Bank Securities Holdings and Industrial Finance before World War I: Britain and Germany Compared

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Financial systems vary significantly between Britain and Continental Europe, with formal securities markets prevailing in the former and banks dominating in the latter. According to the traditional paradigm, strong, universal banks played a central role in the industrialization of Germany. British banks, in contrast, have been criticized for taking a limited part in corporate finance and are seen by many as having failed to promote industrial investment.

Criticisms of the British banks, provoked largely by the perceived slothfulness of the British economy in the late Victorian and Edwardian periods, have become commonplace over the past century [Foxwell, 1917; Elbaum and Lazonick, 1986; Kennedy, 1987; and Pollard, 1982].[2] As Michael Collins has suggested, complaints about the British financial system rest on two assumptions: first, that British economic growth was constrained by a lack of capital, and second, that banks could have, but refused to, provide capital to industry. Parallel assumptions underlie the common perception of success of the German system. That is, the universal banks are seen as having actively and purposefully injected capital into industrial enterprises. The resulting expansion of capital available to industry is thought to have propelled the rapid growth of the German economy between 1870 and 1914. In his well-known critique of British financial institutions, William Kennedy claimed that "...capital markets in the United States and Germany, by making resources available to a large group of technologically progressive industries on a scale unequaled in Britain, account for much of the difference in the economic growth performance between those two countries and Britain in the half century after 1865" [Kennedy, 1987, p. 120].

One way in which the German style of finance is thought to have benefited industry is through the banks' extensive holding of industrial shares. Taking equity positions in the firms they underwrote supposedly enabled banks

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[2] See Clay [1929] and Carrington and Edwards [1979] on the inter-war and post-World War II periods. Collins [1991] presents a critique of the literature.

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not only to provide financial capital, but also to stabilize the price of their client firms' shares. Furthermore, an equity stake in an industrial company conferred on the bank the right of representation on the firm's supervisory board – a position that, theoretically at least, yielded considerable influence over firms' investment planning. Perhaps most important among the purported benefits of the German system of finance, long-term equity stakes held by banks in industrial firms are argued to have provided the incentive for banks to act in the long-term interest of the firms it financed [Gerschenkron, 1962; Riesser, 1910, 1911; Wallich, 1905; and Chandler, 1990].[3] Thus, direct industrial holdings by universal banks are thought to have promoted strong industrial investment in Germany. The British banks, in contrast, are thought to have abstained from equity participations in non-financial companies, and many have perceived this as evidence of failure on the part of the British financial system. This paper abstracts from the question of the growth performance of the British and German economies and examines, instead, the securities holdings of banks in the two countries concerned.[4] On the basis of balance sheet data of the British commercial banks and the German joint-stock universal banks, this work offers a much-needed, direct comparison of the engagement of the two types of banks in the equity financing of industry.

The findings indicate that preceding World War I, the banks' holdings of non-government securities were similar.[5] In aggregate, banks' securities holdings amounted to a small share of GNP (or financial assets) in either country, but the ratio is higher for Britain than for Germany. Firm-level study of two of the largest German banks suggests further that the universal banks took positions in only a small number of companies; the total stakes of which amounted to a small portion of the banks' assets. Moreover, the investigation underscores the fact that, like British investment banks, the universal banks often held companies' shares for several years only because of difficulties encountered in floating new issues.

The literature to date has offered only a few explicit, quantitative comparisons of British and German banks, yet this paper is not the first to question the strict delineation of the two systems. In fact, recent research has begun to undermine the orthodox views of British and German industrial finance. Wide-ranging evidence has shown that in general the universal banks exerted little control over industrial firms, mobilized limited capital through expansion of deposits, engaged relatively late in the practice of interlocking directorates, and failed to either promote rapid expansion or ease liquidity constraints of affiliated firms [Wellhöner, 1989; Fohlin, 1997a, b; and Edwards and Ogilvie, 1996]. At the same time, new work has demonstrated that the British banks

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[3] For a modern comparison of several countries, see Mayer [1985]. Theoretical models are offered by John, et. al. [1994]; Myers and Majluf [1984]; and Admati and Pfleiderer [1994]. See Fohlin [1997b], for lengthier discussion of these issues.

[4] Recent work has questioned the existence of a British decline. See Crafts, Leybourne, and Mills [1989].

[5] Indeed, when government investments are included, German banks held a smaller share of securities than their British counterparts.

provided medium- and long-term finance through rolled over short-term credits (as is often attributed to the German banks) and offered guidance in business affairs [Collins, 1991]. Thus, while traditional paradigms remain popular, both outright condemnation of the British banks and unqualified celebration of the German banks are clearly unwarranted.

Measuring Bank Assets

The data for this study come from a variety of sources. For Britain, Sheppard's [1972] compilation of the well-known *Economist* series and Goodhart's [1972] archive-based collection of individual bank balance sheet summaries provide the bulk of the statistics. Aggregate numbers for Germany come from the Deutsche Bundesbank's [1976] publication of money and banking statistics. For both countries, supplementary sources, such as stock market yearbooks and bank histories, offer additional insight.

Though the main goal of this paper is to compare the investments of British and German banks, it is difficult to do so without reference to other types of assets held. Given the apparent differences between the British and German financial systems, it is even more important to address the comparability of the various assets held by the banks. The data for this study are taken from published balance sheets of the various banks, and accounting conventions differed somewhat between the two countries. While the various assets therefore have different names, they can, to some extent, be categorized by purpose, liquidity, maturity, and riskiness.

For all of the available series, investments are aggregated under broad categories, so that no specific types of securities can be distinguished in general. The Sheppard series gives British government and government guaranteed investments separately from all others, but such disaggregation for the German figures begins only in 1912. The distinction between government and non-government securities is important mainly because of differences in liquidity and risk; with government issues considered safer than those of industrial corporations. While government securities ranked among the most secure options for banks' secondary reserves, some doubt, at least in the case of British Consols, began to arise toward the end of the 1890s: "It was formerly said that you could sleep on Consols and 'sell them on a Sunday.' A banker can certainly do the first now, but we are by no means so sure that he could do the second" [*The Bankers' Magazine*, 1900, quoted in Goodhart, 1972, p. 127].

Even when original balance sheets are available, apparently clear asset headings may be impossible to interpret unequivocally. For example, Riesser explained the difficulty of measuring exactly the banks' holdings of various types of securities:

> It would therefore be of but little value to give figures of securities held by the various banks, since the account "securities owned" in many cases appears understated, inasmuch as a certain portion of the securities, properly belonging under that head, is

> booked under the head of "syndicate participations." On the other hand, it is equally true that securities which properly belong under the head of "syndicate participations" are at times found booked under the head of "securities owned." [Riesser, 1911, p. 404].

Because of the mixed nature of the German banks considered, the confusion among reasons for banks' securities holdings naturally arises more for the German banks than for the British banks. In particular, the universal banks held securities both as investments on their own account and as a result of their underwriting and brokerage businesses, while British commercial banks held securities mainly as a form of secondary reserves. One further caveat about comparing assets is that the British and German banks may have booked their assets in different ways. Goodhart offers an extensive discussion of the accounting procedures of the banks and indicates that the British commercial banks valued investments at or just below market value; but he also warns that "investments could be held on the books at any valuation, subject, of course, to the auditors' approval" [Goodhart, 1972, p. 21]. Furthermore, it is clear that some banks failed to report any securities other than British, colonial, or other so-called gilt-edged investments. "Their holdings of these other securities were included with their advances or the miscellaneous item, to taste" [Ibid, p. 21]. Thus, the British banks' investments are probably somewhat undervalued relative to other financial assets, though it is also the case that fixed assets were written down as quickly as possible in order to bolster hidden reserves. The German banks also undervalued their assets, and again the extent is uncertain. According to Riesser, "considerable security holdings are not regarded as a favorable sign, although during critical periods large holdings of this class may represent an increased proportion of particularly liquid assets, or a special reserve for deposits" [Riesser, 1911, p. 402]. He goes on to explain that

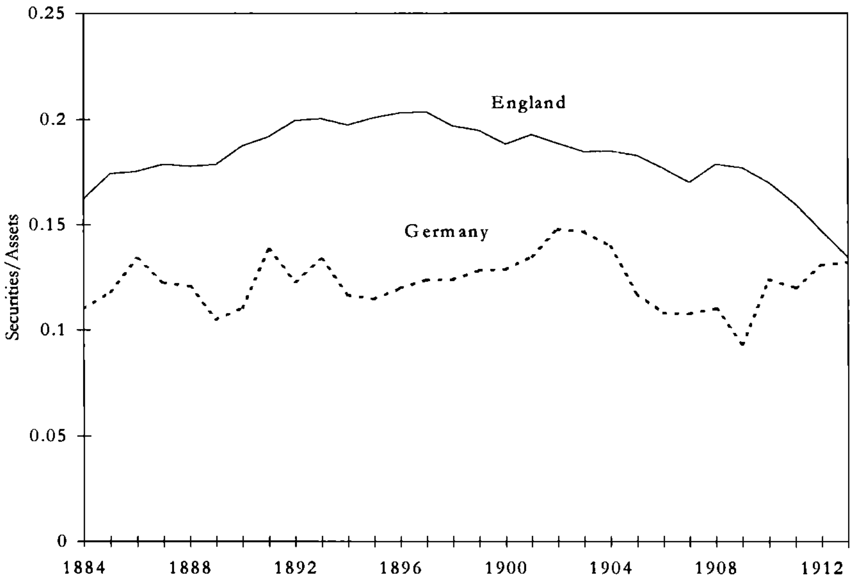
> excessive holdings of securities will be interpreted to mean either that the times have not been propitious for the issue business of the bank, or that it maintains excessive speculative engagements, or that it is involved to an excessive extent in speculative transactions on its own account...or, finally, that it has been unable to find sufficiently profitable employment for its funds. It is for these reasons that a large proportion of the writing off done by the banks occurs under the head of securities account [Riesser, 1911, p. 402-3].

The important consideration is the relative extent of undervaluing in Britain and Germany, and that information is difficult to ascertain.

Comparisons of Bank Securities Holdings

Figure 1 compares the aggregate securities holdings of the English and Welsh deposit banks with those of the German great banks. Because of the uncertainties about valuation and reporting detailed above, it is important to avoid overemphasizing exact figures. Nonetheless, it is interesting to note that the British banks' securities holdings fall between 13 and 20 percent of total assets between 1884 and 1913, while those of the German banks range from 9 to 15 percent over the same period. Moreover, the British ratios remained above the German ratios for the entire period.

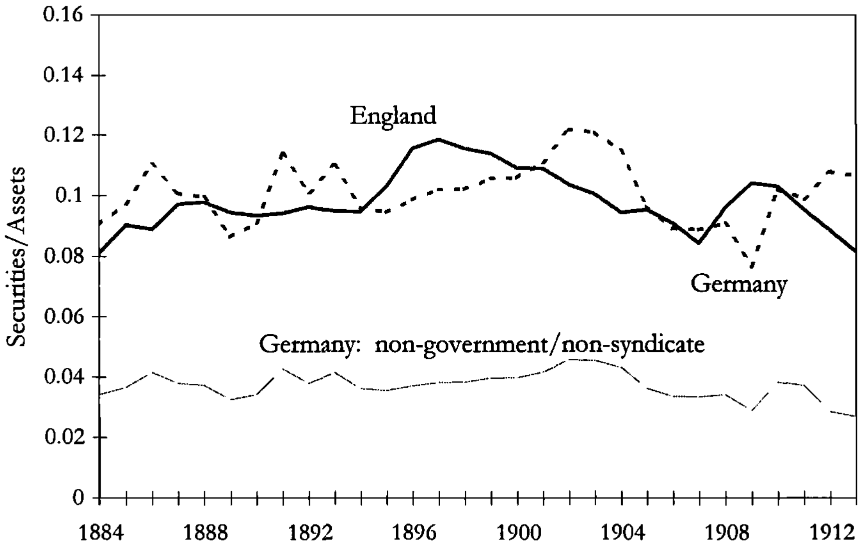
Figure 1: *Securities as a Share of Total Bank Assets, 1884-1913*



The bank categories used in Figure 1 are given in order to bias the results as much as possible in favor of finding German holdings significantly above those of the British. The Scottish and Irish deposit banks held higher levels of investments than did their English and Welsh counterparts, and the largest of the German universal banks held more of their assets in the form of securities than did the provincial banks. Therefore, the fact that Figure 1 still shows the British banks' securities holdings persistently above the Germans' provides a strong indication that, despite the difficulties in measurement, the British banks held at least as great a position in securities as the German banks.

As previous authors have pointed out, the British banks held a substantial proportion of their investments in the form of British and colonial government and government-guaranteed assets. Because these assets are unrelated to industrial finance, it is important to compare securities net of government issues (Figure 2). Because the German figures aggregated government and non-government securities until 1912, the figures for the years before that are estimated using the lowest proportion of government to total securities between 1912 and 1920 as well as on the detailed account of one of the great banks between 1896 and 1899.[6]

Figure 2: *Non-Government Securities as a Share of Total Assets, 1884-1913*



When government securities are excluded, the ratios are much closer, but the German banks still show no consistent tendency toward higher securities holdings than the British banks. Indeed, according to these estimates, the range was nearly identical in the two countries (7 to 12 percent for the German banks and 8 to 12 percent for the British). Such a finding would fall in line with expectations, if one thought that the two types of banks were roughly similar. Since underwriting and brokerage were among the primary functions of the universal banks, however, it should be expected that the German banks held higher levels of securities than did the British commercial banks. Thus far, the numbers for the German banks have included securities holdings resulting from their underwriting and brokerage business. A significant portion of the universal banks' total investments arose out of their involvement in underwriting consortia (or syndicates). These participations therefore include some shares that remained on the banks' books only because of the banks' inability to place the shares. Thus, Figure 2 also plots out the non-government

[6] The proportion for great banks ranged from 17.6 to 28.6 percent of total securities held between 1912 and 1920. Given that this period covers World War I, it would be natural to expect that government securities might comprise a higher proportion of securities than they would have in the preceding years. In the one detailing of bank securities holdings that I could find for the period before 1900 (Bank für Handel und Industrie, a great bank), government securities amounted to 24 to 55 percent of total securities (in the period 1896-1899). Thus, 17 percent seemed a conservative estimate of the proportion of all great bank securities held in the form of government securities.

securities not held as a result of underwriting syndicates.[7] This series gives an approximation of the proportion of assets the universal banks may have held as non-government securities had the universal banks been organized more like the British deposit banks.

Another way to determine what proportion of German bank securities holdings might have resulted from underwriting and brokerage would be to investigate the securities holdings of British institutions engaged in investment banking. Phillip Cottrell provides two such examples, and his data illuminate the extent of securities holdings of investment bankers in the mid- to late-nineteenth century. The General Credit and Finance Company, for example, held approximately 15 percent of its assets in the form of securities in 1866. The majority (approximately three quarters) of this amount was held as shares [Cottrell, 1985, p. 419].[8]

A second investment bank, the International Financial Society, apparently held even higher proportion of securities among its assets. In 1872, the bank kept nearly a quarter of its assets in the form of securities and listed another 50 percent in the form of "lock- ups" [Cottrell, 1985, p. 538]. "Lock-ups" included all assets not readily liquidated and consisted partially of loans. By 1877, the International Financial Society had increased its securities holdings to 56 percent of assets [Cottrell, 1985, p. 599].

Naturally, these banks cannot be compared directly with the German universal banks, but the forgoing examples do support the notion that the great banks in particular, because of their active engagement in investment banking, should be expected to have held a significantly greater share of their assets in the form of securities than did the British deposit banks. To understand the potential impact of banks' direct investment in industrial companies, it is useful to combine the data on bank investments with that on bank assets relative to the economy as a whole. Non-government securities holdings of the universal banks ranged between two and four percent of GNP for the three decades preceding World War I [calculated from Deutsche Bundesbank, 1976, and Goldsmith, 1972]. Even if the estimates are only approximately correct, the banks' holdings of non-government securities accounted for a very small share of the economy. The German banks' share did increase between 1880 and 1913, but their holdings of non-government securities still only amounted to four percent of GNP by World War I. Furthermore, the biggest part of the increase came after 1900. The British banks' holdings of non-government securities, though also low relative to GNP, exceeded those of the German banks throughout the period. In contrast to the pattern Germany, the British banks' securities share of GNP rose between 1880 and 1900 and then leveled

[7] Non-syndicate securities were estimated using a similar method as that described for non-government securities. For the years in which disaggregated securities holdings were reported (1912 to 1919), syndicate-related securities amounted to 51 to 61 percent of total securities held. As with government securities, I used the lowest number during the period to estimate the proportion of securities due to syndicate participations.

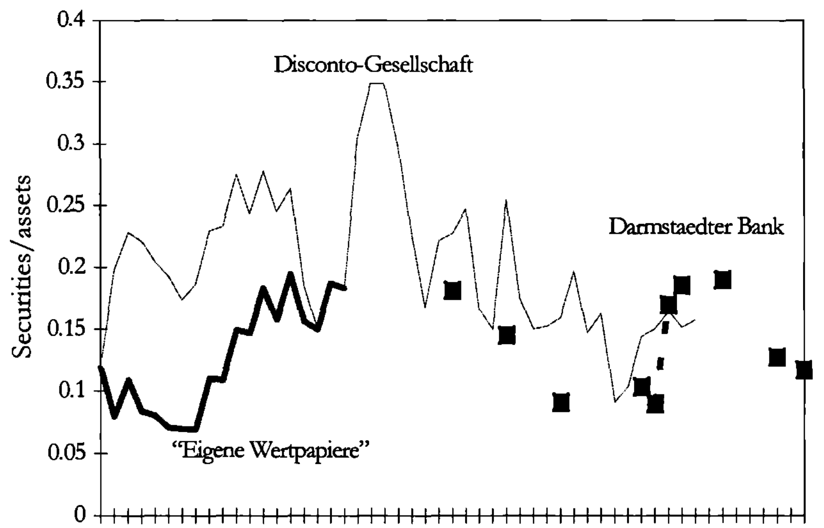
[8] Cottrell reproduces the firm's balance sheet as given in *The Economist* of November 1866.

off. These calculations cast doubt on the idea that the banks' holdings of securities amounted to a significant portion of either the German or the British economies during the last half of the nineteenth century.

Evidence from Two Great Banks

At least in the German context, lists of specific securities held in the pre-1880 period are generally unavailable. Nonetheless, some details are available for two of the earliest German joint-stock universal banks. Walther Däbritz presented a sketch of the activities of the Disconto-gesellschaft (DG) in its early years, and a later *Festschrift* published the annual accounts of the bank through 1900. Additionally, *Saling's Börsen-Jahrbuch*, reported on the holdings of the Darmstädter Bank (Bank für Handel und Industrie). Figure 3 traces the movements in the ratio of total securities to assets for these two banks. The solid lines represent the holdings of the Disconto-gesellschaft, while the squared points plot the data for Darmstädter Bank. The fine line comprises all securities held by the DG over the period 1856 to 1900 and indicates that such holdings ranged between zero and 35 percent of assets over the period. While the bank's holdings fluctuated markedly throughout the last half of the nineteenth century, the proportion of securities followed a generally downward trend toward the end of the period.

Figure 3: *Securities as a Share of Assets Discontogesellschaft (1856-1900) & Darmstaedter Bank (1882-1908)*



From its founding in 1852 through 1855 (not pictured in figure 3), DG held no securities among its assets. Thereafter, the bank acquired substantial interest in securities, but a quantitative breakdown of securities 1856 to 1865 indicates that two mining companies accounted for the major share of DG's industrial holdings. Shares in the two firms, Heinrichshütte and Bleialf, amounted to around 11 percent of assets for most of the period in which the bank held the shares. Däbritz provides an account of the bank's involvement with these firms and indicates that such direct participation arose out of the bank's intention to convert the firms into joint-stock companies. Having bought up Heinrichshütte in 1857, the bank invested heavily (equivalent to 25 percent of the firm's capital) in the expansion of production capacity. The timing was inopportune; immediately the firm faced rapidly-falling prices of iron and questions about the profitability of ironworks in general. In the six years following the bank's investment in the ironworks, the enlarged firm averaged earnings of approximately two percent of the total capital invested by the bank (50,000 Thaler per year on an investment of 2.5 million Thaler). During these years, according to Däbritz, "hardly a general meeting passed in which the bank's management did not have to defend against sharp criticisms about the purchase of Heinrichshütte" [Däbritz, 1931, p. 105]. The other two firms presented similar problems for DG, and the bank was forced to hold their shares until they could extricate themselves in the more favorable market of the late 1860s and early 1870s.

The heavier line in figure 3 shows the proportion of DG's assets held in securities other than Bleialf and Heinrichshütte. The vast majority of these assets were held in relatively conservative investments: government debt, railway shares and bonds, and other priority bonds and shares. With the exception of a few unimportant holdings of shares, the DG confined its participation in industry to three companies (the two already discussed plus another mining concern) [Däbritz, 1931}. Indeed, the bank's holdings of industry stocks amounted to between zero and three percent of its assets for the years in which disaggregated data are available (1852-1865). Thus, it can hardly be argued that even the early activities of the great banks involved extensive, direct involvement in industrial companies.

Though the disaggregated data for DG run out before the second wave of the German industrialization hit its peak, the story can be picked up in the 1880s using evidence from another of the great banks. Darmstädter Bank (BHI) published unusually detailed accounts of its securities holdings, and *Saling's* reproduced the information in its series on Berlin-listed companies.[9]

It is clear from the available data that holdings of industrial shares amounted to less than one percent of BHI's assets for most of the 1880s and 1890s, and that, even at its peak, the ratio of industrial shares to assets only reached 1.3 percent (in 1882). Including railway and real estate shares, the total of non-bank equity shares probably reached only four percent of assets. When bank shares are included, the total rises to no more than 6.5 percent. It should be underscored that the earlier numbers are estimated based on the ratio of

[9] Unfortunately, *Saling's* only began publishing in 1876, and the volumes before 1882 are scarce. Also unfortunate for this analysis, they stopped publishing details of securities holdings in 1899.

industrial shares to total securities for the period in which both types of data are reported (1896 and 1897). The proportion of assets held in industrial, railway, or bank shares for those years peaked at 3.7 percent. Thus, only if BHI held a significantly greater part of its securities in the form of bank shares in the 1880s than in the 1890s (unlikely, given that the concentration of banking accelerated in the 1890s), would 6.5 percent be an underestimate. These data provide further support for the notion that the great banks invested a relatively small portion of their portfolios in the equity of industrial firms. As for the securities holdings in Britain, Goodhart provides some details for three British commercial banks (Metropolitan Bank, London and Midland, and Union Bank). Nearly all of the investments reported consisted of British, colonial, or foreign government securities or railway stocks and bonds. Given his warnings about the banks' desire to hide any investments in industrial firms, however, it is impossible to tell for sure what industrial shares the banks may have held. Edelstein, however, has provided estimates of securities holdings in the UK more generally, and those results indicate an expansion of industrial holdings between 1871 and 1913. Industrial concerns and railways, both foreign and domestic, accounted for 37 percent of all securities holdings in 1871 and 62 percent by World War I. Home companies alone increased from 4 to 17 percent of UK holdings over the period [Edelstein, 1982, p. 48]. The banks might be expected to have participated to some extent in these investments, though firm proof of such a contention is apparently unavailable.[10] Yet even if the British banks held no industrial shares, the evidence for DG and BHI suggest that the German universal banks were not far ahead on this count.

Equity stakes represent only the most direct means of interaction with industrial firms. Banks may also participate indirectly in companies either through proxy voting of customers' shares or through positions in the firms' supervisory boards.[11] Because they provided underwriting, brokerage, and commercial services to the same customers, the German banks likely gained greater access to industrial shares than did the British banks. Since shares taken as collateral or simply held as a service to customers do not appear in the banks' balance sheets, it is virtually impossible to quantify the extent of proxy voting by the German banks. It is possible to quantify board positions, and such data suggest that the German banks held direct positions in a relatively small number of companies. Approximately 23 percent of German joint-stock companies had a private banker or bank manager on their supervisory boards, but only half of these attached companies received representation from one or more of the great banks [Fohlin, 1998].[12]

Proxy votes and supervisory board positions may have enabled banks to monitor their investments and even control the use of bank funds. From a

[10] See Davis and Huttenback [1986] for more on the equity holders in British corporations.

[11] The German supervisory board is comprised of shareholders' representatives.

[12] Fohlin [1997a, 1998, and 1997b] all discuss the prevalence, sectoral distribution, and determinants of interlocking directorates between banks and firms.

theoretical perspective, however, it is clear that such indirect participation yields different incentive effects than does direct ownership. Systems in which banks exert control over investment decisions, but do not align their incentives with the firms' through equity stakes, force firms into excessively safe and thus inefficient investment programs [John, et. al., 1994]. Proxy voting and interlocking directorates apparently employed by the universal banks may have increased bank control and oversight, but it also may have led to more internal financing and fewer risky investments. Therefore, if the British bankers did wield less control over firms' investment decisions, then the British financial system may have improved efficiency through benign neglect.

Conclusion

Because they are thought to permit direct control of firm behavior as well as indirect aligning of incentives in situations of imperfect information, equity stakes have been held out as an important feature of universal banking. Participation in industrial companies, particularly in Germany, is thought to have contributed significantly to the industrialization and general economic growth of that economy in the mid- to late- nineteenth century. The common perception that British banks avoided such direct engagement in industrial enterprises has often led to the conclusion that the British banking system failed to reach its potential in promoting economic growth.

While the German universal banking system has often provided an implicit yardstick against which to measure the performance of the British banks, only a handful of studies have directly compared the two institutions. Through direct comparison of securities holdings by British deposit banks and German universal banks during the half century before World War I, this paper has offered a new perspective on the involvement of banks in industrial firms. The results, while perhaps not vindicating the British banks, narrow the gap between the two systems in the realm of industrial participations. Aggregate data for the two countries indicate that the British deposit banks held a greater share of their portfolios in the form of securities than did the German universal banks, and that, even when government securities are excluded, the two types of banks maintained virtually indistinguishable proportions of securities among their assets. Furthermore, because the British deposit banks' assets amounted to a greater share of that country's GNP than the universal banks' assets did in Germany, holdings of non- government securities represented a greater share of GNP in Britain than in Germany.

Finally, the examples of Disconto-Gesellschaft and Darmstädter Bank underscore the limited number of firms reached by the industrial participations of even the largest universal banks. The two companies that accounted for the vast majority of DG's holdings in the 1850s and 60s remained in the bank's portfolio for over a decade only because of the limited market for the initial public offerings of these firms. Even in the 1880s and 1890s, once the new issues business picked up tremendous steam, the Darmstädter Bank confined its holdings of industrial shares to under ten firms. Thus, even if the British deposit banks held no industrial shares, the difference between the industrial holdings of the two types of banks is not great. Comparison with British investment banks, moreover, reveals that, despite their active involvement in underwriting and brokerage, the German universal banks' portfolios of industrial shares were very small by investment bank standards.

The findings of this paper casts some doubt on the traditional conception of the universal banks as providing peculiarly important sources of corporate finance and oversight through their holdings of industrial shares. This paper does not claim to judge the overall effects of German universal banking, but rather attempts to quantify the extent of formal differences between two institutions. Direct participation in industrial firms represents only one way in which the universal banks may have promoted industry in Germany. The banks may have offered vital services that simply cannot be identified or quantified through their holdings of industrial securities. Such a conclusion, however, would require further research.

The findings here provide one more piece of evidence that the orthodox view exaggerates the importance of the particular organization of the German universal banks for the industrialization of the German economy in the latter half of the nineteenth century. Thus, in drawing lessons for the modern problems of financing growth, qualitative variation in informal arrangements may emerge as a more important determinant of success than the formal structure of financial institutions.

References

Admati, Anat R., and Paul Pfleiderer, "Robust Financial Contracting and the Role of Venture Capitalists," *The Journal of Finance*, 49 (1994), 371-402.

Carrington, J.C., and G.T. Edwards, *Financing Industrial Investment* (London, 1979).

Clay, H., *The Post-War Unemployment Problem* (London, 1930).

Chandler, A.D., *Scale and Scope: The Dynamics of Industrial Capitalism* (London, 1990).

Collins, M., *Banks and Industrial Finance in Britain 1800-1939* (London, 1991).

Cottrell, P.L., *Investment Banking In England, 1856-1881* (NewYork, 1985).

Crafts, N.F.R., S.J. Leybourne, and T.C. Mills, "The Climacteric in Late Victorian Britain and France: A Reappraisal of the Evidence," *Journal of Applied Econometrics*, 4 (1989), 103-17.

Däbritz, W., *Gründung und Anfänge der Disconto-Gesellschaft Berlin* (München und Leipzig, 1931).

Davis, L., and R.A. Huttenback, *Mammon and the Pursuit of Empire* (Cambridge, 1986).

Deutsche Bundesbank, "Deutsches Geld- und Bankwesen in Zahlen 1876-1975" (Frankfurt, 1976).

Edelstein, M., *Overseas Investment in the Age of High Imperialism: the United Kingdom, 1885-1914* (New York, 1982).

Edwards, J., and S. Ogilvie, "Universal Banks and German Industrialization: A Reappraisal," *Economic History Review*, 3 (1996), 427-446.

Elbaum, B., and W. Lazonick, eds., *The Decline of the British Economy* (New York, 1986).

Fohlin, C., "Universal Banking Networks in Pre-War Germany: New Evidence from Company Financial Data," *Research in Economics*, 51 (1997a), 201-55.

———, "Bank Structure and Growth: Insights from British and German Bank Balance Sheets before World War I," (Social Science Working Paper No. 1016, California Institute of Technology, 1997b).

———, "Relationship Banking: Liquidity and Investment in the German Industrialization," (forthcoming in *The Journal of Finance*, 1998).

Foxwell, H.S., "The Financing of Industry and Trade," *Economic Journal*, 27 (1917), 502-22.

Gerschenkron, A., *Economic Backwardness in Historical Perspective* (Cambridge, MA, 1962).

Goldsmith, R., *Financial Structure and Development* (New Haven, 1969).

Goodhart, C.A.E., *The Business of Banking, 1891-1914* (London, 1972).

John, K., "Universal Banking and Firm Risk-Taking," *Journal of Banking and Finance*, 18 (1994), 307-324.

Kennedy, W.P., *Industrial Structure, Capital Markets and the Origins of British Economic Decline* (Cambridge, 1987).

Mayer, C. "New issues in corporate finance," *European Economic Review*, 32 (1988), 1167-1189.

Myers, S., and N. Majluf, "Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have," Journal of Financial Economics, 13 (1984), 187-221.

Pollard, S., "Capital Exports: Harmful or Beneficial?" *Economic History Review*, 38 (1985), 489-514.

Riesser, J., *Die Deutschen Großbanken und ihre Konzentration* (Verlag von Gustav Fischer, 1910) Jena. English translation (*The German Great Banks and their Concentration*) published by The National Monetary Commission (Washington, DC, 1911).

Sheppard, D.K., *The Growth and Role of UK Financial Institutions, 1880-1962* (London, 1971).

Verlag für Börsen- und Finanzliteratur A.-G. (various years) *Saling's Börsen-Jahrbuch*, Leipzig.

Wallich, P., *Die Konzentration im deutschen Bankwesen* (Stuttgart, 1905).

Wellhöner, V., *Großbanken und Großindustrieim Kaiserreich* (Göttingen, 1989).