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Extreme divorce: the managerial revolution in UK companies before 1914[1]

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We present the first broadly representative study for any early twentieth-century economy of the extent to which quoted company ownership was already divorced from managerial control. In the 337 largest, independent, UK companies in the *Investor's year book* (those with £1 million or more quoted share capital in 1911), the generality of public shareholders were a narrower group than today, but directors personally owned only 3.4 per cent of the shares. This indicates a lower level of personal ownership (and board voting control) in the largest securities market of the early twentieth century than in any of the world's major securities markets toward the end of that century. Berle, Means, Gordon, and others subsequently quantified the US's later and (on this dimension) less advanced managerial 'revolution'. Their evidence was widely misinterpreted: some erroneously concluded that the US pioneered this aspect of 'modernity' and that the 'divorce' of ownership from control, globally, was a new and continuing trend.

The debate on whether managerial control was divorced from share ownership in early twentieth-century Britain exhibits an extreme lack of consensus, compromised as it is by inconsistent definitions and unrepresentative samples.[2] Here we substantially resolve these issues, relying on a source, the *Investor's year book*, which, after brief contemporary exposure, endured decades of oblivion.[3] This directory itemizes shareholder numbers and the amount held by directors: fuller information than is available in the UK for the next eight decades, providing historical data approaching in quality and coverage that published for major markets today. The results are striking: the level of board ownership in British companies was lower before the First World War than observed anywhere towards the end of the twentieth century. The conventional wisdom that the century experienced a revolutionary 'divorce' of ownership from control and the rise of a

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[2] At one extreme Chandler, *Scale*, famously saw Britain's exceptionally high levels of personal ownership as driving poor business performance; at the other, Hannah, ' "Divorce" ', contrasts low levels in the UK with high US and German personal ownership. Cheffins and Bank, 'Berle and Means', are judiciously moderate.

[3] This annual directory was edited by Herbert Bassett, of the Investment Registry's *Financial review of reviews*. Early issues were published in-house and occasionally surface in antiquarian booksellers. From 1909, when it was published by Letts and widely noticed in periodicals, rare library copies survive until the 1915 issue, after which it apparently ceased publication.

new 'managerial' capitalism is an urban myth. The evolution of managerial control in the UK was substantially complete before 1914.

This will be less of a surprise to those familiar with historical work on the drivers of these developments than to minds misdirected by Whiggish elaborations of the *locus classicus*, Berle and Means.[4] The growth of professional managerial hierarchies with internal labour markets—the largest ones employing more than a thousand clerks in one headquarters building—is well documented for London, 'the head office of the world'.[5] Pessimistic evaluations of securities market development before 1914 have also faded: the UK, the world's third-largest economy, had the world's largest stock market, so it requires some obtuseness to present British finance as uniquely constrained.[6] Recent studies have clarified aspects of trust relationships, contractual protections, and information signalling which fostered widespread shareholding.[7] First in canals, railways, and banks, and then in other sectors, the common thread was a shift (albeit never complete) from firms substantially owned and managed by individuals or local syndicates to companies with shares freely traded on organized stock exchanges, owned by thousands of shareholders, in which most directors held office by virtue of their skills, knowledge, and networks, and promotion or recruitment to the board, not because they held preponderant ownership stakes. The next section explains the coverage of our data and the expanding domain of public companies; sections II and III consider the numbers of shareholders and the extent of board shareholdings and voting power; section IV calibrates comparisons across time and space; and section V sketches some implications.

I

The *Investor's year book* was compiled by the Investment Registry, founded in 1880 by a group of wealthy London investors. Their securities guide—sold at a shilling initially and four shillings from 1912—was likely a loss-leader inducement to investor clients: market professionals used directories like the London Stock Exchange's (LSE's) *Official intelligence*.[8] Its content was abbreviated but also qualitatively different, including (from the 1910 edition) shareholder numbers and (from 1911) the amount held by directors. This required their staff to make labour-intensive searches of full lists of shareholdings, which registered companies had to make available to any enquirer and update annually at Somerset House in London (or at two smaller provincial registries).[9] One clue to their motivation for

[4] Berle and Means, *Modern corporation*.

[5] Sidney Webb, as quoted in Heller, *London clerical workers*, p. 1, see also pp. 29–34; Seltzer and Frank, 'Promotion tournaments'.

[6] Hannah, 'J. P. Morgan'; idem, 'London as the global market'; Michie, 'Finance'.

[7] Franks, Mayer, and Rossi, 'Ownership'; Campbell and Turner, 'Substitutes'; Hannah, 'Pioneering'; Musacchio, 'Laws'.

[8] The 1912 *Year book* cost £0.20, the *Stock Exchange official intelligence* £2.50, and Skinner's *Stock Exchange year book* £1.40 (Pitman and Sons, *Pitman's where to look*, p. xvii), with, respectively, 532, 1,742, and 2,098 pages.

[9] Apart from this window of published data for 1911–15, levels of UK board ownership cannot be measured as fully and representatively for the nineteenth century, nor most of the twentieth, except for returns made to Edinburgh. Dublin returns were victims of the troubles of 1916–22 and for the London registry only the returns of the minority of continuing companies are retained by Companies House (now in Cardiff); the rest have been extensively and non-randomly weeded by TNA, or (for most chartered and statutory companies) were never filed.

collating and publishing this esoteric information is a staff member's suggestion that:

> If it is found that the Directors are but small shareholders, there is the risk that the management may not display active intelligence. If there are large blocks of shares held in a few hands, then the price of shares is uncertain, as an avalanche of stock may descend on the market at any time. In an ideal list of shareholders the Directors should have large personal stakes of old standing and the rest of the shares should be distributed in the smallest possible lots among *bona-fide* Investors who have no City address.[10]

Online appendix S1 lists the largest, independent, British-owned companies in the directory with shares quoted on a UK stock exchange: those having at least £1 million nominal value of issued share capital, 87 per cent of them listed on London. Thousands of merely medium-sized companies were also then traded on London and more than 20 UK provincial exchanges, but we chose this cut-off to confine our study to the larger size range of firms listed on the pre-1914 New York Stock Exchange (NYSE) (where initial public offerings (IPOs) of less than $5 million—about £1 million—were rare) or on today's LSE (£1 million in 1911 is equivalent to £76 million today, adjusted by the retail price index (RPI)).[11] Most data are drawn from the 1912 edition, generally reflecting the late 1911 position, and appear to be broadly reliable on board shares[12] and a little out of date on shareholder numbers and capital.[13]

The LSE before 1914 was *the* global stock market: it traded a third of the world's securities, and 71 of the world's hundred largest quoted corporations had at least one of their securities listed there.[14] Including all 43 of those headquartered overseas would frustrate our objective of covering business enterprises principally owned and controlled in the UK. Companies operating overseas were included if they met the following criteria, which also applied to domestic firms: the businesses were registered as UK companies, with sterling share capital, and they were largely British-owned, and wholly or partly British-managed. Also in our population are a small number of companies registered overseas in which British shareholdings were probably dominant and there was a large minority or a majority of British directors. Foreign and colonial companies listed on London, but with negligible British management, and companies, wherever registered, in which UK holders constituted a minority or mainly held bonds have generally been excluded.[15] Finally, even where companies maintained a separate British corporate

[10] Lowenfeld, *Investment*, p. 183.

[11] In 2010, firms valued at £100 million or below accounted for less than 1% of the LSE's Main Market capitalization (http://www.londonstockexchange.com/, 'Statistics'). Today the external financing of medium-sized firms is the preserve of venture capitalists, banks, private equity, business angels, and markets like AIM (alternative investment market), rather than major stock exchanges.

[12] The directory reports high board ownership figures in cases where the literature or surviving Companies Registry returns signal this and low figures where we know that to be appropriate.

[13] The *Railway year book 1912* and the *Banker's almanac 1912* also report shareholder numbers, generally giving higher figures.

[14] Authors' calculation from a list of the largest global companies by market capitalization in 1912 (P. Wardley, 'The top 100 global firms by employment and market capitalisation in 1912', paper delivered at CIRJE (Centre for International Research on the Japanese Economy) workshop on 'Global market history in the twentieth century', Tokyo Univ., 25 July 2006).

[15] The Suez Canal and Hong Kong & Shanghai Bank were included, and Borax Consolidated and Royal Dutch Shell excluded; but we may have misclassified these and other companies with large British shareholdings because of deficient information on fluctuating ownership of constantly traded shares in this globalized pre-1914 world.

identity, stock exchange listing, and/or board, we excluded them if they were subsidiaries of other companies, since their ultimate control may be presumed to lie with the parent.[16]

The coverage of the *Investor's year book* appears to be comprehensive, comparing favourably with lists of large firms compiled for dates between 1904 and 1919 in 14 very diversely focused research studies.[17] Most of the firms in their lists (and some they omit) are included, if they were in 1911 quoted, British-owned, and independent, and had £1 million+ nominal share capital. The only major gap is non-ferrous, non-coal, mining enterprises operating abroad. There were around 60 such £1 million+ companies that did not appear in the *Investor's year book*: all traded in London (and many also in Paris) and were owned by British, US, or continental investors (in uncertain proportions). Some were widely held, while in others board members were large shareholders, so any guess at the level at which these companies could be incorporated into our analysis would be arbitrary.[18] Otherwise, we have been able to identify from the available lists of large companies only two British-registered, listed companies operating overseas and meeting the admission criteria that were excluded (both Asian plantation companies, with recent IPOs on the LSE),[19] and only three similar domestic companies (only thinly traded on northern exchanges).[20] So, with a total of £1,926 million share capital in 337 £1 million+ companies, the directory appears to cover around 98 per cent of targeted firms.

In the majority of cases, the *Investor's year book* provided data on shareholdings, but for nearly a third of large companies omitted data on board holdings and/or shareholder numbers (while including both for almost all smaller companies). No reason is given, but many railways were so big and their shareholdings so obviously widely dispersed that publishing precise information was probably considered superfluous.[21] An overseas, parliamentary, or royal charter (often allowing access only to shareholder names and addresses—not holdings—and at company headquarters rather than Somerset House) appears to have inhibited reporting, as did occasional bearer shares. For more than a tenth of the companies, we have used company histories, known voting caps, archives, and other sources, opting for the highest level in the event of conflicting estimates, to bias the results against our

[16] Among the subsidiaries thus excluded, some (for example, Pacific Steam Navigation) were controlled by British companies in our population; others (for example, British Westinghouse), though the subsidiaries may have been majority-British-owned, had voting structures that left control with overseas entities.

[17] Boughey, 'British overseas railways', p. 489; Boyce, '64thers', pp. 184, 195; Chandler, *Scale*, pp. 666–72; Church, *History*, p. 400; Gourvish and Wilson, *British brewing*, p. 380; Hannah, *Rise*, pp. 187–90; Hausman, Hertner, and Wilkins, *Global electrification*, pp. 106–7; Jeremy, *Capitalists*, pp. 420–5; Jones, *British multinational banking*, pp. 396–7; Marchildon, 'Promotion', pp. 253–4; Payne, 'Emergence', pp. 539–40; Schmitz, *Growth*, pp. 23–5; Scott and Hughes, *Anatomy*, pp. 56–65; Shaw, 'Large manufacturing employers', pp. 52–3; Wardley, 'Top 100' (see above, n. 14). We also checked all firms in the LSE's *Daily official list* for 2 Jan. 1912.

[18] This sector was omitted from the *Investor's year book* from 1909 onwards, for reasons not stated, and accounted for 4.5% of the profits of all British firms assessed for income tax; Worswick and Tipping, *Profits*, pp. 87, 89.

[19] Grand Central (Ceylon) Rubber Estates and Anglo-Dutch Plantations of Java. There were doubtless other unlisted (but LSE-traded) companies omitted.

[20] Reckitt & Sons was listed on the Leeds exchange, many of its non-family shares being owned by trade customers and employees; Reckitt, *History*, pp. 47, 91. Boots and Tootal Broadhurst Lee were quoted on the Sheffield and Manchester exchanges, respectively, but only a portion of their share capital was actually listed.

[21] The London & North Western Railway was exceptionally transparent, disclosing directors' stock-holdings in its annual reports, yet the *Investor's year book* does not report this.

Table 1. *Inauguration dates of UK companies in our population (col. 1) and more generally (cols. 2–6)*

Date	*1911, £1 m+ companies (no.)*	*All life insurance companies (no.)*	*All 1911 UK*		*All registered companies*	
			railways (no.)	*banks (no.)*	*No.*	*Paid-up capital £m*
Pre-1800	10	48	n.a.	7	n.a.	n.a.
1800–29	15	68	5	7	n.a.	n.a.
1830–9	31	57	14	29	n.a.	n.a.
1840–9	20	119	24	2	500[a]	n.a.
1850–9	18	129	22	4	1,316	n.a.
1860–9	42	108	34	14	6,362	926[b]
1870–9	27	19	15	10	10,155	844
1880–9	61	9	30	8	18,583	1,971
1890–9	80	11	22	15	37,682	2,042
1900–11	28	16	13	9	59,719	1,753

Notes and sources: a The 1844 Companies Act took effect on 1 Nov. In Sept. 1844, 947 English and 47 Irish companies were already known, under various dispensations such as common law deeds-of-settlement, the 1821–6 Banking Acts, or the 1837 Trading Companies Act (but excluding many companies with royal charters or private acts of Parliament); their earlier inauguration dates are not recorded. The 1844–56 figures in this col. also exclude Scottish companies, and are arbitrarily allocated between the 1840s (500) and 1850s (456).

b No values available for 1860–1.

Col. 1: authors' calculations. Col. 2: Andras, ed., *Historical review*, pp. 101–18 (this encompasses an eclectic range of chartered, statutory, mutual, and deed-of- settlement insurers and Companies Act registrations, many which were defunct or no longer independent by 1911). Col. 3: authors' calculations based on all 179 extant domestic railways in the *Stock Exchange official intelligence* 1912 (excluding tramways, light railways, and joint committees; note also that most post-1870 new UK statutory rail companies were modest branch lines and urban undergrounds). Col. 4: authors' calculations based on all 105 extant UK-headquartered banks and discount companies in the *Stock Exchange official intelligence* 1912 (excluding private banks; note that most post-1870 new UK bank incorporations operated primarily overseas). Cols. 5 and 6: Shannon, 'First five thousand', pp. 420–4; *Stock Exchange official intelligence* 1912, p. 1626 (note that these columns exclude many large companies such as domestic railways and other statutory and chartered corporations and that most of those included did not survive to 1911).

conclusion.[22] As a last resort, for around one-fifth of the companies (mainly railways), we have estimated board shareholdings from their known correlates (company size, sector, corporate age, numbers of directors and of shareholders, and main places of listing and of operation).[23]

Table 1 charts the timing of the processes generating this upper tail of the UK company size distribution, showing in column 1 the inauguration dates—when they were established in their modern form—for all 337 companies. This is not always the date of foundation, for some of these companies had earlier origins as sole proprietorships, partnerships, or deed-of-settlement companies. Even if it was a second incorporation, the inauguration date highlighted in directories often marked a strategic decision to operate on a larger scale (a merger or a major new capital-raising) or slightly pre-dated the IPO of the shares of one-time family-owned firms or of new concessions established by venture capitalists.

Half had been established in their modern corporate form in the last four decades, but several were pre-industrial: the oldest was Hudson's Bay, originally chartered in London in 1670. Many statutory, chartered, and deed-of-settlement

[22] A search for missing data was made in Hannah, ' "Divorce" '; Cheffins, *Corporate ownership*; *Railway year book 1912*; *Banker's almanac 1912*; company histories; Google Books; Guildhall Library, London, listing files (MS18000); and the archives of the Bank of Scotland, Barclays Bank, British Rail, Royal Bank of Scotland, and their predecessors and subsidiaries.

[23] Board ownership data were published for *all* brewery companies (generally recognized as having persistent family ownership), but for only a *minority* of railways (a sector generally accepted as managerially controlled). Estimation of missing data was therefore critical to avoiding selection bias.

companies had begun to separate ownership from control well before general joint-stock registration in 1844 and general limited liability in 1855, as columns 1–4 collectively suggest.[24] Columns 5 and 6 show the rise of the simplified new incorporations under the 1844 and subsequent Companies Acts: mostly smaller and including increasing numbers of private, unquoted companies. Columns 1 and 6 together suggest that incorporations trended upwards in the long nineteenth century, with a notable surge in larger formations in the 1880s and 1890s, and a lull after 1900.[25] The UK managerial 'revolution' is thus most plausibly located in the closing decades of the nineteenth century, when most large manufacturing and distribution firms and many new utilities and British ventures overseas went public. But 'evolution' is perhaps the more appropriate term: for example, the change was already well advanced for many railways, other utilities, and financial companies by the mid-Victorian period. Moreover, in the decades after their IPO, insiders typically released more shares to the general public, as they gradually diversified their own wealth portfolios, while expanding their firms.

Accompanying this evolutionary separation of ownership from control were changes in top managerial personnel, in their selection and training, and in their functions. Company secretaries were a classic profession, with examined qualifications in corporate law, investor relations and boardroom procedure.[26] By contrast, directors (like managers in general)—with the exception of some formally qualified actuaries, bankers, chemists, doctors, engineers, and lawyers—were largely qualified by practical experience or reputation, so were as ambiguously and diversely professional as they remain today. Some, like Henry Overton Wills, were large owners who had long retired from the family business and delegated management to others. He was the largest (13 per cent) holder of Imperial Tobacco shares, with nearly £2 million, perhaps half his fortune, invested, but, by the time he died in 1911, the family patriarch's attendance at board meetings had long been delinquent.[27]

In railways, and many banks and insurance companies, millionaire owners were rarer and the majority of the board were typically outside (non-executive)[28] directors (akin to a German *Aufsichtsrat*, or supervisory board), including businessmen from other sectors, financiers, and national or local worthies (peers, MPs, JPs). Professional railwaymen, bankers, or actuaries promoted to directorships from within these companies' own management hierarchies (inside directors) were usually a minority. On the other hand, some owner-entrepreneurs used directorships to reward their senior managers and/or prepare them for succession and had no non-executives on their boards: they resembled a German *Vorstand* (management board) more than an *Aufsichtsrat*. Many other UK boards were also working

[24] Cols. 1 and 3–4 understate this because they sometimes register a secondary re-incorporation.

[25] On the other hand, Essex-Crosby's ('Joint stock companies') analysis of 5,337 *quoted* companies registered under the British Companies Acts (most with less than £1 million capital) shows continually rising decadal rates of foundation up to 1914.

[26] By 1911 the Institute of Secretaries had 3,544 members and there was a similar Secretaries' Association offering professional examinations; the two merged in 1937; *Chartered Institute*, pp. 1–47, 145, 187–92. By contrast, members qualified for the Institute of Directors (founded in 1903) by holding the office, not by examination.

[27] Alford, *Wills*, pp. 242, 263, 282, 328.

[28] As with non-executives today, some devoted multiple days each month to the job, while others did little more than attend meetings.

committees of senior managers, though it was common to appoint one or more non-executives, who could be helpful to the business or reassure outside shareholders: they included major shareholders, financiers, lawyers, engineers, consultants, non-competing businessmen, politicians, and non-practising accountants (many accountants in private practice were reluctant to become directors, since, from 1900, this barred them from auditing the company). Some company chairmen (especially those combining the post with that of managing director) were dictators (albeit elected), like some US CEOs;[29] but on other boards there was more of a balance of power, chairmen being chosen by their colleagues as *primi inter pares*.

II

The numbers of shareholders in these companies ranged widely, from a low of only 170 (in Martin's Bank, one of the last of the family-owned clearers to go public)[30] up to 79,400 (in the Midland Railway, a reliably dividend-paying mainstay of the proverbial widows and orphans). The mean was 6,177 shareholders and the median 3,000: levels which made it difficult, but—unlike today—still possible, for non-negligible proportions of them to participate in AGMs at venues such as London's Cannon Street Hotel, which could accommodate up to 2,000. The US experience of large companies reporting zero AGM attendances was unknown in a compact, urbanized nation, with fast trains, a tradition of shareholder activism, and extensive national reporting of their proceedings.[31] Most holders were passive but others still felt a financial compulsion to attend: the mean shareholding was as much as £925 (equivalent to about £70,000 today). The range around this average was wide, with small shareholders especially attracted by well-known brands like Lipton (the chain grocer famed for its teas): its mean shareholding—only £68—was less than the £100 block that London stockbrokers normally traded.[32] The highest mean shareholding was 184 times that, in Underground Electric Railway, whose chairman, the banker Sir Edgar Speyer, had coordinated this pyramided merger of London tubes and tramways, acting for a group of wealthy US investors.[33]

All these figures relate to the nominal (par) value of issued (not merely authorized) and subscribed (not necessarily paid-up) share capital.[34] Of course, their market prices sometimes varied markedly from par. The *Bankers' Magazine* index indicates that the market for similar securities was about 34 per cent above par at this time, so the average shareholding was probably worth about £1,240.[35] That

[29] These included both dominant founding entrepreneurs (Lord Leverhulme in Lever Brothers) and professional managers with negligible shareholdings (Sir Edwin Holden in London City & Midland Bank).

[30] Chandler, *Four centuries*, pp. 336–7, 411–14.

[31] Rutterford, 'Shareholder voice'.

[32] Lipton was one of the rare companies to show a marked decline in shareholder numbers: from 74,000 at its 1898 IPO (Green, Owens, Maltby, and Rutterford, eds., *Men*, p. 196) to 33,000 by 1911.

[33] The Underground's shareholder numbers (400) are misleadingly low, since there remained thousands more shareholders in pyramided group subsidiaries, unrecorded in this parent-only figure. We have left this company (and the probably Belgian-controlled Anglo-Argentine Tramways) in a population confined to British-owned companies, because of their large subsidiary shareholdings and uncertainty on the nationality of the majority.

[34] By 1911, issued, subscribed, and paid-up capital were normally identical, but in many banks and insurance companies, there remained some uncalled liabilities (shares subscribed but not paid-up).

[35] Estimated from the appropriate sub-indexes for 19 Dec. 1911; *Banker's Magazine*, Jan. 1912, p. 101.

was many times a manual worker's annual wage (£50), the annual income threshold at which British income tax became payable (£160), or the maximum deposit permitted in the (government-subsidized) Post Office Savings Bank (£200). But, in a skewed distribution, many small shareholders had modest holdings at similar levels.

The numbers of shareholders had escalated rapidly, economy-wide. In 1849 there were only 36,271 shareholdings in quoted domestic banks; in 1875 there were 81,577; while by 1911 there were in excess of a quarter of a million.[36] Shareholder numbers grew a little more slowly in railways (from around 170,000 in 1855 to 620,000 in 1902), but probably grew faster in other sectors. This diffusion process continued over the next century. Lloyd's, the largest bank of 1911, then had 22,500 shareholders, while today (when it is again the leading domestic retail bank after acquiring many competitors) it has 2.8 million.[37] Remarkably, the total number of shareholdings in *all* our 337 large companies (2,081,790) was less than in this *one* bank today, though there were also approaching three million shareholdings in other UK public companies in 1911.[38]

Sixteen of the 337 companies were investment trusts, 22 were insurance companies, and more than 100 were already offering their employees funded pensions. All three of these institutional investment vehicles spread beneficial interests in securities more widely, and a few encouraged employee shareholding. Yet small samples of shareholder registers in the first two decades of the twentieth century suggest that no more than 5–7 per cent of shareholders with identifiable occupations were working class, so this is not the 'democratic' capital market overenthusiastically claimed by contemporary boosters of capitalism.[39] Our figures simply confirm that direct share ownership was widely disseminated among the comfortably-off bourgeoisie.

III

The *Investor's year book* data on board shareholdings enable us to calibrate control more precisely. In 1900–19, 101 sterling millionaires were recorded as dying and, if this generation of plutocrats (or their heirs) had each fully funded one of our smaller companies, most of them would have substantially exhausted their resources.[40] Plutocratic undiversified investment in the formal capital markets simply did not happen on this scale: in fact, in only nine of our companies did the whole board *collectively* hold shares with a nominal value of £1 million+. By that yardstick, only six branded goods manufacturers, two banks, and one railway were personally

[36] Acheson, Hickson, and Turner, 'Does limited liability matter?', p. 260. In 1911, there were 251,649 shareholdings in our 39 £1 million+ domestic banks alone, and additionally there were around two dozen smaller retail banking companies.

[37] Ibid., p. 270. The expanding UK shareholding population was dramatically reduced by nationalization, and then increased by privatization and demutualization. Lloyd's large modern shareholder base derives partly from its acquisitions of demutualized building societies, insurance companies, and savings banks, whose quasi-owners were excluded from earlier shareholder data.

[38] Green et al., eds., *Men*, pp. 163–4, with an allowance for the 1901–11 increase and a further one million shareholders in the British-owned (statutory and chartered) companies not registered under the Companies Acts.

[39] Ibid., p. 203; compare Quail, 'Investment'.

[40] Rubinstein, *Men*, p. 63.

owned by the super-rich.[41] Many giant firms of 1911 simply could not have existed in the society of personal capitalism that had been the norm a century earlier. If, as the literature suggests, economies of scale and scope, widening markets, managerial and technological innovations, and network effects had driven firm growth, that had clearly in part been facilitated by the aggregation through stock exchanges of the wealth of hundreds of thousands of more modest capitalists, delegating management to thousands of entrepreneurs and professional administrators.

Nonetheless, directors had more wealth committed to their firms than the average shareholder. The LSE's listing rules required that directors be shareholders, so the US phenomenon of professional directors holding no stock was rare in Britain.[42] The amount required varied from £1 to £20,000, with a mean of £2,113. The lower requirements were well within reach of the average shareholder in these companies (who held £925), but the higher ones were not trivial, when even a well-paid clerk might earn only £200 p.a. Nonetheless they were a feasibly negotiable hurdle for most successful career managers earning £1,000+ annual salaries in their forties: the professionals who could most realistically aspire to directorships in large public companies.[43]

The mean director's personal stake—at £19,986—was well above the mean requirement and more than 21 times that of the average shareholder, though, unsurprisingly, many directors held only the minimum and others an order of magnitude more.[44] With an average of 9.6 directors, these British boards were generally smaller than their German and US counterparts.[45] Fewer than 3,000 men thus *controlled* these commanding heights of the British corporate economy, but they collectively *owned* only 3.4 per cent (£65 million) of the total share capital (£1,926 million).[46] This is a very low figure for a rich *rentier* society with massive inherited wealth, increasingly tinged, it is true, with meritocracy, but one whose novelists understood that choosing one's right father and wife secured worldly wealth more effectively than choosing one's right education and job.[47] Moreover, these directors' share in the ownership of all these companies' securities was even smaller since debentures (of which the general public probably held an even higher portion) are not included in these figures.[48] On the other hand, board ownership

[41] The holdings of 136 directors (mainly members of the founding families) in Guinness, Peter Walker, Whitbread, Coats, Imperial Tobacco, Lever Brothers, Barclays, and the Union of London & Smith's Bank averaged £144,118 per director. The Cardiff Railway board's holdings are not reported, but the Marquis of Bute personally developed this railway (linking his coal mines and port); we have estimated board holdings at £2.2 million.

[42] 500 of the 3,000 directors of the 200 largest US corporations had no stockholdings in 1939; TNEC, *Distribution*, p. 59. The much rarer cases of this in Britain were in unlisted companies or unquoted subsidiaries.

[43] A good house on Wimbledon Common, which such directors might have bought (and could, if necessary, mortgage), then cost £1,000; its Kensington equivalent perhaps three times that.

[44] For later evidence, see Florence, *Ownership*, pp. 99, 223–65.

[45] German boards averaged 12.7 directors and US ones 14.4 in 1914; Fear and Kobrak, 'Banks on board', p. 713.

[46] Online app. S1 shows 3,252 *directorships*, but there were perhaps 2,761 *directors* (applying the 1904 interlocking ratio in Scott and Griff, *Directors*, p. 42).

[47] Novelists like Galsworthy were right if the UK resembled France, for which we have more reliable data on such matters; Piketty, 'Long-run evolution', p. 71. Three decades later a society conventionally considered more meritocratic felt able to congratulate itself that the officers and directors of the 200 largest US non-financial corporations owned a mere 5.5%; Scoville and Sargent, *Fact*, pp. 473–83.

[48] Most of these companies' capital was in shares (£1,250 million ordinaries, £676 million preferences and similar, quasi-fixed-interest, shares) with an additional £723 million in (fixed-interest) debentures.

of the equity capital itself (as is common in such studies before the more rigorous disclosure laws of recent years) will be understated, if nominee accounts and holdings of close family members and of directors acting as trustees or as representatives of large block-holders who were not themselves directors were not included.[49]

It is difficult to gauge the extent of this issue in 1911, but there were certainly some non-director block-holders and some of the modest measured level of directorial wealth may reflect the diversion of Britain's leisured business elite to cultural, charitable, political, sporting, or social pursuits, while delegating the direction of their firms to loyal minions. Some did give up the reins of power in pursuit of pleasure, but many more seem to have led multi-dimensional lives: it was not difficult (given a capacious and venturesome mind, wifely support, a dozen domestic servants, and a competent amanuensis) for an Edwardian plutocrat to chair his own business, sit in the House of Lords or Commons, endow a hospital or university, *and* acquire a private art collection; indeed in some circles it was rather expected. Women's options were more constrained: they accounted for a third of shareholders, but almost never served as directors of public companies.[50] The widow and daughters of Sir Donald Currie had inherited his 32 per cent shareholding in Union Castle Mail Steamship when he died in 1909, and essentially called the shots, but their all-male board of 1911 registered only 2.5 per cent ownership in our data.[51] Charities, foreigners, or the self-indulgent wealthy and retired not wishing to serve as directors might also have had substantial, unreported block-holdings. For example, George Herring, a successful professional gambler who had invested his winnings in electrical enterprises, had been chairman of one of our companies (City of London Electric) and a major investor in another (British Electric Traction). When he died in 1906 he left £750,000 of his £1,371,000 fortune to a hospital charity which possibly retained extensive holdings in these companies in 1911.[52] As far as shareholdings registered by nominees are concerned, this likely resulted in some director shareholdings being missed in 1911 and even more in later years.[53] The tell-tale sign of undisclosed block-holders is the combination of suspiciously low numbers of shareholders with low director voting powers, a test implying there were relatively few cases.[54]

[49] Family members with the same name and directors acting as trustees—if they were the first named trustee—would be readily identifiable from the registers and shares held in trust normally counted as directors' qualifying shares (Palmer, *Company law*, p. 184), though it would not be so readily apparent if directors used nominee accounts or represented block-holders. The directory is silent on how it treated any of these cases.

[50] Rutterford, Green, Maltby, and Owens, 'Nation of shareholders', p. 169.

[51] Porter, *Victorian shipping*, pp. 260, 290. Their control was short-lived: in April 1912 they agreed a sale to Royal Mail. Meux's Brewery was another case of female ownership with control delegated to minions.

[52] Fulford, *Five decades*, p. 20. However charities (or other trustees) lacking broader investment powers than laid down in the Trustee Investments Acts were still legally barred from holding almost all ordinary and most voting preference shares considered here. Another later source of high block-holding (by parent companies) co-existing with low board holdings (of their appointed directors) is also absent from our population, since we exclude such subsidiaries.

[53] For the low initial use of nominee accounts and their later rise see Church, *History*, p. 434; Franks et al., 'Ownership', p. 4030, n. 14; and Florence, *Ownership*.

[54] However, it is not foolproof: it fails to detect the British government's 44% shareholding in the Suez Canal (represented by three of 32 directors). The significance of block-holding depends not only on its incidence, but on its (also unclear) role. Chandler, *Scale*, pp. 248–9, believed that block-holders who were not directors did not compromise management professionalism: the owner-directors measured here were, for him, the fundamental British problem.

The separation of securities ownership from managerial control involves further ambiguities. In all periods fixed-interest bondholders are not owners, but technically, like bankers, merely *lenders* (with privileged recourse in the event of non-payment of interest, which may unhappily convert them into owners). Such conditional ownership of capital does not equate to control in normal times: debentures and bonds only rarely conferred voting rights, unless the company defaulted on interest payments. About a third of the capital of our 337 companies was in the form of debentures and preference shares which carried no, or very limited, voting rights. Also, many quasi-public undertakings—like water boards and (colonial) state-guaranteed railways (none of which are included here)—issued *only* bonds and loans: there was no equity.[55] In such organizations, the directors routinely had control without ownership: management was even more independent of security owners than in the more conventional capitalist enterprises on which the present study is focused. UK investors also had large overseas portfolio investments, amounting to £1.8 billion by 1911, in which control lay in hands remote from their owners, and many British holders did not exercise votes.[56] Together such factors meant that the *majority* of the corporate securities owned by UK investors were *substantially* divorced from managerial control.

However, modern studies of separated ownership typically focus on the narrower class of *controlling* securities. From this mainstream viewpoint, control-light funding from bondholders or vote-less preference holders simply strengthens whatever controlling hand is wielded by dominant capitalist interests. From this perspective, it is essential to take account of differential voting rights. Equal voting rights for all shares—the modern corporate norm in some countries, including the UK and US—were then the exception rather than the rule: 58 per cent of our 337 companies restricted *some* shareholders' votes. Sometimes large holders' voting powers were limited (a practice earlier believed to protect small shareholders),[57] while a minority of preference and similar shares conferred no voting rights, or only fractional votes (a newer development which enabled insiders to cede cash-flow rights while retaining more control). One extreme case, Maple & Co., issued not only vote-less preferences but also special management shares, each with 500 times the votes of an ordinary share, so directors of this furniture company could exercise 40 per cent of the votes while owning only 3 per cent of the capital. The *Stock Exchange official intelligence* itemizes these diverse voting rights, so, if we assume that boards deployed their holdings to maximize their votes, we can calculate the board's share of the total votes. It is this figure—measuring, for most firms, *the maximum possible degree of board voting control*—which forms the basis of the following analysis. It is quite clear that many directors wanted to reduce their financial risks and stabilize their cash flows by also holding some fixed-interest,

[55] We excluded many such widely held entities: public boards (for example, the Port of London) and entirely state-guaranteed entities (for example, many Indian railways), as well as de facto colonial governments (for example, the British South Africa Company). We found one company, Lima Light Power & Tramways, with share capital of £1.35 million, whose 1910 Peruvian charter gave its (British) £1.2 million debenture holders majority board control. We excluded this anomaly, but included the few companies in which debenture holders had some votes or in which a receiver had taken control on behalf of the trustees for the debenture holders.

[56] Corley, 'Britain's overseas investments', p. 80.

[57] Hilt, 'Ownership', pp. 677–9, finds such mechanisms effective in 1820s New York; Campbell and Turner, 'Substitutes', pp. 589–92, are sceptical for 1880s Britain.

non-voting shares, so this will *over*estimate their degree of voting control, but it has the merit of establishing an upper bound.[58] This percentage is often higher than the board's portion of the share capital (for the mean company about half as high again),[59] but, where the voting rights of large shareholders were capped (as in many banks), the directors' voting power could be less than their ownership of capital.[60]

Only 16 (5 per cent) of the 337 large British quoted companies were indisputably personally controlled in the sense that the directors had more than 50 per cent of the votes (and in five of these their share was 100 per cent: no outsider had voting rights). Apart from six breweries (a sector universally acknowledged as personally owned), these companies were very diverse: Imperial Tobacco, Ellerman Lines (shipping), the Harmsworth newspaper empire, the Cardiff Railway, Linen Thread, Lister (silk), Edward Lloyd (paper/pulp), Debenhams (department stores), Steel Brothers (India merchants), and Alliance Assurance.[61] Of course, in practice not all insiders were as assiduous in retaining an absolute majority of votes: de facto one can retain control of a company with considerably less. On Alfred Marshall's view that 33 per cent was sufficient to confer control, the proportion of owner-controlled companies was 11 per cent[62] and with a 20 per cent hurdle (adopted by many later researchers) 16 per cent. Even with a 5 per cent hurdle (favoured by those desperate to diagnose continuing owner control), it was still only a minority (36 per cent) of these large quoted firms of 1911 that were owner-controlled. At the other extreme, many UK boards had negligible voting power: in 28 per cent of them—including Allsopp's Brewery, Anglo-American Telegraph, the London & North Western Railway, and Standard Bank—the directors held 1 per cent or less of the votes. The mean level of board voting control was 10.1 per cent, the company-size-weighted mean 5.5 per cent

[58] See Macrosty, *Trust movement*, pp. 110, 130, 137, 309, for indications this may be a particular problem in manufacturing. A French investment analyst visiting Swan Hunter in 1905 was informed that 41% of directors' holdings were in preferences, which carried only half the votes we allocated to them; Crédit Agricole archives, Paris, file DEEF13596/2. Similar considerations probably account for our board share for Guest Keen & Nettlefolds being higher than that calculated by Franks, Mayer, and Rossi, 'Less time', p. 598.

[59] Higher than the UK today, when the stock exchange discourages differential voting; Faccio and Lang, 'Ultimate ownership', p. 392.

[60] Within the 68% of our 337 companies that issued more than one class of shares, most (38%) did not differentiate their voting power, though 21% deprived some of the vote, while 9% gave only fractional votes. Also many companies limited the votes of large holders: 14% of the 337 (mainly in finance) had capped voting (limiting the number of shares any individual could hold, or depriving those held above the cap of the vote), while 21% (mainly domestic railways) had tiered voting (progressively reduced voting power as the number held increased). In the case of capped or tiered voting rights, the total number of votes is indeterminate, since it depends not on the (known) amount of voting capital but on its (unknown) distribution. Where directors' collective holdings exceeded the cap, we have taken the cap times the number of directors as the board's votes. This will *under*estimate the board's voting power, if no director held less than the cap and any other holders were capped. In the case of tiered voting rules, we have simply ignored the problem: that is, we have implicitly assumed that the distribution of shareholdings among the tiers was identical for directors and non-directors. If these companies' directors owned more than the average shareholder (as the data suggest), this simplification will *over*estimate the board's votes.

[61] This raises the question of how they evaded London's 'two-thirds' listing rule, which *required* vendors to sell a higher portion of shares to the public. Inspection of their LSE listing files in Guildhall Library, London, MS 18000, suggests that this was achieved by listing before the (1850s) rule, listing on a less fussy provincial exchange, post-issue buyback, and post-IPO acquisition bringing more owners on to an expanded board, but mainly by issuing non-voting shares.

[62] Marshall, *Industry*, p. 317.

Table 2. *The sectoral distribution of shareholdings and board votes, 1911*

	Companies			Median board share of	
Sector	*(no.)*	*(mean share capital £m)*	*Median no. of shareholders*	*Ownership (%)*	*Votes (%)*
Railways	78	14.8	4,750	1.0	0.9
Other utilities	44	3.0	2,700	1.8	2.0
Banks	55	5.1	3,353	2.7	2.5
Insurance	22	2.3	2,200	5.5	5.6
Other finance	23	1.8	2,450	2.2	2.8
Distribution[a]	24	1.7	2,500	6.6	8.8
Primary[b]	15	2.4	2,000	2.7	5.3
Breweries[c]	18	2.3	1,600	20.3	44.1
Manufacturing	58	2.5	4,300	8.1	12.0
Totals	337	5.7	3,000	2.5	2.8

Notes: a Includes shipping, wholesalers, retail chains, hotels, theatres, and real estate.
b Includes plantations, stock-raising and coal, iron ore, and chemical mining. Note that data were unavailable for most British-owned overseas mining enterprises (see text at n. 18).
c Most of the breweries by 1911 had more of their assets in distribution than in manufacturing.
Source: Online app S1 (board voting shares are perhaps overestimated for railways and manufacturing and underestimated for banking and insurance; see nn. 58, 60).

(giant firms naturally being less owner-controlled than merely large ones) and the median (a better measure of central tendency for this skewed distribution) only 2.8 per cent.[63] Table 2 confirms that it was quite normal for £1 million+ companies to have thousands of shareholders, holdings in railways and manufacturers being the most widely spread (column 3). Voting control by directors (column 5) shows greater variance, railways (the largest contemporary companies) having the least (a median of 0.9 per cent) and breweries the most (44.1 per cent). The extraordinarily strong board control of Britain's 'beerocracy' was contrived by quoted brewers' exceptionally high retained personal ownership stakes, magnified by their unmatched enthusiasm for issuing non-voting shares (compare columns 4 and 5).

IV

Are these figures high or low? They are certainly lower than some have suggested.[64] Yet the literature is plagued by vague priors: to some investigators, board ownership of 5 per cent decisively connotes strong residual personal control, while for others (or even for the same investigator with a different axe to grind) it is evidence of the contrary.[65] Clearly the question can only be answered comparatively: across time or space. Though statistics on other markets are sparse, it has been suggested that France was nearest to the UK in divorcing ownership from control.[66] In Germany

[63] Size-weighting measures the portion of business resources controlled; the median better indicates the representative type of business control.
[64] In all sectors, except insurance, these figures lie below the levels guesstimated by Hannah, ' "Divorce" '; and a fortiori below the levels advocated by his critics.
[65] In 1935 Alfred Sloan's General Motors—the world's largest company and Chandler's classic 'managerial' firm—had board stockholdings of 6% (or 29% including indirect Du Pont holdings); but Chandler, *Scale*, *passim*, classified *British* companies with lower board shareholdings and fewer than General Motors' seven family directors as 'personally-owned'.
[66] Hannah, ' "Divorce" ', pp. 405–13, 419–20, 426.

bearer shares remained ubiquitous, so evidence relates only to shareholders registering for AGMs; the 29 meetings so far analysed may not be representative but show levels of board control many times higher.[67] US corporations maintained full nominative registers, but disclosure was not legally required at the federal level until the 1934 Securities and Exchange Act, so comparable research would require labour-intensive (and inevitably partial) research in surviving corporate and state archives.

There is scattered evidence that in 1900 US corporate boards had higher personal ownership than their UK counterparts, in all three major quoted sectors: railroads, financials, and industrials.[68] A questionnaire survey of 100 US corporations, with between \$1.5 million and \$150 million capital in 1904–14, reported that their executives owned 18 per cent of their capital overall (with a median of 18.4 per cent and a wide range from less than 1.7 per cent in the lowest one-fifth to more than 50 per cent in the highest one-fifth of cases).[69] It is unclear how representative this sample was of quoted companies or all sectors, but these figures are much higher than ours.[70] Moreover, a significant number of Americans then had family fortunes above \$100 million and are known to have had larger corporate shareholdings than their British counterparts (no Briton even approached such extremes of plutocratic wealth).[71]

More comparisons are available for stockholder numbers. Lough's analysis of 327 US corporations of 1913 showed a lower mean number of shareholders (3,828) than recorded here (6,177) for 337 UK companies.[72] Warshow, the corporate treasurer of National Lead, after interrogating his peers in other US companies, provided more detail for larger companies.[73] If we extract comparably sized firms from our population—the largest 130 firms with an average of £12.4 million issued capital—the mean UK shareholding (£1,053 or \$5,126) is smaller than his averages for the US (\$8,630 for 78 companies in 1910, and \$8,700 for 123 companies in 1913). These statistics are too uncertainly representative to be conclusive, but leave any proposition that stocks were more widely dispersed among small shareholders in the US before 1914 distinctly lacking empirical support.

Berle and Means later showed that shareholding dispersed very rapidly in the US between 1900 and 1930 (a plausible proposition from which it is hard to detect any dissent), and they and other New Deal researchers produced the first comparably reliable evidence on officers' and directors' holdings for a clearly defined

[67] Franks, Mayer, and Wagner, 'Origins', p. 567, report a median of 26.7% director ownership in 1910, without adjustments for shareholders not registering or directors' *Tantiemen* (board profit participation rights, offering incentives similar to director shareholdings, but not voting rights). Prof. Carsten Burhop is currently examining a wider Berlin sample.

[68] Hannah, ' "Divorce" ', pp. 408–19, 421–2.

[69] Taussig and Barker, 'American corporations', pp. 12–13.

[70] Federal Trade Commission, *National wealth*, pp. 7, 145, 159, reported a lower mean of 10.7% insider ownership for 1922, and is also uncertainly representative.

[71] Rubinstein, *Men*, pp. 41, 44–6; idem, ed., *Wealth*, pp. 18–21, 54. John D. Rockefeller's wealth alone has been estimated at \$1 billion (more than the holdings of *all* directors in *all* our 337 companies) and he alone held 25% of Standard Oil (worth about \$160 million in 1911). The largest non-landed estate proved in Britain before 1914—£10.9 million (\$53 million) in 1909, with real estate holdings perhaps adding £1 million—was that of private financier Charles Morrison.

[72] Lough, *Corporation finance*, p. 37.

[73] Warshow, 'Distribution', p. 23.

Table 3. *The separation of ownership from control in the world's largest securities market (UK in 1911, US in 1935 and 1993)*

Date	*1911 (UK)*	*1935 (US)*	*1995 (US)*
n	337	1,419	4,202
MV of n/GDP %[a]	182[b]	102	95
Share of board/officers in votes (%):			
Mean	10.1	12.9	21.1
Size-weighted mean	5.5	4.2	5.9
Median	2.8	6.5	14.4

Note: a Market value of the n enumerated firms divided by GDP.
b We standardize on the ratio chosen by Holderness et al., 'Good old days', p. 451, though arguably GNP is a more appropriate denominator for cross-country comparisons: there was little difference between GDP and GNP for the US, but there was for (more multinationally-invested) Britain. Substituting GNP for GDP, the UK ratio in row 3, col. 1, falls from 182% to 167%.
Sources: Col. 1: online app. S1, tab. S4. Cols. 2 and 3: Holderness et al., 'Good old days', pp. 440, 450–1 (we have added 20% of common stock values to their 1935 figures to allow for their omission of preferred stock from their market capitalization figure; though not in 1995 when the volume of preferred stock was negligible). Bonds are included in the market capitalization figures for both countries at par; but similar relationships are found for equity capitalization alone.

US population in the 1930s, later extended to a fuller range of firms by Holderness et al.[74] If the UK already had a higher level of separation of ownership from control in 1911 than the US in the 1930s, we can securely confirm that the US was substantially 'behind' the UK. However, in such comparisons, we need to consider the varying propensity of companies to be listed. There were still in 1911 many unquoted firms (which, of course, often had levels of board voting control approaching 100 per cent), and if a higher proportion of such business assets were in publicly quoted companies in a later period and/or a different country, comparisons need to take account of this.

Yet the coverage of UK stock exchanges before 1914 was surprisingly extensive, even compared to the *late* twentieth-century US or UK. Our 337 companies alone probably accounted for a quarter of the UK's total domestic and overseas capital stock of perhaps £13 billion (which, of course, also includes the housing stock, overseas portfolio investments, government assets, unquoted firms, and smaller quoted companies).[75] In view of the non-comparability of capital stock estimates, financial economists routinely measure the *stock* of securities markets relative to (more reliably measured) national income accounting *flows*. The market capitalization of these 337 companies alone amounted to 167 per cent of UK GNP in 1911 and adding smaller UK quoted companies would give an overall ratio higher than recorded for the LSE or NYSE at the *end* of the twentieth century.[76]

Holderness et al. suggest a related method of resolving the problems of intertemporal comparisons for the US in 1935 and 1995. Because the ratio of the market values of their populations to GDP (row 2 in table 3) is in the same ballpark in 1935 and 1995, they argue that their populations are comparable: the change in managerial ownership that they measure over that period was *not* the result of increasing

[74] Means, 'Diffusion'; Berle and Means, *Modern corporation*, pp. 47–118; Gordon, 'Stockholdings'; idem, 'Ownership'; TNEC, *Distribution*; Holderness, Kroszner, and Sheehan, 'Good old days'.
[75] The market value of our companies' shares was about £2.58 billion (applying the indexes noted in n. 35, above), and their debentures would perhaps add another £0.72 billion; compare Feinstein, *National income*, pp. T104, T110; Stamp, *British incomes*, p. 404.
[76] Hannah, 'London as the global market', pp. 142–6. The slightly declining UK ratio in the twentieth century contrasts with an initially low but fast-rising US ratio.

proportions being quoted, masking underlying changes in the separation of ownership from control among onetime unquoted firms. In table 3, we have extended their methodology to include a comparison with the UK in 1911. Of course the US was much larger in 1995 than in 1935, and, a fortiori, than the UK in 1911: this is reflected in the increasing numbers of firms (row 1).[77] The firms also grew larger over time even after correcting for inflation.[78] Since in cross-section larger firms exhibit less owner-control, we might expect lower levels of owner-control as the average quoted firm became bigger. However, as comparison of columns 2 and 3 shows, the separation of ownership from control, at some point between 1935 and 1995, declined in the US.

Pursuing further Holderness et al.'s logic, we need a UK population with a market-value-to-GDP ratio in 1911 comparable to theirs. In order to achieve that (see column 1, row 2), we would have to omit many lower-ranked firms from our population (which, given that the board's voting share was inversely related to firm size, would reduce all the UK figures in the lower half of column 1).[79] However, that additional step is unnecessary, since, even without it, by most measures of central tendency in the lower half of table 3 there was already greater divorce of ownership from control in the UK in 1911 than in the US in either 1935 or 1995.

If we restrict the analysis to manufacturing—a sector generally considered the most personally controlled (other than brewing) in both countries—directors' ownership in the UK in 1911 was higher than in equivalent US firms a quarter-century later.[80] But by the mid-1930s, the largest UK manufacturing firms almost equalled the board ownership levels of equivalent US manufacturers.[81] Both British and US manufacturers rapidly reduced board ownership in the previous quarter-century. If, as seems likely, the US was on a faster downward trajectory

[77] In 1935 the US's real GDP was 3.75 times the UK's in 1911 and by 1995 it was nearly 30 times higher; Maddison, *World economy*, pp. 427–9, 466–7.

[78] Holderness et al., 'Good old days', p. 440.

[79] Contrary to the implicit assumption, national income accounts show that these economies were less capital-intensive at the end of the twentieth century than at the beginning, so a declining market capitalization/GDP ratio is compatible with a higher *portion* of capital assets being quoted over time. Nonetheless, the margins in tab. 3 for whatever adjustment is appropriate are rather large. It may seem implausible that the UK's capital stock in 1911 was substantially more securitized, in the corporate sense, than the US's decades later, but note the different nature of their economies. The UK in 1911 had much smaller agricultural and government sectors (whose capital stocks were rarely in corporate securities) than the US in 1935/1995 and was also a *proportionately* larger international corporate investor. In 1913/14 the UK accounted for 45% of foreign direct investment (FDI) but only 8% of world real GDP; by 1993 the US share of FDI was still only 26%, much nearer to its *c.* 21% share of world GDP; Maddison, *World economy*, p. 641; Jones, *Evolution*, pp. 30, 53. In 1911, the median shareholder numbers (3,000) in our 100 multinationals and free-standing companies mainly operating abroad were identical to those for all companies, and their median board voting shares only a little lower, so confining the analysis to the 237 largely domestic firms in our population would raise the median board ownership from 2.8 to 3.1.

[80] Compare Gordon, 'Stockholdings', pp. 632, 638, 646–7, with our figures in tab. 2, with or without breweries (an extensively personally-owned sector, absent from the US data).

[81] Florence, *Ownership*, pp. 196–217, examining 58 of the largest domestic British manufacturing companies (defined more restrictively than our population, as having £3 million+ share capital in 1936 and excluding steel and Scottish and Irish companies), found lower levels (mean 8.5%, median 1.9%) of board ownership than our figures in tab. 3. This is compatible with a decline in UK personal ownership in manufacturing, though some of the measured decline could derive from omissions in Florence's study or increasing use of nominee accounts. Taking Gordon's largest 54 sampled (but uncertainly representative) US manufacturers of 1935 (those with assets of \$25 million+) as roughly analogous to Florence's companies with £3 million+ capital, their average directors' and officers' stock holding had a similar mean of 8.1% (Gordon, 'Stockholdings', p. 638, does not, in his tab. IV, report the median). Jeremy, *Business history*, p. 186, reviews evidence that family ownership was not higher in Britain than in the US in the 1930s.

between 1911 and 1935,[82] British managers led the US in separating ownership from control before 1914 in manufacturing as well (if not as markedly as in other sectors).

The later levels both of stock market development and of the divorce of ownership from control shown in table 3 are higher in the US than in most other economies. Towards the end of the twentieth century, both Japan and the UK (then the second- and third-largest equities markets) registered similarly dispersed ownership patterns to those of the US, but in many other national markets high levels of personal ownership were the norm.[83] Further detailed comparisons across time are, then, superfluous. The UK had, as early as 1911, more extensively separated ownership from control not only than the US then or later, but than the UK (and, a fortiori, than the world as a whole) at the end of the twentieth century.[84] There was probably an *increase* in board ownership over the twentieth century in the UK and, in some later decades of the century, also in the English-speaking world more generally, though whether that was replicated worldwide remains an open question.[85]

The populations and methods of measurement that lead to these conclusions have some defects in common. Neither the US nor the UK data, for example, capture the influence of all large block-holders who are not directors.[86] Modern disclosure rules require fuller information on nominee, trustee, and close relatives' holdings.[87] The US figures are also for 'directors and officers', while the British figures are for board members alone (some of whom were also officers but who collectively numbered one fewer per company).[88] On the other hand, Holderness et al. took no account of preferred stock or differential voting, while our method registers higher percentages on both counts.[89] Such discrepancies could net out either way, though probably not sufficiently to subvert our broad conclusions. Certainly, in the light of our evidence for the largest stock market of 1911, and the modern evidence of the widespread global persistence (and, in some countries, increase) of personal ownership, the onus is on anyone claiming that ownership

[82] Most large British manufacturers had IPOs in the 1860s, 1880s, or 1890s; New York's industrial issue boom was from 1890 to 1914, with many issuers retaining higher board shareholdings and having smaller shareholder numbers (Hannah, ' "Divorce" ', pp. 418–19) than our population.

[83] La Porta, Lopez-de-Silanes, and Shleifer, 'Corporate ownership'; Shleifer and Vishny, 'Large shareholders'; Faccio and Lang, 'Ultimate ownership'; Morck, ed., *History*; Rajan and Zingales, 'Great reversals'.

[84] Faccio and Lang, 'Ultimate ownership', p. 379, examining 1,953 publicly traded UK firms in 1994, find 37% of companies with a 20%+ controlling shareholder, compared with only 16% of whole boards with a 20%+ share in 1911. With variously limited samples, Franks et al., 'Ownership', pp. 4025–6, show little change in median UK holdings by directors and their families in the twentieth century (3.5% in 1920, 2.2% in 1950, 2.7% in 1990), all in the same ballpark as our median of 2.8% in 1911.

[85] Hannah, ' "Divorce" ', pp. 421–2, summarizes (not clearly representative) evidence of widespread shareholding before 1914 in markets where personal ownership is now more common; see also Musacchio, 'Laws'.

[86] Compare Shleifer and Vishny, 'Large shareholders', p. 462, and text at notes 56–8 above. In their limited UK sample, Franks et al., 'Ownership', pp. 4024–7, note that the proportion of firms in which no shareholder owned 10% or more was 43% in 1920, 49% in 1950, and 40% in 1990, and also that block-holders changed over the century from insider directors to outsider institutional investors.

[87] Per contra, some later incentives to non-disclosure (for example, tax avoidance or takeover concealment) were less significant in 1911.

[88] In both countries, most of the 'officers' with large shareholdings were also directors and Holderness et al., 'Good old days', p. 458, n. 20, report 'almost identical' results whether officers are included or not.

[89] In the case of the omitted preferences, applying our method to the US data might add 1.2% for the average board; ibid., p. 450.

of quoted companies became markedly more divorced from control during the twentieth century clearly to define and support that view.

Nonetheless, otherwise well-informed commentators, even in Britain, for many years accepted what became a stylized fact for many social scientists. The later twentieth century managerial 'revolution' in which ownership was newly 'divorced' from control was thus widely described as a pervasive and cumulative global phenomenon. Such consensus rarely emerges without some corroborating facts and unguardedly receptive audiences. For example, Florence reported increasing separation of ownership from control among large *English industrial and commercial* companies in 1936–51 (when family firms were heavily taxed),[90] while Scott noted that the proportion of large *UK industrial and financial* companies that were family-controlled declined in 1976–88 (a period including the 'Big Bang' in the finance sector).[91] Franks et al. found declining board shareholdings over the twentieth century as a whole, though their small sample explicitly excluded sectors where they thought ownership was initially widely dispersed.[92] The rise of non-owning professional managers was a staple of Labour Party modernizers, arguing that capitalism was no longer the same as in the 'bad old days', though they were, necessarily, highly selective of their exemplars (coal-owners were whipping-boys of choice for historical personal ownership, ICI a favourite 'modern' corporation).[93]

None of these partial and biased observations is incompatible with the *general* twentieth-century *increase* in board voting control among UK quoted companies, suggested by our data. It was thus not difficult for the myth of constantly increasing separation to take centre stage, even in a precociously managerial national economy where no less an authority than Keynes had clearly recognized that such separation was already firmly established.[94] The main intellectual currents arguing otherwise appeared prone to tendentious special pleading, which many economists instinctively ignored.[95] Recently evidence has emerged of increases in personal ownership in a wide range of societies, including the US, Sweden, Italy, France, and, of course, in ex-communist societies.[96] Personal capitalism appears alive and well everywhere.

Erroneous generalizations rarely achieve the status of the conventional wisdom without some assistance from false perspectives of hindsight driven by the tides of history. One of the reasons why the (precociously advanced) British capitalist experience before 1914 entered oblivion was that its manifestations largely disappeared in a half-century of de-globalization driven by the compound disasters of European wars, tariff escalations, and corporate nostrifications and by nationalization programmes at home and abroad driven by an exotic mixture of socialism,

[90] Florence, *Ownership*, pp. 102–4. His omission of steel, utilities, and railways (which were nationalized in 1945–51) was necessary, given his objective of measuring change between 1936 and 1951, but excluded precisely the firms that had substantial levels of separation.
[91] Scott, 'Corporate control', p. 362.
[92] Franks et al., 'Ownership', p. 4020; see also Cheffins, *Corporate ownership*, pp. 13–17, for many more partial studies.
[93] Crosland, *Future of socialism*, pp. 1–42.
[94] Keynes, *End*, pp. 42–5.
[95] The theme of much left-leaning sociology was that statistics on increasing divorce, though superficially correct, were misleading, because the ruling class still really owned and controlled corporate business. This critical tradition experienced surprising difficulty in connecting with the reality that the separation was of long standing and perhaps being reversed.
[96] Aganin and Volpin, 'History'; Högfeldt, 'History'.

de-colonization, and technocratic dynamics (the latter promoting a different strain of managerialism). The *majority* of the companies in our 1911 population were, in fact, nationalized by British or foreign governments in the following century and were conventionally eliminated from later, retrospective studies of trends in the divorce of ownership and control in surviving stock market firms.[97]

V

The historical puzzle addressed in much of the existing literature is why British businessmen failed to appreciate the advantages of scale and scope, and the disadvantages of personal ownership, while the US pioneered the managerial revolution with impressively 'modern' dynamism. We have shown that the question that requires an answer is closer to the reverse. We will therefore generally seek the causes of these changes in vain in the existing business history literature, so it is important that the real issues now be addressed. Why have some historians not understood that the British had already massively reduced barriers to acceptance of stock exchange securitization, thus promoting the exceptional development of UK managerially controlled enterprises in the half-century before 1914? What was it about the London capital market that both gave entrepreneurs the confidence to reduce personal ownership so early and led investors to believe that directors would take reasonable account of outside shareholders' interests? What did New York correspondingly lack in the nineteenth century, but develop impressively later?

There is also a range of views about the consequences of the UK's precocious managerial revolution. It is logically possible—though Whigs and Weberians alike experience difficulties with the notion—that the British economy was *dis*advantaged by being more 'modern' (having less personal ownership) than Germany or the US. Many of our companies in the decades before 1914 were in network monopolies or oligopolistic industries in which the pressures of product market competition were muted and takeover bids posed little threat to incumbent directors. Lacking both the stick of competition *and* the carrot of personal ownership, they have plausibly been suspected of tolerating inefficiency.[98]

Other scholars have emphasized the positive aspects (social, political, and economic) of professional management separated from ownership. Yet the later *increase* in UK personal ownership was presumably driven by factors such as the growth of new entrepreneurial firms, private equity, and executive options, which, some might argue, have improved business performance. Greater personal ownership stimulated by Mrs Thatcher's ill-conceived tax breaks for family firms, on the other hand, has recently encouraged nepotistic succession and measurably weakened performance.[99] So, for those seeking an explanation of Britain's mild twentieth-century relative economic decline, our findings might be interpreted as consistent with

[97] The finance, transport, and utilities sectors (accounting for most of market capitalization on typical pre-1914 exchanges) were often omitted from long-run studies of trends in owner control.

[98] Dodgson, 'British railway'; Foreman-Peck and Millward, *Public and private ownership*; Hannah, 'Shareholders' "dog" ', pp. 234–40; N. F. R. Crafts, 'British relative economic decline revisited', Centre for Economic Policy Research, discussion paper, 8384 (2011), p. 6.

[99] N. Bloom and J. van Reenen, 'Inherited family firms and management practices: the case for modernising the UK's inheritance tax', Centre for Economic Performance, London School of Economics, working paper (2006).

long-run negative agency problems dominating the positive professionalization advantages. However, many early generalizations about industrial systems and varieties of capitalism have foundered because casually diagnosed international differences have proved illusory or transitory.[100] Alternative micro-economic models of governance/performance interactions, acknowledging that there is great variety *within* nations, may offer a better way forward for understanding the chequered evolution of managerial capitalism.[101]

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[100] Hannah, 'Strategic games'; R. N. Langlois, 'Business groups and the natural state', Univ. of Connecticut, Department of Economics, working paper, 2010–29 (2010).

[101] Campbell and Turner, 'Substitutes'; Bayer and Burhop, 'Corporate governance'; Bloom and van Reenen, 'Measuring and explaining'; J. Foreman-Peck, and L. Hannah, 'Corporate governance', paper delivered to Eurhistock conference, Judge Business School, Cambridge (8 April 2010).

Footnote references

Acheson, G. G., Hickson, C. R., and Turner, J. D., 'Does limited liability matter? Evidence from nineteenth-century British banking', *Review of Law and Economics*, 6 (2010), pp. 247–73.

Aganin, A. and Volpin, P., 'The history of corporate ownership in Italy', in R. K. Morck, ed., *A history of corporate governance around the world: family business groups to professional managers* (Chicago, Ill., 2005), pp. 325–65.

Alford, B. W. E., *W. D. & H. O. Wills and the development of the UK tobacco industry 1786–1985* (1973).

Andras, H. W., ed., *Historical review of life assurance in Great Britain and Ireland* (1912).

Banker's almanac 1912 (1912).

Bassett, H. H., ed., *Investor's year book* (1907, 1909–15) (variant titles include *Investor's shilling year book* and *Investor's four shilling year book*; editor's name omitted in later editions).

Bayer, C. and Burhop, C., 'Corporate governance and incentive contracts: historical evidence from a legal reform', *Explorations in Economic History*, 46 (2009), pp. 464–81.

Berle, A. A. and Means, G. C., *The modern corporation and private property* (New York, 1933).

Bloom, N. and van Reenen, J., 'Measuring and explaining management practices across firms and countries', *Quarterly Journal of Economics*, CXXII (2007), pp. 1351–408.

Boughey, D., 'British overseas railways as free-standing companies, 1900–1915', *Business History*, 51 (2009), pp. 484–500.

Boyce, G., '64thers, syndicates, and stock promotions: information flows and fund-raising techniques of British shipowners before 1914', *Journal of Economic History*, 52 (1992), pp. 181–205.

Campbell, G. and Turner, J. D., 'Substitutes for legal protection: corporate governance and dividends in Victorian Britain', *Economic History Review*, 64 (2011), pp. 571–97.

Chandler, A. D., *Scale and scope: the dynamics of industrial capitalism* (Cambridge, Mass., 1990).

Chandler, G., *Four centuries of banking as illustrated by the bankers customers and staff associated with the constituent banks of Martin's Bank Limited volume 1 The Grasshopper and the Liver Bird, Liverpool and London* (1964).

The Chartered Institute of Secretaries 1891–1951: a review of sixty years (Cambridge, 1951).

Cheffins, B. R., *Corporate ownership and control: British business transformed* (Oxford, 2008).

Cheffins, B. R. and Bank, S., 'Is Berle and Means really a myth?', *Business History Review*, 83 (2009), pp. 443–74.

Church, R. A., *The history of the British coal industry, 3: 1830–1914, Victorian pre-eminence* (Oxford, 1986).

Corley, T. A. B., 'Britain's overseas investments in 1914 revisited', *Business History*, 36 (1994), pp. 71–88.

Crosland, C. A. R., *The future of socialism* (rev. edn. 1964).

Dodgson, J., 'New, disaggregated, British railway total factor productivity growth estimates, 1875 to 1912', *Economic History Review*, 64 (2011), pp. 621–43.

Essex-Crosby, A., 'Joint stock companies in Great Britain, 1890–1930', (unpub. M.Sc. dissertation, London School of Economics, 1937).

Faccio, M. and Lang, L. H. P., 'The ultimate ownership of western European corporations', *Journal of Financial Economics*, 65 (2002), pp. 365–95.

Fear, J. and Kobrak, C., 'Banks on board: German and American corporate governance, 1870–1914', *Business History Review*, 84 (2010), pp. 703–36.

Feinstein, C. H., *National income, expenditure and output of the United Kingdom, 1855–1965* (Cambridge, 1972).
Florence, P. S., *Ownership, control and success of large companies: an analysis of English industrial structure and policy, 1936–1951* (1961).
Foreman-Peck, J. and Millward, R., *Public and private ownership of British industry, 1820–1990* (Oxford, 1994).
Franks, J., Mayer, C., and Rossi, S., 'Spending less time with the family: the decline of family ownership in the UK', in R. K. Morck, ed., *A history of corporate governance around the world: family business groups to professional managers* (Chicago, Ill., 2005), pp. 591–611.
Franks, J., Mayer, C., and Rossi, S., 'Ownership: evolution and regulation', *Review of Financial Studies*, 22 (2009), pp. 4009–56.
Franks, J., Mayer, C., and Wagner, H. F., 'The origins of the German corporation—finance, ownership and control', *Review of Finance*, 10 (2006), pp. 537–85.
Fulford, R., *Five decades of B.E.T.: the story of the British Electric Traction Company, Limited* (1946).
Gordon, R. A., 'Stockholdings of officers and directors in American industrial corporations', *Quarterly Journal of Economics*, L (1936), pp. 622–57.
Gordon, R. A., 'Ownership by management and control groups in the large corporation', *Quarterly Journal of Economics*, LII (1938), pp. 367–400.
Gourvish, T. R. and Wilson, R. G., *The British brewing industry 1830–1980* (Cambridge, 1994).
Green, D. R., Owens, A., Maltby, J., and Rutterford, J., eds., *Men, women, and money: perspectives on gender, wealth, and investment 1850–1930* (Oxford, 2011).
Hannah, L., *The rise of the corporate economy* (2nd edn. 1983).
Hannah, L., 'The "divorce" of ownership from control from 1900 onwards: re-calibrating imagined global trends', *Business History*, 49 (2007), pp. 404–38.
Hannah, L., 'Pioneering modern corporate governance: a view from London in 1900', *Enterprise and Society*, 8 (2007), pp. 642–86.
Hannah, L., 'Strategic games, scale, and efficiency, or Chandler goes to Hollywood', in R. Coopey and P. Lyth, eds., *Business in Britain in the twentieth century* (Oxford, 2009), pp. 15–47.
Hannah, L., 'J. P. Morgan in London and New York before 1914', *Business History Review*, 85 (2011), pp. 113–50.
Hannah, L., 'The shareholders' "dog" that did not bark: contested takeover bids in long-run comparative perspective', in D. R. Green, A. Owens, J. Maltby, and J. Rutterford, eds., *Men, women, and money: perspectives on gender, wealth, and investment 1850–1930* (Oxford, 2011), pp. 228–47.
Hannah, L., 'London as the global market for corporate securities before 1914', in Y. Cassis and L. Quennouëlle-Corre, eds., *Financial centres and international capital flows in the nineteenth and twentieth centuries* (Oxford, 2011), pp. 126–60.
Hausman, W. J., Hertner, P., and Wilkins, M., *Global electrification: multinational enterprise and international finance in the history of light and power, 1878–2007* (New York, 2008).
Heller, M., *London clerical workers, 1880–1914* (2011).
Hilt, E., 'When did ownership separate from control? Corporate governance in the early nineteenth century', *Journal of Economic History*, 68 (2008), pp. 645–85.
Högfeldt, P., 'The history and politics of corporate ownership in Sweden', in R. K. Morck, ed., *A history of corporate governance around the world: family business groups to professional managers* (Chicago, Ill., 2005), pp. 517–80.
Holderness, C. G., Kroszner, R. S., and Sheehan, D. P., 'Were the good old days that good? Changes in managerial stock ownership since the Great Depression', *Journal of Finance*, 54 (1999), pp. 435–69.
Jeremy, D. J., *Capitalists and Christians: business leaders and the churches in Britain, 1900–1960* (Oxford, 1992).
Jeremy, D. J., *A business history of Britain, 1900–1990s* (Oxford, 1998).
Jones, G., *British multinational banking 1830–1990* (Oxford, 1993).
Jones, G., *The evolution of international business: an introduction* (1996).
Keynes, J. M., *The end of laissez-faire* (1926).
La Porta, R., Lopez-de-Silanes, F., and Shleifer, A., 'Corporate ownership around the world', *Journal of Finance*, 54 (1999), pp. 471–517.
Lough, W. H., *Corporation finance* (New York, 1914).
Lowenfeld, H., *All about investment* (1909).
Macrosty, H. W., *The trust movement in British industry* (1907).
Maddison, A., *The world economy: historical statistics* (Paris, 2006).
Marchildon, G. P., 'Promotion, finance and mergers in Canadian manufacturing industry, 1885–1918' (unpub. Ph.D. thesis, London School of Economics, 1990).
Marshall, A., *Industry and trade* (4th edn. 1923).
Means, G. C., 'The diffusion of stock ownership in the United States', *Quarterly Journal of Economics*, XLIV (1930), pp. 561–600.
Michie, R. C., 'The finance of innovation in late Victorian and Edwardian Britain: possibilities and constraints', *Journal of European Economic History*, 17 (1988), pp. 491–530.
Morck, R. K., ed., *A history of corporate governance around the world: family business groups to professional managers* (Chicago, Ill., 2005).

Musacchio, A., 'Laws versus contracts: shareholder protections and ownership concentration in Brazil, 1890–1950', *Business History Review*, 82 (2008), pp. 445–73.
Palmer, F. B., *Company law: a practical handbook for lawyers and business men* (9th edn. 1911).
Payne, P. L., 'The emergence of the large-scale company in Great Britain 1870–1914', *Economic History Review*, 2nd ser., XX (1967), pp. 519–42.
Piketty, T., 'On the long-run evolution of inheritance: France 1820–2050', *Quarterly Journal of Economics*, 26 (2011), pp. 1071–1131.
Pitman, I. and Sons, *Pitman's where to look* (5th edn. 1912).
Porter, A., *Victorian shipping: business and imperial policy* (Woodbridge, 1986).
Quail, J., 'The investment of the masses', *Contemporary Review*, 496 (1907), pp. 539–46.
Railway year book 1912 (1912).
Rajan, R. J. and Zingales, L., 'The great reversals: the politics of financial development in the twentieth century', *Journal of Financial Economics*, 69 (2003), pp. 5–50.
Reckitt, B. N., *A history of Reckitt & Sons Ltd* (1951).
Rubinstein, W. D., ed., *Wealth and the wealthy in the modern world* (1980).
Rubinstein, W. D., *Men of property: the very wealthy in Britain since the industrial revolution* (1981).
Rutterford, J., 'The shareholder voice: British and American accents, 1890–1965', *Enterprise and Society*, August (2011).
Rutterford, J., Green, D. R., Maltby, J., and Owens, A., 'Who comprised the nation of shareholders? Gender and investment in Great Britain, *c.* 1870–1935', *Economic History Review*, 64 (2011), pp. 157–87.
Schmitz, C. J., *The growth of big business in the United States and western Europe, 1850–1939* (Cambridge, 1993).
Scott, J., 'Corporate control and corporate rule: Britain in an international perspective', *British Journal of Sociology*, 41 (1990), pp. 351–73.
Scott, J. and Griff, C., *Directors of industry: the British corporate network, 1904–76* (Oxford, 1984).
Scott, J. and Hughes, M., *The anatomy of Scottish capital: Scottish companies and Scottish capital, 1900–1979* (1980).
Scoville, J. and Sargent, N., *Fact and fancy in the TNEC monographs* (New York, 1942).
Seltzer, A. J. and Frank, J., 'Promotion tournaments and white collar careers: evidence from Williams Deacon's Bank, 1890–1941', *Oxford Economic Papers*, 59 (2007), pp. i49–i72.
Shannon, H. A., 'The first five thousand limited liability companies and their duration', *Economic History*, 2 (1932), pp. 396–424.
Shaw, C., 'The large manufacturing employers of 1907', *Business History*, 25 (1983), pp. 42–60.
Shleifer, A. and Vishny, R. W., 'Large shareholders and corporate control', *Journal of Political Economy*, 94 (1986), pp. 461–88.
Stamp, J. C., *British incomes and property: the application of official statistics to economic problems* (Westminster, 1916).
Stock Exchange official intelligence 1912 (1912).
Taussig, F. W. and Barker, W. S., 'American corporations and their executives: a statistical inquiry', *Quarterly Journal of Economics*, XL (1925), pp. 1–51.
Temporary National Economic Committee (TNEC), *The distribution of ownership in the two hundred largest non-financial corporations*, monograph no. 29 (Washington. D.C., 1940).
Warshow, H. T., 'The distribution of corporate ownership in the United States', *Quarterly Journal of Economics*, XXXIX (1924), pp. 15–38.
Worswick, G. D. N. and Tipping, D. G., *Profits in the British economy 1909–1938* (Oxford, 1967).

Official publication
Federal Trade Commission, *National wealth and income* (Washington, D.C., 1926).

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Appendix S1. The largest quoted companies of 1911.

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