ISSN 0265-8003

UNIVERSAL BANKS AND GERMAN INDUSTRIALIZATION: A REAPPRAISAL

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Discussion Paper No. 1171
May 1995

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CEPR Discussion Paper No. 1171

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ABSTRACT

Universal Banks and German Industrialization: A Reappraisal*

This paper argues that the role of universal banks in German industrialization has been over-emphasized. The contribution of universal banks to the financing of railway investment was overshadowed by that of the German states. The distinctive features of the relationship between universal banks and industrial firms apply only to industrial joint-stock companies, but the vast majority of the industrial capital stock in Germany before 1914 was accounted for by firms which were not joint-stock companies. Even for industrial joint-stock companies, careful analysis of the relationship between these companies and universal banks casts serious doubt on the conventional view of this relationship.

JEL Classification: G21, G32, N23
Keywords: universal banking, Germany, investment finance, economic growth

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*This paper is produced as part of a CEPR research programme on *Finance in Europe: Markets, Instruments and Institutions*, supported by a grant from the Commission of the European Communities under its Human Capital and Mobility Programme (no. ERBCHRXCT940653).

Submitted 21 March 1995

NON-TECHNICAL SUMMARY

Close relationships between universal banks and industrial companies are widely regarded as a distinctive feature of the German economy. Briefly put, the argument underlying this view is that the German system of investment finance has distinctive institutional features, which are the best way of dealing with the problems of asymmetric information that are inevitable when investment is financed by external sources of funds. The two distinctive features of the German system of investment finance emphasized in this context are: first, the combination of commercial banking with investment banking activities in a single institution, the universal bank; and second, the representation of these universal banks on the supervisory boards of joint-stock companies. The representation of German universal banks on supervisory boards derived from the banks' own shareholdings, combined with extensive control of the equity voting rights in joint-stock companies, in the form of proxy votes exercised on behalf of shareholders who had deposited their shares with the banks.

This paper addresses the fundamental premise of the view that German institutional arrangements for financing industrial investment were superior to those in other countries. This premise is that it is correct to describe the German system of investment finance in the nineteenth and early twentieth century as being one dominated by universal banks with close ties to industrial companies, which facilitated German industrialization by providing large amounts of external finance.

A universal bank combines commercial banking – the acceptance and granting of credit – with investment banking. In Germany before 1914, investment banking involved either setting up a new joint-stock company or arranging an issue of securities, and under German company law, only joint-stock companies could issue securities. Furthermore, the only types of firm which were legally required to have a supervisory board were joint-stock companies. Universal banking in Germany before 1914 was, therefore, fundamentally linked with joint-stock companies.

The characteristic features of German universal banking developed first among some private bankers in the 1830s, in connection with the building of the German railways. Although some private bankers were engaged in universal banking in the period before 1870, they were not typical of German private bankers as a whole. Furthermore, their resources proved too limited for the large projects characteristic of universal banking business. As a consequence, many private bankers sought to set up *Kreditbanken* (credit banks) – the joint-stock banks which are the epitome of German universal banking. This was not possible on a large scale, however, until the requirement to obtain state permission to form joint-stock companies, severely rationed in general and especially so for banks, was removed in 1870.

Even after 1870, though, universal banks were of only rather limited significance in the German financial system. The majority of German financial institutions were not universal banks, and the universal banks accounted for only a minority of the total assets of the financial system. As late as 1913, savings banks and mortgage banks each commanded a share of the total assets of financial institutions comparable to that of the universal banks. The *Grossbanken* (great banks), on which so much attention is focused, accounted for only about 10% of the assets of all financial institutions in 1913, and an even smaller share at earlier dates.

It has, however, been claimed that the share of total assets of the financial system is not a good measure of the economic significance of the universal banks. Can it be argued that the universal banks operated at the critical margins affecting economic growth in Germany?

If there was such a critical margin in the early stages of German industrialization, it was the investment involved in railway construction, and railway financing certainly provides the earliest examples of universal banking. The importance of universal banks in railway financing during the 'take-off' period in Germany (the 1840s to the early 1870s) is, however, difficult to assess precisely. In some German territories – especially Prussia, but also Saxony – railway investment was undertaken by private joint-stock companies, in whose foundation and security issues both private banks and (later) *Kreditbanken* played significant roles. Outside these territories, however, private railway companies were the exception. Most German railways were built and financed by the state. Universal banks may have been significant in railway financing during the German 'take-off', but the major role was played by the state.

In the later stages of German industrialization, particularly after 1870, another contender for the critical margin affecting economic growth, at which universal banks were to be found, is the industrial joint-stock company. As has been noted, universal banking in Germany was fundamentally linked to the operation of joint-stock companies. But throughout the period before 1914, the vast majority of the industrial capital stock was accounted for by firms which were not joint-stock companies – that is to say, by sole proprietorships, partnerships, and private limited companies. These types of firm could not issue securities and did not have supervisory boards. As a result, they were firms for which the investment banking activities of the universal banks were of no consequence, and the possibility of the provision of bank loan finance being increased by bank representation on the firm's supervisory board did not even arise. The orders of magnitude involved make it very difficult to see how joint-stock companies, and therefore the universal banks which specialized in providing them with external finance, can have been central to German industrialization before 1914.

Even for the industrial joint-stock companies on which the universal banks concentrated, detailed analysis of the sources of investment finance and the influence of universal banks on these companies casts considerable doubt on the conventional view that the universal banks provided a substantial fraction of the funds for investment by industrial companies, and exerted a significant degree of control on their management. Although examples consistent with the conventional view certainly exist, they are not typical. In most cases, internally-generated funds were by far the most important source of investment finance for industrial companies, and banks were not in a position to exert any control on these firms' management even though they occupied seats on the supervisory board.

The conclusion from this analysis is clear: the role of the universal banks in German industrialization has been over-emphasized. A balanced assessment of the contribution of the German system of investment finance to economic growth in the period before 1914 must be based on a recognition of the fact that a very large part of the industrial capital stock was accounted for by firms which were, by their very nature, not ones for which the distinctive features of the universal banks were relevant.

1. Introduction

Close relationships between universal banks and industrial companies are widely regarded as a distinctive feature of the German economy, which played an important part in its industrialization in the nineteenth century. Perhaps the most influential exponent of this view is Gerschenkron, who argued that German universal banks, by combining the short-term activities of commercial banks with the long-term financing activities of investment banks, were crucial in providing the investment funds required by modern, large-scale industry.[1] The relationship between universal banks and industrial firms during German industrialization was described by Gerschenkron in the following terms:

> Through the device of formally short-term but in reality long-term current account credits and through development of the institution of the supervisory boards to the position of most powerful organs within corporate organizations, the banks acquired a formidable degree of ascendancy over industrial enterprises, which extended far beyond the sphere of financial control into that of entrepreneurial and managerial decisions.[2]

The view that universal banks played a central role in German industrialization has become almost an orthodoxy. Recently, for instance, Chandler argued that in Germany 'the all-purpose Kreditbanken, particularly the largest, the Grossbanken, were the instruments that made possible the rapid accumulation of capital on a scale vast enough to finance the building of the new Continental transportation and communication infrastructure'.[3] The Kreditbanken (credit banks) were the most important German universal banks, with the defining characteristic that they were organised in the legal form of a joint-stock company. They began to appear around 1850 and, according to Chandler, 'a handful of the largest Kreditbanken, termed Grossbanken (great banks), have dominated German finance ever since'.[4] In Chandler's view, the Grossbanken were crucial in the building of the German railways, and once the railway network was largely completed,

> the Grossbanken began to concentrate on financing industrial enterprises, particularly in the new industries. As they had with railroad companies, these Grossbanken acted as intermediaries for the sale of securities, often taking a block of stock on their own account and usually obtaining proxy powers for the shares they sold to other investors. Even more than they had done with railroad companies, these banks provided initial capital for new industrial ventures and helped guide them through their early years of growth.[5]

That the Kreditbanken in general, and the Grossbanken in particular, played a central role in Germany's industrialization remains an unquestioned component of most accounts of German economic development.

Why is so much emphasis placed on close relationships between universal banks and industrial companies in German industrialization? Briefly put, the argument is that the German system of investment finance has distinctive institutional features, which are the best way of dealing with the problems of asymmetric information that are inevitable when investment is financed by external sources of funds. A system of investment finance acts as a mechanism for savers to provide resources to investors who have more productive uses for them. These investors are typically firms. Asymmetries of information are inherent in the provision of external finance to firms, because savers are entrusting resources to firms about which they have limited information, and it is costly for savers to monitor the managers of these firms. There is no guarantee that, once a firm has obtained external finance, its managers will act in a manner that coincides with the interests of the suppliers of this finance. The managers may, for example, use the finance to invest in projects which boost their own status, rather than ones which are profitable; or they may simply use it to provide themselves with managerial perquisites. If suppliers of external finance do not have the information to prevent managers' pursuit of their own interests at savers' expense, they are likely to provide less finance to firms; the result is likely to be a low level of provision of external finance, with the result that some firms with worthwhile investment projects will be unable to raise the funds required to undertake them.

The two distinctive features of the German system of investment finance emphasized in this context are, first, the combination of commercial banking with investment banking activities in a single institution, the universal bank; and second, the representation of these universal banks on the supervisory boards of joint-stock companies. From 1870, German company law required every joint-stock company to have a supervisory board, the main function of which was the supervision of the board of senior managers responsible for the actual operation of the company. The representation of German universal banks on supervisory boards derived from the banks' own shareholdings, combined with extensive control of the equity voting rights in joint-stock companies, in the form of proxy votes exercised on behalf of shareholders who had deposited their shares with the banks.

The distinctive German institutional arrangements - universal banking combined with bank representation on industrial companies' supervisory boards - are seen as economising on the costs of collecting information to minimise the problems created by asymmetric information. Universal banks, which provide a complete range of commercial and investment banking services, are seen as being able to collect savings deposits from a wide range of individual small savers, and to use these to finance investment in a variety of ways, including the use of equity as well as conventional bank loans. Economies of scope in the provision of payments services and the collection of information about firms, due to the fact that the payments and receipts of firms provide information relevant for assessing their economic position, mean that the financial intermediaries which can most efficiently supply external finance are banks, which are distinguished from other financial intermediaries by their provision of payments services. Economies of scope between the collection of information about firms for different purposes - for example, monitoring firms which have received loans and screening firms which wish to issue shares - mean that a system in which different forms of external finance (loans, bonds, shares) are all supplied to firms by universal banks is more efficient than one in which different banks specialise in the supply of particular forms of external finance. Finally, the German universal banks' representation on supervisory boards is seen as both providing suppliers of external finance with additional information and enabling them to exercise control over the behaviour of firms' managers. All of these considerations are regarded as having made universal banks in Germany more able and more willing to provide external finance to firms than was the case in other systems of investment finance.

These theoretical merits of the German system of investment finance underlie some recent critical analyses of other countries' financial systems in the late nineteenth and early twentieth centuries. Kennedy argues that the failure of British financial intermediaries to behave in the same way as German banks hampered British economic performance in this period, while Calomiris, in a comparison of the American and German systems of investment finance over the period 1870-1914, concludes that the German system was superior.[6] The view that Germany is one of the main examples of a 'bank-based' system of investment finance which is superior to alternative systems, in particular to the 'market-based' Anglo-American system, is commonly encountered not only in analyses of economic history but also in current policy debates.[7] Such a view raises complex issues which cannot easily be resolved, such as, for example, how to disentangle the effects of an economy's system of investment finance from other possible influences on its economic performance, and whether an economy's system of investment finance is independent of other features of its institutional structure.

This paper does not consider the complex questions involved in assessing the merits of the system of investment finance in Germany compared to that in other countries. Instead, it addresses the fundamental premise of the view that German institutional arrangements for financing industrial investment were superior to others in the ways described. This premise is that it is correct to describe the German system of investment finance in the nineteenth and early twentieth century as being one dominated by universal banks with close ties to industrial companies, which facilitated German industrialization by providing large amounts of external finance. We begin our analysis of this premise by considering the extent of universal banking in Germany before 1914 within the financial system as a whole.

2. The characteristics and extent of universal banking in Germany before 1914

The customary definition of a universal bank as one which combines commercial and investment banking activities is not very informative without some discussion of what constitutes commercial and investment banking. An authoritative source on the nature of banking activity in this period is J. Riesser, himself a director of one of the German Grossbanken.[8] Riesser distinguished two types of banking business in Germany. The first, which may be taken to correspond to commercial banking, was 'regular or current banking business [which] is confined to the acceptance and granting of...credit'.[9] The second, which may be taken to correspond to investment banking, was 'the stock issuing, promotion and conversion business',[10] involving, respectively, 'the issue of shares or debentures',[11] arranging 'to establish new industrial concerns in the shape of stock companies',[12] and arranging 'to transform private concerns into joint-stock companies'.[13] Universal banking in Germany before 1914 was, therefore, fundamentally linked with joint-stock companies, since investment banking involved either setting up a new joint-stock company or arranging an issue of securities, and, under German company law, only joint-stock companies could issue securities.

According to Riesser, the role of universal banks in setting up a joint-stock company and in subsequent issues of its securities, was the main reason such banks held seats on its supervisory board.[14] Universal banks ensured their representation on supervisory boards by exercising the voting rights of substantial fractions of companies' share capital, either because the banks held shares themselves, or because they represented other shareholders at shareholder general meetings.

Investment banking in Germany before 1914 did not, therefore, simply involve the issuing, underwriting, placing and trading of corporate securities. It also gave the universal banks the possibility of exerting substantial influence on the operation of industrial companies via their role in founding or transforming these companies, their control of shareholders' voting rights, and their representation on supervisory boards.

The characteristic features of German universal banking developed first among some private bankers in the 1830s, in connection with the building of the German railways. This development was most noticeable in the area around Cologne, but it also occurred in some other parts of Germany.[15] The development of universal banking continued in the upswing of 1848-1856, during which a number of industrial companies were established with the assistance of private banks. As with the railways, the Cologne private bankers were especially prominent,[16] and a large proportion of the industrial companies established in this period were in the Rhineland and Westphalia. But although some private bankers were engaged in universal banking in the period before 1870, they were not typical of German private bankers as a whole.[17] Moreover, their resources soon proved too limited for the large projects characteristic of universal banking business.[18] As a consequence, many private bankers sought to set up joint-stock Kreditbanken, although they could not do so in large numbers until the requirement to obtain state permission to form joint-stock companies, severely rationed especially for banks, was removed in 1870. In 1872 there were 139 Kreditbanken, only 31 of which had been founded before 1870.[19]

The removal of the need for state approval of joint-stock companies in 1870 increased the importance of universal banking in Germany both by increasing the number of joint-stock companies (with which, as we have seen, universal banking business was fundamentally linked), and by facilitating the foundation of joint-stock banks (the most suitable legal form for undertaking universal banking business). Many of the private banks which had engaged in universal banking became

Kreditbanken after 1870, although some survived as late as 1913.[20] The major role played by the largest of the Kreditbanken, the Grossbanken,[21] in security issue business and in representation on industrial companies' supervisory boards during the period 1880-1914 is copiously documented in Riesser's book.

In the first few decades of German industrialization, the investment banking activities of the universal banks were of greater significance than their commercial banking ones. Although the universal banks did accept and grant credit, they did not as a general rule accept deposits from individual small savers until, at the earliest, the 1880s. Private banks, by their very nature, were never in a position to attract small savings deposits through a system of branches,[22] but at first the Kreditbanken did not engage in this form of commercial banking activity either.[23] Only in the 1880s did the Kreditbanken generally begin to use branch networks to attract deposits from small savers, following the lead set by Deutsche Bank in the 1870s.[24] Until the 1880s, therefore, the German universal banks took virtually no part in what is regarded as a central feature of financial intermediaries' contribution to economic growth, namely the mobilization of investible funds from large numbers of individual small savers.

In other respects, too, the focus of the universal banks' activities was more on investment than on commercial banking before the 1870s. While some universal banks (such as those in Cologne) generally conducted only regular banking business with industrial companies after helping to found them and place their shares, many others invested their own capital in permanent shareholdings in industrial companies.[25] The severe economic downswing of 1873-9, however, caused large reductions in the share values of companies, so that many universal banks themselves had to write down their capital. This experience meant that from the 1880s onwards, the universal banks avoided direct shareholdings in firms, retaining shares only when it was not possible to dispose of them without suffering large losses.[26] In addition, after the 1870s, the importance of regular banking business with industrial companies increased relative to that of the issue business.[27] From the 1880s onwards, therefore, the commercial banking business of the German universal banks was no longer of secondary importance to their investment banking business.

How important were the universal banks in the overall German financial system? Table 1 shows the share of different types of financial institutions in the total assets of German financial institutions over the period 1860-1913. Universal banking was performed by both Kreditbanken and some, but by no means all, private bankers. Choosing any particular figure for the assets of private bankers engaged in universal banking to add to the share of the Kreditbanken is inevitably arbitrary. On the assumptions that the share of universal banks in the total assets of the financial system in 1900 and 1913 would be overestimated by adding the Kreditbanken and private bankers together to obtain 25.8 per cent and 28.6 per cent respectively, and that the scope for universal banking was much greater in the early twentieth century than before because of the growth in importance of industrial joint-stock companies,[28] it seems reasonable that a figure of 20 per cent would be a generous upper bound for the share of universal banks in 1860 and 1880. The true figure for these dates is likely to be considerably smaller. But the fact that the significance of private bankers engaged in universal banking cannot be identified precisely does not affect the overall conclusion to be drawn from Table 1 about the importance of universal banks in the German financial system before 1914. The majority of German financial institutions were not universal banks: even in 1913, savings banks and mortgage banks each commanded a share of the total assets of financial institutions comparable to that of the universal banks. The Grossbanken, on which so much attention is focused, accounted for only about 10 per cent of the assets of all financial institutions in 1913, and an even smaller share at earlier dates.

Table 1:Share of different types of financial institution in the total assets of German financial institutions

%

	1860	1880	1900	1913
Central bank and banks of issue	22.4	11.6	6.3	4.4
Large Kreditbanken	} 9.2	10.0	17.2	9.2
Regional/local Kreditbanken				15.0
Private bankers	35.3[a]	18.5[a]	8.6[a]	4.4
Specialised commercial banks	-	-	-	1.1
Local saving banks	12.0	20.6	23.3	22.9
Central savings banks	-	-	-	1.9
Local credit cooperatives	0.2	4.4	4.1	6.3
Central credit cooperatives	-	-	-	0.5
Private mortgage banks	0.9	13.7	18.5	14.9
Public mortgage banks	16.0	13.0	10.0	7.9[a]
Life insurance companies	1.6	3.3	6.0	6.2
Property insurance companies	-	2.6[a]	2.0[a]	2.3
Social insurance organisations	-	-	2.1	2.7
Other	2.4	2.3	1.7	0.3
Total	100.0	100.0	99.8	100.0

Note: [a] Estimated figures

Source: Goldsmith, Financial Structure, pp.514-5.

The figures in Table 1, therefore, suggest that it is wrong to characterise the German system of investment finance in this period as being dominated by universal banks. The universal banks accounted for only a minority of the total assets of the financial system, and banking sectors such as the savings banks and the mortgage banks were each quantitatively of the same order of magnitude as the universal banks.

This conclusion can, however, be criticised on the grounds that the share of total assets of the financial system is not a good measure of the economic significance of the universal banks. For example, Kindleberger claims that 'size and decision power are far different. The great banks constituted less than a tenth of the total assets of financial institutions of the country, but were found at the critical margin affecting economic growth'.[29] The next section examines this view, by asking which margins might have been critical for German economic growth, and how important universal banks were with regard to these margins.

3. Did universal banks operate at the critical margins affecting economic growth?

a) Railways

If there was a 'critical margin affecting economic growth' in the early stages of German industrialization, it was the investment involved in railway construction, which began in earnest in the 1840s. Germany's 'take-off' is now generally dated to the 1840s, and railway-building is supposed to have played an important role in it.[30] Railway investment reached a peak in 1846 not re-attained until 1859, yet throughout the 1850s and 1860s, it remained at roughly 60-70 per cent of investment in the industrial sector.[31] Railways have been diagnosed as a leading sector in German industrialization, through the enormous demand they generated for the outputs of heavy industry and their substantial reduction of transport costs.[32] What role did universal banks play in German railway investment?

Certainly, railway financing provides the earliest examples of universal banking.[33] Some of the earliest German railways - in the Rhineland and Saxony - were built by private joint-stock companies, and private bankers played an important part in organising and financing these lines. For example, in the case of the Rhenish Railway Company, founded in 1837, Rhenish bankers'

> current account advances and brokerage services kept the company afloat throughout the difficult early years of the 1830s and 1840s. They rewarded themselves with promotional and stock jobbing profits while maintaining their positions of influence within the company by holding or obtaining voting rights over significant blocs of its shares, and by occupying strategic positions upon its board of directors.[34]

In the 1850s and 1860s, private bankers were joined in the promotion of railway companies and the issuing of their securities by the newly-founded Kreditbanken,[35] so that both types of German universal bank were involved in financing railway investment by private companies during the period of the 'take-off'.

However, it is important not to treat the Rhineland and Saxony as typical. In many parts of Germany, railway investment was undertaken not by private companies but by the state. In Prussia (which governed much of the Rhineland), the state's role in railway construction during the 'take-off' was relatively minor: railways were built by private companies, with the state merely taking some shares or guaranteeing interest payments.[36] But in the other German states matters were different. Until Hanover was annexed by Prussia in 1866, all its railway lines were built by the state. The Baden and Württemberg railways were also constructed by the state, as were those in Bavaria, apart from two early exceptions (taken over by the state in 1844). Borchard estimates that, up to 1850, government funds provided 73.3 per cent of railway finance in the non-Prussian German states,[37] compared to only 9.2 per cent in Prussia.[38] For German states as a whole, government funds provided about half of the capital invested in railways before 1850.

The importance of German universal banks in railway financing during the 'take-off' period (the 1840s to the early 1870s) is difficult to assess precisely. In some German territories - especially Prussia, but also Saxony - railway investment was undertaken by private joint-stock companies, in whose foundation and security issues both private banks and (later) Kreditbanken played significant roles. However, lack of data preclude any estimate of the precise share of bank-provided funds in private railway investment. Since German railways became highly profitable almost immediately after they began operation, it seems likely that they themselves generated some of the finance required for further investment.[39] Even if universal banks were central to the organization and finance of private railway companies, however, the fact remains that, outside Prussia, such companies were the exception: most German railways were built and financed by the state. Universal banks may have been significant in railway financing during the German 'take-off', but the major role was played by the state.

b) Industrial joint-stock companies

According to standard analyses of German industrialization, another contender for 'the critical margin affecting economic growth', at which German universal banks were to be found, is the industrial joint-stock company. Universal banking was central to industrialization in relatively backward economies such as Germany, according to Gerschenkron, partly because in such economies 'there is greater pressure for bigness because of the scope of the industrialization movement, the larger average size of plant, and the concentration of industrialization processes on branches of relatively high ratio of capital to output'.[40] Rapid establishment of large-scale, capital-intensive industry was made possible, the argument goes, by the legal form of the joint-stock company. Joint-stock companies, in turn, were made possible by universal banks, whose investment banking activities, as we saw in Section I, consisted of promoting and transforming joint-stock companies, and issuing their securities. The critical role played by the joint-stock company in German industrialization, and its link with universal banks, is well summarised by Kocka:

The anonymous, large-scale mobilization of capital through joint-stock companies played a more important role in the German industrial revolution than in the English. The joint-stock company as an institution limited risks for an individual investor and thus overcame an important barrier to private investment activity. It facilitated the collection and investment of small contributions and thus made widespread savings available for industry. It loosened the close geographical and personal links between the distribution of savings and that of entrepreneurial opportunities. The joint-stock company also created a series of mechanisms which made the risks of investment more calculable for the private individual, and thus more attractive. It was associated, to an increasing extent, with the presence of investment banks. These institutions attracted savings and placed investments in a well-informed, prudent way. The combination of the joint-stock company and the investment bank thus created a strong mechanism for encouraging savings, which would not otherwise have been attracted to industrial investment, towards industry in need of capital.[41]

As already mentioned, until 1870 joint-stock companies required government permits, which most German states were reluctant to grant. Consequently there were few joint-stock companies in Germany until after 1870. In Prussia, joint-stock companies were approved to build railways before 1870, and some were also approved in industry - 37 up to 1850, and a further 107 in the following decade (66 of them in the mining and smelting industries).[42] Both private bankers and, to a lesser extent, the newly-founded Kreditbanken were involved in the promotion and finance of industrial joint-stock companies during this period.[43] Nevertheless, as Table 2 shows, industrial joint-stock companies accounted for only a small proportion of the total industrial capital stock before the requirement for state permits was removed in 1870.

A new law on joint-stock companies was also issued in 1870. Previously, a joint-stock company had had an administrative board (Verwaltungsrat) which represented the interests of large

Table 2: Net capital of industrial joint-stock companies as a proportion of the total industrial capital stock

	%
1860	7.61
1870	7.77
1880	9.46
1890	14.92
1900	16.19
1910	19.74
1913	17.77

Source: own calculations, based on Hoffmann, Wachstum, pp. 245-6, 785.

shareholders and had direct influence on the management. The new law required every joint-stock company to have a supervisory board (Aufsichsrat), whose role was clearly distinguished from that of the management board (Vorstand). The former, which was elected by the annual general meeting of the shareholders, supervised the latter, which was responsible for the day-to-day running of the company. The supervisory board, however, was able to make, or at least influence, the most important strategic decisions of the company. A revision of the law on joint-stock companies in 1884 strengthened the position of the supervisory board, giving it the power to appoint and dismiss the management board. After 1884, bank influence on, and potential control of, the management of joint-stock companies was exercised via representation on the supervisory boards of these companies.

After 1870, industrial joint-stock companies in Germany began to increase in number and significance, although the downswing of 1875-79 meant that many of the industrial companies founded in the boom of 1870-73 did not survive for long. Consequently, as Table 2 shows, it was not until the 1880s that there was a marked increase in the share of the total industrial capital stock accounted for by industrial joint-stock companies. But although the importance of industrial joint-stock companies increased after 1870, and even more after 1880, the most striking feature of Table 2 is that even in 1913, 80 per cent of the industrial capital stock in Germany was accounted for by firms which were not joint-stock companies - that is to say, by sole proprietorships, partnerships, and private limited companies. These types of firm could not issue securities, and did not have supervisory boards. As a result, they were firms for which the investment banking activities of the universal banks were of no consequence, and the possibility of the provision of bank loan finance being increased by bank representation on the firm's supervisory board did not even arise.

The figures in Table 2 cast serious doubt on the claim that the German universal banks, via their concentration on 'large enterprises, preferably corporate enterprises whose liabilities could be traded in secondary markets'[44] lay at the crucial margin affecting German economic growth. As is clear from the passage quoted above from Kocka, the argument that the universal banks were central to German industrialization turns on the idea that these banks, in conjunction with the institution of the industrial joint-stock company, created a mechanism for supplying the substantial external finance necessary for the large-scale investment entailed by rapid industrialization. Yet Table 2 shows that the vast majority of the industrial capital stock in Germany, even in the early twentieth century, was accounted for by firms that were not joint-stock companies. The orders of magnitude involved make it very difficult to see how joint-stock companies, and therefore the universal banks which specialised in providing them with external finance, can have been central to German industrialization before 1914.

It might nevertheless be argued that, even though industrial joint-stock companies accounted for less than 20 per cent of the industrial capital stock, the linkages from these companies to the rest of the industrial sector were important for German economic growth. No study exists supporting the idea that industrial joint-stock companies were a leading sector, yet this possibility cannot be definitely excluded. Can it be argued that the universal banks did provide substantial amounts of external finance for industrial joint-stock companies, and hence, via some putative linkages to the rest of the economy, were at the critical margin influencing growth? This is the subject of the next section.

4. Universal banks and the finance of investment by industrial joint-stock companies, 1874-1914

Comprehensive information about the finance of investment by industrial joint-stock companies over this period is not available. But a number of studies exist which provide sufficient detail to cast considerable doubt on the accuracy of commonly-held views about the role of universal banks in financing these companies. These studies include analyses by Rettig and Tilly of the sources of finance of samples of companies with shares listed on the Berlin stock market, and investigations by Feldenkirchen and Wellhöner into company finance and the role of banks, using material from companies' archives as well as information from their accounts.[45] This section summarises the conclusions about universal banks and the finance of investment by industrial companies which have emerged from these studies.

All available studies of the sources of finance of industrial joint-stock companies over the period 1880-1914 show that internally-generated funds were overwhelmingly the most important. This is the conclusion of Rettig's analysis of a sample of 50 listed industrial enterprises over the period 1880-1911. Tilly points out the same finding in a sample of several hundred listed enterprises over a similar period. Feldenkirchen's studies of companies in the iron and steel, mechanical engineering, electrical and chemical industries consistently show the dominant role of internal finance as a source of funds. So, too, does Wellhöner's detailed study of nine companies in heavy industry.

An illustrative example of the importance of internally-generated funds is Table 3, taken from Feldenkirchen, which shows the extent of internal financing of investment by the major firms in the Ruhr steel industry. The figures in Table 3 are not, of course, necessarily representative of German industrial companies as a whole, but this sample of firms did account for roughly three-quarters of iron and steel production in the Ruhr at the end of the period, so they are representative of this particular branch of heavy industry.[46] Given the conventional focus on the role of universal banks in financing heavy industry,[47] and the dominant position of the Ruhr in this sector, the figures in Table 3 are very striking. From the late 1870s until 1895, the internally-generated funds of this group of firms as a whole were more than sufficient to finance their investment. Even after 1895, more than 80 per cent of investment was still financed internally. The other studies referred to above come to the same

Table 3: Share of internally-generated funds[1] in total payments into investment accounts for sample of firms in Ruhr steel industry (in %)

Firm	1878/9-1894/5	1895/6-1913/4	1878/9-1913/4
Gutehoffnungshütte	129.1	75.9	79.8
Krupp	148.7	98.7	106.6
Hörder Verein[2]	61.8	91.7	76.3
Phoenix	112.1	111.1	111.2
Bochumer Verein	177.0	66.0	82.3
Union[3]	168.2	88.9	106.1
Rheinische Stahlwerke	89.1	66.8	68.0
Hoesch	167.0	94.9	99.3
Schalker[4]	124.1	101.7	103.9
Deutsch-Luxemburgische[5]			53.9
Gewerkschaft Deutscher Kaiser[6]			75.9
Total	122.1[7]	84.6	87.4

Notes
1. The sum of undistributed profits and depreciation
2. For period up to and including 1905/6
3. For period up to and including 1909/10
4. For period 1889/90-1903/4, 1.7-31.12.1904, 1905, 1906
5. For period 1901/2-1913/4
6. For period 1892-1913
7. Excluding Gewerkschaft Deutscher Kaiser

Source: Feldenkirchen, Die Eisen- und Stahlindustrie, p. 287.

findings: external finance did become more important for industrial joint-stock companies in the 1890s and the early twentieth century, but internal finance remained the dominant source of funds. Banks' contribution to the finance of investment by industrial joint-stock companies in the period 1880-1914 was secondary; internal sources of funds predominated.

In what forms did industrial companies raise external finance during this period? As noted in Section I, their experience of the 1873-9 downswing made universal banks reluctant to provide long-term investment finance in the form of their own holdings of shares in companies. Consequently, firms needing external finance for investment had to issue securities on the stock market. The banks, of course, played an important role in arranging the details of such issues.[48] However, banks did make short-term current account loans to industrial companies to 'pre-finance' investment - to bridge the gap between the time when investment was needed and the time when stock-market conditions were favourable for an issue of securities. This gap could be as long as several years, which meant that the current account loans made for this purpose were often renewed, and thus served as longer-term loans. But their purpose was to provide bridging finance: when the time was ripe, an issue of securities was made, and the bank loan repaid. The banks were willing to provide such current account loans because they anticipated that an issue of securities would eventually follow, from which they, as universal banks, would earn substantial fees. It is not surprising, therefore, that companies made increasing use of short-term bank credit from the 1890s onwards, as external finance for investment became more important.[49] But bank loans did not act as a source of long-term investment finance.

Although internal finance was the major source of funds for industrial companies overall, there was variation between firms in the importance of external, and thus bank, finance, as can be seen in Table 3. In some cases, external finance from banks was a significant source of funds over quite a long period. One example is the Deutsch-Luxemburgische mining and smelting company, which required substantial amounts of external finance (both current account loans and bank-arranged securities issues), from its foundation in 1901/2 until 1914.[50] Another is Mannesmann, which received extensive financial support from Deutsche Bank for many years while the firm developed seamless tube production.[51] The other cases in which bank finance was important for particular firms arose when financial difficulties made bank assistance necessary for a firm's survival. Such cases were more frequent in the prolonged downswing of 1873-9 and the relatively slow-growing 1880s. Examples include the loan that Krupp took up in 1874,[52] the financial reorganisation of the Hörder

Verein in 1891 which saved it from bankruptcy,[53] and the use of current account loans by Guthoffnungshütte and Rheinische Stahlwerke in the 1870s.[54]

In both sorts of case, the importance of bank finance for the firm's operations enabled banks to exert considerable influence on its business policy. Deutsche Bank did so at Mannesmann, for example, and the banks responsible for the financial reorganisation of the Hörder Verein in 1891 required the firm to agree not to enter into business relations with any other bank. It must be appreciated, however, that it was only in cases when firms depended significantly on bank finance that banks were able to exert influence, and these cases were not typical. Indeed, firms subjected to bank influence because of temporary financial distress were often extremely concerned to avoid it subsequently, and would not undertake investments if they required borrowing from banks. Both Gutehoffnungshütte and Krupp consistently avoided bank borrowing after their experiences in the 1870s precisely because they did not want to risk exposing themselves to bank influence.[55]

The greater use of external finance by industrial companies in the period 1895-1914 was partly because this was a period of relatively rapid growth, and partly because industrial concentration increased through mergers. Both factors increased the profitability of investment by industrial companies, making them more willing to use external funds to finance investment. However, this did not increase banks' ability to influence industrial companies, even though provision of external finance through loans or security issues involved banks. The high profitability of German industrial companies in this period created enormous competition among banks for firms' financial business. Furthermore, the mergers involved in the concentration process often brought several large banks onto a firm's supervisory board, and there is copious evidence that competition between the banks represented on the supervisory board limited their collective ability to influence the company.[56] Concentration also increased the size of many industrial companies to such an extent that a consortium of banks was necessary when such firms wished to raise external finance for investment, since no single bank was large enough to provide the required finance; this, too, increased the number of banks represented on supervisory boards. The stronger representation of banks on supervisory boards in the 1895-1914 period does not, therefore, indicate increased bank ability to influence the behaviour of industrial companies.

The concentration and cartel-formation which ocurred between 1895 and 1914 is often claimed to have been a consequence of bank influence on industrial companies.[57] But when we look closely at particular cases which are supposed to illustrate this aspect of bank influence, a different picture emerges. In 1904, at an extraordinary general meeting of shareholders in the Phoenix steel firm, the Schaaffhausen'sche Bankverein and the other banks on the firm's supervisory board were able to swing the vote in favour of Phoenix joining the Steel Works' Association, despite the opposition of the Phoenix management board. This is portrayed in the literature as a prime example of banks' ability to compel industrial companies to behave as they wished. Yet Wellhöner shows that the banks behaved in this way only because of the pressure exerted on them by other great steel firms, particularly Thyssen, which wanted Phoenix to join the Steel Works' Association.[58] The Steel Works' Association was expected to be so profitable that there was great competition among the banks for its future banking business, and the threat of exclusion from this business was used to ensure that the banks acted to bring Phoenix into the association.[59] The entry of Phoenix into the Steel Works' Association is therefore an example of the power of industrial companies over banks, not of the converse. The merger between Phoenix and the Hörder Verein in 1906 is also used as an example of bank influence: the Schaaffhausen'sche Bankverein supposedly furthered the merger because the two firms would complement each other. Wellhöner shows, however, that the Bankverein initially resisted the merger strongly, fearing that it would lose its leading position at the Hörder Verein.[60] Once again, it was Thyssen - an industrial company - which was the driving force behind the merger.

Close empirical examination of the activities of bank representatives on companies' supervisory boards shows that these banks' role in the concentration process was to provide companies with information obtained from their business contacts about which firms might be suitable candidates for merger, not to force mergers upon reluctant companies. Indeed, the general role of bank representation on supervisory boards was to enable banks and companies to coordinate their actions in areas of common interest. The most important of these areas was financing the company's investment programme. Banks with supervisory board representation were not, however, involved in any detail in substantive planning of industrial investment, because the bank representatives lacked the requisite time and detailed knowledge.[61] The banks' role was not to plan investment policy, but to ease its implementation. There are examples of bank supervisory board representatives attempting to change the internal organisation of companies so as to improve efficiency, but usually these attempts were resisted by the firms.[62] It was only when a firm was in temporary financial difficulty that banks were able to insist on changes (as in the transformation of Siemens to a joint-stock company in 1897, in accordance with Deutsche Bank's wishes).[63]

The picture which emerges from this discussion of the finance of industrial joint-stock companies in Germany is not generally consistent with the claim that universal banks exerted substantial control over companies and provided significant amounts of finance. Although there are some cases in which banks provided companies with considerable amounts of finance over many years, and were thus in a strong position to exert control, these were the exceptions to the general rule, which was for companies to finance themselves internally to a very great extent. The other cases in which banks were able to exert some control arose when firms were in temporary financial difficulties, but once these difficulties were overcome, bank influence on the firm ceased. Industrial joint-stock companies in Germany made more use of external finance in the period 1895-1914 than earlier, but the high profitability of these companies in this period meant that competition among banks for their banking business was so strong that the greater use of external finance did not increase banks' ability to influence them.

5. Conclusion

Universal banks accounted for a relatively small proportion of the total assets of financial institutions in Germany before 1914. Although it is sometimes argued that the significance of universal banks for German economic growth during this period is understated by their share of total assets of financial institutions, it is difficult to sustain such a claim. The origins of universal banking in Germany are to be found in connection with the financing of private railway companies, and railway building clearly played a central part in the 'take-off' period of German industrialization. But private railway companies operated only in some parts of Germany: for Germany as a whole, state finance was the largest single source of funds in the early period of railway-building. The early German universal banks were not unimportant for railway investment, but their role as a source of finance was overshadowed by that of the state. Furthermore, it was not until 1870 that Kreditbanken - the joint-stock banks which epitomise German universal banking - could be set up easily, but by this date investment in railway-building was beginning to decline in importance for the economy.

Industrial joint-stock companies were the focus both of the universal banks' business attention and of the conventional view of the importance of the universal banks in German industrialization. Joint-stock companies were the only type of firm in Germany which could issue securities and which were legally required to have supervisory boards. The supervisory board representation of universal banks was therefore in joint-stock companies, and the investment banking activities of these banks involved either the issue of securities by existing joint-stock companies, or the transformation of some other type of firm into a joint-stock company. But industrial joint-stock companies accounted for a small proportion of the total industrial capital stock in Germany - even in 1913 the figure was less than 20 per cent. Throughout the pre-1914 period, more than 80 per cent of the industrial capital stock in Germany was accounted for by firms for which the distinctive features of German universal banks highlighted in the conventional view of their importance - the combination of investment with commercial banking, and representation on supervisory boards - simply did not apply. Universal banks may have supplied investment finance to some of these firms, but their distinctive characteristics did not play any part in their doing so: their scope for providing funds to firms which did not issue securities and did not have supervisory boards was the same as that of the other, non-universal, German banks.

Even for the industrial joint-stock companies on which the universal banks concentrated, careful analysis of the sources of investment finance and the influence of universal banks on these companies casts considerable doubt on the conventional view that the universal banks provided a substantial fraction of the funds for investment by industrial companies, and exerted a significant degree of control on their management. Although examples consistent with the conventional view certainly exist, they are not typical: in most cases, internally-generated funds were by far the most important source of investment finance for industrial companies, and banks were not in a position to exert any control on these firms' management, even though they occupied seats on the supervisory board.

The conclusion from this analysis is clear: the role of the universal banks in German industrialization has been over-emphasised. A balanced assessment of the contribution of the German system of investment finance to economic growth in the period before 1914 must be based on a recognition of the fact that a very large part of the industrial capital stock was accounted for by firms which were, by their very nature, not ones for which the distinctive features of the universal banks were relevant. Much less is known about the sources of finance for investment by these firms than is the case for the joint-stock companies, and this may account for their neglect in standard accounts of German industrialization. In particular, little is known about the sources of external finance for such firms. There are, however, some indications that these firms depended mainly for external funds on those German banks which were not universal banks. Henning argues that the mortgage banks were important financiers of industry as well as of housing.[64] In his analysis of private banking in Germany, Donaubauer argues that, as private banks were increasingly taken over by the Kreditbanken, the small- and medium-sized industrial firms which had raised external finance from the private banks, and in which the Kreditbanken were not interested, turned to the savings banks and credit cooperatives for funds.[65] If the firms which accounted for most of the industrial capital stock in Germany depended for their external finance mainly on banks which were not universal, then the impression given in Table 1 of the importance of universal banks relative to other banks as sources of external funds for investment is an accurate one. That is, it is quite wrong to assign the universal banks a dominant role.

NOTES

1. Gerschenkron, 'Economic backwardness', p.13.

2. Ibid., p.14.

3. Chandler, Scale and scope, p.416.

4. Ibid., p.415.

5. Ibid., p.417.

6. Kennedy, Industrial Structure; Calomiris, C.W., 'The costs of rejecting universal banking: American finance in the German mirror, 1870-1914' (unpub. working paper, Univ. of Illinois, 1992).

7. See, for example Crafts 'Productivity growth', p.409; Frydman et al., 'Needed mechanisms'.

8. Riesser, German great banks.

9. Ibid., p.2.

10. Ibid., p.7.

11. Ibid., p.4.

12. Ibid., p.4.

13. Ibid., p.4.

14. Ibid., p.343.

15. Tilly, Financial institutions; idem, 'Germany'; idem, 'Financing industrial enterprise', pp.129-30.

16. Feldenkirchen, 'Banking and economic growth', p.121.

17. Kocka, 'Entrepreneurs and managers', p.538.

18. Tilly, 'German banking', pp.127-8.

19. Riesser, German great banks, pp.893-6.

20. Donaubauer, Privatbankiers und Bankenkonzentration, p.37.

21. The precise meaning of the term Grossbank is not entirely clear. Riesser,'German great banks', p.642, says that there were at least six such banks - Bank für Handel und Industrie, Berliner Handelgesellschaft, Deutsche Bank, Disconto-Gesellschaft, Dresdner Bank, and Schaaffhausen'sche Bankverein. However, Riesser notes that four other banks might be described as Grossbanken, including Commerz- und Disconto Bank and Nationalbank für Deutschland. These last two named banks, together with the initial six, comprise the eight banks which are sometimes described as the Berlin Grossbanken.

22. Donaubauer, Privatbankiers und Bankenkonzentration, p.43.

23. As is illustrated by the business report of the Schaaffhausen'sche Bankverein in 1850: 'we view it as being not in the interest of complete security to strive to increase deposits, since we greatly favour doing business only with our own funds', quoted by ibid., p.29.

24. Riesser, German great banks pp.192, 473; Donaubauer, Privatbankiers und Bankenkonzentration, p.43.

25. Feldenkirchen, 'Banking and economic growth', pp.120-1.

26. Ibid., p.129.

27. Pohl, 'Forms and phases', p.80.

28. See Table 2 below.

29. Kindleberger, Financial history, p.129.

30. Spree, Wachstumszyklen; Tilly, 'German banking', p.118.

31. Fremdling, Eisenbahnen, pp.31, 34.

32. Fremdling, Eisenbahnen; Fremdling, 'Railroads and German economic growth'; Holtfrerich, Quantitative Wirtschaftsgeschichte.

33. Tilly, Financial institutions; idem, 'Germany'.

34. Tilly, 'Germany', p.179.

35. Riesser, German great banks, pp.64-6, provides details of the most important railway transactions of the Darmstädter Bank and the Disconto-Gesellschaft during this period.

36. Fremdling, Eisenbahnen, pp.126-7.

37. Borchard, 'Straatsverbrauch und öffentliche Investitionen', p.298.

38. Ibid., p.296.

39. Fremdling, Eisenbahnen, pp.132-150.

40. Gerschenkron, 'Economic backwardness', p.14.

41. Kocka, 'Entrepreneurs and managers', pp.538-9.

42. Blumberg, 'Die Finanzierung', p.176, p.178.

43. Blumberg, 'Die Finanzierung', pp.196-203; Tilly, 'Germany', p.179; Feldenkirchen, 'Banking and economic growth', pp.120-22.

44. Tilly, 'German banking', p.148.

45. Rettig, 'Das Investitions- und Finanzierungsverhalten'; Tilly, 'Banken und Industrialisierung'; Feldenkirchen, 'Banks and the steel industry'; idem, 'Die Eisen- und Stahlindustrie'; idem, 'Capital raised'; idem, 'Zur Finanzierung'; Wellhöner, Grossbanken und Grossindustrie.

46. Feldenkirchen, Die Eisen- und Stahlindustrie, p.6.

47. Gerschenkron, 'Economic backwardness', p.15.

48. Wellhöner, Grossbanken und Grossindustrie, pp.238-9.

49. Feldenkirchen, 'Banks and the steel industry'; idem, 'Capital raised'; idem, 'Zur Finanzierung'.

50. Wellhöner, Grossbanken und Grossindustrie, pp.171-3.

51. Ibid., pp.125-134.

52. Ibid., pp.155-7.

53. Feldenkirchen, 'Banks and the steel industry', p.33.

54. Wellhöner, Grossbanken und Grossindustrie, pp.97, 107, 121.

55. Wellhöner, 'Grossbanken und Grossindustrie', p.99; Feldenkirchen, 'Banks and the steel industry', p.32.

56. Wellhöner, Grossbanken und Grossindustrie, p.240.

57. Gerschenkron, 'Economic backwardness', p.15.

58. Wellhöner, Grossbanken und Grossindustrie, pp.85-7.

59. Wellhöner quotes from a letter written by Rheinische Stahlwerke, a firm belonging to the Steel Works' Association, to the official at Deutsche Bank responsible for connections with heavy industry in the Rhineland and Westphalia: 'it will be attempted to exclude those banks who did not try and are still not trying to move Phoenix to join the steel works' association. Such banks could potentially only be chosen if they in future would agree that their voting rights would be exercised more in accordance with the views of the association' (ibid., p.87).

60. Ibid., p.83.

61. Ibid., pp.239-242.

62. Ibid., p.241.

63. Ibid., p.217.

64. Henning, Die Industrialisierung, p.257.

65. Donaubauer, Privatbankiers und Bankenkonzentration, pp.206-9.

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