Kingdom over the twentieth century. Formal investor protection emerged only in the second half of the century. We assess the influence of investor protection on ownership by comparing cross-sections of firms at different times in the century and the evolution of firms incorporating at different stages of the century. Investor protection had little impact on dispersion of ownership: even in the absence of investor protection, rates of dispersion of ownership were high, associated primarily with mergers. Preliminary evidence suggests that ownership dispersion in the United Kingdom relied more on informal relations of trust than on formal investor protection. (*JEL G32, G34*)

One of the best-established stylized facts about corporate ownership is that ownership of large listed companies is dispersed in the United Kingdom and the United States and concentrated in most other countries. For example, Becht and Mayer (2001) report that more than 50% of European companies have a single voting block of shareholders that commands a majority of shares. In contrast, in the United Kingdom and the United States fewer than 3% of companies have such blocks.

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Two prominent theories of regulation and law have been proposed to explain this difference. The first, attributable to Mark Roe (1994), is that U.S. legislators responded to a populist agenda in the 1930s by limiting the power exercised by large financial conglomerates. This was accomplished by introducing legislation that restricted the control rights of large blockholders. The second, associated with La Porta et al. (1997, 1998, LLSV henceforth), argues that concentrated ownership is a response to inadequate investor protection. According to their view, in the absence of adequate minority protection, investors seek to protect their investments with the direct exercise of control through large share blocks. Concentrated ownership is therefore a response to deficient investor protection.

In both of these law and finance theories, dispersed ownership is associated with strong investor protection. The difference in ownership concentrations in the United Kingdom and the United States, on the one hand, and continental Europe, on the other, can be attributed to weak investor protection in continental Europe and strong investor protection in the United Kingdom and the United States. LLSV produce data to support this conclusion. They distinguish between the common law systems of the United Kingdom and the United States 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.

According to the law and finance literature, differences in legal structures are deep rooted with a long history. One would therefore expect differences in investor protection also to have a long history, particularly in the United Kingdom, where common law originated. But this is not the case. At the beginning of the century, we find that the United Kingdom was devoid of antidirector rights provisions and protection of small investors. According to the LLSV measure of antidirector rights, the United Kingdom scored only 1 out of a maximum of 6 between 1900 and 1946—on a par with Germany in the early 1990s. Even on broader-based measures of legal enforcement, such as disclosure, liability standards for directors, and public enforcement, proposed by La Porta, Lopez-de-Silanes, and Shleifer (2006, LLS henceforth), we find that investor protection in the first three decades of the century was very weak.

Common law contributed to this: in 1843, there was a landmark case of unsuccessful litigation by an injured investor in the United Kingdom (*Foss v. Harbottle*) that undermined the rights of minority investors to seek protection through the courts for more than a century. This principle was upheld in subsequent cases, and the leading British company law academic, Leonard Sealy, observed, “The courts have made it very difficult, and in many cases impossible, for shareholders with grievances—sometimes, shareholders who are the victims of very real injustices—to obtain a legal remedy” (Sealy 1984, p. 53).

If investor protection at the beginning of the century in the United Kingdom was on a par with that of Germany in the early 1990s, then this raises the question of whether corporate ownership in the United Kingdom in the 1900s bore a closer resemblance to that in Germany than in the United Kingdom today.

The law and finance literature would predict that in the first half of the century, the United Kingdom would have minority investor abuse and relatively high concentrations of ownership. As Cheffins (2002) has noted, unlike in the United States, there was no legislation in the United Kingdom during the twentieth century discouraging concentrations of shareholdings in the hands of financial institutions or other investors so that, if any law and finance theory is relevant to the United Kingdom, it is the LLSV rather than the Mark Roe version.

A second interesting feature of investor protection in the United Kingdom is the degree to which it was strengthened during the century. By the end of the century, the LLSV measure of antidirector rights had increased from 1 to 5 out of the maximum of 6, and the LLS measures of legal enforcement had risen to be some of the highest in the world. In addition, there were aspects of investor protection not captured by the LLSV and LLS indices that were introduced from the middle of the century—for example, rules concerning removal of directors. According to the law and finance literature, we would therefore predict a significant increase in the level as well as in the rate of dispersion of ownership in the second half of the century.

We address these questions by looking at the evolution of ownership of sixty U.K. firms over the twentieth century. Several studies report statistics on the ownership of cross-sections of firms in the United Kingdom and the United States at different points in time.¹ We choose two years in the United Kingdom, 1920 and 1950, and compare ownership in both years with that in 1990, as reported in Franks, Mayer, and Renneboog (2001). But no study to date has examined how ownership of a panel of firms has evolved over an extended period—a hundred years in the case of this study—and to establish the extent to which law contributed to that evolution.

That is precisely what this article attempts to do. It has been made possible by the existence of an unusually rich source of data in the United Kingdom. For more than a century, Parliament has required companies to deposit information, including records of accounts and a register of shareholders, at a central depository open to the public. From this depository, we select three samples of firms, one from companies incorporated around the turn of the century that have been in continuous existence since then, a second from firms incorporated at the same time but which are no longer in existence today, and a third from companies incorporated around 1960 and still in existence today. We develop a new methodology to trace their share ownership over time and to analyze the influence of investor protection on their evolution.

Ownership of the sample of U.K. firms incorporated around 1900 was rapidly dispersed with the shareholdings of inside directors more than halving over the forty years to 1940. The differences in ownership concentration between the United Kingdom and continental European countries today are not a recent phenomenon—dispersed ownership emerged rapidly in the first half of the

¹ For example, see Berle and Means (1932); Florence (1961); Franks, Mayer, and Renneboog (2001); Holderness, Kroszner, and Sheehan (1999); Holderness (2007); Larner (1966); and Nyman and Silberston (1978).

twentieth century, even in the absence of strong investor protection. The most significant cause of this was acquisitions and mergers. Shares issued in the process of equity exchanges diluted the ownership stakes of existing shareholders.

When investor protection was finally strengthened in the second half of the century, it had little effect on either levels or rates of ownership dispersion. Ownership of well-established companies was already dispersed, and rates of dispersion of newly incorporated firms—for instance, of the sample of firms incorporated around 1960—were similar to those of firms incorporated at the start of the century.

An obvious question is how ownership dispersion could have occurred in the absence of investor protection. We provide some evidence that trust and informal relations played an important role, illustrated by the pricing of equity in mergers and acquisitions. In principle, bidding companies could have acquired targets at low cost by making discriminatory offers to selected shareholders and purchasing the minimum shareholding required to secure control. This practice was commonplace in Germany until recently (see Jenkinson and Ljungqvist 2001; Franks and Mayer 2001). But what was observed in the United Kingdom in the first half of the century was quite different. Offers were made without discrimination at equal prices to all shareholders. Directors of target firms played an important role in upholding this equal price convention by stating publicly whether they intended to tender their own shareholdings at the offer price and making recommendations to their shareholders to follow their example. We also provide evidence on the importance of proximity of shareholders to boards of directors.

Section 1 of the article documents the development of investor protection and securities markets in the United Kingdom in the twentieth century. Section 2 discusses the law and finance hypothesis, along with the data and the methodology that we employ to test it. Section 3 measures concentration of ownership of our samples of firms and the rates at which shareholdings were dispersed and shareholder coalitions changed at different points in the century. Section 4 provides preliminary evidence of the role of trust in U.K. capital markets at the beginning of the twentieth century, as reflected in the proximity of shareholders to the firms in which they were invested and the absence of price discrimination in takeovers. Section 5 concludes the article.

1. Investor Protection in the United Kingdom in the Twentieth Century

In this section, we document measures of investor protection, and we examine the influence of the courts and case law, stock exchange rules, and statutes on the development of investor protection in the United Kingdom during the twentieth century. We also discuss the size and structure of U.K. stock exchanges, including the role of provincial exchanges in promoting equity issuance in the absence of investor protection.

1.1 Investor protection measures

We search for changes in law and financial markets regulation in the United Kingdom over the twentieth century, and in Table 1 we report the time series of the indices of investor protection proposed by LLSV and LLS.²

The most striking finding from Table 1 is that U.K. common law does not provide minorities with an automatic right of protection. All LLSV and LLS indices of investor protection were either zero or very low at least until the middle of the century, relative both to the United Kingdom today and also to other countries.

Panel A of Table 1 shows that the LLSV score of antidirector rights was 1 (out of 6) prior to 1948. The Companies Act of 1948 raised the score to 3 by introducing proxy voting and the right to call an Extraordinary General Meeting (EGM) by at least 10% of shareholders. The score rose to 5 in the 1980s with the addition of preemption rights in 1980 and protection for oppressed minorities in 1985. Table 1 records the LLS indices of private (composite of disclosure and liability) and public enforcement in panels B and C; the separate components are defined in Table A1 of the Appendix. The public enforcement index is 0 until the 1986 Financial Services Act, and the private enforcement index is 0 in 1900, 0.5 in 1929, 0.67 in 1948, and 0.75 in 1967 and thereafter. On this basis, enforcement was very weak at the beginning of the century and was progressively strengthened from 1929.

It is not just relative to the second half of the twentieth century that investor protection in the first half was weak in the United Kingdom. It was also similar to other countries, where investor protection was regarded as weak. For example, the United Kingdom's scores of 1 for antidirector rights and 0 for public enforcement in the first half of the century were the same as in Germany during the same period.³ This comparison raises the question of how two countries with similarly weak investor protection could produce such different capital markets. It casts doubt on whether formal investor protection can provide an adequate explanation.

1.2 Courts and case law

It has been argued that one of the advantages of common law systems is their ability to adapt to changing economic and social conditions and to promote the emergence of efficient legislation through case law (see Coffee 2001 and Beck et al. 2003).

A seminal case in the middle of the nineteenth century (*Foss v. Harbottle*, 1843) had the effect of seriously restricting minority shareholder rights for the next hundred years. The judge made an important ruling that in the event of

² Sources include Cairncross (1958); Holland and Werry (1932); Davies (1979, 2002); Florence (1947); Michie (1999); Morgan and Thomas (1962); Paish (1951); and Schwabe and Branson (1913).

³ The score of 1 for Germany reflects the statutory provision of a 5% threshold for calling an EGM introduced in 1861 (Franks, Mayer, and Wagner 2006).

Table 1
Evolution over the twentieth century of measures of investor protection in the United Kingdom

Score	Period	Description
Panel A: Index of antidirector rights over time using LLSV's (1998) definition		
1	1843–1947	Shares cannot be blocked before meeting (always been in place)
3	1948–1979	Proxy by mail allowed and 10% of share capital can force an extraordinary shareholders meeting (Companies Act 1948, S. 136 and 132, respectively)
4	1980–1984	Preemptive rights to new issues, S. 17 of Companies Act 1980. New share issues must be offered to existing shareholders or a vote must be taken each and every time to suspend the provision
5	1985–today	Oppressed minorities, S. 459 of Companies Act 1985. S. 459 allows court review of decisions “on the grounds that the company’s affairs are being or have been conducted in a manner which is unfairly prejudicial to the interests of its members generally or of some part of its members”
Panel B: Index of private enforcement over time using LLS's (2006) definition		
Private enforcement index		
0	1843–1928	Arithmetic mean of disclosure requirements (panel B.1) and liability standards (panel B.2)
0.500	1929–1947	
0.667	1948–1966	
0.750	1967–today	
Panel B.1 Disclosure requirements index		
0	1843–1928	A prospectus is not required, by law, by the London Stock Exchange or Provincial Stock Exchanges. Shares can be traded and capital can be raised informally (i.e., without a prospectus), provided the issuer files a statement with the registrar (S. 1 of Companies Act 1907; S. 4 of Companies Act 1900)
0.667	1929–1966	A prospectus is required by S. 35 of Companies Act 1929. In the prospectus, the issuer has to disclose the compensation, inside ownership of each director, as well as all material contracts made by the issuer outside the course of the business, and all transactions in which related parties have, or will have, an interest (4th Schedule of Companies Act 1929)
0.833	1967–today	Requirement of disclosure of the name and ownership stake of each shareholder who, directly or indirectly, controls 10% or more of the issuer’s voting securities (S. 33 of Companies Act 1967)
Panel B.2 Liability standards index		
0	1889–1928	Rule in <i>Derry v. Peek 188</i> stated that fraud had to be demonstrated. S. 3 of the Directors’ Liability Act 1890 shifted the burden of proof onto directors. Directors’ Liability Act of 1907 and the Companies Act did not require issue of prospectus if registration of some prospectus information occurred. Also, directors were immune from a lawsuit for practical purposes if the articles of association included provisions excusing negligence—LQR, January 1935: “The 1929 Act also stopped or rendered useless another practice which for some years rendered the directors of a company practically immune from liability to compensate their shareholders for losses caused or contributed to by the negligence of the directors”
0.333	1929–1947	S. 35(3) of 1929 Companies Act required a prospectus and demonstration that the investor relied on the prospectus but made negligence sufficient for director liability. Directors could no longer exclude negligence from the articles of association
0.667	1948–today	S. 44 of 1948 Companies Act made directors liable for untrue statements, even without negligence
Panel C: Index of public enforcement over time using LLS's (2006) definition		
0	1843–1985	No public enforcement body exists. Financial frauds handled by the police fraud department
0.745	1986–today	Financial Services Act creates Self-Regulatory Organizations, later centralized into the Financial Services Authority

Panel A of the table reports the evolution over the twentieth century of the antidirector rights index defined by LLSV (1998). Panels B and C report the evolution of the indices of private enforcement and public enforcement defined by LLS (2006). These indices are described in detail in Table A1 of the Appendix.

a loss, only a company can sue for redress and not an individual shareholder on behalf of the company. The implication was that a minority of shareholders could not sustain an action against the management. In another case, *Harben v. Phillips* (1883), the judge found that there was no common law right on the part of a shareholder to vote by proxy.

Lord Justice Hoffman (1999) observed, “The emancipation of minority shareholders is a recent event in company law. For most of the twentieth century minority shareholders were virtually defenceless, kept in cowed submission by a fire-breathing and possibly multiple-headed dragon called *Foss v. Harbottle*. Only in exceptional cases could they claim protection of the court.” He goes on to say: “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 of 1985 and which enables the unfairly treated minority shareholder to slay the dragon.”

In addition to recording changes in legislation, we also assessed the degree to which the courts were involved in cases of breach of fiduciary duty by directors. We examined all court cases of directors’ liability over the period 1900–1935, using a keyword search on LexisNexis Professional TM and a manual search of the All England Law Reports and of the leading legal scholarly journals; the result was a sample of forty-four court cases. We found only one case of corporate crime, Royal Mail (the equivalent of today’s Enron and Parmalat cases), and only two cases of liability of directors for breach of fiduciary duty.⁴

We also read the *Financial Times* (FT), published daily, over the period from January 1931 to July 1931 to look for financial scandals that generated press comment and whether those scandals had led to court cases. This review revealed twenty cases of shareholder complaints, only three of which concerned alleged directors’ frauds or malfeasances. Most of the twenty cases were settled by an AGM or EGM, without any court proceedings.⁵ In sum, our search of the FT confirms that very few cases of breach of fiduciary duty were reported in the United Kingdom over the period 1900–1935.

These findings suggest that courts by and large did not deal with cases of breach of fiduciary duty. There could be three reasons for this. First, there were no cases of breach of fiduciary duty. Our evidence as well as anecdotal accounts rules this out. Second, problems of fiduciary duties of directors toward shareholders were resolved by means other than the courts, such as disclosure. As discussed in section 1.1, this was not the case.

Our findings suggest a third reason, that the articles of association (i.e., corporate charters) of companies granted directors virtually unlimited discretion

⁴ The three cases were *R v. Kysant Court of Appeal* (1931) (for Royal Mail), *Harris v. A. Harris* (1936) and *Nash Appellant*; and *Lynde Respondent* (1929). In all cases, courts ruled in favor of the directors. The other cases refer to potential directors’ liability for other reasons—for example, the issuance of preference shares and their voting rights, and the priority of preference shareholders in a voluntary winding up.

⁵ Of the three cases of fraud and malfeasance, only Royal Mail ended up in court.

with respect to any transaction they should enter into in the course of their business. Consistent with leading textbooks such as Davies (2002), we find that one clear principle in the courts' rulings stands out—that is, freedom of contracting via the articles of association. When it comes to relations between shareholders and directors and between shareholders, courts have nearly always enforced the company's articles of association. In the case of an omission in the relevant company articles, courts have enforced the Companies Acts under which the companies have been incorporated. In the cases of *Re Brazilian Rubber Plantations* (1911) and *City Equitable Fire Insurance Company* (1925), the courts upheld clauses in the companies' articles of association limiting directors' liability even in relation to willful neglect or dereliction of duties. As a result, as noted by Djankov et al. (2008, p. 439), “During the nineteenth century the rule of equity lost its bite as courts came to accept that shareholder approval for self-interested transactions could be granted in general, rather than for specific transactions, in the articles of association.”

1.3 The role of legislation and stock market rules

It was legislation and stock market rules that eventually provided minority investors with the protection that common law had for so long denied them. Two examples illustrate this point: disclosure rules and listing rules. First, the case of disclosure rules, described in detail in Table 1, shows that in the first half of the century, principles of *caveat emptor* were deeply embedded, as described by the Greene Committee (1925): “The careless speculator who is willing to accept at their face value statements which are obviously insufficient and unsatisfactory cannot justly expect special protection when that would involve a serious and unwarranted interference with the honest person” (sec. 59). Accounting disclosure in the first half of the century was guided by such views as those expressed by the Greene Committee in 1925: “We think it most undesirable to lay down hard and fast rules as to the form which a balance sheet should take . . . The matter of accounts is one in which we are satisfied that within reasonable limits companies should be left a free hand” (sec. 69).

Second, market makers (called jobbers) registered with the London Stock Exchange (LSE) would frequently deal in shares of companies that had not passed the LSE's listing requirements (Michie 1999). This occurred when the shares of a company were issued on a provincial exchange, often without a prospectus, and then traded on the LSE under special rules referred to as “under a supplementary list.” Only from 1947 was the distinction between the official and supplementary lists abolished and all companies required to satisfy the LSE's listing rules, including an obligation to produce a ten-year profit record and to have the support of two registered jobbers (i.e., market makers).

Until 1948, the responses to these clear deficiencies in investor protection were relatively ineffectual. In 1944, the Cohen Committee on Company Law was set up as a result of a growing concern about “dispersion of capital among an increasing number of small shareholders . . . who are, in many cases, too

numerous and too widely dispersed to be able to organise themselves” (Cohen Committee 1945, para. 7). Its conclusions were the basis for the fundamental reforms in the 1948 Companies Act. The 1948 Act introduced voting by proxy, provisions for shareholders to force an EGM with 10% of the voting equity capital, and special resolutions to make it easier for shareholders to remove directors. The evidence indicates that to the extent that investor protection was strengthened during the twentieth century, it was primarily by statute rather than through the application of common law in the courts. Common law was therefore not a sufficient condition for strong investor protection in the United Kingdom.

Therefore, 1948 was a defining date for minority investor protection in many respects. The antidirectors index rose from 1 to 3, the liability standards index rose from 0.33 to 0.67, and the LSE strengthened listing rules. In choosing 1948 over other years, like 1929 or the 1980s when there were other changes in the LLSV and LLS scores, we place considerable importance on the significant tightening of the LSE’s listing rules in 1947. Moreover, while many disclosure requirements relating to profit and loss (P&L) accounts and balance sheets had been introduced earlier in the century, it was only with the detailed stipulation of their content and the requirement that they provided a “true and fair” view that they became a reliable source of information. For example, Roberts (1992) notes that until 1948, there was insufficient information on which predators could launch acquisitions without the cooperation of managers of the target firm. It is therefore no coincidence that with the passing of the 1948 Companies Act, Charles Clore was able to bypass the board of Sears Ltd. and initiate the first hostile tender offer in the United Kingdom in 1953.⁶

1.4 Size and structure of U.K. stock markets

Rajan and Zingales (2003) 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 twenty-six countries between 1913 and 1999, at approximately ten-year intervals. Using their criterion, the United Kingdom has a stock market that ranks in first or second place in six of the nine decades and in the top five for the remaining three decades. The ratio of market capitalization to GDP in the United Kingdom was 2.42 in 1900 and 2.25 in 1999.

One striking feature of stock exchanges in the United Kingdom in the first half of the twentieth century was the importance of regional exchanges. Today there are just two, but in the first half of the century there were eighteen provincial stock exchanges, which collectively were as large as the London Stock Exchange. According to *Phillips’ Investors Manual* of 1885, “The provincial exchanges are of almost greater importance in relation to home securities than

⁶ Roberts (1992) states, “Clore launched his attack on being informed by a partner in the estates agent Healey & Baker that Sears’ balance sheet under-estimated the real estate value of the firm’s 900 high street stores by £10 million” (p. 186).

London.” Thomas (1973) states, “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 of the two most important centres of joint stock in the country, with 44 companies, with a paid up capital of £12 million” (pp. 133 and 124).

Provincial stock markets played an important role in promoting new issues. Writing in 1921 on new shares issues, Lavington notes, “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 recognized 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). As a result, securities were traded in the city in which most investors resided. For example, shareholders in Manchester were anxious that the shares of the Patent Nut and Bolt Co. of Birmingham should be listed in Manchester, where most of the shareholders lived (see Thomas 1973, p. 118). The reason was that proximity between brokers and directors was thought to create better-informed markets.

Based on these observations, we formulate an alternative to the law and finance hypothesis—namely, that it was informal relations of trust between investors and firms rather than formal systems of regulation that allowed equity markets to flourish and ownership to become dispersed in the United Kingdom in the first half of the twentieth century.

2. Theory, Data, and Methodology

2.1 Theory

According to LLSV, common law systems are associated with strong investor protection. Investor protection is a necessary condition for flourishing financial markets and is required to encourage a wide group of small investors to participate in stock markets. The law and finance literature links investor protection to the avoidance of abuse of minority investors. There are numerous forms that such abuse might take, but one that attracts the attention of regulators is discriminatory pricing between large and small investors in major equity transactions. One of the most significant equity transactions is the acquisition of one company by another. In the absence of strong investor protection, minorities might be abused by being offered lower prices for their shares than large investors. Discriminatory pricing in takeovers is still a feature of many countries’

takeover markets today. We might have expected it to feature in the takeover markets of the first half of the twentieth century when investor protection in the United Kingdom was weak. In addition, small investors might be expected to suffer in other equity issues if insiders or large outside investors can subscribe at below-market prices.

According to LLSV, the threat of abuse discourages minority investors from participating in financial markets with poor investor protection. As a consequence, share ownership is highly concentrated in low investor protection regimes. Faced with weak investor protection at the beginning of the twentieth century, share ownership in the United Kingdom should therefore have been concentrated. This is clearly important in considering how the United Kingdom (and the United States) developed their distinctive patterns of dispersed share ownership. In the United Kingdom, this should have been a relatively recent phenomenon coinciding with the emergence of strong investor protection in the second half of the twentieth century, at least as measured by LLSV. Moreover, given that investor protection in England at least pre-1948 was on a par with Germany in the early 1990s, according to the LLSV index, we might expect to observe similar levels of concentration of ownership and low rates of dispersion.

2.2 Data

There are two approaches that we take to evaluating the patterns of ownership during the twentieth century. The first is to take randomly selected samples of companies at particular points in time. We collected data for two random cross-sectional samples, one comprising fifty-three public companies listed on the LSE in 1920 and the other comprising fifty-five public companies listed on the LSE in 1950. The year 1920 corresponds to a date at which investor protection in the United Kingdom was weak, while 1950 corresponds to the end of the period of weak investor protection and the transition to stronger protection.

Although the two samples were independently drawn, their size distribution turns out to be similar in both statistical and economic terms. The industry distribution of the two samples is somewhat different, with the 1920 sample being tilted more toward tea, coffee, and rubber companies than the 1950 sample, reflecting the changing industry composition of the U.K. economy (e.g., see Hart and Prais 1956).

We compare ownership statistics across the two samples and then with those reported in Franks, Mayer, and Renneboog (2001) for a random sample of 243 U.K. companies in 1990. The year 1990 corresponds to a date by which all of the legislative changes documented in this article were fully implemented. To examine in detail the evolution of ownership, however, we cannot entirely rely on a comparison of cross-sectional samples, and therefore we pursue a second approach.

The second approach consists of constructing panels of firms and examining how their ownership changed during the course of the century. Since the beginning of the twentieth century, all U.K. firms have been required to file information at a central depository called Companies House in Cardiff, Wales. This depository is a unique long-run source of data on firms. However, it suffers from one deficiency: Companies House retains complete records on all firms that are still currently in existence but sends information on dead companies to the Public Records Office in Kew, Richmond (Surrey), which has kept information on all companies dissolved before 1932 but has retained only a sample of companies dissolved thereafter.⁷ We supplemented data from Companies House with this second source.

We collected data for companies incorporated around two time periods: 1900 and 1960. The year 1900 is the first date for which records on a large number of companies are available. The year 1960 corresponds to the date by which a regime shift has occurred and many of the legislative changes documented in this article are in place. The time intervals from 1 January 1897 to 31 December 1903, and the shorter one from 1 September 1958 to 31 December 1962, were chosen to yield a universe of twenty firms each. These forty firms were still in existence in 2001.⁸ To avoid the obvious bias that might arise from the greater longevity of the 1900 than the 1960 sample, we collected a second sample of firms incorporated around 1900 that are no longer in existence today. We impose a minimum life of eleven years on the nonsurviving firms so that we have at least one complete decade of data on each. Of the twenty dead companies in the 1900 sample, three died before 1940, and seventeen subsequently.

To establish the representativeness of our 1900 samples, we compared them with the population of firms listed on the LSE in 1900, as reported in the January issue of the *Investors' Monthly Manual*.⁹ It records that there were 1,354 firms with a total market capitalization of just over £1 billion. Our sample is restricted to five sectors: breweries and distilleries; iron, coal and steel; steamship and shipbuilding; mining companies; and other commercial and industrial companies, and it represents 5% of the number of firms listed on the LSE in 1900 in these five sectors and 3% of market capitalization in 1900. We exclude in particular utilities (railways, banking, and financials) and foreign corporations, where ownership is typically widely dispersed, so that their exclusion is likely to lead to an under- rather than an overstatement of dispersion of ownership.

⁷ Although the Public Records Office informed us that it had no systematic criteria to determine which companies to retain, we suspect that larger and older companies were more likely to be retained.

⁸ An important feature of both subsamples is that many firms were in existence well before their incorporation. For example, Cadbury Schweppes was established in 1783, incorporated in 1886, and reincorporated in 1900; REA incorporated in 1889 as Ceylon Tea Plantations and reincorporated in 1960.

⁹ Source of data: <http://icf.som.yale.edu/imm/> accessed on 23 September 2004.

We obtain results for the 1900 samples of survivors and nonsurvivors separately and for the two together. There are therefore three bases of comparison with the 1960 sample in the tables reported below: survivors, nonsurvivors, and the combined sample, which provides an average of the two. Which is the most appropriate depends on what proportion of the 1960 firms is expected to survive for at least 100 years. If all do, then the surviving sample is the most relevant; if none do, then the nonsurviving sample should be used; and if 50% survive then the average is the closest benchmark. Since the results turn out to be similar for all samples, we report only results for the combined sample; the others are available on request.

Company filings (the “annual returns”) include information on names, addresses of shareholders, the size of their stake, and their occupation (e.g., “director of the company”). We collected additional information from (i) new issue prospectuses in the Guildhall Library in London, (ii) annual issues of the *Stock Exchange Year Book*, which lists names of directors and the sources of any changes in issued capital, and (iii) official lists of trading of securities from the British Library in London. In addition, we consulted the share registers, which form part of the company’s “annual returns,” to provide evidence of annual ownership changes.

From these data, we collect names of directors, their shareholdings (including those of their families), the date and amounts of capital issued in acquisitions, new share issues raised through public and private placements, and other changes in share capital, such as capitalization of reserves. We trace the founding family ownership from incorporation until the last family member left the board. We take account of name changes across generations, when, for example, the daughter of a founder married. We limit the recording of outside shareholdings to stakes greater than 1% of ordinary capital. We use newspaper archives to document evidence of mergers and tender offers, trading in shares on provincial stock exchanges, especially in the early 1900s. We collect share prices pre-1955 from the Daily Official List, published by the stock exchanges, and post-1955 from the London Business School share price database. Finally, to establish the proximity of shareholders to directors, we compute measures of distance of ordinary and preference shareholders from their private addresses to the address of the company’s headquarters for twenty-six firms for which such data are available in 1910, taken from the 1900 sample.

2.3 Methodology

The approach taken in this article is to test the above theories against long-run evidence on the evolution of ownership and control of corporations in the United Kingdom. We introduce two new measures of changes in ownership and control based on the work of Grossman and Hart (1986) and Hart and Moore (1990). We assume that when contracts are incomplete, the residual control rights are associated with critical ownership thresholds, typically 25%, 50%, or 75%. We record the minimum size and composition of coalitions required to

pass these thresholds at ten yearly intervals. The two new measures are first the rate at which ownership is dispersed—i.e., the change in the minimum number of shareholders required to cross the critical ownership threshold. The second is the change in the composition or membership of this smallest coalition, which we describe as “mutation” of ownership. It is the inverse of the stability of the membership of the smallest coalition and measures the rate at which the identities of the controlling shareholders change. In addition, we report standard measures of concentration of ownership, such as size of directors’ shareholdings; *C1*, *C3*, *C5*, and Herfindahl indices; and an index of widely held firms (where the largest shareholder owns less than 10% or 20% of a firm). We report these measures for three groups of investors: all shareholders and inside and outside shareholders separately.

The annual rate of *dispersion*, *d*, from year *t* to *t+T* is defined as

$$d = \{Y_{t+T}/Y_t\}^{1/T} - 1,$$

where *Y* is ownership defined as the minimum number of shareholders required to pass the threshold of 25%, *t* is the calendar date, and *T* is the length of the measurement interval (ten years in our analysis).¹⁰ We also measure this at a 50% threshold.

Mutation of ownership from year *t* to *t+T* is defined as

$$m = 1 - \{z_{t+T}/Z_t\}^{1/T},$$

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*.¹¹

This methodology provides the first measures of ownership based on control. Our measures may change when conventional indices of concentration do not—for example, when the number or composition of owners alters but the size distribution of shareholders does not. As an illustration, if a large shareholder with 25% of stock sells to another new shareholder, then control alters but concentration does not. Similarly, cash takeovers change composition but not

¹⁰ We set the rate of dispersion, *d*, for directors (outsiders) to its theoretical upper bound 100% if in period *t* they hold more (less) than 25% and in period *t+T* their holding declines below (rises above) this threshold. While it is always possible to find a coalition that crosses the 25% threshold (or indeed any threshold between 0 and 100%) for “all shareholders,” this is not necessarily true for subsets of shareholders such as directors and outsiders; instead, we need to mark the discontinuous change in dispersion that occurs in these cases when the threshold is crossed by setting a theoretical upper bound. The reason for choosing 100% for this is that we record outside shareholders with stakes greater than 1% so that even if the number of shareholders increases from 1 to 100, the maximum recorded value of *d* over a decade will be $(100/1)^{1/10} - 1 = 58.49\%$.

¹¹ One way to think about the relation between dispersion and mutation of ownership is 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 $\sum_{i=1}^{I_t} \alpha_{i,t} = x$ where $\alpha_{i,t}$ is shareholding of individual *i* in period *t*. Let *i* = 1 be the founding family, then we can define dilution of their ownership between *t* and *t+I* as $\alpha_{1,t+1} - \alpha_{1,t} = -\sum_{i=I_t+1}^{I_{t+1}} \alpha_{i,t+1} - (\sum_{i=2}^{I_{t+1}} \alpha_{i,t+1} - \sum_{i=2}^{I_t} \alpha_{i,t})$. The first term is related to dispersion through broadening of the control group and the second to mutation of the existing control group. New issues or sales of shares to new and existing shareholders can therefore dilute the founding family’s ownership.

necessarily concentration. Existing measures of size distribution (concentration ratios, Herfindahl indices, Gini coefficients, etc.) cannot capture these changes in composition.

Concentration may change with or without changes in our measure of ownership, depending upon whether size distributions alter around defining ownership thresholds. For example, if two shareholders increase their shareholdings from 25% to 40%, they will change conventional measures of concentration but not our measure of ownership. Conversely, if ownership of two shareholders increases from 24% to 26%, there will be a negligible effect on conventional measures but a significant effect on our ownership measure given the significance of a 25% threshold.

Mutation is related to conventional measures of liquidity, but it is not the same. Share turnover, a conventional measure of liquidity, may occur in the absence of changes in controlling shareholders and mutation. Our article therefore allows conventional measures of liquidity to be disentangled from those that directly affect the market for corporate control.

We examine how changes in dispersion and mutation of ownership have been affected by investor protection and by equity issued for internal investment and acquisitions. We do so by regressing the dispersion and mutation variables on the LLSV measure of antirectors, rights at the beginning of the decade and on equity issued during the decade, controlling for the level of dispersion of ownership at the beginning of each decade. We undertake these regressions for the first four decades of our sample of sixty companies. We examine the robustness of the results to survivorship by repeating the regressions on the subsamples of 1900 survivors and nonsurvivors.

3. Dynamics of Ownership through the Century

In this section, we examine the evolution of ownership of our samples of firms over the twentieth century. We begin in section 3.1 by looking at concentration and the nature of share ownership for three cross-sections at different points in time. In section 3.2, we examine our ownership panels. In section 3.3, we examine the rate at which share ownership is dispersed and the rate of mutation of the controlling group of shareholders. In section 3.4, we report the results of panel regressions on the determinants of dispersion and mutation of ownership.

3.1 Concentration and nature of share ownership—cross-sections

We report two sets of statistics on the concentration and nature of share ownership. The first records the minimum number of shareholders required to reach critical ownership thresholds and the second the (more conventional) total shareholdings owned by the largest shareholders.

We collect ownership data on two cross-sectional samples, fifty-three companies in 1920 and fifty-five companies in 1950. The two samples were selected independently and randomly. Interestingly, the two samples turn out to be

similar in terms of assets size and industry distribution (data available on request). We compare data from these two samples with ownership in the United Kingdom in 1990, as documented in Franks, Mayer, and Renneboog (2001), who select a random sample of 243 listed companies in 1990. While we cannot compare the size of the 1990 sample perfectly with that of our new 1920 and 1950 samples because the latter two lack data on sales, the independent and random selection of these three large cross-sectional samples makes us more confident that our results are unlikely to be biased.

Table 2 reports concentration measures for the three cross-sections in 1920, 1950, and 1990. Panel A reports results for 1920 and 1950, along with statistics about the differences in means, medians, and distributions; panel B compares 1920 and 1950 with 1990. The first two rows report the minimum number of shareholders required to reach a total shareholding of 25% and 50%, respectively; the third and fourth rows report *W10* and *W20*, that is, dummy variables that equal 1 if the largest shareholder holds less than 10% and 20%, respectively; the next five report *C1*, *C3*, and *C5* measures, respectively, where the *C3* index is also divided into insiders and outsiders and the last three columns report the holdings by directors, the Herfindahl indices, and the total number of shareholders, respectively.

Table 2 reports that ownership concentration in the United Kingdom in 1990 is very similar to that in 1920 and in 1950 in terms of overall dispersion. For example, if we examine *W10*, the proportion of firms classified as widely held using the definition that the largest shareholder owns less than 10% of the shares (see LLS 1999), then we find that the 1990 sample is less dispersed than either the 1920 or the 1950 sample: 40% of the sample firms were dispersed in 1990, as compared with 43% in 1920 and 49% in 1950. Other measures give a more nuanced picture. For example, *C1*, the fraction of share ownership of the largest shareholder, is 20.8% in 1920 and 15.0% in 1950. These figures compare with 16.3% in 1990—that is, it lies between the two. Other measures such as *W20*, the holdings of directors and their families, Herfindahl, and *C5* reinforce these conclusions, namely that the three samples are similar in terms of overall dispersion, with the 1990 sample being slightly more dispersed than the 1920 sample, but slightly more concentrated than the 1950 one. While some of these differences are statistically significant, reflecting the large sample sizes, they are all economically small.

These findings suggest that the landscape of ownership in the United Kingdom is very similar at different moments in time during the century. Of course, whether ownership concentration is overall high or low raises questions about the appropriate benchmark against which to evaluate it. Relative to atomistic ownership, our concentration measures are high. Relative to levels of ownership dispersion observed in concentrated ownership systems such as continental Europe today, concentration was low in the United Kingdom throughout the century. Recently, Holderness (forthcoming) argues that even ownership of U.S. firms today is not so widely dispersed, in that while few

Table 2
Cross-sections of ownership in 1920, 1950, and 1990

		1920	1950	Tests of differences 1950–1920		
Panel A: Ownership concentration in the United Kingdom in 1920 and 1950						
Ownership25	Mean	5.32	5.18	<i>t</i> -test	-0.18	
	Median	4.00	4.00	<i>z</i> -test	0.50	
	[10th%, 90th%]	[1.00, 11.80]	[1.00, 10.60]	χ^2 test	0.04	
	Std dev.	4.44	3.63			
Ownership50	Mean	9.06	8.96	<i>t</i> -test	-0.08	
	Median	9.00	8.00	<i>z</i> -test	-0.03	
	[10th%, 90th%]	[2.00, 17.80]	[3.00, 17.00]	χ^2 test	0.58	
	Std dev.	6.07	6.00			
W10	Mean	43.40	49.09	<i>t</i> -test	0.59	
W20	Mean	62.26	74.55	<i>t</i> -test	1.37	
C1	Mean	20.86	15.00	<i>t</i> -test	-1.65	
	Median	13.02	10.55	<i>z</i> -test	-1.34	
	[10th%, 90th%]	[2.91, 46.57]	[2.99, 28.02]	χ^2 test	0.00	
	Std dev.	20.06	16.46			
C3	Mean	33.82	25.19	<i>t</i> -test	-1.80 ^c	
	Median	23.61	19.56	<i>z</i> -test	-1.17	
	[10th%, 90th%]	[6.86, 81.25]	[6.49, 53.36]	χ^2 test	0.59	
	Std dev.	28.44	21.05			
C3i	Mean	18.30	8.86	<i>t</i> -test	-2.48 ^b	
	Median	4.53	2.14	<i>z</i> -test	-2.06 ^b	
	[10th%, 90th%]	[0.30, 50.38]	[0.26, 20.06]	χ^2 test	1.33	
	Std dev.	23.51	15.32			
C3o	Mean	19.70	19.78	<i>t</i> -test	0.03	
	Median	13.91	14.15	<i>z</i> -test	0.44	
	[10th%, 90th%]	[4.90, 44.77]	[5.71, 37.33]	χ^2 test	0.00	
	Std dev.	17.72	16.68			
C5	Mean	38.70	30.25	<i>t</i> -test	-1.66 ^c	
	Median	30.05	24.32	<i>z</i> -test	-1.07	
	[10th%, 90th%]	[8.89, 90.39]	[8.83, 63.43]	χ^2 test	0.59	
	Std Dev.	29.63	22.79			
Directors	Mean	16.56	9.23	<i>t</i> -test	-2.57 ^b	
	Median	3.53	2.16	<i>z</i> -test	-2.22 ^b	
	[10th%, 90th%]	[0.25, 49.98]	[0.26, 21.29]	χ^2 test	1.33	
	Std dev.	22.85	15.56			
Herfindahl	Mean	0.106	0.063	<i>t</i> -test	-1.53	
	Median	0.028	0.020	<i>z</i> -test	-1.16	
	[10th%, 90th%]	[0.003, 0.329]	[0.002, 0.129]	χ^2 test	0.59	
	Std dev.	0.162	0.134			
No shareholders	Mean	942.9	842.0	<i>t</i> -test	-0.57	
	Median	754.0	511.0	<i>z</i> -test	-0.58	
	[10th%, 90th%]	[35.6, 1760.8]	[149.9, 2064.4]	χ^2 test	1.58	
	Std dev.	952.2	864.4			
No. of observations		53	55			
Panel B: Ownership in the United Kingdom in 1990 (from Franks, Mayer, and Renneboog 2001) and tests 1990–1920 and 1990–1950						
W10	Mean	40.74	<i>t</i> -test	-0.35	<i>t</i> -test	-1.13
W20	Mean	70.37	<i>t</i> -test	1.15	<i>t</i> -test	-0.62
C1	Mean	16.33	<i>t</i> -test	-2.03 ^b	<i>t</i> -test	0.64
	Median	12.07	<i>z</i> -test	0.29	<i>z</i> -test	1.81 ^c
	[10th%, 90th%]	[4.38, 29.89]	χ^2 test	0.00	χ^2 test	0.00
	Std dev.	13.27				
C5	Mean	36.40				

(Continued overleaf)

Table 2
(Continued)

		1990	1990–1920		1990–1950	
Directors	Mean	12.96	<i>t</i> -test	−2.03 ^b	<i>t</i> -test	1.35
	Median	2.71	<i>z</i> -test	−2.89 ^a	<i>z</i> -test	0.51
	[10th%, 90th%]	[0.00, 43.78]	χ^2 test	2.30	χ^2 test	0.36
	Std dev.	19.07				
Herfindahl	Mean	0.063	<i>t</i> -test	−2.69 ^a	<i>t</i> -test	0.04
	Median	0.033	<i>z</i> -test	0.09	<i>z</i> -test	2.01 ^b
	[10th%, 90th%]	[0.003, 0.143]	χ^2 test	0.09	χ^2 test	1.43
	Std dev.	0.089				
No. of observations				243		

The table reports measures of ownership concentration. Panel A reports measures for two cross-sectional samples, one in 1920 and the other in 1950, and statistical tests of differences in means, medians, and distributions. The measures include ownership 25 and 50, defined as the number of shareholders required to pass the thresholds of 25% and 50% of voting rights, respectively; total directors' shareholdings and their families; and alternative measures. Alternative measures are *CI*, the holdings of the largest shareholder; *W10* and *W20*, a dummy that equals one if the largest shareholder owns more than 10% and 20% of the shares, respectively, and zero otherwise; *C3*, the aggregate holdings of the three largest shareholders; *C3i*, the aggregate holdings of the three largest inside shareholders (directors); *C3o*, the aggregate holdings of the three largest outside shareholders; *C5*, the aggregate holdings of the five largest shareholders; and the Herfindahl index. Superscript letters a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively. Panel B reports the *CI*, *W10*, *W20*, and *C5* statistics in Franks, Mayer, and Renneboog (2001), together with statistics of differences in means, medians, and distributions across the three samples (1990 minus 1920 and 1990 minus 1950). Superscript letters a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

U.S. firms have a majority blockholder, blockholders on average control about 40% of a publicly listed U.S. firm. Thus, our findings show that ownership concentration in the United Kingdom was low and very similar in 1920 to what it was in 1950 and also similar to what is observed today in supposedly dispersed ownership systems such as the United Kingdom and the United States. However, cross-sectional comparisons are affected by changes in sample composition and do not establish how ownership of particular firms evolves. For this purpose we construct long-run panels of firms.

3.2 Concentration and nature of share ownership—panel data

Table 3 documents the smallest ownership coalition (including both insiders and outsiders) that passes a combined threshold of 25% at different stages during the century.

Panel A of Table 3 refers to the complete 1900 sample and panel B to the 1960 sample. “All shareholders” in the table refers to the size of the smallest coalition of directors and outsiders combined that is required to pass a 25% cash flow threshold. The mean minimum size of the coalition rises from just above two in 1900 to about seven in 1910 to ten in 1930, peaking at fifty-eight in 1980. Median dispersion is lower, reflecting the skewed nature of the distribution, a small number of firms having high levels of dispersion.

The remaining columns refer to the minimum average size of coalitions of directors and outsiders, respectively, which individually cross the 25% threshold.

Table 3
Evolution of ownership

	All shareholders		Directors		Outsiders		No. of observations
	Mean	Median	Mean	Frequency	Mean	Frequency	
Panel A: Evolution of ownership, 1900 sample							
1900	2.35	1.00	1.77	39	15.40	10	40
1910	6.93	1.50	2.80	30	19.15	26	40
1920	9.92	2.00	1.96	26	23.93	27	37
1930	14.78	3.50	2.24	21	28.93	28	36
1940	14.84	5.00	2.00	13	22.00	23	32
1950	21.13	7.00	3.17	12	27.25	24	30
1960	24.83	10.00	4.00	8	31.65	20	24
1970	51.95	11.00	3.00	8	57.57	21	23
1980	57.86	8.00	1.80	5	61.24	21	22
1990	45.76	4.00	2.00	2	48.33	21	21
2000	48.45	3.00	1.67	3	53.58	19	20
Mean	22.49		2.33		35.12		
Panel B: Evolution of ownership, 1960 sample							
1960	1.10	1.00	1.10	20	0.00	0	20
1970	23.55	2.00	1.23	13	23.25	16	20
1980	15.05	1.00	2.08	13	20.12	17	20
1990	10.10	4.50	1.50	8	10.90	20	20
2000	3.85	3.00	1.40	5	5.25	20	20
Mean	9.09		1.42		14.40		
Panel C: 1960 vs. 1900—tests of means (<i>t</i> -statistics)							
	1960 vs. 1900	1970 vs. 1910	1980 vs. 1920	1990 vs. 1930	2000 vs. 1940	Overall	
All shareholders	-1.29	0.95	0.50	-0.60	-1.59	-0.10	

This table reports the evolution of ownership over time for our panels. Ownership is defined as the minimum number of shareholders necessary to pass a threshold of 25% of cash flow rights and is computed for all shareholders, for directors alone, and for outsiders, respectively. Frequency is the number of companies in which directors and outsiders pass the 25% threshold alone. Panel A refers to the 1900 sample, panel B to the 1960 sample, and panel C to *t*-statistics of differences in means between the two samples (1960 minus 1900). Superscript letters a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

To illustrate, in 1900, directors could on their own cross the 25% threshold in thirty-nine of the forty companies, and on average it took 1.77 directors to do this. In the same year, in only ten companies could outsiders on their own cross the 25% threshold, and it took on average 15.40 shareholders; in the remaining thirty no such coalition could be formed from outsiders alone. By 1920, this position had been reversed. There were more companies in which outsiders could cross the 25% threshold than companies in which insiders could, twenty-seven as against twenty-six. By the end of the century, there were just three companies in which directors could on their own cross the threshold, compared with nineteen for outsiders out of the twenty survivors.

We therefore observe steadily increasing dispersion of ownership through the century with outsiders progressively replacing insiders as the dominant shareholders. In 1900, it took fifteen outsiders on average to cross the 25% threshold, whereas by 1980 it took over sixty. In contrast, while there were progressively fewer companies in which directors could pass the threshold, the number of directors it took to do so remained fairly constant between one

and three. The sample therefore bifurcates between those firms where insider ownership is being diluted and outsiders are progressively replacing them and a declining minority of companies in which a small number of insiders continue to dominate.

Panel A also reveals another feature: a reversal of dispersion in the last two decades of the century. The mean number of shareholders in the 1900 sample required to pass the 25% threshold declined from 57.9 to 48.4 between 1980 and 2000 and the median from 8 to 3. The cause of this shift was the rise of institutional shareholdings that continued the transfer of ownership from insiders to outsiders and raised the concentration of outsiders. For example, the average size of share blocks held by financial institutions in the 1900 sample rose from 6.5% in 1980 to 12.8% in 2000.

In panel B, the 1960 sample shows a similar pattern to the 1900 sample: the number of companies in which directors can form a coalition steadily falls over the forty years, while the number of companies with outsider coalitions rises sharply. However, the size of the coalition is generally lower for the 1960 than the 1900 sample, implying greater concentration in the 1960 sample.

Comparing samples of the same vintage, we find that in 1940, a coalition of about fifteen shareholders is required to pass the 25% threshold, compared with only about four for the 1960 sample in 2000. For directors in 1940, there are thirteen cases in which a coalition of 25% or more could be formed, compared with only five cases in 2000. But the main difference is in the number of outside shareholders required to reach the 25% threshold. In 1940, on average twenty-two shareholders were required, whereas in 2000 only just over five. While there is substitution of outside for director ownership in the 1960 as in the 1900 sample, concentration of outside and overall ownership remains higher in the 1960 sample.

In panel C, we report *t*-statistics comparing the size of the coalition in the 1960 sample with the full 1900 sample. The differences are never statistically significant. These results (available upon request) hold when we compare medians (rather than means), and for various subsamples including comparing the 1960 sample with the survivors in the 1900 sample only and the nonsurvivors, respectively. They also hold when we repeat the analysis for a 50% instead of a 25% ownership threshold.

The main result to emerge thus far is that dispersion of ownership is at least as large in the 1900 as in the 1960 sample and possibly slightly higher in some years. The threshold measures provide a particularly informative description of the control that shareholders can exert. However, for completeness, in Table 4 we examine more conventional measures of ownership concentration used in the literature—namely, the size of the directors' holdings, the size of the largest three (*C3*) and five (*C5*) shareholdings, with the *C3* measure broken down between insiders and outsiders, and a Herfindahl index.

As observed above in relation to Table 3, concentration among directors is significantly lower in the 1960 than in the 1900 sample. Although *C3* is higher

Table 4
Alternative measures of ownership concentration

	Directors	C3			C5	Herfindahl	No. of observations
		C3	C3i	C3o			
Panel A: Alternative measures of ownership concentration, 1900 sample							
1900	92.76	64.39	62.87	2.81	72.96	0.30827	40
1910	53.61	52.86	47.85	9.00	60.15	0.24839	40
1920	49.02	46.30	44.01	6.04	51.33	0.21858	37
1930	37.42	39.55	34.85	7.77	43.85	0.18591	36
1940	37.69	40.58	35.13	8.20	44.13	0.22584	32
1950	27.60	33.83	27.35	9.29	37.88	0.16831	30
1960	29.85	27.44	21.89	8.68	32.92	0.09678	24
1970	21.40	26.05	18.90	11.64	30.56	0.08344	23
1980	18.53	25.95	17.55	11.07	30.04	0.08649	22
1990	13.23	31.37	11.19	21.49	36.83	0.09853	21
1900	10.45	30.36	10.39	23.80	35.35	0.06684	20
Mean	42.40	40.72	33.99	9.73	46.11	0.18115	
Panel B: Alternative measures of ownership concentration, 1960 sample							
1960	100.00	92.29	91.97	0.00	93.54	0.53588	20
1970	46.96	51.84	46.60	10.56	56.72	0.28105	20
1980	35.27	40.74	30.83	13.42	45.01	0.12425	20
1990	20.49	33.28	18.78	19.39	39.84	0.07155	20
2000	14.94	32.64	13.54	24.03	39.94	0.06734	20
Mean	43.53	50.16	40.34	13.56	55.01	0.21601	
Panel C: 1960 vs. 1900—tests of means (<i>t</i> -statistics)							
	1960 vs. 1900	1970 vs. 1910	1980 vs. 1920	1990 vs. 1930	2000 vs. 1940	Overall	
Directors	1.46	-0.66	-1.42	-1.93 ^c	-2.51 ^b	-2.01 ^b	
C3	3.47 ^a	-0.11	-0.64	-0.76	-0.94	0.20	
C3i	3.52 ^a	-0.13	-1.44	-1.86 ^c	-2.38 ^b	-1.15	
C3o	-2.07 ^b	0.42	2.96 ^a	4.29 ^a	5.20 ^a	5.01 ^a	
C5	2.70 ^a	-0.37	-0.71	-0.48	-0.49	-0.05	
Herfindahl	2.83 ^a	0.36	-1.29	-1.65	-1.97 ^c	-0.62	

This table reports directors' shareholdings, and alternative measures of ownership concentration. The measures are C3, the aggregate holdings of the three largest shareholders; C3i, the aggregate holdings of the three largest inside shareholders (directors); C3o, the aggregate holdings of the three largest outside shareholders; C5, the aggregate holdings of the five largest shareholders; and the Herfindahl index. Panel A refers to the 1900 sample, panel B refers to the 1960 sample, and panel C reports *t*-statistics of differences in means across the two samples (1960 minus 1900). Superscript letters a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

(but statistically insignificant) in 1940 for the 1900 sample than in 2000 for the 1960 sample, concentration of outside ownership, C3o, is significantly lower (at the 1% level) in the 1900 sample.

Comparing Tables 3 and 4 illustrates the advantage of the critical threshold measures over conventional concentration indices. The decline of conventional concentration indices in Table 4 of the 1960 relative to the 1900 sample (panel B relative to panel A) is faster than the increase in the minimum number of shareholders over the same period in Table 3. This is associated with a switch from inside to outside ownership, which became more rapid as the century progressed. As institutional ownership increased, outside ownership became more concentrated. There were therefore differences between the two samples using the conventional indices without corresponding differences in the critical number of controlling shareholders.

Table 5 reports the factors contributing to changes in directors' shareholdings. To illustrate our calculations, consider the years between 1900 and 1910. Table 4 shows that directors' ownership declined by 39.15% from 92.76% in 1900 to 53.61% in 1910 (see panel A of Table 3). Table 5 records that 39.06% of this decrease, referred to as "impact," is associated with acquisitions. The twenty-five stock acquisitions between 1900 and 1910 therefore account for a decrease in directors' ownership of 15.34% (i.e., $39.15\% \times 39.06\%$). Similar computations for the 1960 sample show that the twenty-seven acquisitions during the period 1960–1970 account for a decrease of 28.92% in directors' ownership.¹²

Table 5 shows a number of striking features. First, the decline of insider ownership is rapid in both the 1900 and the 1960 samples. Within ten years, directors' shareholdings in both samples decline very significantly, by 39.15% and 53.04%, respectively. The rapidity of the decline is higher in the 1960 than in the 1900 sample. Second, the main reason for the decline is not sales of shares by directors in the secondary market, at least in the first half of the century. Instead, from 1900 to 1950, issues of shares associated with acquisitions, rights issues, and placings account for 56.43% of the decline.¹³ Third, issuing of shares in takeovers is the single most important cause of the decline in directors' holdings (35.06% of the 56.43%).

Companies in our samples issued three classes of securities: ordinary shares, preference shares, and debentures. Ordinary shares accounted for just less than 60% of issued securities in both 1920 and 1930 by face value. There was only one class of ordinary shares and, unlike in continental European companies, a complete absence of dual-class shares with differential voting rights.¹⁴ The absence of dual-class shares was by choice rather than by law—the United Kingdom has never had regulation prohibiting dual-class shares. However, widespread use was made of preference shares, around 30% of issued securities in our sample. In fact, several companies had more than one type of preference share. These shares in general do not carry voting rights and in return receive a preferential dividend. The remaining 10% of securities were debentures.

¹² Note that the various factors do not sum to 100, the residual being primarily due to sales of shares by directors.

¹³ The figure 56.43% is the sum of the reductions in directors' shareholdings attributable to each of the three types over the total reduction in directors' shareholdings. For example, a reduction in shareholdings due to acquisitions in 1900–1910 is $39.15\% \times 39.06\%$. The sum of these reductions over all three classes over all five decades is the numerator of the fraction equaling 56.43%. The denominator is the total reduction in directors' shareholdings over the five decades.

¹⁴ Florence (1953) discusses shares with differential voting rights in his sample. Our evidence strongly suggests that these differential voting rights are primarily associated with preference shares, not with dual-class shares or pyramids. However, these arguments may raise a concern about the ultimate ownership of shares. While shareholding pyramids and dual-class shares have not been a feature of corporate ownership in the United Kingdom (except briefly during the 1960s, see Franks, Mayer, and Rossi 2005), nominee shareholdings on behalf of beneficiaries were widespread. If insiders hold shares through (several) different nominees, then we will underrepresent the true extent of ownership concentration. We have collected information on nonultimate owners and nominee shareholdings for the 1900, 1920, and 1950 samples and find that while both were present, they are negligible.

Table 5
Factors contributing to changes in directors' shareholdings

	Reduction in directors' shareholdings (%) Mean	Factors influencing reduction in directors' shareholdings							
		IPOs		Acquisitions		Rights issues		Placings	
		Frequency	Impact	Frequency	Impact	Frequency	Impact	Frequency	Impact
Panel A: Factors contributing to reduction in directors' shareholdings, 1900 sample									
1900–1910	39.15	0	0.00	25	39.06	17	0.52	10	28.02
1910–1920	4.59	0	0.00	5	77.97	9	0.00	1	2.34
1920–1930	11.60	0	0.00	7	25.95	9	0.00	2	3.37
1930–1940	−0.27	3	0.00	3	0.00	11	0.00	0	0.00
1940–1950	10.09	6	0.24	1	0.00	4	1.24	0	0.00
1950–1960	−2.25	4	0.00	10	0.00	15	0.00	0	0.00
1960–1970	8.45	4	31.99	24	11.16	8	13.09	0	0.00
1970–1980	2.87	1	0.00	9	3.23	19	25.51	0	0.00
1980–1990	5.30	1	5.73	4	19.85	14	15.23	2	0.00
1990–2000	2.78	3	65.27	3	2.75	14	47.01	10	26.03
Mean	9.40	2.20	4.20	9.10	32.51	12.00	5.62	2.50	16.57
Panel B: Factors contributing to reduction in directors' shareholdings, 1960 sample									
1960–1970	53.04	10	11.42	27	54.52	17	4.61	6	21.35
1970–1980	11.69	3	17.42	23	6.32	6	4.97	1	6.74
1980–1990	14.78	2	34.22	4	12.99	10	4.85	2	9.93
1990–2000	5.55	4	4.28	4	12.73	4	22.49	4	78.34
Mean	21.27	5.00	16.84	14.50	21.64	9.25	9.23	3.25	29.09

This table reports the reduction of directors' shareholdings (computed from Table 4) at ten yearly intervals in column 1 and the factors contributing to the reduction. Frequency is the number of occurrences of the event in question in the decade, and impact is the percentage of the reduction attributable to each factor—IPOs, acquisitions, rights issues, and placings. Panel A refers to the 1900 sample, while panel B considers the 1960 sample.

Table 6 describes the growth of issued ordinary equity of the 1900 sample in panel A and of the 1960 sample in panel B. The mean annual growth of issued equity was 10.6% over a hundred years for the 1900 sample and 22.1% for the 1960 sample over the remaining forty years of the century. The mean growth rate in the first forty years of the 1900 sample was 10.8%. In both samples, much of the growth is concentrated in the first decade.

Panel A shows that in the first decade of the 1900 sample, equity was issued virtually exclusively for acquisitions. Little or no equity was issued for internal investment. During the century as a whole, cash and equity acquisitions together accounted for 71% of equity issued by the 1900 sample and for 64% by the 1960 sample.

A majority of the equity issued for acquisitions was associated with equity exchanges rather than cash purchases. This is particularly pronounced in the 1900 sample. A higher percentage of equity was used to finance internal investment in the 1960 than the 1900 sample, particularly in the first decade after incorporation.

Panel C reports the statistical significance of the differences between panels A and B in the first four decades after incorporation. The first column compares 1960–1970 with 1900–1910, the second 1970–1980 with 1910–1920, and so on. The rows report *t*-statistics for differences in total growth, growth attributable to share acquisitions, cash acquisitions, and financing of internal investment. Row 1 of panel C shows that growth rates of issued equity are significantly higher at the 5% level in the 1960 sample than in the complete 1900 sample. This finding is particularly pronounced in the first decade after incorporation and is entirely associated with the 1900 nonsurvivors (not reported).

In summary, the overwhelming use to which equity issuance was put in the first and second half of the century was the financing of acquisitions. Most was used in the direct exchange of shares rather than in cash purchases, particularly in the first half of the century. Equity issuance for internal investment was slightly greater in the second than in the first half of the century but modest in both. Rates of growth of equity capital are similar in the 1900 and the 1960 samples, and any differences are restricted to comparisons of the 1960 sample with the sample of nonsurviving 1900 firms.¹⁵

One example of this is GKN, a company that was involved in a particularly large amount of acquisition activity in the 1920s. First, the company acquired John Lysaght Ltd. of Bristol (quoted in Bristol and London) in one of the largest tender offers of the decade. GKN then undertook two other major tender offers

¹⁵ The significance of acquisitions in our samples is consistent with Hannah's (1976) observations of a large amount of takeover activity in the United Kingdom during the twentieth century, particularly in three merger waves during the first half of the century, around 1900, 1920, and 1930, and with Meeks and Whittington's (1975) statements on the importance of equity in the takeover process: "in 1964–9, the giant (or mature) corporations . . . typically financed almost 70% of their growth by new issues; and even the rest of the sector financed more than half (56%) of their growth through the capital market in this period . . . more than half of these external funds were raised in the course of share for share exchanges on the acquisition of new subsidiaries" (p. 832).

Table 6
Annual growth in total equity capital

	Annual growth in total ordinary capital (%)			Use of equity issues (%)			
				Acquisitions made with		Internal investment	
	Mean	Median	No. of observations	Shares	Cash	From existing shareholders	From new shareholders
Panel A: Annual growth in total ordinary capital and the factors contributing to this growth, 1900 sample							
1900–1910	35.57	2.17	40	97.73	0.00	0.17	2.10
1910–1920	2.31	0.00	38	25.86	11.21	62.93	0.00
1920–1930	1.56	0.00	37	44.87	8.33	38.46	8.33
1930–1940	1.00	0.00	33	16.00	20.00	64.00	0.00
1940–1950	0.95	0.00	31	1.02	0.00	78.57	20.41
1950–1960	3.07	0.00	25	22.80	16.61	60.59	0.00
1960–1970	4.99	1.83	23	31.08	0.00	34.36	34.56
1970–1980	2.23	2.60	22	16.14	14.80	69.06	0.00
1980–1990	3.61	1.84	22	24.31	0.00	57.46	18.23
1990–2000	3.56	2.27	20	12.92	4.78	69.66	12.64
Mean	10.60			68.27	2.72	22.38	6.64
Panel B: Annual growth in total ordinary capital and the factors contributing to this growth, 1960 sample							
1960–1970	85.67	44.47	20	43.23	23.27	12.51	20.99
1970–1980	3.31	1.63	20	43.66	5.14	22.09	29.11
1980–1990	4.08	0.00	20	53.04	7.48	29.47	10.01
1990–2000	2.87	0.00	20	12.34	4.60	18.87	64.19
Mean	22.14			42.83	21.22	13.91	22.04
Panel C: 1960 vs. 1900—tests of means (<i>t</i> -statistics)							
	First decade	Second decade	Third decade	Fourth decade	Overall		
Growth	2.29 ^b	0.63	1.33	1.65	1.99 ^b		
Shares acquisitions	0.48	1.69 ^c	1.18	0.73	0.46		
Cash acquisitions	1.61	−0.15	0.08	−0.25	1.52		
Internal investment	1.74 ^c	−0.06	1.31	1.75 ^c	1.75 ^c		

This table reports annual growth in total ordinary equity capital in the sample firms, and its use in financing acquisitions and internal investment. Total ordinary equity is the number of issued ordinary shares. Growth in total ordinary equity is normalized to exclude the influence of capitalization of reserves. Acquisitions are classified as being purchased with shares or cash raised from equity issues based upon the public announcement or prospectus. Equity issued for purposes other than acquisition is disaggregated into equity offerings to existing shareholders and offers to new subscribers, including IPOs. Panel A refers to the 1900 sample, panel B to the 1960 sample, and Panel C reports *t*-statistics of differences in means between the two samples (1960 sample minus 1900 sample). Superscript letters a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

in November 1923, acquiring D Davis and Sons and Consolidated Cambrian of Cardiff. In both cases, 96% of the outstanding ordinary shares were exchanged. 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.

The results provide little support for the importance of investor protection to external financing. There was a great deal of equity issuance in the first as well as the second half of the century in the absence of investor protection. Acquisitions were a primary use of new equity throughout. There is some evidence of more equity issuance to fund internal investment in the second half of the century, but only in the comparison of the 1960 sample with the nonsurvivors in the 1900 sample. Furthermore, extending the law and finance thesis to takeovers, improved investor protection should have encouraged target shareholders to accept equity as the medium of exchange in acquisitions in the second half of the century (see Rossi and Volpin 2004 for a discussion). That is not what is observed here; in contrast, exchanges of shares accounted for a higher proportion of acquisitions in the first than in the second half of the century.

3.3 Dispersion and mutation

In this section, we estimate measures of rates of dispersion and mutation of ownership of the two samples of firms. An analysis of rates of change has the advantage over levels of being less influenced by initial conditions. Panel A of Table 7 reports rates of dispersion of ownership for all shareholders in the 1900 sample, and for inside and outside shareholders separately. The rate of dispersion for all shareholders in the first decade is 5.93% per year. This figure tells us that the number of shareholders required to form a coalition of at least 25% increases at a rate of 5.93% 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 8.9 in 1910.¹⁶

For the 1900 sample, the rates of dispersion in the first half of the century are generally higher than in the second half. Panel B reports the rates of dispersion for the 1960 sample. They are close to zero from 1960 onward, and actually negative in the 1980s, suggesting an increase in concentration arising from the formation of blocks, as reported in previous tables. Dispersion rates for directors are positive for all decades except two and particularly high for the periods 1900–1940 and 1970–1990.

In panel C, we compare the dispersion rates of the two samples for the first four decades after incorporation. The evidence suggests that dispersion rates

¹⁶ Note that it is not possible to relate these figures exactly back to those in Table 3, since numbers constructed from averages of growth rates are not the same as those derived from averaging across the firms themselves.

Table 7
Dispersion of ownership

	All shareholders	Directors	Outsiders	No. of observations	
Panel A: Annual rates of dispersion of ownership (%), 1900 sample					
1900–1910	5.93	21.12	36.66	40	
1910–1920	3.49	12.38	11.65	38	
1920–1930	4.07	14.83	4.69	37	
1930–1940	0.52	15.80	-6.24	33	
1940–1950	3.03	-2.90	8.81	31	
1950–1960	1.79	4.29	1.37	25	
1960–1970	0.42	-7.47	10.03	23	
1970–1980	0.07	8.81	-0.02	22	
1980–1990	-5.64	13.82	-6.57	22	
1990–2000	0.24	5.00	3.99	20	
Mean	1.97	10.29	1.22		
Panel B: Annual rates of dispersion of ownership (%), 1960 sample					
1960–1970	12.36	36.08	70.21	20	
1970–1980	-1.70	6.77	11.40	20	
1980–1990	6.08	31.41	10.47	20	
1990–2000	-2.22	14.67	-1.13	20	
Mean	3.63	22.23	22.74		
Panel C: 1960 vs. 1900—tests of means (<i>t</i> -statistics)					
	First decade	Second decade	Third decade	Fourth decade	Overall
All shareholders	1.45	-1.99 ^c	0.73	-1.09	-0.01
Directors	1.27	-0.46	1.49	-0.11	1.06
Outsiders	2.48 ^b	-0.03	0.62	1.14	1.72 ^c

This table reports the average 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, as reported in Table 2. Dispersion is defined as the percent change in ownership over the decade. Dispersion is computed for all shareholders, directors alone, and outsiders alone. Panel A refers to the 1900 sample, panel B to the 1960 sample, and panel C reports *t*-statistics of differences in means across the two samples (1960 minus 1900) for the first four decades of each sample. Superscript letters a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

for the two samples are not very different. Focusing initially on the comparison for “all shareholders,” we find that in two of the four decades, dispersion rates are higher for the 1960 sample. Only in the second decade is the difference statistically significant (at the 10% level), and then it is the 1900 sample that has the higher rate of dispersion. Although differences can be economically large in individual decades, averaged over the first four decades they are not, 3.65% for the 1900 sample and 3.63% for 1960.

For the first four decades after incorporation, dispersion rates for “outsiders” are greater in the 1960 sample, and the difference is statistically significant. This is mainly attributable to the first decade, 1960–1970, and reflects the relatively high number of initial public offerings (IPOs) in the 1960 sample (ten out of twenty companies). 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 IPOs in the 1960 sample were purchased by large outside shareholders—i.e., there were high rates of mutation of ownership.¹⁷

The *t*-tests comparing the 1960 sample with the 1900 survivors and non-survivors, respectively, yield very similar results to panel C and suggest that survivorship is not an issue for tests of dispersion of ownership.¹⁸ One of the interesting implications is that despite the fact that the growth in equity of survivors is greater than that of nonsurvivors, rates of dispersion of ownership were similar. The reason for this is that most of the difference in growth is due to internal investment and, as we report in the next section, it is equity issuance for acquisition rather than internal investment that accounts for dispersion of ownership.

In Table 8, we describe mutation of ownership and control, a measure of the stability of the membership of the smallest coalition necessary to pass the 25% threshold. High rates of mutation are associated with rapid changes in the control of firms. Panel A reports much higher rates of mutation in the 1900 sample in the second than in the first half of the century. The average rate of mutation or turnover of the coalition is 26.52% per annum in the 1900 sample. The corresponding figure for the 1960 sample is 40.10% per annum. Another interpretation of these mutation measures is that the average length of membership of the ruling coalition is about 4 years in the 1900 sample, compared with only 2.5 years in the 1960 sample.

Panel C reports results from *t*-tests comparing rates of mutation for the first four decades for both samples. The levels of significance reported in this table stand in marked contrast to those on dispersion. The 1960 sample has strikingly higher rates of mutation than the 1900 sample, and the differences are statistically significant at the 1% level for all classes of shareholders. The higher rates of mutation are particularly pronounced in the third and fourth decades. The same highly significant results are observed when comparing the 1960 sample with both the 1900 survivors and nonsurvivors (not reported).¹⁹ As in the case of dispersion, comparisons of mutation rates are not particularly sensitive to survivorship.

In summary, we observe that rates of dispersion of ownership were similar in the two halves of the century, but rates of mutation of the coalition of

¹⁷ 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.

¹⁸ The small sample size and the skewness in the distributions of levels and rates of dispersion may give rise to concerns about the statistical power of our tests. For robustness, we perform several nonparametric tests, which all confirm our basic conclusions. In particular, the results for a comparison of distributions using the Kolmogorov-Smirnov nonparametric test show that the 1900 sample is more dispersed than the 1960 sample at the 10% level, although the difference is economically small. The results for a comparison of medians show that differences are statistically insignificant for the four decades. If anything, the 1900 sample is more dispersed in the first decade than the 1960 sample. Similar results hold using a threshold of 50%. All of these results are available upon request.

¹⁹ The last row of panel C of Table 7 records differences in mutation of board representation as well as director ownership. It shows much higher levels of board turnover in the 1960 than the 1900 sample.

Table 8
Mutation of ownership

	All shareholders	Directors	Outsiders	No. of observations	
Panel A: Annual rates of mutation of ownership, 1900 sample					
1900–1910	3.25	3.33	41.97	40	
1910–1920	10.45	7.10	20.15	38	
1920–1930	16.79	13.19	23.27	37	
1930–1940	20.67	19.75	22.92	33	
1940–1950	25.03	26.78	21.01	31	
1950–1960	23.56	7.78	24.24	25	
1960–1970	21.86	23.17	40.57	23	
1970–1980	33.97	26.56	24.13	22	
1980–1990	55.03	26.84	60.04	22	
1990–2000	42.03	30.74	42.09	20	
Mean	26.52	21.45	37.92		
Panel B: Annual rates of mutation of ownership, 1960 sample					
1960–1970	16.19	21.19	65.00	20	
1970–1980	33.12	32.60	55.24	20	
1980–1990	57.81	52.43	70.33	20	
1990–2000	52.94	43.45	55.86	20	
Mean	40.10	37.48	61.69		
Panel C: 1960 vs. 1900—tests of means (<i>t</i> -statistics)					
	First decade	Second decade	Third decade	Fourth decade	Overall
All shareholders	1.93 ^b	2.29 ^b	3.70 ^a	2.64 ^b	5.35 ^a
Directors	2.45 ^b	2.74 ^a	3.65 ^a	1.95 ^c	5.39 ^a
Outsiders	1.74 ^c	3.06 ^a	4.22 ^a	2.79 ^a	5.66 ^a
Directors (board)	2.88 ^a	2.23 ^b	1.71 ^c	0.71	3.77 ^a

This table reports the average annual rates of mutation of the ruling coalition over time. The ruling coalition is defined as the set of shareholders necessary to pass the threshold of 25% of cash flow rights, as reported in Table 2. Mutation is defined as the percent change in the membership of the ruling coalition. Mutation is computed for all shareholders, for directors alone (both in terms of cash flow rights and of simple board majority), and for outsiders, respectively. Panel A refers to the 1900 sample, panel B to the 1960 sample, and panel C reports *t*-statistics of differences in means across the two samples (1960 minus 1900) for the first four decades of each sample. Superscript letters a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

shareholders were appreciably higher in the second half. Intensification of investor protection during the century therefore coincides with steadily higher rates of mutation rather than dispersion of ownership. The implication is that there were more liquid markets for corporate control in the second half of the century, making it easier for active investors to gain control of underperforming firms.

3.4 Regression results

In this section, we report regression analyses of rates of dispersion and mutation to establish whether the results carry over to a multivariate setting. We control for the numerous other factors that might influence dispersion and mutation rates and provide a direct test of how dispersion and mutation relate to equity issuance and the LLSV and LLS indices.

The dependent variables in Tables 9 and 10 are rates of dispersion and mutation for “all shareholders” as described in Tables 7 and 8, respectively.

Table 9
Determinants of dispersion of ownership

	(1)	(2)	(3)	(4)
Antidirector rights	-0.005 (0.005)			
Disclosure standards		-0.027 (0.019)		
Liability standards			-0.019 (0.029)	
Public enforcement				-0.121 ^a (0.035)
Equity growth rate from stock acquisitions	0.114 ^a (0.039)	0.113 ^a (0.039)	0.115 ^a (0.039)	0.109 ^a (0.038)
Equity growth rate used for internal investment	0.006 (0.019)	0.006 (0.019)	0.007 (0.019)	0.002 (0.020)
Size	0.007 ^b (0.004)	0.007 ^b (0.004)	0.006 ^c (0.004)	0.010 ^b (0.004)
Initial dispersion	-0.089 ^a (0.032)	-0.086 ^a (0.032)	-0.087 ^a (0.032)	-0.100 ^a (0.030)
Constant	-0.044 (0.049)	-0.040 (0.052)	-0.044 (0.055)	-0.077 (0.051)
R ²	0.161	0.164	0.160	0.196
No. of observations	223	223	223	223

The dependent variable is the annual rate of dispersion of ownership by decade for the first four decades of the two samples. Independent variables are antidirector rights, the antidirector rights score described in panel A of Table 1; Disclosure standards, the disclosure score described in panel B.1 of Table 1; Liability standards, the directors' liability score described in panel B.2 of Table 1; Public enforcement, the public enforcement score described in panel C of Table 1; equity growth rate for stock acquisitions and equity growth rate for internal investment; size, the log of the sum of all liabilities; and initial dispersion, the size of the smallest coalition necessary to pass the 25% ownership threshold at the beginning of the decade in question. All regressions include industry dummies (not reported). The standard errors reported in parentheses are adjusted for heteroskedasticity using White's (1980) correction. Superscript letters a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

The main independent variables are four measures of investor protection and enforcement: antidirector rights, disclosure standards, liability standards, and public enforcement, as described in Table 1. Additional explanatory variables include firm-level variables such as equity issued for internal investment, equity issued for acquisitions, dispersion of equity at the beginning of the decade, size, and industry dummies.²⁰ The results show that none of the proxies for investor protection and enforcement positively affect dispersion; if anything the relationship is negative.²¹ Investor protection does not, therefore, explain dispersion of ownership in the United Kingdom.

The results in Table 9 show a significant negative relation of rates of dispersion during a decade with initial levels of dispersion measured at the beginning of the decade. Thus, the higher the initial level, the lower the subsequent rate of

²⁰ While our results are robust to these controls, we cannot rule out the possibility of time-varying coefficients that vary with macroeconomic factors. This possibility could be controlled for only by including a large number of interactive terms between the macroeconomic factors and our other independent variables; because of the small number of time observations in our sample, it is not possible for us to estimate these. In additional tests we include demographic variables such as life expectancy of the male population and fertility rate, collected from the British Office of National Statistics, which can potentially affect the incentives to disperse ownership in family firms; the results, available on request, are unaltered, and the coefficients on the demographic variables are statistically insignificant and economically small.

²¹ To control for the possibility that no forty-year periods are equal, we also test both a specification with decade dummies and an alternative specification with a dummy that equals 1 for firms belonging to the 1900 sample (and without decade dummies). The results are very similar to the ones reported and are available upon request.

Table 10
Determinants of mutation of ownership

	(1)	(2)	(3)	(4)
Antidirector rights	0.083 ^a (0.020)			
Disclosure standards		0.260 ^a (0.069)		
Liability standards			0.325 ^a (0.090)	
Public enforcement				0.389 ^b (0.152)
Equity growth rate from stock acquisitions	-0.031 (0.049)	-0.021 (0.050)	-0.039 (0.053)	-0.011 (0.045)
Equity growth rate used for internal investment	0.149 ^c (0.091)	0.150 ^c (0.089)	0.132 (0.087)	0.163 ^c (0.099)
Size	-0.000 (0.009)	0.007 (0.010)	0.008 (0.010)	0.000 (0.009)
Initial dispersion	0.261 ^a (0.064)	0.225 ^a (0.073)	0.230 ^a (0.070)	0.288 ^a (0.070)
Constant	0.129 (0.150)	0.138 (0.153)	0.124 (0.155)	0.335 ^b (0.140)
R ²	0.217	0.187	0.184	0.169
No. of observations	223	223	223	223

The dependent variable is the annual rate of mutation of ownership by decade for the first four decades of the two samples. Independent variables are antidirector rights, the antidirector rights score described in panel A of Table 1; Disclosure standards, the disclosure score described in panel B.1 of Table 1; Liability standards, the directors' liability score described in panel B.2 of Table 1; Public enforcement, the public enforcement score described in panel C of Table 1; equity growth rate for stock acquisitions and equity growth rate for internal investment; size, the log of the sum of all liabilities; and initial dispersion, the size of the smallest coalition necessary to pass the 25% ownership threshold at the beginning of the decade in question. All regressions include industry dummies (not reported). The standard errors reported in parentheses are adjusted for heteroskedasticity using White's (1980) correction. Superscript letters a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

dispersion. More interesting is that the results show a positive relation between rates of dispersion and equity growth rates resulting from stock acquisitions but not from equity issued to fund internal investment. Also, when we split the samples into the forty surviving and the twenty nonsurviving companies, we find no significant difference in the estimated coefficients for the two subsamples.

In contrast, there is a consistently significant relation between rates of mutation in Table 10 with LLSV's and LLS's proxies of investor protection and enforcement. Antidirector rights, disclosure standards, liability standards, and public enforcement are all associated with significantly higher rates of mutation, confirming an earlier result that investor protection made stock markets more liquid and facilitated the transfer of inside blocks to outside shareholders. The effects are large: an increase in the public enforcement score by 0.745 (following the 1986 Financial Services Act) is associated with a 29% increase in rates of mutation, and an increase in the liability standards score by 0.333 (following the 1948 Companies Act) is associated with a 10.8% increase in the rates of mutation. As might be expected, mutation during the decade is directly related to dispersion of ownership at the beginning of the decade, and there is some evidence that equity issued for internal investment is associated with higher mutation.

Dispersion of ownership is therefore associated with growth of issued equity, particularly in acquisitions, not with changes in investor protection. Investor protection, in contrast, is associated with greater liquidity of markets in controlling shareholding blocks. In the absence of investor protection, controlling

shareholdings were comparatively stable, and we argue in the next section that it was relations based on trust that allowed firms to issue equity and disperse ownership rapidly.

4. Trust

If investor protection does not explain the evolution and dispersion of ownership in the United Kingdom, what does? In this section, we suggest that informal relations of trust rather than formal systems of regulation promoted the development of capital markets and dispersion of ownership in the United Kingdom.

In economics, trust is associated with reputation and commitment between players engaged in repeated games with each other (e.g., Kreps and Wilson 1982; Milgrom and Roberts 1982; Gomes 2000) and with the emergence of particular institutional arrangements (e.g., North and Weingast 1989; Greif 1993; Mauro and Yafeh 2003). In law, a distinction is drawn between contracts where there are reciprocal arrangements between parties and trust law where there are unidirectional agreements between beneficiaries and trustees. Trust arrangements carried over to company law because of the analogous relationship between directors and their dispersed shareholders with that of trustees and their beneficiaries.

Our concept of trust in a corporation draws on both economics and law and refers to actions by the director of a firm that are dictated neither by contract nor by regulation. By trust, we mean conformity with accepted norms of behavior in the absence of explicit incentives or penalties to do so. It can derive from repeated interactions, moral and ethical codes, or the social conventions and networks discussed in the extensive sociological literature on the subject (see, e.g., Banfield 1958; Coleman 1990; Spagnolo 1999).

We provide some indirect evidence of trust based upon shareholder proximity and an equal price rule in mergers. First, in section 4.1 following Lavington (1921), we argue that the local nature of stock exchanges played an important role in the development of trust between directors and investors. We show that ordinary shareholders lived close to the company's city of incorporation and its board of directors, and we argue that relations of trust flourished as a consequence of this close proximity of investors to firms.²²

Second, in section 4.2, we examine the way in which firms made offers to shareholders in takeovers and mergers, and we provide evidence that the same price was offered to all shareholders even in the absence of a specific regulatory or contractual requirement. We argue that relations of trust created the conditions in which interactions between firms and investors were repeated

²² There is a growing literature on the relevance of distance to banking (Degryse and Ongena 2005; Petersen and Rajan 1994, 2002), securities markets participation (Grinblatt and Keloharju 2001; Hong, Kubik, and Stein 2004), and financial development (Guiso, Sapienza, and Zingales 2004, 2007).

and where directors therefore had incentives to sustain their reputations among local communities.

4.1 Distance

We collected comprehensive data on the shareholder records of twenty-six companies (out of the forty of the 1900 sample) in 1910. We recorded the names and addresses of shareholders and calculated the distance between the shareholder's address and the city of incorporation. Using the data on distance, we computed measures of proximity, including simple and weighted average distances, the median distance, and the proportion living within six miles of the city of incorporation. We collected data on all directors' shareholdings and those of the largest ten outside shareholdings. In addition, we randomly sampled every tenth shareholder, with a minimum of two hundred shareholders. We also collected the same data for holders of preference shares. We also collected data on distance of all shareholders with shareholdings larger than 1%, distinguishing between insiders and outsiders, for fifty-three companies in 1920 and fifty-five companies in 1950.

Panel A of Table 11 reports results for the sample of twenty-six companies in 1910, in which the average number of shareholders is 320. The mean distance between ordinary shareholders' addresses and firms' cities of incorporation is 52.2 miles, and the median is 15.4 miles. The proportion living within six miles of the city of incorporation is 56%.²³ Geographical concentration was therefore remarkably high even where ownership was dispersed. For one company, GKN, we found that geographic dispersion sharply increased from 1910 to 1950. Mean distance of shareholders to the head office in Birmingham rose from 69.5 to more than 150 miles.

Panel A of Table 11 also records that the distance between shareholders' addresses and cities of incorporation is greater for preference than for ordinary shareholders and the difference is statistically significant. The greater distance of holders of preference shares may reflect the higher priority of their claims and the lower discretion of management to control the size of their dividends.

We also compute for our 1920 and 1950 cross-sectional samples the median distance by company, the median distance of insiders, and the median distance of outsiders. Panel B of Table 11 records that the distance of both inside and outside shareholders increased considerably from 1920 to 1950.

This finding raises the possibility that with increased distance trust broke down, so that substitute mechanisms had to be developed to uphold dispersed ownership. Panel C of Table 11 reports regressions results where the dependent variable is the size of the smallest coalition of shareholders to pass the 25%,

²³ There are two reasons why this last figure may understate geographical concentration. First, where the city of incorporation is not in the same city as the local stock exchange, shareholders often cluster around the latter. Second, the metric of less than six miles may be inappropriate where the city of incorporation is a large metropolis, like London.

Table 11
Geographic concentration of ownership and mergers

Variable	Description	Panel A: Distance of shareholders from company headquarters, 1900 sample		Difference (z-test)	
		Ordinary	Preference		
<i>AD</i>	Mean distance of shareholders from companies' headquarters	52.20	84.33	3.39 ^a	
<i>WAD</i>	Mean weighted distance of shareholders from companies' headquarters	53.62	77.89	2.05 ^b	
<i>MD</i>	Median distance of shareholders from companies' headquarters	15.44	29.69	2.06 ^b	
<i>MDL</i>	Median distance, ten largest shareholders	26.57	44.71	0.39	
<i>Locality</i>	Percent of shareholders living within six miles from companies' headquarters	56.16			
<i>NOS</i>	Number of shareholders	319.35	498.31	2.10 ^b	
No. of observations		26	16	16	
		Panel B: Distance of shareholders from company headquarters, 1920 and 1950 samples			
		1920	1950	Tests of differences, 1950–1920	
Distance	Mean	33.72	308.99	<i>t</i> -test	1.34
	Median	3.50	22.50	<i>z</i> -test	1.47
Distance insiders	Mean	30.39	313.90	<i>t</i> -test	1.71 ^c
	Median	10.50	30.50	<i>z</i> -test	2.80 ^a
Distance outsiders	Mean	59.94	195.54	<i>t</i> -test	1.24
	Median	9.00	16.00	<i>t</i> -test	0.22
No. of observations		53	55		

	Panel C: Determinants of ownership				
	(1)	(2)	(3)	(4)	(5)
Distance	-0.081 ^b (0.032)		-0.083 ^b (0.033)	-0.152 (0.106)	
Distance* 1950 sample					-0.170 ^a (0.062)
Distance* 1920 sample					-0.114 (0.318)
1920 sample		-0.161 (0.868)	-0.262 (0.878)	-0.160 (0.980)	-0.284 (1.15)
Size	-0.353 (0.381)	-0.399 (0.391)	-0.362 (0.393)	0.227 (0.577)	0.218 (01.579)
Constant	9.882 ^b (4.79)	10.14 ^b (4.82)	9.866 ^b (4.83)	1.507 (7.03)	1.856 (7.41)
Industry dummies	No	No	No	Yes	Yes
R ²	0.029	0.012	0.030	0.162	0.159
No. of observations	98	98	98	75	75

Panel A provides descriptive statistics of distance in miles between shareholders' addresses and the company's city of incorporation of both ordinary shareholders and preference shareholders in 1910 for our 1900 sample. The third column tests the significance of the difference in medians between the two. Panel B provides descriptive statistics of distance in miles between shareholders' addresses and the company's city of incorporation of both inside and outside shareholders for our 1920 and 1950 samples. The third column tests the significance of the differences in means and medians between the two. Panel C presents results from regressions in which the dependent variable is ownership, the minimum number of shareholders necessary to pass a threshold of 25% of cash flow rights, computed for our 1920 and 1950 samples. Independent variables are distance, the average distance in hundred miles between shareholders' addresses and the company's city of incorporation; 1920 sample, a dummy that equals one for the 1920 sample; size, the log of the firm's assets; and industry dummies. The standard errors reported in parentheses are adjusted for heteroskedasticity using White's (1980) correction. Superscript letters a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

computed for our 1920 and 1950 samples. Column 1 shows that the greater the distance between the shareholders and the companies' headquarters, the more concentrated the ownership. This result is robust to controlling for size and to including a dummy for the 1920 sample (columns 2 and 3). Interestingly, column 5 shows that the negative correlation between distance and ownership holds only for the 1950 sample, not for the 1920 sample.

These results suggest that as distance increased from 1920 to 1950, the ownership of those firms with a more distant shareholder base had to become more concentrated to overcome the breakdown of trust. In turn, this created the need for more robust substitutes for trust, in the form of strengthened investor protection.²⁴

4.2 Discriminatory pricing in takeovers

Even today, discriminatory pricing in takeovers is commonplace. Franks and Mayer (2001) document evidence in Germany of discriminatory pricing between large block holders and small investors in takeovers during the 1990s.²⁵ But surprisingly, this was not a feature of takeovers in the United Kingdom in the first half of the twentieth century.

During the first half of the century, takeovers were negotiated between the boards of directors of the relevant companies. Hannah (1974) describes the takeover process as follows: "An approach through the directors, followed by controlled stock transfers on the recommendations of the directors (rather than contested takeover raids), remained the norm in these years" (p. 68). Hannah (1974) goes on, describing how in the first half of the century "the loyalty of shareholders to directors was strong, and the directors of other companies had a natural aversion to challenging it. Even if a direct bid were to be made, the directors of the victim firm remained in a strong position relative to their own shareholders. In practice the shareholders would recognize the superiority of the directors' information and tend to take their advice on the true value of the company in relation to the bid price" (pp. 70–71). "Directors felt a responsibility to recommend offers to their shareholders when the bid price was pitched reasonably" (pp. 68–69).²⁶ This might have reflected a concern on the part of directors to preserve their reputation among local investors so as to

²⁴ We cannot rule out the possibility of the correlation being driven by reverse causality by which, for example, small investors in firms with large shareholders can reside further from the firms in which they invest because they can rely on monitoring by the large shareholders. Our interpretation that increases in distance between 1920 and 1950 reflect exogenous factors such as technological improvements in communications is consistent with some of the literature on distance—for example, Petersen and Rajan (2002).

²⁵ See also Dyck and Zingales (2004) for international evidence of private benefits of control arising from discriminatory pricing in block purchases.

²⁶ It was part of a wider role for trust in British financial affairs. In response to a suggestion of tightening regulation of the issuance of prospectuses, the *Economist* asked whether it "might not be wise to devote increased attention to the possibility of reforming public taste rather than the statute law. Many things which are perfectly legal in this country are not the acts of a gentleman and are 'just not cricket'" (10 July 1937, p. 86). Likewise, May (1939) noted, "In England good practice is derived chiefly from the individual's strict, unwritten ethical code and self-imposed discipline and from his voluntary restriction of conduct well within the confines of the technical law. Etiquette compensates for the absence of legally accountable trusteeship" (p. 496).

sustain the value of their equity and thereby their ability to raise equity at low cost in the future.²⁷

We undertook an extensive search of the FT to find mention of the terms on which acquisitions were made in the first half of the twentieth century. We found data on twenty-seven mergers.²⁸ We find that in twenty-three cases, the medium of exchange was at least part equity and in twenty-six cases, the outcome of the bids involved the acquisition of between 92% and 100% of outstanding shares. In almost all cases, there is a specific reference to equal terms for directors and outside shareholders, and in other cases equal terms can be inferred from the description. For example, in the acquisition of John Lysaght Ltd. by GKN, the directors agreed upon the terms of the deal (i.e., an exchange ratio) and then wrote to their shareholders 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.”²⁹

It was not until 1967 that an equal price rule was introduced in the United Kingdom by the Takeover Panel. In other countries where there was no such rule, there were discriminatory block purchases; for example, Dyck and Zingales (2004) estimate private benefits of 9.5% for Germany using the measure employed by Barclay and Holderness (1989).

Finally, we examined other equity issues by companies in our sample for purposes other than acquisitions. We find that where a company’s equity is traded, shares are usually offered to existing shareholders *pro rata*. In the two exceptions, we compare the issue prices with market prices to determine if insiders received new shares at preferential prices. We found that in one case, Marconi, the insiders purchased shares at a 6% discount, but the issue represented less than 5% of outstanding equity. In the other case, Whitecroft, insiders paid a small premium.

While it is impossible to say whether insiders received benefits not reflected in transaction prices,³⁰ it appears that the United Kingdom did not follow the continental European practice of two-tier equity offerings, purchasing a block of shares at one price and leaving a substantial residual minority on the market

²⁷ Titled directors were frequently used as methods of upholding corporate reputations. Florence (1953) reports that there were 654 English peers active in city firms in 1932. “One well-known insurance company in 1937 had among sixteen directors, three knights, one baron, one marquis, one earl and two dukes” (p. 245). Likewise, May (1939) reports that of 654 British peers, 189 of them were directors of companies and held 562 directorates between them.

²⁸ Four of the twenty-seven mergers came from the 1900 sample, fifteen from Hannah’s (1976) sample, and eight additional acquisitions were found during the course of the exercise.

²⁹ Quoted in *Financial Times*, 19 January 1920. The additional quotes are available on request.

³⁰ At the company meetings discussing the amalgamation of Alfred Hickman and Stewart and Lloyds, Mr. J. G. Stewart, chairman of Stewart and Lloyds, said: “I have been reminded, only a few hours ago, that I might be asked today at this meeting whether the directors have been given any consideration in any shape or form whatever to enable them to see their way to advise this amalgamation. I can only say this, gentlemen, that not one farthing, directly or indirectly, has been or will be paid to anybody whatever, either on the staff or on the Board of either of these companies, other than one share in Stewarts and Lloyds and 7s 6d in cash per share for whatever shares they hold” (*Financial Times*, 30 August 1920).

at another. An equal price treatment of shareholders prevailed in the first half of the twentieth century in the United Kingdom, even in the absence of a formal regulatory rule to that effect.

5. Conclusions

This article reports the first long-run analysis of the evolution of law, finance, and ownership of corporations. It records that the mother of common law enjoyed a high degree of ownership dispersion from the start of the twentieth century. But the relation between law and finance is not straightforward. Common law did not promote investor protection: by any measure, investor protection was very weak until the end of the 1920s and strong only in the second half of the century. Ownership was dispersed in spite of weak investor protection.

How could this be possible? The answer we give is that dispersed ownership developed on the basis of informal relations of trust rather than formal systems of regulation. Shareholders had little recourse in courts but much influence in the communities and local markets of which they and their firms were a part. Even as it became dispersed, ownership remained geographically concentrated, and directors were concerned to maintain their reputations among local investors. All shareholders, including insiders, sold their shares to acquiring firms at the same price. Eventually, as local relations of trust became harder to sustain, formal investor protection emerged to substitute for them.

In sum, our evidence from a single country shows that investor protection is not a necessary condition for dispersed ownership to exist and leaves open the possibility that investor protection is still an important factor in governing cross-country levels of ownership dispersion. This raises the question, was the United Kingdom an isolated case? Franks, Mayer, and Miyajima (2008) record a surprisingly high level of ownership dispersion in Japan in the first half of the twentieth century, with a large number of listed companies and a very large number of shareholders. Again, ownership dispersion cannot be attributed to investor protection. It was almost as weak in Japan as it was in the United Kingdom. But there were differences. Takeover waves were less in evidence in Japan and new equity was primarily used to finance internal rather than external expansion.

Again, ownership dispersion appeared to have more to do with informal relations of trust than investor protection. However, the institutional arrangements that fostered trust were not the same. Local stock markets were not prevalent in Japan. Individual promoters of shares took on a more active role in the oversight and management of firms in Japan than in the United Kingdom. Different mechanisms therefore evolved to establish the basis of trust on which ownership could become dispersed. It is to an understanding of these that the study of both development finance and the history of developed capital markets might turn.

Appendix

Table A1
Definitions of various indices of investor protection and enforcement

Variable	Description	U.K. today	U.K. 1900	When did it switch?
(1) Proxy by mail allowed	Panel A: Description of the antidirector rights index Equals one if the Company Law or Commercial Code allows shareholders to mail their proxy vote to the firm, and zero otherwise	1	0	1948
(2) Shares not blocked before meeting	Equals one if the Company Law or Commercial Code does not allow firms to require that shareholders deposit their shares prior to a General Shareholders Meeting thus preventing them from selling those shares for a number of days, and zero otherwise	1	1	Never
(3) Cumulative voting or proportional representation	Equals one if the Company Law or Commercial Code allows shareholders to cast all of their votes for one candidate standing for election to the board of directors (cumulative voting) or if the Company Law or Commercial Code allows a mechanism of proportional representation in the board by which minority interests may name a proportional number of directors to the board, and 0 otherwise	0	0	Never
(4) Oppressed minorities mechanism	Equals one if the Company Law or Commercial Code grants minority shareholders either a judicial venue to challenge the decisions of management or of the assembly or the right to step out of the company by requiring the company to purchase their shares when they object to certain fundamental changes, such as mergers, assets dispositions and changes in the articles of incorporation. The variable equals zero otherwise. Minority shareholders are defined as those shareholders who own 10% of share capital or less	1	0	1985
(5) Percentage of share capital to call an extraordinary shareholders meeting	It is the minimum percentage of ownership of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting	1	0	1948
(6) Preemptive rights to new issues	Equals one when the Company Law or Commercial Code grants shareholders the first opportunity to buy new issues of stock and this right can only be waived by a shareholders' vote, and zero otherwise	1	0	1980
<i>Antidirector rights index</i>	<i>The index is formed by adding 1 when: (1) the country allows shareholders to mail their proxy vote to the firm; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting or proportional representation of minorities in the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to 10% (the sample median); or (6) shareholders have preemptive rights that can only be waived by a shareholders' vote. The index ranges from 0 to 6</i>	5	1	1948, 1980, 1985.

(Continued overleaf)

Table A1
(Continued)

Variable	Description	U.K. today	U.K. 1900	When did it switch?
Panel B: Description of the two private enforcement indices				
<i>Panel B.1 Disclosure requirements index</i>				
(1) Prospectus	Equals one if the law prohibits selling securities that are going to be listed on the largest stock exchange of the country without delivering a prospectus to potential investors; equals zero otherwise	0	0	Never
(2) Compensation	An index of prospectus disclosure requirements regarding the compensation of directors and key officers. Equals one if the law or the listing rules require that the compensation of each director and key officer be reported in the prospectus of a newly listed firm; equals one-half if only the aggregate compensation of directors and key officers must be reported in the prospectus of a newly listed firm; equals zero when there is no requirement to disclose the compensation of directors and key officers in the prospectus for a newly listed firm	1	0	1929
(3) Shareholders	An index of disclosure requirements regarding the <i>Issuer's</i> equity ownership structure. Equals one if the law or the listing rules require disclosing the name and ownership stake of each shareholder who, directly or indirectly, controls 10% or more of the <i>Issuer's</i> voting securities; equals one-half if reporting requirements for the <i>Issuer's</i> 10% shareholders do not include indirect ownership or if only their aggregate ownership needs to be disclosed; equals zero when the law does not require disclosing the name and ownership stake of the <i>Issuer's</i> 10% shareholders. No distinction is drawn between large-shareholder reporting requirements imposed on firms and those imposed on large shareholders themselves	1	0	1967
(4) Inside ownership	An index of prospectus disclosure requirements regarding the equity ownership of the <i>Issuer's</i> shares by its directors and key officers. Equals one if the law or the listing rules require that the ownership of the <i>Issuer's</i> shares by each of its director and key officers be disclosed in the prospectus; equals one-half if only the aggregate number of the <i>Issuer's</i> shares owned by its directors and key officers must be disclosed in the prospectus; equals zero when the ownership of <i>Issuer's</i> shares by its directors and key officers need not be disclosed in the prospectus	1	0	1929
(5) Irregular contracts	An index of prospectus disclosure requirements regarding the <i>Issuer's</i> contracts outside the ordinary course of business. Equals one if the law or the listing rules require that the terms of material contracts made by the <i>Issuer</i> outside the ordinary course of its business be disclosed in the prospectus; equals one-half if the terms of only some material contracts made outside the ordinary course of business must be disclosed; equals zero otherwise	1	0	1929

(Continued overleaf)

**Table A1
(Continued)**

Variable	Description	U.K. today	U.K. 1900	When did it switch?
(6) Transactions	An index of the prospectus disclosure requirements regarding transaction between the <i>Issuer</i> and its directors, officers, and/or large shareholders (i.e., "related parties"). Equals one if the law or the listing rules require that all transactions in which related parties have, or will have, an interest be disclosed in the prospectus; equals one-half if only some transactions between the <i>Issuer</i> and related parties must be disclosed in the prospectus; equals zero if transactions between the <i>Issuer</i> and related parties need not be disclosed in the prospectus	1	0	1929
<i>Disclosure index</i>	<i>The index of disclosure equals the arithmetic mean of (1) Prospect; (2) Compensation; (3) Shareholders; (4) Inside ownership; (5) Contracts irregular; (6) and Transactions</i> Panel B.2 Liability standard index	0.83333	0	1929, 1967.
(1) Liability standard for the issuer and its directors	Index of the procedural difficulty in recovering losses from the <i>Issuer's</i> directors in a civil liability case for losses due to misleading statements in the prospectus. Equals one when investors are required to prove only that the prospectus contains a misleading statement. Equals two-thirds when investors must also prove that they relied on the prospectus and/or that their loss was caused by the misleading statement. Equals one-third when investors prove that the director acted with negligence and that they either relied on the prospectus or that their loss was caused by the misleading statement or both. Equals zero if restitution from directors is unavailable or the liability standard is intent or gross negligence	0.66667	<u>0</u>	1929, 1948.
(2) Liability standard for distributors	Index of the procedural difficulty in recovering losses from the <i>Distributor</i> in a civil liability case for losses due to misleading statements in the prospectus. Equals one when investors are required to prove only that the prospectus contains a misleading statement. Equals two-thirds when investors must also prove that they relied on the prospectus and/or that their loss was caused by the misleading statement. Equals one-third when investors prove that the <i>Distributor</i> acted with negligence and that they either relied on the prospectus or that their loss was caused by the misleading statement or both. Equals zero if restitution from the <i>Distributor</i> is unavailable or the liability standard is intent or gross negligence	0.66667	0	1929, 1948.

(Continued overleaf)

Table A1
(Continued)

Variable	Description	U.K. today	U.K. 1900	When did it switch?
(3) Liability standard for accountants	Index of the procedural difficulty in recovering losses from the <i>Accountant</i> in a civil liability case for losses due to misleading statements in the audited financial information accompanying the prospectus. Equals one when investors are required to prove only that the audited financial information accompanying the prospectus contains a misleading statement. Equals two-thirds when investors must also prove that they relied on the prospectus and/or that their loss was caused by the misleading accounting information. Equals one-third when investors prove that the <i>Accountant</i> acted with negligence and that they either relied on the prospectus or that their loss was caused by the misleading statement or both. Equals zero if restitution from the <i>Accountant</i> is unavailable or the liability standard is intent or gross negligence	0.66667	0	1929, 1948.
<i>Liability standard index</i>	<i>The index of liability standard equals the arithmetic mean of (1) Liability standard for the issuer and its directors; (2) Liability standard for distributors; and (3) Liability standard for accountants</i>	0.66667	0	1929, 1948.
Panel C: Description of the public enforcement index				
2.1 Characteristics of the Supervisor of securities markets				
(1) Appointment	Equals one if a majority of the members of the Supervisor are unilaterally appointed by the Executive branch of government; equals zero otherwise	0	0	Never
(2) Tenure	Equals one if members of the Supervisor cannot be dismissed at the will of the appointing authority; equals zero otherwise	0	0	Never
(3) Focus	Equals one if separate government agencies or official authorities are in charge of supervising commercial banks and stock exchanges; equals zero otherwise	0	0	Never
(4) Rules	Equals one if the Supervisor can generally issue regulations regarding primary offerings and/or listing rules on stock exchanges without prior approval of other governmental authorities. Equals one-half if the Supervisor can generally issue regulations regarding primary offerings and/or listing rules on stock exchanges only with the prior approval of other governmental authorities. Equals zero otherwise	1	1	1986
<i>Supervisor index</i>	<i>The index of characteristics of the Supervisor equals the arithmetic mean of (1) Appointment; (2) Tenure; (3) Focus; and (4) Rules</i>	0.25	0.25	1986

(Continued overleaf)

**Table A1
Continued**

Variable	Description	U.K. today	U.K. 1900	When did it switch?
	2.2 Investigative powers of the Supervisor of securities markets			
(1) Document	An index of the power of the Supervisor to command documents when investigating a violation of securities laws. Equals one if the Supervisor can generally issue an administrative order commanding all persons to turn over documents; equals one-half if the Supervisor can generally issue an administrative order commanding publicly traded corporations and/or their directors to turn over documents; equals zero otherwise	1	0	1986
(2) Witness	An index of the power of the Supervisor to subpoena the testimony of witnesses when investigating a violation of securities laws. Equals one if the Supervisor can generally subpoena all persons to give testimony; equals one-half if the Supervisor can generally subpoena the directors of publicly traded corporations to give testimony; equals zero otherwise	1	0	1986
<i>Investigative powers index</i>	<i>The index of investigative powers equals the arithmetic mean of (1) Documents and (2) Witness</i>	1	0	1986
	2.3 Sanctions			
(1) Orders issuer	An index aggregating stop-and-do orders that may be directed at the Issuer in the case of a defective prospectus. The index is formed by averaging the subindexes of orders to stop and to do. The subindex of orders to stop equals one if the Issuer may be ordered to refrain from a broad range of actions; equals one-half if the Issuer may only be ordered to desist from limited actions; equals zero otherwise. The subindex of orders to do equals one if the Issuer may be ordered to perform a broad range of actions to rectify the violation; equals one-half if the Issuer may only be ordered to perform limited actions; equals zero otherwise. We disregard orders that may be issued by courts at the request of a private party in a civil lawsuit	1	0	1986
(2) Order distributor	An index aggregating stop-and-do orders that may be directed at the Distributor in the case of a defective prospectus. The index is formed by averaging the subindexes of orders to stop and to do. The subindex of orders to stop equals one if the Distributor may be ordered to refrain from a broad range of actions; equals one-half if the Distributor may only be ordered to desist from limited actions; equals zero otherwise. The subindex of orders to do equals one if the Distributor may be ordered to perform a broad range of actions to rectify the violation; equals one-half if the Distributor may only be ordered to perform limited actions; equals zero otherwise. We disregard orders that may be issued by Courts at the request of a private party in a civil lawsuit	1	0	1986

(Continued overleaf)

Table A1
Continued

Variable	Description	U.K. today	U.K. 1900	When did it switch?
(3) Orders accountant	An index aggregating stop-and-do orders that may be directed at the Accountant in the case of a defective prospectus. The index is formed by averaging the subindexes of orders to stop and do. The subindex of orders to stop equals one if the Accountant may be ordered to refrain from a broad range of actions; equals one-half if the Accountant may only be ordered to desist from limited actions; equals zero otherwise. The subindex of orders to do equals one if the Accountant may be ordered to perform a broad range of actions to rectify the violation; equals one-half if the Accountant may only be ordered to perform limited actions; equals zero otherwise. We disregard orders that may be issued by courts at the request of a private party in a civil lawsuit	1	0	1986
<i>Orders index</i>	<i>The index of orders equals the arithmetic mean of (1) Orders issuer; (2) Orders distributor; and (3) Orders accountant</i>	1	0	1986
(1) Criminal director/officer	An index of criminal sanctions applicable to the Issuer's directors and key officers when the prospectus omits material information. We create separate subindexes for directors and key officers and average their scores. The subindex for directors equals zero when directors cannot be held criminally liable when the prospectus is misleading. Equals one-half if directors can be held criminally liable when aware that the prospectus is misleading. Equals one if directors can also be held criminally liable when negligently unaware that the prospectus is misleading. The subindex for key officers is constructed analogously	0.25	0	1986
(2) Criminal distributor	An index of criminal sanctions applicable to the Distributor (or its officers) when the prospectus omits material information. Equals zero if the Distributor cannot be held criminally liable when the prospectus is misleading. Equals one-half if the Distributor can be held criminally liable when aware that the prospectus is misleading. Equals one if the Distributor can also be held criminally liable when negligently unaware that the prospectus is misleading	0.5	0	1986
(3) Criminal accountant	An index of criminal sanctions applicable to the Accountant (or its officers) when the financial statements accompanying the prospectus omit material information. Equals zero if the Accountant cannot be held criminally liable when the financial statements accompanying the prospectus are misleading. Equals one-half if the Accountant can be held criminally liable when aware that the financial statement accompanying the prospectus are misleading. Equals one if the Accountant can also be held criminally liable when negligently unaware that the financial statements accompanying the prospectus are misleading	0.5	0	1986

(Continued overleaf)

**Table A1
(Continued)**

Variable	Description	U.K. today	U.K. 1900	When did it switch?
<i>Criminal index</i>	<i>The index of criminal sanctions equals the arithmetic mean of (1) Criminal director; (2) Criminal distributor; and (3) Criminal accountant</i> 6.0pt1,138.0pt	0.41667	0	1986
<i>Public enforcement index</i>	<i>The index of public enforcement equals the arithmetic mean of (1) Supervisor characteristics index; (2) Investigative powers index; (3) Orders index; and (4) Criminal index</i> 6.0pt1,138.0pt	0.74667	0	1986

This table defines various indices of investor protection and enforcement and reports their evolution over the twentieth century in the United Kingdom. Panel A describes the antidirector index of LLSV (1998). Panel B reports the evolution over time of two indices of private enforcement, disclosure requirements and liability standards, as defined by LLS (2006), and panel C reports the evolution over time of the public enforcement index, as defined by LLS (2006).

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