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## Banking Systems and Economic Growth: Lessons from Britain and Germany in the Pre-World War I Era

Caroline Fohlin

Regulation of the financial system has occupied economists and policymakers since the beginning of financial history. Such attention has been warranted because of the crucial role of these institutions in economic life. There remains, however, much disagreement over the ways financial and real variables interact and the extent to which financial development can promote economic growth. Modern growth theory has made strides in modeling the relationship between financial development and economic growth, but a causal relationship is difficult to verify empirically.<sup>1</sup>

Despite the burgeoning research on finance and growth, the importance of financial-system structure has yet to be determined. Much of the debate over banking reform in the United States hinges on the assumption that certain types of financial systems allocate an economy's resources more efficiently than others. There is a widespread sense in the United States and Great Britain that the universal banking systems of Germany and Japan have given those countries an advantage in industrial development and economic growth over much of the past 150 years.

The structure of the German banks, in particular, has been viewed as a key ingredient in Germany's industrial development before World War I. Universal banking, because it combines all phases of finance in one institution, is thought by many to have yielded economies of scope and greater efficiency. Such efficiency has been argued in turn to have increased the volume and reduced the costs of finance, thus promoting industrial investment.<sup>2</sup> Furthermore, German banks are often assumed to have maintained close, long-term relationships with industrial firms. Equity positions are thought to have aligned the incentives of banks and firms and encouraged multi-period optimization of their behavior. In contrast, a long line of detractors has chastised the British banks for avoiding engagement with domestic industry and leaving firms to seek financing from other sources. Firms' resultant recourse to securities markets is argued to have served investors' short-term profit motives at the expense of long-term growth.<sup>3</sup> As a result, the banks have been blamed for the apparent underperformance of the British economy since the late nineteenth century.

Two lines of historical investigation may shed light on the continuing debates over the relative efficacy of German and British banking systems. The first step is to determine whether the German banks offered the advantages that have been ascribed to them; the second step is to ascertain whether the provision of these services by universal banks fueled economic growth. In comparing the two systems, however, it is important to acknowledge that the British banks were not prohibited from combining functions or from pursuing long-term relationships with industrial firms. Thus, research on the real effects of financial structure must accept that, if the British banks' organization and activities were suboptimal for industrial growth, such inefficiency stemmed from market failures of one sort or another: rationing

<sup>1</sup> Greenwood and Smith (1997) offer what may be the most reasonable compromise on the question of causality: a model in which financial markets arise after some period of real development, and in which the expansion of those markets fuels further real growth. A logical implication of this model is that exogenous creation of a financial system with advanced features may not spur real growth. The problem then for implementing development policy is determining how to get poor countries to the point at which financial systems will arise endogenously.

<sup>2</sup> Most recently, Calomiris (1995) has advanced this idea.

<sup>3</sup> For a review of the literature on British banking and industrial development, see Collins (1991). Also see Capie and Collins (1992). For a critical appraisal of the British banking system, see Edwards (1987).

relatively low-return or high-risk ventures or failing to perceive or act upon favorable prospects.

This study uses aggregate bank balance sheet data to investigate systematic differences in the financial makeup and activities of universal and specialized banks. By explicitly comparing British and German banks, it takes steps toward quantifying the possible disparity in financial-system growth effects over the decades leading up to World War I. Financial systems are thought to influence both the quantity and quality of investment. Thus, this paper first measures the rate of expansion and the ultimate magnitude of capital mobilized by British and German banks. The study then investigates the makeup of the banks' asset portfolios and estimates the extent of direct involvement by the two types of banks in equity ownership.

The findings suggest that, compared to British banks, German banks maintained at least as much liquidity relative to their short-term liabilities, mobilized a smaller share of the economies' capital, and held approximately the same (small) proportion of their assets in the form of nongovernment securities. Furthermore, the German banks seem to have held only a limited number of industrial equities in their portfolios and often did so merely because of insufficient markets for new issues.

The results offer insights into both differences and similarities in the organization of banking in Germany and the United Kingdom, specifically, and into the historical importance of financial structure, more generally. The findings suggest that the gulf between specialized and universal banking in terms of their influence on economic growth and industrial development is less than commonly believed.

## THE LINK BETWEEN BANK STRUCTURE AND GROWTH

The primary purpose of banks is to mobilize otherwise idle resources for use in productive investment. A wide array of theoretical models has appeared in the growth and development literature in the

past decade to formalize the link between financial-system functioning and the growth of the real economy.<sup>4</sup> In comparison to the traditional growth models—in which output was seen as a function of capital, labor, and disembodied technological progress—the current models provide a richer framework for interpreting the potential impact of financial systems. For their motivation, nearly all appeal to the observed correlations between financial-system development and industrial growth uncovered by economic historians and development economists during the 1960s and '70s.<sup>5</sup>

Pagano (1993) provides a simple way to summarize the newer models of finance and growth. Using several simplifying assumptions, the model yields the growth rate of output per capita as a function of three variables: savings rate, return on investment, and costs of intermediation. Thus, financial institutions may enhance economic growth by raising the total quantity of financial capital available to entrepreneurs, improving the quality (productivity) of investments, and increasing the efficiency of intermediation (lowering costs) between the sources and uses of funds.

This framework can help in comparing the effectiveness of the German and British banking systems, but further refinement is required to clarify the ways financial institutions affect the variables in the growth formula. The following sections take some first steps at comparing the impact of specialized and universal banking systems on the quantity and quality of investment.

## QUANTITY OF INVESTMENT

Banks influence the accumulation of physical capital by directing funds to entrepreneurs who wish to invest. Such capital mobilization proceeds in two stages: capital collection through deposit-taking or sales of equity shares, and fund dispersal through loans or advances. By repeating this process, the banking system multiplier expands the money supply and redistributes the economy's capital. These banking functions increase the share of resources targeted to productive investment.

<sup>4</sup> For an overview of some of the literature, see Pagano (1993) and Galetovic (1996). Greenwood and Smith (1997) provide more technical details.

<sup>5</sup> Cameron (1967), Goldsmith (1969), McKinnon (1973), and Shaw (1973) are the standard references.

The German universal banks are credited with mobilizing significant amounts of capital from the public and thereby promoting industrial growth. The British banks, by comparison, are typically presumed to have participated less aggressively in the accumulation of funds. Total assets of financial institutions as a share of gross national product grew substantially in both Britain and Germany between 1860 and 1913, but Goldsmith's (1969) figures indicate that this ratio expanded more in the latter than in the former. Furthermore, while Britain's ratio exceeded Germany's in 1860, the British lagged the Germans by 1900. The gap grew to over 50 percent by World War I.<sup>6</sup> Nonetheless, the Goldsmith data indicate that the British deposit banks accounted for a greater share of their country's GNP than did the German universal banks at each point in the pre-war era.

In Germany, virtually all of the functions relating to corporate finance fell under the purview of the universal banks. The British financial system largely separated investment banking, brokerage, and commercial services; thus, comparing the German universal banks to the British deposit (commercial) banks underestimates the share of corporate financing institutions in the British economy. Nonetheless, at 50 percent to 60 percent, deposit banks and private banks accounted for twice the share of total financial institution assets in Britain than did the universal banks (of both joint-stock and private forms) in Germany.

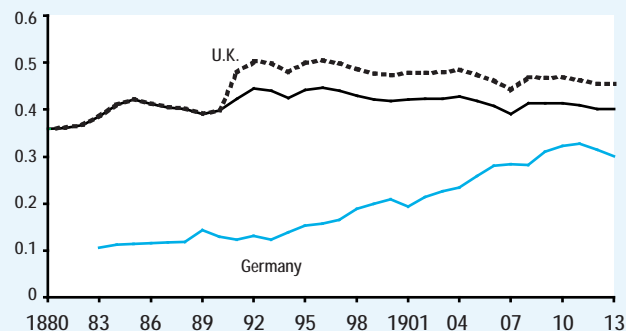
Given the traditional emphasis on the universal banks' role in promoting industrialization and economic growth in Germany, the universal banks' share in both financial assets and GNP seems relatively small. Furthermore, the sharp increase in the German universal banks' share between 1900 and 1913—especially compared to the more gradual changes from 1860 to 1880—raises doubts about the causal link between universal bank expansion and industrial growth.

In contrast, British deposit banks' share of assets grew most rapidly between 1860 and 1880 and then leveled off. While some

Figure 1

## Total Joint-Stock Bank Liabilities Less Total Cash Holdings, United Kingdom and Germany, 1880-1913

Liabilities Less Cash/GNP



NOTES: The British data come from the *Economist* series as reported in Sheppard (1971) and include private banks, starting in 1891. The solid line represents an estimation of the joint-stock banks' liabilities from 1880 to 1913, based on the ratio of private to joint-stock banks in 1891, but that ratio likely declined significantly between 1891 and 1913. The German data report only joint-stock banks for the whole period. Since the private banks accounted for a greater share of bank assets in Germany, the omission of private banks may exaggerate the British lead. Even if estimated figures for the German private banks are added, however, some gap in liabilities less cash still remained as late as 1913. Furthermore, the denominator for the German series is net national product, and the ratio may therefore overestimate bank liabilities as a share of GNP. The GNP/NNP data come from Mitchell (1978).

SOURCES: United Kingdom, Sheppard (1971) and Mitchell (1978); Germany, Deutsche Bundesbank (1976) and Mitchell (1978).

of the differences in these patterns likely stem from divergent timing of industrialization, part may arise from the varied structure and practices of the British and German banks. The German universal banks are widely believed to have internalized the secondary market in securities, and indeed a significant portion of trading took place through their offices. The continued expansion of universal banks, therefore, may represent the expansion of the market for securities.

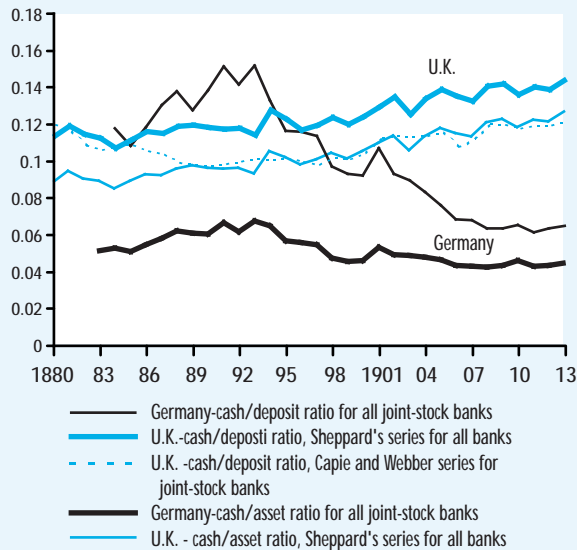
Another measure of the volume of capital mobilized by the British and German commercial banks is represented by total bank assets less cash. As a share of GNP, liabilities less cash in the British deposit banks exceeded that in the German universal banks by a significant margin from 1883 until after the turn of the twentieth century (Figure 1). While the gap between the United Kingdom and Germany seems to have virtually disappeared by the outset

<sup>6</sup> The pattern reversed after the war, and as of 1963, Britain led Germany again by a substantial margin.

Figure 2

## Cash-to-Asset and Cash-to-Deposit Ratios, United Kingdom and Germany 1880-1913

Cash/Total Assets and Cash/Total Deposits



NOTES: Sheppard's series for all United Kingdom banks includes private banks after 1890. Capie and Webber's data on U.K. joint-stock banks include all Irish and Scottish banks.

SOURCES: United Kingdom, Sheppard (1971) and Capie and Webber (1987); Germany, Deutsche Bundesbank (1976)

While the commercial banks clearly represented a greater share of the economy in the United Kingdom than in Germany, the universal banks may have expanded available capital at a faster rate. Indeed, the faster growth rate of German bank liabilities compared to British bank liabilities suggests this might have been the case.

The ultimate impact of the banks' activities depends inversely upon the proportion of the system's assets retained as cash reserves. In a simple model of a monetary economy, the total nominal money stock is a function of the nominal monetary base (currency plus reserves), the ratio of bank deposits to currency, and the cash-to-reserve ratio.<sup>9</sup> Financial intermediaries maintain partial control over both the reserve ratio and the deposit-to-currency ratio. For example, banks can raise the deposit-to-currency ratio by encouraging individuals to deposit their savings or to buy equity shares in the bank.

Two measures offer some insight into the banks' roles in multiple expansion. The money multiplier is a negative function of the cash-to-deposit ratio. Where banks are financed by equity or private capital in addition to deposits, a more relevant ratio may be the cash-to-liabilities ratio. In comparing the British and German cases, we find both ratios informative.<sup>10</sup>

Germany's cash-to-liability ratio ranged between 5 percent and 6 percent in the late 1880s and early 1890s, but it declined considerably after 1893. This decline in the universal banks' cash-to-liability ratio coincided with the growth of their liabilities less cash. Over the same period, the British banks seem to have maintained considerably higher cash-to-liability ratios, and the gap appears to have widened after 1893 (Figure 2).

Theoretically, at least, the cash-to-liability ratio affects monetary expansion, interest rates, and economic growth. Yet banks' holdings of cash are not exogenous, and differences in funding methods between British and German banks help explain part of the gap in cash-to-liability ratios. Particularly in the nineteenth century, British deposit banks financed a much

of World War I, the series again diverged during the war and its aftermath.

Figure 1 also reveals a clear difference in growth rates of liabilities less cash per capita in the two countries. When we take into account the shift in coverage for the British series, the trend for that country is relatively flat. The German figures, in contrast, indicate gradual expansion before 1894, but rapid growth thereafter.<sup>7</sup> The disparity in growth rates may be explained by the different patterns of industrial development in the two countries; however, the late development of the German joint-stock banks is somewhat surprising. Joint-stock universal banking seems to have taken off more than 40 years after the first universal bank was founded and after the industrialization pushes of the mid-nineteenth century.<sup>8</sup>

<sup>7</sup> Regression of the log of liabilities less cash on a time trend yields an estimated annual average growth rate of 8.6 percent in the post-1894 period, as opposed to a rate of 5.1 percent before 1894.

<sup>8</sup> To some extent, the apparently late take-off by the universal banks is due to the switch to the joint-stock form. Private banks were more prevalent before 1894 than after. Inclusion of the private banks would flatten the trend some, but it is not clear that the private banks provided the same services in the same way as the later joint-stock banks.

<sup>9</sup> See Champ and Freeman (1994) and sources cited there.

greater share of their operations with deposits than did the German universal banks, and United Kingdom provincial banks (at least to some extent) also issued notes. Universal banks were prohibited from issuing their own notes.

Given the divergent liability structures of German and British banks, the cash-to-deposit ratio offers greater insight into the banks' participation in maturity transformation.<sup>11</sup> Among the German universal banks, cash-to-deposit ratios followed a similar, though more extreme, pattern than cash-to-liabilities ratios, rising over the late 1880s and declining after 1893. Until the last years of the nineteenth century, German cash-to-deposit ratios exceeded the United Kingdom ratios, and the gap reached as much as 10 percentage points around 1891.

The variability of cash ratios is also important. The largest German banks kept aggregate ratios as low as 7 percent and as high as 22 percent during this period. The British deposit banks, by comparison, held relatively steady cash ratios throughout the end of the nineteenth and the start of the twentieth centuries. As a group, the British joint-stock banks maintained cash balances between 10 percent and 15 percent of deposits.

Though neither the British nor the German banks were bound by minimum reserve requirements in the pre-World War I period, cash ratios often still depended on factors outside the banks' control. Even in the absence of regulations, central monetary authorities may tacitly impose a ratio on commercial banks. In Britain, the apparent floor at 10 percent, while certainly not proof of the central bank's role, is consistent with the notion that the Bank of England held some sway over the banks' minimum cash ratio. The ratios for Germany, however, suggest no successful suasion by the Reichsbank. Bankers, politicians, and economists often debated the need for a required reserve, but little was done toward imposing regulations like those enacted in the United States.<sup>12</sup>

Clearly, many of the factors involved in determining the cash-to-deposit ratio fall outside the purview of the banks. At the

same time, banks do retain significant control over their investment portfolios, and the riskiness of those portfolios must also affect the banks' assessment of their need for cash reserves. A bank's structure and activities may measurably influence the composition of its asset portfolios, and the different levels of bank specialization may therefore partly explain the somewhat divergent patterns of cash ratios—and thus of capital expansion—of British and German banks.

## QUALITY OF INVESTMENTS

Banks' role in mobilizing capital is intimately tied to their involvement in the utilization of funds. Through decisions about how to lend and invest funds, banks can influence the quality of capital formation. As with capital mobilization, the structure of the German universal banks is thought by many to have offered advantages over the British system in promoting the efficient use of financial capital. The literatures on German and British banking have suggested that the British banks invested rather conservatively, while the German banks opted for riskier strategies. Such risky investment, it is argued, channeled funds into high-growth and high-return industries and helped promote Germany's industrialization.<sup>13</sup>

For influencing the quality of investment, the crucial organizational advantage of the German banks is their supposed long-term direct participation in industrial firms. By holding industrial shares, the banks are thought to have monitored and even controlled the firms they financed. The British banks, in contrast, are traditionally accused of having little to do with industry and are criticized for taking a short-term, arms-length approach to industrial lending.

There are several theoretical reasons why bank equity holdings may increase the efficiency of investment. Many of these hypotheses originate in the idea that asymmetric information between borrowers and lenders poses extra costs and creates inefficiencies in the selection and funding of investment projects. Cost reductions may result from imposing discipline on

<sup>10</sup> The data for the two ratios come from two sources: Sheppard's (1971 [1873]) compilation of *The Economist's* series and Capie and Webber's (1985) newer estimates. The latter only provide cash and deposit figures, so the cash-to-liabilities ratio cannot be calculated from this source.

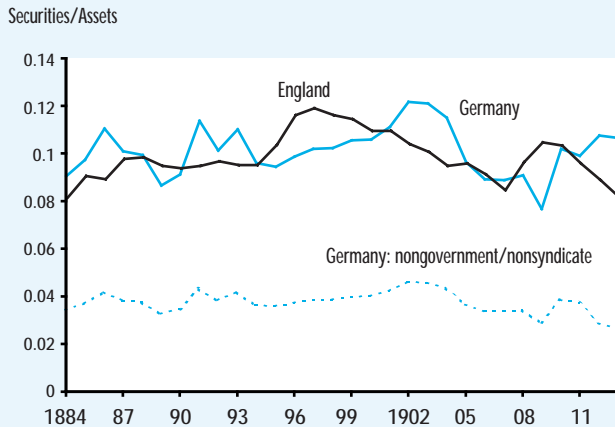
<sup>11</sup> That is, changing short-term liabilities into longer-term assets.

<sup>12</sup> Most proposals recommended required cash holdings of 1 percent to 5 percent of the sum of deposits and current account balances to be held at the Reichsbank. Defenders of the German joint-stock banks claimed that the British banks held much slimmer reserves than the Germans. The British banks were accused of padding their reserves for their semi-annual statements of account. See Riesser (1910, 1911) and sources cited there. Goodhart (1972) also discusses the reporting practices of British banks.

<sup>13</sup> Tilly (1986) points out that, given that the main clientele of the universal banks appears to have been large, older, publicly traded enterprises, the banks may not have been actively involved in risky, innovative investment in general.

Figure 3

## Nongovernment Securities as a Share of Total Assets, United Kingdom and Germany 1884-1913



NOTES: Figures for the United Kingdom include England and Wales only and include private banks after 1890. Figures for Germany include great banks only (large Berlin banks). See explanation in text.

SOURCES: United Kingdom, Sheppard (1971); Germany, Deutsche Bundesbank (1976).

resolving agency problems associated with multiperiod financial contracts. Explicitly motivated by modern perceptions of the German and Japanese banking systems, this model shows that the efficiency of inside investing hinges on the use of fixed fraction contracts. In such arrangements, the investor receives a fixed percentage of project returns and finances that same proportion of future investments.<sup>15</sup>

According to these theoretical arguments, banks that hold equity stakes in firms improve the firms' investment efficiency. Thus, the relative extent of equity holdings in the portfolios of British and German firms offers one way to assess banks' direct involvement in raising investment quality.<sup>16</sup> Figure 3 compares nongovernment securities for the two countries. Because of uncertainties about valuation and reporting, these figures should be viewed as approximations.<sup>17</sup>

The German banks 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 percent to 12 percent for the German banks and 8 percent to 12 percent for the British). The figures, it should be noted, provide as conservative an estimate as possible of the German and British nongovernment securities holdings. 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 securities than did the provincial banks. Therefore, the fact that Figure 3 still shows the British banks' securities holdings on par with the Germans' provides a strong indication that, despite the measurement difficulties, the British banks held a position in nongovernment securities similar to that of the German banks.

Such a finding would fall in line with expectations if one thought that the two types of banks were roughly similar. The predominance of underwriting and brokerage functions among the universal banks, however, should have led to higher levels of securities holdings at German banks, compared to British commercial banks.

<sup>14</sup> Myers and Majluf (1984) analyze many of these theoretical issues and provide a formal model of the potential suboptimality of investment under asymmetric information.

<sup>15</sup> Repeated interaction naturally adds the problem of renegotiation. Admati and Pfleiderer (1994), Persons (1994), and Dybvig and Zender (1991) all address this question.

<sup>16</sup> The remainder of this section borrows heavily from Fohlin (1997c).

<sup>17</sup> Disaggregation for the German figures begins only in 1912. The figures for the years before that are estimated on the basis of the lowest holdings of government securities between 1912 and 1920 as well as on the detailed account of one of the great banks between 1896 and 1899. The proportion for great banks ranged from 17.6 percent to 28.6 percent of total securi-

management, overseeing investment planning and outcomes, optimizing risk-taking by firms, and aligning banks' and firms' incentives for long-term benefits.<sup>14</sup>

John, et. al. (1994) models the effects of equity ownership on firms' risk-taking and shows that investment efficiency increases with the proportion of bank financing held in the form of equity. Imperfect oversight of investment choices and outcomes creates incentives for firms to use borrowed funds in an excessively risky manner. When banks maintain veto power over the use of funds, pure debt holdings induce them to minimize their risks in order to guarantee a fixed return. Equity holdings, in contrast, encourage banks to seek higher firm valuation. Thus, the greater the banks' equity holdings in the firm, the higher the banks' incentives for efficient tradeoff between risk and expected return.

In related work, Admati and Pfleiderer (1994) also demonstrate the potential importance of equity stakeholders in

Thus far, the numbers for the German banks have included securities holdings resulting from their underwriting and brokerage business.<sup>18</sup> 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 temporarily and because of the banks' inability to place the shares. It is useful to compare the estimates for the largest German banks to the securities holdings of British institutions engaged in investment banking. Cottrell (1985) shows that, at least in some cases, British investment banks held more than half their assets in the form of illiquid investments. By contrast, the German universal banks reported liquidity coefficients (the ratio of immediately available or quick assets to total liabilities) of 85 percent in 1893. These figures gradually declined by more than 20 points over the ensuing 15 years.<sup>19</sup> 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. Comparison with the British investment banks also underscores the potential inconsistency in the idea that universal banks could hold substantial long-term (illiquid) engagements with industrial firms and still operate a commercial business on the order of the British deposit banks.

To understand how important the banks' direct investment in industrial companies may have been for the growth of the economy, it is useful to combine the data on bank investments with those on bank assets relative to the economy as a whole. Table 1 reports the results of this calculation and indicates that the nongovernment securities holdings of universal banks ranged between 2 percent and 4 percent of GNP for the three decades preceding World War I. Even if the estimates are only approximately correct,

Table 1

### Bank Holdings of Non-Government Securities/GNP

	1880	1900	1913
Germany	0.022	0.027	0.040
Britain	0.044	0.063	0.058

SOURCE: Calculated from Deutsche Bundesbank (1976) and Goldsmith (1969).

the banks' holdings of nongovernment securities accounted for a very small share of the economy. The German banks' share did increase after 1880, but their holdings of nongovernment securities still amounted to only 4 percent of GNP by 1913. Furthermore, the biggest part of the increase came after the major push of industrialization in Germany.

The British banks' holdings of non-government securities were also low relative to GNP; in contrast to the German case, however, the banks' securities share of GNP rose between 1880 and 1900 and then leveled off. Given the measurement difficulties already discussed, and the likelihood that securities accounted for a greater share of the economy in Britain than in Germany, it is best not to overemphasize the differences between the German and British numbers.<sup>20</sup> Nonetheless, these calculations cast doubt on the idea that the banks' holdings of securities provided a significant stimulus to either the German or the British economies during the last half of the nineteenth century.

It is often claimed that the British banks held only gilt-edged securities in their portfolios, and that the German banks participated more actively and directly in risky, start-up ventures. The official figures, however, do not allow specific types of securities to be distinguished. Such distinctions, unfortunately, depend on spottier evidence from individual banks. German bank records for the pre-1880 period are generally unavailable. Nonetheless, some details are available for two of the earliest German joint-stock universal banks, the Disconto-

ties 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 did 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 percent to 55 percent of total securities (in the period 1896-99). Thus, since I am trying to err on the side of finding high rates of nongovernment securities holdings, 17 percent seemed a conservative enough estimate of the proportion of all great bank securities held in the form of government securities.

<sup>18</sup>According to Riesser (1910), the largest universal banks earned approximately half of their gross profits from underwriting and brokerage services.

<sup>19</sup>Riesser (1911), p. 655, discusses the banks' liquidity at length.

<sup>20</sup>Banks' equity holdings may actually represent a greater proportion of share capital in Germany than in the United Kingdom. Such figures are interesting from the point of view of the banks' involvement in the secondary market for shares, but the banks' ultimate impact must be measured against the economy as a whole.

Gesellschaft (DG) and the Darmstädter Bank (Bank für Handel und Industrie, or BHI).<sup>21</sup>

The DG held no securities in its first four years, but the proportion of securities holdings rose to around 12 percent of assets in 1856 and grew rapidly over the following few years. The bank seems to have unloaded securities during the boom years of the early 1870s, but it then took on extremely high shares of securities during the middle of that decade. While the bank's holdings continued to fluctuate throughout the remainder of the nineteenth century, the proportion of securities followed a generally downward trend toward the end of the period.

Between 1856 and 1865, two mining companies accounted for the vast majority of DG's industrial holdings, averaging around 11 percent of bank assets during this period. Direct participation arose out of the bank's intention to convert the firms into joint-stock companies, but because of the thin market for the securities, DG was forced to hold these companies' shares until the bank could extricate itself in the more favorable market of the late 1860s and early 1870s.

The remainder of DG's securities portfolio was held in relatively conservative investments: government debt, railway shares and bonds, and other priority bonds and shares. With the exception of a few minor holdings of shares, the DG confined its participation in industry to three companies (the two already discussed plus another mining concern). Indeed, the bank's holdings of industry stocks amounted to between zero percent and 3 percent of its assets for the years in which disaggregated data are available (1852-65).<sup>22</sup>

Tilly (1967) shows in his discussion of the early industrial promotion activities of the Bank für Handel und Industrie, another of the great banks, that while the bank was energetic in such activities in its first four years, it had difficulty placing shares at reasonable prices. By the early 1860s, BHI had extricated itself from this side of the business and had turned to railway and government finance. Thus,

it can hardly be argued that even the early activities of the great banks included extensive, direct involvement in industrial companies.

Economic historians can pick up this story in the 1880s by using evidence from BHI.<sup>23</sup> Holdings of industrial shares amounted to less than 1 percent of BHI's assets for most of the 1880s and '90s, and even at its peak, the proportion of industrial shares to assets reached only 1.3 percent (in 1882).<sup>24</sup> Moreover, BHI reported substantial holdings of only 12 different companies between 1882 and 1897 and no more than seven firms in any one year. Together, these data provide further support for the notion that the great banks invested a relatively small portion of their portfolios in long-term stakes in industrial firms.<sup>25</sup>

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, it is impossible to tell for sure what industrial shares the banks may have held. Edelstein, however, has provided more general estimates of U.K. securities holdings, 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 company holdings alone increased from 4 percent to 17 percent of all U.K. holdings over the period.<sup>26</sup>

For the period between 1883 and 1907, Davis and Huttenback (1986) find that the financial community owned around 5 percent of U.K. share value and averaged 4 percent stakes in those companies. In addition, public companies, some of which may have been banks, held nearly 4 percent of domestic share capital. The banks might be expected to have participated to some extent in these investments, though firm

<sup>21</sup> See Dabritz (1931) on DG and *Saling's Börsen-Jahrbuch* on the Darmstädter Bank.

<sup>22</sup> Dabritz (1931).

<sup>23</sup> BHI published unusually detailed accounts of its securities holdings, and until 1899, *Saling's* reproduced the information in its series on Berlin-listed companies.

<sup>24</sup> Fohlin (1997c).

<sup>25</sup> While the experiences of two banks may not necessarily be generalized to the population as a whole, these two banks do represent a significant proportion of the great banks.

<sup>26</sup> Edelstein (1982), p. 48.



proof of such a contention is apparently unavailable. Yet even if the British banks held no industrial shares, the evidence for DG and BHI suggests that the German universal banks were not far ahead on this count.

It is important to note that the banks' ownership of shares, at the margin, may have provided important injections of liquidity or signals of quality for newly public firms. In a thin market for industrial securities, and in cases of lumpy investments, such holdings may permit firms to invest when they otherwise would not have. Thus, small and transient equity stakes may increase the quantity of investment, even if they do not have the qualitative, efficiency effects that long-term holdings are thought to have. Since such equities may not have made it onto the banks' books, though, it is difficult to estimate the ultimate impact of transient holdings.

Share ownership represents only the most direct kind of involvement in industrial firms. The banks may have also participated indirectly in companies, either through proxy voting of customers' shares or through positions in the firms' supervisory boards.<sup>27</sup> Because of their combination of underwriting, brokerage, and commercial services, the German banks probably obtained greater control of industrial shares than did the British banks. Since shares taken as collateral or simply held as a service to customers would not appear in the banks' balance sheets, and since firms did not have to reveal their shareholders, 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 bank directors held positions in relatively few 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 the great banks.<sup>28</sup>

Proxy votes and supervisory board positions may have enabled banks to monitor their investments and even control the use of bank funds. From a theoretical perspective, however, it is unclear whether such indirect

participation yields the same kind of incentive effects as direct ownership. In theory, at least, systems in which banks exert control over investment decisions but do not align their incentives with those of the firms through equity stakes force firms into excessively safe and thus inefficient investment programs. So the German system of proxy voting and interlocking directorates may have increased bank control and oversight, but it may have led to more internal financing and fewer risky investments.

## CONCLUSION

The financial system may promote real growth of the economy by enhancing the quantity, quality, or efficiency of investment. Using evidence on bank financial structure, this study has compared the contributions of the British and German banking systems in the first two of these areas. The analysis yields no compelling evidence that one system consistently or significantly outperformed the other in raising the quantity or quality of investment.

The findings indicate that the German universal banks, despite their broader involvement in corporate finance, accounted for a markedly smaller proportion of the economy than did the British banks. The gap of the 1880s, much of which may have been due to the later onset of industrialization in Germany than in Britain, only began to diminish after 1894 and never fully disappeared. The universal banks may have, however, expanded their available capital at a faster rate, since they invested or lent a greater share of their total liabilities than did the British banks. The disparity in cash-to-liability ratios, however, stems from the heavily deposit-based financing of the British banks. Until the late 1890s, the German banks actually maintained more conservative coverage of short-term liabilities than did the U.K. banks. Only with the serious onset of the deposit business in the mid-1890s did the German cash-to-deposit ratios begin their steady decline.

The German banks are frequently credited for their active participation in industry, and bank equity positions in

<sup>27</sup> The German supervisory board comprises shareholders' representatives. Currently, this body must also represent the firm's workers.

<sup>28</sup> Fohlin (1997a, b) discuss the prevalence, sectoral distribution, and determinants of interlocking directorates between banks and firms.

firms are thought to improve the quality of investment. The findings show, however, that the universal banks held only a small share of their portfolios in the form of industrial equities. Evidence from two of the largest universal banks suggests that the universal banks held stakes in only a few firms and often did so for lack of demand for their shares. Based on the theoretical work on bank equity stakes, this article also argues that if the German banks wielded greater control over firms (through board positions, for example) than did the British banks but took no greater equity stakes in those firms, then the German system of relationship banking may actually have led to relative underinvestment in risky projects.

This study has raised the possibility that the German banks' choices of investment and reserve holdings were constrained by the extent of the secondary market in securities. It is possible that the dominance of universal banking in Germany may have hampered the growth of complementary financial institutions. In the German case, however, regulation that encouraged the growth of universal banking also may have inhibited the development of securities markets. Thus, the existence of universal banking, per se, may not curtail the functioning of securities markets.

Clearly, further work on this subject is required. But if specialized and universal systems of finance generally provide similar quantities and qualities of investment, then cost-efficiency may prove to be the crucial determinant of the relative growth effects of the two systems. Universal banking may yield economies of scale or scope compared to a specialized system, but these economies may also lead to excessive concentration, market power, and inefficiency in the banking sector. In addition, the internalization of the secondary securities market within the banking system may hamper both the efficient distribution of financial capital and the market for corporate control. Such factors bear directly on the costs of finance, and such costs influence economic growth.

This study narrows the perceived gulf between the British and German banking

systems; and it indicates quite strongly that without a significant period of real development, financial institutions can offer only limited benefits for economic growth.<sup>29</sup> It may still be true that the German economy has outperformed its British counterpart over the past century, but this study suggests that differences in banking structure are probably not the cause. Such findings may prove useful for policymakers both in forecasting the effects of banking deregulation in the United States and in formulating development programs in other parts of the world.

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<sup>29</sup> Tilly (1967), pp. 114-15, argued similarly 30 years ago.

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