

Prof. John H. Munro  
Department of Economics  
University of Toronto

[munro5@chass.utoronto.ca](mailto:munro5@chass.utoronto.ca)  
[john.munro@utoronto.ca](mailto:john.munro@utoronto.ca)  
<http://www.economics.utoronto.ca/munro5/>

**28 February 2006**

## **ECONOMICS 303Y1**

### **The Economic History of Modern Europe to 1914**

**Prof. John Munro**

**Lecture Topic No. 23:**

**V. THE RAPID INDUSTRIALIZATION OF GERMANY, 1815 - 1914**

**E. German Banking and Commercial Organization**

## E. GERMAN BANKING AND COMMERCIAL ORGANIZATION

### 1. Introduction:

#### a) German banking at the beginning of the 19th century:

- i) **the banking institutions of Germany**, or those of Prussia and the other states that would later become Germany, were far less developed than those of France, the Low Countries, or Britain;
- ii) **they did not really become important in German economic development**, until at least the 1830s.

#### b) **But in the second half of the 19th century, banking institutions would become a major force in German industrialization:** perhaps one of the most important financial forces from the 1860s, if by no means the only form of industrial financing.

- i) **To quote Clive Trebilcock**, in *The Industrialization of the Continental Powers, 1780 - 1914* (London, 1981): ‘In 1914, no other banking system in the world possessed equivalent weight within the national economy’.
- ii) **But we shall see that**, for Russia, in relative terms at least, banking institutions were perhaps just as important, certainly from the 1880s.

#### iii) **We shall also note, that in Germany, banking institutions:**

- (1) in particular, the investment banks – or the so-called universal banks or *Kreditbanken* – played an important role in only certain specific sectors of the German economy;
- (2) and thus can hardly be credited with financing all of German industrialization.
- (3) the influence of the great Russian-American economist Alexander Gerschenkron, coloured by his own early 20<sup>th</sup> century life experiences in Europe, have led most of us arguably to exaggerate the true role of the investment banks.<sup>1</sup>
- (4) We will consider his theses more closely below,
- (5) and then also the critics of the Gerschenkron theses.

#### c) **The first major German banks, from the 1830s:**

- i) **1835:** the Bayerische Hypotheken und Wechselbank (the Bavarian Mortgage and Exchange Bank), formed in Munich, Bavaria.
- ii) **1837:** Prussian Rhineland banks formed to help finance railway construction.
- iii) **1846:** The Royal Bank of Prussia (in Berlin),
  - (1) previously a partnership merchant bank, was reorganized as a joint-stock company bank to become the

---

<sup>1</sup> See Alexander Gerschenkron, ‘Social Attitudes, Entrepreneurship, and Economic Development’, in Leon H. Dupriez, ed., *Economic Progress: Papers and Proceedings of a Round Table Held by the International Economic Association* (Leuven, 1955); reprinted in his *Economic Backwardness in Historical Perspective* (New York, 1962), pp. 52-71. In the same collection, see also his essays: ‘Economic Backwardness in Historical Experience’, pp. 5-30. [From Bert Hoselitz, ed., *The Progress of Underdeveloped Countries* (1952).]; and ‘Reflections on the Concept of ‘Prerequisites’ of Modern Industrialization’, pp. 31-51. [From *L'industria* (Milan, 1952), no. 2].

official banker for the Kingdom of Prussia;

(2) and it acquired a monopoly on note issue in Prussia.

iv) **1848**: the Schaafhausenscher Bankverein was established in Cologne (part of Prussia), as a joint-stock company bank that subsequently developed into a full-fledged investment bank.

## **2. The Kreditbanken: Joint-Stock Universal Investment Banks: also known as the ‘Grossbanken’ or ‘D Banks’ or Kreditbanken**

a) **The formation of Cologne’s Schaafhausenscher Bankverein**: marked the beginning of true investment banking in Germany:

i) **That investment banking came to play a far more important role in financing industrialization than anywhere else**, certainly in absolute terms, though in relative terms, as just noted, investment banking was equally important in Russia.

ii) **But it may be misleading to look upon the German investment banks as a prime cause of industrialization, though certainly they had great importance**:

(1) they were created to fill a partial vacuum in the capital markets: to assist or help fulfil the financial needs of already growing industrialization;

(2) and thus they may be looked upon more as a consequence than as a direct cause of industrialization, though that observation is really more true from the 1880s, as will be seen later..

(3) We made similar observations about English banking during the Industrial Revolution.

b) **The eight leading German investment banks (*Kreditbanken*) were the following**:

i) **Half of them were set up in Berlin (Prussia)**; and half after 1870.

ii) **They were called ‘D’ banks, because so many began with or contained the letter D**:

(1) 1848: Schaafhausenscher Bankverein [Cologne: in the Prussian Rhineland]

(2) 1852: Darmstädter Bank für Handel und Industrie [Darmstadt, Hesse]

(3) 1856: Berliner Handelsgesellschaft [Berlin, Prussia]

(4) 1856: Berliner Diskonto-Gesellschaft [Berlin: originally established in 1851]

(5) 1870: Das Hamburger Commerz-und Diskonto-Bank [Hamburg]

(6) 1871: Deutsche Bank [Berlin]

(7) 1871: Dresdner Bank [Dresden, in Saxony]: note the correct spelling - ‘Dresdner’

(8) 1881: Nationalbank für Deutschland [also in Berlin], which subsequently merged with the Darmstädter Bank to become today’s Danatbank.

c) **Foreign capital**:

i) **played a significant role in the establishment of the earlier joint-stock investment banks**, especially French, Belgian, and to a lesser extent British capital.

ii) **France's Crédit Mobilier:** helped to found the Darmstädter Bank in 1853.

d) **Reasons for the Formation of German Investment Banks (D-Banks, Kreditbanken):**

i) **As just noted, as the key reason: to fill at least a partial vacuum in an undeveloped capital market:**

(1) When few German companies had joint-stock organization, certainly before the 1870s

(2) When joint-stock organization, with limited liability for shareholders,

- required state government permission,
- which most German states were reluctant to grant before the enactment of the Prussian Company Law in 1870
- similar to the British limited liability legislation of 1855-57

(3) When there was no organized stock exchange, at least in the mid 19th century, and more generally not before the 1870s;

(4) i.e., when Germany lacked effective alternative means of large-scale industrial financing.

ii) **The current timing of industrial development and technological change: meant a demand for large-scale capital investments:**

(1) This reflects the current nature of German industrialization

- at the mid-19th century when, as we have already noted,
- the large-scale metallurgical industries had become the true spear-point of modern industrialization;

(2) And also when the two-fold demands arose: when

- both technology and international competition demanded very large scale and capital costly forms of industrial organization from the very outset,
- i.e., industrial organizations whose financing could not be met by traditional means.

iii) **To develop investor confidence and to attract the savings of very conservative investors:** (1) The current economic and social structure of mid-19th century Germany meant that the major social group with excess savings to invest were the conservative landed classes, who had a social antipathy to modern industry and commerce.

(2) The *Kreditbanken* or joint-stock investment banks successfully attracted and channelled into industry the savings of ultra-conservative investors:

- especially landowners, who would not themselves have invested in industry or commerce
- i.e., those who had traditionally invested only in government annuities or bonds.

(3) **Similarly, the German investment banks channelled foreign investments into German industries:** the savings of foreign investors who would themselves have been too risk averse to invest directly in German industrial firms, but who trusted the German banks.

(4) **Nothing succeeds like success:** the German investment banks were collectively so admirably successful in this role because:

- none ever failed and
- they were all so profitable from the beginning,
- thus inspiring widespread general confidence, especially by always paying good dividends.

(5) From 1885 to 1913, yields on their bank stocks fell below 6% only in three years, and were generally at the 7% to 8% level.<sup>2</sup>

**e) The character of German universal investment banks: what functions did they serve?**

i) **They were called universal banks because they combined commercial deposit banking with investment banking:** i.e., they provided virtually all conceivable banking functions, except note issue (which had become the prerogative of the German Central Bank, Reichsbank, in Berlin)

ii) **Thus, first, the normal banking services of commercial banks:**

(1) in discounting, short-term lending, foreign exchange, and acceptance banking (international acceptances):

(2) According to Carsten Burhop, in the most recent study, joint-stock credit banks, consistently from 1851 to 1913, devoted:<sup>3</sup>

- 40-50 percent of their assets to current account, short term lending
- another 20 percent to discounting acceptances (bills of exchange)

(3) see the table on the screen [appendix to lectures], comparing British, German, and other continental banks in financing international acceptances.

(4) in providing German industrial firms with a more or less permanent line of credit on which to draw:

- ostensibly for short-term financing,
- which, with continuous renewals, became a form of financing long-term investments and fixed capital formation

iii) **investment banking and German industrialization:** with functions that have already been noted in discussing the French banks:

(1) **providing long-term loans for financing fixed capital formation in the form of plant and machinery:**

(2) **short-term credits:**

- perhaps the most important aspect of financing lay in providing a permanent line of short-term credits, on which industrial clients could continuously draw.

<sup>2</sup> See Clive Trebilcock, *The Industrialization of the Continental Powers, 1780 - 1914* (London, 1981), p. 95: 'It was this industrial profitability which converted the *Kreditbanken* into the German Great Banks of the pre-war quarter-century'.

<sup>3</sup> Carsten Burhop, 'Did Banks Cause the German Industrialization?', *Explorations in Economic History*, 43:1 (January 2006), 39-63. Special issue: *Financial Revolutions and Economic Growth*, ed. Peter L. Rousseau and Richard Sylla. See also: Carsten Burhop and Guntram B. Wolff, 'A Compromise Estimate of German Net National Product, 1851 - 1913, and its Implications for Growth and Business Cycles', *Journal of Economic History*, 65:3 (September 2005), 613-57.

- and that of course included discounting promissory notes of industrial firms

**(3) underwriting industrial stocks and bonds:**

- and again, the German investment banks usually acted together as syndicates of several banks and perhaps other financial institutions in underwriting stock and bond issues,
- which they then sold to their own customers or clients, and to various client institutions, who sold them to the public: i.e., acting as a *primary* market.

**(4) arranging the sale of industrial securities** on the market; and arranging the listing of shares to be traded on formal stock markets, i.e., acting as *secondary* markets.<sup>4</sup>

**iv) foreign investments:**

(1) In this fashion, the German investment banks also served a mechanism for funnelling foreign investments directly into German industrial firms.

(2) British, French, and Belgian capital was indeed very important initially in financing German railways, coal-mining, iron, and steel, from 1850s.

(3) subsequently, the German investment banks themselves became an important mechanism for investing German capital abroad, in a similar fashion.

**f) Where did the Kreditbanken or Investment Banks get the funds for financing long-term fixed capital formation?** This question and problem was dealt when the topic of investment banks was first introduced, in the lectures on French banking, and in particular *Crédit Mobilier*:

i) **from the sales of shares themselves in these joint-stock investment banks:** i.e., raised capital by sale of their own stocks (corporate shares)

ii) **from depositors:**

(1) especially from savings and rents of conservative landowners and merchants

(2) that became more and more important by the later 19<sup>th</sup> and early 20<sup>th</sup> centuries

iii) **by borrowing, if necessary, to finance underwriting ventures:** stocks, bonds, debentures

**3. The Economic Significance of the German Investment Banks: the Gerschenkron Thesis**

**a) The Gerschenkron thesis on the role of banking in ‘backward’ late-starters:**

i) **the importance of German investment banks has been most dramatically portrayed by Alexander Gerschenkron:** the Russian-born and raised Harvard economic historian, most famous for his concepts of

---

<sup>4</sup> According to a pair of historical critics, who question the importance of the German universal banks for post-1870 German industrial development, ‘a German company could not issue securities on the stock market without the intermediation of a universal bank.’ See Jeremy Edwards and Sheilagh Ogilvie, ‘Universal Banks and German Industrialization: A Re-Appraisal’, *The Economic History Review*, 2<sup>nd</sup> ser., 49:3 (August 1996), 429.

the economics of late-industrializers emerging from what he called ‘economic backwardness’.<sup>5</sup>

ii) **Gerschenkron’s basic thesis is that, in the mid to late 19<sup>th</sup> century**, with British economic supremacy,

(1) the central and eastern European countries could not hope to achieve economic growth and modern industrialization, with their prevailing conditions of economic backwardness,

(2) without the active intervention of both state and financial institutions.

iii) **a reliance on neutral market forces would not permit growth, so that** economic growth had to be jump-started, as it were, by deliberate intervention of such institutions.

iv) **Both the current and very capital-costly technology and market scales**, as already indicated, meant that many German industrial firms, especially in heavy industry and the new industries (to be discussed next) day could commence with the same type of self-financing and limited borrowing that had permitted and characterized the early stages of the British Industrial Revolution.

iv) **the major problems obviously:** were

(1) the relative lack of investment capital, or mechanism for channelling potential savings into genuine investment, and

(2) the relative lack of modern technology and modern financial-commercial institutions

(3) to some extent all three had to be imported: investment capital, technology, institutions

v) **Gerschenkron and many other historians following him:** have credited the German investment banks with admirably fulfilling these goals to become the major force in German industrialization.

**b) Gerschenkron on German Investment banks: filling vacuum in the capital markets to finance large scale German industries:**

i) **In particular, according to this view**, the German universal *Kreditbanken* or investment banks very quickly did fill this vacuum in a very imperfectly developed German capital market.

ii) **They did create a climate of stable and sound investment security,**

(1) providing full confidence to attract savings from those very conservative, risk-averse investors

(2) who would never have directly purchased shares in private industrial or commercial firms.

iii) **They did help to finance the very rapid growth of large-scale industrial companies in several crucial industrial fields:** transport, mining, metallurgy, electrical industries.

**c) But do not exaggerate the role of German investment banks:**

i) **for, many German industrial firms had no recourse at all to investment banks**, the chemical firms especially.

ii) **From the 1880s**, many industrial firms found alternative sources of capital financing

(1) with the aid of other financial institutions and then with

---

<sup>5</sup> See note 1 above for the full references.

(2) the development of organized stock markets in Berlin, Hamburg, and Frankfurt.<sup>6</sup>

iii) **After outlining the traditional Gerschenkron thesis**, which highlights or stresses the very positive role of the German universal investment banks, I will conclude by looking at recent criticisms of the Gerschenkron thesis, which still commands the support of the majority of economic historians.

d) **Growing Investment Bank control over Industry:** the Gerschenkron thesis

i) **This thesis pertains largely to the post-1870 period:**

(1) 1870: Prussia and other German states changed their commercial legislation to make it far easier for German firms to organize as joint-stock companies with limited liability for share holders

(2) This legislation also required

- the establishment of boards of directors or supervisory boards,
- which came to contain a significant number of voting members from the banks

(3) 1871: German imperial unification under Prussian economic domination

(4) Formation of so many more investment banks after 1871, as listed above

ii) **Some considerable number of German industrial firms were and remained strongly dependent on financing from investment banks**, which thereby gained a strong industrial influence:

(1) From the role that the universal banks performed in underwriting stock and bond issues

(2) From the role that these banks necessarily had to play in arranging for such stocks to be traded on the newly organizing stock exchanges: virtually impossible to do without their co-operation

(3) From the virtually permanent lines of credit that these banks supplied to industrial joint-stock companies, whether or not the banks themselves directly invested in such industrial firms

iii) **Once such financial relationships were created, they were hard to break, especially in those industries just named:** mining & metallurgy, transport, electrical.

iv) **In financing such industries, especially in underwriting stock issues,**

(1) the German investment banks often purchased shares in the leading firms for their own investment portfolios,

- although I must note that some historians have questioned the amount of such portfolio investments,
- which, furthermore, may have diminished with the financial recessions of the 1870s and 1870s.

(2) Nevertheless, industrial stocks were the chief form of collateral for loans;

(3) Stockholders who deposited their shares with lending banks had to surrender their proxy rights on the shares to these banks,

(4) thereby allowing the banks to use the proxies to vote for their own candidates on the boards of directors of joint-stock companies.

---

<sup>6</sup> But see note 1 above.



iv) **Thereby, with either stock holdings in their investment portfolios, or with the share proxies thus obtained**, investment banks were able to elect their own nominees to the boards of directors of such firms, giving them extensive control over their investment clients.

(1) Thus, for example, the Deutsche Bank of Berlin had its representatives on 159 boards.

(2) By 1912, the major investment banks controlled over 800 directorships in German industry.

vi) **This was in strong contrast to the French experience:** as we saw, French companies much more strongly resisted such bank financing, fearing loss of control over their enterprises.

e) **Investment Banks Promoted Growth of German Cartels: with Oligopolistic Competition**

i) **Those industries that were wedded to investment banks were also ones in which industrial amalgamation often leading to outright industrial combines**, cartels, or other monopoly arrangements became common;

ii) **indeed**, cartelization is one of the most striking features of late 19th century German industrialization.

iii) **Partly that was a logical outcome of the type, structure, and competitive nature of these industries that were subject to oligopolistic competition:** competition by a few large-scale producers (two or more).

(1) Large-scale production, usually with complex and costly technology and very large initial capital 'start-up' requirements, typifies much oligopolistic competition:

- which thus had significant barriers to entry for potential new competitors
- who might be attracted by the profits of oligopolists
- what are called the profits of 'joint-maximization'.

(2) The classic case of oligopoly is the production of relatively homogenous products by these few large-scale firms: i.e.,

- the firms in such industries may each have produced a wide range of products,
- but each product type was undifferentiated from those produced by rival firms: e.g., coal, pig iron, potash.

(3) This type of competition is inherently very unstable,

- marked by cutthroat price-cutting competition to eliminate weaker rivals;
- unstable especially because stable market shares cannot be established by product differentiation, advertising, and other marketing techniques.

(4) Such oligopolistic competition thus quite naturally, if brutally tended towards amalgamation and monopoly.

iv) **What roles did investment banks play in fostering amalgamation and cartel arrangements?** (1)

Investment banks, especially if they themselves held large investment positions in such industries,

- naturally viewed oligopolistic competition with disfavour,
- because of its inherent instability, as a direct threat to their investments.

(2) And thus they encouraged amalgamation and cartel arrangements to stabilize the markets to safeguard investments.

(3) As Alexander Gerschenkron so aptly remarked, though with undoubted exaggeration, the investment banks did not want ‘to see their children squabbling and injuring each other’.

v) **Furthermore**, if the banks themselves had organized as syndicates to underwrite investments in certain industries, how natural it was for them to encourage similar syndicalization amongst their industrial clients, and thus to promote cartels.

vi) **Bank Amalgamation and the Financial Crises of 1873, 1890-91, and 1901:**

(1) large investment banks bought out smaller investment banks; promoting their own amalgamation.

(2) The financial crisis of 1901 (which also seriously affected Great Britain) led to the collapse of 116 small financial institutions, most of which were bought up by and thus amalgamated with the *Grossbanken*.

(3) In 1911, the capitalization and reserves of the six biggest of the *Grossbanken* amounted to the equivalent of £137 million sterling:

- the Deutschebank, as the biggest, had £49 million;
- the Diskonto-Gesellschaft had £33 million.

f) **Investment Banks Promoted Better Industrial Research:**

i) **Chief benefit of and for investment banks was ‘positive asymmetrical information’:** i.e., information that was lacking in or even absent from both their industrial clients and alternative financial institutions:

(1) i.e., in providing continuous lines of credit, in underwriting stock issues, in arranging for stocks to be traded on the exchanges, etc., investment banks gained a great deal of important information about the firms, information which many managers did not fully possess

(2) They also had a better knowledge of general financial and market conditions and prospects than did the average corporation manager or president, and certainly much more so than other typical directors on such corporate boards.

ii) **Investment banks, similarly to protect and foster their own industrial investments**, also strongly promoted long-term planning and research in the industrial firms that they financed.

iii) **Apart from using their influence by the directorships they controlled**, the investment banks often made such research and planning a prior condition for investment;

iv) **and subsequently would provide loans:** to help finance such industrial research.

v) **There seems to be little doubt that in leading German industries**, such as the metallurgical, electrical, chemical, transport, the funds devoted to scientific research and planning were proportionally and absolutely far greater than in French or British industries.

#### 4. Critics of the Gerschenkron Thesis on the Role of the German Investment Banks

a) **Neuberger and Stokes: That Investment Banking led to resource misallocation**

i) **two American economic historians, Hugh Neuberger and Houston Stokes**, were amongst the first to challenge the traditional orthodoxy on the beneficial role of investment banks in German industry: by contending that their industrial financing led to a serious misallocation of resources in the German economy.<sup>7</sup>

ii) **They contended first (as Gerschenkron and others had noted):**

(1) that the German investment banks provided German industries with long term loans, for financing fixed capital formation, with current account financing at short term interest rates.

(2) In their view that amounted to a subsidy to their favoured clients,

- i.e., predominantly large-scale heavy industry, at the expense of
- those who lacked access to such investment bank financing, principally smaller-scale, light industry, consumer oriented goods.

iii) **Small-scale light industries were therefore either denied sufficient amounts of working capital or forced to acquire it at higher interest rates.** To quote Neuberger and Stokes:

We conclude from this econometric model that the industrial financing of the Kreditbanken in the period 1882 to 1913 was plagued by relative inefficiency serious enough to have hampered the growth of non-agricultural output.

iv) **But that conclusion hardly seems to accord with the available statistics on both capital formation and industrial growth in Germany**, at least in relative terms, as compared with statistics for France, Britain, and Russia:

**Indices of Industrial Output\*: in the United Kingdom, France, Germany, and the United States in quinquennial means, 1860-4 to 1910-13**

**Mean of 1870-4 = 100**

Period	United Kingdom	France	Germany	United States
1860-64	72.6			
1865-69	82.8	95.8	72.6	75.5
1870-74	100.0	100.0	100.0	100.0
1875-79	105.5	109.5	120.8	111.4

---

<sup>7</sup> Hugh Neuberger and H.H. Stokes, 'German Banks and German Growth, 1883 - 1913: An Empirical View', *Journal of Economic History*, 34 (Sept. 1974), 710-31.

Period	United Kingdom	France	Germany	United States
1880-84	123.4	126.6	160.6	170.4
1885-89	129.5	130.3	194.9	214.9
1890-94	144.2	151.5	240.6	266.4
1895-99	167.4	167.8	306.4	314.2
1900-04	181.1	176.1	354.3	445.7
1905-09	201.1	206.2	437.4	570.0
1910-13	219.5	250.2	539.5	674.9

\* Excluding construction, but including building materials.

**Source:** W. Arthur Lewis, *Growth and Fluctuations, 1870 - 1913* (London, 1978), pp. 248-50, 269, 271, 273.

v) **In the most recent article on this issue**, Carsten Burhop, noting the Neuberger-Stokes claims about the role of the credit banks in essentially subsidizing heavy industry (and thus misallocating resources), takes a far more positive view:<sup>8</sup>

... banks may act as a catalyst for industrialization if they are sufficiently large to provide capital for a critical mass of firms, and if banks possess sufficient market power to make a profit from coordination of industrial activities. In this framework, banks can propel an economy from a self-perpetuating low equilibrium to a sustainable high equilibrium: banks can thus become the driving force in a big push towards industrialization. Banks, for example, can finance a critical mass of firms at below-market interest rates. Firms outside that critical mass are financed at market rates. Banks are interested in financing some firms at lower rates, since profits will be higher after industrialization. They are able to finance some firms at below market interest rates, if they have sufficient market power for price discrimination and costs advantages. Such cost advantages are most likely for large banks,

---

<sup>8</sup> Carsten Burhop, 'Did Banks Cause the German Industrialization?', *Explorations in Economic History*, 43:1 (January 2006), 39-63 (p. 40). This case is based on a model supplied in M. Da Rin and T. Hellemann, 'Banks as Catalysts for Industrialization', *Journal of Financial Intermediation*, 11 (2002), 366-97; and M. Da Rin, 'Understanding the Development of the German Kreditbanken, 1850-1914: an Approach from the Economics of Information', *Financial History*, 3 (1996), 290-47.

since they can realize economies of scale and scope.

v) **In subsequent issues of the *Journal of Economic History***, furthermore, Neuberger and Stokes were attacked in articles by Richard Tilly, Reiner Fremdling, and then John Komlos (which you can read for yourselves, in volumes for 1976, 1978)

vi) **The debate has continued on into the 21<sup>st</sup> century**

vii) **Two or the more recent attacks on the Gerschenkron thesis comes from a very different angle:**

b) **Jeremy Edwards and Sheilagh Ogilvie**, ‘Universal Banks and German Industrialization: A Reappraisal’, *The Economic History Review*, 2nd ser., 49:3 (August 1996), 427-46:

i) **which in essence contends that Gerschenkron**, his many followers, and thus most current economic historians have greatly exaggerated the role of the Universal Investment banks, or *Kreditbanken*, in financing post 1870 German industrialization.

ii) **Relative lack of importance of the German *Kreditbanken***: Edwards and Ogilvie contend, primarily, on the basis of table 1 (extracted from rather old data or those with very questionable precision) that the German *Kreditbanken* accounted for only a quarter of total German investment financing in the early 20<sup>th</sup> century (i.e., before World War I).

**Total Assets of German Financial Institutions: percentage shares  
accounted for by different types of financial institutions**

<b>Financial Institutions</b>	<b>1860</b>	<b>1880</b>	<b>1900</b>	<b>1913</b>
Central bank + note-issue banks	22.40	11.60	6.30	4.40
Universal <i>Kreditbanken</i>	9.20	10.00	17.20	25.30
Private bankers	35.30	18.50	8.60	4.40
Savings banks	12.00	20.60	23.30	24.80
Mortgage banks	16.90	26.70	28.50	22.80
Insurance companies	1.60	5.90	8.00	8.50
Credit Co-operatives	0.20	4.40	4.10	6.80

<b>Financial Institutions</b>	<b>1860</b>	<b>1880</b>	<b>1900</b>	<b>1913</b>
Social Insurance organizations	0.00	0.00	2.10	2.70
Other financial organizations	2.40	2.30	1.90	0.30
<b>TOTAL</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

**Sources:** Jeremy Edwards and Sheilagh Ogilvie, ‘Universal Banks and German Industrialization: A Re-Appraisal’, *The Economic History Review*, 2<sup>nd</sup> ser., 49:3 (August 1996), 427-46; Table 1, p. 431 (with my arithmetic adjustments); R.W. Goldsmith, *Financial Structure and Development* (New Haven, 1969), pp. 514-15.

- (1) Roughly another quarter each was accounted for by other savings banks and by mortgage banks
- (2) But nobody has ever contended that the *Kreditbanken* financed everything;
- (3) and these data apply to the entire economy, and not just to the industrial sector.
- (4) They overlook the obvious fact that, in underwriting stock and bond issues, etc., the major *Kreditbanken* usually organized financial syndicates, for each venture, which they dominated: syndicates involving other savings banks, mortgage banks, and insurance companies, listed in this table.
- (5) No other set of financial institutions in this table shows as dramatic a rate of relative growth or increase in influence as do the *Kreditbanken* from the 1860s to 1913.
- (6) I myself, having viewed much of the published research of Raymond Goldsmith, almost all from secondary sources, do not have as much faith as do Edwards and Ogilvie in these data.
- (7) More apt is the observation of Charles Kindleberger, that: ‘The great [investment] banks constituted less than a tenth of the total assets of financial institutions but were found at the critical margin affecting economic growth’.<sup>9</sup>
- (8) Charles Tilly: argued that the joint-stock credit banks promoted industrialization and economic growth:<sup>10</sup>
  - ‘through portfolio diversification and a resulting expansion of risk capital’,
  - which was used to set new enterprise that were both large scale and innovative

---

<sup>9</sup> Charles Kindleberger, *A Financial History of Western Europe* (London, 1984), p. 129. Edwards and Ogilvie do cite this contention, but only to question its validity, while adding that ‘caution is needed in drawing conclusions from table I about the importance of universal banks for industrial financing (p. 433). But see also Carsten Burhop, ‘Did Banks Cause the German Industrialization?’, *Explorations in Economic History*, 43:1 (January 2006), 39-63, which also cites Kindleberger, and with approval.

<sup>10</sup> Charles Tilly, ‘German Banking, 1850 -1913: Development Assistance for the Strong’, *Journal of European Economic History*, 15 (1986), 113-52.

iii) **The next criticism concerns the role of joint-stock financing,**

(1) They note, quite correctly that there was little joint-stock financing of German industry before 1870, i.e., before the enactment of the revised Company Law of 1870, by Prussia and other German states, granting similar provisions to the British Limited Liability Corporation law.

(2) They then contend that German universal investment banks were almost entirely concerned and solely concerned with industrial joint-stock companies;

(3) And therefore they contend that the role of the German investment banks in financing German industrialization from 1870 to 1914 must have been rather more limited than is portrayed in the general literature because joint-stock companies accounted for only about 20% of the total value of industrial capital in 1910.

(4) This may be true, when one considers the vast array of manufacturing firms in the hands of family firms and small partnerships, etc; but the remarks by Kindleberger noted above (on the margin) apply here as well.

(5) Was this share of industrial joint-stock financing typical of other countries?

- Edwards and Ogilvie have no concrete evidence to answer this question, but suggest that it was less than in Great Britain,
- citing dubious statistics to the effect that, in 1895, joint stock financing accounted for about 10% of total British national assets, but only 2.1% in Germany.

(6) In response, I can also cite statistics from Trebilcock to the effect that, between 1885 and 1900,

- the major investment banks placed securities worth £1,200 million on the market, with a peak from 1895 to 1900:
- during which annual issues rose from 99 to 161 per year.

iv) **They also contend that the state played a more significant role in industrial financing than is acknowledged in the literature,** especially in transport: noting that ca. 1860 state governments had financed about 50% of all railways built (except in Prussia, where the share was only 9.2%; and thus about 73% outside of Prussia).

v) **They question the industrial influence of the *Kreditbanken* on industrial boards:**

(1) They contend, finally for our purposes, that after the Depression of 1873 to 1879, during which share prices fell markedly, forcing many *Kreditbanken* to sell their portfolio holdings, the amount of direct investment in equity held by these banks was thereafter rather small;

(2) but that overlooks the other financial roles played by the banks that enabled them to obtain so many seats on corporate boards of directors: especially in voting proxy shares (from stocks held as collateral) and their lines of credit to such firms.

vi) **They argue that many of the very large industrial firms, especially in heavy industry, were self financing from profit reinvestments:**

(1) but that is accepted by most historians.

(2) and does not distinguish between the early and later growth stages.

c) **Caroline Fohlin's attack on Gerschenkron thesis:** See the very similar article:

Caroline Fohlin, 'Universal Banking in Pre-World War I Germany: Model or Myth', *Explorations in Economic History*, 36:4 (Oct. 1999), 305-43.

i) **she repeats many of the accusations and queries posed in the Edwards-Ogilvie article**, and other critics, using similar data (see tables below, and in the Appendix), in particular that:

(1) The role that the investment banks played in later 19<sup>th</sup>-century German industrialization was very limited, to a few major industries (as others have demonstrated)

(2) That their lending and financial policies were unduly conservative (a charge very hard to prove, but not supported by the previous table on comparative industrial output indices)

(3) That the favoured status of the universal investment banks impeded the development of alternative financial institutions: again very hard to prove, but not substantiated by her own tables presented below.

(4) **I shall now just list her newer and important contributions to the debate**, i.e., on the negative side:

ii) **On cartelisation:** that the impetus and influence often flowed from the industrial clients to the banks, rather than from the banks to the industrial clients, with the admission, however, that influence and motivation flowed both ways.

iii) **That Universal Bank investments in client industries, i.e., by holding their equities in the banks' own portfolios exposed the banks, as such investors, to market instabilities:** but no real evidence.

iv) **Conversely that such risks from direct bank investments in the equities of industrial clients may have promoted overly conservative under-investments:** but no evidence cited for this

v) **That the role of Universal Banks in financing equity investments in industrial firms must have been limited before the 1870s:**

(1) with so few joint-stock companies in existence and with no real secondary stock markets before the 1870s:

(2) but this charge overlooks the banks' role in financing capital formation by direct lending and by underwriting debentures and other debt instruments.

vi) **Comparative Capital Markets: Germany and Great Britain:**

(1) In 1910, she contends, the value of new stock issues in the German Empire was only 28% of those issued in Great Britain,

(2) and this she contends, 'certainly suggests that German capital markets lagged behind the leader', an argument similar to that advanced by Edwards and Ogilvie (above).

(3) But it may reflect differences in the forms and structures of capital markets, with a lesser dependence on stock issues in German corporate financing

(4) At the same time, Great Britain had a more highly developed and more thoroughly diversified economy



than did Germany, on the eve of World War I, with a much higher per capita income.

(5) Let us remember that the German ‘industrial revolution’ commenced almost a century after the British one – and thus we can hardly expect to find that Germany would be as highly industrialized and developed as Great Britain in 1900.

vii) **Her major contribution:** is outlining various measures of government legislation and government intervention that favoured the overly dominant role of investment banks (*kreditbanken*) at the expense of an independent growth of alternative financial institutions and of an independent securities market:

viii) **but again this is more speculation than the offer of direct concrete proof**, other than these institutional factors:

(1) the legal requirements for the incorporation of industrial firms and their listing provisions necessitated underwriting by the large German investment banks that were large enough to underwrite these capital issues and provide market contacts to issue the securities.

(2) Stock market transaction taxes and other governmental regulations on securities markets (from 1880 to 1900) encouraged trading outside the Berlin and other large exchanges and thus via the large Universal Investment Banks

(3) Such laws also encouraged amalgamations among and concentration in investment banking.

viii) **Conclusions and statistical tables**

(1) a re-iteration of her contention that their financial role, their role as vital financial intermediaries in industrial capital formation, was limited (as indeed Edwards and Ogilvie had argued earlier:

(2) and for this I have provided tables of her most relevant statistics:

**Table 1. Assets of German Financial Institutions in Billions of Marks**

<b>Financial Institution</b>	<b>1860</b>	<b>1880</b>	<b>1900</b>	<b>1913</b>	<b>% of Total in 1913</b>
<b>Central Bank</b>	0.95	1.57	2.57	4.03	4.44%
<b>National and Regional Banks (<i>Kreditbanken</i>)</b>	0.39	1.35	6.96	22.04	24.30%
<b>Private Bankers</b>	1.50	2.50	3.50	4.98	5.49%
<b>Savings Banks</b>	0.51	2.78	9.45	22.56	24.88%

<b>Financial Institution</b>	<b>1860</b>	<b>1880</b>	<b>1900</b>	<b>1913</b>	<b>% of Total in 1913</b>
<b>Credit Unions</b>	0.01	0.59	1.68	6.20	6.84%
<b>Private Mortgage Banks</b>	0.04	1.85	7.50	13.55	14.94%
<b>Public Mortgage Banks</b>	0.68	1.76	4.05	7.20	7.94%
<b>Life Insurance Companies</b>	0.07	0.44	2.42	5.64	6.22%
<b>Property Insurance Cos</b>	0.00	0.35	0.83	2.05	2.26%
<b>Social Insurance Companies</b>	0.00	0.00	0.87	2.44	2.69%
<b>TOTALS</b>	<b>4.15</b>	<b>13.19</b>	<b>39.83</b>	<b>90.69</b>	<b>100.00%</b>

**Source:** Caroline Fohlin, 'Universal Banking in Pre-World War I Germany: Model or Myth', *Explorations in Economic History*, 36:4 (Oct. 1999), 328.

**Table 2 German Industrial Financing: Percentage Statistics**

<b>Financial Variable</b>	<b>1860</b>	<b>1880</b>	<b>1900</b>	<b>1913</b>
<b>Joint-stock credit bank assets as % of total financial institutions</b>	9.40	10.20	17.50	24.30
<b>Joint-stock and private banks as % of total financial institutions</b>	45.50	29.20	26.30	28.70

<b>Financial Variable</b>	<b>1860</b>	<b>1880</b>	<b>1900</b>	<b>1913</b>
<b>Assets of Financial Institutions as % of GNP</b>	40.00	73.00	114.00	158.00
<b>Joint-stock and private bank assets as % of GNP</b>	18.20	21.30	29.90	45.40
<b>Domestic non-government securities as % of total assets of financial institutions</b>	109.00	80.00	n.a.	62.00

Caroline Fohlin, 'Universal Banking in Pre-World War I Germany: Model or Myth', *Explorations in Economic History*, 36:4 (Oct. 1999), 328.

ix) **Finally, she poses the interesting question:** did the Universal Investment banks outlive their usefulness by 1914?

x) **One answer may be found in the fact that they all survive today and all serve as some of the world's most powerful banking institutions,** especially Deutsche Bank.

d) **A new compromise view from the German economic historian Carsten Burhop:** the most recent contribution (January 2006: see note 3 above).

i) **His key argument:** is that all the other studies had a major deficiency: the lack of adequate data before the early 1880s: and he has provided, therefore, a new data set, from 1851 (screen)

ii) **His data set for the German financial sector:**

(1) includes those for joint-stock credit banks, savings banks, credit co-operatives, and private mortgage banks

(2) but he notes that potential data from many private banks are still missing – so that his data set would underestimate the role of the financial sector:

- missing in particular are data from such major private firms as the Rothschilds, Oppenheim, Bethmann, and Bleichröter,

- whose role was similar to that of the joint-stock credit banks

(3) Financial depth index: total assets of all banks and financial institutions divided by the value of the net national product (expressed in constant German marks of 1913 values): that rises from 1.66% in the 1851-55 (5 year mean) to almost two-thirds – 65.23% – in 1911-13.

(4) Focuses on the contributions of this financial sector to manufacturing and transport ('the modern sector), whose growth in capital stock demonstrates three phases:

- below the national average until the 1860s
- slightly higher than the national average up to 1876
- and then accelerated significantly, rising well above the national average

iii) **His major conclusions:** using Engle and Granger causality tests in econometrics (supplemented by those of Toda and Yamamoto)

(1) overall, from 1860 to 1913 these tests do not support the view that financial sector developments were a causal force for growth in output, productivity, and capital formation in the entire German economy (seemingly supported the other recent articles)

(2) But for the later period 1883 - 1913 ‘the results are more favourable to a causal role for the financial sector’, as a whole, if not for the joint-stock credit banks in particular

(3) The financial sector, and especially the joint-stock credit banks, were a positive causal force for growth in the modern economic sector (industry and transport) in the transition phase from the 1850s to the early 1880s (ca. 1883): thus, the evidence would ‘support Gerschenkron’s argument that the role of the credit banks was particularly important in the early stages of Germany industrialization, when the economy was relatively backward’.

(4) Indeed the role of private bankers (before the era of joint-stock investment banks) was very important as ‘the first in financing large-scale private investment, especially railway construction during the 1830s and 1840s’.

(5) He notes that

- ‘until the late 1870s, about 20 percent of all assets [of joint-stock credit banks] were invested in stocks and bonds;
- ‘thereafter that share fell to about 10 percent.’

(4) From the later 1870s, ‘the German economy was on a sustained industrial growth path’, so that the influence of the German joint-stock investment banks, in relative terms, diminished

(5) Note that the stock market rapidly developed from the 1870s, as did a wide variety of other financial institutions, thereby diluting the role and influence of the great joint-stock investment banks.

iv) **his major data series appear in the following table** (which I have constructed from his annual data, in the form of five-year means)

(1) Note that the index for Total Factor Productivity (for land, labour, and capital) is based on the index of 1.0, for 1913

(2) Financial Depth Index: as noted earlier, the data are the percentage of the total value of NNP accounted for by assets of all financial institutions: that they rise from just 1.66% in 1851-55 to 65.56% in 1906-10.

(3) Note that the values are expressed in constant values: in terms of the value of the gold Deutsch Mark in 1913:

**German Joint Stock Banks and German Industrialization**  
**Modern Sector of the Economy (Industry and Railways)**

Year	Income per Employee 1913 Marks	Capital Stock per Employee 1913 Marks	Productivity Level 1913=1.00 TFP*	Financial Depth Index: % of NNP
1851-55	1,113	2,562	0.604	1.66%
1856-60	1,167	2,638	0.632	8.18%
1861-65	1,244	2,890	0.660	8.36%
1866-70	1,317	3,213	0.688	9.58%
1871-75	1,588	3,839	0.806	25.78%
1876-80	1,569	4,662	0.774	20.92%
1881-85	1,532	5,001	0.746	27.46%
1886-90	1,556	5,146	0.750	31.74%
1891-95	1,728	5,754	0.822	33.06%
1896-00	1,801	6,360	0.838	44.22%
1901-05	1,886	7,626	0.854	53.18%
1906-10	2,080	8,761	0.920	65.56%
1911-13	2,265	9,663	0.987	65.23%

\* FTP = Total Factor Productivity (land, labour, capital)

**Source:**

Carsten Burhop, 'Did Banks Cause the German Industrialization?', *Explorations in Economic History*, 43:1 (January 2006), 39-63. Special issue: *Financial Revolutions and Economic Growth*, ed. Peter L. Rousseau and Richard Sylla.

e) **Some Conclusions:**

i) **students would be best advised to read these four articles**, or the three most recent ones, themselves, and not trust unthinkingly to my interpretations and judgements

ii) **Clearly, if the Gerschenkron thesis does retain some value**, it must be considered and applied with a more restricted scope: in judging the role of the universal (investment) banks in later 19<sup>th</sup>-century German industrialization

iii) **More Statistics on German Banking:**

**From these statistical tables on the screen, note the following:**

(1) **the much higher levels of capital formation in Germany (as % of the GNP)**, compared to Britain, France, Russia.

**Net Capital Formation (domestic and foreign)  
as a Percentage of Net National Product in Germany  
and the U.K.: 1860-1910**

<b>Decade</b>	<b>Germany (Mitchell) (1970)</b>	<b>U.K. (Kuznets) (1961)</b>	<b>U.K. (Feinstein) (1976)</b>
<b>1860-9</b>	11.9%	10.0%	-
<b>1870-9</b>	12.1%	11.8%	8.9%
<b>1880-9</b>	11.1%	10.9%	8.1%
<b>1890-9</b>	13.6%	10.1%	7.5%
<b>1900-9</b>	14.4%	11.7%	9.5%

**Sources:** B.R. Mitchell, *European Historical Statistics, 1750-1970* (1970); Charles H. Feinstein, *Statistical Tables of National Income, Expenditure, and Output of the U.K., 1855-1965* (Cambridge, 1976).

(2) **Relatively lower levels of Germans foreign (overseas) investments:** in that light, consider recent criticisms that both the British and French capital markets (as noted earlier) were institutionally biased in favour of foreign investments.

<b>Foreign Capital Investments of the Chief Lenders</b>					
<b>expressed in millions of current American dollars</b>					
<b>COUNTRY</b>	<b>1870</b>	<b>1910</b>	<b>1914 Total</b>	<b>% of 1914</b>	
<b>U.K.</b>		4,900	12,000	20,000	44.0%
<b>FRANCE</b>	2,500	5,800	9,050	19.9%	
<b>GERMANY</b>	na.	4,800	5,800	12.8%	
<b>U.S.</b>		100	500	3,500	7.8%
<b>OTHER</b>	500	1,100	7,100	18.6%	
<b>TOTAL</b>			<b>45,450</b>	<b>100.0%</b>	

**Source:** Sidney Pollard, 'Capital Exports, 1870 - 1914', *Economic History Review*, 2nd ser., 38 (November 1985).

#### 4. Central Banking in Germany

a) **State Banking before Unification:** Before the German Imperial Union (creation of the Deutsche Reich) in 1871, most of the major German states had their own state or government banks.

b) **The Bank of Prussia, as noted before, was the most important:**

i) reorganized in 1846 as a joint-stock bank.

ii) though a private bank, it acted like a state bank (like Bank of England, Bank of France);

iii) and it was given a monopoly on the Prussian banknote issue.

c) **In 1875, the Bank of Prussia was again re-organized:**

i) **This time as the Imperial Bank of Germany:** the Deutsche Reichsbank, to function as a true central bank.

ii) **The imperial government in Berlin required it** to provide banking facilities for all of Germany, and for all those needing its banking services.

iii) **By 1900, the Deutsche Reichsbank had over 200 main branches**, and some 4,000 subsidiary branches, so that imperial Germany was certainly not lacking in central bank facilities.

iv) **It was given control over the entire imperial German money supply**, thus displacing the note issues of the state banks of the other German state governments: previously there had been seven different silver-

based currencies issued by 33 different banks.

v) **New Imperial note issue, the Deutschmark**, became gold-based, as Germany shifted fully to an international gold standard.

vi) **The law required the Reichsbank to maintain gold reserves for one-third of the currency**, allowing, at least in theory, the money supply to be much more elastic than in France.

d) **Other Banking Functions of the Deutsche Reichsbank:**

i) **acted as a true central bank for all the German private banks, both commercial and investment:**

acting as a banker of last resort, for rediscounting commercial paper in particular.

ii) **also provided discounting services for the business and commercial sectors in general:** through its various branches, particularly in areas not well serviced by the private banks;

iii) **this evidently came to account** for about 80% of its business.

iv) **Overall verdict:**

(1) that its activities ranged from neutral to positive, much more positive certainly than the Bank of France, and even than the Bank of England;

(2) but a less direct role than that of the Imperial Bank of Russia, known as Gosbank, to be seen in our next major topic, on the Economic Development of Tsarist Russia (to 1914).



**Table 1. Total Assets of German Financial Institutions: percentage shares  
accounted for by different types of financial institutions**

<b>Financial Institutions</b>	<b>1860</b>	<b>1880</b>	<b>1900</b>	<b>1913</b>
Central bank + note-issue banks	22.4	11.6	6.3	4.4
Universal Banks: <i>Kreditbanken</i>	9.2	10	17.2	25.3
Private bankers	35.3	18.5	8.6	4.4
Savings banks	12	20.6	23.3	24.8
Mortgage banks	16.9	26.7	28.5	22.8
Insurance companies	1.6	5.9	8	8.5
Credit Co-operatives	0.2	4.4	4.1	6.8
Social Insurance organizations	0	0	2.1	2.7
Other financial organizations	2.4	2.3	1.9	0.3
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

**Sources:** Jeremy Edwards and Sheilagh Ogilvie, 'Universal Banks and German Industrialization: A Re-Appraisal', *The Economic History Review*, 2<sup>nd</sup> ser., 49:3 (August 1996), 427-46, Table I, p. 431 (with some of my own arithmetic adjustments); R.W. Goldsmith, *Financial Structure and Development* (New Haven, 1969), pp. 514-15.

**Table 2. Assets of German Financial Institutions in Billions of Marks**

<b>Financial Institution</b>	<b>1860</b>	<b>1880</b>	<b>1900</b>	<b>1913</b>	<b>% of Total in 1913</b>
<b>Central Bank</b>	0.95	1.57	2.57	4.03	4.44%
<b>National and Regional Banks</b>	0.39	1.35	6.96	22.04	24.30%
<b>Private Bankers</b>	1.5	2.5	3.5	4.98	5.49%
<b>Savings Banks</b>	0.51	2.78	9.45	22.56	24.88%
<b>Credit Unions</b>	0.01	0.59	1.68	6.2	6.84%
<b>Private Mortgage Banks</b>	0.04	1.85	7.5	13.55	14.94%
<b>Public Mortgage Banks</b>	0.68	1.76	4.05	7.2	7.94%
<b>Life Insurance Companies</b>	0.07	0.44	2.42	5.64	6.22%
<b>Property Insurance Cos</b>	0	0.35	0.83	2.05	2.26%
<b>Social Insurance Companies</b>	0	0	0.87	2.44	2.69%
<b>TOTALS</b>	<b>4.15</b>	<b>13.19</b>	<b>39.83</b>	<b>90.69</b>	<b>100.00%</b>

**Source:** Caroline Fohlin, 'Universal Banking in Pre-World War I Germany: Model or Myth', *Explorations in Economic History*, 36:4 (Oct. 1999), 328.

**Table 3:****German Industrial Financing: Percentage Statistics**

<b>Financial Variable</b>	<b>1860</b>	<b>1880</b>	<b>1900</b>	<b>1913</b>
<b>Joint-stock creditbank assets as % of total financial institutions</b>	9.4	10.2	17.5	24.3
<b>Joint-stock and private banks as % of total financial institutions</b>	45.5	29.2	26.3	28.7
<b>Assets of Financial Institutions as % of GNP</b>	40	73	114	158
<b>Joint-stock and private bank assets as % of GNP</b>	18.2	21.3	29.9	45.4
<b>Domestic non-government securities as % of total assets of financial institutions</b>	109	80	n.a.	62

**Source:** Caroline Fohlin, 'Universal Banking in Pre-World War I Germany: Model or Myth', *Explorations in Economic History*, 36:4 (Oct. 1999), 328.

**Table 4.****German Industrial Capital Stock: Net Capital of Industrial Joint-Stock Companies as a Proportion of Total Value of Capital Stock**

<b>Year</b>	<b>Industrial Joint Stock Companies as % of the Total Value of Capital Stock</b>
<b>1860</b>	7.61%
<b>1870</b>	7.77%
<b>1880</b>	9.46%
<b>1890</b>	14.92%
<b>1900</b>	16.19%
<b>1910</b>	19.74%
<b>1913</b>	17.77%

**Sources:**

Jeremy Edwards and Sheilagh Ogilvie, 'Universal Banks and German Industrialization: A Re-Appraisal', *The Economic History Review*, 2<sup>nd</sup> ser., 49:3 (August 1996), 427-46; based on W.G. Hoffmann, *Das Wachstum der deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts* (Berlin, 1965).

**Table 5.**

**German Joint Stock Banks and German Industrialization  
Modern Sector of the Economy (Industry and Railways)**

<b>Year</b>	<b>Income per Employee 1913 Marks</b>	<b>Capital Stock per Employee 1913 Marks</b>	<b>Productivity Level 1913=1.00 TFP*</b>	<b>Financial Depth Index: % of NNP</b>
<b>1851-55</b>	1,113	2,562	0.604	1.66%
<b>1856-60</b>	1,167	2,638	0.632	8.18%
<b>1861-65</b>	1,244	2,890	0.660	8.36%
<b>1866-70</b>	1,317	3,213	0.688	9.58%
<b>1871-75</b>	1,588	3,839	0.806	25.78%
<b>1876-80</b>	1,569	4,662	0.774	20.92%
<b>1881-85</b>	1,532	5,001	0.746	27.46%
<b>1886-90</b>	1,556	5,146	0.750	31.74%
<b>1891-95</b>	1,728	5,754	0.822	33.06%
<b>1896-00</b>	1,801	6,360	0.838	44.22%
<b>1901-05</b>	1,886	7,626	0.854	53.18%
<b>1906-10</b>	2,080	8,761	0.920	65.56%
<b>1911-13</b>	2,265	9,663	0.987	65.23%

\* **TFP** = Total Factor Productivity (Land, Labour, Capital)

**Source:**

Carsten Burhop, 'Did Banks Cause the German Industrialization?', *Explorations in Economic History*, 43:1 (January 2006), 39-63. Special issue: *Financial Revolutions and Economic Growth*, ed. Peter L. Rousseau and Richard Sylla.

**Table 6. Net Capital Formation (domestic and foreign)  
as a Percentage of Net National Product in Germany  
and the U.K.: 1860-1910**

<b>Decade</b>	<b>Germany (Mitchell) (1970)</b>	<b>U.K. (Kuznets) (1961)</b>	<b>U.K. (Feinstein) (1976)</b>
<b>1860-9</b>	11.9%	10.0%	-
<b>1870-9</b>	12.1%	11.8%	8.9%
<b>1880-9</b>	11.1%	10.9%	8.1%
<b>1890-9</b>	13.6%	10.1%	7.5%
<b>1900-9</b>	14.4%	11.7%	9.5%

**Sources:** B.R. Mitchell, *European Historical Statistics, 1750-1970* (1970); Charles H. Feinstein, *Statistical Tables of National Income, Expenditure, and Output of the U.K., 1855-1965* (Cambridge, 1976).

**Table 7. Foreign Capital Investments of the Chief Lenders  
expressed in millions of current American dollars**

<b>COUNTRY</b>	<b>1870</b>	<b>1910</b>	<b>1914 Total</b>	<b>% of 1914</b>
<b>U.K.</b>	4,900	12,000	20,000	44.0%
<b>FRANCE</b>	2,500	5,800	9,050	19.9%
<b>GERMANY</b>	na.	4,800	5,800	12.8%
<b>U.S.</b>	100	500	3,500	7.8%
<b>OTHER</b>	500	1,100	7,100	18.6%
<b>TOTAL</b>			<b>45,450</b>	<b>100.0%</b>

**Source:** Sidney Pollard, 'Capital Exports, 1870 - 1914', *Economic History Review*, 2nd ser., 38 (November 1985).

Table 8.

**International Acceptance Banking by British  
and Continental Banks in 1900 and 1913  
in Millions of Pounds Sterling**

<b>Name of the Bank</b>	<b>Date Founded</b>	<b>1900: Acceptances in £ millions</b>	<b>1913: Acceptances in £ millions</b>
<b>London Merchant Banks:</b> * German origin + Dutch origin ++ U.S. origin			
Kleinwort, Sons & Co.*	1796	8.2	13.6
J. Henry Schröder & Co.*	1815	5.9	11.6
Baring Bros & Co. Ltd.+	1763	3.9	6.6
Brown, Shipley & Co.++	1805	n.d.	5.1
W. Brandt's Sons & Co.*	1805	1.2	3.3
N.M. Rothschild & Sons *	1798	1.5	3.2
C.J. Hambro & Son*	1800	1.9	3.0
<b>British Joint Stock Banks</b>			
London Country & Westminster	1834	0.2	7.8
Union of London & Smiths Bank	1839	3.1	5.8
Parr's Bank	1865	2.4	5.4
London Joint Stock Bank	1836	1.4	3.2
Manchester & Liverpool District	1829	1.7	2.7
Glyn, Mills, and Co.	1753	1.2	1.4
<b>Continental Banks</b>			
Dresdner Bank	1872	6.1	14.4
Discontogesellschaft	1851	3.0	12.5
Crédit Lyonnais	1863	0.0	5.7
Russian Bank of Foreign Trade	1871	2.2	3.7
Credito Italiano	1870	n.d.	1.9

**Source:** Stanley Chapman, *The Rise of Merchant Banking* (London, 1984), Table 7.2, p. 121.



Table 9.

Capitalization of the German *Grossbanken* in 1910

<b>Bank</b>	<b>Founding Date</b>	<b>Capitalization in Deutschmarks</b>
<b>Deutsche Bank</b>	<b>1871</b>	200 million marks
<b>Dresdner Bank</b>	<b>1871</b>	180 million marks
<b>Berliner Diskontogesellschaft Bank</b>	<b>1856</b>	170 million marks
<b>Darmstädter Bank für Handel und Industrie*</b>	<b>1852</b>	154 million marks
<b>Schaffhausen'schener Bankverein</b>	<b>1848</b>	145 million marks
<b>Berliner Handelsgesellschaft</b>	<b>1856</b>	110 million marks
<b>Das Hamburger Commerz- und Diskonto-Bank</b>	<b>1870</b>	85 million marks
<b>Nationalbank für Deutschland*</b>	<b>1881</b>	80 million marks
<b>* later merged to form Danatbank</b>		

**Note:** By 1910, all of these German *Grossbanken* had their head offices in Berlin.

**Source:** Charles P. Kindleberger, *Financial History of Western Europe* (London, 1984), p. 128.

**Table 10. Indices of Industrial Output\*: in the United Kingdom, France, Germany, and the United States in quinquennial means, 1860-4 to 1910-13:**

**Mean of 1870-4 = 100**

<b>Period</b>	<b>United Kingdom</b>	<b>France</b>	<b>Germany</b>	<b>United States</b>
<b>1860-64</b>	72.6			
<b>1865-69</b>	82.8	95.8	72.6	75.5
<b>1870-74</b>	100.0	100.0	100.0	100.0
<b>1875-79</b>	105.5	109.5	120.8	111.4
<b>1880-84</b>	123.4	126.6	160.6	170.4
<b>1885-89</b>	129.5	130.3	194.9	214.9
<b>1890-94</b>	144.2	151.5	240.6	266.4
<b>1895-99</b>	167.4	167.8	306.4	314.2
<b>1900-04</b>	181.1	176.1	354.3	445.7
<b>1905-09</b>	201.1	206.2	437.4	570.0
<b>1910-13</b>	219.5	250.2	539.5	674.9

\* Excluding construction, but including building materials.

**Source:** W. Arthur Lewis, *Growth and Fluctuations, 1870 - 1913* (London, 1978), pp. 248-50, 269, 271, 273.