

R E I C H S B A N K O P E R A T I O N S

1876 - 1914

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1 9 5 3
(1964 - Minor Revisions)

To

ELMER WOOD

Teacher: colleague: friend

Motto

*Was du ererbt von deinen Vätern hast,
Erwirb es, um es zu besitzen.*

Goethe, Faust

What you have inherited from your forebears,
Earn it, so it may become part of you.

CONTENTS

	<u>Page</u>
PREFACE	i
I. Purposes and Functions of the Reichsbank.	1
II. Reichsbank Procedures and the Availability of Credit.	7
A. Discount Procedures.	9
1. Characteristics of customers.	10
2. Characteristics of bills.	11
B. Discounting at Preferential Rates.	17
C. Lending against Collateral (Lombarding).	18
D. Availability of Credit	21
III. Rate Policy and the Cost of Credit.	29
A. Aftermath of Monetary Reform	31
B. Easy Money and Preferential Rates.	36
C. Prolonged Prosperity	42
1. Seasonal variations	44
2. Other facets of policy.	53
(a) Crisis operations	53
(b) Open Market operations.	53
(c) Devisen policy.	56
(d) Issuance of small notes	56
(e) Increasing minimum clearing balances.	57
D. Crises and Reappraisal of Policy	59
E. Impressions of Major Influences on Rate Policy	68(a)
IV. Basic Problems of Control	71

TABLES

	<u>Page</u>
I. Customers of the Reichsbank, November 15, 1910. . . .	11
II. Local and Consignment Bills at the Reichsbank	12
III. Size of Domestic Bills Falling Due July 1- September 30, 1907.	13
IV. Preferential Discounting at the Reichsbank: 1880-1896	19
V. Discounts and Loans at the Reichsbank before and after the Change of Policy in June 1911	52
VI. Selected Accounts at the Reichsbank in 1910	73

CHARTS

I. Reichsbank and Open Market Discount Rates, 1880-1898.	17(a)
II. Reichsbank Rate and Related Factors	
A. 1876 - 1885	30(a)
B. 1886 - 1895	30(b)
C. 1896 - 1905	30(c)
D. 1906 - 1914	30(d)

STATISTICAL APPENDIX

Reichsbank Rate and Related Factors	81-90
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PREFACE

This study owes its genesis to a request that I contribute an essay to a memorial volume in honor of my first teacher in economics, Harry Gunnison Brown of the University of Missouri. I hoped to produce something interesting in the allotted time by analyzing the early history of the Reichsbank because I had written a number of unpublished fragments and had collected many bits of information on the subject over a period of more than twenty years.

I started with two simple ideas. The first idea was that -- for reasons developed by Keynes in his Treatise on Money -- a central bank must have firm control over the volume of reserves of commercial banks if it is to pursue an effective monetary policy. The second idea was that the Reichsbank was one of the powerful central banks in the golden age of central banking before the First World War. This idea, though widely held, was not shared by Keynes.

As I worked over my materials, I found myself forced -- for the reasons summarized on pages 72 to 74 -- to conclude that: (1) before the First World War the Reichsbank paid virtually no attention to reserve balances and ordinarily did not know what their magnitude was; (2) it did not try to establish their amount at predetermined levels; (3) it was not in position to do so quite apart from any question of controlling its assets because of the magnitude and variations in its other accounts; and (4) German banks did not maintain either their reserve deposits or their total primary reserves at any customary relationship to deposits. These judgments tempted me to conclude that the Reichsbank had been a weak institution. This conclusion, however, was not consistent with other bits of information. For example, the overriding

objective of the Reichsbank was to maintain convertibility; and it had achieved this objective -- not without effort! -- throughout the period.

At this point, I was farther from a memorial article than I had thought I was when I began. I could envision no conclusion consistent with the materials at hand. And, of course, I now had many more unanswered questions. Under these circumstances I interrupted the study to rewrite an unpublished essay on the Bank of France for Professor Brown. As soon as this enviable obligation was discharged, I was compelled -- for reasons that Harry Brown preeminently would appreciate -- to return and wrestle with the unfinished business of the Reichsbank.

My attention was attracted by that tempting though slithery concept: availability of credit. Many of the difficulties that troubled me would have been resolved if the Reichsbank had changed appropriately the administration of the rules under which it granted credit. Search for an answer to this question was both frustrating and rewarding. The frustration came because, although the Reichsbank published annual reports, they are virtually barren of policy statements before 1914. The reward came from an unexpected source. One day, while reflecting about possible sources of information, I remembered that the Reichsbank was required under certain circumstances to pay a tax on some of its notes. It was possible that this source of revenue would be discussed when the Reich budget was before parliament. It was this tenuous line of reasoning that led me to the Stenographic Reports of the Reichstag. They proved unexpectedly fruitful on this and other operations. I have presented in Chapter 2 the evidence that led me to conclude that the Reichsbank did not control the money market by changing systematically the eligibility or acceptability of paper on which it extended credit.

At this point I returned to Elmer Wood's profound and discerning study of English Theories of Central Banking Control. He demonstrated that a central

bank may be in position to pursue an effective policy even though it is not able to establish a given asset (such as the volume of its discounts) or a given liability (such as reserve balances or notes) at some predetermined level. Once I grasped the real implications of this idea, my materials fell into place. My indebtedness to Professor Wood has been mounting for more than three decades. I have taken the liberty of dedicating this study to him as a token payment on a debt that can never be liquidated.

A translation of the original manuscript was published in the Weltwirtschaftliches Archiv in 1954 under the title "Die Tätigkeit der Reichsbank von 1876 bis 1914."

One of the abiding satisfactions I derive from studying central banking is the continued warmhearted generosity with which outstanding men in the field -- theorists and practitioners alike -- have discussed and criticized my work. I cannot express adequately my appreciation of their contributions to my intellectual development over the years but neither can I fail to list those who strengthened this particular essay through oral discussion and written criticism of preliminary drafts. They are:

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REICHSBANK OPERATIONS: 1876-1914

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I. Purposes and Functions of the Reichsbank

Politically, the Germany established by Bismarck was torn by conflict between the forces of centralization and federalism. In the Bank Act of 1875, the centralizers were able to establish the Reichsbank and endow it with responsibility for regulating the monetary circulation of the whole Empire; but the federalists were able to continue the authority of other banks to issue notes.⁽¹⁾

(1) The original draft related generally to banks of issue and contained no provision for a Reichsbank. At its first meeting the Reichstag commission of inquiry deferred discussion until it received a parliamentary directive as to whether such a bank should be established. The original draft appears in Stenographische Berichte über die Verhandlungen des Deutschen Reichstages (hereafter cited as S.B. The exact title and the method of numbering the volumes were not maintained throughout the period.), 1874-1875, Vol. III, pp. 648-652. The vote to defer discussion appears at Vol. IV, p. 1,147. Ludwig Bamberger, secretary and an influential member of the commission, is reputed to have said: "I will accept no law without a Reichsbank; and I will accept any law with a Reichsbank." See Karl Helfferich's introduction to Bamberger's selected speeches and articles, published under the title: Geld-und Bankwesen, Berlin, 1900, p. 70. I shall follow the suggestion of C. F. Dunbar, Chapters on the Theory and History of Banking, New York, 1891, p. 190, by translating "Privatnotenbanken" as independent banks of issue. The complications resulting from the continuation of such banks created certain difficulties, but the centralizers won the substance of the argument though they may appear to have lost the form.

Economically, the new Empire was primarily an agricultural country on the verge of incredibly rapid strides toward industrial and commercial development. The period from 1876 to 1914 may usefully be divided into two intervals of roughly equal length. Until the middle nineties, despite the

long-term price decline in the western world, the German economy made slow progress, interrupted by long depressions. After the middle of the nineties, world prices began a recovery, and the German economy expanded at unprecedented rates, interrupted by occasional crises. Students of Reichsbank policy will find it desirable -- for reasons that will become apparent in Section III -- to devote particular attention to the first few and the last few years of the entire period.

The Reichsbank was ambitious to be the great bank of the Empire and to contribute to the great expansion. It began with reserves far in excess of minimum requirements and competed actively "to employ its funds." With the rapid development in the second half of the period, the Reichsbank found it increasingly difficult to maintain adequate reserves without having the German economy become too heavily indebted abroad at short term. Foreign funds became less dependable as political tensions mounted.⁽¹⁾

(1) H. Neisser, "Der Internationale Geldmarkt vor und nach dem Kriege," in Weltwirtschaftliches Archiv, Vol. 29, 1929, pp. 183-194.

The Reichsbank began operations on January 1, 1876, as successor to the Bank of Prussia which had been established on January 1, 1847, to replace the Royal Bank founded by Frederick II in 1765. The head of the Bank of Prussia had been directed by statute (§87) to maintain discount and interest rates as stable as possible. The Bank did not reduce its rate below 4 per cent. Until the 1850's it was limited by the usury laws and did not go beyond 5 per cent and rationed credit periodically. Although it did not cease rationing with repeal of the usury laws, it did rely more on the rate, increasing it, for example, to 9 per cent for two months in 1866. The Reichsbank, acquiring the personnel and experience of the Bank of Prussia, began as a full-fledged central bank.

It was authorized to engage in various transactions of which the following were most important:

1. To buy and sell gold and silver;
2. To discount, buy, and sell bills having a maximum maturity of three months and signed by at least two - usually three - names of known solvency;
3. To buy and sell debt obligations of the Reich, German states, and domestic cooperative corporations; and to discount as well as buy and sell such obligations with a maximum maturity of three months;
4. To extend loans for not over three months on specified collateral;
5. To collect maturing obligations and to transfer funds;
6. To accept deposits, including interest bearing deposits;
7. To issue notes - these were made legal tender on January 1, 1910.

The Reichsbank was directed "to regulate the monetary circulation of the whole Empire, to facilitate clearings, and to see to it that available capital is productively employed."⁽¹⁾ Enmeshed in its monetary

(1)

Section 12 of the Bank Act of March 14, 1875. The third duty reads: "für die Nutzbarmachung verfügbaren Kapitals zu sorgen." This was translated for the National Monetary Commission (hereafter cited as N.M.C.) as "to utilize available capital." (N.M.C., German Banking Laws, p. 39.) Evidently the translator was not an economist.

policies were operations as fiscal agent for the Reich, various state governments, and other public bodies, as a nationwide center of payments, clearings, and collector of maturing bills, and as a large bank of discount and deposit for private customers.

Understanding of Reichsbank policy is facilitated by keeping in mind that the three statutory tasks did not necessarily indicate a common program of action. In some respects, indeed, the obligation to regulate the monetary circulation had a contractive bias, whereas the

directive to assure productive employment of available capital had an expansive bias. The management was not unaware of the practical evidence of the conflict, especially because of the wide seasonal variations in currency demand discussed in Section III-C.

The dominant objective in case of conflict was to regulate the circulation so that the Reichsbank could always redeem its notes in gold. To assure that this objective would be achieved, the law placed limitations on the issuance of notes. The Reichsbank was required to maintain full cover in cash and eligible bills against its outstanding notes. Of this cover it was required to keep at least one-third in cash. Cash for this purpose was defined as current German money (gold, silver, nickel, and copper coins), Treasury notes, and gold in bars or foreign coins valued at M1,392 per German pound fine.⁽¹⁾ In addition, the Reichsbank was required to pay a tax at the

(1) The German pound is equal to one-half kilogram. The mint law provided that 139½ ten-mark pieces be coined from one pound of fine gold; there was a seigniorage or brassage charge of 3 marks per pound.

rate of 5 per cent per year on its outstanding notes in excess of cash reserves plus a quantum specified in the law. For purposes of determining the taxable issue the definition of cash reserves was expanded -- logically -- to include the notes of other banks of issue.⁽²⁾ Generally speaking, of course, the greater

(2) Both the volume of reserves and the reserve ratio could be influenced directly by legislation and Reichsbank operations, quite apart from the indirect effects of monetary policy. For example, originally the Reichsbank was not authorized to issue notes of less than M100. The Treasury was authorized to issue small notes (M5, M20, and M50) in amounts up to M120 million. In 1906 the Reichsbank was authorized for the first time to issue notes of M20 and M50 - and the Treasury was authorized to issue notes of M10. By substituting its notes for Treasury notes in circulation, the Bank could increase both its reserve and its reserve ratio with no change in total monetary circulation. This change enabled the Bank to meet the quarterly drain of cash in September and December 1907 without falling below the one-third minimum ratio. See memorial volume, Die Reichsbank: 1901-1925 (hereafter cited as R.B. III), p. 23. The implications of such changes, designed to meet practical problems, were not always fully understood.

the reserve the more certain was maintenance of convertibility.

Maintenance of excessive reserves, however, would not assure that all available capital was productively employed. No objective criteria were established to test achievement of this objective. One might interpret the law as implying that the amount of such capital was a magnitude independent of Reichsbank policy itself. The management, believing the real bills doctrine, felt that it could and should invest heavily in self-liquidating paper and that it should not maintain reserves in excess of its judgment as to the amount needed to assure convertibility. At any rate this conclusion seems to reconcile partially the apparently contradictory claims of the management that it should not accumulate "idle" funds and also that it should not strive to maximize profits.⁽¹⁾ The concept idle funds was vague

(1) S.B., 1880, Vol. I, p. 135; 1881, Vol. I, p. 121; and 1889-1890, Vol. I, p. 203.

and was not related to idle real resources in the economy.

The Reichsbank vigorously pursued the objective of facilitating clearings, especially during the presidency of Dr. Richard Koch, a technical specialist. It actively fostered the growth and use of clearing (giro) and deposit accounts. Primarily this was viewed as a matter of efficiency. Debits per mark of deposit were clearly greater than payments per mark of currency. Hence a given volume of cash might be considered more efficient as reserve against deposits than against notes. Occasionally one gets the impression that a more efficient clearing mechanism was viewed also as a means of reconciling the other objectives, especially since the law required no minimum cash reserves against deposits. But this view was not held consistently. The management recognized that deposits were sight liabilities that could be called and that their very

efficiency might make them even more vulnerable than notes.

It is difficult to describe the role of profits in the policy of the Reichsbank. As we shall see, the Management recognized it had public responsibilities that could not be discharged if it sought to maximize its profits. It deliberately engaged in operations that reduced profits when it believed the public interest would be served, as when it paid premium prices for gold, granted loans free of interest on the importation of gold, or held its discount rate below 5 per cent when it became subject to a 5 per cent tax on additional note issues. Nevertheless, the management was not indifferent to profits, primarily because it did not fully comprehend its role as central bank. Specifically, it did not feel that it could be expected to hold an "unreasonably" large proportion of its assets in the form of non-earning reserves. Desire for earnings appears to have been an important factor not only in the introduction of preferential rates in the 1880's but also in the seasonal reductions in the rate during the prolonged prosperity of the last quarter century.

The management argued that "In the general interest of stimulating national economic activity, the central bank must constantly take into consideration maintenance of as low and stable a discount rate as conditions permit."⁽¹⁾ In retrospect it would appear not merely a coincidence that a program to achieve this objective would also be in the immediate profit interest of the Reichsbank.

(1) K. von Lumm, "Diskontpolitik," p. 135. In 1912, director von Lumm published a series of four articles under this title in Bank Archiv, Vol. 11, pp. 129-136, 145-150, 162-167, and 179-187; hereafter this series will be cited as "Diskontpolitik." The series was reprinted in 1912 and again in 1926. See also speech of President Havenstein, S.B., 1907-1909, p. 4,209.

II. Reichsbank Procedures and the Availability of Credit

The Reichsbank blanketed Germany with a head office in Berlin and a network of branches that increased from 182 bequeathed to it by the Prussian State Bank in 1876 to 487 in 1914. Since the head office bought less than 20 per cent of the volume of bills, ⁽¹⁾ it is necessary

(1) Memorial volume, Die Reichsbank: 1876 bis 1910 (hereafter cited as R.B. II), pp. 134-135. The discount earnings and therefore average holdings at the head office were relatively far less: 6 - 8 per cent (pp. 140-141) except in the early years, indicating that it bought shorter bills. (See below, note 1, p.12.) The proportion of bills bought at the head office was even smaller when the preferential rate described in II-B was in effect.

to consider the relationships between the head office and the branches. The head office kept itself informed of business conditions through reports from the branches: semi-annually from the independent branches in larger cities and annually from the subordinate branches in towns and villages. The President held annual conferences with local branch directors in various cities to discuss business and credit developments and prospective changes in organization and procedures. The head office audited and examined all branches. It also established larger lines of credit for individual customers, acting on recommendations of the branch officials and directors. Apparently the equity of the customer was a primary consideration in establishing the line. ⁽²⁾ Once

(2) Memorial volume, Die Reichsbank: 1876-1900 (hereafter cited as R.B. I), p. 83. Inference drawn from discussion of cooperative societies. See also N.M.C., Renewal of Reichsbank Charter, pp. 207-208.

the line was established, the branch apparently had almost complete freedom so long as it did not exceed the maximum.

Thus, although the adjective "independent" had a legal origin -

officials of such branches could obligate the Reichsbank - it had a wider meaning; such branches had considerable latitude in their operations. In fact, the managers of such branches received a percentage of the profits of their branches. The management said that: "The purpose of this arrangement is, on the one hand, to stimulate as much as possible the activity of the branch by means of providing a direct interest to the manager in the financial success, and, on the other hand, to give assurance that only good and safe business will be done. ."⁽¹⁾ The arrangement, it should be noted, was not directed

(1)

R.B. I, p. 36. Payment of the share of profits was deferred until the manager left the bank and all of his transactions which might result in losses had matured.

toward operating efficiency - though that might have been an incidental by-product; it was directed toward securing as much profitable business as possible. Since the prices - discount and loan rates - were determined at the head office, the initiative of the branch managers could show itself only in increasing volume. This objective, of course, would conflict with a monetary policy of contraction. On balance, it seems to me that the profit motive prevailed when such conflicts arose. (2)

(2)

The judgment is consistent with the general tone of Reichsbank publications. A fragment of supporting evidence may be found in N.M.C., Renewal of Reichsbank Charter, pp. 66 and 206. This volume contains translations of a series of articles from the Frankfurter Zeitung and of articles by Dr. Richard Koch, former President of the Reichsbank. The newspaper said that as a result of this arrangement some branches resorted "to artificial methods of attracting discounts... and have even tried to obtain bills while a rise in the bank rate was imminent, thus rendering the bank's own discount policy ineffective;" and also that some branches tended to be lax in applying the principles of the real bills doctrine. Dr. Koch defended the arrangement but admitted that "it is possible that younger managers of the numerous subbranches may have erred at times in this respect [promising renewal of discount at maturity] being misled either by an excess of business zeal or by a misconception of the true state of things."

II. A. Discount Procedures

The management of the Reichsbank, in common with that of many other central banks, accepted the "real bills" doctrine and operated primarily in what it at any rate believed to be such bills. From 1876 until 1894, the annual volume of bills drawn or payable in Germany increased with population from about M12 billion to about M15 billion, and the average amount outstanding increased correspondingly from about M3 billion to about M3-3/4 billion. After the middle nineties, the volume of bills increased much more rapidly than population, reflecting the very rapid economic development of Germany. Roughly one-third of all bills drawn passed through the Reichsbank; but for reasons to be analyzed later, the average portfolio of the Reichsbank varied between 10 and 15 per cent of the average amount of bills outstanding.⁽¹⁾

(1)

The following data are taken from R.B. II, p. 161, for 1876, 1894, and 1910; and from Enquete-Ausschuss, Die Reichsbank, Berlin, 1929, p. 28, for 1913:

Year	Amount of Bills Drawn or Payable in Germany			Average Amount of Bills Outstanding		
	Total: Mil. marks	Marks per capita	% Purchased by Reichsbank	Million marks	Marks per capita	% Held by Reichsbank
1876	12,374	287	33.3	3,169	74	12.7
1894	14,748	287	32.1	3,777	74	14.4
1910	31,005	480	35.0	7,838	121	10.9
1913				8,500		12.1

Although the Reichsbank discounted or bought only bills with a maturity not exceeding three months and having at least two - usually three - signatures of known solvency, the volume of eligible bills outside the Bank was always adequate to permit expansion of its portfolio.

On the other side, although it never resold bills, ⁽¹⁾ its portfolio

(1) Since the Reichsbank was authorized to sell bills, this was a matter of administrative policy, not legal compulsion. The policy was justified officially on the ground that the Reichsbank "is the strongest and last source of credit in the land; it cannot, like other banks, make claims for credit on a higher institution." R.B. I, p. 76; compare pp. 19 and 132. This justification reflected a literal rather than a functional interpretation of the phrase "lender of last resort." See J. Plenge, Von der Diskontpolitik zur Herrschaft über den Geldmarkt, (hereafter cited, Diskontpolitik), Berlin, 1913, pp. 198-199, 203-204, and notes pp. 383-389. W. Conrad, "Von der Diskontpolitik zur Beherrschung des Geldmarktes: eine Erwiderung" in Bank Archiv, Vol. 11, p. 340, cites as reasons for not rediscounting bills that the customers discounted bills with the understanding that they would be held by the Reichsbank until maturity and that the Reichsbank did not want to give banks an insight into its business for fear of losing customers to them.

was always large enough and its maturity distribution such that -- save, possibly, in slack seasons -- the Bank could enforce its terms, if necessary through contraction.

1. Characteristics of customers

The Reichsbank was authorized to acquire bills with at least two and "as a rule," §13, three signatures known to be solvent. The third signature was frequently added by a bank which sold the bill to the Reichsbank shortly before maturity for collection. The Reichsbank, however, was a large commercial bank as well as a bank for bankers. It established lines of credit for each of its thousands of discounting customers. President von Dechend said: "With us, anyone may discount -- every solid ordinary person and every solid good firm without respect to his wealth."⁽²⁾ As is shown in Table I,

(2) S.B., 1889-1890, Vol. I, p. 600. He was contrasting the Reichsbank with the Bank of France which, he said, admitted only the so-called présentateurs.

the great bulk of the lines of credit were small. Of more than 66,000 in 1910, less than 1,000 were for more than M $\frac{1}{2}$ million. Even of the

large lines, more were open for industrial borrowers than for banks.

TABLE I
Customers of the Reichsbank
 November 15, 1910

	Total	Banks & Bankers	Merchants & Commerce	Industry	Agriculture & Related	Cooperatives	Others
eligible to discount	66,681	2,361	24,128	21,244	9,854	1,026	8,068
Berlin only	914	148	323	344	10	35	54
Classified according to size of line of credit							
1,000-10,000 marks	24,944	149	9,915	5,531	5,369	142	3,838
11,000-20,000	14,676	205	5,784	4,224	2,317	192	1,954
21,000-30,000	7,028	195	2,559	2,455	828	142	849
31,000-60,000	8,752	403	3,091	3,456	792	225	785
61,000-100,000	4,819	341	1,463	2,211	313	155	336
101,000-500,000	5,525	725	1,218	2,942	218	152	270
501,000 and over	937	343	98	425	17	18	36

Source: R.B. II, pp. 154-157.

2. Characteristics of bills

The Reichsbank distinguished between local bills, payable in the district covered by the purchasing office (Platzwechsel), and consignment bills, payable outside (Versandwechsel).⁽¹⁾ A comparison of

(1)

Consideration of foreign bills will be deferred to Section III.

the two types is given in Table II.

From 1876 through 1910, the Reichsbank bought 33 million local bills for M80 billion, giving an average size of about M2,500. Average maturities varied from 42 days in 1910 to 60 days in 1894 and 1896.

TABLE II

Local and Consignment Bills at the Reichsbank

Year	Local Bills					Consignment Bills				
	Average Portfolio (mil. m)	Purchases		Average		Average Portfolio (mil. m)	Purchases		Average	
		No. (thous.)	Value (mil. m)	Size (marks)	Maturity (days)		No. (thous.)	Value (mil. m)	Size (marks)	Maturity (days)
1876	174	531	1,107	2,085	57	227	2,028	3,016	1,486	27
1894	297	798	1,791	2,243	60	248	2,340	2,940	1,256	30
1910	481	1,558	4,065	2,609	42	373	3,680	6,778	1,841	19

Source: R.B. II, pp. 126-129, where yearly data are given.

During the same period it bought 89 million consignment bills worth M135 billion, giving an average size of about M1,500. Average maturities varied from 19 days in 1910 to 31 days in each of the years 1886 to 1889 inclusive. (1)

(1)

The average size and maturity varied considerably among the various branches as is illustrated in the following data taken from Verwaltungsbericht der Reichsbank für das Jahr (hereafter cited as R.B.V.B. für) 1896:

Variation in average size and average maturity of discounts and loans at Reichsbank offices in 1896								
Type	Size				Maturity			
	Min.	Max.	Berlin	Aver.	Min.	Max.	Berlin	Aver.
Local bills	1,000	6,703	3,673	2,440	21	84	21	52
Consignment bills	537	4,600	2,796	1,459	12	71	12	28
Lombard					4	233	28	27
(a) borrowing	2,800	68,670	27,627	15,944				
(b) repayment	2,200	72,460	31,517	16,707				

Local bills increased gradually in importance. In 1891 they comprised half the average portfolio of domestic bills for the first time. Their lowest proportion was 42.5 per cent in 1883 and their highest was 64.8 per cent in 1906.

For a number of reasons, including a desire to counteract charges that it was insensitive to the credit needs of small business, the Reichsbank published data on the size of domestic bills. There was no minimum, and the Reichsbank discounted bills as small as M10. ⁽¹⁾

(1) N.M.C., Interviews on Banking in England, France, Germany, Switzerland, and Italy (hereafter cited as Interviews), p. 341.

The distribution of bills falling due in the quarter July 1 - September 30, 1907, which illustrates the data published for other periods, is shown in Table III.

	Local Bills			Consignment Bills		
	Number (thous.)	Per cent	Cumulative per cent	Number (thous.)	Per cent	Cumulative per cent
Less than 200 marks	73	17.7	17.7	328	36.1	36.1
From 200 to 400	74	17.9	35.6	184	20.3	56.4
401 to 500	33	8.1	43.7	60	6.6	63.0
501 to 1,000	84	20.4	64.1	134	14.8	77.8
1,001 to 3,000	86	21.0	85.1	122	13.4	91.2
3,001 to 10,000	42	10.3	95.4	52	5.7	96.9
more than 10,000	19	4.6	100.0	28	3.1	100.0
Total	412	100.0		909	100.0	

Source: R.B. II, p. 153.

The maximum maturity of bills that the Reichsbank was authorized to purchase was three months. It did not customarily renew bills, except in the case of farmers. ⁽¹⁾ The average maturity from 1876 to

(1) N.M.C., Interviews, p. 342.

1910 varied between 28 days (in 1910) to 41 days (in 1894) and usually varied only a day or two from the mode of 35 days. But these averages conceal some of the dynamics of discounting at the Reichsbank. Roughly 18 per cent of the portfolio matured within a week, and 28 to 30 per cent within two weeks. ⁽²⁾ Roughly half, or a little less, matured

(2) These averages were computed from holdings on the 7th day of months from February to December inclusive, and on the 31st of December. The proportion of short bills was probably even greater at the end of a month.

within a month.

In terms of credit operations, customers discounted at the Reichsbank for a variety of reasons. Many bills were handed in for collection, especially by banks. Since the Reichsbank charged discount for a minimum number of days, such bills were discounted when they had that many days left to run. ⁽³⁾ Another group came from commercial, industrial, and

(3) The exact number of days depended on place of payment, amount of bill, and similar factors. Some of the handbooks for merchants and traders reflected this practice in the sections devoted to the computation of discounts. They show how to compute discount for, say, a 90-day bill by using the commercial bill rate for 85 days and the Reichsbank rate for 5 days. See, for example, L. Rothschild's Taschenbuch für Kaufleute, 58th Edition, edited by Christian Eckert, Leipzig, 1920, pp. 976-977. Dernburg, as a member of a commission of inquiry in 1926, recalled that when he was active before the first World War his bank discounted Berlin bills 4 days and provincial bills 10 days before maturity because that was the best and most convenient way to collect. Enquete-Ausschuss, Die Reichsbank, p. 136. His distinction for Berlin was, of course, identical with that between local and consignment bills as made by the Reichsbank. See also, W. Conrad, Loc. cit., p. 340.

agricultural customers who were seeking credit accommodations from "their bank." Longer bills came from this source. The difference in purpose between collection and borrowing helps explain why average maturities were longer for local than consignment bills. Finally, in times of pressure, when the prime market rate touched bank rate, as happened frequently toward the end of the year, banks and possibly other dealers in credit discounted somewhat longer bills. I cannot cite contemporary evidence, but it is probable that the maturities depended on the composition of their own portfolio.⁽¹⁾

(1) Hjalmar Schacht, who had been an alternate director at the Dresdner Bank as early as 1908, did testify - but in 1926 at the age of 49 - that when a banker had to meet large payments "he begins to leaf through his portfolio for 3, 4, 5, 10, 15-day bills, and then says, I must go to 30 days; or, as the saying used to be, we had to go to 50 days at the Reichsbank, that is, we had to take our bills up to 50 days to secure the money." The italics did not appear in the original. Enquete-Ausschuss, Die Reichsbank, pp. 136-137.

Ordinarily, however, the Reichsbank did not acquire prime -- that is top quality -- long bills. Such bills were discounted in the market at less than the official rate. Some writers have placed great emphasis on the mere fact that bank rate was above market rate. They seem to infer that since both were rates at which bills were discounted a dual pricing system was in effect. Actually the rates usually related to articles of different quality. In fact there was more than one market rate; the published rate referred to prime bills, other rates were negotiated for bills of less than prime quality. Bank rate, however, was uniformly applicable to all eligible and acceptable bills.⁽²⁾

(2) See J. F. Schár and H. Reccius, "Die Spannung zwischen Banksatz und Privatdiskont", in Bank Archiv, Vol. 11, pp. 65-70.

Most of the bills acquired by the Reichsbank were collected at maturity. Nevertheless, the collection experience of the Reichsbank

indicates that it acquired many bills of inferior quality. Between 2 and 3 per cent of all local bills were not paid by the drawee upon presentation at maturity. ⁽¹⁾ In general these were small bills; in

(1) R.B. II, p. 127. The data relate to the years 1895-1910, inclusive. Other data on which this paragraph is based appear at pp. 126-131, 242-245.

value, the proportion varied between $\frac{4}{10}$ and $\frac{8}{10}$ per cent. The proportion for bills of M100 and less was usually 6 per cent or more - 8 per cent in 1895. The record for consignment bills was not as good. Of such bills roughly 5 per cent in number and 1 to $1\frac{1}{2}$ per cent in value were not paid by the drawee upon presentation. Again, the poorest record was with the very small bills, as many as 10 per cent of which fell in this category. The chief reason for the difference in experience between the two categories is that local bills were bought only after acceptance, whereas the Reichsbank endeavored to secure acceptance of consignment bills after purchase. The losses sustained by the Reichsbank were, of course, far less than these proportions. Only M158 per million of bills bought between 1876 and 1910 seemed uncollectible. ⁽²⁾

(2)

The proportion varied between M2 per million in 1897 to M818 per million in 1901.

Of this amount, only $\frac{1}{3}$ was written off; and perhaps 80 per cent of the amounts written off, in turn, was recovered ultimately. The important point for our purposes, however, is not the immediate or ultimate effect on the profits of the Bank. The important point is that the Reichsbank year after year acquired many second rate bills. Its apparent immediate losses tended to concentrate in years of economic difficulty; but this did not deter it much - primarily through its

branch managers - from acquiring more bills of the same quality. Small wonder that the rate on such bills was greater than the private discount on acceptances of the great Berlin banks or of such private firms as Mendelssohn and Bleichröder. Application of a uniform rate throughout the country also meant that the Reichsbank was virtually eliminated from the market for good - not merely prime - long bills in the industrial west and that it was almost the only lender in parts of eastern Germany. ⁽¹⁾

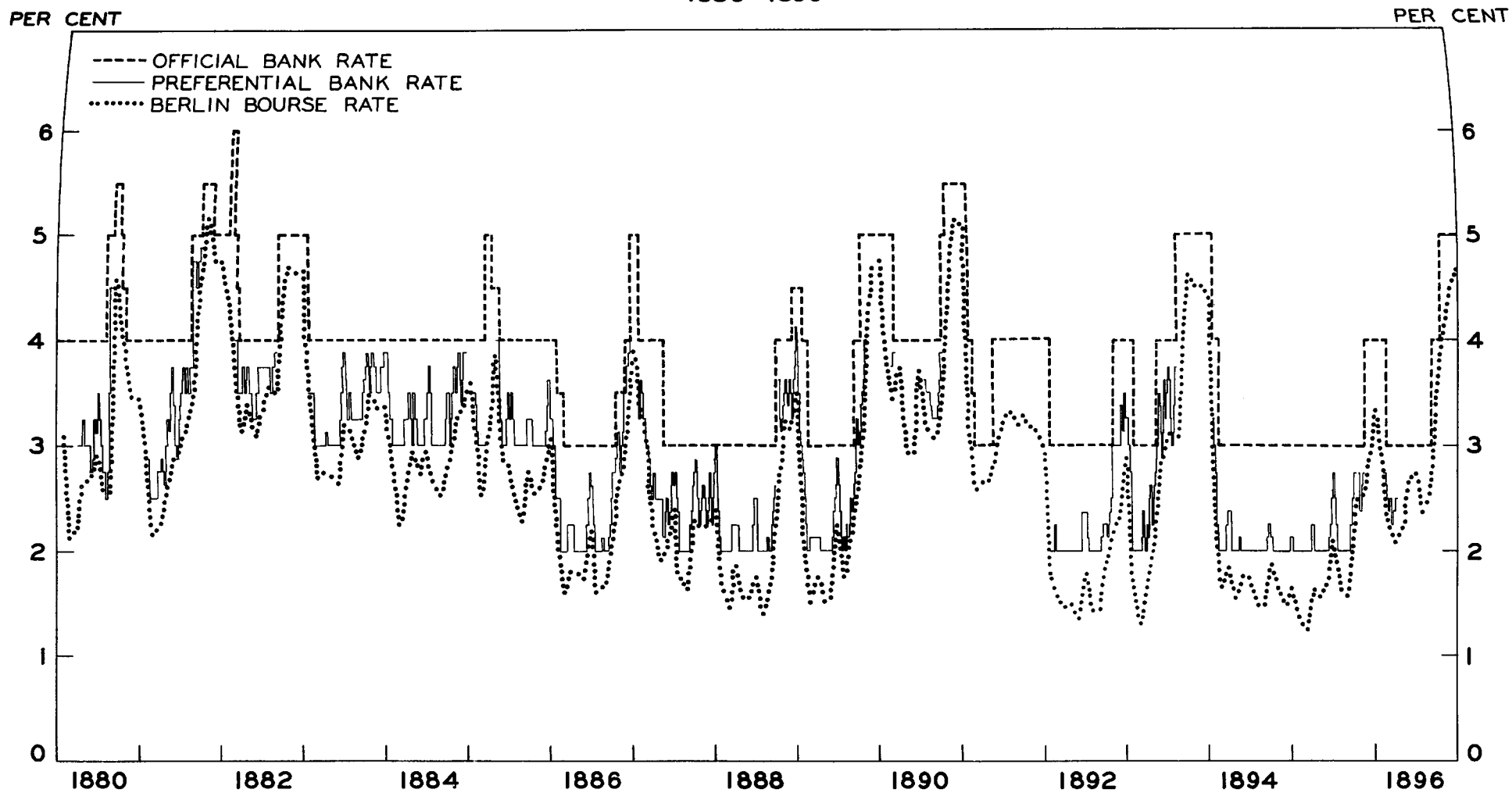
(1) G. von Schulze-Gaevernitz, "Die deutsche Kreditbank" in Grundriss der Sozialökonomik V. 2. Bankwesen, Tübingen, 1915, p. 75. The author points out that earnings of branches of the Reichsbank from local bills in 1908 were: for Frankfurt a. M., M253,000 with an average maturity of 15 days; for Glogau, M603,000 with an average maturity of 71 days; for Flensburg, M615,000 with an average maturity of 63 days; and for Stralsund, M626,000 with an average maturity of 73 days. See also K. von Lumm, "Diskontpolitik", p. 146.

II. B. Discounting at Preferential Rates

From 1880 to 1896 the Reichsbank frequently discounted prime bills at preferential rates, primarily to meet the competition of independent banks of issue. After a few months of experimentation, uniform rules were established for such discounting. Only prime bills for at least M3,000 and having at least six weeks to run were eligible. Beginning in 1881, operations at the preferential rate were suspended when the official rate reached 5 per cent - reduced, apparently in 1895, to 4 per cent - or when exchange rates reached the gold export point. ⁽²⁾

(2) R.B. I, pp. 81-82, 148.

REICHSBANK AND OPEN MARKET DISCOUNT RATES 1880-1896



Bills were not purchased at the preferential rate at the head office in Berlin.⁽¹⁾ The preferential rate was approximately the going

(1) S.B., 1889-1890, Vol. I p. 204; K. von Lumm, "Diskontpolitik", p. 146.

rate on prime bills in centers outside Berlin. The relationships between the official rate, the preferential rate, and the open market rate on the Berlin Bourse are shown in the chart. From 1880 to 1885 the official rate was not reduced below 4 per cent; but the preferential rate was frequently reduced to 3 per cent, and in 1880-1881 was 2½ per cent for short periods. From 1886 to 1896 there was only one year (1890) in which the official rate did not touch 3 per cent, with the preferential rate frequently as low as 2 per cent.

The importance of preferential discounting at the Reichsbank is shown in Table IV.

II. C. Lending against Collateral (Lombarding)

In addition to buying or discounting bills, the Reichsbank loaned on collateral. The Bank recognized the important functions performed by collateral loans but, believing the real bills doctrine, felt they were far less important than discounts to modern banks of issue "because they cannot be used as collateral against notes."⁽²⁾

(2) R.B. I, p. 105.

From time to time the Reichsbank established a maximum for its lombard portfolio, although it occasionally exceeded the formal limit. The average lombard portfolio varied between 8 and 16 per cent

TABLE IV

Preferential Discounting at the Reichsbank: 1880-1896

Year	No. of days in effect	No. of Changes	Average size (marks) of domestic bills		Average maturity (days) of domestic bills		Percentage of bills acquired at preferential rate		
			All bills	At pref. rate	All bills	At pref. rate	No.	Value	Average Portfolio
1879	0	-	1,423	-	35	-	-	-	-
1880	170	19	1,507	n.a.	35	75	n.a.	8	18
1881	231	31	1,592	"	33	77	"	7	17
1882	185	14	1,681	"	33	75	"	7	15
1883	340	24	1,661	"	34	75	"	16	34
1884	350	29	1,699	"	36	76	"	18	38
1885	288	20	1,633	"	37	76	"	17	35
1886	348	28	1,635	"	38	76	"	23	45
1887	343	47	1,663	9,074	40	75	5	28	52
1888	323	36	1,588	8,007	39	74	5	26	48
1889	273	38	1,670	7,499	39	74	5	22	42
1890	76	12	1,727	10,673	35	76	1	5	12
1891	0	-	1,637	-	35	-	-	-	-
1892	339	17	1,549	10,777	40	78	3	22	42
1893	200	37	1,627	11,677	39	77	2	14	28
1894	346	16	1,507	11,306	41	78	4	26	49
1895	267	18	1,614	11,368	40	78	3	18	36
1896	61	9	1,739	11,297	37	76	1	5	11
1897	0	-	1,727	-	35	-	-	-	-

Source: R.B. II, pp. 130-133.

n.a. - not available

This table illustrates the slithery ground on which one walks in trying to interpret times past. Take the year 1887 as an example. A few bills (1 out of 20) are discounted at the preferential rate; but they are relatively large (5 or 6 times the average) and they are longer (almost 2 times the average) so that bills discounted at the preferential rate comprise over half the average portfolio. Such considerations also account for the fact that inauguration and elimination of the preferential rate had only slight effects on the relation between local and consignment bills and on the average size or maturity of bills.

of the total earning assets of the bank. The securities and commodities eligible as collateral as well as maximum loan values were specified in the law. The Reichsbank itself at times imposed more stringent conditions. The value of the collateral had to be maintained at the specified levels throughout the loan.

The law permitted the Reichsbank to lend on collateral for periods up to three months; but, except for a short time beginning in 1880 when it made some fixed maturity loans at preferential rates, all loans were callable either by the Bank or the borrower. Interest was payable only for the period that the loan was outstanding, except under the special circumstances discussed in Section III-C-1. Although the character of the borrower was not ignored, the basic condition of loans was the value of the collateral. The Reichsbank stated that "in lombard operations, as with bill purchases, the rate of interest has been the most important means used by the Bank to regulate its portfolio. In this way it was always possible for the Bank to extend a loan on every application supported by eligible collateral. It was never obliged in collateral loan operations to introduce more or less capricious restrictions which impose a hardship on the borrower...."⁽¹⁾

(1)

R.B. I, p. 106; see also R. Koch, in N.M.C., Renewal of Reichsbank Charter, p. 222.

The management approved the legal provision that lombard loans should not be used as collateral for notes. Since such loans were not "self-liquidating," the management stated the risk of loss was too great. Actually its losses on collateral loans were less than on bills. In part, this was because the collateral loan value of securities and commodities was only a fraction of their market value, whereas bills were bought at discounted value. The management never integrated its collateral loan experience with its theory of note cover. Instead it cited its favorable experience as evidence that it operated conservatively in a business that was inherently suspect for a central bank.

II. D. Availability of Credit

The discount and loan procedures have been described to form a basis for judgment as to availability of credit at the Reichsbank. On balance, I am strongly of the opinion that credit was always available on specified terms and that the Reichsbank did not modify its rules or interpretations as a deliberate means of exerting or releasing pressure on the money market. Operating procedures, including rules governing eligibility and acceptability of bills for discounting and of collateral for loans were formalized and generally known. (1)

(1) As an illustration, in 1912, C. Letzel brought out the eleventh edition of R. Telshow's, Der gesamte Geschäftsverkehr mit der Reichsbank: Ein Handbuch für das Publikum mit Benutzung amtlichen Materials. A translation of the rules in effect at the time is given in N.M.C., German Imperial Banking Laws, edited by R. Koch, pp. 135-218.

Some evidence could be cited on the other side, but it is not convincing. For example, the Bank stated that "it had to acquire from direct observation an adequate and continuous insight into credit demand and credit supply" and that it could do so only by securing a large portion of the outstanding domestic bills. (2) It might seem

(2) R.B. I, p. 79

that a purpose of this insight might be to refuse "improper" demands. Actually, however, it appears to have been to distinguish among demands as a means of determining how to proceed with the rate. (3)

(3) R.B. I, p. 126, where distinctions are drawn between gold demanded for export and for internal circulation and between demands based on overspeculation and overproduction and those arising from normal payment habits. See also K. von Lumm, "Diskontpolitik," pp. 132-135, and the quotations on p. 30, as follows.

A number of writers of the time mentioned glibly the virtues and even the necessity of having a central bank observe many bills directly in order to understand real developments in the money market. I must confess that the more I mull over this approach the more weaknesses I find in it and the less reliable it would appear to have been.

First of all, top management certainly did not observe all the bills. Even had they been disposed to do so -- and we have no evidence that they were so disposed -- the mere number and location of the bills would have cooled their ardor. Second, although we have evidence that the head office did not always know what the branches were doing in the way of discounting, I have found no evidence that the management had established an adequate system of classifying and reporting the characteristics of discounts on a continuing basis. Nor was a representative sample constructed; and there would be reason to doubt that the bills discounted at the Reichsbank were a representative sample of all bills. Third, even if the management had had an adequate system of continuous reporting, it is not easy to see exactly how it could interpret objectively the summaries and analyses in terms of rate policy. An expansion in all industries would have been reflected in the totals of bills drawn which would, in turn, have been reflected in tax receipts on bills and possibly in total discounts at the Reichsbank. At any rate, it could have been ascertained without ever seeing any bills. Expansion in some industries and contraction in others might indeed have been reflected in detailed analyses. But how should such relative changes be interpreted in terms of the rate?

Fourth, in the light of these considerations, it appears improbable that the management had any systematic procedure for actually observing bills or even changes in broad categories. It seems much more likely that the management itself formed an impression on the basis of reports from members of its central committee -- some of whose members were well informed on the market

generally but none of whom had as much knowledge of bills actually discounted at the Reichsbank as the discounting officials and clerks of the Reichsbank itself -- and from impressions of its own staff who, probably at one or more removes, had actually seen the discounts because they had completed transactions with customers. In summary, when I try to think what a member of management should do about the rate as a result of what he might learn from this approach, I conclude that, though he might have become informed on many facts, he would find the whole collection of details inadequate to form a rational opinion on the rate.

Another bit of tentative evidence that the Reichsbank might have adjusted the administration of the discounting mechanism as a method of control is that the Preussische Bank had rationed credit -- for example, in July 1853, January 1856, and even as late as 1872.⁽¹⁾ Since von Dechend, who was presi-

(1) Albrecht Sommer, Die Reichsbank unter Hermann von Dechend (1865-1890), Berlin, 1931, pp. 128, 134.

dent at the time, continued as the first president of the Reichsbank, it might be supposed that the practice would have been continued. Actually, however, the new rules adopted by the Reichsbank in keeping with the law excluded paper of the kind discriminated against by the Preussische Bank in 1872.

With the rapid industrial development and the emphasis of the management on profits, managers of branches became rather lax in applying eligibility rules. In December 1906 -- that is when consideration was being given to increasing the rate from 6 to 7 per cent -- the managers of the branches were reminded of their obligation to examine the business origin of all bills tendered for discount. They were directed to be cautious about bills which might be supposed to have been drawn to provide permanent working

capital or merely to "acquire money."⁽¹⁾ Renewals were to be limited to a

(1) R.B. III, p. 25. See also Die Bank, 1908, pp. 619, 923, 1058. The branch managers did not necessarily treat all customers alike. Those who did not insist on being paid in gold but accepted notes or silver and those who discounted regularly at the Reichsbank rather than shop around for lower rates were given preferential treatment. Die Bank, 1909, p. 288.

single extension for agricultural bills only. The warning was repeated in June 1908, after Havenstein became president, and the branch managers were emphatically directed to rid their portfolios of ineligible bills. These moves by the Reichsbank were an attempt to make operations at the branches conform to established principles. They did not reflect a change in those principles and did not inaugurate a move in the direction of changing acceptability standards from time to time depending on economic developments. The primary interest of the Reichsbank in taking these steps was in the quality or character of its portfolio rather than in the total amount.

When Ernst Fischer asked what policy the Reichsbank would follow with respect to discounts, President Havenstein requested him "to quiet the doubts of those who are afraid that the Reichsbank intends, as a matter of principle, to restrict its credit business in the next ten years, and to say to them that what the Reichsbank has in view is only a securing of its solvency; that therefore it desires to have only such bills as it may use as legal security for its notes, but that it has no desire to bring about in any way a systematic limitation of the business of dealing in credit."⁽²⁾

(2) N.M.C., German Bank Inquiry, Vol. I, p. 1024. G. v. Schulze-Gaevernitz, Op.cit., pp. 69-70. "The Reichsbank is not indeed required by law to rediscount; but the business world has confidence that it will never decline good bills."

At the German Bankers Convention which met in Munich in September 1912, von Schwabach of Bleichröders cited letters from managers of large industrial

companies to the effect that branches of the Reichsbank required them to discount some long bills in order to secure currency for wage payments.⁽¹⁾

(1) Verhandlungen des IV. Allgemeinen Deutschen Bankiertages zu München am 17. und 18. September 1912, Berlin, 1912, pp. 87-88. The reason given was that the branch needed reimbursement for its trouble. In one instance, some 90-day bills were required; in another instance some 45-day bills. In some instances the industrial customer had to buy appropriate bills from a friendly bank. A branch did not feel that a minimum clearing balance was adequate compensation

Helfferich of the Deutsche Bank gave a similar report and said some branches required the discount of bills "which the customer often does not discount happily and which the President and Board of Directors in Berlin do not wish."⁽²⁾

(2) Ibid, p. 79; see also pp. 77-78. The quantitative effect of the new discounting policy is impossible to estimate. Helfferich inferred it was a reduction in total discounts. Another contemporary observer estimated the reduction at M150 to M200 million. Die Bank, 1911, p. 529. The official Memorial Volume, published in 1925, was probably in error when it gave the impression that there was no quantitative effect by commenting: "The measure had the desired effect; the place of finance bills was taken for the most part by solid commodity bills." R.B. III, p. 26. Arthur Feiler, editor of the Frankfurter Zeitung, said that managers of many provincial branches attracted discounts artificially. Die Probleme der Bankenquete, Jena. 1908, p. 30.

A final consideration is the periodic complaints, especially from agriculture and small business, that the Reichsbank was too restrictive. These complaints, however, were directed against the law and the rules rather than against variations in conditions for granting credit. It should be remembered that the management of the Reichsbank believed the "real bills" doctrine. In its replies to charges of discrimination, it defended its eligibility rules; it did not allege that eligible discounts of other origins were ever turned down.⁽³⁾

(3) S.B., 1889-1890, Vol. I, pp. 203-204 and 600, von Dechend.

It is likely that in periods of expansion, at least some customers touched the ceilings of their lines of credit at the Reichsbank; but I find no evidence of complaint on this score and do not conclude that it was a significantly restrictive factor.

There were also complaints that the Reichsbank was too generous in granting credit, especially at preferential rates. President von Dechend replied that the law had specifically forbidden the Bank to engage in any business other than discounting and lending on collateral. "Now I ask you," he said, "can one demand of us that we should not cultivate the single business that we are directed to do, but instead content ourselves with what other people do not wish to have?"⁽¹⁾

(1) S.B., 1881, Vol. I, p. 126. Emphasis not in the original.

On balance, it seems to me that the Reichsbank did not modify its ambition to be active in discounting by tightening its acceptability rules periodically.

Our greatest interest, of course, is in the assumptions on which customers, particularly commercial bankers, operated. Fortunately, as to this, we have positive evidence. The commercial bankers took it for granted that the Reichsbank would in fact always discount

eligible paper even though they made no secret of the fact that they devised credit-granting procedures that would create such credit.⁽¹⁾

(1) N.M.C., Interviews, pp. 406-407.

For example, Messrs. Mankiewicz and Blinzig of the Deutsche Bank told the National Monetary Commission that "the great strength of our financial system in Germany is the Reichsbank. Under that system the question of our own cash reserve is of secondary importance, as we can at all times convert our holdings of commercial paper into cash at the Reichsbank."⁽²⁾

(2) N.M.C., Interviews, pp. 373-375.

Similarly, Messrs. Schuster and Nathan of the Dresdner Bank testified "...we are practically indifferent to the percentage (of cash on hand and in the Reichsbank to deposit and acceptance liabilities) as long as we know that we have on hand a sufficient amount of prime bills...If we should have a debit in the Clearing House of more than our cash in the Reichsbank, we would immediately send over bills with our endorsements and establish a credit sufficient to pay the amount of our debit."⁽³⁾

(3) N.M.C., Interviews, pp. 395-396. They also said they regarded their "bills discounted" as a practical reserve - "it is immediately convertible into cash at the Reichsbank."

Max Schinkel, testifying before the German Bank Inquiry in 1908, contrasted the discount procedures of the Bank of England with those of the Reichsbank, and concluded "if the quality of the bill satisfies the Reichsbank, it takes any amount that is sent to it, at

the official rate."⁽¹⁾

(1) N.M.C., German Bank Inquiry, Vol. I, pp. 377-378. This is also the judgment of Arthur Feiler, op. cit., pp. 11-12.

The contrast between these statements and those of J. W. Gilbert, an English banker, with respect to the Bank of England after the crisis of 1847, is illuminating. Gilbert said: "It will not be safe for practical bankers to calculate with too much confidence upon the suspension of the Act (of 1844). They should make their arrangements on the supposition that it will not be suspended." He also said: "Banks should not only avoid depending on the Bank of England, or on bill brokers; they should also avoid depending on other banks."⁽²⁾

(2) J. W. Gilbert, A Practical Treatise on Banking, New York, 1851, pp. 76, 79-80.

A practicing banker would not operate on the assumption that a source of funds was absolutely reliable if he had known an occasion when it had failed or had been contingent on meeting conditions unspecified in advance. The confidence of German bankers undoubtedly was based primarily on experience with the Reichsbank. It was reenforced by the Reichsbank's published acknowledgment of its responsibilities as lender of last resort. Thus, when Vice President von Glasenapp and Director von Lumm were asked what would happen if the Reichsbank's cash reserve were to fall below the statutory minimum of one-third of its note issue, they replied, "We should have to go on discounting bills. We would simply have to do it. We could not stop it. If we did, it

would bring about the greatest panic we ever experienced."⁽¹⁾

(1) N.M.C., Interviews, p. 356. In its memorial volume the Bank, discussing methods of control over its earning assets, said: "Since the bank cannot without great harm capriciously decline applications for credit that meet the requirements of the law, it is expected to regulate the demand for credit indirectly by determining the rate at which it stands ready to grant credit." R.B. I, p. 125. See also Karl von Lumm, Die Stellung der Notenbanken in der heutigen Volkswirtschaft, Berlin, 1909, pp. 19-20.

III. Rate Policy and the Cost of Credit

From its foundation to the First World War, the Reichsbank relied primarily on its rate of rediscount to achieve its monetary objectives.⁽¹⁾ In 1901 it expressed its judgment with respect to the

(1) The following brief excerpts from statements on the rate by top officials during the whole period are illustrative: Von Dechend, President 1876-1890, "One can secure respect for his currency only if he is not embarrassed really to increase the rate of discount until people see that one knows how to protect his metallic reserve." S.B., 1881, Vol. I, p. 122. Koch, President 1890-1908, "...An increase in the rate is in fact the only effective means available to defend the gold reserve." S.B., 1898-1900, Vol. III, p. 2017. Havenstein, President 1908-1923, "Bank rate...is the only effective means to protect the gold holdings of a country." It should be mentioned that Havenstein believed that the central bank would have to follow the market rate and could influence it only within narrow limits. S.B., 1907-1909, Vol. III, p. 2413; Vol. IX, p. 7072. Von Glasenapp, Vice President, and von Lumm, Director, "We increased the rate of discount. We consider that this measure is the only effective one." N.M.C., Interviews, 1910, p. 357.

rate in these words: "The rate of interest is the only effective instrument for regulating the domestic demand for money. It is not indeed the only instrument to influence the movement of metallic money between home and foreign countries; but as all authorities acknowledge, it is by all odds the most important and effective instrument."⁽²⁾ It

(2) R.B. I, p. 125.

described the operation of the rate in these words: "A high rate of interest limits the applications for credit and operates on the one hand against an excess of expansion of notes and on the other against an excessive reduction in the reserves of the Bank....At the same time, a higher rate offers a very favorable investment opportunity to international funds and is appropriate to draw gold from foreign countries

or to prevent an export of gold to foreign countries."⁽¹⁾

(1) R.B. I, p. 125.

The reserve ratio and market rates were the most important guides to policy. The Bank did not, however, follow any formula. The general level of reserves for example, was permitted to decline significantly during the presidency of Richard Koch. The need for judgment was expressed in these words: "In determining the discount policy of a central bank, account must be taken not only of the size but also of the character of the monetary demands made of it. An export of gold requires sharper countermeasures than a temporary withdrawal of gold into domestic circulation. A monetary demand based on overspeculation and overproduction requires sharper restrictions than a periodic increase in monetary demand at the turn of the quarter or year which is grounded in the whole structure of the normal process of payments. These differences cannot be expressed in numbers and therefore discount policy cannot be regulated according to a purely mechanical principle."⁽²⁾

(2) R.B. I, p. 126.

Although the management of the Bank probably would have subscribed to this statement of principles throughout the period under discussion, economic and monetary developments varied considerably. It is convenient, therefore, to divide the entire period into intervals based on the character of problems that confronted the management. The period immediately following the establishment of the Bank was marked by large total reserves of which, however, only a small part was in the form of gold. As a result, the rate was changed frequently and

CHART II A

REICHSBANK RATE AND RELATED FACTORS

1876-1885

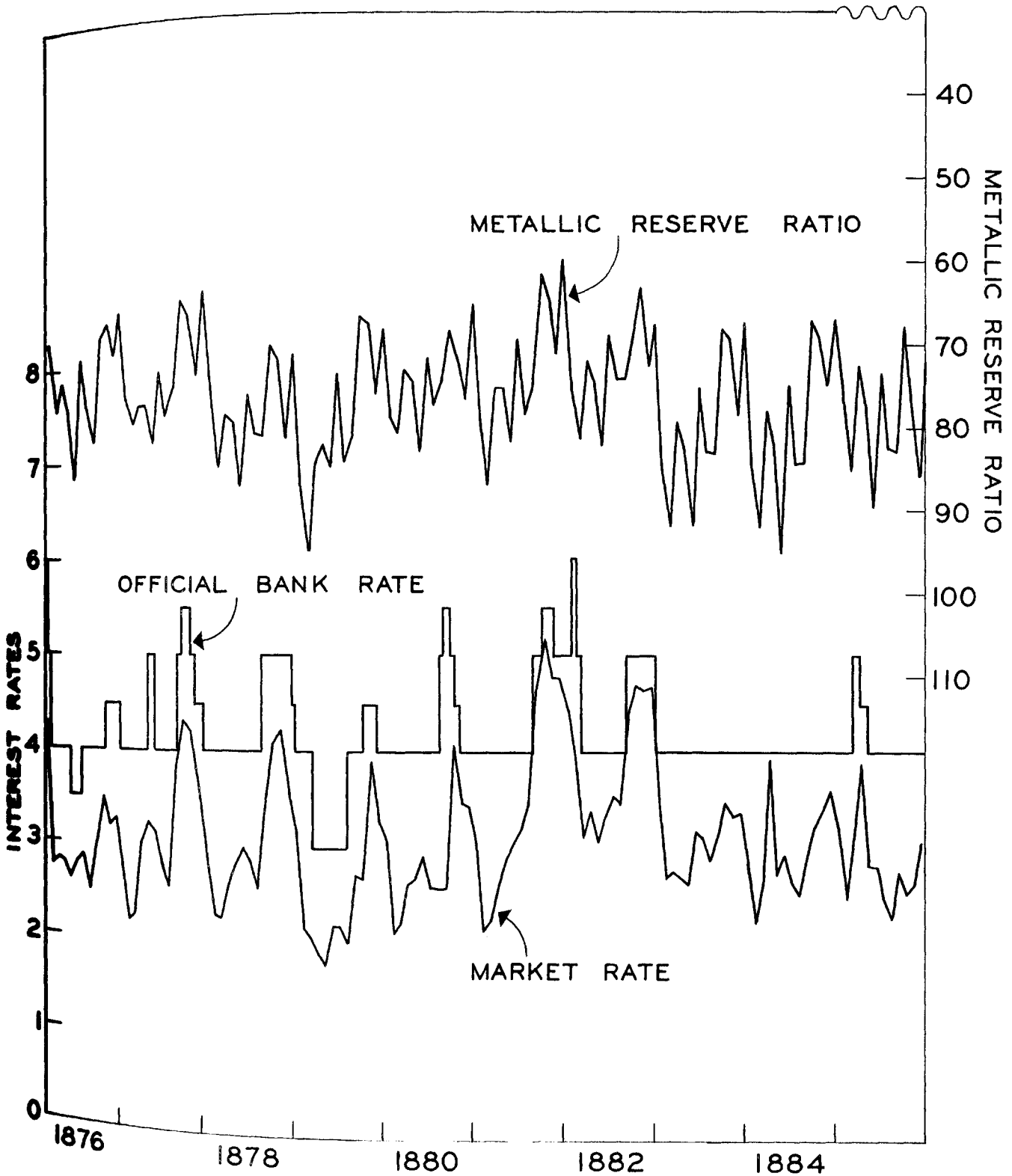


CHART II B
REICHSBANK RATE AND RELATED FACTORS
1886-1895

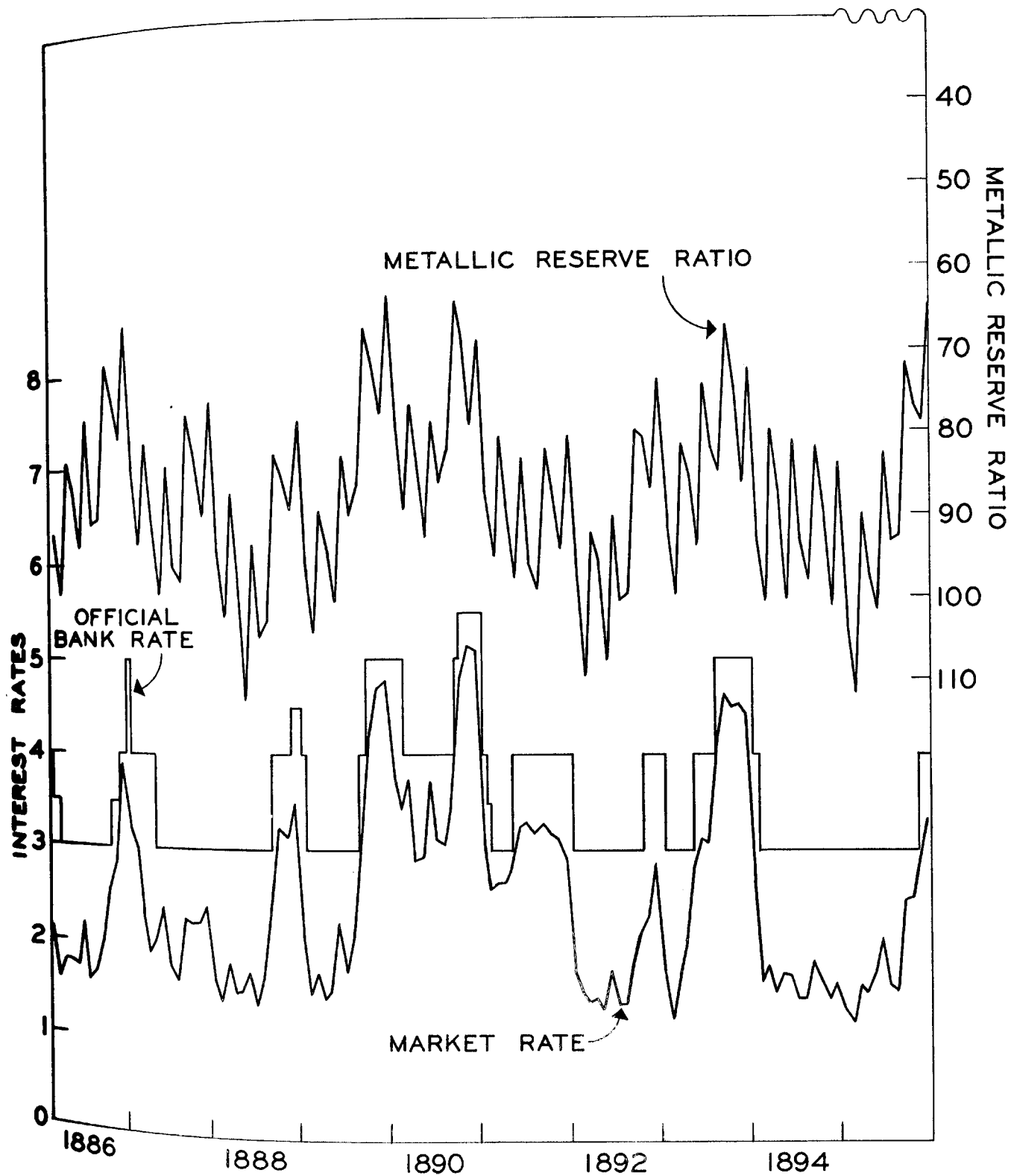


CHART II C
REICHSBANK RATE AND RELATED FACTORS
1896-1905

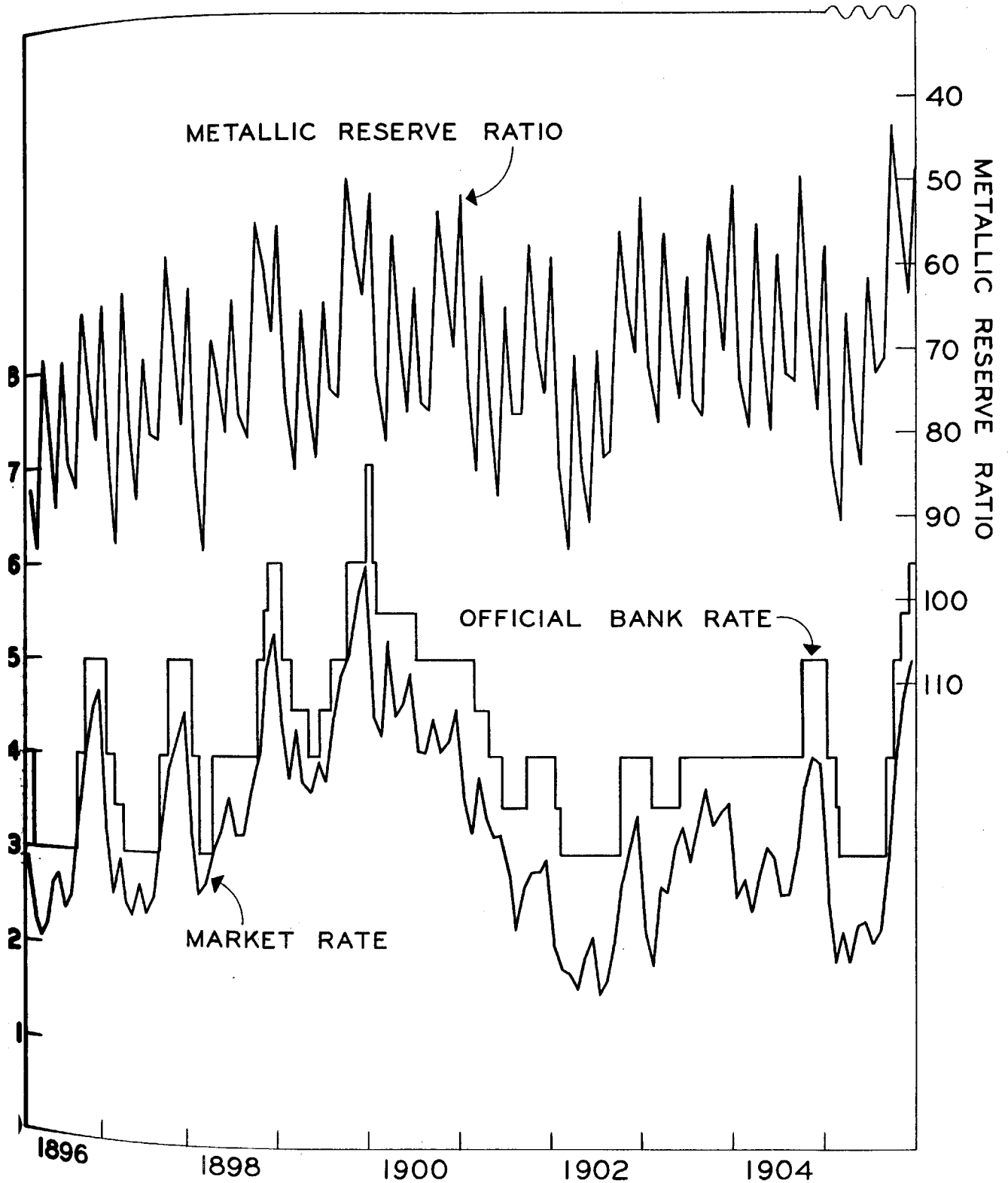
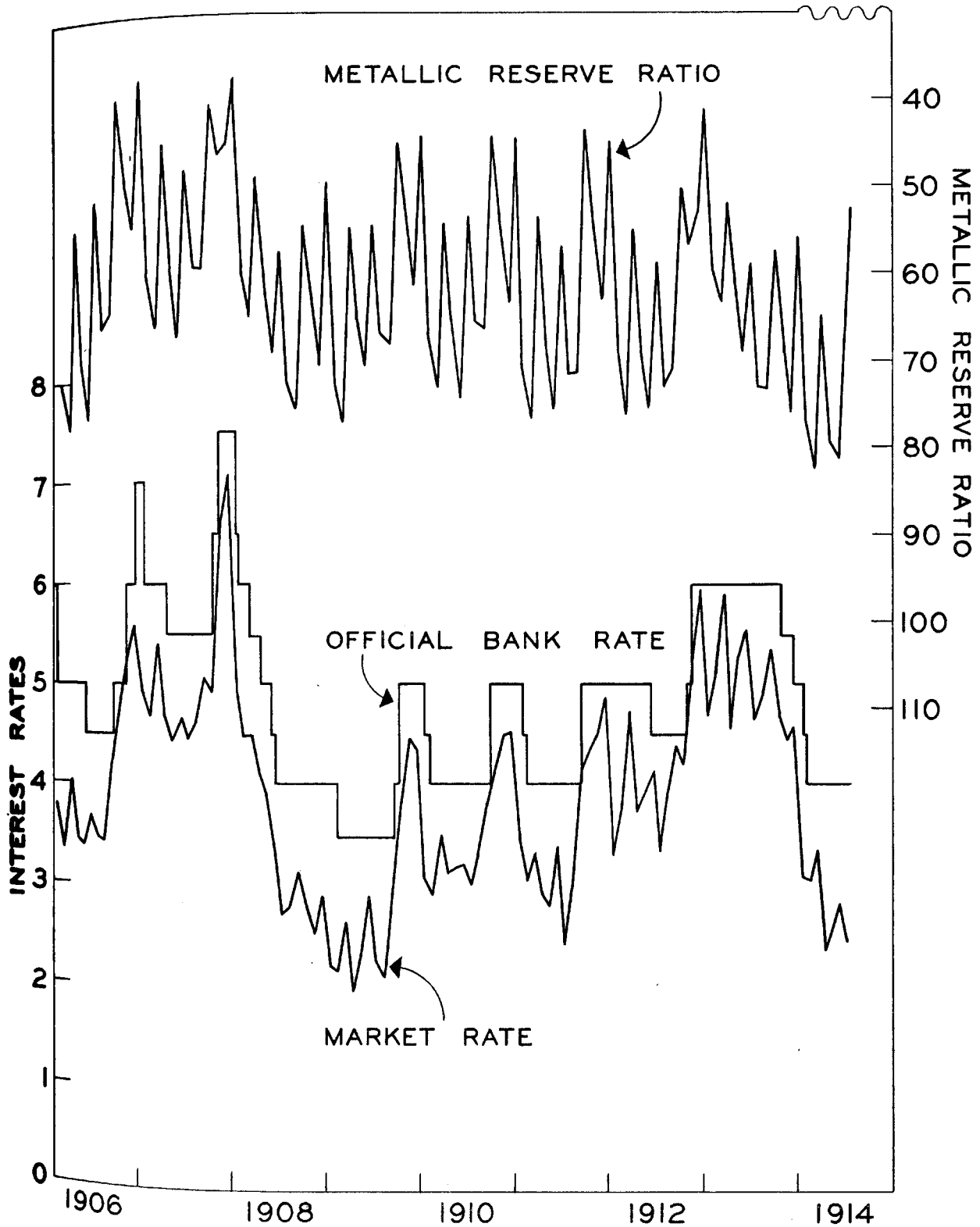


CHART II D

REICHSBANK RATE AND RELATED FACTORS

1906-1914



suddenly during this period in response not only to total reserves but also to the composition of reserves.

The second period began early in the 1880's and lasted until the middle 1890's. During this period the German economy was developing rather slowly and the Reichsbank was seeking ways to invest its funds. Only once was the rate increased beyond 5 per cent; the most common official rate was 3 per cent; and the Bank discounted extensively at preferential rates as low as 2 per cent.

After the middle 1890's the German economy entered a period of unprecedented expansion. A rate as low as 3 per cent became uncommon and rates beyond 5 per cent were frequent. The Reichsbank did not, however, increase its rate sufficiently to maintain its reserve ratio, which reflected progressive deterioration.

The last interval was ushered in by the crisis of 1907 which led to a parliamentary inquiry and extensive discussions of Reichsbank policy, including methods of reinforcing discount policy.

III. A. Aftermath of Monetary Reform

Otto Michaëlis, a leading author -- with Ludwig Bamberger -- of the German Bank Act of March 14, 1875, felt that the English principle of limiting the fiduciary issue was sound, but that Peel's Act was too rigid and provoked or aggravated panics when the fixed limit was approached. He tried to develop the principle into a semi-automatic rule for regulating bank rate. He proposed that each bank of issue be required to pay a tax at the rate of 5 per cent per year on its fiduciary issue in excess of a quantum established for each such bank in the Act.⁽¹⁾ The purpose of

(1)

His original proposal was more complicated. For example, it included a provision for a 1 per cent tax on the entire fiduciary issue as a revenue-raising measure; but this and a number of other complications that were not adopted are of less immediate interest.

this provision was described in the Motiven advanced in support of the legislation in the following terms:

"The higher tax induces banks to counter a rising demand of the money market with rising prices, as is the natural rule on all other markets; it enables them - through the higher discount rate, which pays the tax - to meet the extraordinary demand which occasioned the rise; it operates through the increase of discount rates to attract capital and to moderate the speculative spirit; finally it gives the banks an interest to contract their issues within their normal limits as soon as the extraordinary demand is past. By inducing banks to timely increases in discount rates, the tax will tend to moderate fluctuations in discount rates and without any disturbing interference will counteract the dangerous tendency of trade to retain the expanded issue of uncovered notes in circulation." (1)

(1) S.B., 1875, Vol. III, p. 655. By "higher tax," Michaëlis meant the 5% tax which he was contrasting with the 1% tax mentioned in the preceding footnote. The emphasis on the word "timely" appears in the original. In the same paragraph of the report emphasis is also placed on the effect of the tax in gradually increasing pressure on the entire uncovered note issue. The second independent clause is ambiguous: authority to issue additional notes -- not payment of a tax for the privilege -- would enable the banks to expand. It would be consistent with the general line of thought to interpret this clause as follows: "Authority to issue taxable notes enables the banks to meet the extraordinary demand without loss -- because of the high discount rate, but also without much profit -- because of the tax."

The semi-automatic rule got off to a bad start. It is not clear that the management of the Reichsbank accepted the logic on which it was based; (2) but even if they had, the transition of Germany from

(2) H. von Dechend, the prospective president, had not been asked to testify. In 1890, vice president - later president - R. Koch described the principle as "important, but of doubtful value." See his Die Reichsgesetzgebung über Münz- und Bankwesen, Berlin, 1890, p. 61, note 22. Director von Lumm said the Bank had never been influenced in its discount policy by the provision. See his "Diskontpolitik", p. 135. Ludwig Bamberger, secretary and influential member of the Reichstag Commission on the Bank Act, opposed the idea. He favored giving the management of the Reichsbank complete discretion. See his letter to Karl Helfferich, reproduced in part in the latter's introduction to Bamberger's Geld- und Bankwesen, pp. 73-74.

a silver to a gold coin standard created difficulties.⁽¹⁾ This transi-

⁽¹⁾ Incidentally, the president of the Reichsbank had favored bi-metallism. He did not believe that silver could be demonetized permanently. See Albrecht Sommer, Op. cit., pp. 100-125.

tion was facilitated and indeed made possible by the French indemnity, but it was far from complete when the Reichsbank opened. The method adopted by the Reichsbank was to sell silver, received from circulation, on the London bullion market, and to use the proceeds for the purchase of gold to be minted and paid into circulation. But there was a hitch in the process. There was no fixed price for silver and the amount that could be sold without disrupting the market was far less than the Reichsbank was acquiring. As a consequence, silver replaced gold to a considerable degree in the metallic reserves of the Reichsbank.⁽²⁾ On

⁽²⁾ R.B. I, p. 141

Metallic Reserves of the Reichsbank (Million marks)						
	Amount on hand Jan. 1, 1876		Purchased 1876-1878	Sold 1876-1878	Amount on hand Dec. 31, 1878	
		% of Total				% of Total
Gold	346	78	320	447	180	38
Silver	100	22			292	62
Total	446	100			472	100

In other words, net, the Reichsbank received M639 million of silver from circulation and paid M486 million of gold into circulation.

The ratio of reserves to notes in the first decade is given in the following table taken from R.B. I, p. 304.

Ratio of Reserves to Notes, 1876-1885										
Year	G O L D					M E T A L L I C				
	Average %	Highest		Lowest		Average %	Highest		Lowest	
		Date	%	Date	%		Date	%	Date	%
1876	41.9	2/29	54.4	12/31	27.5	74.55	6/7	86.4	1/7	62.4
1877	31.4	2/15	35.9	12/31	25.0	75.27	3/23	83.3	12/31	63.2
1878	33.3	3/23	41.0	1/7	25.7	79.35	6/7	88.2	1/7	64.9
1879	32.9	3/23	44.3	10/7	22.5	80.0	3/23	96.3	10/7	65.6
1880	30.7	6/7	36.3	12/31	23.8	76.47	6/7	84.9	12/31	64.8
1881	27.9	2/23	36.3	10/7	18.7	75.26	2/23	88.4	12/31	59.9
1882	28.0	3/23	33.2	10/7	20.9	73.49	3/23	84.8	9/30	61.0
1883	38.3	3/15	45.9	10/7	29.1	81.64	3/15	93.8	12/31	67.3
1884	38.3	2/23	46.2	12/31	26.2	80.74	3/7	92.8	12/31	60.6
1885	38.1	12/15	47.7	1/7	27.3	80.57	6/7	91.2	1/7	63.1

May 18, 1879, the Chancellor suspended sales of silver and compulsory withdrawal from circulation of the remaining Thaler coins. Commerce, however, continued to turn in silver.

The Reichsbank also initiated practices to facilitate the importation and to impede the exportation of gold.⁽¹⁾ It facilitated

(1)

R.B. I, p. 146.

gold imports by granting loans free of interest for 5 days, exceptionally for 8 days, on them. It also authorized some of its branches to pay premium prices for larger amounts of gold. The official price was M1,392 per pound; but the management authorized payment of M1,393 for amounts between M500,000 and M2 million, and M1,393½ for amounts over M2 million. Experience with these minor encouragements to gold imports did not confirm expectations when they were introduced; and it was

shortly recognized that they could have only temporary success.⁽¹⁾

(1) R.B. I, p. 147.

Therefore, interest free loans were granted only in special cases for amounts of a million marks or more. Premium prices were suspended in 1881.

The chief method of impeding exports was under certain circumstances to require prospective exporters of gold to secure the metal at the head office in Berlin rather than, as was usually permitted, at the branches in Hamburg or Bremen. This procedure increased costs of exporters by the charges for conveyance from Berlin to the port. The management insisted that it never refused to pay out gold in Berlin and never charged a premium. Bamberger alleged that the Bank had on occasion imposed unnecessary technical difficulties in securing gold rapidly at the head office, but this was denied by President von Dechend.⁽²⁾

(2) S.B., 1881, Vol. I, pp. 122, 125-126.

The Reichsbank was confronted with a dilemma. Its metallic reserve ratio increased, its fiduciary note issue and earning assets decreased, and the money market was easy. Except for a "slow revival" in 1877 and "recession" in early 1878, Thorp describes the entire period from 1874 into 1879 as one of "depression".⁽³⁾ These forces pointed

(3) W. L. Thorp, *Business Annals*, New York, 1926, pp. 208-209.

to a reduction in bank rate. But the declining gold reserve, especially in a country that had only recently established the gold standard, pointed to caution. These conflicting considerations explain the

relatively frequent changes in bank rate in the earlier years. When foreign exchange rates became unfavorable and the bank lost gold, it raised its rate rapidly, at times far above open market rates. When such pressures relaxed, the official rate was reduced to record low levels.⁽¹⁾

(1) The Prussian Bank had never reduced its rate below $\frac{1}{4}$ per cent. The Reichsbank reduced its rate to $3\frac{1}{2}$ per cent on May 18, 1876, and to 3 per cent on March 21, 1879.

III. B. Easy Money and Preferential Rates

President von Dechend was concerned with the accumulation of reserves in the Reichsbank. In 1889, recalling earlier days, he said, "You will remember that for many years we simply did not know what would happen to the money that was accumulating in the Bank, so slight were the opportunities for investment."⁽²⁾

(2) S.B., 1889, Vol. I, p. 591.

He was particularly disturbed that foreign banks purchased large amounts of the best bills without, of course, assuming any responsibility to make funds available in difficult times. Meanwhile, the funds of the Reichsbank continued to grow and earnings became smaller.

The core of the problem as he saw it was the independent banks of issue. The Bank Act of 1875 allowed these banks to continue, provided they met conditions that were formally similar to those imposed on the Reichsbank, including authorizations for tax free fiduciary issues of

notes. (1)

(1) A number of banks relinquished the right to issue notes immediately and others did so subsequently. As these banks relinquished their rights of issue, their contingents of tax free notes were added to that of the Reichsbank.

One of the requirements of the Bank Act was that the Reichsbank (§15) and each independent bank of issue (§44) publish its rate of discount and its rate on collateral loans. In periods of slack business and easy money - which was most of the time during the first two decades of Reichsbank history - however, these independent banks, following a full investment policy, actually bought bills at rates considerably below their published rates. As a result, they acquired bills and the Reichsbank "lost contact with the open market" and acquired "idle funds". The Reichsbank complained to the Bundesrat, but after the latter decided that the practice was admissible, the Reichsbank itself began in January 1880 to discount below its official rate in periods of easy money. (2)

(2)

President von Dechend said the independent banks based their case on paragraph 13, subparagraph 2, of the Act which authorized banks of issue to buy and sell as well as to discount bills, whereas the paragraph dealing with rates mentioned only the discount and the lombard rates. Bamberger, who participated in the discussions that resulted in the Bank Act, said that no one had thought at that time that the Bank would discount below its official rate. The purchase provision had been included to facilitate dealings in very short bills for collection. S.B., 1881, Vol. I, p. 121, von Dechend, and pp. 124-125, Bamberger.

The practice was questioned almost immediately in the Reichstag. In reply to Representative Bamberger who said the purpose of the management was to secure earnings, President von Dechend said, "I can assure you that at no time and under no circumstances has the management of the

Bank taken an action for the purpose of paying the highest possible dividends...But, gentlemen, I cannot be completely indifferent as to whether funds of the Bank are employed or lie sterile in its vaults... As I see it, the Reichsbank should not look for business but neither should it decline a proper opportunity to invest its idle funds in safe, bankable paper."⁽¹⁾

(1) S.B., 1880, Vol. I, p. 135.

The preferential rate was discussed in the Reichstag again on March 3, 1881.⁽²⁾ Attention was focused particularly on the events

(2) S.B., 1881, Vol. I, pp. 118-130.

in August and September of 1880. Between June 28 and August 3, the preferential rate had been reduced in four steps from $3\frac{1}{2}$ per cent to $2\frac{1}{2}$ per cent. Then, in two weeks, it was increased in three steps to $4\frac{1}{2}$ per cent before preferential purchases were discontinued on September 3. The official rate was also increased from 4 to 5 per cent on August 18 and to $5\frac{1}{2}$ per cent on September 4.

Representatives Sonnemann and Bamberger said it would not have been necessary to increase the official rate so much if the Bank had not previously reduced the preferential rate so low in its zeal to acquire bills. President von Dechend replied that a rumor was being circulated in August that the future of the mark was in danger. He said, "One can secure respect for his currency only if he is not embarrassed really to increase the rate of discount until people see that one knows how to protect his metallic reserve."⁽³⁾

(3) Ibid, p. 122.

He said this principle had been proved in 1866 when, by increasing the rate 2 per cent in one day, the Prussian Bank had dissipated fears as to the currency resulting from the outbreak of war. He said that exchange rates had improved immediately. The same results were achieved with the dramatic increase in rates in August and September of 1880. Within a few weeks the rate could again be reduced.

The Reichsbank was annoyed that independent banks of issue competed through issuance of their own notes to the tax free limit in periods of easy money and then rediscounted at the Reichsbank - rather than issue additional notes, which would have been taxed - when conditions tightened. Incidentally, the Reichsbank Commission which reported on the initial draft of the Bank Act of 1875 anticipated that the independent banks of issue, operating for profit, would probably not be constrained by the tax on excess issues but that the Reichsbank, because of its unique public character and responsibility, would not lose sight of the principle on which the tax was based and would strive earnestly to remain within the tax free limit.⁽¹⁾

(1)

S.B., 1875, Vol. 4, p. 1154.

The Commission was correct in assigning different motives to the Reichsbank and the independent banks of issue, but the results were the reverse of those forecast. The independent banks generally followed the reverse of those forecast. The independent banks generally followed a full investment policy. Instead of using their own taxable notes, however, they found it more profitable to rediscount bills at the Reichsbank. The latter, placing its social objectives above profits, increased its rate to 5 per cent and even beyond at times when there was no prospect of exceeding the limit; and despite the tax, frequently maintained a rate below 5 per cent when its circulation exceeded the

limit. Its management, however, felt a sense of guilt when the limit was exceeded frequently and by large amounts.

The full investment policy of the independent banks meant, of course, that the Reichsbank had to bear the full impact of variations in the volume of notes.⁽¹⁾

(1)
R.B. I, p. 132.

The Reichsbank did not see that their full investment policy negated the power of the independent banks to expand or contract against the wishes of the Reichsbank and thus promoted rather than hindered its ability "to regulate the monetary circulation of the whole Empire." Instead, it said that the competition of the independent banks provided the market with cheaper money than the Reichsbank felt was justified. But the reaction of the Reichsbank was to join in making even more cheap money available.⁽²⁾

(2)
Bamberger pointed this out in the Reichstag. S.B., 1881, Vol. I, p. 124.

Perhaps it confused the issue of control with another on which it had ground for complaint. In effect, the law subsidized the independent banks with an interest free loan in the amount of the tax free fiduciary issue, but this was a question of earnings or equity rather than of monetary control.

Much later the Reichsbank explained the introduction of the preferential rate in these terms "Only when its (the central bank's) discounts are large even in times of easy money can we be sure, in case of a threatened drainage of gold or under other circumstances which make an increase in interest rates desirable, that it will be able to

achieve promptly the desired effect on market rates.⁽¹⁾ This reasoning,

⁽¹⁾ R.B. I, p. 82. Director von Lumm was sharply critical of preferential rates in his articles of 1912. See "Diskontpolitik", pp. 146-147.

of course, is as applicable to the official rate as to a preferential rate.

There were additional reasons for establishing the preferential rate. One was a desire to acquire prime bills without being flooded with other bills. Another was a desire to maintain a relatively stable official rate.⁽²⁾ Stability of official rates was one of the

⁽²⁾ K. von Lumm, "Diskontpolitik", p. 146.

criteria frequently employed in judging the quality of central bank managements. The criterion was not applied to preferential rates which were adjusted frequently to changing conditions in the money market.

Eventually the Reichsbank secured an agreement from the independent banks that they would not discount below their official rates when the Reichsbank indicated that it anticipated a loss of gold. This development was recognized in the law of June 7, 1899, which authorized the Reichsbank to discount at preferential rates when the official rate was not over 4 per cent and tied the discount rates of the independent banks of issue loosely to Reichsbank rates. By this time, however, the long period of relatively easy money was over so that the Reichsbank did not in fact continue a preferential rate after the privilege was

specifically granted by law. (1)

(1) The move to tie the discount rates of the independent banks of issue to that of the Reichsbank was opposed vigorously by decentralizers and agricultural interests. See Martin Goldberg, Geschichte der deutschen Bank- und Münzgesetzgebung seit der ersten Erneuerung des Reichsbankprivilegs, Gera, 1913, pp. 83-92. As a result of the amendment, three banks relinquished their right of issue. Of the four remaining independent banks of issue, three apparently were able to escape the intention through a loophole in the law. The law did not bind lombard rates and these banks loaned on the collateral of bills at lower rates rather than discount at the rate bound to the Reichsbank rate. Nevertheless, their business did not keep pace with that of the Reichsbank or of commercial banks. See Ibid, pp. 109-112. See also K. von Lumm, "Diskontpolitik", p. 187.

In March 1884, the Reichsbank also established a preferential lombard rate on Reich and State securities. In part the purpose was to facilitate investment in such securities and in part to secure earning assets. But the money market was easy and no rush to borrow ensued. In the developing prosperity of 1889 and 1890, however, and again after 1895, the volume of collateral security loans increased rapidly and total lombard loans even exceeded the established limit. The preferential rate was removed on July 1, 1897; and the volume of lombard loans declined.

III. C. Prolonged Prosperity

The general background of Reichsbank policy changed significantly in the middle 1890's. Germany began an unprecedented industrial and commercial expansion. In modern terminology, investment - including long-term foreign investment - exceeded domestic savings.

These underlying forces were reflected in many money market factors. Bank rate rose to higher levels. From 1886 to 1898 the official rate was as low as 3 per cent in all years save 1890, and the

preferential rate was frequently as low as 2 per cent. The preferential rate was abandoned in 1896, and after 1899 the official rate was reduced below 4 per cent in only three years (1902, 1905, and 1909). Furthermore, money rates were generally higher in Berlin than in London and Paris; foreign exchange rates on major money centers became unfavorable more frequently; and Germany became increasingly indebted at short term.⁽¹⁾ The expansion was financed also in part by newly created money.

(1)

See Hans Neisser, "Der internationale Geldmarkt vor und nach dem Kriege" in Weltwirtschaftliches Archiv, 1929, pp. 171* - 226*. On market rates of interest, see the seasonal chart on p. 214*. Annual averages are shown in N.M.C., Financial Diagrams, Plate 9. On central bank rates, see Plate 10. Direct comparisons between official central bank rates should be used with caution because discount procedures varied and because of lack of uniformity in the instruments to which the several rates applied. Palgrave labels his elaborate tables in Bank Rate and the Money Market, New York, 1903, "minimum" rate; but his averages are computed from official or public rates - at least for the Reichsbank for which I made sample verifications. On exchange rates, see R.B. II, pp. 210-211. On short-term indebtedness, see Enquete-Ausschuss, Die deutsche Zahlungsbilanz, Berlin, 1930, pp. 130-133.

Reichsbank notes increased more rapidly than reserves, despite rapid development in the use of checks (giro); the reserve ratio decreased.

These developments led to a subtle and gradual change of emphasis by the management of the Reichsbank in its discussions of what it considered its basic problems. During the period of easy money, the Reichsbank had large reserves and the major complaint was inability to secure adequate earning assets because of the competition of the independent banks of issue. It also objected that these banks assumed no responsibility for assuring convertibility; but this aspect received less emphasis. As the reserve ratio decreased, emphasis gradually shifted from earnings to convertibility. What was considered excessive competition of banks - by now, the so-called "great" commercial banks - was still deplored, but the emphasis was on their failure to contribute

adequately -- by maintaining larger reserves -- to the costs of maintaining convertibility.

Instead of these complaints, a logician might have anticipated that the general theory of the management would have led it to adopt still lower rates over the period of easy money and still higher rates after the mid-1890's. Actually it seems to me that, though the management generally believed, it did not really comprehend and therefore follow consistently the theory professed by its vocal and literary representatives. Lack of comprehension was rooted in failure to distinguish between utilization of real resources on the one hand and of monetary resources on the other. As a consequence, day-to-day decisions were influenced by empirical notions of "just price" and of political expediency. In retrospect one feels at times that expressed principles were an obscuring facade rather than a comprehensible rationalization. The Reichsbank did not reduce its official rate still more in the 1880's primarily because the management felt it had already gone as far as could reasonably be expected in this direction by reducing its rate to record low levels. It did not maintain a higher rate level after the middle 1890's, partly because it was unduly sensitive to the common criticism that its rate was already higher than those of other central banks with which it liked to be compared, but primarily because of developments in the seasonal demand for currency.

Seasonal Variations

So important were seasonal variations in monetary phenomena that a brief analysis of them is essential to understanding Reichsbank policy during this period. The problem arose out of the payment habits of the German people. Before the First World War it had been customary to pay rents, social insurance premiums, fees for professional services, tuition, interest on mortgages, salaries, and even some wages on a quarterly basis and in cash. In the fall and winter additional cash

was needed to finance the harvest, the Christmas season, and the practice of banks to increase their cash holdings in anticipation of the publication of their year-end balance sheets. ⁽¹⁾

(1) See my, "Der Geldumlauf in Deutschland" in Bankwissenschaft, Berlin, 1933, Vol. 10, pp. 257-264.

Given these habits, seasonal variations in interest rates, cash in circulation, or both were bound to occur. The advantage of an elastic currency to meet temporary needs was widely discussed and clearly understood. ⁽²⁾ What is more important, the management of the

(2) See, for example, J. Landmann, System der Diskontpolitik, Kiel and Leipzig, 1900, pp. 126-130; K. Helfferich, Studien über Geld-und Bankwesen, Berlin, 1900, pp. 165-167, 213-218; F. Bendixen, Geld und Kapital, Jena, 1922, pp. 146-149, 158-162, 166-182; J. Plenge, Diskontpolitik, pp. 166-172, 379-380.

Reichsbank was aware that, to cite its own words, "There can be no doubt that no limitation of note issue could prevent the Reichsbank from satisfying the fluctuations of money demand, rooted as these fluctuations are in our economic life."⁽³⁾

(3) R.B. I, p. 218.

Nevertheless, it is clear that the Reichsbank, especially for the period 1886 to 1912, responded to these seasonal variations by increasing its rate in the fall and decreasing it after the turn of the year. During this period, the Reichsbank decreased its rate 51 times and increased it 45 times. Of the decreases, only 1 was in the second half of the year (from $5\frac{1}{2}$ to 5 per cent in July 1900); of the increases only 5 were in the first half of the year (from 3 to 4 per cent in May 1891, May 1893, and April 1898; from 4 to $4\frac{1}{2}$ per cent in June 1899; and from $3\frac{1}{2}$ to 4 per cent in June 1903). Of the 51 decreases, 19 were in

January and 19 in February; of the 45 increases, 11 were in September, 15 in October, and 7 in November. There were only 4 years without a reduction in either January or February, and only 8 years without an increase in either September or October.⁽¹⁾ In 1911 the Reichsbank published an analysis of

(1) The seasonal ebb and flow of pressure was at times even greater than that revealed by these data. Discounting at the private rate, for example, was made more expensive or even suspended at times when seasonal demands for currency were heavy.

the causes that induced it to increase its rate. Of the 42 increases from 1886 to 1910, only 4 were attributed to loss of gold or unfavorable exchanges, 25 to increased domestic demand for money and 13 to a combination.⁽²⁾

(2) R.B. II, p. 222. See also details on pp. 214-221.

The corresponding figures for the period 1876-1885 were 9 because of external factors, 3 because of internal factors, and 4 because of a combination.

The enthusiasm aroused when one first sees these tables is dissipated by study of the role of the Reichsbank. Initially one feels that he is being taken behind the scenes to observe the actual determination of policy. After comparing the detailed table with other information, one concludes that it is merely a tabulation of some of the easily ascertainable objective facts that were relevant. It does not include all of these.⁽³⁾

(3) For example, Havenstein, S.B., 1908, Vol. 229, pp. 2413-2415, said that an important reason for not reducing the rate in 1908 was that the volume of new bills drawn was so large, but that magnitude is not given in the table.

The tables are not without value, however. The summary table, for example, relates only to increases in the rate. This helps confirm a

judgment reached on the basis of other information that the Reichsbank felt called upon to justify increases but not decreases in its rate. One is tempted to fall into the trap that caught the management of the Bank in drawing conclusions from the tables. One such conclusion is that domestic developments gradually became more important and international developments less important. The basic problem of the Reichsbank after the middle 1890's, however, arose from the fact that Germany developed more rapidly than most other countries. If one has arrived at this judgment in advance, the detailed table will confirm it by showing that the Reichsbank reserve ratio declined even though its rate almost uniformly was higher than the other rates listed. If, however, one does not start with this judgment -- which comes from comparisons over long periods rather than comparisons from rate change to rate change on which the tables focus attention -- one is apt to conclude that the rising domestic demand for currency alone was the important development. The basic problem was obscured because, though the management knew much about seasonal variations, it did not comprehend their real significance -- or lack of it -- for monetary policy.

What extenuating circumstances account for such seasonal variations in bank rate despite the professed principle of elasticity? Perhaps most important was an inability to adjust to the speed with which most economic magnitudes were increasing. Growth was so rapid that almost every fall the Reichsbank seemed to be confronted with something more than a seasonal increase in currency, especially because attention was directed to the absolute amount rather than ratio to trend. Even as astute an observer as Karl Helfferich greatly underestimated the rate at which the circulation would increase in the first decade of the twentieth century. (1) At the same time, the management

(1)

In commenting on the increase in the tax-free fiduciary issue from 293.4 to 450 million, effective January 1, 1901, he judged that it would not be necessary in the ensuing decade to exceed the limit as frequently or in as large amounts as had been necessary before. K. Helfferich, *op. cit.*, p. 218. Yet by 1906 the amount and in 1907 the frequency of taxable issues established new records. Helfferich was fully aware that Michaëlis, the father of the Bank Act, had greatly underestimated the eventual expansion in circulation when the original limit was established. See *Ibid.*, pp. 154-160, 167-173.

was not insensitive to the running criticism because its rate was always above that of the Bank of France and usually above that of the Bank of England. It tried to keep its rate as low as possible and reduced it as soon as it thought it could; that was usually when currency began to return after the turn of the year.

Another factor in the autumnal rise in rates was the fear of the management that the large increase in circulation might imperil ready convertibility of notes into specie. They were particularly concerned as to the consequences if a large sudden demand were to coincide

with the seasonal peak. (1)

(1) The threat or outbreak of war was one such emergency they had in mind. See K. von Lumm, Die Stellung der Notenbanken, passim, esp. pp. 19-20, 23, 27-28; also his "Diskontpolitik", p. 187. It was estimated that the Balkan crisis resulted in $M\frac{1}{2}$ billion of gold hoarding by the public; F. Bendixen, Währungspolitik und Geldtheorie im Lichte des Weltkriegs, Munich and Leipzig, 1919, p. 7- article written in 1913. An anecdote is told that during the Morocco crisis the Kaiser asked several banking and financial authorities whether Germany could finance a war with a major power. The apparent answer was a weak, apologetic "no". The Kaiser is reputed to have replied: "When I ask you this question again, gentlemen, I expect a different answer." Die Bank, 1912, p. 286.

A related factor was the concern of the management with the legal limitations on note issue. Increases in the circulation took the form of Reichsbank notes, Treasury notes, and coin, and therefore had a dual impact on both the reserve ratio and the fiduciary issue. The management was not sympathetic with the fiduciary limit, but it was restive because it knew that frequent and large issues of taxable notes violated the spirit and intention of the law. On the other hand, it was very much concerned about the reserve ratio, even when it exceeded the legal minimum; it was particularly concerned about the gold reserve ratio concerning which there was no legal minimum as such.

There were many proposals and the Reichsbank introduced a number of new procedures to deal with the quarterly drain. To understand the changes in procedures it is necessary to recall several initial differences between the two basic means of access to the Reichsbank: discounting and borrowing on collateral or lombarding. Relevant differences were: first, that the rate on loans was $\frac{1}{2}$ to 1 per cent higher than the discount rate; second, that funds initially could be borrowed for the exact period that they were needed, whereas a bill had to be discounted to maturity; and third, that the Reichsbank

could use discounts but not lombard paper as collateral for its notes the law was based on and the management believed in the "real bills" doctrine.

Under these conditions, banks tended to discount their short bills and to borrow rather than discount longer bills to meet the quarterly drain.⁽¹⁾ To discourage borrowing, the Reichsbank changed its

(1) Of course, they also discounted long bills when they expected a rise in the discount rate. See my "Die Politik der Deutschen Reichsbank seit der Stabilisierung" in Weltwirtschaftliches Archiv, Vol. 42, 1935, p. 469, note 2.

procedure in the 1880's by charging a minimum of three days' interest on loans extended on the last four and the first business day of each month. In 1881 the minimum was increased to 5 and later to 8 days. In 1887 the minimum interest charge for borrowing that began during the quarterly drain was set at 14 days.⁽²⁾ The results did not exactly

(2) R.B. I, p. 116.

meet expectations. The banks continued to borrow; but since they needed the funds for only 3 or 4 days, they promptly reloaned them for the ensuing 6 or 7 days as call money. As a consequence, the strains at the end of the quarter were not relieved but were followed immediately by extreme ease in the money market. Apparently the practice was abandoned for a time; it was reintroduced in March 1905.⁽³⁾

(3) R.B. III, p. 26

Discussion of seasonal variations continued especially when renewal of the Reichsbank charter was under consideration. The nature of some of the proposals is reflected in one of the limited number of

questions on which witnesses were asked to testify in the Bank Inquiry of 1908:

Question V. Is it desirable to take into consideration a diminution of the demands on the Reichsbank?

- A. Through a diminution of the credit demands of business, especially at the quarterly periods? What measures might be taken to cause a spreading out of the quarterly requirements by altering the time of payments (mortgage-payments, salaries, rents) which traditionally fall due on the first day of the quarter? Would it be desirable to enhance the cost of obtaining money from the Reichsbank on collateral security, at the close of the quarter, by increasing the number of days for which interest is charged? (1)

(1)

N.M.C., German Bank Inquiry of 1908, Vol. I, Washington, 1910, p. 8 and passim.

Almost without exception the witnesses testified that limited success could be expected from efforts to change the habits of the people, and they opposed the proposal to make borrowing more expensive at quarter days.

As a result of the inquiry the system of the fiduciary limit was modified to allow for seasonal variations by establishing two magnitudes, one of which (M750 million) was applicable to the quarterly periods and the other (M550 million) was applicable at other times. In principle this made some sense, but since the difference (M200 million) was less than the actual swing in circulation, the quarterly limit was the more restrictive.

G. H. Loewy, a banker, thereupon revived the suggestion that had been so generally opposed in 1908 that the cost of lombard loans be increased at the quarter days. He suggested that the pressure be limited to borrowing because he accepted the self-liquidating theory of commercial paper and because the law did not admit lombard loans as collateral

reserve for notes. ⁽¹⁾ This suggestion was followed by the Reichsbank

(1) G. H. Loewy, "Der Zinsfuß im Lombardverkehr der Reichsbank" in Bank Archiv, Nov. 15, 1910, pp. 61-62.

in May 1911 when it established a new rule on borrowings in excess of M30,000 that spanned the "quarter days". ⁽²⁾ The new rule required

(2) R.B. III, p. 26.

that in general interest must be paid for ten days in addition to the period for which the funds were actually borrowed. Again the results were somewhat unexpected. The demands on the Reichsbank - to use the phrase of the Bank Inquiry - were not reduced. The new policy made borrowing after the 27th so expensive that banks shifted to discounting bills even though they secured funds for a longer period than they desired them, ⁽³⁾ as is shown in the following table. To some extent

(3) Die Bank, 1911, p. 532, contains a statement that "before the change of June 1911 a bank would prefer to lombard for 10 days at 5 per cent rather than discount for 20 days at 4 per cent; after the change it would be cheaper to discount for 20 or even 30 days at 4 per cent rather than lombard for 4 days at an effective rate of $17\frac{1}{2}$ per cent. (It must be remembered that the bank could relend the proceeds of the discount for 16 or 26 days.) See also, Die Bank, 1912, p. 109.

banks also borrowed on the 27th in anticipation of needs. As a consequence, borrowing increased earlier and the monetary ease which followed the quarter days continued for a longer period. Furthermore, the great differences between costs of borrowing at the end of the quarter and at other times made the maturity date of bills important and led to differential rates. Whereas formerly all bills with a maturity between 56 and 90 days were discounted at the same rate in the market, schedules of rates were now established based on the maturity dates of the bills.

TABLE V

Discounts and Loans at the Reichsbank before and after
the Change of Policy in June 1911

(Unit: M 1,000,000)

		Before the Change				After the Change	
		Discounts	Loans			Discounts	Loans
1910	June 23	837	76	1911	June 23	924	55
	30	1,188	256		30	1,355	74
	July 7	1,036	120		July 7	1,163	56
	Sept. 23	1,112	70		Sept. 23	1,247	51
	30	1,534	210		30	1,785	91
	Oct. 7	1,344	117		Oct. 7	1,511	63
	Dec. 23	1,052	96		Dec. 23	1,389	69
	30	1,324	371		30	1,793	117
1911	Jan. 7	1,106	117	1912	Jan. 7	1,566	69
	Mar. 23	890	60		Mar. 23	1,075	64
	30	1,315	261		30	1,652	111
	Apr. 7	1,130	125		Apr. 7	1,458	78

It should perhaps be mentioned that the Reichsbank did not adopt the subsequent suggestion of Mr. Loewy that it increase the difficulty of discounting short bills before the quarter drain.⁽¹⁾ Could it

(1) "Diskontpolitik" in Bank Archiv, August 15, 1912, pp. 357-360, especially p. 358. For suggestion of N. E. Weill that the Treasury issue M600 million of notes at quarter days, see "Reichsbank und Kreditbanken" in Bank Archiv, May 1, 1912, pp. 235-242. For a criticism of this proposal, see J. Plenge, Diskontpolitik, pp. 167, 380. Most modern analysts would probably agree with Plenge's general judgment (p. 167) on most of the suggestions for dealing with the quarterly drain: "...alles vergebliche Mühe!"

be, that it appreciated that to do so would have placed it in the anomalous position of agreeing that the expansion in currency had to be permitted and yet of making more difficult each successive method employed by the economy to secure the currency?

2. Other Facets of Policy

Although the discount rate remained the primary instrument of policy, the management was disturbed by the persistent reduction in its reserve ratio and complaints that its rate was generally higher than it had been before the middle 1890's and higher than rates at the Bank of England and especially at the Bank of France. The Reichsbank, therefore, initiated certain changes in operations and in legislation to reinforce the effectiveness of its rate policy and to increase its reserves. Just after the turn of the century it was also confronted with a domestic crisis in confidence.

(a) Crisis operations

The Reichsbank discharged its obligation as lender of last resort in the series of bank failures that culminated in June 1901 in the failures of the Credit Institute for Industry and Trade in Dresden and of the Bank of Leipzig. Runs developed on many banks. The Reichsbank discounted and loaned liberally to enable other banks to maintain payments and participate in appropriate supporting actions. It maintained its official rate at $3\frac{1}{2}$ per cent, to which it had been reduced on June 18, despite an unprecedented increase of M323 million (to M1,175 million) in earning assets and a decrease of over M100 million (to M900 million) in reserves during the last week of June.

(b) Open Market operations

Before the turn of the century, the German government occasionally borrowed from the Reichsbank in small amounts and for short periods through the medium of Treasury bills. Beginning in September 1900, the amounts were increased. The first large extension of credit to the government was liquidated from the proceeds of the Reich loan of April 1901. In the ensuing years, however, the government was

virtually a continuous borrower from the Bank in widely varying amounts up to M200-400 million, exceptionally even up to M500 million. ⁽¹⁾

(1) The maximum of discounts was in the order of M2 billion.

In February 1901, the Reichsbank for the first time sold some of these bills to influence market rates of discount. In its official memorial volume published in 1925, the Reichsbank explained this early operation as follows: "By means of rediscounting Treasury bills, it was possible for the Reichsbank to withdraw money from the market and thereby force up private rates when it appeared to the Bank that they were being held artificially low. In this way the Reichsbank, while simultaneously relieving its own position, could increase the influence of bank rate on foreign exchange rates and thereby, under certain conditions, smooth the way for a reduction in its rate."⁽²⁾

(2) R.B. III, p. 10.

Ordinarily sales of securities by central banks are associated with increases in the rate. It seems contradictory to sell securities, forcing market rates up, to "smooth the way" for a reduction in bank rate. Apparently the actions of the Reichsbank were based on a concern for its own position, primarily its reserve ratio. Sales of Treasury bills would tend to increase the reserve ratio by reducing liabilities. An increase in market rates would tend to make Berlin a less attractive market in which to borrow and a more attractive market in which to lend. It would thus attract international funds for investment. To the extent that these funds took the form of gold, reserves would rise and the reserve ratio would be increased still further. A high reserve ratio would then enable the Bank to lower its rate.

Apparently the Reichsbank feared that an initial reduction in its rate - which would seem to be a direct approach to the problem - would drive market rates still lower. Since its desire was to reduce the differential between bank rate and market rates and to attract gold, it began the process by forcing up market rates. Although the Bank said this operation in 1901 was successful, it admitted - without realizing the implications - that the increase in the reserve ratio was caused primarily by a return flow of funds from internal circulation. In other words, it was seasonal in character as is shown in Section III-C-1.

The Reichsbank explained the open market policy of 1905 in more conventional terms. Treasury bills were sold "under suitable circumstances to counteract anticipated tension in its own condition without resorting immediately to an increase in the rate." In other words, sales of securities supported bank rate or smoothed the way for an increase - rather than a decrease.

Although the Reichsbank sold securities from time to time to withdraw funds from the market, it did not have a continually firm control over its investment portfolio. Apparently it had little or no choice in acquiring Treasury bills. It acquired them at the official rate when the government needed funds.⁽¹⁾ This meant in effect that

(1)

R.B. III, pp. 12, 19; N.M.C., Interviews, p. 349; K. von Lumm, "Diskontpolitik", p. 148.

the market had access to Reichsbank credit without the necessity of discounting. As the Treasury spent the funds it had borrowed from the Reichsbank, they became available to the market. It should not be inferred, however, that discounts and Treasury bill holdings varied inversely. Frequently bill holdings increased when the seasonal demand

for currency rose. Discounts then increased also, but not as much as would have been the case if holdings of Treasury securities had remained constant. The Reichsbank did not have complete control over reductions in its portfolio. The government could take the initiative in this direction by repayment from tax receipts or the proceeds of refunding operations.

(c) Devisen policy

Until 1898 the Reichsbank dealt in foreign exchange primarily to enable its non-banking customers to buy and sell foreign monies at all its branches.⁽¹⁾ In that year it began to accumulate

(1)

This is the reason given in R.B. III, p. 37. From the relatively large holdings shown in R.B. II, pp. 158-159, and from the introduction of the preferential rate on prime bills, it seems not unlikely that earnings or some other factors were also involved from, say, 1880 to 1887. Thereafter until 1898, however, the portfolio was small - from M2 to M3 million as contrasted with an average of 17 million and a high of 31 million in 1886. The new policies inaugurated in 1898 and 1908 are reflected clearly in the data.

long bills in foreign currencies and deposits with foreign correspondents - primarily English - to be in position to influence foreign exchange rates, especially through sales to prevent them from reaching the gold export point. Under this new policy both the portfolio of foreign bills and correspondent balances were greatly increased. Average bill holdings of 1907 were M44 million and average balances were M20 million. The Reichsbank drew heavily on these foreign assets in the crisis of 1907.

(d) Issuance of small notes

At the time of the Morocco crisis in 1905, the paper money of Germany consisted of bank notes with a minimum denomination of M100 and Imperial Treasury notes in denominations of M5, M20, and M50.

The total issue of Treasury notes, however, was limited to M120 million, an amount that had not been changed since January 1, 1891. Primarily as a result of this limitation, most of the money of these denominations was in the form of gold coins. The Morocco crisis created a favorable atmosphere for the Reichsbank to secure authority to issue notes of smaller denominations. On February 20, 1906, it was authorized to issue notes in denominations of M20 and M50. On June 5, 1906, Imperial Treasury notes of these denominations were discontinued and the Treasury was authorized to issue notes of M10 as well as M5. Parliamentary opponents insisted on a limitation of M300 million on the total of small notes; but the chancellor relieved the Bank of this restriction on quarterly days after 1911 until the limit was removed by law in 1913.⁽¹⁾

(1)

The story of the episode is given in M. Goldberg, op. cit., pp. 129-134. There were widespread differences of opinion concerning the nature, advantages, disadvantages, and implications of the issuance of small notes to replace gold coin in the domestic circulation. Contrast, for example, J. Plenge, op. cit., pp. 142-150 with G. von Schulze-Gaevernitz, op. cit., pp. 180-181.

(e) Increasing minimum clearing balances

In October 1906, as reserves declined and the rate was increased, the Reichsbank, in an attempt to attract cash, increased the minimum balances required of the customers who used its clearing (giro) system. It also announced that the Head Office would henceforth establish uniform rules concerning such minimum balances, rather than leave them to be determined by the branches. One factor in establishing the minimum was the average volume of transfers (by red checks); the other was the earnings of the Reichsbank from the discount and lombard business done with the customer. The first factor, it might be mentioned, was akin to a reserve requirement based on debits to the account.

Dr. Koch probably was led to this move because he was an operating expert in the field of collections. He was probably thinking about securing compensation for the services rendered by the Reichsbank rather than about monetary control. What he saw was a persistent increase in the debits and credits per mark of average clearing balance from 237 in 1876 to 494 in 1906; or, in other words, a decline from three days to one day in the average period for which a deposit remained in the account.⁽¹⁾

(1) R.B. III, Appendix pp. 48-49

We do not have frequent periodic data to establish the effects of the new policy. We do know, however, that although the sum of the minimum private clearing balances increased from M82 million on September 15, 1906, to M114 million on March 31, 1908, the total private clearing balances over the same period decreased from M288 million to M260 million, although "float" increased by M34 million.⁽²⁾ Perhaps some

(2) R.B. III, Appendix pp. 56-57.

private customers felt they had been carrying excessive balances until application of the new rules taught them what a "reasonable" balance was, and perhaps others found the new procedure too expensive.⁽³⁾

(3) The number of private accounts continued to increase after 1906 but not nearly as rapidly as before. R.B. III, Appendix p. 48. Arthur Feiler wrote that many large institutions inaugurated a special clearing system among themselves and that other clearing customers sent payments through the postal system. Op. cit., pp. 29-30.

III. D. Crises and Reappraisal of Policy

The tight money markets in the winters of 1906 and 1907⁽¹⁾

(1) Bank rate was increased to 7 per cent on December 18, 1906, and to 7½ per cent on November 8, 1907, as a consequence of the money panic in the United States.

fanned into flame smoldering dissatisfaction with the management of the Reichsbank. Reactions were prompt. On January 8, 1908, Dr. Havenstein, President of the Seehandlung (Prussian State Bank) replaced Dr. Koch as President of the Reichsbank. On January 14, the government announced that it would launch an inquiry into the German banking system.⁽²⁾

(2) The announcement was in response to an interrogation made of the chancellor on November 22, 1907, by Count von Kanitz as to what he proposed to do to counteract the inconveniences resulting from the existing high rate of discount at the Reichsbank. The Reichsbank prepared a six-point outline to guide the discussions. The inquiry was conducted by a commission consisting of Havenstein as chairman, von Glasenapp, Vice President of the Reichsbank, as vice chairman, and twenty-three members selected from German banking, industry, trade, and education. Representatives of the Imperial and State governments attended the meetings. Translations of the proceedings of the full commission were published in two volumes by N.M.C., German Bank Inquiry of 1908. The outline is published on pp. 7-8 of Volume I. A brief summary of the work of the commission and of the amendments to the Bank Act influenced by it are given in R.B. III, pp. 26-34. See also M. Goldberg, op. cit., pp. 136-156, 166-178.

The new president gave the Reichstag his views on bank rate in the following words:

"It is not the policy of a central bank which makes the discount rate, rather, bank rate is essentially determined by the economic circumstances of a country. In the first instance it is dependent on the country's capital and credit conditions, and on its position in the world economy, and therefore on the conditions in the international money market. In this connection, bank rate is also the only effective means to protect the country's gold reserve against domestic as well as foreign withdrawals that are unjustified, not required by economic conditions, or dangerous. I emphasize repeatedly, therefore, that the central bank, in its

interest and discount rate, can generally only follow the rate in the money market. It can affirm the market rate but cannot determine it. Only under certain circumstances and within measurable limits can it influence the market rate." (1)

(1) S.B., 1907-1909, Vol. III, p. 2413; cf. Vol. IX, p. 7072.

The phraseology as well as the ideas are reminiscent of the testimony of the regents of the Bank of France before the parliamentary inquiry in 1865, with which Havenstein undoubtedly was familiar. (2)

(2) See my "Die Politik der Deutschen Reichsbank seit der Stabilisierung" in Weltwirtschaftliches Archiv, Vol. 42, p. 467, and "Bank of France Policy" in The American Journal of Economics and Sociology, Vol. 11, 1952, pp. 238-239.

This approach probably explains why the Reichsbank did not launch a frontal attack on what it considered the two basic aspects of its problem. These aspects were to increase the gold reserve of the banking system - especially that of the Reichsbank - and the influence of the Reichsbank in the money market. A frontal attack would have involved granting credit somewhat less liberally. Specifically, the Reichsbank might have kept the money market under firmer control by not reducing its rate so promptly in the summer. Such a program would have prevented market rates from falling so low. Instead, however, the Reichsbank tried to compete with the market by reducing its own rate. By adding funds when the market already had a plethora, it tended to widen - rather than narrow - the spread between the bank rate and the market rate on prime bills. Perhaps the chief reason for not adopting this frontal attack was that the Reichsbank confused monetary policy with credit policy. This confusion is reflected in the reasons advanced for the many-sided but unintegrated program of reform proposed for the German monetary and banking system.

There was widespread, though not of course unanimous, agreement on a number of issues. One of these was to make notes of the Reichsbank legal tender. The purpose, as in the case of issuing notes of smaller denominations, was to draw gold from circulation into the Reichsbank. It was recognized that Reichsbank notes were in fact accepted as a means of payment, but it was felt that a crisis might bring with it refusals to accept them and that making them legal tender during a crisis might not only take time but also aggravate the crisis. The notes were made legal tender on January 1, 1910.

A second point on which there was general agreement was that the Reichsbank should pursue a more active gold policy, tolerating if not promoting a wider variation in the effective price of gold. It was recognized that relatively little could be accomplished without raising doubts as to the monetary standard. At the same time, it was felt that judicious extension of loans free of interest could at times bring to Germany gold that might otherwise go elsewhere. Such loans had been considered effective in promoting gold imports in 1901. Another practice viewed with favor was the payment of slight premiums on gold bars and foreign gold coins. The Reichsbank began a rather aggressive policy in this regard and began to show considerable losses for the first time in its gold operations. (1)

(1)

R.B. II, pp. 34-35. Profits on gold operations had varied between M10 (1886) and M221,000 (1892). During the entire 32-year period (1876-1907) total profits were M1,227,000. Losses from gold operations in 1908, 1909, and 1910 were M267,000, M167,000, and M128,000, respectively. In other words, the losses in these three years wiped out half of the profits of the preceding 32 years.

Light weight coins also were delivered to gold exporters. On the other hand, neither significant departures from par such as were employed by the Bank of France which could redeem in silver, nor the

creation of a gold market, such as existed in London, was recommended. (1)

(1) J. Schilling, Über die Frage der Errichtung eines deutschen Goldmarktes, Karlsruhe, 1913.

Such minor blemishes on the simon pure gold standard as were adopted were among the curiosities of the years preceding the First World War. Central banks used them to compete against each other to attract and retain gold. Yet collectively they tended to cancel each other so far as the distribution of gold was concerned. For example, the effort of one central bank to retain gold by paying out light weight coins could be nullified by the premium prices paid by the recipient central bank.

Another recommendation was that the Reichsbank develop still more its devisen policy. It will be recalled that liquidation of a substantial part of its holdings had proved useful in the crisis of 1907. The Reichsbank, therefore, created a foreign exchange department whose director attended the exchange to supervise the determination of rates. It also increased further its own operations. Director von Lumm cited as another reason the desire to have a defensive measure against possible liquidation by foreign banks, especially central banks, of their large and rising portfolios of mark bills. (2) In 1911 average

(2) K. von Lumm, Die Stellung der Notenbanken, p. 39

holdings reached a peak of M162 million of bills (15 per cent of all bills held) and M78 million of balances. These holdings were called on to meet part of the demand arising from the Morocco crisis. After that, though the Bank remained a relatively large dealer and investor in foreign bills and currencies, it tended to prefer gold. On July 1, 1914, it held M128 million of foreign bills and M78 million of deposits.

After the outbreak of war, most of the former were collected, in part through neutral countries, whereas enemy countries blocked most of the latter.

Despite some exaggerated claims to the contrary by others, the Reichsbank, initially at least, recognized that foreign exchange operations could not affect Germany's fundamental balance of payments position.⁽¹⁾ Holdings of foreign exchange were the practical equivalent

(1) R.B. I, pp. 99-102. It recognized that purchases of foreign exchange would tend to force up the exchange rate and might lead to an export of gold, which is the opposite of what it desired.

of gold, were accumulated instead of importing gold, and could be sold instead of exporting gold. The distinction between gold and foreign exchange was not unimportant at a time when gold movements were watched closely and exerted great influence on business decisions. Tactically, of course, dealings in foreign exchange enabled the Reichsbank to influence rates within the gold points and to smooth out erratic fluctuations.

The Reichsbank gradually developed a number of related proposals to deal with deposit banking. Point VI of the bank inquiry asked whether banks should be subjected by law (1) to reserve requirements and (2) to publishing periodic balance sheets in prescribed forms.

(2) N.M.C., German Bank Inquiry, Vol. 2, pp. vii-ix.

On October 15, 1908, as the commission was discussing Point III, Chairman Havenstein announced that he had received a commitment from the eight large Berlin banks that they would voluntarily publish

bimonthly statements. ⁽¹⁾ This agreement related to the second question

⁽¹⁾ The latter is printed in N.M.C., German Bank Inquiry, Vol. 1, pp. 687-689.

and further discussions of the entire Point VI were postponed. When they were resumed on November 23, 1909, the witnesses called attention to certain excesses and evils, but they did not, in Havenstein's words feel "it necessary to set fixed limits by way of legislation, limits which are likely to put a restraint upon that freedom of movement which is, after all, indispensable to living forces."⁽²⁾ Havenstein, too,

⁽²⁾ N.M.C., German Bank Inquiry, Vol. 2, p. 801.

hoped it would not be necessary to have recourse to legislation; but he warned that the evils had to be rooted out.

Many banks joined - some not voluntarily - in publishing bimonthly statements. But the objective of publication - sufficient pressure to increase primary liquidity - was not achieved. As von Lumm expressed it in 1912: "Despite the demand raised at the bank inquiry for an increase in primary reserves, they have not in the interim been improved in the least."⁽³⁾

⁽³⁾ K. von Lumm, "Diskontpolitik", p. 182.

The Reichsbank, therefore, advanced a number of ancillary proposals to make acceptance of its reserve proposals more palatable and to increase its influence over money rates. ⁽⁴⁾ The Reichsbank's analysis

⁽⁴⁾ The proposals apparently were discussed with bankers privately by President Havenstein over a period of time, probably in the monthly meetings of the central committee, a statutory group of stockholders who advised the directors and which included individuals from most of the large banks. They were published by director von Lumm as the fourth in his series of articles in Bank Archiv. See "Diskontpolitik", pp. 179-187.

of the evil ran in the following terms. The great banks had expanded enormously, much more so than the Reichsbank. They competed aggressively for deposits by allowing high rates of interest; but this meant in turn that they had to keep fully and continuously invested. As a consequence every demand for currency, as at the end of the year, forced them to rediscount at the Reichsbank or borrow abroad. Then as they acquired funds, they became independent of the Reichsbank and invested these funds at whatever rate they could secure. By thus forcing the prime rate down, they encouraged abuse of credit, speculation, new issues - including foreign issues, and excessive and unsound credit extensions.

The proposed solution was based on this analysis. If the banks would enter a binding agreement on maximum rates they would allow for deposits - tying the maximum to bank rate - they would save expenses and would not be forced to compete so actively to employ their funds. If, then, they would also agree on minimum rates of discount - again tying the minimum to bank rate - they could maintain income without extending questionable and unsound credits. And finally, the reduction in credit would enable the banks to increase their reserve deposits and the Reichsbank its gold holdings. The minimum reserves that the Reichsbank proposed were to be maintained only on the average so that banks could themselves meet part of any drain without being forced immediately to rediscount at the Reichsbank. The expected accomplishments would be to reduce the size of the Reichsbank's job, to increase its ability to handle it, and to make its rate effective. The expected costs would be essentially only the elimination of unsound credit.

The whole analysis and each point in the solution were attacked

sharply and at once, especially by Professor Plenge of Leipzig.⁽¹⁾

(1) Initially in the same magazine in which von Lumm had published his series. See Bank Archiv, Vol. 11, 1912, pp. 219-226, 242-246, 251-261. Plenge became dissatisfied with the treatment he received from the editor and published a book on the subject: Von der Diskontpolitik zur Herrschaft über den Geldmarkt, Berlin, 1913.

Plenge pointed out that a reduction in credit and acquisition of cash by a banking system are not identical, since loans would be repaid with deposits as well as cash. The reduction in credit would have to be a multiple of the acquisition of cash. To follow the recommendations of the Reichsbank until they resulted in a significant increase in its gold holdings, therefore, would produce not an almost painless transition but a severe depression. Plenge also pointed out some of the implications - including that of rationing and its administration - and disadvantages of the rate (price) fixing proposals of the Reichsbank.

Plenge favored legal control rather than private agreements under the aegis of the Reichsbank, replacing gold in circulation with small notes, and above all a less avid search for earning assets by the Reichsbank, which he considered the primary cause of its inadequate gold reserve. In retrospect Plenge would appear to have had the better of the argument not only with von Lumm but also with those like Arnold⁽²⁾ who wrote in his defense.

There is one aspect of the problem on which, even in retrospect, it is difficult to come to a firm conclusion except somewhat arbitrarily. This aspect is the role of foreign funds. One of the difficulties in forming a judgment is the lack of reliable data on the development of

(2) A. Arnold, "Die Barreserven der Kreditbanken und die Inanspruchnahme der Reichsbank", Bank Archiv, Vol. 11, pp. 363-375. Arnold was head of the Statistical Division of the Reichsbank.

Germany's international financial position. It is almost certain⁽¹⁾

(1) Even this is not certain. One could cite data that were long taken as authoritative to prove the reverse. Although these data are now suspect, so is the method used to correct them! See Enquete-Ausschuss, Die deutsche Zahlungsbilanz, pp. 130-133, and Der Bankkredit, pp. 80-81, 88-99, 106-116.

that over-all Germany was a net creditor, that she was a large net creditor on long-term, and a net debtor on short-term. In individual years, she was apparently a net debtor.

The Reichsbank and Plenge disagreed on the question of foreign funds. Unfortunately - again in retrospect - the case of neither is really convincing. The case advanced by the Reichsbank contains inconsistencies, both internal and in relation to its program as a whole. Director von Lumm, for example, objected both that German banks paid "too high" rates for short-term foreign funds and that, by borrowing short funds abroad to take advantage of the higher rates in Germany, they widened the spread between bank rate and market rates and thus defeated the purposes of the Reichsbank. He also objected both that the banks came to the Reichsbank in such large measure to meet the quarterly drains and that they borrowed abroad to meet it - without indicating that he understood that these might be alternative sources of funds. There were other inconsistencies. Nevertheless, von Lumm did emphasize the dangers of short-term foreign indebtedness, especially to countries that might use threats or actual withdrawals for political purposes.

Von Lumm's discussion was a variation of the argument developed later by Schacht.⁽²⁾

(2) Hjalmar Schacht, Eigene oder Geborgte Wahrung. Berlin, 1927, pp. 14-15, 27-28.

Schacht said that the German banks could defeat a restrictive policy of the Reichsbank by borrowing abroad. On at least one occasion he seriously advanced the opinion that an increase in the Reichsbank rate would lead to so much borrowing abroad that market rates would be reduced. It seems more reasonable to suppose that the net effect of tightening any source of credit that is being used will be to tighten the entire market. In other words, not all of the tightening by the Reichsbank would be dissipated through borrowing abroad.

Plenge, the skilled logician, attacked the Reichsbank case on foreign funds with typical scorn. He argued, among other points, that the extent of short-term indebtedness had been exaggerated, that German short-term claims had been underestimated or ignored, and that foreign long-term securities could - and had been - liquidated to cover withdrawal of short-term funds. But above all, he argued that if the Reichsbank would maintain adequate gold reserves it could meet foreign withdrawals. To help achieve and especially to maintain such reserves in the long run, he felt that the Reichsbank would have to be less avid in seeking discounts, would have to maintain a relatively higher rate. A major weakness in his position is that he did not analyze the effect of such a program on the volume of short-term foreign indebtedness.

The banks agreed that the reserves of the German economy should be enlarged. They praised Havenstein for favoring voluntary cooperation and opposing legislation as a means of achieving the goal; but though they lauded his leadership, they did not follow his recommendations.

On January 30, 1914, Representative Warmuth charged that no progress had been made through voluntary cooperation since the program had been launched in 1908. He therefore proposed that a law be passed to regulate deposit banking.⁽¹⁾ Havenstein emphatically denied Warmuth's

(1) S.B., 1914, pp. 6878-6879. Havenstein's reply appears at pp. 6902-6905.

charge. As evidences of progress, he mentioned a resolution of the German bankers association which specifically recommended an increase in cash reserves and local agreements among banks to limit competition. But he did admit that there had been no improvement in primary reserves which was the goal of the program. He attributed the lack of objective results to special circumstances.

Havenstein took the opportunity to restate his position:

"What the Reichsbank considers necessary and wishes to achieve is not a contraction of the credits necessary and desirable for our economy but solely a gradual and careful repression of excesses and exaggerations in the use of deposits and other external funds for excessively long-term or unhealthy purposes."

If this were done, he said that the banks would be able to increase their cash reserves and thereby strengthen the whole credit structure and, at the same time, reduce their demands on the Reichsbank. By holding their larger reserves as deposits at the Reichsbank - which the bankers associations also favored - the Reichsbank, in turn, would be able to increase its gold holdings.

Apparently Havenstein had not been impressed by the analysis of Plenge and still held a "productive credit" theory of central banking in the belief that if each credit was "proper" the total volume would take care of itself. He hoped that the banks would strengthen their reserves sufficiently to meet out of their own resources a significant part of any periodic increases in demand for liquidity by the economy. In other words, he wanted a higher average reserve ratio, but expected the ratio to fluctuate more. Apparently he did not appreciate that this policy would reduce rather than increase the power of the Reichsbank "to regulate the monetary circulation."

III. E. Impressions of Major Influences on Rate Policy

In retrospect, it appears that the Reichsbank was trying to achieve four objectives that were not inherently consistent. The overriding purpose, in case of conflict, was to maintain convertibility. The management increased its rate to whatever extent it believed necessary to achieve it. A second purpose was to keep rates as low as possible. This purpose conflicted at times with the first. These conflicts were resolved by increasing the rates to unusual levels only when compelled to do so by developments in the money market as reflected in high and rising market rates and by reducing bank rate as soon as

market developments permitted. ⁽¹⁾

(1) The charts would seem to portray some exceptions. I have a hunch that they arise from the fact that the market rates shown in the charts are monthly averages, whereas bank rate is actual. A short, sharp squeeze in the money market might be reflected clearly in bank rate but not in monthly averages of market rates. I have not as yet had an opportunity to analyze daily market rates.

A third purpose was to maintain as stable a bank rate as possible. This purpose explains why bank rate was not adjusted to market developments below a level that was clear-cut, at least during the first two decades. The management appears to have had a general judgment as to the minimum rate it could hope to maintain for any considerable period. Only rarely did it reduce its official rate below this point; because it felt that stability of the rate was desirable. During the first decade this "normal minimum" rate was 4 per cent, the lowest rate that had ever been charged by its predecessor, the Prussian State Bank; during the second decade it was 3 per cent; after the middle nineties it was less specific but generally somewhat higher. When this purpose conflicted with maintenance of convertibility, it was sacrificed. When it seemed to conflict with keeping rates as low as possible - in periods of easy money - it was maintained on the general ground that it would produce lower average rates in the long run even though not always the lowest rate at every moment of time.

A fourth purpose was to maintain a large portfolio of bills. The ostensible purpose was to enable the management to observe at first hand developments in the money market, although desire for profits should not be ruled out entirely. This purpose, like the second and third, was subject to the primary objective of maintaining convertibility. The management devoted much time and thought to resolving the

periodic conflict in periods of easy money between maintaining a continuously large portfolio and maintaining a stable bank rate. The issue was made acute by the large seasonal variations in the demand for currency, which forced wide variations in either the portfolio, in market rates, or both. The Reichsbank objected to the wide spread that developed between bank rate and market rates when both were low. It did not, however, withdraw funds from the market in such periods to force market rates up; because, to do so, would have reduced its earning assets. Instead, it adopted a highly flexible preferential rate in the period 1880-1896, tried to secure agreements among the commercial banks that they would not compete so actively through rates, and tried to induce the banks to maintain larger average reserves. None of these efforts, of course, really reconciled the inherent conflict.

In establishing its own rate the Reichsbank clearly paid close attention to the market rate on prime bills, apparently on the assumption that this rate measured or reflected accurately the strength of basic economic forces. As one analyzes the composition, general orders of magnitude, and sources of changes in the accounts of the Reichsbank, however, it seems likely that the market rate varied at times "by accident", quite apart from "manipulations" attributed at times to the dealers who "established" the rate.⁽¹⁾ As a single illustration: the Reichsbank did

(1)

Plenge, Diskontpolitik, pp. 184 and 382, note 64.

not distinguish regularly between reserve balances of banks and other deposits; yet a shift from the former to the latter would tighten the money market and a shift from the latter to the former would ease it.

IV. Basic Problems of Control

Can one integrate this episode in the history of a particular central bank into general principles of central banking? The description, of course, could be inaccurate; one cannot really transpose oneself in time and space. But was the Reichsbank in position to pursue an effective policy if the description is essentially correct?

In forming a judgment on this question, it is important to remember that there are numerous ways in which a central bank may influence the supply, availability, and cost of credit. One should not, therefore, judge effectiveness on the basis of a specified procedure. It may be recalled that Keynes came close to exclusiveness when, in his Treatise on Money, he developed the principle that the best measure of a central bank's influence is its ability to establish the volume of member bank reserves at predetermined levels.⁽¹⁾

(1)

J. M. Keynes, A Treatise on Money, New York, 1930, Chapters 2, 25, and 32.

A few years later, Seymour Harris concluded that "Central banks ought to concentrate their attention on the cash balances of member banks; it alone is the variable to be controlled if they have any serious intention of exercising control over the money market."⁽²⁾

(2)

S. E. Harris, Twenty Years of Federal Reserve Policy, Cambridge, 1933, p. 13. I quoted this statement with approval in a review of Harris' book in Weltwirtschaftliches Archiv, Vol. 40, p. 7.

This conclusion, though widely held, is based on an overly mechanistic view of central banking, deposit creation, and the flow of purchases. German monetary developments during the period under survey

cannot be understood in terms of commercial bank reserves. This negative conclusion is based on a number of considerations.

In the first place, the Reichsbank did not publish data on reserve balances either in its weekly statements or annual reports. Information is available only for isolated dates in its memorial volumes. The reason is that the management did not focus its attention on such balances or try to establish them at predetermined levels.

In the second place, the Reichsbank could not have established and maintained reserve balances at a predetermined level quite apart from any question of controlling its own earning assets. It should be recalled that the volume of reserve balances was determined not exclusively by changes in earning assets but by changes in all other accounts at the Reichsbank as well. The major items were cash reserves, other deposits, and notes in circulation. We may use the year 1910 for purposes of analysis because June 15, 1910, is one of the few dates for which we have the necessary information. Reserve balances at M90 million were only a small fraction of the size of other relevant accounts or even of annual variations in some of them. Since these accounts were not subject to control or, in most cases, even to immediate influence by the Reichsbank, it follows that the Reichsbank could not have controlled reserve balances at predetermined levels.

TABLE VI

Selected Accounts at the Reichsbank
in 1910 (1)

(In million marks)

Account	Maximum	Minimum	Spread	Size on June 15, 1910 **
Notes	2,073	1,379	693	
Metallic reserve	1,183	908	275	
Deposits	921	495	426	
Public*	476	144	332	
Private*	554	326	228	
Public				303
Private				260
Banks***				90
Other financial				53
Other				117
* Including float				
** Excluding float				
*** Joint stock banks				

(1) R.B. II, pp. 31, 41, 83, 85-86, 113.

In the third place, balances at the Reichsbank were only part of the primary reserves of commercial banks. Again we have only scattered and fragmentary information. The Reichsbank estimated that of M773 million of primary reserves held by commercial banks in 1913, M532 million were in their own vaults and M241 million on deposit at banks of issue. (2) In other words, control over reserve balances would not

(2) Untersuchung des Bankwesens, Part II, p. 36. Savings banks divided their M245 million of primary reserves equally between vault cash and deposits at banks of issue.

have been synonymous with control over total reserves.

In the fourth place, German banks did not maintain their primary reserves at any customary relationship to deposits. Banks were not required to hold minimum reserves against their deposits. The Reichsbank did require minimum balances of all its customers including banks, but the purpose was to compensate it for services rendered in clearing, transferring, and collecting payments. Unfortunately, we do not have as frequent data on the condition of German banks as would be desirable. Prior to the agreement to publish bimonthly statements, we have only the annual year-end statements. It was common knowledge that banks "dressed their windows" for the occasion. From the middle 1890's, when the great industrial expansion set in, until the reexamination of policy, discussed in Section III-D, the ratio of the great banks fell by half from about 15 per cent to about 7.5 per cent. The inquiry produced no significant improvement; but the decline was halted. Bimonthly reports revealed much lower ratios as well as significant variations in the short run. On February 28, 1911, for example, the ratio was 3.7 per cent. (1) Banks were not afraid to permit their primary reserves to run

(1) Karl Nordhoff, "Über die Liquiditätsfrage," in Untersuchung des Bankwesens, Part I, vol. 2, p. 491. N.M.C., Statistics for Great Britain, Germany and France, 1867-1909, p. 214, gives annual consolidated balance sheets for German banks. The ratio for February 28, 1911, is from von Lumm, "Diskontpolitik," p. 182.

so low because they felt comfortable in the conviction that their portfolio of eligible bills could always be rediscounted at the Reichsbank.

Confronted with such a loose-jointed system, one might be tempted to conclude that the Reichsbank had little power to enforce its will. The impediments to an effective policy seem too formidable. But

this conclusion would be premature. The warranted conclusion is that the volume of reserve balances was only one - and by itself a relatively unimportant one at that - of many connections between Reichsbank policy and conditions in the money market or the flow of expenditures.

It is important not to overestimate the independent power of the German commercial banking system to expand its deposits by reducing its demand for liquidity - its primary reserve ratio. Had an individual bank attempted to expand in this way, it would, of course, have lost reserves in an amount almost equal to the expansion. Had all commercial banks moved in step, they would have lost cash through withdrawals. The ratio of deposits to circulation in Germany was approximately two.⁽¹⁾ So long as this ratio was maintained, the rate of deposit expansion for the system was only about twice the reduction in reserves.⁽²⁾

(1) Untersuchung des Bankwesens, Part II, p. 36 for deposits, and p. 472 for money in circulation.

(2) If one assumes no change in money in circulation - or a constant volume of reserves - the volume of deposits varies inversely with the reserve ratio and approaches infinity as the ratio approaches zero. If, however, one assumes that the additional money in circulation must be provided out of existing reserves, and deposits are twice money in circulation, the maximum expansion of deposits remains twice the reduction in reserves and this multiple does not increase as the volume of reserves is reduced.

Keynes, it may be recalled, felt that the relatively greater importance of cash in Germany than in England was a real source of strength of the Reichsbank. He reasoned as follows:

The part played by the Central Banks in most of the pre-war European monetary systems, for example in France or in Germany, was widely different from

that of the bank of England. The importance of bank-notes relatively to cheques was far greater; the resources of the Central Banks relatively to those of the Member Banks were far greater (especially if we have in mind the resources available to meet fluctuations in the demand for working capital); there were no obstacles in the way of increases in the Central Banks' "advances"; and the Member Banks were not tied by law or custom to the maintenance of rigid reserve-ratios.

Since the Member Banks were not tied by reserve-ratios and were not prevented from freely rediscounting with the Central Banks whenever they wanted to expand their resources, the control exercised over them by the Central Bank was very imperfect, the main limitation on credit expansion by the Member Banks being set by their supply of bills eligible for re-discount. This weakness, however, was balanced by the fact that, if Member Banks as a whole were inclined to increase their lending, they would get back as deposits a much smaller proportion of the amount lent, because a much larger proportion of the new loans would be taken out in the shape of bank-notes. Thus the Member Banks, having much less power than in Great Britain to create credit, needed much less control. (1)

(1)

Op. cit., Vol. II, pp. 233-234.

This reasoning, it seems to me, diverts attention from the heart of the problem to an interesting but essentially ancillary aspect of it. The key question is: was the Reichsbank in position to enforce its terms on the money market?

In answering this question, it is important to understand the power of the Reichsbank to absorb any liquidity that the banks wished to release. At no time were its earning assets less than several times the

total primary reserves of the banks even as reported for the annual balance sheets.⁽¹⁾

⁽¹⁾ The following illustrative data are taken from N.M.C., Statistics, pp. 174-193, 214.

(In million marks)			
End of year	Reichsbank		Primary reserves of commercial banks
	Discounts	Earning assets	
1888	517	629	156
1893	604	760	222
1898	865	1,093	342
1903	846	1,002	388
1907	1,105	1,302	554

The banks were fully aware that the liquidity of their portfolios of eligible bills rested on the willingness of the Reichsbank to discount them - and that to secure cash they would have to pay the rate established by the Reichsbank. The market as a whole was always indebted to the Reichsbank and had to meet its terms to acquire additional reserves or cash. The Reichsbank had branches throughout the Empire at which credit was available not only to commercial banks but to commerce, industry, and agriculture as well. A change in the terms on which the Reichsbank granted credit was quickly felt at many points. Although the administration of discounting was not uniform at the branches (see above, pp. 24-25), it seems to me that the variations were not a significant link in the control mechanism. Administration of acceptability rules, of course, probably operated to reinforce the policy, being tightened somewhat during expansion and loosened somewhat during contraction. The primary method of changing its terms, however, was to change its rate of discount.

The Reichsbank saw itself confronted by essentially the same problem both while the economy was experiencing slow, hesitant growth and after this gave way in the middle 1890's to unprecedented industrial and commercial development. The continuing problem, as the Reichsbank saw it, was excessively liberal extension of credit by other lenders, especially by banks. During the period of easy money discussed in Section III-B, it objected to the full investment policy of the independent banks of issue. During the period of prolonged prosperity discussed in III-C, it objected to the rapid growth and the declining reserve ratio of commercial banks.

Although emphasis shifted from notes to deposits, the Reichsbank viewed its problem as one of competition from other banks of one kind or another. This approach led the Reichsbank to underestimate its own power. In the earlier period, for example, it did not observe that the full investment policy of the independent banks of issue reinforced -- rather than reduced -- its power to influence monetary developments. In the latter period, it did not observe that the market was continuously indebted to it and had to meet its terms in securing cash.

Essentially, the Reichsbank tried to solve its problem by out-bidding its competitors. In the earlier period it discounted at preferential rates. It should not be inferred that making credit easy was inappropriate. The important point is that the Reichsbank objected that the independent banks of issue made credit so easy that it could not pursue an effective policy. In other words, it did not favor such low rates and yet it met this problem by introducing preferential rates to acquire more bills and thus ease credit still further. In the later period it said that its policy was being frustrated by the actions of commercial banks which

discounted at low rates. But it kept its own rate low enough to increase its earning assets - without observing that it was thereby contributing to the ease both directly and indirectly by increasing the ability of others to expand. It objected that other banks gradually reduced their reserve ratios; but it followed their lead by allowing reductions in its own.

Among the factors that led the Reichsbank to underestimate its power were an inability to appreciate that wide variations in the seasonal demand for currency did not really weaken its power, a belief that somehow it needed a large portfolio to pursue an effective policy, and a sensitivity to criticism that its rate was usually higher than that of the other "great" central banks.

The Reichsbank undoubtedly could have prevented the decline in its own reserve ratio by maintaining a somewhat higher discount rate. For the economy as a whole, however, it must be remembered that the Berlin money and capital markets were intimately connected with their counterparts, especially in London, Paris, and New York. Germany, though a net creditor, was a substantial debtor on short-term.⁽¹⁾ Had the Reichsbank maintained somewhat

(1)

The distinction is important even though some of the long-term foreign claims could be - and were - liquidated in time of trouble. Some institutions followed a deliberate policy of not borrowing from prospective enemies. For example, in its Annual Report for 1911 the Deutsche Bank stated at p. 7: "For many years past we have so conducted our business that our short-term indebtedness to foreign countries has been counterbalanced by quick assets and loans abroad. In the critical times of the late summer of last year, our position in this respect was especially strong. For a long time past we have been particular to abstain from becoming liable for short-term money from France in any form whatsoever."

higher discount rates, it is almost certain that Berlin would have borrowed more in London and Paris. The additional borrowing, however, would have tended to force up rates in those markets also. It is unlikely that all of the pressure exerted by the Reichsbank would have been absorbed.

My conclusion is that the Reichsbank was in position to pursue an effective monetary policy. Regardless of the reserve requirements that the banks set for themselves at the moment, the Reichsbank was in position to make cash scarcer, as measured by interest rates, than the banks wanted it to be. The banks were never willing to accumulate sufficient cash during the earlier months of the year to meet the autumnal and winter drains. They had to go to the Reichsbank and meet its terms. The Reichsbank did not, however, develop an adequate procedure to withdraw funds from the market as they returned from circulation. It had sufficient earning assets to do so; but it diverted its attention from the real nub of monetary control to the ancillary problem of who should bear the cost.

The international political atmosphere, however, leads one to harbor a lingering doubt that a somewhat different policy by the Reichsbank would really have solved Germany's basic problem. In retrospect one might be surprised by the smoothness rather than by the difficulties in meeting the international monetary crisis of 1907 and the successive periods of tension, as over Morocco and the Balkans. Nevertheless, a large and rising volume of short-term international indebtedness could not have been ignored in a world of mounting international political tensions.

STATISTICAL APPENDIX
REICHSBANK RATE AND RELATED FACTORS

Date	End of month			Market rate (Mo. average)	Official bank rate	
	Metallic reserve (Million marks)	Notes in circulation	Reserve ratio		Date of change	Rate
<u>1876</u>						
Jan.	451	657	68.6	4.29	Jan. 3	5.6.
Feb.	485	631	76.9	2.78	Jan. 19	5.
Mar.	499	678	73.6	2.83	Feb. 4	4.
Apr.	521	677	77.0	2.78		
May	564	659	85.6	2.63	May 18	3.5
June	550	778	70.7	2.81		
July	531	691	76.8	2.87	July 11	4.
Aug.	540	666	81.1	2.53		
Sept.	504	740	68.1	3.01		
Oct.	487	733	66.4	3.51	Oct. 25	4.5
Nov.	506	720	70.3	3.19		
Dec.	501	766	65.4	3.28		
<u>1877</u>						
Jan.	552	730	75.6	2.74	Jan. 5	
Feb.	547	694	78.8	2.22		
Mar.	555	723	76.8	2.28		
Apr.	558	727	76.8	3.05		
May	552	679	81.3	3.26	May 11	5.
June	548	755	72.6	3.15	June 16	4.
July	546	699	78.1	2.80		
Aug.	513	687	74.7	2.58		
Sept.	472	736	64.1	3.83	Sept. 12	5.
Oct.	466	705	66.1	4.32	Oct. 3	5.5
Nov.	483	662	73.0	4.21	Nov. 12	5.
Dec.	452	716	63.1	3.61	Dec. 3	4.5
<u>1878</u>						
Jan.	481	645	74.6	2.94	Jan. 21	4
Feb.	524	621	84.4	2.31		
Mar.	503	645	78.0	2.26		
Apr.	494	625	79.0	2.62		
May	513	593	86.5	2.84		
June	510	673	75.8	2.99		
July	511	637	80.2	2.87		
Aug.	499	619	80.6	2.59	Aug. 29	5
Sept.	469	671	69.9	3.53		
Oct.	455	638	71.3	4.09		
Nov.	477	588	81.1	4.22		
Dec.	472	664	71.1	3.54	Dec. 11	4.5
<u>1879</u>						
Jan.	505	585	86.3	3.17	Jan. 11	4.
Feb.	537	569	94.4	2.19		
Mar.	546	649	84.1	2.07	Mar. 21	3.
Apr.	543	664	81.8	1.94		
May	553	655	84.4	1.82		
June	546	745	73.3	2.20		
July	550	684	80.4	2.19		
Aug.	545	673	81.0	2.02	Aug. 13	4.
Sept.	503	756	66.5	2.72		
Oct.	507	754	67.2	2.69	Oct. 11	4.5
Nov.	544	719	75.7	3.91		
Dec.	539	793	68.0	3.32	Dec. 10	4.

STATISTICAL APPENDIX

REICHSBANK RATE AND RELATED FACTORS (continued)

Date	End of month			Market rate (Mo. average)	Official bank rate	
	Metallic reserve (Million marks)	Notes in circulation	Reserve ratio		Date of change	Rate
<u>1880</u>						
Jan.	568	728	78.0	3.09		
Feb.	583	727	80.2	2.13		
Mar.	572	786	72.8	2.22		
Apr.	576	774	74.4	2.64		
May	593	718	82.6	2.69		
June	582	814	71.5	2.92		
July	576	748	77.0	2.60		
Aug.	536	724	74.0	2.58	Aug. 18	5.
Sept.	535	786	68.1	2.59	Sept. 4	5.5
Oct.	539	750	71.9	4.08	Oct. 6	5.
Nov.	547	714	76.6	3.48	Oct. 18	4.5
Dec.	522	806	64.8	3.44	Nov. 9	4.
<u>1881</u>						
Jan.	557	704	79.1	3.04		
Feb.	587	677	86.7	2.16		
Mar.	577	769	75.0	2.27		
Apr.	570	761	74.9	2.63		
May	589	724	81.4	2.93		
June	582	839	69.4	3.05		
July	577	740	78.0	3.19		
Aug.	557	740	75.3	3.46	Aug. 26	5.
Sept.	515	839	61.4	4.62		
Oct.	510	791	64.5	5.16	Oct. 5	5.5
Nov.	534	755	70.7	4.76	Nov. 26	5.
Dec.	514	859	59.8	4.76		
<u>1882</u>						
Jan.	534	757	70.5	4.40		
Feb.	554	683	81.1	3.83	Feb. 1	6.
Mar.	551	768	71.7	3.13	Feb. 18	5.
Apr.	558	751	74.3	3.39	Mar. 3	4.5
May	584	715	81.7	3.09	Mar. 10	4.
June	570	828	68.8	3.35		
July	561	758	74.0	3.56		
Aug.	546	738	74.0	3.50		
Sept.	513	842	60.9	4.42	Sept. 8	!
Oct.	511	814	62.8	4.70		
Nov.	549	755	72.7	4.64		
Dec.	559	831	67.3	4.67		
<u>1883</u>						
Jan.	617	733	84.2	3.52	Jan. 4	!
Feb.	634	692	91.6	2.71		
Mar.	617	780	79.1	2.77		
Apr.	621	751	82.7	2.72		
May	644	703	91.6	2.65		
June	615	820	75.0	3.21		
July	613	741	82.7	3.12		
Aug.	601	725	82.9	2.90		
Sept.	548	806	68.0	3.15		
Oct.	547	789	69.3	3.48		
Nov.	585	747	78.3	3.35		
Dec.	559	830	67.3	3.37		

STATISTICAL APPENDIX

REICHSBANK RATE AND RELATED FACTORS (continued)

Date	End of month			Market rate (Mo. average)	Official bank rate	
	Metallic reserve (Million marks)	Notes in circulation	Reserve ratio		Date of change	Rate
<u>1884</u>						
Jan.	602	718	83.8	2.87		
Feb.	624	680	91.8	2.27		
Mar.	598	769	77.8	2.64		
Apr.	608	744	81.7	3.94		
May	632	698	90.5	2.74		
June	613	819	74.8	2.96		
July	612	726	84.3	2.67		
Aug.	599	712	84.1	2.53		
Sept.	553	825	67.0	2.94		
Oct.	544	788	69.0	3.26		
Nov.	558	746	74.8	3.41		
Dec.	518	854	60.7	3.61		
<u>1885</u>						
Jan.	553	724	76.4	3.17		
Feb.	578	682	84.8	2.53		
Mar.	558	773	72.2	3.14	Mar. 10	5.
Apr.	566	732	77.3	3.87	Apr. 4	4.5
May	609	683	89.2	2.84	May 11	4.
June	597	814	73.3	2.83		
July	598	727	82.3	2.52		
Aug.	591	712	83.0	2.29		
Sept.	558	824	67.7	2.77		
Oct.	594	775	76.6	2.55		
Nov.	624	728	85.7	2.65		
Dec.	618	859	71.9	3.07		
<u>1886</u>						
Jan.	671	732	91.7	2.12	Jan. 22	3.5
Feb.	700	705	99.3	1.61	Feb. 20	3.
Mar.	682	823	82.9	1.81		
Apr.	687	795	86.4	1.79		
May	713	764	93.3	1.74		
June	705	910	77.5	2.19		
July	735	812	90.5	1.61		
Aug.	730	811	90.0	1.71		
Sept.	670	947	70.7	1.99		
Oct.	652	872	74.8	2.56	Oct. 18	3.5
Nov.	676	845	80.0	2.86	Nov. 29	4.
Dec.	670	1,010	66.3	3.90	Dec. 18	5.
<u>1887</u>						
Jan.	720	860	83.7	3.29	Jan. 18	4.
Feb.	753	806	93.4	3.01		
Mar.	743	921	80.7	2.34		
Apr.	773	864	89.5	1.93		
May	805	811	99.3	2.03	May 11	3.
June	803	961	83.6	2.41		
July	814	849	95.9	1.80		
Aug.	810	828	97.8	1.65		
Sept.	743	959	77.5	2.29		
Oct.	751	912	82.3	2.23		
Nov.	791	884	89.5	2.25		
Dec.	767	1,011	75.9	2.42		

STATISTICAL APPENDIX

REICHSBANK RATE AND RELATED FACTORS (continued)

Date	End of month			Market rate (Mo. average)	Official bank rate	
	Metallic reserve (Million marks)	Notes in circulation	Reserve ratio		Date of change	Rate
<u>1888</u>						
Jan.	821	879	93.4	1.68		
Feb.	857	839	102.1	1.45		
Mar.	840	964	87.1	1.85		
Apr.	912	932	97.9	1.55		
May	989	881	112.3	1.56		
June	988	1,059	93.3	1.76		
July	992	948	104.6	1.41		
Aug.	964	940	102.6	1.69		
Sept.	882	1,070	82.4	2.45	Sept. 17	4.
Oct.	860	1,011	85.1	3.24		
Nov.	866	972	89.1	3.15		
Dec.	858	1,093	78.5	3.51	Dec. 6	4.5
<u>1889</u>						
Jan.	907	952	95.3	2.15	Jan. 12	4.
Feb.	933	898	103.9	1.52	Feb. 4	3.
Mar.	914	1,023	89.3	1.76		
Apr.	940	997	94.3	1.52		
May	959	956	100.3	1.57		
June	911	1,101	82.7	2.27		
July	900	1,001	89.9	1.77		
Aug.	858	992	86.5	2.16		
Sept.	771	1,151	67.0	3.15	Sept. 4	4.
Oct.	757	1,057	71.6	4.19	Oct. 3	5.
Nov.	778	1,000	77.8	4.70		
Dec.	735	1,161	63.3	4.78		
<u>1890</u>						
Jan.	785	998	78.7	3.83		
Feb.	822	917	89.6	3.46	Feb. 22	4.
Mar.	803	1,052	76.3	3.75		
Apr.	836	997	83.9	2.93		
May	870	940	92.6	2.95		
June	850	1,084	78.4	3.72		
July	839	975	86.1	3.15		
Aug.	798	976	81.8	3.07		
Sept.	725	1,132	64.0	3.52	Sept. 26	5.
Oct.	719	1,053	68.3	4.77	Oct. 11	5.5
Nov.	764	970	78.8	5.14		
Dec.	759	1,103	68.8	5.08		
<u>1891</u>						
Jan.	828	953	86.9	3.10	Jan. 12	4.
Feb.	873	922	94.7	2.60	Feb. 3	3.5
Mar.	836	1,041	80.3	2.67	Feb. 13	3.
Apr.	879	989	88.9	2.68		
May	912	934	97.6	2.85	May 15	4.
June	886	1,066	83.1	3.26		
July	918	959	95.7	3.32		
Aug.	940	951	98.8	3.20		
Sept.	896	1,094	81.9	3.30		
Oct.	902	1,033	87.3	3.20		
Nov.	934	995	93.9	3.13		
Dec.	902	1,123	80.3	2.92		

STATISTICAL APPENDIX

REICHSBANK RATE AND RELATED FACTORS (continued)

Date	End of month			Market rate (Mo. average)	Official bank rate	
	Metallic reserve (Million marks)	Notes in circulation	Reserve ratio		Date of change	Rate
<u>1892</u>						
Jan.	960	989	97.1	1.78	Jan. 11	3.
Feb.	978	892	109.6	1.57		
Mar.	942	1,026	91.8	1.46		
Apr.	951	999	95.2	1.50		
May	998	928	107.5	1.37		
June	979	1,088	90.0	1.79		
July	983	981	100.2	1.44		
Aug.	969	974	99.5	1.44		
Sept.	888	1,115	79.6	1.86		
Oct.	865	1,076	80.4	2.18	Oct. 28	4.
Nov.	872	1,006	86.7	2.33		
Dec.	838	1,140	73.5	2.89		
<u>1893</u>						
Jan.	901	988	91.2	1.77	Jan. 17	3.
Feb.	924	928	99.6	1.31		
Mar.	869	1,070	81.2	1.75		
Apr.	863	1,013	85.2	2.06		
May	886	947	93.6	2.83	May 12	4.
June	814	1,100	74.0	3.14		
July	810	990	81.8	3.10		
Aug.	804	950	84.6	4.06	Aug. 11	5.
Sept.	739	1,101	67.1	4.63		
Oct.	773	1,033	74.8	4.51		
Nov.	827	962	86.0	4.52		
Dec.	798	1,110	71.9	4.40		
<u>1894</u>						
Jan.	880	953	92.3	2.71	Jan. 9	4.
Feb.	913	909	100.4	1.67	Feb. 5	3.
Mar.	857	1,080	79.4	1.84		
Apr.	875	1,006	87.0	1.55		
May	935	933	100.2	1.75		
June	899	1,109	81.1	1.73		
July	927	998	92.9	1.50		
Aug.	954	975	97.8	1.49		
Sept.	919	1,126	81.6	1.88		
Oct.	972	1,079	90.1	1.65		
Nov.	1,074	1,065	100.8	1.50		
Dec.	1,014	1,211	83.7	1.65		
<u>1895</u>						
Jan.	1,092	1,056	103.4	1.38		
Feb.	1,096	984	111.4	1.26		
Mar.	1,039	1,157	89.8	1.63		
Apr.	1,070	1,096	97.6	1.55		
May	1,076	1,060	101.5	1.74		
June	1,011	1,228	82.3	2.10		
July	1,018	1,093	93.1	1.64		
Aug.	991	1,074	92.3	1.57		
Sept.	915	1,283	71.3	2.50		
Oct.	914	1,192	76.7	2.54		
Nov.	903	1,149	78.6	2.93	Nov. 11	4.
Dec.	853	1,320	64.6	3.33		

STATISTICAL APPENDIX
REICHSBANK RATE AND RELATED FACTORS (continued)

Date	End of month			Market rate (Mo. average)	Official bank rate	
	Metallic reserve (Million marks)	Notes in circulation	Reserve ratio		Date of change	Rate
<u>1896</u>						
Jan.	934	1,078	86.6	2.90		
Feb.	947	1,011	93.7	2.28	Feb. 12	3.
Mar.	880	1,249	70.5	2.09		
Apr.	897	1,120	80.1	2.21		
May	921	1,040	88.6	2.66		
June	872	1,230	70.9	2.74		
July	899	1,079	83.3	2.38		
Aug.	903	1,045	86.4	2.52		
Sept.	816	1,257	64.9	3.41	Sept. 7	4.
Oct.	829	1,129	73.4	4.09	Oct. 10	5.
Nov.	858	1,065	80.6	4.52		
Dec.	805	1,258	64.0	4.67		
<u>1897</u>						
Jan.	878	1,050	83.6	3.27	Jan. 19	4.
Feb.	916	983	93.2	2.58	Feb. 26	3.5
Mar.	861	1,201	62.7	2.93		
Apr.	884	1,112	79.5	2.48	Apr. 10	3.
May	919	1,045	87.9	2.36		
June	865	1,221	70.8	2.67		
July	863	1,079	80.0	2.38		
Aug.	865	1,071	80.8	2.56		
Sept.	756	1,287	58.7	3.32	Sept. 6	4.
Oct.	800	1,165	68.7	3.88	Oct. 11	5.
Nov.	870	1,100	79.1	4.14		
Dec.	827	1,320	62.7	4.46		
<u>1898</u>						
Jan.	913	1,091	83.7	3.18	Jan. 20	4.
Feb.	963	1,022	94.2	2.59	Feb. 18	3.
Mar.	883	1,281	68.9	2.71		
Apr.	849	1,162	73.1	3.07	Apr. 9	4.
May	863	1,078	80.1	3.23		
June	809	1,266	63.9	3.57		
July	852	1,097	77.7	3.20		
Aug.	859	1,064	80.7	3.21		
Sept.	738	1,340	55.1	3.64		
Oct.	728	1,211	60.1	4.02	Oct. 10	5.
Nov.	773	1,138	67.9	4.90	Nov. 9	5.5
Dec.	752	1,357	55.4	5.26	Nov. 19	6.
<u>1899</u>						
Jan.	843	1,112	75.8	4.33	Jan. 17	5.
Feb.	887	1,050	84.5	3.78	Feb. 21	4.5
Mar.	828	1,265	65.5	4.28		
Apr.	874	1,158	75.5	3.73		
May	916	1,104	83.0	3.63	May 9	4.
June	834	1,300	64.2	3.95	June 19	4.5
July	835	1,118	74.7	3.75		
Aug.	827	1,090	75.9	4.42	Aug. 7	5.
Sept.	687	1,383	49.7	4.85		
Oct.	708	1,221	58.0	5.06	Oct. 3	6.
Nov.	730	1,148	63.6	5.65		
Dec.	701	1,359	51.6	5.97	Dec. 19	7.

STATISTICAL APPENDIX

REICHSBANK RATE AND RELATED FACTORS (continued)

Date	End of month			Market rate (Mo. average)	Official bank rate	
	Metallic reserve (Million marks)	Notes in circulation	Reserve ratio		Date of change	Rate
<u>1900</u>						
Jan.	805	1,100	73.2	4.42	Jan. 12	6.
Feb.	835	1,031	81.0	4.21	Jan. 27	5.5
Mar.	744	1,310	56.8	5.21		
Apr.	801	1,165	68.8	4.43		
May	845	1,091	77.5	4.56		
June	822	1,310	62.7	4.86		
July	860	1,122	76.6	4.06	July 13	5.
Aug.	848	1,096	77.4	4.03		
Sept.	725	1,344	53.9	4.41		
Oct.	767	1,233	62.2	4.03		
Nov.	814	1,166	69.8	4.16		
Dec.	730	1,410	51.8	4.49		
<u>1901</u>						
Jan.	856	1,156	74.0	3.57		
Feb.	894	1,057	84.6	3.22	Feb. 26	4.5
Mar.	812	1,321	61.5	3.79		
Apr.	913	1,176	77.6	3.38	Apr. 22	4.
May	971	1,108	87.6	3.19		
June	897	1,375	65.2	3.20	June 18	3.5
July	958	1,230	77.9	2.81		
Aug.	931	1,196	77.8	2.26		
Sept.	830	1,430	58.0	2.68	Sept. 23	4.
Oct.	896	1,284	69.8	2.83		
Nov.	921	1,221	75.4	2.84		
Dec.	869	1,466	59.3	2.96		
<u>1902</u>						
Jan.	1,008	1,202	83.9	2.11	Jan. 18	3.5
Feb.	1,050	1,116	94.1	1.85	Feb. 11	3.
Mar.	956	1,349	70.9	1.79		
Apr.	1,038	1,247	83.2	1.65		
May	1,072	1,182	90.7	1.98		
June	991	1,410	70.3	2.17		
July	1,021	1,232	82.9	1.59		
Aug.	981	1,191	82.4	1.73		
Sept.	840	1,495	56.2	2.14		
Oct.	858	1,327	64.7	2.73		
Nov.	878	1,248	70.4	3.12	Oct. 4	4.
Dec.	786	1,516	51.8	3.38		
<u>1903</u>						
Jan.	892	1,235	72.2	2.26		
Feb.	919	1,166	78.8	1.90	Feb. 11	3.5
Mar.	818	1,450	56.4	2.69		
Apr.	875	1,260	69.4	2.62		
May	909	1,199	75.8	3.09		
June	884	1,435	61.6	3.29	June 8	4.
July	926	1,216	76.2	2.96		
Aug.	934	1,197	78.0	3.30		
Sept.	858	1,516	56.6	3.68		
Oct.	866	1,360	63.7	3.32		
Nov.	899	1,278	70.3	3.46		
Dec.	793	1,565	50.7	3.54		

STATISTICAL APPENDIX

REICHSBANK RATE AND RELATED FACTORS (continued)

Date	End of month			Market rate (Mo. average)	Official bank rate	
	Metallic reserve (Million marks)	Notes in circulation	Reserve ratio		Date of change	Rate
<u>1904</u>						
Jan.	913	1,240	73.6	2.58		
Feb.	937	1,182	79.3	2.77		
Mar.	828	1,497	55.3	3.44		
Apr.	910	1,314	69.3	2.83		
May	965	1,210	79.8	3.10		
June	870	1,478	58.9	2.98		
July	926	1,270	72.9	2.60		
Aug.	925	1,251	73.9	2.62		
Sept.	793	1,599	49.6	3.09		
Oct.	902	1,379	65.4	3.69	Oct. 11	5.
Nov.	1,000	1,294	77.3	3.99		
Dec.	927	1,600	57.9	3.94		
<u>1905</u>						
Jan.	1,069	1,284	83.3	2.56	Jan. 10	4.
Feb.	1,096	1,211	90.5	1.93	Feb. 14	3.5
Mar.	1,016	1,544	65.8	2.22	Feb. 25	3.
Apr.	1,054	1,349	78.1	1.92		
May	1,073	1,273	84.3	2.30		
June	951	1,555	61.2	2.34		
July	961	1,320	72.8	2.12		
Aug.	932	1,308	71.3	2.23		
Sept.	732	1,683	43.5	2.99	Sept. 11	4.
Oct.	794	1,442	55.1	4.01	Oct. 3	5.
Nov.	843	1,330	63.4	4.62	Nov. 4	5.5
Dec.	804	1,657	48.5	4.99	Dec. 11	6.
<u>1906</u>						
Jan.	954	1,324	72.1	3.81	Jan. 18	5.
Feb.	970	1,250	77.6	3.35		
Mar.	889	1,629	54.6	4.02		
Apr.	974	1,396	69.8	3.44		
May	1,012	1,323	76.5	3.39	May 23	4.5
June	844	1,648	51.2	3.68		
July	912	1,377	66.2	3.49		
Aug.	878	1,360	64.6	3.43		
Sept.	675	1,704	39.6	4.23	Sept. 18	5.
Oct.	737	1,485	49.6	4.83	Oct. 10	6.
Nov.	766	1,396	54.9	5.27		
Dec.	665	1,776	37.4	5.58	Dec. 18	7.
<u>1907</u>						
Jan.	843	1,412	59.7	4.90	Jan. 22	6.
Feb.	890	1,340	66.4	4.68		
Mar.	776	1,731	44.8	5.40		
Apr.	898	1,510	59.5	4.65	Apr. 23	5.5
May	953	1,419	67.2	4.44		
June	831	1,729	48.1	4.66		
July	878	1,478	59.4	4.44		
Aug.	861	1,453	59.3	4.62		
Sept.	737	1,825	40.4	5.08		
Oct.	750	1,617	46.4	4.91	Oct. 29	6.5
Nov.	679	1,511	44.9	6.61	Nov. 8	7.5
Dec.	704	1,886	37.3	7.07		

STATISTICAL APPENDIX

REICHSBANK RATE AND RELATED FACTORS (continued)

Date	End of month			Market rate (Mo. average)	Official bank rate	
	Metallic reserve (Million marks)	Notes in circulation	Reserve ratio		Date of change	Rate
<u>1908</u>						
Jan.	886	1,484	59.7	4.98	Jan. 13	6.5
Feb.	918	1,411	65.1	4.48	Jan. 25	6.
Mar.	871	1,782	48.9	4.49	Mar. 7	5.5
Apr.	947	1,542	61.4	4.11	Apr. 27	5.
May	1,006	1,456	69.1	3.91		
June	1,032	1,793	57.6	3.33	June 4	4.5
July	1,097	1,519	72.2	2.76	June 18	4.
Aug.	1,127	1,494	75.4	2.82		
Sept.	1,034	1,897	54.5	3.14		
Oct.	1,064	1,674	63.6	2.79		
Nov.	1,087	1,547	70.3	2.54		
Dec.	980	1,975	49.6	2.92		
<u>1909</u>						
Jan.	1,096	1,512	72.5	2.24		
Feb.	1,091	1,418	76.9	2.17	Feb. 16	3.5
Mar.	1,013	1,853	54.7	2.66		
Apr.	1,059	1,623	65.2	1.98		
May	1,063	1,508	70.5	2.32		
June	1,029	1,886	54.6	2.91		
July	1,067	1,597	66.8	2.28		
Aug.	1,064	1,565	68.0	2.13		
Sept.	910	2,023	45.0	3.06	Sept. 20	4.
Oct.	925	1,736	53.3	3.83	Oct. 11	5.
Nov.	982	1,599	61.4	4.47		
Dec.	915	2,072	44.2	4.34		
<u>1910</u>						
Jan.	1,060	1,579	67.1	3.09	Jan. 2	4.5
Feb.	1,082	1,480	73.1	2.94	Feb. 10	4.
Mar.	1,041	1,916	54.3	3.52		
Apr.	1,089	1,667	65.3	3.14		
May	1,140	1,536	74.2	3.19		
June	1,027	1,924	53.4	3.23		
July	1,059	1,617	65.5	3.03		
Aug.	1,047	1,578	66.3	3.33		
Sept.	908	2,056	44.2	3.85	Sept. 26	5.
Oct.	947	1,751	54.1	4.15		
Nov.	1,014	1,599	63.4	4.50		
Dec.	924	2,073	44.6	4.53		
<u>1911</u>						
Jan.	1,107	1,573	70.4	3.50		
Feb.	1,139	1,486	76.6	3.07	Feb. 6	4.5
Mar.	1,059	1,974	53.6	3.34	Feb. 18	4.
Apr.	1,135	1,659	68.4	2.96		
May	1,178	1,558	75.6	2.84		
June	1,121	1,965	57.0	3.38		
July	1,178	1,647	71.5	2.46		
Aug.	1,170	1,640	71.3	3.03		
Sept.	995	2,295	43.4	4.16	Sept. 19	5.
Oct.	1,053	1,915	55.0	4.32		
Nov.	1,106	1,755	63.0	4.51		
Dec.	1,008	2,251	44.8	4.86		

STATISTICAL APPENDIX

REICHSBANK RATE AND RELATED FACTORS (concluded)

Date	End of month			Market rate (Mo. average)	Official bank rate	
	Metallic reserve (Million marks)	Notes in circulation	Reserve ratio		Date of change	Rate
1912						
Jan.	1,185	1,720	68.9	3.33		
Feb.	1,223	1,608	76.1	3.79		
Mar.	1,152	2,099	54.9	4.72		
Apr.	1,240	1,786	69.4	3.75		
May	1,251	1,657	75.5	3.91		
June	1,228	2,088	58.8	4.14	June 11	4.5
July	1,271	1,743	72.9	3.36		
Aug.	1,240	1,753	70.7	3.93		
Sept.	1,145	2,274	50.4	4.38		
Oct.	1,132	1,993	56.8	4.19	Oct. 24	5.
Nov.	1,065	2,010	53.0	5.23	Nov. 14	6.
Dec.	1,037	2,519	41.2	5.94		
1913						
Jan.	1,170	1,962	59.6	4.68		
Feb.	1,192	1,876	63.5	5.15		
Mar.	1,207	2,325	51.9	5.90		
Apr.	1,252	2,051	61.0	4.56		
May	1,318	1,913	68.9	5.31		
June	1,363	2,317	58.8	5.53		
July	1,418	1,949	72.8	4.65		
Aug.	1,401	1,916	73.1	4.88		
Sept.	1,408	2,456	57.3	5.35		
Oct.	1,462	2,119	69.0	4.71	Oct. 27	5.5
Nov.	1,503	1,982	75.8	4.45		
Dec.	1,447	2,593	55.8	4.57	Dec. 12	5.
1914						
Jan.	1,575	2,053	76.7	3.11	Jan. 22	4.5
Feb.	1,611	1,954	82.4	3.06	Feb. 5	4.
Mar.	1,579	2,428	65.0	3.37		
Apr.	1,657	2,101	78.9	2.38		
May	1,635	2,014	81.2	2.60		
June	1,631	2,407	67.8	2.86		
July	1,528	2,909	52.5	2.48		

Sources:

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