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THE RISE AND DECLINE OF THE UK'S PROVINCIAL STOCK MARKET, 1869-1929

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Working Paper 2016-03

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The Rise and Decline of the UK's Provincial Stock Markets, 1869-1929

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Abstract

The London Stock Exchange was the largest capital market in the world at the beginning of the twentieth century, but Britain also had numerous other stock markets based in provincial cities and towns. This paper provides the first in-depth quantitative assessment of these markets. We find that they were an important source of financing for regional companies up until circa 1900 and our evidence suggests that their post-1900 decline was largely due to the changing characteristics of publicly-listed firms. We also find that the provincial and London markets became increasingly integrated over time.

JEL Codes: G10; N23; N24.

Keywords: Capital market; provincial stock exchanges; integration; cross listing.

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1. Introduction

Britain had the world's most developed capital market during the Victorian and Edwardian eras. The London Stock Exchange has attracted most attention, but there were also numerous provincial stock markets, which were located in cities and towns throughout Britain and Ireland (Killick and Thomas, 1970; Thomas, 1973, 1986, 1987; Michie, 1981; 1985; 2001). How much did these markets contribute to the financing of industry in these eras? How well integrated were they with London? Why did they decline? To date, the answers to these questions have been qualitative (Thomas, 1973, p. 139). We know very little about the amount of capital raised and traded on these markets, we do not have a measure of how integrated they were, nor do we have an analysis of why they disappeared. In this paper, we attempt to address these issues using an extensive monthly dataset containing 12,108 securities, representing 5,739 companies, traded on British and Irish markets over the period 1869 to 1929.

We begin by establishing the stylised facts for the provincial markets. We find that there were consistently more securities chiefly traded on London than all of the provincial markets combined. The number of securities on London also increased considerably over time, whilst the number on the provincial markets rose more slowly and then declined. However, although London was the favoured market for foreign firms and those based in the capital, regional companies often listed on provincial markets, suggesting that these markets were an important source of financing for domestic companies, especially at the start of our time period.

The second issue we examine is how well integrated the provincial stock exchanges were with London. Michie (1985) has argued that the various stock exchanges were closely integrated and operated as a national capital market, largely due to the telecommunication links between the exchanges which facilitated considerable inter-market trade and even

arbitrage (Michie, 1985; 2001). In this paper, we examine the integration between the markets by considering whether securities traded on the various markets responded to the same shocks and risk factors as each other, which is the approach used by financial economists when they examine the integration between modern emerging markets (e.g. Pukthuanthong and Roll, 2009; Bekaert, Harvey and Ng, 2005; Lehkonen, 2014). We find that the returns of firms chiefly traded on provincial markets had a highly significant relationship with the returns of firms chiefly traded only in London, but they also moved much more like domestic companies rather than foreign firms. The R^2 from multi-factor regressions, which is a good measure of market integration (Pukthuanthong and Roll, 2009), indicate that about 30 per cent of the returns of companies chiefly traded on the provincial markets were in common with London.

The final area we focus on is the relative decline in the importance of the provincial stock exchanges from circa 1900 onwards. At the start of our sample period, about 40 per cent of securities were chiefly traded solely on London, but by the end it was about 75 per cent. We analyse if the relative decline of provincial markets was due to the changing characteristics of firms or a changing propensity to list only on the London Stock Exchange. We find that the rising trend of being chiefly traded solely on the London market was mainly due to changes in the types of firms on the market. There was an increase in the number of firms with headquarters in London and more listings by foreign companies. Simultaneously, there was a reduction in the number of railways and banks, which had been a staple of the provincial exchanges, due to amalgamations. These shifts combined to reduce the relative importance of the provincial markets.

As well as contributing to the historiography of the UK's provincial stock exchanges, this paper also contributes to the recent research agenda which has looked at the economics of historical provincial stock markets in various other countries. Burhop and

Lehmann-Hasemeyer (2014) examine the geography of regional markets in Germany, Hautcoeur and Riva (2007) look at the various regional markets in France, whilst O'Sullivan (2007) and White (2013) examine the regional markets in the United States.

This paper also contributes to the literature on the role of capital markets in the financing of British companies in the Victorian and Edwardian eras. A commonly held view is that the London Stock Exchange channelled too much capital to colonial or overseas companies at the expense of indigenous British industry (see Edelstein, 1982; Pollard, 1985; Kennedy, 1987; Goetzmann and Ukhov, 2006; Chabot and Kurz, 2010; Grossman, 2015). [4] By shedding light on the important role played by provincial stock exchanges in financing indigenous industry, this paper provides a corrective to this allegation against UK capital markets.

While this paper examines the provincial markets from an historical perspective, interest from economists and politicians in the reestablishment of regional stock markets has been increasing because of what is known as the "funding gap" for small firms (Klagge and Martin, 2005, p. 388). With the London Stock Exchange's size and international focus, some smaller firms, especially those located outside London, appear to be having trouble acquiring equity finance. The centralised structure of the capital markets in the UK has not been able to provide the capital needed by small, growing firms (Amini et al., 2012, p. 2). In comparing the current centralized financial system in the UK to the decentralized system in Germany, Klagge and Martin (2005, p. 402) found that the decentralized system has a favourable impact on smaller firms' access to equity capital. In the UK, there is a disparity between smaller firms located in the South-East near to London and those located elsewhere. The smaller firms that are listed on the London Stock Exchange tend to be those

[4] This view was first officially expressed in the Macmillan Report of 1931 (House of Commons, *Report of Committee on Finance and Industry)*.

that are located in or near to London (Amini et al., 2012, p. 2). The revival of provincial stock exchanges could potentially be a solution to the funding gap.

The rest of the paper is organised as follows. In section two, we explore the historical evolution of the provincial stock exchanges. Section three explains our data sources. Section four examines the characteristics of the provincial stock markets from 1869 to 1929. Section five examines the level of integration of the provincial stock exchanges with the London Stock Exchange. Section six analyses the reasons for the post-1900 decline of the provincial exchanges. Section seven contains a brief conclusion.

2. The Evolution of the Provincial Stock Exchanges

The London Stock Exchange was established in the 1690s, and for the next 150 years of its existence, trading on the market was primarily in government securities. The main equities traded on the market over this period were those of quasi-government entities, e.g., the Bank of England, East India Company, and South Sea Company (Morgan and Thomas, 1962, p. 79; Michie, 1985, p. 62). A stock exchange was set up in Dublin in 1799, but its establishment provided little threat to London's monopoly (Thomas, 1987, p. 536; 1986, p. 61; Hickson and Turner, 2005, p. 6; Michie, 2001, p. 61). However, the London Stock Exchange's position was later challenged by the rise of stock exchanges in other British cities. In 1836, stock exchanges were established in Liverpool and Manchester during the first railway promotion boom (Thomas, 1973).[5] Subsequently, the second railway promotion boom of 1844-45 was accompanied by the establishment of stock exchanges in Glasgow, Aberdeen, Edinburgh, and in 12 English towns and cities (Killick and Thomas, 1970, p. 103;

[5] The first detailed share list for a provincial market appeared in the *Liverpool Mercury* on March 12, 1830, with 11 stocks listed (Thomas, 1973, p.11).

Thomas, 1973, p. 28-69; Michie, 2001, p. 117).[6] Seven of these new English provincial stock exchanges did not survive the collapse of the railway mania, but four of them reappeared later in the century (Thomas, 1973, p. 50; Killick and Thomas, 1970, p. 104).

Why were these provincial exchanges established? First, much of the new wealth arising from industrialisation was created in the north of England and Scotland, and many of these *nouveau riche* investors were located in provincial towns and cities. The provincial exchanges helped to service the investment needs of these investors (Killick and Thomas, 1970). Second, many of the railways and joint-stock banks which established in the 1830s and 1840s were located or operated in provincial towns and cities and were keen to attract investment from local shareholders. They, in turn, were attractive to local investors because they either had more information on the companies or had a social or behavioural bias towards local companies (Broadbridge, 1968; Campbell and Turner, 2012; Reed, 1968; 1975; Turner, 2009; Acheson and Turner, 2011; Newton, 2010). The new provincial stock exchanges helped towards this end.

The scale of the railway boom of the 1840s was such that there was a huge expansion in the number of railway securities, and rising railway share prices and dividends increased the demand for these securities (Campbell and Turner, 2012). Although the collapse of the railway mania resulted in a contraction of the business of the provincial stock exchanges, there was still a large number of railway securities being frequently traded, which provided the provincial stock exchanges with their core business for several subsequent decades (Killick and Thomas, 1970, p. 110; Michie, 2001, p. 116). Later in the nineteenth century, the provincial stock exchanges played an important role as a secondary

[6] Stock exchanges were established in Birmingham, Bradford, Bristol, Halifax, Huddersfield, Hull, Leeds, Leicester, Newcastle, Nottingham, Sheffield, and York. There is some debate as to whether a stock exchange was formally established in Halifax (Thomas, 1973, p.64).

market for the securities of joint-stock companies based outside of London (Michie, 2001, p.117). Indeed, exchanges opened (or reconstituted in some cases), for example, in Oldham (1875), Dundee (1879), Cork (1886), Belfast (1897), Cardiff (1892), Halifax (1896), Greenock (1888), Huddersfield (1899), Bradford (1899), Swansea (1903), Nottingham (1909), and Newport (1916).[7]

The question arises as to the relationship between the long-established London Stock Exchanges and the new markets. It has been noted that in the nineteenth century, and up until circa 1913, there was specialisation in the British capital market. The London Stock Exchange was by some distance the principal market for domestic and international government debt securities, whilst the provincial exchanges were the principal market for the securities of small regional companies (Michie, 1985, p. 78-9). Competition, however, existed in the market for railway securities and by the end of the nineteenth century, in the market for large industrial, commercial and mining companies, which were beginning to emerge because of amalgamations (Michie, 1985, p. 78; 2001, p. 118).

Michie (1985; 2001, p. 119) has suggested that the London Stock Exchange and provincial exchanges became increasingly integrated during the second half of the nineteenth century, mainly due to advances in communication technology, which played a vital role in connecting the various markets. In the 1840s, public telegraph lines were laid which linked London and other major British cities, and over the second half of the nineteenth century, special wires were constructed which connected the various stock exchanges, and telegraph offices were set up in close proximity to (and even in) stock exchanges (Michie, 1985, p. 66). The development of telephones in the 1870s opened up two-way instantaneous communication between exchanges and with outside brokers

[7] See Thomas (1973, p.327) and Hickson and Turner (2005).

(Michie, 1985, p. 70). By the 1890s, a system was in place that connected the London Stock Exchanges to the provincial stock exchanges through direct cables, and the development of private telephone wires around 1900 linked the offices of provincial stock-brokers with members of the London Stock Exchange (Michie, 1985, p. 70-1).

The cross-listing of securities on the various markets also helped integrate the UK's stock exchanges. Indeed, the telegraph made this possible and improvements in communications between the markets facilitated the development of 'shunting', which was a term for the arbitrage operations that occurred on the London and provincial exchanges, in which brokers would simultaneously buy and sell in such a way to profit from the differences in prices. Michie (1985, p. 74) argues that this buying and selling between markets helped the provincial markets become part of a national capital market, but also took a large proportion of local business away from them.

The rise of provincial shunters who had direct access to jobbers on the London Stock Exchange was not looked on favourably by members of the London Stock Exchange who were effectively being bypassed. This resulted in members of the London Stock Exchange passing a rule in 1909 which meant that brokers could not quote prices for non-members and no jobber could deal for non-members. Another rule was passed in 1912 which established minimum commissions. Together these rules markedly reduced the level of shunting and, according to Michie (1985, p. 77; 2001, p. 120-2), threatened the integration of the national securities market. In this paper, we assess the integration of the London and provincial stock exchanges in the 60 years from 1869 to 1929. If technology and cross-listings contributed to creating a national securities market, then we should expect to see integration improve over our sample period. We are also able to see the effect on integration of these new rules which were introduced in 1909 and 1912.

In the interwar years, the reach of the London Stock Exchange into the regions was facilitated by the telephone, and the provincial exchanges reacted by working more closely together so as to bypass London (Michie, 2001, p. 235-6). However, the amalgamations of banks and railways meant the disappearance of numerous securities from the provincial markets. It is possible that this, more than competition from the London Stock Exchange, was one the chief reasons for the decline of the regional stock exchanges. The provincial stock exchanges combined into larger entities in the 1960s, and eventually amalgamated with the London Stock Exchange in 1973, meaning that Great Britain and Ireland had one stock exchange once again (Thomas, 1973, p. 272; Michie, 2001, p. 501).

3. Data

To analyse the provincial markets, we use data from the *Investor's Monthly Manual* (IMM), for the period between 1869 and 1929, most of which has been inputted by the Yale International Center for Finance[8]. The IMM was a monthly investor periodical which reported on market conditions and provided in-depth details on individual securities such as prices, dividends, and the number of shares issued. From the perspective of this paper, the principal advantage of the IMM was that the December issue reported which stock exchanges each company was 'chiefly traded on'. This data is available for companies (which could have issued ordinary equity, preference shares, or corporate bonds), and for city loans, but the IMM does not report it for government bonds so they are not included in our analysis.

Given its focus on where companies were 'chiefly traded', the IMM may not have reported every market on which a company was listed. In addition, some companies may have been listed on a provincial stock exchange, but because of thin trading they were not

[8] Data available at http://som.yale.edu/faculty-research/our-centers-initiatives/international-center-finance/data/historical-financial-research-data/london-stock-exchange.

covered by the IMM. This means that our results likely understate the number of firms which were listed on each market. However, the IMM approach allows us to focus on where firms were actually traded, rather than on where they were nominally listed.

Compared to other sources, we find that the IMM is the best available. The *Financial Times* has good coverage of London, but is limited in terms of the provincial markets, although we do use it to cross-check and supplement information for some companies where the IMM does not explicitly state where they were chiefly traded. The IMM also seems to be more comprehensive than local newspapers. For example, the *Liverpool Mercury* newspaper in 1890 has circa 80 stocks listed for the Liverpool market, whereas in our IMM data, we have 233 for Liverpool at that time. Similarly, the *Edinburgh Evening News* from 1900 reports the prices of about 70 securities for Edinburgh, while our IMM data has 206.

We use the information on which markets a company was chiefly traded on to assess the characteristics for each individual provincial market. We also categorize companies according to their listing strategy as reported in the IMM. 'London Only' represents those companies which were chiefly traded only on the London Stock Exchange. 'London and Provincial' are those companies which were chiefly traded on both the London Stock Exchange and one or more provincial markets. 'Multiple Provincial' are those companies which were chiefly traded on multiple regional exchanges, but not on the London Stock Exchange. 'Single Provincial' are those companies which were chiefly traded on only one regional exchange.

Using the IMM data, we calculated total returns, being the percentage change in prices plus dividends, adjusted for changes in par value. We also calculated market capitalization, and dividend yield. As the headquarters of each company was not coded by the Yale International Center for Finance project, we have manually input this data from the IMM. We have also created a dummy variable for foreign companies. We do not define this

based only on the location of the company headquarters, as it was common for many companies to have offices in London, but to operate overseas. Instead, we have classified companies as foreign if their company name suggested that they operated outside the UK, and we also referred to the *Stock Exchange Yearbook* to verify if a company's operations were based overseas.

4. Characteristics

In this section, we provide a detailed quantification of the characteristics of the various UK and Ireland stock exchanges. Table 1 shows the number of securities which were 'chiefly traded' on each market. There were 1,421 securities in our dataset chiefly traded on at least one market in the UK in 1870. Of these, London had 954, which was somewhat higher than the 830 chiefly traded on at least one provincial market. From 1870 to 1900, both London and the provincial markets grew in size, but London expanded much faster, with the number of securities more than doubling to 2,572, whilst the number on at least one provincial market rose to just 1,181. Thereafter, the number of securities on London continued to rise, albeit more slowly, whilst the number chiefly traded on provincial markets began to decline, falling to 784 by the end of 1929, below where they had been in 1870.

The importance of the provincial markets to domestic enterprises at the start of the sample period can be seen when foreign securities, which as can be seen from Table 1 were much more likely to be listed on London, are excluded. In 1870, the provincial stock exchanges had 780 domestic securities, which was considerably more than the London Stock Exchange total of 612. However, domestic listings on London grew more quickly, and by 1890 surpassed those on the provincial exchanges. By 1929, the number of domestic securities chiefly traded on London was more than double that of the provincial exchanges.

In terms of the individual provincial markets, Manchester was the largest throughout the period, rising from 282 securities in 1870, to 378 in 1900, before falling back to 219 by 1929. Liverpool was next largest, with 264 securities in 1870, but it did not keep pace with Manchester over the rest of the sample period and it too went into decline after 1900. The Scottish markets, Glasgow and Edinburgh, were next in importance, with both peaking at over 200 securities in 1910, before declining to just over 100 by 1929.

Similar patterns can be seen when grouping companies by listing strategy. The number of companies which were 'London Only' increased steadily from 591 in 1870 to 2,544 in 1929. By way of contrast, a pattern of expansion and contraction was evident in the listing strategies which involved the provincial markets.

<< INSERT TABLE 1>>

Table 2, which contains the market capitalisation of the securities chiefly traded on each exchange, reinforces the importance of the provincial markets in 1870 and their relative decline by 1929. It also shows that the four main provincial exchanges in terms of number of securities are also those which have the highest market capitalisation. However, unlike when we simply looked at the number of securities, the Liverpool market is very close to the size, in terms of market value, of the Manchester market. We also calculated the average market capitalisation of securities on each exchange. In 1870, the average size of securities on London was £0.96 million, compared to £0.61 million for the provincial markets. By 1929 the average was £2.92 million for London compared to £2.13 million for the provincial markets.

<< INSERT TABLE 2>>

The provincial stock exchanges were initially established during the railway promotion booms in the second quarter of the nineteenth century. It has been noted that railway shares, as well as the shares of numerous regional banks, were the main forms of

securities traded on the provincial stock exchanges in their early decades (Killick and Thomas, 1970, p. 103; Thomas, 1973, p. 3-69; Michie, 2001, p. 117). In Table 3, we examine whether this continued to be the case during our sample period. We find that railway securities still dominated the London and provincial stock exchanges in 1870, but this dominance disappeared in subsequent decades, particularly for the provincial markets. Banks always played a lesser role than the railways, but they still made up 10 per cent of securities on provincial markets in 1870. However, this proportion also fell markedly over the sample period.

This decline in the proportion of securities from the banking and railway sectors can be explained by two factors. Firstly, both the banking and railway industries underwent consolidation, with companies being amalgamated and national giants being created in both sectors (Sykes, 1926). Secondly, the relative number of securities issued by other sectors increased.

<< INSERT TABLE 3>>

Before leaving Table 3, it is worthy of note that 85 per cent of securities in 1870 which were chiefly traded on both London and provincial markets were railway securities. Also, 61 per cent of securities chiefly traded on multiple provincial exchanges (but not London) were railways. In terms of those securities which traded on just one provincial market, railways were never an important component, even in 1870. However, in the case of banks, 19 per cent of the securities traded on a single provincial exchange in 1870 were bank shares.

One of the key contributions of the provincial exchanges which is highlighted in the historiography of British capital markets is that they enabled regional companies to raise capital from local investors (Killick and Thomas, 1970; Thomas, 1973; Michie, 2001, p. 139). Investors, even in modern capital markets, exhibit a home bias in that they prefer to

hold shares in local firms because they have easier access to information about those companies headquartered near to them (Coval and Moskowitz, 1999). In addition, local investors may have invested in companies which were providing some sort of local public good out of a sense of civic duty. The provincial exchanges therefore played an important role connecting local companies with local investors.

In Table 4, we try to get an understanding of the extent to which this was happening, by looking at the relationship between the location of company headquarters and where they were chiefly traded. Those firms headquartered in London, and overseas, were overwhelmingly chiefly traded on the London Stock Exchange. By way of contrast, firms based in provincial regions had a range of listing strategies. Despite their regional headquarters, 30.4 per cent were chiefly traded only on London, and a further 15.4 per cent were on both London and a provincial market. There were 11.8 per cent chiefly traded on multiple provincial markets, and 42.3 per cent on just one provincial market.

<< INSERT TABLE 4 >>

We also consider the liquidity of the various stock exchanges, to ascertain whether the provincial markets were less liquid than London. We use a zero return measure of liquidity, which is used by Bekaert et al. (2007), who analyse liquidity in emerging markets. This measure implicitly assumes that a security traded if its price changed during a particular month, and that it did not trade if its price remained constant. This may understate liquidity, as some trades may have taken place and prices just remained the same, but this should not lead to bias between markets or over time. Goyenko et al. (2009) find that this measure performs well against other liquidity measures in modern markets. After estimating the liquidity of each security, this was then aggregated for each market by calculating the proportion of stocks which traded.

Our results show that liquidity was as high, if not higher, on provincial markets than London. For the overall period, an average of 50 per cent of securities traded on London each month, and for provincial markets it was 52 per cent, which is a small but statistically significant difference. Notably, the four large provincial markets were more liquid than the London market, which may have been due to the very liquid railway securities which traded on these provincial exchanges and the relatively illiquid foreign securities traded on the London market. The results in Table 5 also suggest that companies listed on multiple markets tended to have higher liquidity, whilst securities listed on a single provincial market were as liquid as those listed only on the London market.

<< INSERT TABLE 5>>

Overall, our analysis suggests that the provincial markets were a major source of financing for domestic companies, and they were as liquid as the London market. The provincial markets expanded until around 1900 and then began to taper off, whereas London became increasingly dominant. Although London was becoming the world's largest international market with an increasing number of foreign companies, it was also developing a substantial market for domestic securities over the sample period.

5. Integration

In this section, we examine how well integrated the provincial markets and London were, and the extent to which there was a national capital market in the UK in this era. If the UK was truly a national market without major impediments to capital flowing from one market to another, then we would expect there to be little difference in the total returns generated by the provincial markets considered as a whole and the London market. In Table 6, we show that average monthly returns were similar in the provincial markets and London, and were not statistically different from one another.

<< INSERT TABLE 6>>

The extensive recent literature on emerging financial market integration has focused on examining the extent to which securities on different markets move together. The intuition behind this is that if markets are integrated, they will be exposed to the same risks, and should respond in similar ways (Pukthuanthong and Roll, 2009; Bekaert and Harvey, 1995; Bekaert, et al. 2005; Bekaert, Harvey, and Lumsdaine, 2002; Bekaert, Hodrick, and Zhang, 2009; Eiling and Gerard, 2014; Lehkonen, 2014).

We begin by analysing simple correlations between the returns on market indices created for each stock exchange. Panel A of Table 7 shows the correlations between the returns for all provincial markets and returns for the London Stock Exchange. Notably, there is a high correlation between the provincial markets considered as a whole and the London market. The correlation falls somewhat when cross-listed stocks are removed, but it is still relatively high at 0.59. In terms of individual provincial markets, we see from Table 7 that a substantial amount of comovement with London was driven by cross-listed stocks. The four largest provincial markets were those which had returns with the highest correlation with London, namely Liverpool, Manchester, Glasgow and Edinburgh. Even after cross-listed securities are removed, the correlation between any of these four markets and London is more than 0.40.

<< INSERT TABLE 7 >>

In Panel B of Table 7, we see that the returns on securities which were chiefly traded on both the London and provincial markets had a high correlation (0.74) with the returns of securities chiefly traded only on the London market. The correlation between the returns of securities traded on multiple provincial markets, or single provincial markets, and London Only are somewhat lower at 0.54 and 0.50.

To ascertain if there were changes over time, rolling correlations were performed between 'London Only' returns and the returns on other listing strategies using a window of 120 observations, equivalent to 10 years of monthly data. In Figure 1, the correlations for each month are centred around the midpoint of each regression's sample period. For example, the correlation for the period from January 1869 to December 1878 regression is reported in June 1873.

<< INSERT FIGURE 1>>

The results from Figure 1 suggest that 'London Only' was consistently more correlated with 'London and Provincial', than with 'Multiple Provincial' or 'Single Provincial'. These rolling correlations also reveal that the correlation between the London and provincial markets increased from the late 1890s onwards. This finding is consistent with the increase in cross-listings which occurred in the 1890s and it is also consistent with the improved communication links between the provincial exchanges and London, following the construction of direct cables and telephone lines between the stock exchanges in the 1890s.

Correlations tend to be higher around periods of high volatility (Forbes and Rigobon, 2002), and this is evident with the peaks in correlations around the City of Glasgow crisis in 1878, and in the period after World War I. During these phases, each portfolio of companies moved by large amounts and in the same direction. The results in Figure 1 also suggest that the rule changes of 1909 and 1912, which made shunting more difficult, had little effect on the integration of the markets. Indeed, if anything, Figure 1 suggests that the provincial and London markets became more integrated after these dates.

As simple correlations do not take into account the different characteristics of firms listed on London and provincial markets, we use multifactor regressions which control for different risk factors in a similar manner to Fama and French (1993). To do this, we formed

portfolios based on different characteristics, and then calculated the returns on each of these portfolios. We began with a market index of all companies chiefly traded only on London. We then split these companies according to size, based on their market capitalisation, and created a portfolio referred to as SMB, which captures the excess returns of small companies minus big companies. Similarly, we split companies into value and growth firms, and created a variable HML, which captures the excess returns of high minus low dividend yield companies. We also use an industry factor, RMN, which calculates the returns of railways minus non-railways, and a location factor, FMD, which shows the returns on foreign minus domestic companies.

We then regress the returns of these factors against the returns of market indices based on different listing strategies, namely London and Provincial, Multiple Provincial, and Single Provincial. From our regression results in Table 8, we can see that each of the listing strategies have a significant and positive relationship with *LondonOnlyReturn*, suggesting that there is a common exposure on the provincial markets to general market movements. The results also reveal that London and Provincial has a significant negative exposure to the SMB variable, suggesting that the portfolio based on this listing strategy moves in a similar way to large firms. Notably, all three listing strategies have a significant negative relationship with FMD, suggesting that the provincial markets move more like the securities of domestic firms listed on London rather than the securities of foreign companies.

<< INSERT TABLE 8 >>

The R^2 from the regressions in Table 8 enable us to examine the level of integration. An R^2 of 1 would represent perfect integration between two markets, whilst an R^2 of 0 would mean a complete lack of integration. This methodology is similar to Pukthuanthong and Roll (2009), who use a regression controlling for multiple factors. The R^2 for London and Provincial is 59.5 per cent with all variables included, whilst for Multiple Provincial it is

27.9 per cent and for Single Provincial it is 33.3 per cent. These results suggest that there was some integration between the provincial stock exchanges and London, but less than one third of the returns on Multiple Provincial and Single Provincial firms can be explained by risk factors in common with London only firms.

6. The decline of the provincial markets

One of the key findings which emerged above was that the provincial stock exchanges declined relative to the London Stock Exchange over our sample period, and particularly from 1900 onwards. Figure 2 illustrates this point, showing that up to 1900 there was growth in the number of securities chiefly traded on provincial markets, but the number of those traded only on London grew even more. After 1900, there was a gradual decline in the number chiefly traded on provincial markets, with those being traded only on London becoming increasingly dominant.

<< INSERT FIGURE 2 >>

As can be seen from Table 9, the number of new listings being chiefly traded on the provincial markets decreased as time went on and virtually dried up after 1914. Table 9 also shows that the vast majority of the new listings were chiefly traded on London Only throughout most of the period.

<< INSERT TABLE 9 >>

In order to understand the reasons for this shift, we examine if the relative decline of provincial markets was due to a propensity for companies to move away from provincial markets, or if it was due to a change in the characteristics of public companies. To analyse this issue, we take an approach similar to Fama and French (2001). We begin by performing logit regressions to analyse the determinants of a company being chiefly traded on 'London only' in a particular year. The characteristics which we analyse are (a) whether the company

is headquartered in London; (b) whether the company is foreign or domestic; (c) whether a company was in the railway or banking industry; (d) the liquidity of the security; (e) the size of the company as estimated by its total market capitalisation; (f) whether a company was a value or growth company as proxied by its dividend yield.

From the logit regression results in Table 10, we can infer that firms which were headquartered in London and foreign firms were more likely to be chiefly traded on London only. Also, less liquid securities were more likely to be chiefly traded on London only. On the other hand, railways and banks were less likely to be chiefly traded on London only. Firm size and whether or not it was a value or growth firm were not important correlates of being London only.

<< INSERT TABLE 10>>

We then used the coefficients from the logit regressions[9] and multiplied them by the characteristics of the securities, to estimate the probability that a security was chiefly traded on London only. We find the average across all securities for each year of the likelihood that they were London only, and this is our variable *PredictLondonOnly*. This represents the proportion of securities that we would expect to have a London only listing strategy based on the regression coefficients in Table 10 and security characteristics.

We have graphed the actual proportion of securities chiefly traded on London only compared to the predicted proportion of London only securities in Figure 3. It shows the actual proportion of securities that was chiefly traded on only London rose from about 40 per cent in 1869, to around 75 per cent in 1929. Most of this increase can be accounted for

[9] We follow Fama and French (2001) and use the first half of our sample as our base period i.e. we use the coefficients from regressions for the period from 1869 to 1900.

by the changing characteristics of firms, as shown with the *PredictLondonOnly* closely following the actual London only proportion.

<< INSERT FIGURE 3 >>

This suggests that the characteristics of firms that had a public listing were changing over time. The amalgamation of the railways, and of small joint-stock banks, reduced the number of securities in those industries which had once made up a major proportion of the provincial markets. There was also an increase in foreign companies, and firms headquartered in London, who were much more likely to be chiefly traded on London only.

Whilst the majority of the shift to being chiefly traded only on London can be accounted for by the change in firm characteristics, as shown above, there is a small proportion of the shift that cannot be explained by characteristics. This may reflect the propensity of some companies to prefer London towards the end of the period, possibly reflecting the growth in the status of the London Stock Exchange relative to the provincial markets.

7. Conclusions

Our findings suggest that the provincial markets played an important role in financing British industry during the late nineteenth century. They hosted numerous domestic enterprises, particularly at the start of our sample period. Once the scale of the provincial markets is considered, views that the London capital market failed British industry need to be ameliorated somewhat.

Our findings suggest that there was a fairly high correlation between the provincial and London markets, and that they became more correlated from the 1890s onwards. The timing of this upswing in correlation occurs simultaneously with improved communication

between the various stock exchanges and an increase in the number securities cross-listed on the provincial and the London markets, suggesting that these two phenomena may have had a role to play in improving integration. Notably, attempts by the members of the London Stock Exchange to undermine the integration of the provincial and London markets do not appear to have affected the correlation between the markets. However, it should also be noted that over two-thirds of the returns on companies chiefly traded only on provincial markets cannot be explained by changes in common with those chiefly traded only on London.

The results presented in this paper also reveal that the provincial markets began to decline relative to the London market from circa 1900 onwards. The relative decline in the provincial markets is mainly accounted for by changes in the types of companies which were publicly listed, rather than companies deciding to move away from the provincial markets. One major factor in the relative demise of the provincial markets was the decline in the number of banks and railways due to amalgamations. These securities had once been the core constituents of many of the provincial exchanges. There was also a substantial rise in the number of companies headquartered in London, and which operated overseas, which were almost exclusively chiefly traded only on London.

The question facing economists and policymakers is whether it would be desirable to re-establish the provincial exchanges. This paper suggests that historical provincial markets played a very useful role in helping regional companies raise finance from local investors. They served different types of companies, and although connected with London, they often moved independently. They declined as companies became increasingly based in London, and more internationally focused. This trend has continued in recent decades, suggesting that it would require government help to create and maintain provincial exchanges in the

modern era. However, such support may be a useful mechanism for encouraging enterprise in the regions.

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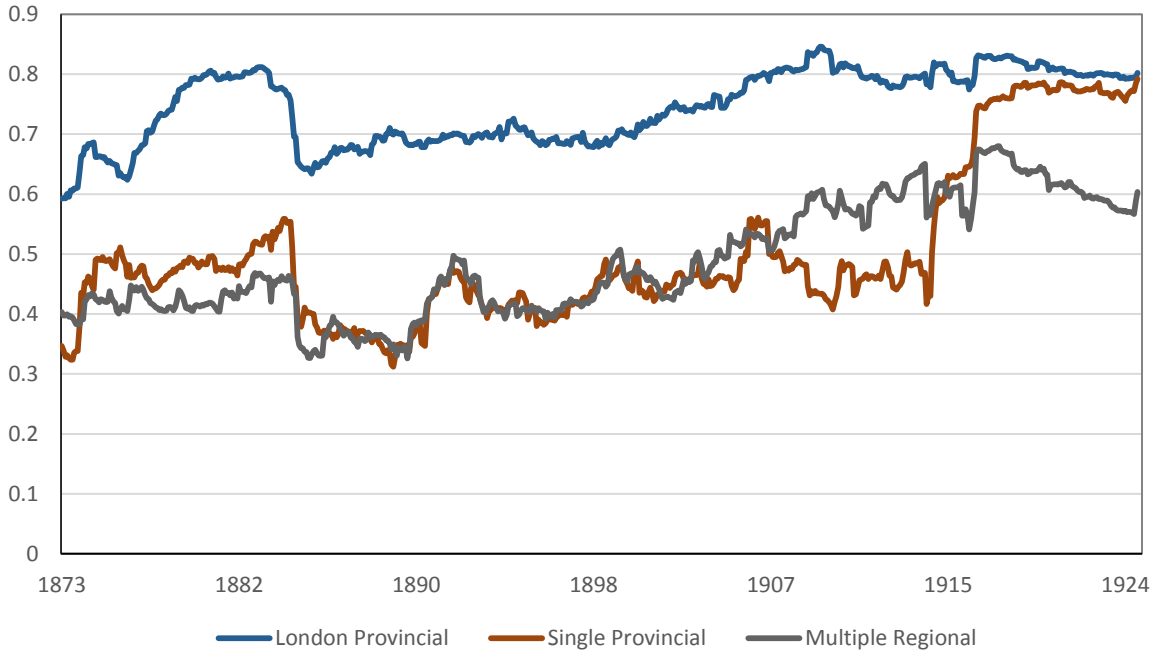
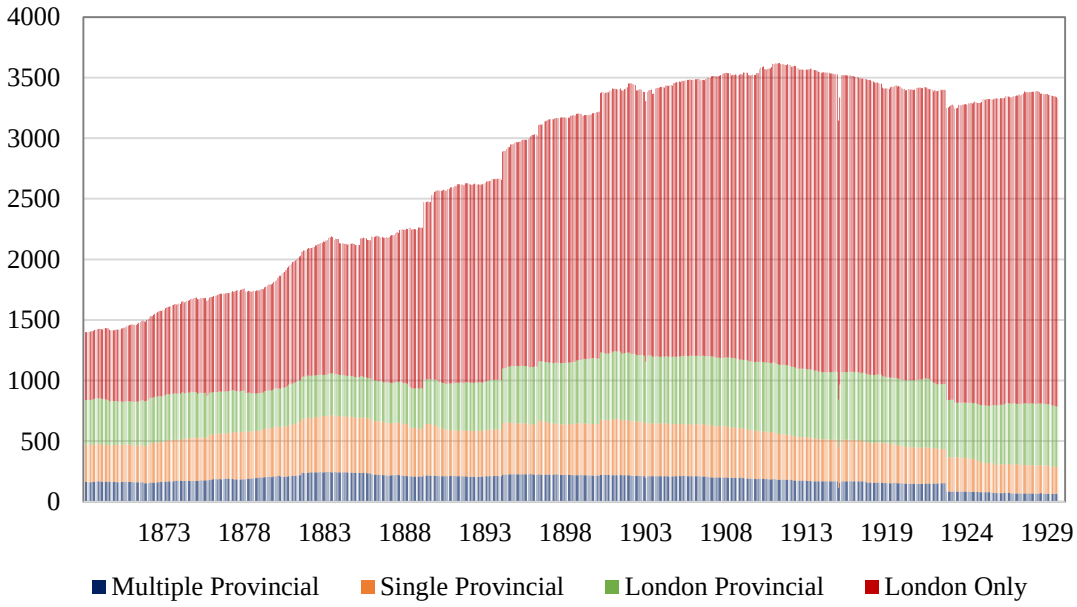
Figure 1: Rolling Correlations between London Only returns and returns on other listing strategies



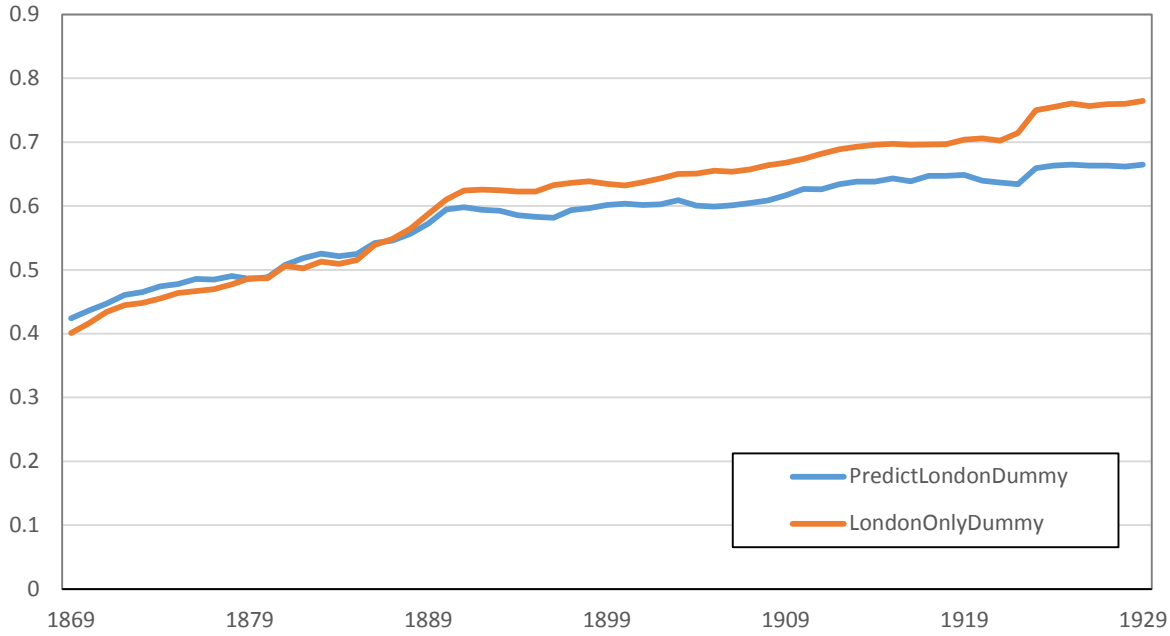
Notes: The London Provincial line shows the results from regressing returns on a portfolio of companies which were chiefly traded on the London Stock exchange and other regional stock exchanges against the returns on a portfolio of companies which were chiefly traded only on the London Stock Exchange. The Single Provincial line shows the results from regressing returns on a portfolio of companies which list on one regional stock exchange other than London against the returns on a portfolio of companies which were chiefly traded only on the London Stock Exchange. The Multiple Provincial line shows the results from regressing returns on a portfolio of companies which were chiefly traded on multiple regional stock exchanges other than London against the returns on a portfolio of companies which were chiefly traded only on the London Stock Exchange. The midpoint of each window is shown, so, for example, the correlation shown for June 1873 reflects a regression analysing the 120 months between 1869 and 1878.

Figure 2: Number of securities by listing strategy



Notes: Includes ordinary equity, preference shares and debt reported in the *Investor's Monthly Manual*. The listing strategies were defined as follows: 'London Only' are securities which were chiefly traded only on the London Stock Exchange; 'London & Provincial' are securities which were chiefly traded on the London Stock Exchange and other regional stock exchanges; 'Multiple Provincial' are securities which were chiefly traded on multiple regional markets other than London, and 'Single Provincial' are securities which were chiefly traded on just one provincial market.

Figure 3: Proportion of firms which were chiefly traded only on London Stock Exchange



Notes: LondonOnly represents the actual proportion of companies which were chiefly traded only on the London Stock Exchange. *PredictLondonOnly* represents the predicted proportion of companies which were chiefly traded only on the London Stock Exchange based on the characteristics of the firms and their coefficients from the logit regression in Table 10.

Table 1: Number of company securities reported in *Investor's Monthly Manual* as being 'chiefly traded' on each stock exchange

	1870	1880	1890	1900	1910	1920	1929
Domestic and international securities							
UK and Ireland	1421	1826	2569	3214	3538	3398	3328
London Stock Exchange	954	1207	1948	2572	2952	2950	3042
Provincial stock exchanges	830	937	1002	1181	1154	1000	784
Domestic securities							
UK and Ireland	1072	1254	1538	2120	2269	2107	2088
London Stock Exchange	612	657	959	1531	1729	1694	1830
Provincial stock exchanges	780	856	895	1048	1024	886	710
Provincial stock exchanges							
Aberdeen	28	52	44	40	35	29	10
Birmingham	110	92	75	83	74	66	67
Bristol	52	48	41	72	72	71	56
Cardiff	5	12	18	41	41	39	26
Dublin	92	104	104	97	74	66	43
Edinburgh	163	158	189	221	221	196	123
Glasgow	168	156	164	183	203	177	106
Leeds	16	21	27	44	56	40	39
Liverpool	264	225	234	243	230	225	133
Manchester	282	280	323	378	365	324	219
Newcastle	10	19	27	51	64	55	48
Sheffield	52	101	87	93	94	77	50
Other Minor Markets	65	109	119	114	90	56	42
Listing Strategy							
London Only	591	889	1567	2033	2384	2398	2544
London & Provincial	363	318	381	539	568	552	498
Multiple Provincial	163	207	213	215	187	148	62
Single Provincial	304	412	408	427	399	300	224
Unknown	137	56	110	260	134	260	215

Notes: Includes ordinary equity, preference shares and debt reported in the *Investor's Monthly Manual*. 'Other Minor Markets' include small markets such as Bath, Belfast, Bradford, Cork, Dundee, Halifax, Huddersfield, Hull, Lancaster, Newport, Norwich, Nottingham, Oldham, Rochdale, Swansea, Warrington and York. The listing strategies were defined as follows: 'London Only' are securities which were chiefly traded only on the London Stock Exchange; 'London & Provincial' are securities which were chiefly traded on the London Stock Exchange and other regional stock exchanges; 'Multiple Provincial' are securities which were chiefly traded on multiple regional markets other than London, and 'Single Provincial' are securities which were chiefly traded on just one provincial market. 'Unknown' are those securities which were in the dataset, but did not appear to be chiefly traded on any stock exchange according to the *Investor's Monthly Manual*.

Table 2: Total market capitalisation (£m) of company securities reported in *Investor's Monthly Manual* as being 'chiefly traded' on each stock exchange

	1870	1880	1890	1900	1910	1920	1929
UK and Ireland	1050.76	2382.99	3463.74	4540.40	6878.46	5174.42	9229.64
London	910.73	2124.43	3129.39	4048.76	6410.70	4867.41	8869.65
Provincial	508.26	1028.04	1369.37	1885.18	2279.85	1419.24	1670.59
Individual Markets							
Aberdeen	5.60	17.08	19.59	23.03	23.32	16.20	10.57
Birmingham	76.63	158.83	183.01	268.38	229.46	155.85	110.01
Bristol	12.50	12.88	25.51	61.21	74.59	130.90	278.89
Cardiff	2.94	5.93	13.95	24.02	28.62	29.47	16.31
Dublin	33.08	49.49	62.57	84.32	71.68	38.42	51.73
Edinburgh	74.77	127.13	187.01	336.86	274.57	196.79	285.04
Glasgow	84.08	166.37	210.56	330.68	426.12	267.98	368.98
Leeds	8.45	13.37	17.21	21.16	430.40	16.93	26.73
Liverpool	286.68	617.71	776.00	888.10	869.42	680.14	694.97
Manchester	325.73	691.86	903.78	1048.34	992.56	639.36	397.97
Newcastle	1.93	4.32	11.72	33.35	34.32	48.10	44.34
Sheffield	17.62	64.20	72.99	75.01	88.86	83.16	41.04
Other Minor Markets	16.50	34.67	56.59	67.09	53.66	30.41	43.42
Listing Strategy							
London Only	542.50	1354.95	2094.37	2655.22	4598.61	3755.18	7559.06
London & Provincial	368.23	769.48	1035.01	1393.54	1812.09	1112.23	1310.59
Multiple Provincial	73.80	141.85	182.58	231.13	212.08	126.42	107.34
Single Provincial	66.23	116.71	151.78	260.51	255.69	180.58	252.65

Notes: Market capitalisation is calculated as number of issued securities multiplied by market price of security. Includes ordinary equity, preference shares and debt reported in the *Investor's Monthly Manual*. 'Other Minor Markets' include small markets such as Bath, Belfast, Bradford, Cork, Dundee, Halifax, Huddersfield, Hull, Lancaster, Newport, Norwich, Nottingham, Oldham, Rochdale, Swansea, Warrington and York. The listing strategies were defined as follows: 'London Only' are securities which were chiefly traded only on the London Stock Exchange; 'London & Provincial' are securities which were chiefly traded on the London Stock Exchange and other regional stock exchanges; 'Multiple Provincial' are securities which were chiefly traded on multiple regional markets other than London, and 'Single Provincial' are securities which were chiefly traded on just one provincial market.

Table 3: Proportion of securities on each exchange issued by railways and banks

	Railways			Banks		
	1870	**1900**	**1929**	**1870**	**1900**	**1929**
UK	0.49	0.25	0.16	0.10	0.04	0.02
London	0.56	0.27	0.17	0.07	0.03	0.02
Provincial	0.58	0.26	0.08	0.10	0.05	0.02
Provincial stock exchanges						
Aberdeen	0.54	0.48	0.00	0.11	0.08	0.00
Birmingham	0.26	0.05	0.00	0.15	0.07	0.03
Bristol	0.62	0.25	0.00	0.04	0.04	0.04
Cardiff	0.80	0.41	0.00	0.00	0.00	0.00
Dublin	0.71	0.39	0.19	0.13	0.10	0.16
Edinburgh	0.67	0.29	0.00	0.06	0.04	0.03
Glasgow	0.77	0.51	0.15	0.05	0.04	0.04
Leeds	0.00	0.00	0.00	0.81	0.20	0.00
Liverpool	0.81	0.56	0.22	0.03	0.03	0.02
Manchester	0.85	0.46	0.23	0.02	0.02	0.01
Newcastle	0.50	0.00	0.00	0.00	0.00	0.00
Sheffield	0.29	0.24	0.02	0.10	0.06	0.00
Other Minor Markets	0.49	0.23	0.10	0.22	0.16	0.00
Listing Strategy						
London Only	0.38	0.24	0.18	0.10	0.03	0.02
London & Provincial	0.85	0.38	0.10	0.01	0.01	0.01
Multiple Provincial	0.61	0.33	0.06	0.11	0.10	0.06
Single Provincial	0.24	0.08	0.03	0.19	0.09	0.04

Notes: Includes ordinary equity, preference shares and debt reported in the *Investor's Monthly Manual*. 'Other Minor Markets' include small markets such as Bath, Belfast, Bradford, Cork, Dundee, Halifax, Huddersfield, Hull, Lancaster, Newport, Norwich, Nottingham, Oldham, Rochdale, Swansea, Warrington and York. The listing strategies were defined as follows: 'London Only' are securities which were chiefly traded only on the London Stock Exchange; 'London & Provincial' are securities which were chiefly traded on the London Stock Exchange and other regional stock exchanges; 'Multiple Provincial' are securities which were chiefly traded on multiple regional markets other than London, and 'Single Provincial' are securities which were chiefly traded on just one provincial market.

Table 4: Headquarters and listing strategy

	Listing Strategy			
	London Only (%)	**London & Provincial (%)**	**Multiple Provincial (%)**	**Single Provincial (%)**
Headquarters located in:				
London	93.8	4.1	0.4	1.8
Foreign	93.3	4.9	0.2	1.5
Rest of UK	30.4	15.4	11.8	42.3
Aberdeen	0.0	4.2	37.5	58.3
Birmingham	26.4	11.6	2.3	59.7
Bristol	19.1	21.3	14.9	44.7
Cardiff	46.3	20.4	13.0	20.4
Dublin	4.5	6.7	16.9	71.9
Edinburgh	6.0	13.5	23.3	57.1
Glasgow	10.8	18.6	26.5	44.1
Leeds	15.3	30.6	12.5	41.7
Liverpool	11.8	27.6	7.9	52.8
Manchester	11.4	22.8	15.0	50.9
Newcastle	27.8	26.4	12.5	33.3
Sheffield	19.3	14.5	6.0	60.2

Notes: Includes ordinary equity, preference shares and debt reported in the *Investor's Monthly Manual*. Company headquarters were reported in the *Investor's Monthly Manual*. The listing strategies were defined as follows: 'London Only' are securities which were chiefly traded only on the London Stock Exchange; 'London & Provincial' are securities which were chiefly traded on the London Stock Exchange and other regional stock exchanges; 'Multiple Provincial' are securities which were chiefly traded on multiple regional markets other than London, and 'Single Provincial' are securities which were chiefly traded on just one provincial market.

Table 5: Average liquidity on each market by decade

	1869-1879	1880-1889	1890-1899	1900-1909	1910-1919	1920-1929	1869-1929
UK and Ireland	0.53	0.52	0.52	0.48	0.49	0.49	0.50
London	0.53	0.52	0.51	0.47	0.49	0.49	0.50
Provincial	0.56	0.54	0.56	0.51	0.50	0.47	0.52
Individual Markets							
Aberdeen	0.62	0.55	0.52	0.51	0.50	0.51	0.54
Birmingham	0.52	0.48	0.59	0.54	0.53	0.41	0.51
Bristol	0.39	0.40	0.53	0.48	0.36	0.39	0.42
Cardiff	0.56	0.50	0.54	0.35	0.41	0.44	0.49
Dublin	0.55	0.55	0.64	0.61	0.57	0.54	0.58
Edinburgh	0.66	0.61	0.58	0.55	0.54	0.51	0.58
Glasgow	0.66	0.61	0.59	0.54	0.55	0.51	0.58
Leeds	0.47	0.48	0.43	0.35	0.32	0.36	0.40
Liverpool	0.61	0.61	0.59	0.55	0.54	0.50	0.57
Manchester	0.58	0.60	0.58	0.54	0.51	0.49	0.55
Newcastle	0.56	0.53	0.49	0.40	0.40	0.42	0.47
Sheffield	0.66	0.57	0.59	0.50	0.54	0.52	0.56
Other Minor Markets	0.39	0.45	0.50	0.48	0.42	0.44	0.45
Listing Strategy							
London Only	0.49	0.50	0.49	0.46	0.48	0.49	0.49
London & Provincial	0.59	0.60	0.57	0.52	0.49	0.47	0.54
Multiple Provincial	0.61	0.58	0.58	0.54	0.52	0.50	0.56
Single Provincial	0.50	0.48	0.53	0.49	0.49	0.46	0.49

Notes: Liquidity was measured as the proportion of corporate securities in the *Investor's Monthly Manual* which traded in a particular month, and this was estimated by looking at the proportion whose price changed. We have also examined the significance of whether each market is different than London. London vs Provincial has a p-value of 0.00. 'Other Minor Markets' include small markets such as Bath, Belfast, Bradford, Cork, Dundee, Halifax, Huddersfield, Hull, Lancaster, Newport, Norwich, Nottingham, Oldham, Rochdale, Swansea, Warrington and York. The listing strategies were defined as follows: 'London Only' are securities which were chiefly traded only on the London Stock Exchange; 'London & Provincial' are securities which were chiefly traded on the London Stock Exchange and other regional stock exchanges; 'Multiple Provincial' are securities which were chiefly traded on multiple regional markets other than London, and 'Single Provincial' are securities which were chiefly traded on just one provincial market.

Table 6: Average monthly total returns, 1869-1929

	Returns	Standard deviation	Sharpe Ratio
London Stock Exchange	0.38%	1.00%	0.11
Provincial stock exchanges	0.35%	0.80%	0.10
Difference	0.03%	(p value of 0.59)	

Notes: The total returns include capital appreciation and dividends / coupons on ordinary equity, preference shares and debt reported in the *Investor's Monthly Manual*. The p-value is that from a difference-of-means test between the returns on the London market and the returns on provincial markets.

Table 7: Correlations between returns on London and other exchanges

	Cross listed included		Cross listed removed	
Panel A: Compared to London				
Provincial markets	0.80	***	0.59	***
Provincial stock exchanges				
Aberdeen	0.38	***	0.18	***
Birmingham	0.39	***	0.31	***
Bristol	0.31	***	0.09	**
Cardiff	0.19	***	0.12	***
Dublin	0.39	***	0.33	***
Edinburgh	0.59	***	0.45	***
Glasgow	0.63	***	0.48	***
Leeds	0.30	***	0.16	***
Liverpool	0.74	***	0.40	***
Manchester	0.75	***	0.42	***
Newcastle	0.30	***	0.23	***
Sheffield	0.48	***	0.30	***
Other Minor Markets	0.33	***	0.24	***
Panel B: Compared to London Only				
London & Provincial	0.74	***	-	-
Multiple Provincial	0.50	***	0.50	***
Single Provincial	0.54	***	0.54	***

Notes: The adjusted R^2 is shown above and this represents the correlation between the returns of each stock exchange regressed against the returns of the London Stock Exchange. *** p<0.01, ** p<0.05, * p<0.1. Other Minor Markets include small markets in England, Scotland, Wales, and Ireland. Cross-listed are any companies which were listed on the London Stock Exchange and another regional stock exchange. The listing strategies were defined as follows: 'London Only' are securities which listed only on the London Stock Exchange; 'London & Provincial' are securities which listed on the London Stock Exchange and other regional stock exchanges; 'Multiple Provincial' are securities which listed on multiple regional markets other than London, and 'Single Provincial' are securities which listed on just one provincial market.

Table 8: Regressions explaining returns on portfolios of securities grouped by their listing strategy

	(1) London & Provincial Return	(2) London & Provincial Return	(3) Multiple Provincial Return	(4) Multiple Provincial Return	(5) Single Provincial Return	(6) Single Provincial Return
LondonOnlyReturn	0.666***	0.789***	0.537***	0.594***	0.442***	0.479***
	(0.023)	(0.028)	(0.034)	(0.044)	(0.025)	(0.032)
SMB		-0.191***		-0.077*		0.031
		(0.029)		(0.045)		(0.033)
HML		-0.037		0.067		0.020
		(0.029)		(0.045)		(0.034)
RMN		0.026		0.058		-0.016
		(0.029)		(0.046)		(0.034)
FMD		-0.219***		-0.246***		-0.164***
		(0.031)		(0.049)		(0.036)
Constant	0.002***	0.001***	0.001***	0.001**	0.001***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	728	704	728	704	728	704
R-squared	0.541	0.595	0.252	0.279	0.292	0.333

Notes: Standard errors are in parentheses; *** p<0.01, ** p<0.05, * p<0.1. The returns of the portfolios are equally weighted averages of the individual securities. The dependent variable is the returns on the portfolios of the listing strategies. *LondonOnlyReturn* is the return on the portfolio of companies who were chiefly traded only on the London Stock Exchange. *SMB* is the difference in returns between a portfolio of small companies minus big companies were chiefly traded on the London Stock Exchange. *HML* is the difference in returns between a portfolio of high dividend yield companies minus low dividend yield companies were chiefly traded on the London Stock Exchange. *RMN* is the difference in returns between railway companies and non-railway companies on the London Stock Exchange. *FMD* is the difference in returns between foreign companies minus domestic companies were chiefly traded on the London Stock Exchange.

Table 9: Number of new listings by listing strategy, 1870-1929

	London Only	London & Provincial	Multiple Provincial	Single Provincial	Total
1870-1874	221	20	29	44	314
1875-1879	109	23	35	100	267
1880-1884	280	33	49	114	476
1885-1889	299	25	7	41	372
1890-1894	414	80	16	57	567
1895-1899	536	125	8	102	771
1900-1904	333	57	8	65	463
1905-1909	278	19	0	31	328
1910-1914	251	8	4	21	284
1915-1919	55	8	0	10	73
1920-1924	254	32	3	2	291
1925-1929	351	33	3	8	395
All Years	3381	463	162	595	4601

Notes: The number of new listings includes ordinary equity, preference shares, and debt. London Only represents the companies who were chiefly traded only on the London Stock Exchange, London & Provincial represents the companies who were chiefly traded on the London Stock Exchange and other regional stock exchanges, Multiple Provincial represented the companies who were chiefly traded on multiple regional markets other than London, and Single Provincial represents the companies who were chiefly traded on one regional market other than London.

Table 10: Logit regressions results

	1870	1880	1890	1900	1910	1920	1929
HQLondon	2.783***	2.685***	2.578***	2.603***	2.614***	2.523***	2.418***
	(0.182)	(0.148)	(0.119)	(0.102)	(0.099)	(0.102)	(0.108)
Foreign	3.661***	3.673***	3.166***	2.517***	2.588***	2.637***	2.316***
	(0.255)	(0.201)	(0.150)	(0.136)	(0.136)	(0.143)	(0.155)
Rail	-2.115***	-1.232***	-0.907***	-1.017***	-1.218***	-1.465***	-0.602***
	(0.202)	(0.166)	(0.140)	(0.133)	(0.133)	(0.136)	(0.184)
Bank	-0.649**	-0.301	-0.668***	-0.908***	-0.670**	-0.900***	-0.865**
	(0.289)	(0.250)	(0.248)	(0.266)	(0.303)	(0.345)	(0.343)
Liquidity	-0.862***	-0.868***	-0.650***	-1.965***	-1.563***	-0.631***	-0.070
	(0.290)	(0.239)	(0.214)	(0.213)	(0.204)	(0.207)	(0.208)
MarketCap	0.090**	0.020	0.006	0.013	0.021**	0.021**	0.002
	(0.037)	(0.015)	(0.011)	(0.010)	(0.009)	(0.011)	(0.004)
DivYield	0.010	-0.024	-0.018	-0.032**	0.050***	0.006	0.047**
	(0.010)	(0.026)	(0.017)	(0.013)	(0.019)	(0.014)	(0.019)
Constant	-1.207***	-1.085***	-0.907***	0.047	-0.424***	-0.392***	-0.613***
	(0.208)	(0.198)	(0.171)	(0.125)	(0.144)	(0.150)	(0.147)
Observations	1,287	1,751	2,547	3,201	3,524	3,354	3,316

Notes: Standard errors are in parentheses; *** p<0.01, ** p<0.05, * p<0.1. The dependent variable is a binary variable which is equal to 1 if the security is only were chiefly traded on London, 0 otherwise. *MarketCap* is the total market value of the company and *DivYield* is the dividend yield of the companies. Liquidity for each market was measured on a monthly basis as the average number of stocks whose price changed. This was then aggregated to an annual basis by taking the average across months for a particular year. *Rail* is a binary variable which is equal to 1 if a company was a railway, 0 otherwise. *Bank* is a binary variable which is equal to 1 if a company was a bank, 0 otherwise. *HQLondon* is a binary variable which is equal to 1 if a company's headquarter was in London, 0 otherwise. *Foreign* is a binary variable which is equal to 1 if a company was foreign, 0 otherwise