Individual investors and local bias in the UK: 1870-1935

Janette Rutterford
Department of Accounting and Finance, The Open University Business School, UK.
Email: j.rutterford@open.ac.uk

Dimitris P. Sotiropoulos
Department of Accounting and Finance, The Open University Business School, UK.
Email: dimitris.sotiropoulos@open.ac.uk

Carry van Lieshout
School of Geography, University of Nottingham, UK.
Email: Carry.Van-Lieshout@nottingham.ac.uk

Abstract: The paper examines the long run evolution of local bias by UK investors over almost seven decades between the 1870s and the 1930s. It uses a very large sample of nearly 30,000 shareholders based on 197 sets of share records, a large and representative database of the investor population across sectors and time. It investigates the structure and the evolution of local investment preference between shareholders and the companies in which they invested as measured by geographical distance between where investors lived and the firm's registered office, or the nearest stock exchange. The paper also examines how geographical proximity, which can be viewed as a proxy for informal trust, was affected by corporate governance and corporate performance. The main findings highlight the importance of informal trust relationships for the development of capital markets and the critical role of London, as both economic and financial centre, on investor decision-making. The size of the firm, the size of individual shareholdings and the number of stock exchanges that the security was listed on seem to have an influence on local bias. On the other hand, investors were relatively risk averse only in relation to debentures, and saw high dividend yield as compensation for parting with local bias for public and listed securities.

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1. Introduction

This paper focuses on geographical investor dispersion and local investment bias in the UK, using data from a large sample of individual investors and covering a historical period of nearly seven decades between the 1870s and the 1930s. It aims to shed more light on this relatively under-researched theme in the history of share ownership. While local investment bias is a standard theme in contemporary financial studies,[1] there is little comparable research in the context of UK economic history.[2]

From the second half of the nineteenth century, after the introduction of limited liability in 1856 (and its extension in 1862), the UK experienced a widening of participation in financial investment. A series of stylized facts have been highlighted in relevant discussions and debates, such as the developed character of UK stock exchanges, the rise of listed companies, the wide dispersion of shareholdings and the so-called gradual divorce of ownership from control. Hitherto, the majority of relevant research has focused on ownership concentration and control by insiders. This paper, by exploring the geographical distribution of shareholders as a whole in relation to firms' headquarters, and not just large shareholders or directors, aims to fill this gap in the literature and to address the extent of local investment preference, changes over time and differences across firms, as well as possible explanations for these trends related to corporate governance and performance.

2. Local investment preference in the context of the UK history of corporate finance

One possible theoretical framework for the structural factors that influence financial development is the so-called Legal Origins Theory or 'law matters' thesis. The initial idea goes back to La Porta et al., who carried out a comparative study between countries with different legal origins with the perspective of the contractual view of the firm. They posited that 'legal protection of outside investors limits the extent of expropriation of such investors by corporate insiders, and thereby promotes financial development'.[3] There are basically two different theoretical insights underpinning this

[1] Seasholes and Zhu, 'Individual investors'; Petersen and Rajan, 'Does distance matter'; Grinblatt and Keloharju, 'Distance, language, and culture'.
[2] With the exception of Franks et al., 'Ownership'. From our point of view, local investment bias is an interesting question in its own right but it is also related to the discussion with regard to the managerial revolution and could be addressed in the context of weak UK investor protection.
[3] La Porta et al., 'Law and finance'; idem. 'Economic consequences', p. 285. For a discussion of the theory of the firm, see Jensen and Meckling, 'Theory of the firm', and Hart, *Firms*.

argument.[4] First, in the face of informational asymmetries and monitoring costs, minority investors are willing to pay a higher price to buy corporate securities if formal legal protection from insiders is strong and reliable. Minority shareholders will be more confident in their investments and capital will flow more easily to firms. As a result, the historical outcome of legal protection of shareholders would be a larger number of listed firms and more valuable stock markets than would be the case without such legal protection. Second, large and dominant shareholders will need less capital to efficiently monitor managers and thus firms would be expected to have more diffuse ownership. In brief, given that there are private benefits of corporate control, strong legal protection can secure both blockholders against expropriation by managers and minority holders against expropriation by insiders. All in all, law definitely matters, heavily affecting the structure of the financial system.

A considerable number of studies have addressed the above ubiquitous argument, suggesting that the 'law matters' thesis cannot adequately describe the historical diversity of financial development across different countries. From this analytical viewpoint, there are *functional substitutes* for law that could be equally effective (if not more so) in protecting investors. For example, Rajan and Zingales have argued that some historical and cross-country differences in financial development can be explained by the presence of incumbents who oppose financial development (and investor protection) because it breeds competition.[5] Mayer and Franks et al. have suggested that informal trust relations are as important in financial development as more formal legal arrangements.[6] The role of social norms, financial self-regulatory institutions and culture have also been offered as critical factors for investor protection and as genuine substitutes for the law.[7] In practice, financial reality can be quite complex 'because legal rules may sometimes be embedded in a matrix of norms and conventional practices that all interact with and reinforce each other'.[8]

The historical experience of the UK has cast additional doubt on the 'law matters' thesis. Despite the fact that the UK has been, and is, a common law country, a number of scholars in economic history share the idea that, at least until the second half of the twentieth century, the UK did not qualify as a protective jurisdiction for minority or outside investors.[9] Given the developed character of UK stock exchanges,

[4] See La Porta et al., 'Law and finance', p. 1145; Mayer, 'Trust in financial markets', p. 620; Cheffins, 'Does law matter', p. 462; Coffee, 'Do norms matter', p. 2157.
[5] Rajan and Zingales, 'Great reversal'.
[6] Mayer, 'Trust in financial markets'; Franks et al., 'Ownership'.
[7] Coffee, 'Do norms matter'; Cheffins, *Corporate ownership*; Cheffins, 'Does law matter?'; and Stulz and Williamson, 'Culture, openness, and finance'.
[8] Coffee, 'Do norms matter', p. 2156.
[9] Cheffins, 'Does law matter?'; Campbell and Turner, 'Corporate governance'; Franks et al., 'Ownership'.

the rise of listed companies, the wide dispersion of shareholdings, and the gradually decentralized pattern of share ownership at least from the late Victorian era, the 'law matters' thesis does not seem to offer an adequate explanation of UK financial developments. A number of follow-up studies have attempted to shed more light on this question.

Cheffins has argued that weak legal protection of outsiders was substituted by 'alternative institutional safeguards' supporting demand for small minority holdings in public companies.[10] Foreman-Peck and Hannah also stress the growing number of small scale passive shareholders in late Victorian and Edwardian Britain but, contrary to Cheffins, they argue that the 'evolution of managerial control in the UK was substantially completed before 1914'.[11] Using a sample (of over 300 firms) of the largest UK public companies in 1911, Foreman-Peck and Hannah estimate that directors personally did not own more than 3.5 per cent of the shares, also arguing that a higher return on equity was used as a means of attracting a wider shareholding.[12] Campbell and Turner also make a similar point. Based on a sample of 800 publicly traded companies in the early 1880s, they offer evidence that dividends and informal trust mechanisms played some role in protecting outside investors in an inadequate legal environment.[13] Acheson et al., using data for 890 share records in the second half of the nineteenth century, provide evidence that ownership was separated from control as early as the Victorian era.[14] Franks et al., collecting data for UK firms in 1920 (53 companies) and 1950 (56 companies) also argue that investor protection had little impact on dispersion of ownership.[15]

These findings run contrary to the 'law matters' thesis from a number of different perspectives. They mostly focus on the relationship between managers and individual blockholders or, less often, on the dispersion of ownership. From the above-mentioned literature only Franks et al. discuss the spatial diffusion of ordinary investors, stressing a rather extraordinary finding: for a sample of 26 companies in 1910 (with an average number of shareholders of 320[16]), the proportion of investors living within six miles of firms' headquarters is 56 per cent.[17] This result clearly indicates strong local biases in individual investor preferences, a phenomenon which

[10] Cheffins 'Does law matter?', p. 476.
[11] Foreman-Peck and Hannah, 'Managerial revolution', p. 2; idem., 'Divorce of ownership from control', p. 544; On the other hand, Cheffins argues that the so-called managerial revolution (separation of ownership from control) did not take place before the second half of the twentieth century in the UK. (Cheffins, *Corporate ownership*, p. 252).
[12] Foreman-Peck and Hannah, 'Managerial revolution'; idem., 'Divorce of ownership from control'.
[13] Campbell and Turner, 'Corporate governance'.
[14] Acheson et al., 'Corporate ownership'.
[15] Franks et al., 'Ownership'.
[16] This compares, for example, with an average number of shareholders of 6,177 for the 337 large UK registered companies studied by Foreman-Peck and Hannah, 'Managerial revolution', p.1233.
[17] Franks et al., 'Ownership', p. 4041.

(under different scale and terms) still appears in contemporary financial markets.[18] For this contemporary research, 'local' investment is defined as shares 'being headquartered near where an investor lives'.[19]

This paper focuses on geographical investor dispersion and local investment bias in the UK. It uses data from a large sample of individual investors and covers a historical period of nearly seven decades between the 1870s and the 1930s. Local investment bias is a relatively under-researched theme in the history of share ownership. This paper, by exploring the spatial distribution of shareholders as a whole, and not just large shareholders or directors, aims to fill this gap in the literature and to address the extent of local bias, changes over time and differences across firms, as well as possible explanations for these trends.

3. The shareholder database

The study of the patterns of local preference (that is, geographical dispersion) of individual share ownership for the nearly seven decades between the 1870s and the 1930s requires a careful sampling of shareholder and stockholder records. The records used in this paper were collected and sampled with two broad aims in mind: first, to include companies from different sectors that reflected the range of investment opportunities available to potential investors; second, to collect information about individuals that reflected the broad spectrum of those who held shares in these companies.[20] The resulting sample includes 243 share records covering a variety of industry sectors, sizes (both in terms of issued nominal capital and of number of shareholders), longevity, location of operations (domestic, foreign, or colonial), type of securities available (ordinary, preference, fixed-interest), and status of companies (private/public).[21] Particular emphasis was put on the geographical variation of the

[18] Seasholes and Zhu, 'Individual investors'; Petersen and Rajan, 'Does distance matter'; Grinblatt and Keloharju, 'Distance, language, and culture'.

[19] Seasholes and Zhu, 'Individual investors', p. 1987. The same definition is also used in economic history: Franks et al., 'Ownership'; Campbell and Turner, 'Corporate governance'; Cottrell, 'Industrial finance', p. 91.

[20] The shareholding data used in this paper is based on data collected under the Economic and Social Research Council project: 'Women investors in England and Wales, 1870-1930' (award no. RES-000-23-1435). A more detailed description of the sampling methods can be found in Rutterford et al., 'Researching shareholding', pp. 11-19 and idem., 'Who comprised'. The sample in this paper extends the database by additionally collecting a series of key corporate performance and governance variables at the firm level.

[21] Sectors are agriculture (tea, rubber, coffee, sugar, tobacco), commercial (breweries, hotels, retail), manufacturing (engineering, steel, food, lighting), financial (banks, insurance, investment trusts), extractive (iron, coal, oil, gold), transport and communications (railways, tramways, telegraph, shipping), and utilities (gas, electricity, water). The sample was weighted by sector to reflect the range of investment opportunities available rather than represent their proportion of investment at the time,

companies, securing a regional mix of operations in England and Wales as well as a mix of domestic, foreign and empire operations.[22] In this study, the observational unit is the individual investor. In order to achieve a representative population of industries and company sizes as available to potential investors at the time, smaller and unlisted companies were also included in the sample, for which less information was available than for the larger and listed companies. As a result, some corporate performance and governance variables were not available for all of the firms in our sample. The panel (a) of Table 1 provides details of our full sample. Panels (b) and (c) are subsamples with more information of corporate performance and governance but with less individual observations. Regression analysis in sections V and VI that examines the determinants of local investment bias is based on all three subsamples.

The shareholding records were derived from a company's Form E – an annual statement that companies were required to file under the Companies Acts 1856 & 1862. The Form Es are held either at The National Archives or at Companies House and include a company's detailed equity capital structure as well as a register of all shareholders (including their name, address, occupation or marital status, and the amount of the holding). They were required to be filed within 28 days of a company's financial year end. Our sample includes, where available, one Form E per decade for each company, preferably taken at the start of the decade.[23] For eight of the companies the full range from the 1870s to the 1930s was available. However, in order to include a mix of longevity and sectors – some of which, such as the automotive and oil industries, only emerged towards the end of our period – for the majority of companies we have a shorter range.[24] A full coverage of all shareholdings was not feasible, as the growth of shareholding over the course of the period meant that the registers grew increasingly large over time. Particularly by the 1920s and 1930s some of the larger companies, such as Barclays and Anglo-Persian Oil, had shareholder registers of over 30,000 holders. In order to be able to cover a wide range of companies and years we sampled the shareholdings using random letter cluster

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otherwise the majority of the sample would have been drawn from railway companies and government securities. See Rutterford et al., 'Researching shareholding', pp. 9-11.

[22] This condition is important for the current study. By domestic, foreign or colonial, we mean firms registered in England or Wales but with domestic, foreign or colonial operations.

[23] The choice of early years in each decade was to allow cross referencing with census data, collected in the first year of each decade. A complication was that there were different formats for the Form E's: some companies kept separate shareholder lists for each of their securities and others submitted a joint record. In the case of separate registers we sampled for each list (e.g. creating a separate sample for ordinary and preference shares) while for joint registers we sampled the shareholders once and collected both security types as separate shareholdings.

[24] In order to be able to analyse change over time within as well as between companies, in all but one case (Tempeh Java Rubber Plantation) companies that had at least two shareholding records a decade apart were selected. The distribution of share registers over the period reflects the rise of the total number of securities available on the stock market: for the period 1870s-1900 we have 57 registers, while the period 1900-1930s includes 140. This is a total of 197 share records for which we have distance information out of a total of 243 share records in the original sample.

sampling. This resulted in samples of between 50 and 195 shareholders per share record.[25]

The key variable for our study is the distance between shareholders' residence and companies registered headquarters. As a result, we only included in our sample shareholders for whom we were able to determine their location, leaving us with a set of 29,082 holdings spread out over 197 share registers, out of a sample total of 243, across different points in time between 1870 and 1930 (see panel (a) of Table 1 for a sectoral description of our full sample).[26] Using the geographic information system ArcGIS we plotted the shareholders' addresses and calculated the distances between their residential locations and those of the company's registered office, the London Stock Exchange, and the nearest local stock exchange that listed the security.[27]

For the companies in our sample we additionally collected some key performance and governance variables (see the Appendix) to be used in our regression analysis in section V. These variables appear as common regressors in related studies. As already mentioned, this type of information was not available for all the firms in our sample. For our full sample in Table 1a we were able to sample the *age* of the company at the time of the investment (calculated by subtracting the year of incorporation from the register's date); the *size* of the company either based on the number of shareholders or issued nominal capital; the presence of *uncalled capital*; the *nominal value of the share*; the *number of stock markets* on which the security was listed; and the nominal *value of individual investment*. The majority of the information was available on the Form E and has been cross-checked with the Stock Exchange Official Intelligence (SEOI).

[TABLE 1 NEAR HERE]

Panel (b) of Table 1 summarizes a subsample of panel (a) that additionally contains information about the *number of directors* in charge of the company in the year of the sampled share register and the titles they held (if any); the value and type of shares that a shareholder was required to hold in order to qualify as a director (*directors' qualifications*); and the *voting structure* of the body of shareholders, which

[25] In order to achieve a reflection of the broad spectrum of shareholders of a company we sampled shareholders from at least three random letters of the alphabet (to reduce the likelihood of sampling directors' families) and starting at a random page within a letter (many companies kept records that started with the existing shareholders and added new shareholders at the end of the letter section).
[26] The total number of shareholdings available was 30,864. In 876 cases the address was left blank, and an additional 570 addresses were either incomplete, ambiguous, or illegible. A further 336 addresses were not located in Britain (including those in Ireland for the whole of our period), which left a total of 29,082. We have included shareholders with a Scottish address in this analysis.
[27] For the purposes of this paper, distance was calculated in a straight line, not taking into account roads, modes of transport or different connections.

could either be linear (votes reflected shares) or graduated (up to 10 shares 1 vote, between 10 and 100 shares 2 votes etc.). This additional corporate governance information was only available for companies listed in the SEOI, and as a result these factors can only be tested on a subsection of our data (panel (b) of Table 1).

Panel (c) of Table 1 describes another subsample which further includes *price* and *dividend yields* of each security during the year sampled and over the previous 3 years. This was based on the price and yield stated in the December issue of the Investor's Monthly Manual (IMM). Where this information was unavailable in the IMM but was listed in the SEOI we have included the SEOI value.[28] Panel (c) in Table 1 summarizes a sample which is rich in information on corporate performance and governance variables but which contains less observations on individual shareholders and is without any firms in the first two decades (1870s and 1880s) of our period of investigation. A detailed description of all these variables and the sources can be found in the Appendix to this paper.

4. Local investment bias and trust networks

Table 2 shows the distance between the residence of individual investors and the registered headquarters of the company in which they have invested. Our findings, which cover nearly seven decades between 1870s and 1930s, reveal the same local biases[29] as those reported by Franks et al. for their 1910 sample.[30] The local investment bias is indicated by the fact that the median distance is significantly lower than the mean in all cases. In other words, the geographical distribution of investors around firms' headquarters presents a strong positive skewness indicating a concentration around headquarters. This local investment preference persists in all security types or sectors, as shown in the rows of Table 2. Investors' geographical concentration around firms' headquarters is also captured by the last three columns of Table 2 that calculate the percentage of investors who lived within a small radius of firms' headquarters. Victorian and Edwardian investors tilted their savings towards local firms to a significant extent: about 40 per cent of them on average lived within 25km of the firm's registered office and about 25 per cent within a distance of 6km. While this tendency was similar across security types and sectors, in Table 2 the overall geographical concentration was noticeably higher for the holders of private

[28] In the cases where both were available these were generally very similar values – however IMM was preferred.
[29] As explained above, we have to highlight that the term 'local bias' is a theoretical concept referring to the concentration of investors around firms' registered headquarters. It does not refer to any statistical bias in our sample.
[30] Franks et al., 'Ownership'.

and unlisted securities (debentures usually fell into this category) and investors in utilities (which all had domestic, regional spheres of operation).[31]

[TABLE 2 NEAR HERE]

We calculate that the average concentration of shareholders within 10km of firms' headquarters was 30.8 per cent for the whole period between the 1870s and the 1930s. This estimate is considerably lower than the average number of 56 per cent offered by Franks et al. for their 1910 sample (for the same distance: 6 miles), which contains only firms listed on the LSE.[32] In our sample, about 20 per cent of owners of LSE-listed shares in the 1910s lived within a range of 10km; this calculation differs significantly from Franks et al.'s 56 per cent figure.[33] In our view, Franks et al. overestimate local bias because their sample contains small firms with an average total of 320 shareholders (compared with Foreman-Peck and Hannah's estimate of 6,177 for 337 companies in 1911).[34] As we show in section V below, there is a strong negative relationship between local bias and firm size. Thus, a sample with small-sized firms is expected to have a higher local bias in the geographical concentration of their investors.

According to the literature on local bias, local preference in investment choice is the result of individuals trying to overcome informational asymmetries or even paucities of information.[35] If investors lived close to headquarters, many of them 'would have had personal knowledge of the proprietors and their businesses or would at least have been personally familiar with the business environment in which the company is operating'.[36] In the above-mentioned context of inadequate legal protection of outsiders during the period under investigation, local investment bias could be expected to substitute for the lack of formal security for investors. Franks et al. additionally argue that local investment preference is a clear sign of the establishment of an 'informal trust relationship' between ordinary investors and firm directors.[37] Local investment bias can thus be seen as an early form of risk reduction, achieved by developing special relationships with the firm or participating in the already existing local business networks around directors. Given the lack of formal

[31] Rutterford et al., 'Who comprised', p. 187.
[32] Franks et al., 'Ownership', p. 4041.
[33] Franks et al., 'Ownership', p. 4041.
[34] Franks et al., 'Ownership', p. 4010; Foreman-Peck and Hannah, 'Managerial revolution', p. 1223. The latter also mention that the numbers of shareholders ranged widely: 'from only 170 [...] up to 79,400 [...]' (ibid.).
[35] Petersen and Rajan, 'Does distance matter', p. 2533; Seasholes and Zhu, 'Individual investors', pp. 1987-8; Cheffins, *Corporate ownership,* p. 42.
[36] Cheffins, *Corporate ownership,* p. 42.
[37] Franks et al., 'Ownership', p. 4040. For a similar point see also Campbell and Turner, 'Corporate governance', and Petersen and Rajan, 'Does distance matter'.

protection, local bias could possibly explain the rise in demand for corporate securities, if geographic proximity were seen as a means of curbing insider opportunism. This is evident in the case of the holders of private and unlisted securities where information asymmetries were relatively higher due to the illiquid character of these securities (see Table 2). For these securities, almost 50 per cent of investors lived within 25km of the company's registered office and almost 35 per cent of them within 6km.

There is a growing literature emphasizing the role of trust in financial transactions.[38] Traditionally the concept of trust has been associated with discussions around 'social capital' and its economic implications.[39] In the light of these debates, the term 'trust' can also take an additional twist: it can signify non-calculative shared norms, values and modalities of action that promote economic cooperation.[40] Regardless of investors' attitudes towards market asymmetries, local bias may also be the outcome of a particular investment culture which may have favoured local security holdings for reasons that are not necessarily explained by cost-benefit analysis. For instance, in the Arnold Bennett novel *Anna of the Five Towns*, first published in 1902, we find the following description of the portfolio of local securities that Anna's father had bought with his dead wife's inheritance, and which he was handing over to Anna on her 21st birthday:

> He was proud. They were the finest in the market, the aristocracy of investments, based on commercial enterprises of which every businessman in the Five Towns knew the entire soundness. They conferred distinction on the possessor, like a great picture or a rare volume. They stifled all questions and insinuations. Put before a jury of the Five Towns as evidence of character, they would almost have exculpated a murderer.[41]

The passage above may capture the investment spirit of the time. The father placed his trust in local firms for two separate reasons. First, he was as sure about their economic soundness as any other local businessman. This is in line with the standard explanation that investors tilted their portfolios towards local firms to protect themselves against significant market asymmetries and related manipulation by insiders. At the same time, the passage also reveals a possible second element in local

[38] To mention but a few: Lamoreaux, 'New England case'; Becht et al., 'Shareholder activism'; Petersen and Rajan, 'Does distance matter'; Grinblatt and Keloharju, 'Distance, language, and culture'; Guiso, Sapienza, and Zingales, 'Trusting'.
[39] Despite the enormous literature on trust and social capital, there is no general agreement about the content of these terms and the differences become even more striking among different disciplines in social sciences. For a summary of relevant viewpoints see: Mayer, 'Trust in financial markets', Dasgupta and Serageldin, *Social capital*,, Fukuyama, 'Social capital', and Glaeser et al.(1999).
[40] Mayer, 'Trust in financial markets'; Fukuyama, 'Social capital'; Stulz and Williamson, 'Culture, openness, and finance'.
[41] Bennett, *Anna*, p. 46.

bias: local shares were also prestigious assets. Their holders enjoyed a special social status and recognition in the context of shared norms and investment cultures. This view may offer an additional explanation for local bias.[42]

5. Historical shifts in local investment bias

The local investment bias we have observed in our sample followed a declining pattern over time. Table 3 reports these changes. Despite small differences across security types and sectors, the overall local concentration of security holders (i.e. the percentage of investors living within 25km of company registered offices) fell from 70 per cent in the 1870s to 35 per cent in the 1930s (first column of Table 3a). The trend for ordinary shareholders closely reflected the overall pattern. Local concentration of investors in unlisted securities and debentures remained higher throughout the period, but also followed a similar declining trend. Since improvements in corporate law were not major during the period[43] and local bias was not translated into superior returns (according to our own calculations), the question regarding the decline in local investment preference, and, thus, the de-localization of 'trust', remains open. As also shown in Table 3, the decline equally encompasses different economic sectors as well as different security types.

[TABLE 3 NEAR HERE]

There may be several reasons for this historical trend. The revolution in communications, with the gradual introduction of the telegraph and the telephone (especially after the turn of the century) in security transactions, significantly reduced the information asymmetries between regional exchanges and the London Stock Exchange, making ordinary investors more willing to break with local bias.[44] According to Michie, this development opened up the possibility of a single market in securities that 'would correspond to national, rather than to local, supply and demand conditions'.[45] At the same time, various innovations may have also changed the perception of proximity among investors: technological advances (especially those

[42] The passage offers some evidence in favour of our perspective. There also a growing literature emphasizing the importance of narrative theory in business history: see Hansen, 'Narrative approach'. In this paragraph we described our explanation of local bias. In what follows we will use the two terms interchangeably denoting the same effect.
[43] Cheffins, 'Does law matter?'; see also our discussion in section I.
[44] Michie, *Stock exchanges*, pp. 8-14.
[45] Michie, *Stock exchanges*, p. 10. See also Rutterford, 'International diversification'.

related to transportation) might have reshaped the scale of 'local' in people's minds.[46] Several financial innovations, like the gradual adoption of diversification, as well as other institutional developments in security trading such as the decline of uncalled capital, lower nominal share values and cross-listing, may have also influenced investors' attitude towards risk and market asymmetries, making ordinary investors more tolerant to distance. [47] Finally, cultural changes in the perception of the investment process should also be taken into consideration. The rise of the importance of stock exchange transactions (the establishment of the so-called 'equity culture') and the growing encouragement to diversify internationally by publications such as *The Financial Review of Reviews* in the first decade of the twentieth century may well have eroded the prestigious character of local holdings and possibly made people more comfortable with holding the securities of distant firms.

Table 4 reveals the importance of London[48] as an economic centre. Throughout the whole period, London residents had a strong preference for local firms: about 80 per cent to 90 per cent of London-based investors did not allow their investments to extend beyond London registered firms (the majority of foreign and empire firms were registered in London). London investors thus developed a strong local bias contrary to the typical non-Londoner whose local bias declined substantially over time. For example, in the 1870s, investors from the rest of the UK showed a significant local preference in their investments, as 64 per cent of them chose local firms (within 25 km).[49] This number was reduced to 16 per cent nearly seven decades later.[50] Our calculations should be read with caution because, despite

[46] For example, Rutterford, in 'The shareholder voice' (p. 130), cites the Midland Railway Company as laying on special trains to the annual general meeting in Coventry for those investors living in Manchester and London.

[47] The establishment of the 'equity culture' (Hannah, 'Global trends', p. 406) may have developed certain norms among investors and principal actors in corporate governance in line with workings of free markets (Coffee, 'Do norms matter'; Stulz and Williamson, 'Culture, openness, and finance'). At the same time, we should also take into account the gradual rise of financial innovations, such as diversification after the turn of the century (see: Rutterford, 'International diversification', Goetzmann and Ukhov, 'Portfolio theory approach', Foreman-Peck and Hannah, 'Managerial revolution', p.6).

[48] In order to accommodate London's growth over this time, our definition of London has been constructed differently pre-1900 and post-1900, consistent with 'zone 1' and 'zone 2' as defined by the 1921 UK census. Pre-1900 London is restricted to the administrative county of London (the City of London plus the 28 metropolitan boroughs), while post-1900 it has been extended to include the administrative districts that fall roughly within a 10-mile radius of Charing Cross.

[49] From the late 1870s UK stock exchanges were in constant telegraphic contact suggesting the existence of a competitive national market (Edelstein, *Overseas investment*, p. 57). Around 1900 inter-market communication was replaced by a private telephone wire (Michie, *Stock exchanges*, p. 14). Local investors outside London had different investment alternatives for distant firms from the 1870s.

[50] The broad outlook of non-London investors is evidenced in the information published in local newspapers. For example, the *Sheffield Daily Telegraph* of 1 January 1870 included price lists for British railways, some foreign railways, and London-registered companies including Crystal Palace, London General Omnibus Company, and Anglo-American Telegraph (p.3). By 1 April 1903, the Manchester Courier and Lancashire General Advertiser (p. 4) included prices for British domestic, empire and foreign stocks and railway securities; for African and Australian mining shares; for prices

our efforts to provide a representative geographical variation, there may remain some biases in the choice of firms. Nevertheless, the point remains: local investment bias gradually became a London only habit. It persisted amongst London investors but not amongst the investors in the rest of the UK. As mentioned by Edelstein: 'familiar with local business through the newspapers, consumption, and work activities, the London investor was probably more easily, and therefore more cheaply, convinced of the worthiness of an investment in a local enterprise'.[51] The predominant position of London as an economic hub provides additional insight into the discussion of local bias and trust that has not been captured by existing research.[52]

[TABLE 4 NEAR HERE]

The rise of provincial stock exchanges from the second half of the nineteenth century has often been interpreted as an attempt by firms to attract local investors 'playing an important role in the development of trust between directors and investors'.[53] Campbell and Turner offer some evidence that local listing established a positive relation between the value of the firm and the size of the board of directors in the Victorian era.[54] According to the authors, a larger board of directors could support a greater size of local trust networks, thereby enhancing the value of the firm. In our sample, the great majority of firms listed their securities on local stock exchanges (only four firms did not), with many of them preferring cross listings. This is evidence in favour of the above reasoning. The geographical distribution of individual investors in relation to the nearest stock exchange (on which the security was listed) is very similar to their distribution in relation to firms' headquarters. Or, in other words, a local listing was a motive to invest in local firms. This is clear from Table 5 which shows results similar to those of Table 3.

[TABLE 5 NEAR HERE]

Investor concentration around the nearest stock exchanges (in which they had invested) is relatively more dense than for registered offices. From an initial concentration of 52.4 per cent, by the 1920s roughly 42 per cent of investors continued to live within a close distance (25km) from the market in which the security

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of shares in all LSE listed sectors; and for share prices of listed securities and details of deals done for unlisted securities from the Manchester Stock Exchange.

[51] Edelstein, *Overseas Investment*, p. 53.

[52] An implication of that, for instance, could be that samples containing London headquartered shareholdings will tend to overestimate local bias.

[53] Franks et al, 'Ownership', p. 4040; Edelstein, *Overseas Investment*.

[54] Campbell and Turner, 'Corporate governance', p. 592.

was listed. Despite a significant decline, local bias in relation to securities markets remained quite high, higher than the numbers in Table 3. The higher persistence of local concentration levels can be explained by the fact that most firms cross-listed their securities on different exchanges. If investors decided to invest in a distant firm, they would probably choose one whose securities were listed on a local market. Table 6 reports the bias related to the London Stock Exchange for each decade. Throughout the period, London absorbed the great majority of UK investments: more than 95 per cent of Londoners and more than 80 per cent of non-Londoners were holding an LSE listed security. This also means that provincial stock exchanges attracted a greater proportion of local investments than investments by Londoners.[55] The differences between the economic and financial geographies of London and the rest of the UK are striking. As with registered offices, our analysis of local investment bias with respect to stock exchanges reflects the predominance of the London market. Our analysis also reveals that this local bias had an important time and geographical dimension: local investment bias was a primarily London habit.[56]

[TABLE 6 NEAR HERE]

6. Determinants of local bias at the firm level

This section attempts to identify possible factors that influenced the investor geographical diffusion observed in earlier sections. It focuses on the level of the firm and explores econometrically local investment preference in relation to a series of corporate governance and performance variables.[57]

Local bias is a dichotomous qualitative variable. For every individual investor in our sample, there is either local investment preference or not. This type of research question suggests a logit binary regression model, where the dependent variable is a

[55] While 'local investors were automatically involved' in long-term finance of local firms, larger issues were gradually targeted at the LSE given the depth of the London market and the relative advantage of the its specialised servises (Edelstein, 'Overseas investment', pp. 57-8)

[56] The overall trends in local bias remained the same between men and women. While women represented just a small part of investors in the 1870s, only 15%, women contribution increased gradually reaching the number of 45% in 1930s (the average size of individual investment for women was much lower than men throughout the period, but the difference was declining over time). Significant part of investors of both genders remained within a small distance from firms' headquarters. There is no indication of a different behavioural pattern in relation to the gender.

[57] This type of question is in line with contemporary research in local bias: see Seasholes and Zhu, 'Individual investors'; Petersen and Rajan, 'Does distance matter'; Grinblatt and Keloharju, 'Distance, language, and culture'.

dummy: it takes a value of 0 if the investor lives within 25km of a firm's registered headquarters (indicating local bias) and the value of 1 elsewhere.[58]

In our specification we follow the perspective of the individual investor. The structure of our dependent variable in the logit regression models allows us to ask the following question: what made investors *break with* local investment preference? The coefficients in the logit model capture the marginal effects of an infinitesimal change in the explanatory variables on the odds (likelihood) of observing loss in local bias.[59] As possible independent variables we use a series of firm-specific corporate governance and performance factors that appear as typical regressors in similar specifications in historical research into ownership diffusion. The analytical list, description and sources of the explanatory variables can be found in the Appendix, while details of their collection and sampling were given in section II.[60]

Regression results for our multivariate models of local bias are reported in Table 7. Since information on all the explanatory variables was not available for all the firms in our full sample, the model specifications in Table 7 correspond to three alternative samples: model (1) is based on our full sample described by Table 1a, models (2) and (3) on the subsample of Table 1b, and models (4)-(7) on the subsample in Table 1c. As we move from model (1) to (7), samples have less individual investor observations but more information on firm governance and performance.

[TABLE 7 NEAR HERE]

From Table 7, we note that company *size* has a strong positive effect in undermining local investment preference. Whenever the size of the firm passes the threshold of £100,000 or £1,000,000, the odds to break with local bias increase by about 50 to 60 per cent. This result is statistically significant and survives in all the model specifications. It is more likely that large firms have more geographically

[58] Cottrell, *Industrial Finance*, in an early survey of geographical bias in the 1860s and 1880s, chose 10 miles as a cut-off point. Franks et al. also use 6 miles as a cut-off point but find, in 1900, a median distance of 15 miles (24km) from the registered office for their 1900 sample. Given the long time period we are covering and the increasing geographical spread of cities like London, we have chosen a cut-off distance of 25km (15.5 miles).

[59] In the logit model, the logarithm of the odds to break with local bias (that is, the probability for an investor to break with local bias divided by the probability not to break) is regressed against a series of explanatory variables. While the signs of the coefficients capture the positive or negative effect of the correlation, the interpretation of the coefficients is different from the regular OLS models.

[60] As also mentioned by Campbell and Turner, 'Corporate governance', p. 586, one methodological issue faced by this type of study is the endogeneity between dependent and independent variables. Although this is a rather general theme that concerns every type of econometric research in economic history, in our case is not a major problem. In the logit econometric specifications we take the standpoint of the individual investor and the independent variables represent companies' governance and performance which are unlikely to be influenced by individual behaviour.

dispersed investors. On the other hand, the *age* of the firm seems to have a small negative effect meaning that the older firms had a slightly higher probability of having locally biased investors. One possible explanation is that, the older the firm, the greater was the initial local bias. Stickiness of shareholdings over time would mean it takes longer for this local bias to disappear.[61]

Most of the firms in the sample, even relating to registers in the nineteenth century, cross listed their securities on more than one stock exchange. Table 7 reveals a statistically significant negative relation between the *number of markets* on which a security was listed and local investment preference that survives across different specifications. An additional cross-listing increased the odds of undermining local trust by roughly 10 per cent. Statistically significant in almost all specifications is also the effect of the *value of individual investment*. This suggests that the higher the size of individual holdings, the more concerned were investors with risks related to informational asymmetries and thus the less likely to break with local bias. The value of a company's single *nominal share* also shows a negative relationship for specifications (2) to (7), which rely on the subsamples that do not contain any observation for the 1870s and 1880s. This result indicates that local bias was more likely for firms with higher entry costs to their shareholdings. This is in line with Hannah's general point, according to which a low minimum share size was suggestive of a more democratic and dispersed shareholding.[62]

The number of *company directors* is also statistically significant in all the specifications in Table 7 and negatively related to the geographical dispersion of investors. An additional director in the board reduced the odds to break with local preference by 5 per cent. The same number was further increased to 10 per cent for every additional director holding some (prestigious) title. According to Campbell and Turner, local bias implies informal trust relations and some sort of acquaintance between investors and directors that also serves as a means of outsider protection (a substitute for weak formal protection).[63] This is also in line with Franks et al.[64] It seems that an increase in the number of directors is positively associated with local investment bias: more people on the board could accommodate a larger size of local informal networks. The marginal effect of directors with titles in local preference is even stronger. At the same time, an increase in the value of holdings required to qualify as a director (*directorial qualifications*) undermined local bias.

[61] Rutterford, 'International diversification'.
[62] Hannah, 'Global trends', p. 407.
[63] Campbell and Turner, 'Corporate governance', p. 592.
[64] Franks et al., 'Ownership'.

The existing literature emphasises the importance of dividends as a means of 'keeping investors on side' for the period under consideration.[65] From an investor's perspective, *dividend yield* was a primary concern and there is also some evidence that dividend yields may have served as protection for outside investors in the Victorian period.[66] Our results further support this argument. Higher yields increased the probability of breaking with local investment preference in the case of public and listed securities (but not for the private and unlisted ones). Higher yields may have provided the necessary protection for some investors to target distant firms and compensated for risk related to informational asymmetries.

Risk, captured in the volatility of security prices, is expected to make investors less willing to overcome local preference. We define risk in the same way as Foreman-Peck and Hannah, that is, 'by the dispersion of the share price-difference between highest and lowest share price for the year, normalised by the average of the two'.[67] Our findings are partially contrary to the above hypothesis. Price volatility is statistically significant and positively related to geographical dispersion for shares (both ordinary and preferred) but negatively related for debentures. This means that higher price volatility was a motive for someone to keep local investment preference only for fixed income securities, which were considered as a relatively safer investment. In other words, investors seemed to have been (more) risk averse only for less risky investments. At the time, dividend yields were the primary valuation metric for the majority of investors while price volatility may have been ignored in practice if investors felt sure about the survival of the company.[68] Our findings support this perspective, although revealing a sensitivity in price volatility when it came to safe investments which could perhaps be explained by the shorter-term nature of debentures as compared with preference and ordinary shares.

Table 7 offers evidence that non-linear voting schemes increased the odds of distant investment. Limiting large holders' voting powers was probably seen as protection for outsiders, thus reducing the need for local investment preference.[69] Finally, while the persistence of local bias declined with time, it remained very strong among Londoners. These statistically significant results in Table 7 with respect to London investors are consistent with the results reported in earlier sections.

We repeat the same regressions for the local bias in relation to the nearest stock exchange on which the security was listed. Table 8 presents the new results. The results are quite similar with those of Table 7. The results with regard to the age of the

[65] For a summary see Cheffins, *Corporate ownership*.
[66] Rutterford, 'Equity valuation techniques'; Campbell and Turner, 'Corporate governance'.
[67] Foreman-Peck and Hannah, 'Divorce of ownership from control', p. 550.
[68] Rutterford, 'Equity valuation techniques', idem, 'International diversification'.
[69] For this line of reasoning see Foreman-Peck and Hannah, 'Managerial revolution', p. 11; Hilt, 'Corporate governance', pp. 677-9.

firm and the number of listings have different signs this time. In all specifications the number of markets on which the security was listed is statistically significant and its increase favours local bias when defined in relation to the nearest stock exchange. More market cross listings made the security close to a larger number of investors, thus increasing the probability of local bias.[70] Among other factors, investors' stock exchange choice was rather neutral towards price volatility and dividend yields; nevertheless, higher yield for private and listed securities was an additional motive for preferring local listings.

[TABLE 8 NEAR HERE]

7. Local investment bias and the 'managerial revolution'

Foreman-Peck and Hannah examine London firms with over £1 million quoted share capital in 1911.[71] They argue that, given the very low levels of director ownership and voting control, 'quoted company ownership was already divorced from managerial control'.[72] One of the interesting questions that arises from this finding is how geographical dispersion of investors and local bias was influenced by the UK managerial revolution. According to Jefferys, as shareholder lists lengthened, shareholders residing in areas remote from the firm's headquarters handed over control to directors, thus making investment impersonal.[73] In other words, the dispersion of ownership is expected to be in line with the geographical dispersion of shareholdings. Franks et al. offer evidence against this analytical assumption.[74] For their 1920s sample, they estimate that 'the greater the distance between the shareholders and the companies' headquarters, the more concentrated the ownership'.[75] Cheffins also argues that division between ownership and control is not necessarily related to the dispersion of shareholdings.[76]

Using the calculations of the study of Foreman-Peck and Hannah of company directors, we create a subsample that contains the largest firms listed on the LSE during the 10 years either side of 1911 of our original full sample that matches

[70] If we do not include the London dummy in the regressions, the values of McFadden pseudo R square takes very low values, meaning that a significant part of the geographical distribution of shareholdings cannot be captured by firm governance and performance. Nevertheless, the pseudo R square in logit regressions does not have the same interpretation as the normal R square. In general, in binary regression models, goodness of fit is not of primary importance.
[71] Foreman-Peck and Hannah, 'Managerial revolution', idem, 'Divorce of ownership from control'.
[72] Foreman-Peck and Hannah, 'Managerial revolution', p. 1.
[73] Jefferys, *Business organisation*, pp. 386-7.
[74] Franks et al., 'Ownership'.
[75] Franks et al. 'Ownership', p. 4044.
[76] Cheffins, Corporate ownership, p. 486.

Foreman-Peck's and Hannah's study (see the details of this subsample in Table 10).[77] We repeat the logit regressions of Table 7 adding two additional independent variables: *voting control of the board* and *directors' shareholdings* expressed as a ratio of the nominal size of the firm. Table 9 reports the results.

[TABLES 9 AND 10 NEAR HERE]

Voting and share size control by directors have a clear statistically significant but negative effect on the odds of the dependent variable. This means that directors' control over the firm was positively related to local bias; a finding in line with Jefferys but not Franks et al.[78] An increase in directors' voting control by one unit reduced the odds of breaking with local bias by roughly 10 per cent. The marginal effect of directors' ownership was somewhat higher than that. It seems that the divorce of ownership from control boosted geographical dispersion. In the context of our above discussion, one possible explanation of this effect can be that the diminishing role of directors in decision making made local trust networks less important for the average investor. In other words, local bias can be seen as a form of protection of minority holders by the expropriation of insiders. Table 9 confirms earlier results for this specific sample, with the only exception being the statistically non-significant role of the value of a nominal share and non-linear voting rights.

8. Conclusions

This paper is the first systematic attempt to reveal and study local investment preference in the UK between the 1870s and the 1930s. While local bias is a standard theme in contemporary financial research (where 'local' usually captures the short distance between firms' headquarters and investors' residence), there is no relevant empirical research in the context of economic history, with the exception of Franks et al.[79]. This paper uses a very large sample of nearly 30,000 shareholders based on 197 sets of share records, a large and representative database of the UK investor population across sectors and time. It investigates the structure and the evolution of local investment bias between shareholders and the companies in which they invested.

[77] Foreman-Peck and Hannah, 'Managerial revolution'.
[78] Jefferies, *Business organisation* ; Franks et al., 'Ownership'.
[79] Franks et al., 'Ownership'.

Investors in the past, as is also the case today,[80] tilted their portfolios towards locally headquartered stocks. Although there are some differences across sectors and security types, overall almost 70 per cent of investors lived within 25km from firm's registered headquarters in the 1870s. The same figure fell to 35 per cent in the 1930s. There was a significant reduction in the effect of local bias over time but this was mostly due to the different patterns of local preference between investors who lived in London and investors in the rest of the UK. Local bias for Londoners remained strong and stable all the time while bias for non-Londoners was gradually annihilated. In fact, our calculations suggest that local bias gradually became a London bias. The same local bias can also be seen in relation to investor distance from the nearest stock exchange on which the security was listed. The great majority of Londoners invested only in LSE-listed securities.

The paper also investigates possible determinants of local bias at the firm level. Overall, our findings offer evidence in favour of a particular interpretation of local investment preference: the proximity of the investors to firms can be explained by relations of trust developed between them and the directors of the firms. These informal trust networks, as already suggested by Franks et al., Mayer, and Campbell and Turner,[81] probably served as further protection to minority investors contributing to the successful development of financial markets. The number of directors is positively related to local bias, indicating that a large board size could support larger networks of local investors. Directors with prestigious titles seem to have a stronger effect on local bias. Older firms are also associated with a stronger local bias effect. Given the stickiness of shareholdings over time, older firms were carrying with them larger local trust networks. At the same time, our findings show that (for big firms) local investment bias was associated with higher director corporate control. In other words, when directors' shareholdings and voting rights were important (allowing them to enjoy private benefits of control), there was a higher possibility for local trust networks around them.

Investors chose local headquartered shares (and related informal trust networks with directors) as a means of dealing with informational asymmetries. The less liquid the asset, the more the geographical concentration around a firm's registered headquarters. Higher yields for public and listed securities was a motive for

[80] Although, given developments in technology and financial engineering, the scale of local bias is now different. For instance, 'the typical U.S. household has about 30% of its portfolio invested in stocks headquartered within a 250-mile radius of the family's home. [...] In Finland, the median non-Helsinki-headquartered firm has 12% greater weight among investors n its municipality than it does among all Finish investors. And, in mainland China, individuals invest 8% more in firms from their province of residence than a market capitalization portfolio would predict' (Seasholes and Zhu, 'Individual investors', p. 1987).

[81] Franks et al., 'Ownership'; Mayer, 'Trust in financial markets'; Campbell and Turner, 'Corporate governance'.

investors to choose more distant firms (to compensate for the higher risk) while investors were risk averse only for less risky assets (debentures).

The paper describes local investment bias and offers possible historical explanations of it. Future discussions on the history of corporate finance, financial development and the related growing 'democratization' of shareholdings should take the pattern of local bias into consideration as an important aspect of individual investor behaviour.

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Table 1

Shareholding sample details

panel (a)

	Sample 1, share records= 197, investors=29,082													
Sectors	1870		1880		1890		1900		1910		1920		1930	
	records	investors	records	investors	records	investors	records	investors	records	investors	records	investors	records	investors
Total	12	611	17	1479	28	3206	39	5434	41	6749	34	6396	26	5207
agriculture	1	84	1	82	1	84	5	449	7	943	5	690	4	516
commercial	1	85	1	81	5	530	6	1046	6	1134	5	1119	4	1109
extractive	1	11	2	70	2	205	2	232	5	1004	5	1064	2	411
financial	1	143	3	637	6	974	6	1129	5	975	4	1192	3	956
manufacturing	2	48	2	71	3	273	8	893	8	1152	6	1167	5	1180
transport and communications	3	142	4	394	7	762	8	1218	7	1169	6	854	4	506
utilities	3	98	4	144	4	378	4	467	3	372	3	310	4	529
foreign	2	92	3	541	4	608	6	1044	9	1486	8	1344	6	1158
domestic	9	435	11	659	21	2199	29	4118	26	4316	21	4172	17	3692
empire	1	84	3	279	3	399	4	272	6	947	5	880	3	357
London based	4	261	9	1046	15	1975	21	2940	25	4318	20	3930	17	3324
non-London based	8	350	8	433	13	1231	18	2494	16	2431	14	2466	9	1883

panel (b)

	Sample 2, share records=115, investors=22,665									
Sectors	1890		1900		1910		1920		1930	
	records	investors	records	investors	records	investors	records	investors	records	investors
Total	15	2511	26	4658	30	5718	25	5511	19	4267
agriculture	1	84	3	400	5	642	4	512	3	382
commercial	1	339	5	956	5	1034	4	1015	4	1109
extractive	1	172	1	180	3	766	4	947	2	411
financial	4	798	5	978	5	975	4	1192	3	956
manufacturing	2	252	5	815	6	1093	5	1132	3	756
transport and communications	5	642	6	1086	5	1031	4	713	2	362
utilities	1	224	1	243	1	177	0	0	2	291
foreign	3	550	5	969	7	1212	7	1252	5	1060
domestic	9	1562	19	3466	19	3860	14	3557	12	2984
empire	3	399	2	223	4	646	4	702	2	223
London based	11	1759	16	2629	21	3743	17	3554	15	3092
non-London based	4	752	10	2029	9	1975	8	1957	4	1175

panel (c)

Sectors	Sample 3, share records=74, investors=14,951									
	1890		1900		1910		1920		1930	
	records	investors	records	investors	records	investors	records	investors	records	investors
Total	10	1880	18	3509	15	2899	16	3338	15	3325
agriculture	0	0	2	316	2	297	2	294	1	169
commercial	1	339	3	877	2	448	4	958	4	1109
extractive	0	0	1	169	1	318	2	429	2	411
financial	3	717	4	849	2	418	2	379	2	496
manufacturing	2	252	2	243	2	335	3	818	2	487
transport and communications	4	572	5	812	5	906	3	460	2	362
utilities	0	0	1	243	1	177	0	0	2	291
foreign	2	480	5	969	5	923	6	1076	4	934
domestic	7	1257	12	2401	9	1834	9	2120	10	2255
empire	1	143	1	139	1	142	1	142	1	136
London based	6	1128	11	2151	11	2050	10	1799	11	2150
non-London based	4	752	7	1358	4	849	6	1539	4	1175

Table 2

Distance of investor residence from registered company headquarters in Km

	distance from HQ (km)	mean	median	standard deviation	observations	percent of security holders living: within 25km	within 10km	within 6km
all sectors	all securities	125	70	145	29,082	39.9	30.8	24.0
	private and unlisted securities	98	29	135	9,142	48.5	39.8	33.1
	private and listed securities	149	74	178	1,853	40.3	30.3	23.3
	public and listed securities	136	88	145	18,076	35.4	26.3	19.4
	ordinary shares	122	59	145	17,160	42.2	32.8	26.0
	preferred shares	136	95	150	9,868	34.4	25.9	19.3
	debentures	86	29	114	2,054	46.8	37.5	29.8
all securities	agriculture	141	61	174	2,848	43.4	34.6	24.6
	commerce	112	95	106	5,104	31.5	23.5	16.0
	utilities	71	8	112	2,298	59.1	52.0	48.5
	extraction	182	110	191	2,997	31.2	23.3	17.9
	finance	120	66	142	6,006	41.5	27.4	18.7
	manufacturing	139	102	147	4,784	36.6	28.3	24.5
	transportation	111	52	133	5,045	43.7	37.1	29.9
	domestic firms	116	67	130	19,591	39.0	29.5	23.7
	empire firms	115	26	156	3,218	49.9	41.8	32.4
	foreign firms	157	87	178	6,273	37.6	29.1	20.6

Notes: The table is based on our full sample described by Table 1a. Foreign firms, as opposed to empire firms, are non-domestic firms that did not belong to the British Commonwealth. In our sample there are also some public and unlisted securities but their number is negligible in order to be reported as separate category (only 11 observations).

Table 3

Percentage of investors living within 25km of company registered offices

panel (a)

	all sectors						
	all securities	private and unlisted securities	private and listed securities	public and listed securities	ordinary shares	preferred shares	debentures
1870s	69.2	68.7			69.2		
1880s	60.4	65.1		52.4	59.7	48.1	83.9
1890s	46.6	57.7		39.9	48.8	35.9	55.7
1990s	39.3	43.3	46.5	37.2	42.4	33.6	41.2
1910s	38.3	46.4	30.2	35.6	41.4	32.6	39.9
1920s	35.0	37.1	43.5	32.8	35.0	34.4	38.7
1930s	35.0	43.4	43.1	31.9	34.5	35.0	45.6

panel (b)

	all securities, sectoral analysis									
	agriculture	commerce	utilities	extraction	finance	manufacturing	transportation	domestic	empire	foreign
1870s	54.8	49.4	73.5	9.1	93.7	77.1	64.1	77.0	54.8	45.7
1880s	46.3	61.7	77.8	51.4	53.5	64.8	68.5	66.6	69.9	47.9
1890s	50.0	27.4	70.4	31.2	42.9	47.6	56.3	49.1	47.4	37.2
1990s	45.9	29.7	64.5	18.1	38.4	40.2	39.7	38.6	52.6	38.7
1910s	43.2	32.5	56.2	37.8	41.9	35.2	34.8	35.7	52.6	36.8
1920s	43.0	27.4	49.7	31.8	34.0	35.8	37.1	32.4	43.9	37.1
1930s	39.0	34.8	46.3	18.2	37.1	30.0	41.3	35.1	41.5	32.8

Notes: see notes of Table 2.

Table 4

Percentage of non-Londoners and Londoners living within 25km of company registered office

	non- Londoners	Londoners
1870s	64.1	87.4
1880s	43.4	95.4
1890s	31.1	78.3
1990s	22.7	72.1
1910s	17.8	79.5
1920s	16.4	78.6
1930s	16.0	86.3

Notes: Our definition of London is based on census records in order to reflect increasing urbanisation over study period. Before 1900, London has been defined as the administrative county of London. After 1900, London includes all urban areas wholly or partly within a 10-mile circle from Charing Cross.

Table 5

Percentage of investors living within 25km of nearest stock exchange on which the security was listed.

panel (a)

	all sectors					
	all security types	private and listed securities	public and listed securities	ordinary shares	preferred shares	debentures
1870s						
1880s	52.4		52.4	54.8	48.1	100.0
1890s	51.2		51.2	52.9	43.6	57.9
1900s	47.8	46.5	47.7	50.7	45.3	44.4
1910s	44.2	37.4	44.9	44.5	42.3	50.2
1920s	44.8	43.5	44.9	44.4	44.8	48.1
1930s	42.1	43.0	41.9	45.6	38.4	47.1

Notes: see notes of Table 3.

Table 6

Percentage of non-Londoners and Londoners holding a LSE listed security.

	non-Londoners	Londoners
1870s		
1880s	85.59	98.97
1890s	78.59	98.05
1900s	90.62	99.71
1910s	87.80	98.00
1920s	82.66	96.88
1930s	79.95	95.15

Notes: see notes in Table 4.

Table 7

Logit regression results for multivariate models of local bias with respect to company registered office.

	Models						
independent variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Size	0.391*** (0.024)	0.291*** (0.037)	0.404*** (0.031)	0.529*** (0.062)	0.525*** (0.062)	0.503*** (0.060)	0.828*** (0.056)
Age	-0.010*** (0.001)	-0.010*** (0.001)	-0.006*** (0.001)	-0.006*** (0.002)	-0.006*** (0.002)	-0.004*** (0.002)	-0.004*** (0.001)
Value of nominal share	0.001*** (0.0002)	-0.032*** (0.002)	-0.007*** (0.002)	-0.038*** (0.003)	-0.039*** (0.003)	-0.040*** (0.003)	-0.016*** (0.003)
Number of markets	0.091*** (0.006)	0.145*** (0.008)	0.104*** (0.006)	0.122*** (0.010)	0.119*** (0.010)	0.136*** (0.011)	0.090*** (0.008)
Value of individual investment	-0.004* (0.002)	-0.010* (0.006)	-0.045*** (0.008)	-0.026** (0.010)	-0.023** (0.010)	-0.020** (0.010)	-0.097*** (0.016)
Number of directors		-0.046*** (0.004)	-0.029*** (0.003)	-0.055*** (0.009)	-0.058*** (0.009)		-0.026*** (0.007)
Directorial qualifications		0.031* (0.016)	0.025* (0.013)	0.158*** (0.030)	0.148*** (0.030)	0.179*** (0.030)	0.112*** (0.024)
Dividend yiled (%)				0.011** (0.005)	-0.014 (0.012)	-0.018 (0.012)	0.019*** (0.004)
Uncalled capital				0.001* (0.001)	0.001** (0.001)	-0.001 (0.001)	0.002*** (0.001)
Risk (%)				0.010*** (0.001)	0.010*** (0.001)	0.010*** (0.001)	0.006*** (0.001)
Risk * debentures (dummy)				-0.036*** (0.007)	-0.036*** (0.007)	-0.026*** (0.007)	-0.053*** (0.006)
Non linear voting scheme (dummy)			-0.064 (0.051)				0.303*** (0.065)
Dividend yield * Public and listed securities (dummy)					0.025** (-0.012)	0.029** (0.012)	
Number of directors with titles						-0.108*** (0.012)	
Constant	-0.364*** (0.060)	0.748*** (0.111)	-0.424*** (0.083)	-0.362* (0.191)	-0.291 (0.195)	-0.512*** (0.007)	-1.975*** (0.160)
London Resident (dummy)	-2.296*** (0.077)	-2.830*** (0.108)		-2.438*** (0.124)	-2.435*** (0.124)	-2.350*** (0.121)	
Time dummy	0.969*** (0.045)	0.633*** (0.066)		0.664*** (0.078)	0.690*** (0.079)	0.721*** (0.079)	
London Resident * Time dummy	-0.632*** (0.085)	-0.505*** (0.115)		-0.815*** (0.131)	-0.829*** (0.131)	-0.965*** (0.130)	
Pseudo R-squared	0.275	0.349	0.033	0.338	0.339	0.340	0.054
Number of Observations	29082	22665	22091	14951	14951	14951	14755

Notes: The dependent variable takes a value of 0 if the investor lives within 25km of a firm's HQ and the value of 1 elsewhere. Robust standard errors in the parentheses: * Significant as 10% level; ** significant at 5% level; *** significant at 1% level. Since information on all the explanatory variables was not available for all the firms in our full sample, the model specifications in Table 7 correspond to three alternative

samples: model (1) is based on our full sample described by Table 1a, models (2) and (3) on the subsample of Table 1b, and models (4)-(7) on the subsample in Table 1c.

Table 8

Logit regression results for multivariate models of local bias
with respect to the nearest stock exchange the security was listed.

	Models								
independent variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
Size	0.618*** (0.049)	0.513*** (0.050)	0.660*** (0.055)	0.584*** (0.044)	1.010*** (0.074)	0.961*** (0.074)	0.778*** (0.069)	0.901*** (0.057)	0.937*** (0.076)
Age	0.009*** (0.002)	0.013*** (0.002)	0.016*** (0.002)	0.002 (0.001)	0.016*** (0.002)	0.014*** (0.002)	0.018*** (0.002)	0.004*** (0.001)	0.016*** (0.002)
Value of nominal share	-0.037*** (0.002)	-0.028*** (0.002)	-0.042*** (0.002)	-0.008*** (0.002)	-0.033*** (0.003)	-0.035*** (0.003)	-0.034*** (0.003)	-0.002 (0.002)	-0.027*** (0.003)
Value of individual investment	-0.067*** (0.019)	-0.057*** (0.019)	-0.068*** (0.019)	-0.177*** (0.018)	-0.052** (0.023)	-0.056** (0.024)	-0.049** (0.021)	-0.186*** (0.021)	-0.055** (0.026)
Number of markets	-0.159*** (0.006)	-0.177*** (0.006)	-0.230*** (0.008)	-0.093*** (0.006)	-0.227*** (0.010)	-0.239*** (0.010)	-0.237*** (0.010)	-0.091*** (0.007)	-0.265*** (0.010)
Number of directors			0.033*** (0.003)	0.015*** (0.003)	-0.081*** (0.009)	-0.089*** (0.010)		-0.019*** (0.007)	-0.115*** (0.010)
Directorial qualifications			-0.029 (0.019)	0.013 (0.015)	0.021 (0.032)	0.016 (0.033)	0.039 (0.032)	-0.003 (0.023)	0.080** (0.035)
Dividend yiled (%)					-0.010 (0.006)	-0.007 (0.006)	-0.014** (0.006)	-0.002 (0.004)	-0.0005 (0.007)
Uncalled capital					0.003*** (0.0007)	0.003*** (0.0007)	-0.0001 (0.0006)	0.003*** (0.001)	0.002*** (0.001)
Risk (%)					0.002* (0.001)	0.001 (0.001)	0.002* (0.001)	0.0001 (0.0008)	0.0008 (0.001)
Dividend yield * Private and listed securities (dummy)						-0.111*** (0.015)	-0.107*** (0.015)	0.013 (0.010)	-0.131*** (0.015)
Distance from company's HQ		0.005*** (0.0001)							0.005*** (0.0002)
Number of directors with titles							-0.062*** (0.013)		
Non linear voting scheme (dummy)				0.145*** (0.056)				0.208*** (0.065)	
Constant	-0.224 (0.142)	-0.664*** (0.146)	-0.413*** (0.160)	-1.192*** (0.123)	-0.689*** (0.203)	-0.400* (0.209)	-0.502** (0.205)	-1.917*** (0.163)	-0.869*** (0.214)
London Resident (dummy)	-5.144*** (0.286)	-4.863*** (0.288)	-7.431*** (1.003)		-7.419*** (1.003)	-7.424*** (1.003)	-7.378*** (1.003)		-7.166*** (1.003)
Time dummy	0.543*** (0.064)	0.394*** (0.067)	0.563*** (0.072)		0.711*** (0.075)	0.813*** (0.077)	0.750*** (0.077)		0.736*** (0.080)
London Resident * Time dummy	-0.195 (0.515)	-0.075 (0.302)	1.708* (1.008)		1.640 (1.009)	1.579 (1.009)	1.567 (1.009)		1.693* (1.009)
Pseudo R-squared	0.464	0.498	0.495	0.022	0.520	0.519	0.519	0.028	0.553
Number of Observations	19940	19940	18722	18148	14563	14563	14563	14367	14563

Notes: The dependent variable takes a value of 0 if the investor lives within 25km of the nearest stock exchange the security was listed and the value of 1 elsewhere. Robust standard errors in the parentheses: * Significant as 10% level; ** significant at 5% level; *** significant at 1% level.

Table 9

Logit regression results for multivariate models of local bias
(with respect to company registered office) for the largest firms
listed on the LSE during the 10 years either side of 1911

	Models					
independennt variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Voting control of board			-0.085***		-0.079***	-0.110**
			(0.017)		(0.018)	(0.047)
Board shares as % of firm's size		-0.129***		-0.123***		-0.204***
		(0.025)		(0.026)		(0.066)
Age	0.005*	-0.001	0.001	0.003	0.006	-0.010**
	(0.003)	(0.003)	(0.003)	(0.006)	(0.005)	(0.004)
Number of directors	-0.054***	-0.037***	-0.033**	-0.033**	-0.027*	-0.060***
	(0.013)	(0.014)	(0.014)	(0.015)	(0.015)	(0.021)
Dividend yiled (%)	0.028	0.020	0.028	0.013	0.015	0.006
	(0.122)	(0.018)	(0.018)	(0.021)	(0.022)	(0.027)
Value of nominal share	-0.048**	0.029	0.048*	0.035	0.057**	0.188***
	(0.019)	(0.024)	(0.026)	(0.025)	(0.028)	(0.038)
Directorial qualifications	1.070***	1.229***	1.175***	1.217***	1.162***	1.361***
	(0.062)	(0.076)	(0.070)	(0.078)	(0.071)	(0.093)
Value of individual investment	-0.068***	-0.072***	-0.073***	-0.072***	-0.072***	0.018
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.020)
Uncalled capital	-0.013***	-0.005***	-0.016***	-0.006***	-0.017***	-0.002
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.006)
Risk (%)	0.005*	0.007***	0.009***	0.007**	0.008***	0.017***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Risk * debentures (dummy)	-0.038***	-0.039***	-0.042***	-0.038***	-0.041***	-0.047***
	(0.008)	(0.007)	(0.008)	(0.008)	(0.008)	(0.012)
Constant	-0.278	-0.270	-0.318*	-0.336*	-0.424**	2.124***
	(0.170)	(0.169)	(0.169)	(0.197)	(0.195)	(0.261)
London Resident (dummy)						-4.076***
						(0.108)
Non linear voting scheme (dummy)				-0.168	-0.278	
				(0.258)	(0.252)	
Pseudo R-squared	0.112	0.117	0.116	0.117	0.116	0.514
Number of Observations	4482	4482	4482	4482	4482	4482

Notes: The dependent variable takes a value of 0 if the investor lives within 25km of a firm's HQ and the value of 1 elsewhere. Robust standard errors in the parentheses: * Significant as 10% level; ** significant at 5% level; *** significant at 1% level.

Table 10

Sample of regression of Table 9

Sectors	Sample 4, share records=20, investors=4,482					
	1900		1910		1920	
	records	investors	records	investors	records	investors
Total	8	1847	8	1784	4	851
agriculture						
commercial	2	679	1	303	1	266
extractive	1	169	1	318		
financial	1	288	2	418	1	218
manufacturing	1	187	1	201		
transport and communications	3	524	3	544	2	367
utilities						
foreign	2	486	2	460	2	443
domestic	5	1222	5	1182	1	266
empire	1	139	1	142	1	142
London based	5	981	6	1265	4	851
non-London based	3	866	2	519		

Appendix

Variable definitions for regressions

Variables	Description	Data source
Size	Categorical variable equals 1 if the company market capitalization is lower than £100,000, 2 if capitalization lies between £100,000 and £1,000,000, and 3 if capitalization is higher than £1,000,000	SEOI/Form E
Age	The company's age at the time of holding. This is equal to the difference between the 'Register Year' and the date of firm's incorporation. Our definition of 'age' includes the total actual age of the firm even after the name has changed.	SEOI/Form E
Number of directors	Total number of directors on the board	SEOI
Number of directors with titles	Number of directors on the board that are peers, knights, MPs, JPs or hold a military title	SEOI
Dividend yield (%)	Annual dividends devided by the average share price of the whole year	IMM/SEOI
Public and listed securities (dummy)	Dummy equals 1 if the investor holds a public and listed security	SEOI
Value of nominal share	Nominal value of the security	Form E
Directorial qualifications	Value of holdings a shareholder needed to qualify for a director in £1000	SEOI
Value of individual investment	The value of the individual investment in £1000	Form E/Share registers
Number of markets	Number of markets a security has been listed	SEOI
Uncalled capital	Difference between nominal capital and paid-up capital (the amount of capital that a shareholder is liable for)	SEOI/Form E
Risk (%)	The difference between higher and lower price of the year deivided by the average price of the same year.	IMM/SEOI
debentures (dummy)	Dummy equals 1 if the investor holds debentures	Form E/Share registers
Non linear voting scheme (dummy)	Dummy equals 1 if company has non-linear voting scheme	SEOI
London Resident (dummy)	Dummy equals 1 if the investor lives in London	
Time dummy	Dummy equals 1 after 1900	SEOI/Form E
Board shares as % of firm's size	The size of directors' ownership as ration of the total size of the company	Foreman-Peck and Hannah (2011)
Voting control of board	The percentage of votes controlled by directors	Foreman-Peck and Hannah (2011)

Notes: IMM= Investor's Monthly Manual, SEOI= Stock Exchange Official Intelligence. Before 1900, London includes the administrative county of London, while after 1900, all urban areas wholly or partly within a 10-mile circle from Charing Cross. These definitions are based on census records in order to reflect increasing urbanisation over study period. We would also like to thank J. Foreman-Peck and L. Hannah for giving us their database of board shares and voting control.