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VALUE CREATING MERGERS – BRITISH BANK CONSOLIDATION, 1885-1925

Abstract

The British banking sector had many small banks in the mid-nineteenth century. From around 1885 until the end of World War One there was a process of increasingly larger mergers between banks. By the end of the merger wave the English and Welsh market was highly concentrated, with only five major banks. News of a merger brought a persistent rise in the share prices of both the acquiring and the target bank (roughly 1% and 7%, respectively). Non-merging banks, especially those whose local market concentration rose as a result of the merger, saw their stock prices rise.

JEL Classification: G34, N23, N24

Keywords: Great Britain, Banking, mergers and acquisitions

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Value creating mergers – British bank consolidation, 1885-1925[1]

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Abstract

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1. Introduction

Beginning in 1826, when the Bank of England lost its monopoly power in England and Wales, joint stock banks entered the market alongside the existing private banks. By 1875 the 122 joint-stock banks in existence held over two-thirds of national deposits (see Collins (1988) Table 2.4 and p. 74), with private banks holding the remainder. In the last decades of the nineteenth century, as banks were busy expanding the branch networks, they began a long process of consolidation. Peak merger activity (in terms of numbers of banks) took place in the 1880s and 1890s (see Figure 1), although the largest mergers (by value) occurred in the twentieth century. By 1918 the 'Big 5' group of Lloyds, Barclays, National Provincial, Midland and Westminster had formed. Market concentration, measured in terms of a national Herfindahl index, increased roughly seven-fold (see Figure 2).

These historical events continue to shape today's British banking market. Matthews, Murinde and Zhao (2007) shows that the British market is still monopolistically competitive. Barclays and Lloyds remain amongst the largest five British banks; National Provincial and Westminster live on as NatWest within the Royal Bank of Scotland Group; and the Midland Bank only became part of HSBC in 1992.

Did these turn-of-the-twentieth century mergers create value for the participating institutions? Contemporaries and modern scholars have been skeptical. Sykes (1925) claims that (p. 589): "amalgamations have undoubtedly increased expenses, they have, in consequence, reduced net profits". Presnell (1970) wrote that the mergers could lead to complications due to (p. 383): "assimilate[ing] staffs inflated in numbers and perhaps diluted in quality". Collins and Baker (2001) show that as banks were merging, they shifted their assets towards more liquid (and lower-yielding) assets as bankers became more conservative. The Institute of Bankers, unsurprisingly, downplayed any benefits that the banking industry would reap from fewer banks remaining to serve consumers. F.E. Steele of the Institute argued

that: "the decrease in competition from this [the amalgamation movement] appears to have been more than counteracted by the increase which has occurred in the number of branches."[2]

On the other side of the argument Grossman (1999) finds that increasing market concentration raised bank returns. Our study differs from his in that we study mergers, not concentration (which was greatly impacted by the roughly fourfold increase in the branch network in this era, see Braggion, Dwarkasing and Moore (2015)). Grossman also measures concentration at the national level and examines the effect of national bank concentration on aggregate bank returns. In contrast we measure concentration at the county level and examine the impact of mergers at the individual bank level.

Grossman cautions that during this period concentration (p. 323): "rendered English banks less efficient as allocators of capital", which may imply a negative effect on bank share prices. Griffiths (1973) and Collins (1988) note that during the late 19th century bank amalgamations and collusive interest rate agreements between banks occurred at the same time, although they do not venture an opinion as to whether the increased concentration was beneficial for bank profits (and hence bank stock prices).

Whether mergers aided or hindered banks' profitability is an empirical question that we investigate, by looking at the stock market returns of banks upon merger announcements. We show a positive market reaction to a merger announcement. In the month two banks announced that they would merge, on average both of their stock prices reacted positively. The acquiring bank experienced an abnormal return of roughly 1%, whereas the target bank gained around 7%. This result is confirmed by an analysis of daily stock prices in a tighter window around the merger announcement.

A second question is what were the causes of these positive returns to banks and how did the merger movement affect the banking industry? If the merger of two banks leads to an

[2] Reported in *The Economist*, February 6, 1897 pages 200.

environment in which collusive agreements are easier to form and maintain then an increase in the stock prices of all non-merging (afterwards referred to as 'rival') banks would be expected (see Eckbo (1983)). Alternatively, if the merger had no impact on banking competition, or if the merger encouraged 'rival' banks to more aggressively price loans and deposits in the fight for market share, we might expect no impact (or even a negative impact) on the stock prices of 'rival' banks. We find a slightly negative impact on 'rival' banks in the first decade (1885-1895) of the merger movement upon announcement of a merger. This is consistent with the notion that merger gains were driven by improvements in the efficiency of merging banks at the expense of 'rival' banks. Thereafter, we find generally positive returns to rival banks, which became economically large (around 1%) in merger months in the period of mega-mergers, 1916-1925. In a tighter test, we find that rival banks that experienced the largest declines in local competition, as a result of a merger, obtained the highest share price gains. We conclude that when British banks were merging, they likely engaged in more collusive behavior between themselves, to the likely detriment of the consumer. Braggion, Dwarkasing and Moore (2017) show that, in response to higher concentration, banks shifted their portfolios to safer assets by restricting credit and raising interest rates to borrowers. This is also the conclusion of Griffiths (1973) who states that (p. 4): "in the mid-19th century banking was a competitive industry", which grew into a "loose cartel" towards the end of the century. Stigler (1971) finds that cartel agreements are easier to enforce in markets with fewer firms. Therefore, the decline in the number of the banks is likely to have gone hand-in-hand with more collusive behavior. Capie and Billings (2004) argue that (p. 69): "some agreements limiting competition between the banks certainly existed from as early as the mid nineteenth century." Presnell (1970) says that (p. 386): "The older tradition was for banks to maintain monopolies or cartels within local or regional circles", while Collins (1988) views the situation as (p. 80): "an effective cartel which limited competition on interest rates." Collins goes on to

argue that bank concentration was aided by the government's laissez-faire attitude to the formation of oligopolies and cartels prior to World War Two.

Although business mergers are as old as commerce itself, this is the first merger *wave* undertaken by business corporations and priced by financial markets (see Hannah (1974), Lipton (2006), and Nelson (1959)). One concern in interpreting the immediate change in stock prices to merger news is the possibility of ex-post regret. Although we show that investors reacted, on average, positively to news of a merger, investors may have tended to regret their *ex-ante* enthusiasm as unexpected problems arose when integrating two organizations. Cost savings may have failed to materialize, employee cultures may have been incompatible, or investors' irrational exuberance may have worn off. Stovel and Savage (2005) document the integration issues faced by acquiring banks (p. 1084): "trusted Lloyds workers … were installed in newly absorbed branches to teach Lloyds practices and monitor local workers." To examine if *ex-post* regret played a part in the process, we analyze the long-run performance of bank shares following a merger. We find no evidence of poor performance in bank share prices following a merger. In fact, recently merged banks typically outperformed non-merging banks by 2.4% p.a., as measured by the returns on their shares, for 12 months after the merger.

We study share prices, rather than accounting profits, for two reasons. First, share prices incorporate expectations of all future profits and changes in the share price provide the market's immediate evaluation of a proposed merger. In contrast, profits were only reported annually. Therefore, changes in the reported profits are due to everything that took place in a particular year, not just the impact of a merger. Second, published bank profits in this period are known to have been manipulated by the banks (see Capie and Billings (2004)). Although the documented manipulation was to smooth profits, it is possible that a bank would have been tempted to boost the reported profits at times when it was considering taking over other banks (or periods when it was concerned about being taken over itself).

The merger wave of British banks had a long-lasting effect on market concentration. We find that bank shareholders tended to benefit from these mergers, in particular from the large amalgamations that took place around the First World War. The strengthening of collusive agreements that such mergers permitted were likely to have been to the detriment of consumers. A Treasury committee formalized the policy of forbidding future mergers. The committee concluded in May 1918 that: "there is at present no idea of a money trust, [however] it appears to us not altogether impossible that circumstances might produce something approaching it at a comparatively early date."[3] Concerns of excessive market power led to Treasury *de-facto* forbidding further large amalgamations in Britain after 1918.

2. British banking

In the 19th century, British banks were commercial banks whose main activities were to collect deposits and make short-term loans. Long-term loans to, or equity investment in, the industrial sector rarely took place (see Capie and Collins (1996)). The banking sector had very little regulation and after 1851 the law treated banks identically to other limited liability companies (see Braggion, Dwarkasing and Moore (2017)). Grossman (1999) argues that the regulatory environment was virtually unchanged for banks in the period we study.

There were no restrictions on the geographical expansion of banks, either via mergers and acquisitions (M&A) or the establishments of *de novo* branches. Capie and Billings (2004) find that (p. 74): "Entry to banking took place almost every year throughout the nineteenth century and until World War I. There were no serious obstacles to establishing a bank, although to generate a large market share an extensive branch network was needed."

In 1885 there were 251 public and private banks operating in England and Wales (see *London Banks and Kindred Companies)*. Due to the mergers and failures far outweighing the

[3] See *The Economist*, May 25, 1918, p. 909-10.

few new banks created the number of banks in operation fell to 212 by 1895, 101 in 1905, and 54 by 1915.

Several reasons have been given for the merger wave in banking. Some claim that it was driven by country banks wishing to establish a foothold in London to access the clearing house and money market (see e.g. Federal Reserve Report (1932) and Capie and Billings (2004)). Others argue that banks needed to become larger to extend their network and implement a managerial hierarchy (see e.g. Stovel and Savage (2005) and Grossman (1999)). Another advantage of acquiring small, locally-based banks was the acquisition of the 'soft information' held by the target bank's management. Capie and Collins (1996) emphasize the personal connections between borrowers and bankers that were necessary to facilitate loans. Newton and Cottrell (1998) have emphasized the benefits that came with (p. 118): "directors' particular knowledge of local economies and of the customers that comprised them". However, the benefits of branching brought the problem of (p. 121): "worries about branch managers' skills and reliability" that large, nationwide banks had to take great care to manage (see Stovel and Savage (2005)).

The acquirers were usually London-based banks. In the early period, takeovers of private and small targets were more common and the two banks' branch networks did not usually overlap. However, as time progressed, bidders and (typically public) targets had overlapping branch networks and they were both much larger in size. In 1880 the top 10 banks in England and Wales held 35% of deposits. By 1920, when further large acquisitions were forbidden, the top 10 banks held 96.6% of deposits (see Braggion, Dwarkasing, and Moore (2017)). Figure 3 shows how county-level market concentration evolved over the decades. Initially, Lancashire and Yorkshire had low concentration, with high concentration in north Wales, the South East, and South West. By 1905, concentration was more uniform across the country with higher concentration in East Anglia and along the south coast. By 1925 market

concentration was markedly higher across the country. The highest levels of concentration were in East Anglia and the South West.

2.1. Merger Negotiations

Mergers and acquisitions between two joint stock banks during this era involved the full acquisition of the shares of the target firm. There were no tender offers nor hostile takeovers.

The two banks' boards (or more rarely the general managers) would meet in private to settle the terms of the agreement. In one merger, a North-Western Bank director, Mr A. Fletcher, began negotiations with the London and Midland Bank at the Junior Carlton Club two months before the official announcement. The negotiations were kept secret from all but the board. For a second merger, the initial letter from the Liverpool Union Bank's accountant to the acquirer (Lloyds) took place two days after the public announcement, which indicates that even important bank 'insiders', such as its accountant, had no knowledge of future plans.[4] When an agreement had been reached between the boards, letters were immediately mailed to both sets of shareholders. The mergers were also announced in *The Times of London* and many other newspapers.

Negotiations were concluded quickly as well as secretively. Often a fast conclusion to the deal was required by the agreement struck between the boards. For example, the agreement between the Glamorganshire Bank and Capital and Counties (struck on March 5, 1898) required shareholder approval within 40 days (clause 15). If such approval were not forthcoming either side could rescind the agreement without recourse. In our sample the average time between the date of the directors' agreement and the shareholders' *provisional* approval is about one month, in some cases approval occurs within two weeks. The minutes of shareholders' meetings often indicates that they had been entirely ignorant of the

[4] Private correspondence located in RBS and Lloyds bank archives. However, an acquiring bank would occasionally consult some of its largest shareholders to be sure the bank had their support.

negotiations. For example, *The Times* reports at the extraordinary meeting of the Imperial Bank shareholders in December 1892, to confirm the merger with the London Joint Stock Bank, the shareholder Mr. Hodges: "inquired who first suggested the amalgamation – 'which bank and when?'"

Provisional approval was usually uncontroversial, and shareholder votes were often unanimous. We only find one announced merger that was voted down by shareholders in this 40-year period.[5] Following shareholders' *provisional* approval, most joint-stock banks also required *formal* shareholder ratification at an extraordinary general meeting. *Formal* approval was also extremely fast: within two months (and usually within a week or two) of the date of the directors' agreement shareholders had met in an extraordinary general meeting and finalized the deal.

Since merger negotiations were secret from shareholders, and completion was virtually assured upon public announcement, the reaction of stock prices to the announcement is very likely to capture the market's anticipation of future expected profits.

Although there were no hostile bids, the M&A market was competitive. Target banks could, and did, walk away if the terms were not satisfactory. London and Midland Bank, for instance, entered negotiations for the acquisition of Stuckey's Banking Company in 1909. These negotiations failed and Stuckey's was eventually taken over by Parr's Bank later in 1909 (see Holmes and Green (1986) p.125). The London and Midland Bank also missed a chance with Wilts and Dorset Bank, which was later acquired by Lloyds (see Holmes and Green (1986) p.125), while the Bank of Westmorland accepted the Midland offer while rejecting two other offers (Holmes and Green (1986), p.91). The private bank of Hammond, Plumptree noted internally that: "immediately after Mr. W.O. Hammond's (a partner's) death, letters were received from the London and County Bank, Lloyds Bank, the Union of London

[5] Lancashire and Yorkshire Bank shareholders pressured their board to withdraw from a provisional agreement to be taken over by Parr's Bank in August 1910.

and Smiths Bank, and the Capital and Counties Bank, expressing a desire to enter into negotiations for the purchase of the business of the Canterbury Bank... representatives of three of these banks ... were met in person by Mr McMaster at his Partners request."[6]

3. Data and method

We locate the banks involved in M&As from Capie and Webber (1985) Appendix II. They report the mergers of all London joint-stock banks, provincial joint-stock banks, London private banks and provincial private banks. Their list, and our study, excludes foreign banks, colonial banks and merchant banks. We retrieve the public announcement dates of the provisional agreements between merging banks from *The Times of London, The Financial Times, The Manchester Guardian* and bank archives. We summarize our data sources in Appendix Table I.

We obtain monthly share prices, dividends, and issued capital from *The Investor's Monthly Manual* (IMM).[7] The IMM only reports share prices at monthly frequency. We construct a value-weighted monthly total return index of domestic equities, against which we benchmark the banks. Returns are measured in the usual manner, the price appreciation/depreciation adjusted for any dividends paid, share splits or share consolidations. The index comprises 121 banks, 33 railroads, 29 insurance firms, 26 breweries, 7 docks, 29 gas and electricity firms, 32 iron and coal works, 10 spinning mills, 20 shipping firms, 17 tea plantations, 11 telegraphs, 12 tramways, 8 railway carriage manufacturers, and 131 commercial and industrial firms. Our index covers roughly 15% (by value) of the London Stock Exchange and the components of our index mirror the industrial composition of the

[6] Private correspondence in Lloyds archive.
[7] Obtained from Yale's International Center for Finance (https://som.yale.edu/faculty-research/our-centers-initiatives/international-center-finance/data/historical-financial-research-data/london-stock-exchange)

London exchange (see Michie (1999) Table 3.2).[8]

When available, we obtain daily price data for banks traded on London and provincial exchanges around the announcement of a merger, from newspapers such as *Leeds Mercury*, *The Times of London, The Yorkshire Post & Leeds Intelligencer*, *Derby Daily Telegraph*, *Liverpool Echo*, *Manchester Courier*, *Bradford Daily Telegraph*, *Birmingham Daily Post* and *Liverpool Mercury*.

We collect the merger details (e.g., amount paid for the target, whether in shares or in cash, whether the directors/partners receive a seat on the bidder's board, whether any assets were excluded from the merger etc.) from the provisional agreements located in the archives of Barclays, Lloyds, HSBC, and Royal Bank of Scotland. Data on bank profitability, the number of shareholders, assets, liabilities and the branch network come from *London Banks and Kindred Companies*, *The Banker's Magazine*, and *The Banking Almanac*. We also obtain balance sheet information from *The Economist*'s bi-annual banking supplement.

Of the 169 mergers, 93 (55%) involve public bidders taking over public targets and 76 (44%) involve public bidders taking over private targets. 53 deals were concluded from 1885 to 1895, 58 mergers from 1896 to 1905, 32 the following decade, and 26 from 1916 until 1925. We only examine deals that involve exchange-traded (therefore public) bidders since we can only calculate returns for these banks.[9] We define public banks in the same way as *London Banks and Kindred Companies* and *The Banking Almanac* define them; those banks which issued tradeable shares to the owners, and had a board of directors, rather than partners. The overwhelming majority of public banks were also exchange-traded.[10]

[8] Our all-equity, domestic index components (measured at market value) are 18.2% of the (par value) of all domestic securities (which includes corporate bonds) in 1893 and 12.1% in 1913 (compared to Michie (1999) p. 88). The format of Michie's data does not allow for an "apples to apples" measurement of the coverage of our market index.

[9] There were several private banks that took over other private banks. There were no private bidders that took over public targets (see Capie and Webber (1985)).

[10] One exception is Barclays which became a public (i.e., joint-stock) bank following its creation in 1896, but was not quoted on the London Stock Exchange until 1902.

We present summary statistics of merging banks, at the time of their merger, in Table I. Panel A shows that the bidding bank was, on average, around ten times as large, and 23 years older, than the target bank. Slightly more than half the targets were public targets, the remainders were private banks. The mergers were announced by bidders that had achieved abnormal returns of 0.2%, on average, from their previous acquisitions. The announced merger would increase the concentration of the acquiring bank by 0.003 (on a scale from zero to one). The return on equity (ROE), is slightly higher for the acquiring bank, 10.8% compared to 9.9%.[11] 70.4% of all bidders were headquartered in London, in contrast to the targets of which only 20.1% had London bases. 21% of the target bank's directors (or partners) were appointed to the acquiring bank's board of directors.

In Panel B we show the summary statistics of the rival banks at the time of an announced merger. The mean deal size, namely the price paid for a target bank, averaged across all rival banks was £614,000.[12] The mean size of rival banks, at book value, was £13.9 million. The rivals' average ROE was 8.9%, and the estimated probability a rival bank would be acquired in the next year was 0.006.

We calculate market concentration in every county in every year (along the lines of Braggion, Dwarkasing and Moore (2017)) as:

$$County\ HHI = \sum_{k=1}^{N} \left(\frac{Number\ of\ branches_{kjt}}{\sum_{k=1}^{N} Number\ of\ branches_{kj}} \right)^2$$

where k indexes each bank present in county j in year t. We then calculate bank k's HHI by averaging the County HHIs over all counties in which it operated in and weighting the HHI of county j by the fraction of bank k's branches in county j. Δ HHI is calculated as the change in

[11] Private banks did not publicly release their profits, so we are unable to calculate the return on equity for private targets.

[12] The average deal size is much lower than the mean book value of the targets in Panel A since there were many more banks (i.e. rivals) operating in the U.K. in the early years of our sample when deal sizes were much smaller.

a bank's HHI from year *t-1* to year *t*. The average change in the rival bank's HHI, was zero since some mergers increased and some decreased *local* market concentration of their rivals.

4. Results

4.1 Bidder Returns

For each merger announcement we calculate the abnormal return on the bank's shares using the standard event study method of Brown and Warner (1985).[13] First, we estimate how the price of a bank's shares had historically varied in line with overall market movements. To do this we regress the actual monthly returns on the bank's shares, R_j (adjusted for any dividend payments) on the monthly returns of our index of shares traded on the London Stock Exchange, R_m. For each merger we use data from the sixty-second to the thirteenth month before the announcement to estimate $\hat{\alpha}_j$ and $\hat{\beta}_j$:

$$R_j = \alpha_j + \beta_j R_m + \varepsilon_{j,ann}.$$ [14]

Then, we calculate if the movements in bank share prices, in the period around the merger announcement, moved by more or less than was warranted given our estimates $\hat{\alpha}_j$ and $\hat{\beta}_j$ and the movement of the overall London market near the merger announcement. We calculate, month by month, the abnormal returns of the bank, r_j, as:

$$r_j = R_j - (\hat{\alpha}_j + \hat{\beta}_j R_m).$$ [15]

We compute cumulative abnormal returns (CARs) by summing the abnormal returns over one (or more) adjacent months around the merger. Finally, we average the CARs across mergers to obtain a cumulative average abnormal return (CAAR) which is a measure of the wealth created from the merger.

[13] Braggion and Moore (2013), Grossman and Imai (2016), and Lehmann-Hasemeyer, Hauber and Orpitz (2014) have used the event study method in historical contexts.
[14] The results are not sensitive to the choice of the estimation window.
[15] As a robustness check, since a_j and b_j are often imprecisely estimated, we set $\widehat{a_j}$ equal to zero and $\widehat{b_j}$ equal to one. The results do not vary greatly under this alternative procedure.

The results for bidders appear in Table II. We calculate a bidder CAAR in the announcement month of 0.82%, statistically significant at the 1% level.[16] The wealth effect is larger in the early period: 1.16% from 1885 until 1895,1.19% from 1896 to 1905, and then much lower, and statistically indistinguishable from zero, in the last two decades. Our results are not sensitive to the event window. If we consider the CAR from the start of the month before the announcement to the end of the announcement month, (-1, 0), we find that our estimated wealth effect increases from 0.82% to 1.06% over the whole sample. We obtain a wealth effect of 1.01% if we instead change the event window to the start of the month of the announcement until the end of the month after the announcement.[17]

The wealth creation for shareholders that we document for bidding banks differs from the typical results found in the literature on mergers. Andrade et al. (2001) for instance report negative abnormal returns for bidding firms throughout between 1973 and 1998. Similar results of wealth destruction by acquirers are reported by Betton et al. (2008). Houston and Ryngaert (1994), -2.3%, and Houston et al. (2001), -3.5%, find similar results for modern bank mergers, although DeLong (2001) finds non-negative effects for bank mergers in which both banks are in the same geographical area. A possible explanation of the difference between our results and the literature may lie in the private nature of the merger negotiations (see Section 2.1). Since the news of the merger was reported immediately after a provisional agreement was reached and there were few or no information leakages, the abnormal returns we find may be more likely to capture the full effect of the mergers. Another possibility is that the lack of deposit insurance and implicit bailout guarantees on banks may have led bank directors to act more prudently (vis-à-vis contemporary settings). In particular, directors appear to have

[16] We perform various tests that control for thin trading. We re-run the event study analysis using Dimson (1979) corrections for beta under different specifications of the lead-lag process. The results are little changed.
[17] In addition to computing t-statistics, we also compute the rank statistic of the abnormal returns. While the t-statistic relies on the assumption that market returns are distributed normally, the rank statistic does not make any specific assumption on the distribution of the returns. The results are basically unchanged.

avoided wealth destroying acquisitions.

4.2 Target Returns and Combined

We examine the 94 M&As that involve public targets. From these M&As we retrieve asset prices for 82 targets.[18] The results for target banks appear in Table II Panel B.

We find positive wealth effects for targets, ranging from 7.3% to 7.9% depending on which window we choose, which are statistically significant at the 1% level. There are positive wealth effects of 3.2% to 4.8% in the first two decades (statistically significant at 1%), and a much larger effect in the second decades, 7.9% to 20.0% statistically significant at the 1% level. These findings are in line with the results of other studies that report significant positive returns for target banks (see e.g., Becher (2000), Cornett et al. (2000), and Houston and Ryngaert (1994)), although the wealth effects we document are substantially lower.

The much lower returns to target banks may well indicate a vibrant Victorian-era market for corporate control. Bank managers could not protect themselves from unwanted suitors by deploying measures such as 'poison pills' that were only created in the late 20th century. Neither could managers rely on an anti-trust regulator to insulate them from unwanted advances. Therefore, all banks' share prices were likely to be close to their value to external bidders.

The results for the total wealth effect (the weighted average of the bidder and the target) are in Table II Panel C.[19] Over the full sample, mergers created wealth of a little over 2% for the merging banks. In the decadal analysis we see that wealth creation was 1.5% to 3% in the first three decades, increasing to over 4% from 1916 to 1925 when the largest mergers took

[18] Due to the rapid nature of most mergers, the target bank was sometimes delisted (and its price did not appear in the IMM) the month after the merger occurred.

[19] The combined wealth effect is computed as $\sum_{t=1}^{T}\left(\frac{MV_B(1+AR_{B,t})+MV_T(1+AR_{T,t})}{MV_B+MV_T}\right)$, where MV_B and MV_T are the market values of the bidder and the target two months before the announcement and AR_t is the abnormal return in month t.

place. This indicates that two banks that announced a merger increased in value, both in aggregate and individually. Markets anticipated that increased profits would flow to the merging institutions.

4.3 Wealth Effects with Daily Prices

Studies of corporate events are best measured with high frequency data, since there may be confounding events that occur in the month when a merger announcement takes place. To address this concern, in Table III we examine daily stock price returns surrounding the merger announcement when available.[20] We find that bidders have positive abnormal returns of about 0.5% in the three days surrounding the announcement. The only statistically significant increase is 0.27% on the day of the announcement. Targets experience abnormal returns of 4.7% over those three days. The magnitude is the largest, 2.21%, on the day of the announcement, although large statistically significant returns occur the day before and the day after the announcement. The proximate positive wealth effects we find in the daily analysis suggests that the large monthly returns in announcement months are most likely caused by the merger announcements themselves, and not confounding events. Importantly, the largest abnormal returns for both banks are in the days immediately surrounding the announcement. This result confirms our conjecture that the private nature of the mergers negotiation allows us to estimate the full impact of the merger announcement on the bidder's bank returns.

4.4 Cross-Sectional Correlations

In Table IV we delve into the factors that are correlated with successful mergers, that is those with higher abnormal returns. We regress the abnormal returns in the merger month of

[20] Our daily results are restricted to banks for which we are able to find daily prices via scanned newspapers from the British Newspaper Archive. We calculate an equally weighted daily index of all London-listed securities contained in Global Financial Data. We use 101 securities to construct the daily index. We impose alpha equal to zero and beta equal to one to calculate the abnormal returns. The results are little affected if we use a value weighted index.

the bidding bank (columns 1 and 2), the target bank (columns 4 and 5) and the combined entity (columns 5 and 6) on various bank characteristics that have been used in studies of bank mergers (see e.g., Houston and Ryngaert (1994), Houston, James and Ryngaert (2001), and DeLong (2001)). Since we cover a forty-year period, in which time the average bank was getting substantially bigger (due to branch expansion and mergers), we de-mean several of our variables by nationwide average values for the merger year to eliminate time trends that could cause spurious correlations.[21] We interpret these results as broad correlations between relevant characteristics of the banks and share returns.

We find that bidding banks that were more profitable created more value for the targets and overall (columns 3-6), although not for their own shareholders (columns 1-2). There is no clear relation between (above average) increases in market concentration and returns. When we control for the success of previous mergers (i.e., was value created in the past by the acquiring bank) we find that previous value creation is associated with increased value creation in the current merger. Aktas, de Bodt and Roll (2011) have found similar effects of learning via acquisition in modern markets. A standard deviation increase in bidders' average past CAR yields an increase of the combined shareholders' returns of about 77%.[22] Finally, we find that takeovers of less profitable targets (a lower ROE – Target) are associated with increased value creation for both bidders and targets.

4.5 Information Leakages and Price Run-ups

Although our analysis of the historical literature suggests that merger negotiations were kept private, there may have been a circle of insiders who knew about, and traded on, the progress

[21] The variables we detrend are the size of the bidder and the change in local HHI. This is because in our 40 years period banks became progressively larger and concentration tended to increase.
[22] The coefficient of Average past CARs (bidders) in Table 4, Column 9 is 1.28 We multiply that by the standard deviation of Average past CARs (bidders), 1.29, and divide by the average combined CAAR, 2.15%, to obtain 77% = 1.28 * 1.29 / 2.15.

of merger negotiations. If there are substantial information leaks our examination of the effect on share prices in the announcement month will not capture the full effect of the merger. Therefore, we check for information leaks by examining the abnormal returns of bidders and targets prior to the announcement. Panel A of Table V shows that there is no indication that bidders' stock prices increased in the months prior to the merger announcement. There is a statistically significant run-up of 1.5% in targets' stock prices from 4 months to 1 month prior to the announcement, although the magnitude is substantially smaller than the impact on the targets' shares in the month when the public announcement is made (7.3% over the full sample). This suggests there is little advance warning of an impending takeover that leaked to the market.

In Panel B we examine the trading activity of a small sample of target banks' shares around the public announcement. We examine target banks that were officially listed on the London Stock Exchange (most target banks were listed on provincial exchanges) since there are good quality data on the number of transactions in bank shares in London. We calculate the average number of daily trades for target banks from 51 to six weeks prior to the public announcement as a baseline measure of turnover. We then examine whether turnover rose just before the announcement (from five weeks prior to the week before the announcement) and following the announcement (the week of the announcement to four weeks afterwards).

Although there is a rise in the trading activity of Consolidated Bank and City Bank shares in the five weeks immediately prior to the announcement there is no discernible increase in trading of the other six targets. Once the announcement has been publicly made, there is a substantial increase in share trading for seven of the eight target banks. City Bank is again an exception, which suggests that news of its imminent takeover was a rare example when information did leak to the market prior to the official announcement.

Our results confirm the historical narrative that little information leaked from directors' negotiations and that merger discussions were concluded swiftly. Therefore, the public

announcement is the relevant information disclosure event as far as the market is concerned, and our announcement window precisely captures the effect of information release. These results contrast with the modern literature (see e.g., Asquith et al (1983), Keown and Pinkerton (1981), Malatesta (1983), and Ahern and Sosyura (2016)). Information leaks are prevalent in contemporary mergers. Eckbo (2009) documents that around one-third of a target's price increase occurs prior to the public announcement.

4.6 Long Run Abnormal Returns

We measure the long-run effects of mergers on the bidding bank, to see if investors' positive *ex-ante* outlook on the success of a merger was realized. We follow the approach of Fama (1998). We construct portfolios, rebalanced monthly, of banks which had taken over any target in the previous 12 (or 24) months. In Table VI we calculate equally-weighted portfolio returns and then regress portfolio returns on Carhart's four risk factors of the market return less the risk-free rate, Small minus Big, High minus Low, and Momentum (see Carhart (1998)).[23] The intercept, alpha, shows the monthly abnormal return on the portfolio of acquirers.

We find a very small level of positive post-merger performance, concentrated in the 1885-1895 decade. Acquiring banks in the first year after the merger obtain an alpha of 0.2% per month, or 2.4% per annum, over the entire sample (panel A, column 1). Most of this effect comes in the first decade of our sample, 0.2% per month (panel A, column 2) with little excess performance in the next decades (panel A, columns 3-5). These results indicate that banks that had taken over other banks saw their stock prices continue to rise, over a protracted period, by more than otherwise identical banks that had not taken over others in the past year. We also

[23] The risk-free rate is the Bank of England Bank Rate which comes from 'Tabular History of the Money Market' which is reported in the December issues of the IMM. If we construct value-weighted portfolios, instead of equally-weighted portfolios, our results are little changed.

find some evidence that merging banks experienced mild outperformance up to two years after the merger although these results are not statically significant (Panel B).

4.7 Analysis of Rivals' Abnormal Returns and Determinants of Merger Gains

We now study the impact of bank mergers on the banking industry. We examine the effects of a merger announcement on the abnormal returns of rival (i.e. uninvolved) banks. There are two possible effects of mergers on rival banks. Firstly, mergers may increase the profitability of the rival banks if there is a reduced amount of competition in the market for deposits and loans. Since there will be fewer banks in the market post-merger, anti-competitive agreements should be easier to coordinate and enforce and credit may be rationed by the banking industry. This effect implies a positive relation between merger announcements and the abnormal returns of rival banks. Griffiths (1973) argues that (p. 7): "It would be wrong to conclude … that the cartel which operated pre-1914 among the London banks with respect to interest on deposits was anything like as rigid as that which existed post-1920." Secondly, the merged bank may be a larger, more efficient, competitor for rivals which implies a negative impact on rivals' abnormal returns. Grossman (1999) reports the managing director of the Midland Bank saying that after a merger (p. 328): "our bank combined with his would command the best business and destroy active competition".

To discriminate between these competing hypotheses, we employ Eckbo's (1983) method. We examine the abnormal returns of 'rival' banks at the time of each merger announcement in Table VII. We estimate the market betas individually for each rival bank, we calculate their abnormal returns, and then calculate the cross-sectional average abnormal return in the announcement month.[24] In the full sample (1885-1925) we find that, in the month

[24] We follow Petersen (2008) and cluster our standard errors. We cluster the errors along various dimensions: acquiring bank, rival bank, as well as rival bank and year of the merger. Our results are invariant to the various types of clustering.

of a M&A announcement, rival banks gained, on average, 0.11% which is statistically significant at the 1% level. There are modest, or negative, returns to rivals in the early decades, when concentration was flat or rising slowly. Most of the gains to rival banks came in the post-1916 period, when news of a merger was associated with a 0.89% abnormal return for rival banks, statistically significant at the 1% level. The post-1916 period is when the Herfindahl concentration index dramatically rose (see Figure 2).

In Table VIII we examine the cross-section of rivals' returns to investigate which rivals benefited the most from a merger. We find that rivals that were situated in local markets where concentration had increase the most (Δ HHI – Rival was large) experienced the largest returns.[25] As the unit of observation is rival bank *i* experiencing merger *j*, the regressions in Table VIII can control for both rival bank and merger fixed effects. Merger fixed effects is an especially powerful control, as it allows us to hold constant any of the features associated with a particular merger (such as the characteristics of the bidder and the target bank as well as any related time effect). Each rival bank experiences different changes in concentration following the merger as each bank has a different branch network. A one standard deviation increase in Δ HHI - Rival is associated with an abnormal return roughly 0.6 percentage points higher for that rival, which corresponds to more than a 50% increase. Higher returns for rivals are consistent with the idea that much of the gain to shareholders came at the expense of decreased bank competition, rather than through cost savings.[26] We also find that rival banks that were more profitable (a higher return on equity) benefited more from other banks merging than did

[25] We calculate ΔHHI for each bank based on the distribution of all banks' branches before and after the merger.
[26] Another hypothesis put forward by Eckbo (1983) is that rivals banks may obtain positive abnormal returns because, by observing banks acquiring other banks, they learn that mergers can be a profitable activity (and the market recognize this). We believe that this hypothesis is unlikely to drive our results. First, we find the largest abnormal returns in the last decade of our sample period, after banks have been merging for about thirty years. Cost and benefits of acquisitions should have been clear by then. Second, the regressions in Table VIII control for year and merger fixed effects. To the extent that each merger reveals the same information to every uninvolved rivals, year and merger fixed effects would control for banks' learning. Third, if learning is more likely to occur in banks that will become targets in the near future, the regressions in Table VIII control for the probability that an uninvolved rival will become a target in acquisition.

smaller rivals: a standard deviation increase in the profitability of the target bank more than doubles the gains from a merger.

5. Conclusion

We study the shareholder wealth effects for banks during the U.K. merger wave from 1885 to 1925. Merger negotiations were private and regulators were uninvolved. Information release was quick and unambiguous, and all but one announced merger completed.

We find positive wealth effects for bidders and targets following the M&A announcement. Takeovers of poorly performing banks by profitable banks with successful mergers behind them were more likely to create wealth. As the merger wave progressed, banks uninvolved in a proposed merger ('rival' banks) experienced close to a 0.9% abnormal return in a month in which a merger was announced. The larger the increase in market concentration for a rival bank, the larger the return, indicative of an increased likelihood of collusion following the merger wave.

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Table I
Summary Statistics

Public Target equals one if the target was listed on a stock exchange and zero otherwise. Δ HHI is the change in the merging bank's Herfindahl index (calculated using branch data at the county level) from the year before to the year after the merger. Average past CAR (bidder) is the average cumulative abnormal return of all mergers the bidder has previously completed. Return on Equity (ROE) equals the previous year's profits divided by the nominal value of paid up capital. Payment in shares equals one if the target accepted part of the payment in the shares of the bidder and zero otherwise. Extensively branched equals one if the number of branches of the bidder (target) is larger than the 75th percentile of bidders (targets) in the sample and zero otherwise. Headquartered in London equals one if the bank's headquarters were in London and zero otherwise. Branch Overlap is as defined in Houston and Ryngaert (2001), namely $\sum \min (T_i, B_i) / \sum \min (T_i + B_i)$ where T_i is the number of branches of the target in town i, and B_i is the number of branches of the bidder in town i, where we sum over all towns in which either bank has a branch. Proportion of Target's Directors to Bidder Board equals the number of directors or partners of the target that were appointed to the Bidder's board of directors following the merger divided by the number of the Target's directors or partners. Deal Size is the total price paid for the target. Δ HHI - Rival is the change in the rival bank's Herfindahl index (calculated using branch data at the county level) from the year before to the year after the merger. Rival's probability of being acquired in a year is estimated via a Probit model the year before the merger.

Panel A - Merging Banks at Time of Merger

	Mean	Median	Standard Deviation	# Observations
Book Value of Assets (£ '000) - Bidder	51,268	24,442	76,104	167
Book Value of Assets (£ '000) - Target	5,299	1,668	12,639	138
Public Target	0.550	1	0.499	169
Δ HHI	0.003	0.0002	0.110	169
Average past CAR (Bidder)	0.21%	0.039%	1.05%	136
ROE - Bidder	0.108	0.105	0.033	161
ROE - Target	0.099	0.078	0.163	99
Payment in Shares	0.693	1	0.463	150
Target Age (years)	75.647	74.000	40.990	167
Bidder Age (years)	52.946	56.000	22.069	166
Extensively Branched - Bidder	0.250	0.000	0.434	168
Extensively Branched - Target	0.242	0.000	0.430	165
Headquartered in London - Bidder	0.704	1.000	0.458	169
Headquartered in London - Target	0.201	0.000	0.768	169
Branch Overlap - Bidder and Target	0.020	0.000	0.051	165
Proportion of Target's Directors to Bidder Board	0.211	0.167	0.245	125

Panel B - Rival (Non-Merging) Banks at Time of Merger

	Mean	Median	Standard Deviation	# Observations
Deal Size (£ '000)	614	275	1,103	7,676
Book Value of Assets (£ '000) - Rival	13,867	3,645	38,243	8,569
Public Target	0.523	1.000	0.500	9,563
Δ HHI - Rival	0.000	0.000	0.003	9,162
ROE - Rival	0.089	0.087	0.023	8,751
Rival's probabilty of being acquired	0.006	0.005	0.005	8,034

Table II
Wealth Effects of Mergers and Acquisitions

We calculate the cumulative average abnormal returns of bidders and targets in the months surrounding the announcement of a merger. Month 0 is the month in which the announcement took place, -1 the month before, +1 the month after. Standard errors are in parentheses, and are clustered by bank. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

Panel A: Bidders, Cumulative Average Abnormal Returns (%)				
Event Window	**(0)**	**(-1 , 0)**	**(0 , +1)**	# Obs.
Full Sample (1885-1925)	0.82***	1.06***	1.01***	169
	(0.20)	(0.31)	(0.26)	
1885-1895	1.16***	1.11*	1.75***	53
	(0.41)	(0.62)	(0.57)	
1896-1905	1.19***	1.31***	1.30***	58
	(0.26)	(0.38)	(0.32)	
1906-1915	0.07	0.39	0.02	32
	(0.29)	(0.39)	(0.46)	
1916-1925	0.23	1.24	0.09	26
	(0.69)	(1.20)	(0.78)	
Panel B: Targets, Cumulative Average Abnormal Returns (%)				
Event Window	**(0)**	**(-1 , 0)**	**(0 , +1)**	# Obs.
Full Sample (1885-1925)	7.33***	7.91***	7.79***	82
	(1.47)	(1.58)	(1.51)	
1885-1895	3.23*	3.73*	4.25*	18
	(1.57)	(2.07)	(2.28)	
1896-1905	3.35***	4.76***	4.06***	29
	(0.82)	(1.32)	(1.02)	
1906-1915	7.89***	8.12***	8.02**	21
	(2.71)	(2.70)	(2.82)	
1916-1925	20.01***	19.52**	19.74***	14
	(5.44)	(6.12)	(5.51)	
Panel C: Combined, Cumulative Average Abnormal Returns (%)				
Event Window	**(0)**	**(-1 , 0)**	**(0 , +1)**	# Obs.
Full Sample (1885-1925)	2.15***	2.28***	2.21***	82
	(0.38)	(0.40)	(0.40)	
1885-1895	2.32***	3.05**	3.38***	18
	(0.73)	(1.10)	(0.97)	
1896-1905	1.48***	1.66***	1.72***	29
	(0.34)	(0.54)	(0.50)	
1906-1915	1.58**	1.81**	1.12	21
	(0.65)	(0.77)	(0.67)	
1916-1925	4.15**	4.93**	4.09**	14
	(1.53)	(2.16)	(1.49)	

Table III
Wealth Effects, Daily Frequency

We calculate the average abnormal returns of bidders and targets in the days surrounding the announcement of a merger. Day 0 is the day on which the announcement took place, -1 the day before etc. Standard errors are in parentheses, and are clustered by bank. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

	Bidders			Targets		
Days relative to announcement	AR	Standard Errors	Obs	AR	Standard Errors	Obs
-3	0.09%	0.09%	76	0.27%*	0.15%	50
-2	-0.01%	0.07%	78	0.26%*	0.15%	53
-1	0.11%	0.08%	81	1.06%***	0.34%	60
0	0.27%**	0.12%	83	2.21%***	0.53%	63
1	0.13%	0.08%	83	1.40%**	0.55%	59
2	-0.06%	0.07%	63	0.05%	0.23%	47

Table IV
Determinants of Abnormal Returns

We run an OLS cross-sectional regression of the deals' abnormal returns in the merger month. Relative Book Value of Assets - Bidder is the book value of the bidder's assets at the time of the takeover divided by the UK average of bank assets in that year. Relative Δ Bank HHI is the change in the bidder bank's Herfindahl index from the year before to the year after the merger divided by the UK average change in Bank HHI over the same period. In columns 2, 4, and 6 we include the additional controls of payment in shares, target and bidder age, extensive branching, headquartered in London, branch overlap, and the proportion of target directors who were appointed to the bidder's board. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level

	Bidder		Target		Combined	
Public Target	0.036	-0.095				
	(0.652)	(0.770)				
Relative Book Value of Assets-Bidder	0.163	0.150	-6.038	4.363	-1.066*	0.215
	(0.254)	(0.552)	(5.071)	(4.877)	(0.589)	(1.077)
ROE - Bidder	-12.234**	-4.77	177.55***	168.10*	66.34***	77.63***
	(6.056)	(6.966)	(59.557)	(87.129)	(20.650)	(26.530)
Relative Δ Bank HHI	0.000	0.001**	-0.202	-0.264	-0.040	-0.011
	(0.000)	(0.001)	(0.155)	(0.178)	(0.041)	(0.048)
Average past CAR (Bidder)	1.337***	1.42***	-0.578	1.08	1.063***	1.28***
	(0.135)	(0.157)	(0.703)	(0.896)	(0.235)	(0.333)
ROE - Target	-1.822***	-1.97***	-74.101	-105.84*	-20.592	-40.57**
	(0.399)	(0.531)	(48.510)	(61.559)	(13.508)	(18.774)
R^2	0.622	0.670	0.177	0.432	0.461	0.551
Additional Controls	NO	YES	NO	YES	NO	YES
Observations	77	74	63	60	63	60

Table V
Information Leakages

In Panel A we present cumulative average abnormal returns for firms involved in a merger in the months leading up to the merger announcement. Standard errors are clustered by bank. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively. In Panel B we show the average number of daily trades (not the volume of shares) of the target bank from 51 weeks to 6 weeks before the merger announcement, from 5 weeks to the week before the announcement, and from the announcement week to 4 weeks after the announcement.

Panel A : CAARs

	Bidders		Targets	
Months relative to the announcement	CAAR	Standard Errors	CAAR	Standard Errors
[-24,-13]	0.29%	0.45%	0.12%	0.92%
[-12,-5]	0.29%	0.55%	0.93%	1.12%
[-4,-1]	0.20%	0.35%	1.48%*	0.73%
-12	0.07%	0.18%	-0.02%	0.19%
-11	0.08%	0.17%	0.29%	0.22%
-10	0.02%	0.16%	0.15%	0.27%
-9	-0.05%	0.19%	-0.12%	0.35%
-8	0.20%	0.16%	0.53%	0.33%
-7	-0.16%	0.22%	-0.14%	0.42%
-6	0.28%	0.18%	0.43%	0.32%
-5	-0.09%	0.22%	-0.17%	0.42%
-4	-0.06%	0.18%	0.31%	0.28%
-3	-0.23%	0.19%	0.27%	0.28%
-2	0.21%	0.15%	0.32%	0.44%
-1	0.26%	0.18%	0.58%	0.50%

Panel B : Average Number of Daily Trades (Target)

Target	Date	(-51, -6)	(-5, -1)	(0, +4)
Consolidated Bank	Apr 27, 1896	0.22	1.75	3.20
City Bank	Oct 2, 1898	1.18	5.75	4.20
London & Westminster	Jul 23, 1909	2.85	3.25	3.80
Union of London & Smiths	Dec 14, 1917	1.84	1.75	3.40
Parr's Bank	Feb 1, 1918	1.98	2.00	4.80
London Joint Stock	Feb 18, 1918	3.13	3.00	8.80
London, Provincial & SW	Jul 11, 1918	5.11	5.25	8.60
Capital & Counties	Jul 17, 1918	2.20	2.00	3.20

Table VI

Long-Term Buy and Hold Abnormal Returns for Acquiring Banks

We construct portfolios, rebalanced monthly, of banks which had taken over at least one public target in the last 12 or 24 months. We calculate equally-weighted portfolio returns and regress portfolio returns on (i) the market return less the risk-free rate and (ii) the 4 Fama-French factors. The intercept, alpha, shows the portfolio abnormal return. Standard errors are clustered by bank and appear in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

Panel A : Taken over any target in last 12 months					
	Full Sample	1885-1895	1896-1905	1906-1915	1916-1925
Alpha	0.002**	0.002*	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)
Market return - risk free	0.442***	0.406***	0.449***	0.291**	0.519***
	(0.067)	(0.152)	(0.120)	(0.143)	(0.102)
Small minus Big	0.084	0.114	0.112	0.385**	0.265
	(0.095)	(0.137)	(0.171)	(0.179)	(0.237)
High minus Low	-0.070	0.042	0.252*	-0.174	-0.412**
	(0.070)	(0.096)	(0.149)	(0.142)	(0.183)
Momentum	0.027	0.132**	0.028	-0.119	0.046
	(0.046)	(0.065)	(0.107)	(0.085)	(0.100)
R^2	0.200	0.103	0.241	0.210	0.290
Observations	422	108	120	101	93
Panel B : Taken over any target in last 24 months					
	Full Sample	1885-1895	1896-1905	1906-1915	1916-1925
Alpha	0.001	0.002	0.001	0.000	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Market return - risk free	0.471***	0.380***	0.448***	0.311**	0.512***
	(0.073)	(0.116)	(0.099)	(0.133)	(0.089)
Small minus Big	0.149	0.054	0.057	0.269*	0.614***
	(0.114)	(0.111)	(0.134)	(0.152)	(0.222)
High minus Low	-0.118	0.044	0.271**	-0.174	-0.570***
	(0.088)	(0.089)	(0.122)	(0.142)	(0.167)
Momentum	0.053	0.105*	0.089	-0.065	0.050
	(0.042)	(0.053)	(0.096)	(0.058)	(0.079)
R^2	0.161	0.109	0.284	0.246	0.403
Observations	450	120	120	103	107

Table VII
Rival Banks' Abnormal Returns

We present the average abnormal returns of rival banks (i.e. those not participating in the merger) and the associated standard errors (in parentheses) calculated in the month of a merger announcement. We cluster the standard errors by rival bank.

Sample	Full	1885-1895	1896-1905	1906-1915	1916-1925
Average Abnormal Return	0.11%***	-0.08%**	0.25%***	0.07%	0.89%***
Standard Errors	(0.03)	(0.04)	(0.05)	(0.04)	(0.20)
Number of Mergers	161	53	58	22	28
Observations of Rival Banks' Returns	9555	4113	3536	1442	464

Table VIII

Determinants of Rival Banks' Abnormal Returns

We regress the abnormal return of rival banks in the month of an announcement on various characteristics. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively. We cluster the standard errors by rival bank.

Determinants of Rival Banks' Returns					
	(1)	(2)	(3)	(4)	(5)
Banks Fixed Effects	No	No	Yes	Yes	Yes
Year Fixed Effects	No	No	No	Yes	No
Merger Fixed Effects	No	No	No	No	Yes
Δ HHI - Rival	20.67**	26.46**	23.51**	20.45*	18.47*
	(8.48)	(10.43)	(10.61)	(10.84)	(10.89)
Public Target		0.01	0.02	-0.01	
		(0.06)	(0.06)	(0.07)	
ROE - Rival		2.85	9.81***	6.78**	6.48**
		(2.12)	(3.13)	(3.27)	(3.22)
ln (Deal Size)		0.01	-0.01	-0.02	
		(0.02)	(0.02)	(0.02)	
ln (Book Value Assets (£ '000) - Rival)		0.00	0.08	-0.40***	-0.38**
		(0.03)	(0.11)	(0.15)	(0.15)
Rival's probabilty of being acquired		9.97	22.56	3.35	3.89
		(10.65)	(14.68)	(14.86)	(14.86)
R^2	0	0.00	0.03	0.06	0.1
Observations	9162	6433	6433	6433	6433

Appendix Table I - Data Sources

Names of Bidder and Target - Capie and Webber (1985) Appendix II.
Details of takeover bid - The Times of London, The Financial Times, The Manchester Guardian and bank archives
Monthly share prices, dividends, issued capital - The Investors' Monthly Manual
Daily Share Prices (banks) - provincial newspapers (available in British Newspaper Archive)
Daily Share Prices (non-banks) - Global Financial Data

Bank balance sheets - The Economist, banking supplement (May and November)
Bank branches - London Banks and Kindred Companies, The Banker’s Magazine, and The Banking Almanac
Bank directors, foundation year, headquarters - London Banks and Kindred Companies

Figure 1 - Bank Mergers (public and private) in England and Wales

Source: Capie and Rodrik-Bali (1982) Table 1

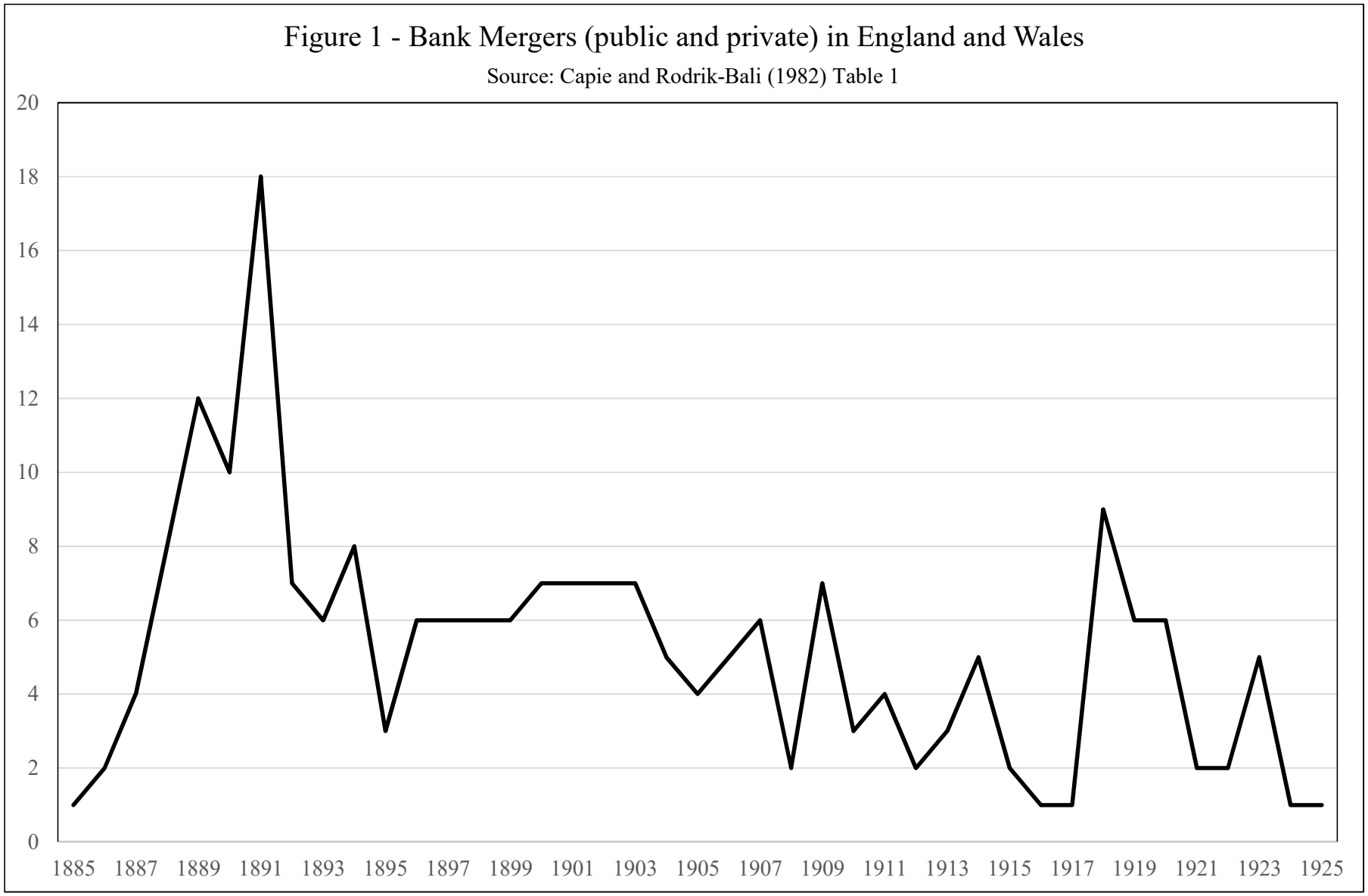


Figure 2 : National HHI, calculated with number of bank branches

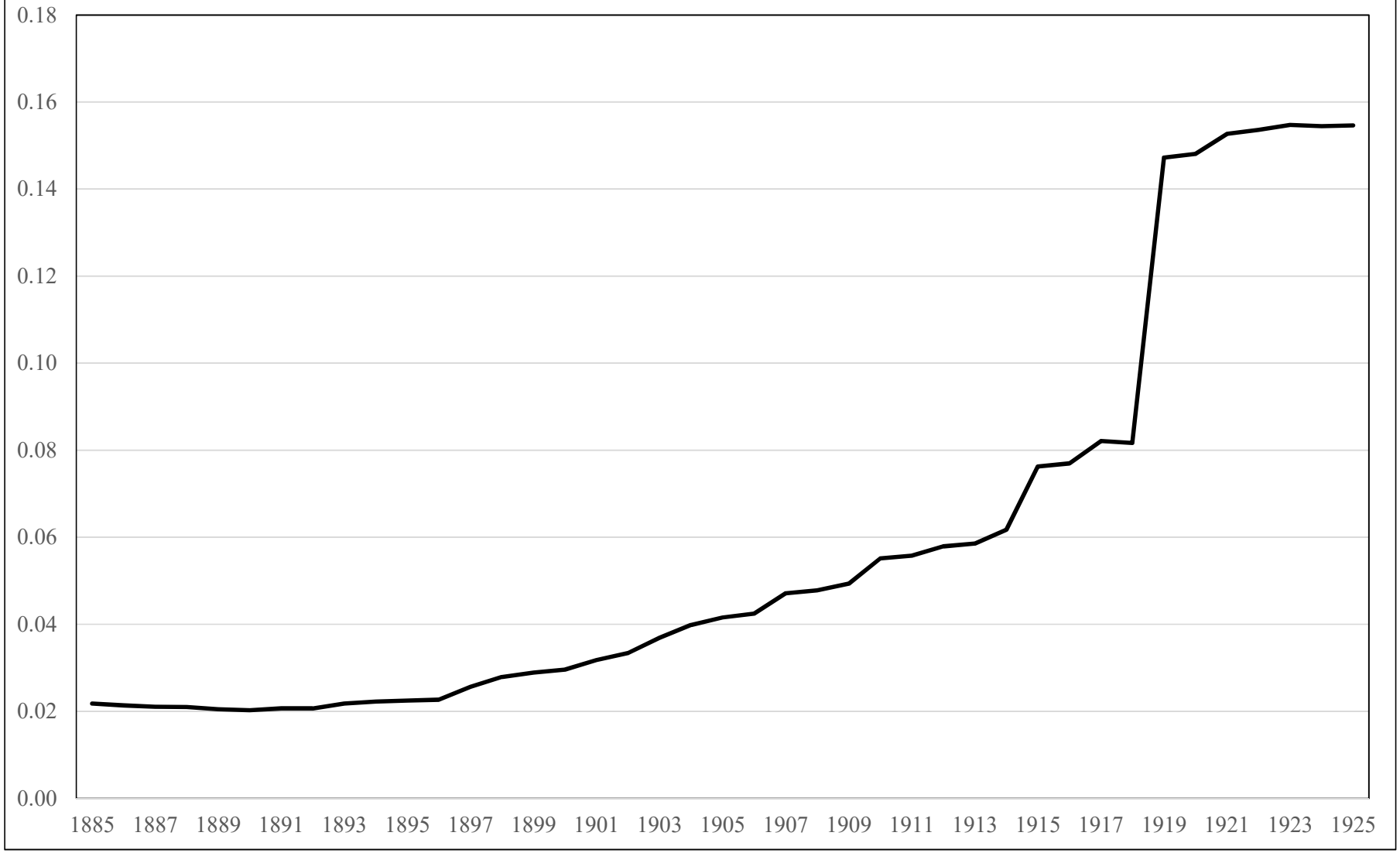
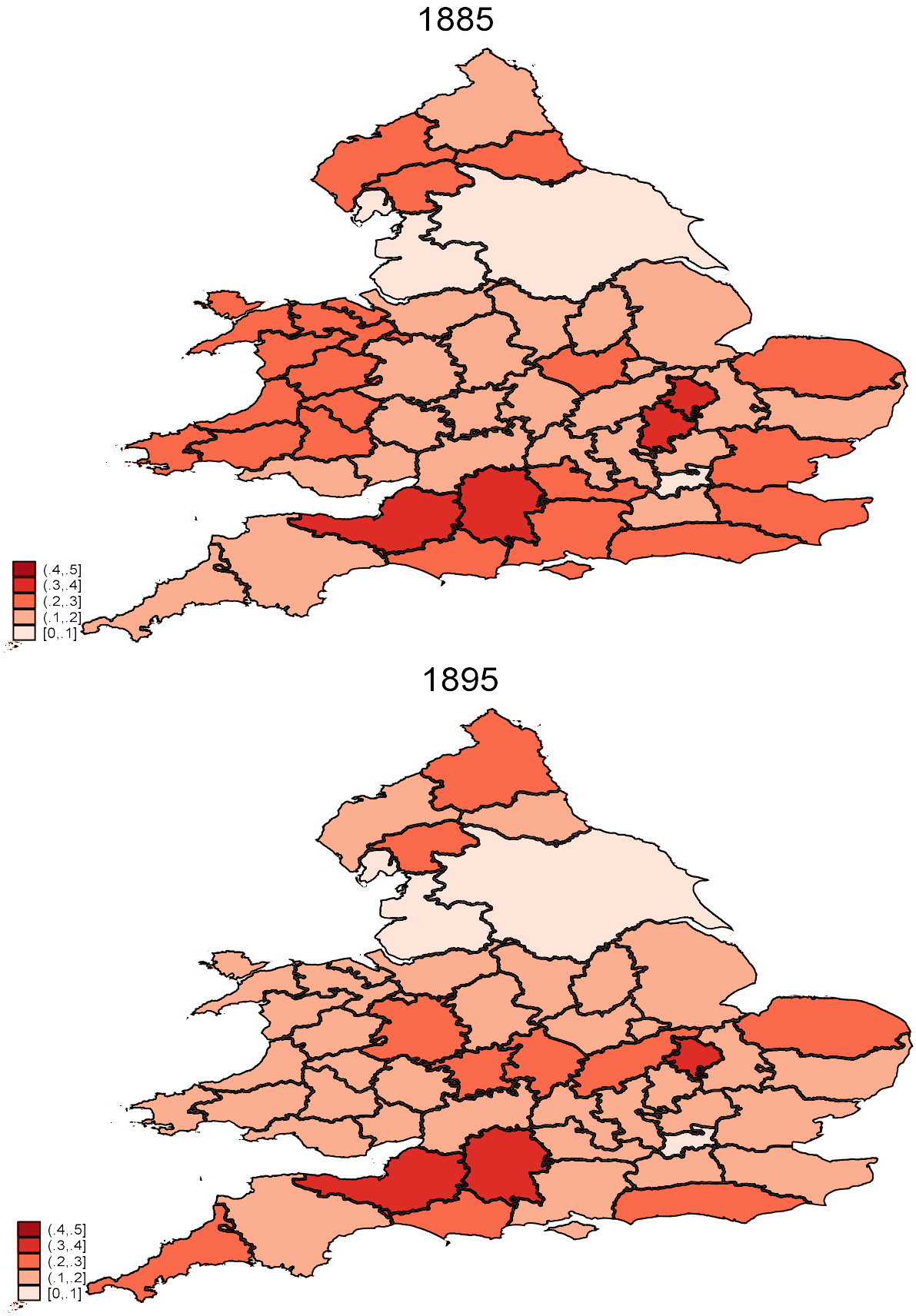


Figure 3 - County level Herfindahl-Hirschmann (HHI) Index



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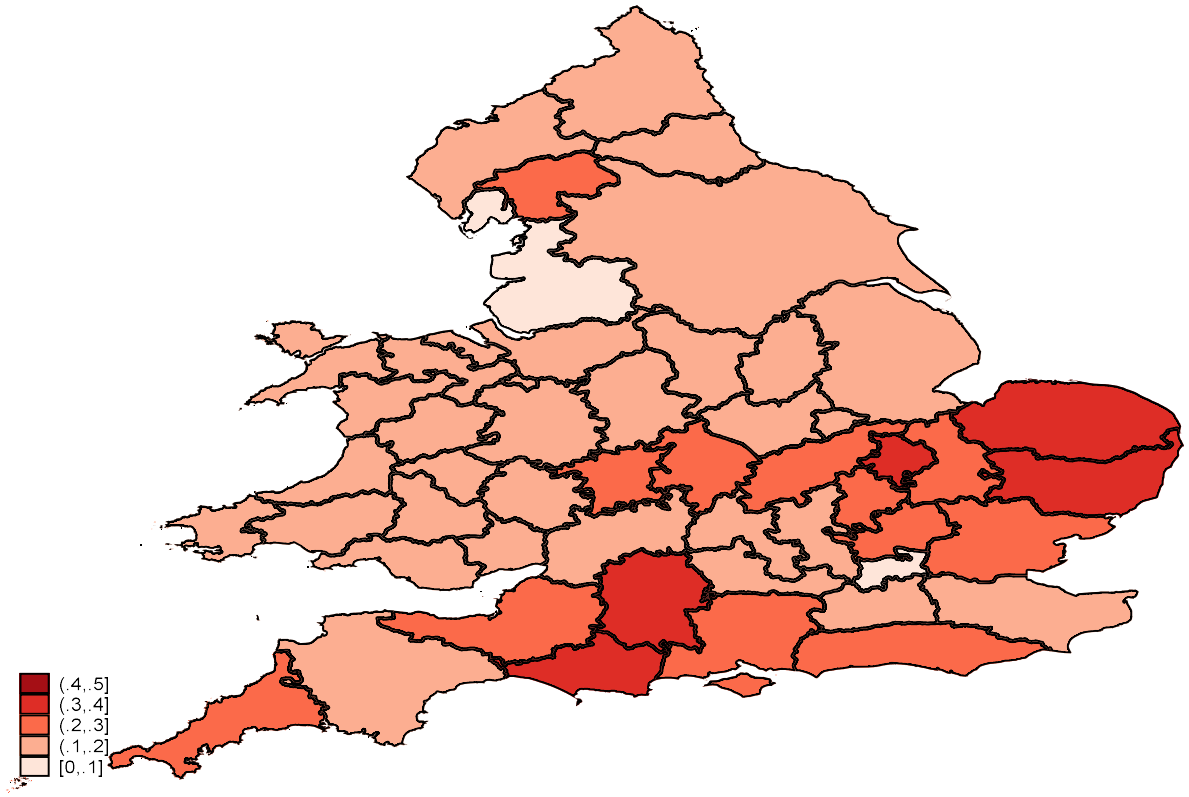

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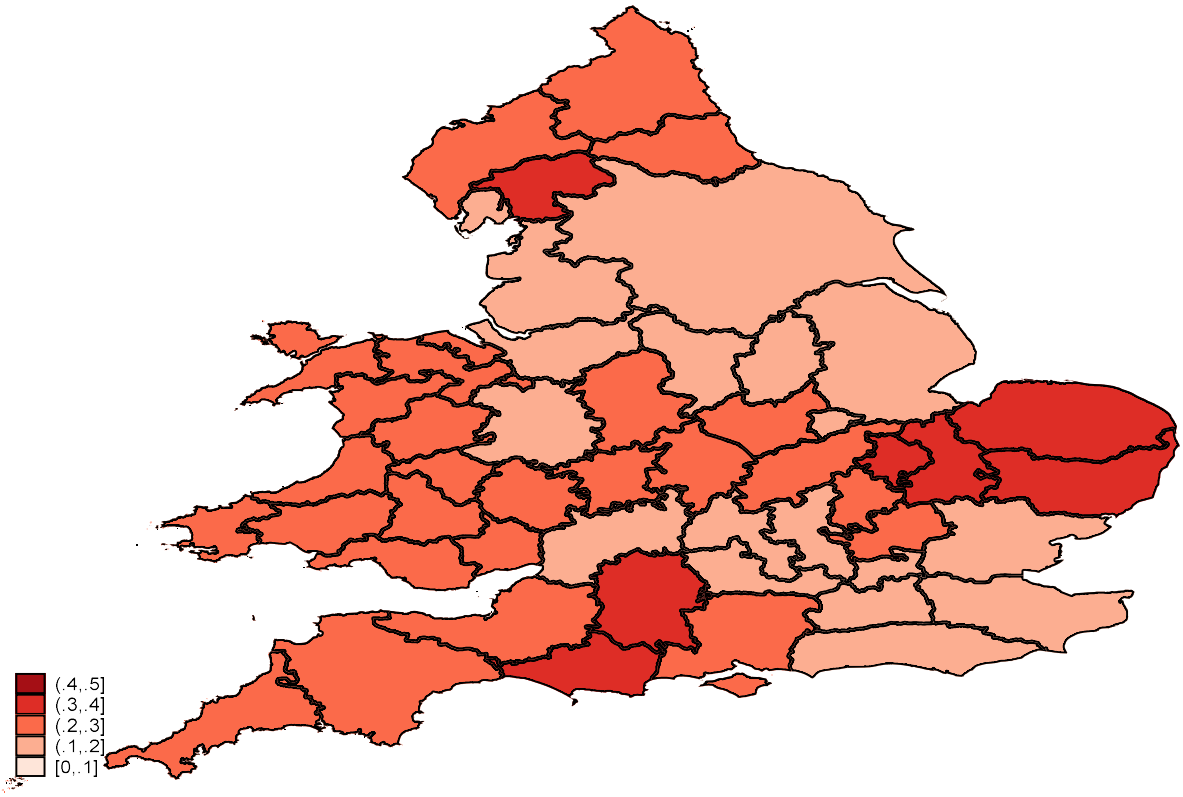

1925