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Working Paper

The Early Establishment and Development of Banking in Japan: Phases and Policies 1872-1918

Center Discussion Paper, No. 294

Provided in Cooperation with:

Yale University, Economic Growth Center (EGC)

Suggested Citation: Teranishi, Juro; Patrick, Hugh (1978) : The Early Establishment and Development of Banking in Japan: Phases and Policies 1872-1918, Center Discussion Paper, No. 294, Yale University, Economic Growth Center, New Haven, CT

This Version is available at:

<https://hdl.handle.net/10419/160221>

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New Haven, Connecticut

CENTER DISCUSSION PAPER NO. 294

THE EARLY ESTABLISHMENT AND DEVELOPMENT OF BANKING IN JAPAN:

PHASES AND POLICIES 1872 - 1913

Juro Teranishi and Hugh Patrick

August 1978

Note: Center Discussion Papers are preliminary materials circulated to stimulate discussion and critical comment. References in publications to Discussion Papers should be cleared with the author to protect the tentative character of these papers.

THE EARLY ESTABLISHMENT AND DEVELOPMENT OF BANKING IN JAPAN:

PHASES AND POLICIES 1872 - 1913

Juro Teranishi and Hugh Patrick*

I. Introduction

One of the important institutional components of the process of economic development for market-oriented economies is the successful establishment of a modern financial system. This is, of course, a complex matter, involving many factors and issues. In this paper we focus on two important themes: the timing (phasing) of the early establishment and development of the Japanese commercial banking system, and the role of government policy in this process. The early establishment of banking relative to modern industry is one of the well-stylized propositions about Japanese economic development. However, the literature is not precise regarding the timing of the process whereby financial development became important. In the following section we present measures to define the phases of the early development of Japan's modern banking sector. Our main hypothesis is that banks as financial intermediaries became quantitatively significant around 1895, and only after

*We have benefitted from the research assistance of Kazumi Asako and the comments of Shinichi Ichimura, Brock Short, and Yasukichi Yasuba on an earlier draft presented to the Conference on Japan's Historical Development Experiences and Contemporary Developing Countries (Tokyo: International Development Center of Japan, February 1978); our research has received financial support from the Japan Economic Planning Agency, Ford Foundation, and Yale University Sumitomo Fund.

about 1905 did the allocation of funds by the banking sector come to exert substantial influence on the entire economy.

This paper focuses on the growth and composition of bank liabilities--private deposits, equity, and credit from the government and the central bank--as major measures of financial development. The concern is with the mobilization of savings: from the viewpoint of individual financial institutions before funds can be lent they must be raised.¹ Previous studies have typically relied on bank equity capital as an indicator of development. This is a poor measure since bank equity does not indicate the role of banks as financial intermediaries or of indirect securities as monetary instruments. In brief, the essence of banking is deposits. To understand this point, consider the situation where bank liabilities are mainly composed of borrowing from government and equity capital. Bank equity is a primary security; it could be invested directly into capital accumulation. There is no real role of banking as a financial intermediary in this case. This same analysis applies to bank credit from the government. As will be seen below, this was more or less the state of early banking in Japan. Therefore, a more detailed examination is needed to understand the meaning of the establishment of banking.

While the importance of the government in the early development of the Japanese banking system has been well recognized, previous literature tends either toward general statements or toward detailed specific bank history cases' studies without a quantitative synthesis. The

¹The typical approach--analysis of efficient allocation of loanable funds by evaluation of bank asset portfolios--while certainly important is perhaps overdone. Unfortunately, data are not available for this period to analyze the efficiency of bank lending. Porter (1966) adopts an approach similar to ours.

government's policies regarding entry and competition, the determination of interest rates, and inflation were particularly significant. Of special importance was the government provision of loanable funds to commercial banks. Indeed, our hypothesis is that the main thrust of early government policy toward the banking sector can be summarized as the allocation of government credit to banks under a freely competitive interest rate system. Initially, the government supplied large sums of credit to banks, encouraging the inauguration of banking business; then it gradually decreased its credit (in relative amounts), inducing the substitution of private deposits for its credit. It will be shown in Section III that this policy was quite effective in promoting deposit banking.

II. Phases of Banking Development

A. Institutional Change

We confine ourselves to the period between 1872 when the first modern commercial bank was established until the eve of World War I, when the banking system had become well established.¹ This was an era (beginning in Meiji 1--1868) of major institutional change in Japan's economy, politics and society. A modern financial system was created in an evolutionary process that saw considerable changes in the nature of the banking system as well as the creation of various types of financial institutions. Moreover, the traditional financial system became

¹The subsequent period, between World War I and World War II, was a turbulent one of mergers and bankruptcies among small banks and the rise of large, zaibatsu banks; see Teranishi (1977b). This later period of financial development will be treated in a separate paper.

increasingly integrated with the new modern system, and the latter came increasingly to prevail (at least in the modern industrial sector.)

Well prior to the establishment of commercial banks and other modern financial institutions, Japan already had a quite developed, even sophisticated, traditional financial system. At the end of Tokugawa (1850s-1860s) the economy was quite monetized, the use of currency widespread. There were urban bill brokers, large (rice) merchant houses specializing in loans to daimyo, and other manifestations of a nascent modern financial system. Moneylenders and moneylending was widespread, in rural as well as urban areas. Nonetheless financial markets, especially in smaller towns and rural areas, were local and segmented; there probably were wide regional disparities in interest rates on borrowing and in rates of return on real investment. Most private investment had to have been funded by self-financing or, at most, borrowing from friends and relatives. The practice of making deposits with others--by whatever name--was not widespread or large in amount.

Superimposed upon this traditional financial system was a new set of modern financial institutions, eventually more efficient in financial intermediation, more competitive, more innovative, more willing to extend the maturity of loans and deposits. Since this

process is described elsewhere,¹ we provide only the barest summary. The first successful commercial banks, termed national banks, were founded in 1872. They were private banks with the privilege of bank note issue. Although rather inactive at first, the national banks increased in number very rapidly after the 1876 revision of the National Bank Act, which reduced reserve requirements (as cash in vault), from 2/3 to 1/4 of bank note issue.² By 1879, the number of national banks reached its predetermined maximum of 153. Thereafter, the establishment of other forms of commercial banks--private banks, saving banks, and quasi banks--accelerated under the general commercial code.³

In 1882, the Bank of Japan was established with one major purpose to obtain central bank monopoly control over the issuance of currency. At the same time, the National Bank Act was revised once

¹See for instance, Asakura (1961), Kato (1957), and Patrick (1967). Basic data are provided in Statistical Tables I, II, and III. We define the banking system as "all banks," which includes commercial banks and special banks. Note that savings banks and special banks had demand as well as time deposits. The precise coverage of banks is explained in the notes to Statistical Tables I and II.

²The instrument of reserves was also changed from specie to government currency.

³The first private bank was Mitsui Bank established in 1876. Quasi-banking companies engaged in the multiple functions of trade, and even production, as well as finance.

again, stipulating the expiration of national bank charters twenty years after establishment, ending their privilege of bank note issue, and providing for the orderly, gradual redemption of national bank notes. In 1893 the Ordinary Bank Act and the Saving Bank Act were enacted and existing commercial banks (national banks, private banks, saving banks and quasi banks) were converted into either ordinary or saving banks.¹

Although the Yokohama Specie Bank (for the financing of foreign trade) was established as early as 1880, most of the special banks for provision of long-term credit were founded around 1900. The postal saving system began in 1875 and the first insurance company was founded in 1879. The postal savings system was of substantial importance qualitatively in the 1880s in educating the populace about savings deposits and even quantitatively relative to the small amounts of private deposits in the banking system. The gold standard system was established in 1897 on the basis of reparation payments from the Sino-Japanese war.

B. Indexes of Banking Development

It is difficult to judge the timing of the establishment of the banking system simply by means of historical cases of individual banks because their establishment is so dispersed over time. It is preferable to examine broader quantitative evidence for the banking sector as a

¹As can be seen from Statistical Table II, the number of banks decreased by one-third in 1893 and equity capital declined by one-tenth. This was mainly due to the dissolution of some of the quasi banks at that time.

whole. Available data can be classified into the following categories:

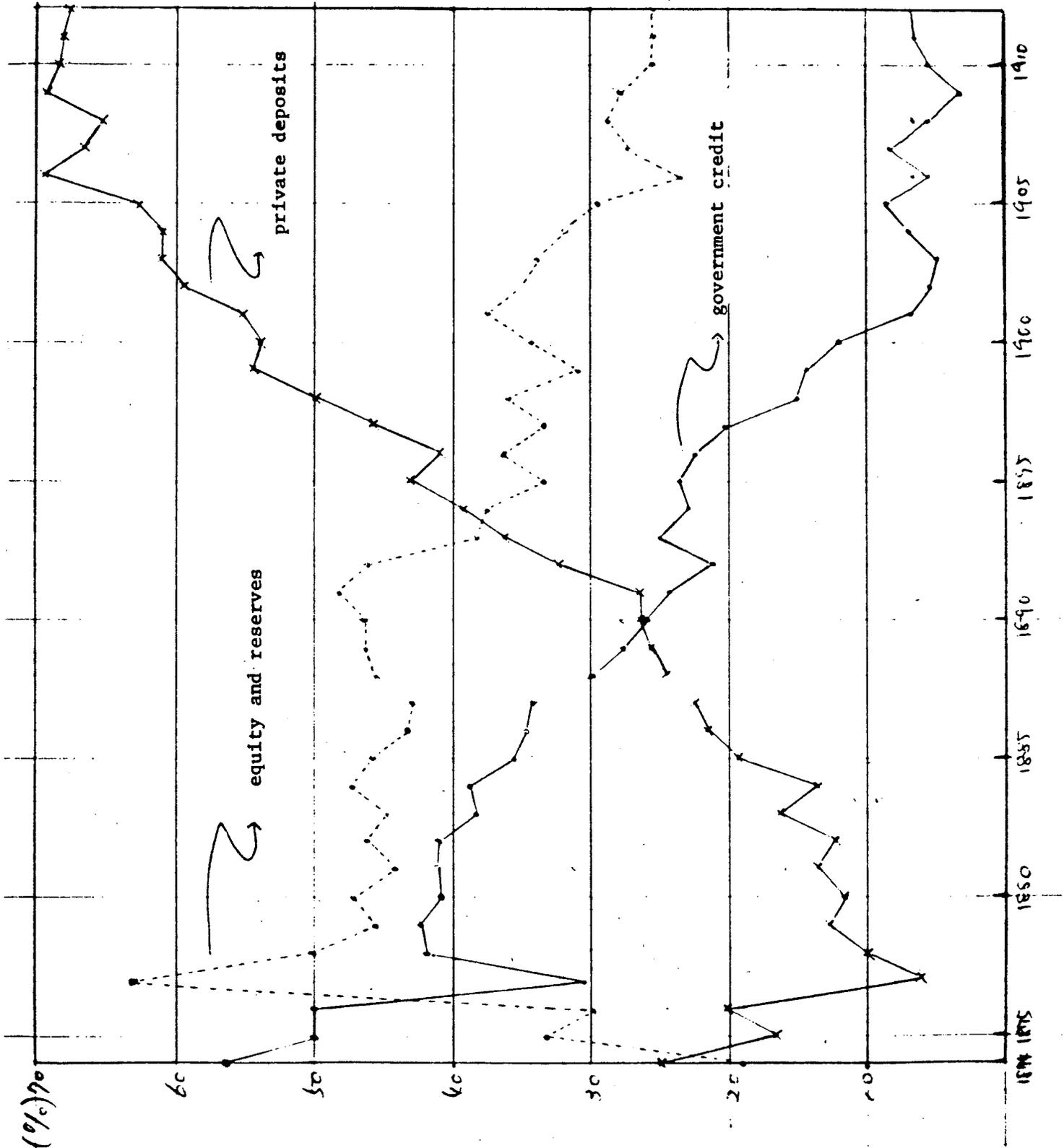
(1) the financing of banking; (2) the relative size of bank funds to other aggregates; (3) differentials of various interest rates; and (4) the relative size of modern financing to traditional finance.

First, a brief discussion of the general price level environment is warranted. The effect of the rate of inflation, and hence inflationary expectations, is one important determinant of the growth of the demand for deposits and of the financial system in general, especially where government policy sets nominal ceiling interest rates below market equilibria. Interest rates in Meiji Japan were determined in the marketplace, so this was not such a problem. While little is known about inflationary expectations in Meiji Japan, it is reasonable to infer that they were low. The rates of price change were erratic and in some years negative, with considerable dispersion by commodities and by region. As the data (see Statistical Tables II and III) for annual changes in the aggregate price expenditure index indicate, overall the period from the end of the Matsukata deflation in 1886 until World War I was one of modest price rise, at a 2.8% average annual rate, substantially below average interest rates on time deposits and loans. While the relationships among the (erratic) pattern of relatively low rates of inflation, financial development, and real economic performance require further analysis, we conjecture that inflation did not inhibit financial development over this period.

(1) Financing of banking. Figure 1 shows certain noteworthy

Figure 1

Percentage Composition of Bank Liabilities



Notes: Percent composition relative to the total of the three items.
Before 1887, national banks and after 1888 all banks.

Sources: Statistical Tables I and II.

features of early bank financing. (i) In the early period (around 1880), the share of private deposits in total bank liabilities was only 10-20%; most bank funds were obtained in the form either of government credits¹ or equity capital. (ii) After 1880, the share of private deposits increases rapidly and, concomitantly, the share of government credit decreases from the 40% level to less than 10%. The share of equity capital decreased moderately from 45% to 25%. (iii) After 1905 the percentage composition of these three sources of funds became relatively constant.

The initial low share of deposits and high share of equity means that in the early stages intermediation by banks was quite limited (as already noted, bank equity is itself a primary security and could have been invested directly into real capital accumulation). Even by 1890 the share of equity remained at the 45% level.

(2) Relative size of bank funds to other aggregates. Figure 2 shows the ratios of bank funds (outstanding balances) to various aggregates.² (iv) The ratio of total bank funds to the real capital stock shows a steady increase until around 1905, and thereafter levels

¹Discussed in more detail in Section III. Government credit is composed of government deposits, national bank notes and central bank loans to banks.

²The data reflected in Figure 2 are in stock terms of outstanding balances; bank funds refer to total liabilities including bank net worth.

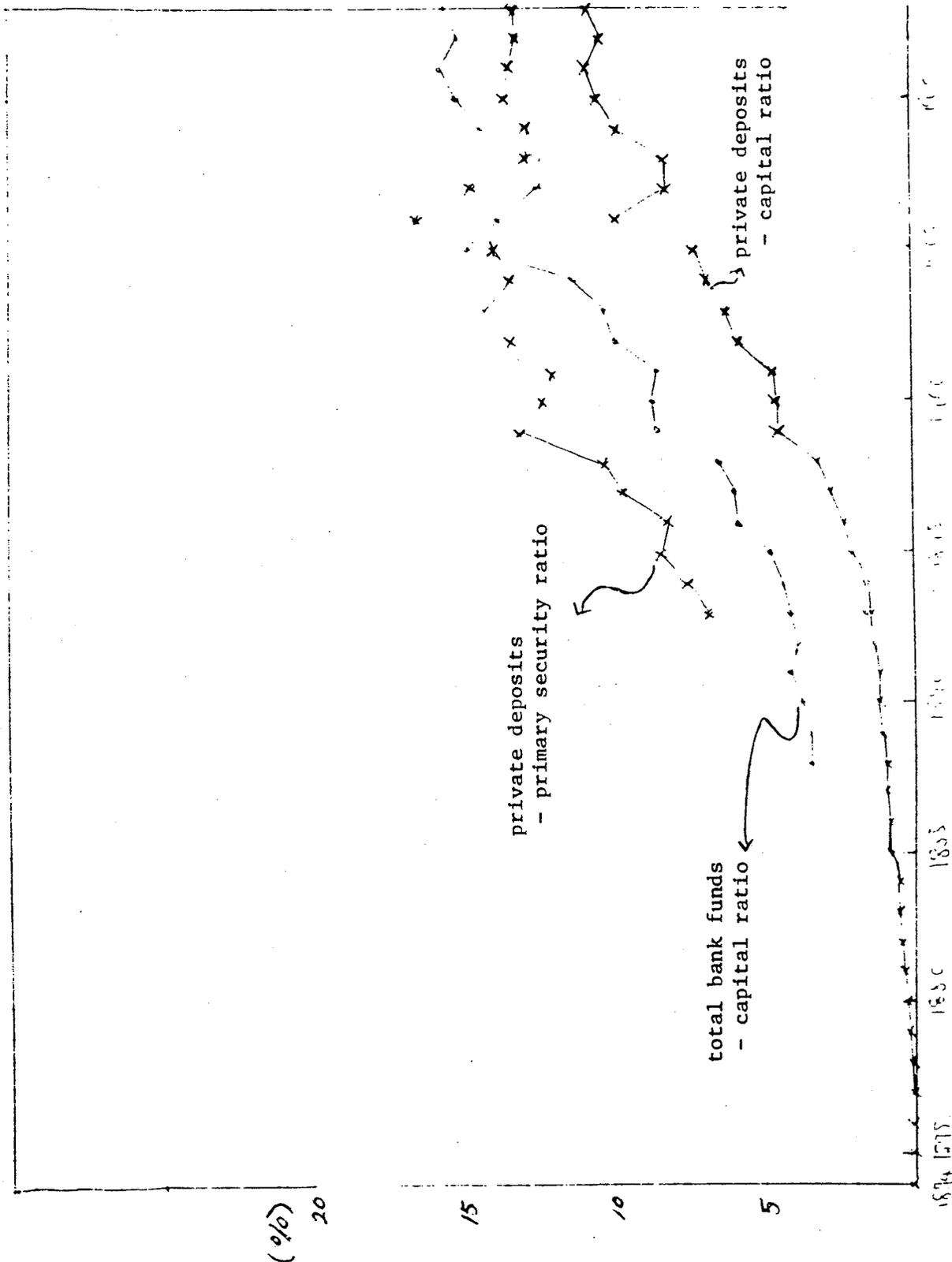
off. (v) A similar phenomenon is seen with respect to the ratio of private deposits to total primary securities. Both these indexes can be considered fairly precise measures of the degree of financial intermediation in stock terms. Incidentally, it should be noted that a portion of bank funds prior to 1892 is estimated, probably with an upward bias.¹ Therefore, we can safely say that the degree of intermediation by banks steadily increased until around 1905.

Similar ratios in flow terms of financial and real (investment) variables shown in Figure 3 demonstrate the following. (vi) The ratio between the change in private deposits and real investment rises substantially around 1895, as does the total bank funds/investment ratio. Of course, this is a direct counterpart of proposition (iv) since a change in the stock ratio is preceded by a change in the flow ratio. Nevertheless, the contrast before and after 1895 in Figure 3 is in itself impressive. The degree of financial intermediation in flow terms became substantial from 1895, though with certain erratic short-term movements.

(3) Differentials Among Interest Rates. When financial markets are segmented, the efficient allocation of funds is retarded even if the degree of financial intermediation is quantitatively high. We can think of two kinds of market segmentation in developing countries: geographic, by region and location; and between traditional and modern financing of

¹For example, the private deposits of quasi banks are estimated by assuming the same deposit-equity ratios for private and quasi banks. See Statistical Tables I and II.

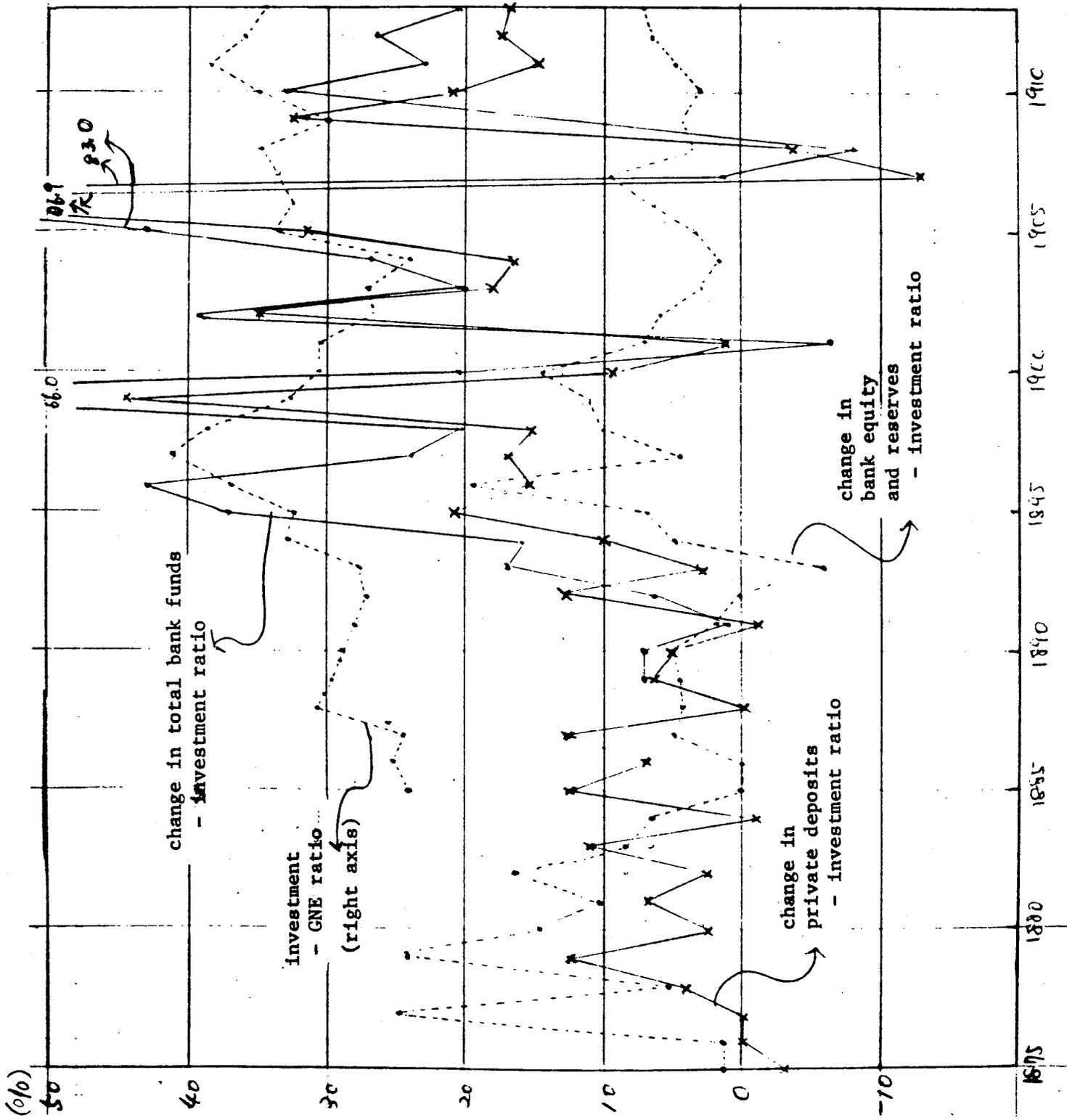
Relative Importance of Bank Funds (Ratios of Outstanding Balances)



Notes and Sources: Capital is the gross real capital stock in current prices in Statistical Table II. Primary securities are the sum of columns (2), (3) and (4) in Statistical Table II. Private deposits are the sum of columns (2), (5), and (8) and (10) of Statistical Table I plus column (6) of Statistical Table II. Total bank funds are the sum of columns (6), (7) and (8) of Statistical Table II.

Figure 3

Relative Importance of Bank Funds
(Flow Ratios of Changes in Outstanding Balances)



Notes and Sources: Investment is gross domestic fixed capital formation at current prices. For 1874-84 GDCF of the agricultural sector from LTES Vol. 5 is added to the total of Table 1 in LTES Vol. 4. After 1885 LTES Vol. 1 Table 4.

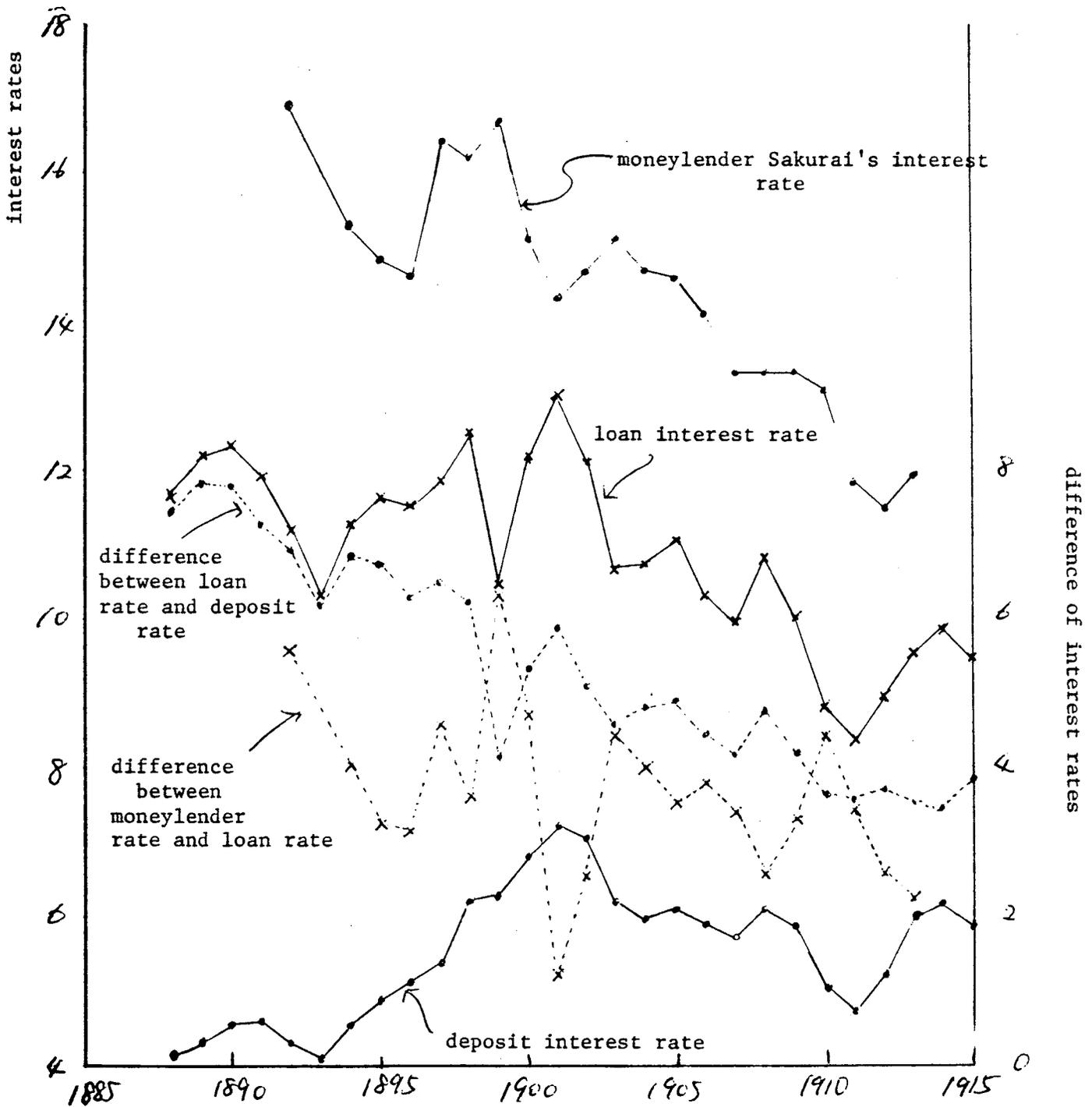
Private deposits and total bank funds are annual differences of the outstanding balances given in Statistical Tables I and II and used in Figure 2.

the same kinds of economic activity. Differentials among interest rates for the same types of financial claims in different markets provide a good measure of the degree of market segmentation.

Figure 4 represents time series data for interest rates on bank deposits and loans and on loans of a major moneylender (Sakurai of Miyagi Prefecture in Tohoku), and on relevant differentials among rates. Two results can be obtained. (vii) The difference between the average loan interest rate and average deposit interest rate decreases steadily until 1910 and thereafter levels off. This narrowing reflects both an increasing managerial efficiency by banks and heightened competitiveness within the banking industry. (viii) While there is no correlation between the bank loan interest rate and the moneylending rate in the early years, a positive relationship emerges from around 1900. The simple correlation coefficient between the moneylender Sakurai's lending rate and the average bank lending rate in Miyagi Prefecture (where Sakurai was located) is 0.068 for the period 1892-1900, 0.724 for 1901-1918, -0.084 for 1892-1904 and 0.560 for 1905-1918. This suggests¹ that traditional financing represented by moneylending, initially autonomous, had to compete increasingly with modern bank finance, so that its lending rate was much influenced by the bank loan rate from 1900-1905 on. Since, as is discussed below,

¹This point was originally made by Shibuya in his extensive studies on moneylending (1959), (1962a) and (1962b). We are grateful to him for providing us unpublished data on the moneylender interest rate.

Interest Rates and Their Differentials



Notes and Sources: The moneylender interest rate is that of Sakurai (one of the large moneylenders in the Tohoku region), calculated by Ryuichi Shibuya. The loan interest rate and deposit interest rate (time deposit, six months) are national averages, taken from Asahi Shinbun Nihon Keizai Tokei Nenkan. Data for 1898 are estimated from Tokyo area by applying the ratio for 1889.

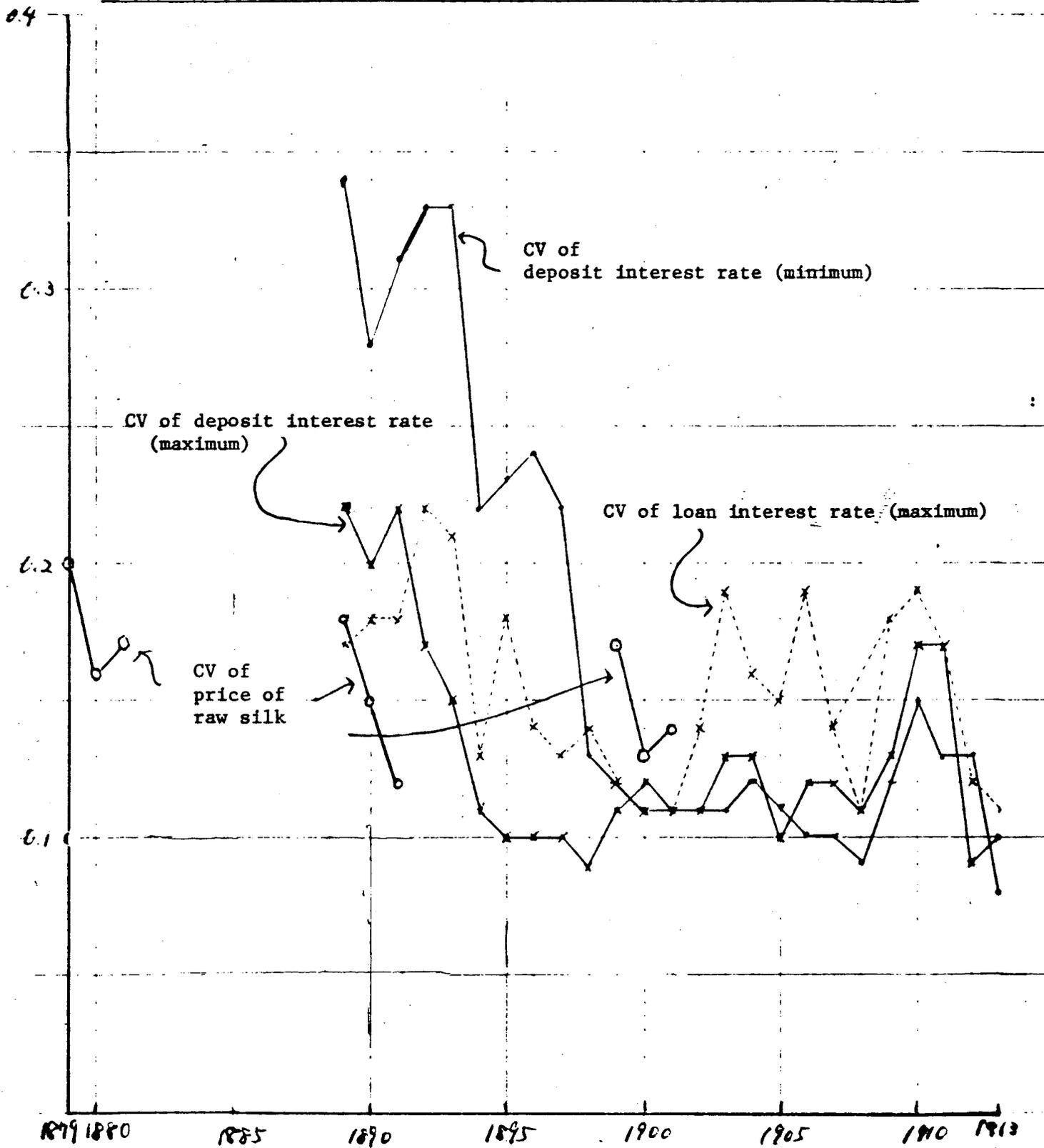
traditional finance continued to retain a significant place throughout the prewar period, it is important to know the traditional financial system was becoming integrated with the modern financial system from about 1900-1905.

Figure 5 provides another set of information concerning the degree of market segmentation. In it are graphed the estimates of the coefficient of variation for prefectural data on deposit and loan interest rates and price of silk. (ix) It can be seen that the regional differentials for the deposit interest rate decreased quite rapidly in the 1890s. This suggests¹ the deposit market, which had been regionally segmented initially even within the modern banking system, reflected the integration of the banking system into much more of a national market by around 1900. However, there was no definite convergence in the coefficient of variation for the interest rate on loans, while the coefficients of variation of commodity prices had moderate downward trends. The lack of lending rate convergence suggests a continuing regional difference in industrial structure and demand for funds, while the narrowing of variation in commodity prices suggests a general

¹Yamamura (1970) is a detailed study on this convergence of regional interest rate differentials. It can be argued that the ready availability of postal savings deposits at a common national interest rate became the standard against which local banks in various regions had to compete, thereby helping to create in effect a national market for deposits.

Figure 5

Coefficients of Variation (CV) for Prefectural Interest Rates and Prices



Note: Coefficients of variation are calculated from prefectural data. The price of raw silk is that of medium quality.

Source: Interest rates are from the annual Nippon Teikoku Tokei Nenkan: Prices of raw silk are from Noda [1963].

movement toward integration of segmented markets in the real economy, induced probably by the development of information and transportation systems.

(4) Relative size of modern to traditional finance. Virtually every economy has some methods of traditional financing prior to the introduction of modern banking. Therefore, the development of modern banking, and a modern financial system generally, in a sense involves a process of substitution of traditional financial methods by banking and other modern financial instruments. The financial markets of Meiji Japan were characterized by the prevalence of traditional financial methods. For example, Asakura (1961) estimated that loans by pawnbrokers amount to 70% of the total lendings to the private sector of national banks (circa 1884). We have also pointed out the continuing heavy reliance of small and medium-sized manufacturing firms as late as 1932 on borrowings from acquaintances and relatives (Teranishi and Patrick {1976}) as well as other traditional types of finance.

Although available data are piecemeal, fairly good estimates on the debt composition of the agricultural sector are available (Teranishi, 1977a). At the end of 1888, the agricultural sector obtained only 7.2% of borrowings from modern financing (banks and credit cooperatives), while the overwhelming share (92.8%) came from traditional financial institutions (moneylenders, merchants and pawnbrokers) as well as relatives and acquaintances (including rotating credit associations). In 1911, the percentage of borrowing from modern financial sources was 35.7%, that from traditional financial institutions 21.5%, and that from relatives and acquaintances 42.9%. The same categories in 1932 comprised 47.3%, 8.6% and 44.1% respectively.

The data indicate that the penetration of modern financing in agriculture took place during the period 1888-1911. Making a reasonable assumption that the percentage of borrowing from relatives and acquaintances also was about 40% in 1888, it can be said that a rapid substitution of traditional finance by modern financing methods occurred during 1888-1911 in the agricultural sector. However, it is important to remember that the share of modern financing still remained below 50% even in 1932 in the agricultural sector (as well as, presumably, in the small-scale indigenous parts of the secondary and tertiary sectors).

The process of transformation from traditional to modern financial institutions, while complex in detail, seems to follow certain general patterns. Some types of institutions evolve from traditional forms. Most commercial banks were probably grafted onto the traditional system; some (especially quasi-banks and smaller ordinary banks) evolved from the moneylending activities of moneylending specialists, and merchants and pawnbrokers who also lent money and provided credit. While a number of "official" histories of individual banks are available thus far only a few analytical case studies have been prepared.¹

C. Phases of Banking Development

The various data presented above make it possible to suggest the following phasing of the early development of the modern banking sector.

¹Chihokinyushi Kenkyukai [1974] provides interesting studies of the Kazama Bank by Shibuya, the Kujine Bank by Takashima, and the Yamaguchi Bank by Takahashi.

Phase 1 (1873-1894)

Although modern banking was established institutionally, its financing relied heavily on equity capital and government credit. Therefore, banks were not very different from moneylending companies, and their role in financial intermediation was small.

Phase 2 (1895-1904)

Increases in private deposits became sufficiently substantial as to affect the volume of private real investment; banks had thus become financial intermediaries in the sense of converting primary securities (lending and investments by banks) into indirect securities (private deposits). However, financial markets were still regionally segmented and traditional financing remained quite independent, so that the competitive efficiency of allocation of funds was still far from fully attained. Moreover, in terms of outstanding balances bank financing remained quite dependent on equity and government credit.

Phase 3 (1905-1913)

Deposit banking became well developed. The deposit market became nationally integrated, and to a considerable extent traditional with modern finance, with modern financial sector rates shaping those in traditional moneylending, so that the conditions for attaining competitive efficiency in fund allocation are also established. Moreover, the institutional diversification of the banking system by creation of various special banks has been completed. The number of ordinary banks has begun to decline as the smallest and weakest banks are weeded out.

How significant is this phasing? Several points can be made. First, the effective establishment of banking in Japan should be considered to have occurred during 1895-1905. This is relatively early in the sense of being concurrent with the beginning of so-called modern economic growth, but is not so early as has usually been suggested. The standard assertion of early development has been somewhat methodologically deficient in simply focussing on the amount of bank equity capital, without consideration of other sources of funds, in particular the rise of deposit banking.¹

Second, our phasing of bank development corresponds quite closely to the phasing of economic growth by Ohkawa and Rosovsky (1973): 1868-1885, the years of "transition"; 1885-1905, the years of "initial" modern economic growth; and 1905 and subsequent, the years of modern economic growth. Moreover, a recent paper by Ohkawa and Ranis (1978) argues that technology change was mainly responsible for per capita income growth in the pre-1905 subphase, while the role of saving became relatively more important in the 1905-1917 subphase. One highly plausible conjecture is that the increasing role of saving is closely related to the establishment of the financial system. This certainly deserves further investigation.

¹Important exceptions are Kato (1957) and Fujino (1965). Kato emphasizes the rise of deposit banking as one of the key characteristics of early bank development, together with his generalized notion of organ (kikan) banks. Fujino explicitly analysed the lead-lag relationship between deposits and bank equity, arguing that in the early stages changes in bank equity preceded changes in the ratio of deposit withdrawal to bank equity.

Third, a remaining important problem is how private investment was financed in the early years, especially before 1885 or so. Our tentative hypothesis is that investment was mainly financed by the allocation of accumulated funds from traditional to new activities by rich merchants, landlords, and moneylenders operating through traditional financial channels.

Fourth, it appears that Japanese financial development occurred relatively early in its modern economic development process, though further explicitly comparative research is required.¹ Certainly the national integration of regional financial markets took place relatively early. It has been suggested that the time lag between the onset of economic growth and the movement toward financial integration was between 50-75 years in nineteenth century United States, and two to three decades in nineteenth century Austria.² For Japan the ratio of bank assets to GNP, a common if somewhat crude indicator of financial development, rose from 23.0% in 1892, to 31.9% in 1897, and 49.9% in 1905, levelling off thereafter to a ratio between 50-60% until 1913. In comparison, for the 49 developing countries for which data are available in the International Monetary Fund, International Financial Statistics, in 1971 only four countries had ratios above 40%; another six were in the 30-40% range, 16 between 20-30%, and 19 between 10-20%, while four had ratios less than 10%.

¹For comparisons with Europe and the United States see Cameron [1967] and [1972], and Goldsmith [1969].

²See Good [1977], which includes an analysis of the Austrian case as well as citations to the literature on quantitative analysis of declines in interregional differences in interest rates. The classic study, for the United States, is Davis [1965].

III. Government Policies for Development of the Banking System

A. Banking Policies

Government policies toward banking and the banking system throughout this period were carried out by a process of trial and error. One early example was the shift in policy from the pursuit of an American-type national bank system to a British-type central banking system with the creation of the Bank of Japan. Another example is the way in which special banks were created to meet financial needs not well met by commercial banks. Accordingly, analysis of the policy issues is quite complicated, and it is not easy to say whether there was a central motif in the policy goals or the process. However, from the perspective of hindsight, two major themes seem to have characterized the entire process. One is the consistent pursuit of a freely market-determined interest rate policy concomitant with the creation of a highly competitive banking system, and another is the effective manipulation of government credit to the private banking sector.

The Japanese interest rate system was essentially free, with rates determined in the market by the forces of demand and supply. There was virtually no official regulation of or control over interest rates. The sole regulation was the usury law established in 1877 which stipulated maximum loan rates.¹ However this law was not effective because there were no penalties for violation, and moneylenders and most banks felt no restraint in setting interest rates higher than the maximum.²

¹Risoku Seigen Ho (Interest Rates Limiting Act); the maximum rates were set at 20% for loans of less than 100 yen, 15% between 100 to 1,000 yen, and 12% more than 1,000 yen.

²In 1878, the National Bank Act was revised requiring the national banks to obey the usury law. However, the maximum rates were too high to be effective ceilings because national banks had relatively large and safe borrowers and the rate of inflation was moderate following the Matsukata deflation.

According to Shibuya [1965], 65% of loans made by moneylender Sakurai in 1885 were at illegally high rates. There was no official regulation of deposit interest rates. Occasional agreements among leading banks with respect to maximum rates were also ineffective because of lack of penalties for violation.¹

This free interest rate policy may not have been intentional or conscious, since there was no firm idea during this period of using interest rate regulations as policy instruments.² However, in terms of the comparison of Japanese historical policy with that in LDCs today, the implications of this lack of interest rate regulation and of reliance on market mechanisms in finance are well worth exploring.

Going hand in hand with a free, market-determined interest rate policy was a much more explicit policy of free entry into banking. While, as already noted, the number of national banks was restricted in the 1870s to a total of 153, there were no substantial official restrictions on the establishment of private banks or quasi-banks. The Ordinary Bank Law of 1893 also made entry very free (and easy). There were no minimum capital requirements and Ministry of Finance "guidance" to establish minimum capital levels were not really effective during the period under consideration here. Accordingly, the number of banks increased rapidly until the turn of

¹Such agreements were made in 1901 in Osaka and 1902 in Tokyo. The first agreement with a penalty rule was made in 1918 among major banks in Tokyo, Osaka and Nagoya.

²In the debates on legislation, arguments in favor of the usury law were based on distributional equity, while opponents based their arguments on the principle of free markets.

the century, as previously discussed, due in part to the growth in demand for bank services, the desires of entrepreneurs to establish affiliated ("organ") banks, and the incentives offered by government credit as is analyzed below.

This laissez-faire approach also characterized the Bank of Japan in the case of bank runs, which occurred in 1900 and 1907. In contrast to its active role in the 1920s and 1930s in shoring up banks and facilitating mergers, the Bank of Japan did not behave as a real lender of last resort to individual banks during this period.¹ Accordingly, banks held substantial cash in vault.² Indeed, the ratio of currency in vault to bank deposits was as high as 49% in the late 1880s, declining steadily thereafter to 11-12% at the turn of the century and about 9% prior to World War I.³ However, as bank currency holdings declined relatively their deposits with other banks--the second level of reserves--rose somewhat, so that on average total reserves remained in excess of 20 percent. In addition banks held government bonds in part at least as secondary reserves.

B. The Role of Government Credit (G)

The manipulation over time of government credit to banks (hereafter called G) seems to have been rather intentionally pursued. G was composed of three main items: national bank note issue, government

¹The Bank of Japan did lend 500,000 yen to the Osaka Bankers Association in 1900 to help member banks. See Takizawa [1922], pp. 637-664 for a detailed discussion of the 1900 panic.

²See Statistical Table II, columns (19), (20) and (21). The ratio of currency held by banks to currency in circulation rose substantially over the period.

³Statistical Table II, column (24).

deposits, and central bank loans. Let us explain each briefly.¹ Data on the composition of each component appears in Table 2; refer also to Figure 1 for evidence on the relative importance of G in bank funds. The time series of G appears in Statistical Tables 1, column 6, and II, column 7.

(1) National Bank notes. The bank notes issue allowed by national banks comprised a major part of G in the first half of Meiji. Under the revision of the National Bank Act in 1876 a national bank could issue its own bank notes up to 80% of its equity capital,² and reserve requirements for note issue was reduced to 20% of equity capital and could be held in government paper currency rather than specie. This new Act made banking a lucrative business; as noted earlier the number of national banks increased rapidly from 4 in 1875 to 151 in 1879. Analytically, it is reasonable and useful to classify this right to issue currency--typically reserved to governments and central banks--as a form of government credit to the (private) national banking system. Bank note issue was in effect the equivalent of interest-free loans from the government to the banks (Patrick [1966] and [1967]). After this foundation of the national bank system, the government did not subsequently increase the allowable upper limit of bank note issue. This was partly because of the deflationary policy

¹We use the term government credit to refer to all credit from the monetary authorities, including the central bank. Bank holding of government bonds in their asset portfolios is not subtracted since we assume this was done independently on a competitive allocative bases by the banks. In principle required reserves for deposits and bank note issue should be subtracted, but there was no Bank of Japan reserve requirement system during this period.

²Moreover, 80% of equity was permitted be paid in the form of government bonds, in fact hereditary pension bonds paid to daimyo and samurai.

Table 1

Percentage Composition of Government Credit (G)
to The Private Banking System

	(1) National Bank Notes	(2) Borrowing From The Bank of Japan	(3) Government Deposits
1874-78 ^a	38.7 ^b	11.7 ^c	49.6
1879-82	84.9	2.9 ^c	12.5
1883-87	75.7	7.5 ^c	16.8
1888-92	36.4	40.9	22.6
1893-97	17.9	69.2	13.0
1898-1902	0.4	87.0	12.8
1903-07	0.0	86.8	13.2
1908-12	0.0	82.3	17.7

Note: Before 1887, only national banks; after 1888, all banks; during 1888-92, G to quasi banks is assumed to be zero. All figures are based on annual averages.

(a) at the end of June

(b) amount of national bank notes in circulation.

(c) based on figures of borrowings from the liability side of the national bank balance sheets, composed of loans from the government and from other banks including the Bank of Japan following its establishment; in principle loans from other commercial banks should be excluded.

Source: Goto [1970] and annual issues of Ginko Kyoku Nenpo. (2) after 1888 is taken from Goto [1970] table 88(1) and is the sum of lendings to the private sector and the special loans for national bank note redemption.

after 1880 and partly because of the change in policy toward the entire banking system which led to the establishment of the Bank of Japan. Following the second revision of the National Bank Act in 1883 national bank notes were gradually redeemed.

(2) Government deposits.¹ Deposits by the government in banks were another important form of G; moreover, government deposits were free of interest². Most of the national banks and large private banks were heavily dependent on these deposits, especially initially. For example, the share of government deposits in total deposits was 30% for national banks and 56% for the Yasuda Bank in 1875. The Mitsui Bank also relied heavily on government deposits, the share of which to total deposits was 43% in 1880 and still 20% in 1891. However, the government decreased its deposits in the hands of the private banking system as time went on. Initially, the government began to deposit part of its funds in the Cashier's Bureau of the Ministry of Finance; after 1890 it concentrated most of its deposits into the Treasury Bureau of the Bank of Japan.³

(3) Central Bank loans.⁴ The loans of the Bank of Japan comprise the third form of G; it became relatively important in later periods (Table 1). At first, some of the loans were interest-free, and the

¹For details of government deposits see Ikeda [1964].

²Fees were even paid to the banks for services rendered in making transfers, etc.

³One of the main purposes of the foundation of the Bank of Japan was to serve a repository for government deposits and Treasury fiscal agent.

⁴For details, see Yoshino [1954] and Goto [1970].

rest was lent at a relatively low interest rate; it was profitable for banks simply to lend funds borrowed from the Bank of Japan.¹ Consequently, the reliance of banks on Bank of Japan loans became substantial, especially toward the end of the century when it became a serious policy issue, and the monetary authorities again tried to decrease the dependence of banks on G. This was done by the initiation of direct loans by the Bank of Japan to private business in 1897. After 1899, when the interest rate on Bank of Japan loans to banks was raised to the same level as that on its direct loans to business, the dependence of banks on Bank of Japan loans decreased rapidly.

The policy concerning G was remarkably consistent, at least in the ex post sense. The policy combined the (changing) availability of G with its low cost. Initially the government provided the banking system a large amount of funds at virtually zero interest rates; later, it gradually withdrew these funds while raising their cost. This policy had two important effects on the development of banking. The first involves the initial lump sum supply of funds. Needless to say, this initial supply of funds made the banking business highly profitable, inducing the foundation of a large number of banks.

Realistically, G in this first role could be considered a form of subsidy, supplied banks in substantial amounts. For example, in 1880 the total amount of G was 49 million yen, interest free.² Assuming a 6% interest rate on deposits, this means annual implicit subsidies of 2,940,000 yen to

¹This was called margin banking (sayatori ginko).

²LTES Vol. 7.

the banking sector. Since the total (explicit) subsidy to industries was 2,557,000 yen that year,¹ it follows that implicitly the banking sector received more subsidies than all other industries.² Perhaps equally important, it should also be emphasized that the initial supply of G enhanced the prestige of the banking business and enhanced public confidence in these new modern institutions called banks.

The second effect of G policy involves the gradual withdrawal of G relative to other sources of loanable funds. Our two-fold hypothesis is that a) this gradual decline in G supply caused a rightward shift of the deposit supply function of banks and that b) through market forces the equilibrium quantity of deposits was increased as G decreased.

The former part of our hypothesis--the substitution between G and deposit supply in the subjective equilibrium of banks--can be easily understood by the following exercise. Assume a bank maximizes its profits subject to its balance sheet constraint. The profit π can be written as

$$\pi = rL - iD - \bar{c}_1(L, X) - \bar{c}_2(D, X)$$

where r is the rate of return on loans and other invested assets (L), and i is the interest rate on deposits (D). \bar{c}_1 and \bar{c}_2 are administrative cost functions for L and D respectively. X is a market size index on which cost

¹LTES, Vol. 7.

² The total effect of implicit as well as explicit subsidies resulting from government finance, lending, foreign trades and other policies can of course be appraised only in a general equilibrium framework. During this period taxes were low on production activities relative to land (especially in agriculture) and consumption. However, trade restrictions--so important in the implicit subsidy structure of LDCs today--were insignificant in Japan during this period.

is dependent. The balance sheet constraint is given by

$$L = D + G + E$$

E represents the bank's equity capital and is assumed to be constant.

Assuming the linear homogeneity of \bar{c}_1 and \bar{c}_2 with respect to their variables, we can reformulate the problem as

maximize

$$\frac{\pi}{X} = r^m - id - c_1(m) - c_2(d)$$

subject to

$$m = g + d + e$$

where

$$m = L/X, g = G/X, d = D/X, e = E/X$$

and

$$c_1 = \bar{c}_1 / X, c_2 = \bar{c}_2 / X$$

It is reasonable to assume

$$c_1' > 0, c_1'' \geq 0, c_2' > 0, c_2'' > 0$$

(prime represents the derivative). The first order condition for maximization is given by

$$r - i - c_1' - c_2' = 0$$

By differentiating this with respect to g, we obtain

$$-1 \leq \frac{\partial d}{\partial g} = \frac{-c_1''}{c_1'' + c_2''} \leq 0$$

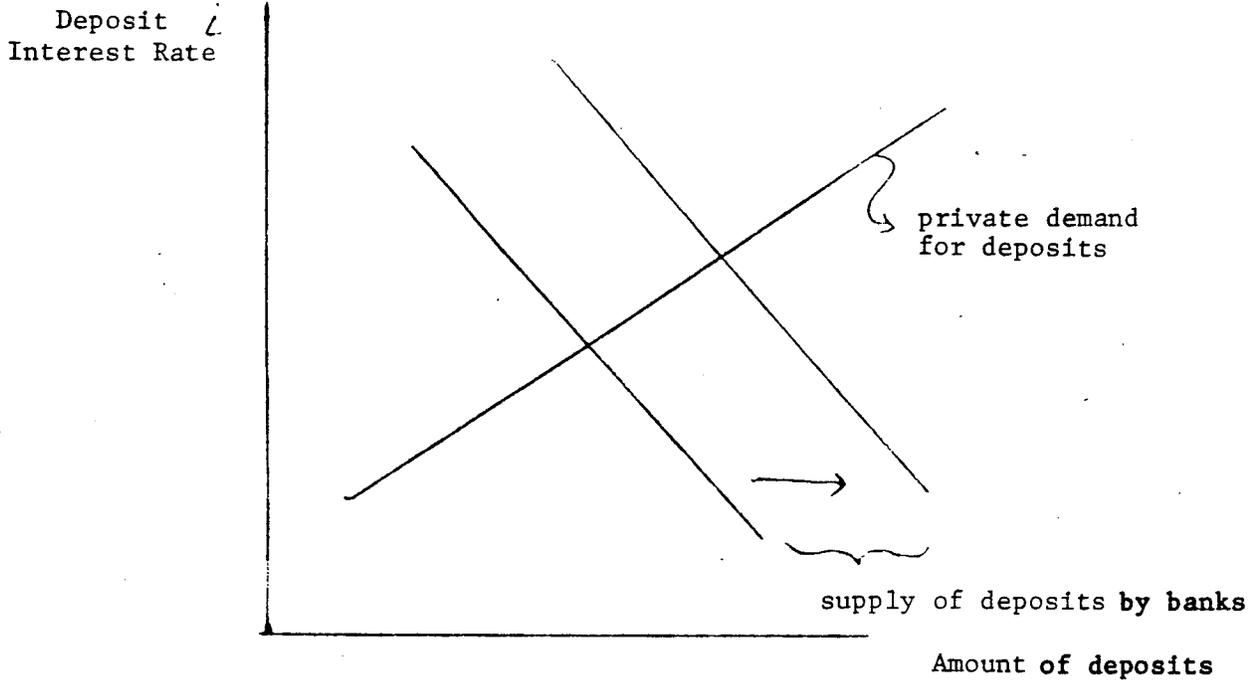
and

$$1 \geq \frac{\partial m}{\partial g} = \frac{c_2''}{c_1'' + c_2''} \geq 0$$

Thus, we can say that an increase (decrease) in g causes a decrease (increase) in deposit supply by banks and a less-than-proportionate

Figure 6

The Effect on Deposits of a Decrease in G



increase (decrease) in loans. In other words, as a bank loses government deposits it compensates by competing for more private deposits through higher interest rates. It is interesting to note that in a perfect deposit market (in the sense of constant marginal cost of deposits)

$$\frac{\partial d}{\partial g} = -1 \quad \text{and} \quad \frac{\partial m}{\partial g} = 0,$$

so that, in this polar case, a change in g is completely substituted for by a change in deposit supply without any effect on loans.

The latter part of our hypothesis--the substitution between G and private deposits in the market equilibrium for the banking system as a whole--is not easy to demonstrate because it requires a general equilibrium analysis of assets markets.¹ However, the main point can be understood by reference to Figure 6. In this diagram, the larger the shift of deposit supply (the more perfect the deposit market), the larger will be the amount of deposits in equilibrium. It is important to note that the condition of a market-determined deposit interest rate is crucial to this analysis. If the deposit rate paid is regulated so as to be below its competitive equilibrium level, the equilibrium amount of deposits would be determined irrespective of the deposit supply condition. In other words, banks would simply supply deposits up to the amount demanded at the ceiling interest rates on deposits. In that situation there would be no substitutability between deposit supply and G , and G could not be manipulated to affect bank deposit supply; all G would simply be reflected in changes in bank loans (and other invested assets).

¹A rigorous general equilibrium analysis is given in Teranishi [1978].

An econometric test as well as a more thorough theoretical analysis of G policy are provided in Teranishi [1978]. Using time series data for 1888-1913, a simultaneous equation model composed of demand for currency, demand for deposits, and supply of deposits equations is estimated. In the supply of deposits equation, the estimation of the coefficient of g is -0.882, implying strong substitution for G by private deposits during 1888-1913. Thus the government's credit policy vis a vis the banking system, once having provided initial subsidies to encourage the establishment of banks, can be regarded as having been quite effective subsequently in encouraging banks to compete in the deposit market so as to become financial intermediaries in the fullest sense.

IV. Concluding Remarks

The two previous sections provide substantial support for our hypotheses concerning the time at which banks first became a significant force in Japanese economic development and concerning the role of government credit in facilitating first the establishment and then the development of the banking system. In this section we note some qualifications to these rather general statements and suggest areas for further investigation.

(1) Structural aspects

We have treated the banking sector as a single entity without paying much attention to its structure. Needless to say, however, there were significant differences among banks depending on size and institutional background.

First, the various types of banks differed substantially with respect to their size and liability composition. While the banking industry structure did evolve over this period, it can be characterized as comprising one immense

but very ineffective bank (The Fifteenth Bank), another five very large banks, a considerable number of medium-sized banks, and myriads of small to dwarf-sized banks. Branch banking was not highly developed during this period; smaller banks, typically in smaller towns and cities, had correspondent relations with the larger banks and held liquid reserves in the forms of deposits with them. By 1897 what were later referred to as the "Big Five" banks--Mitsui, First (Dai-ichi), Mitsubishi, Sumitomo, and Yasuda--had all been established. They were yet, however, to dominate the banking system.

These differences were reflected also in differences among banks in their composition of equity, government deposits, and private deposits. As Statistical Table III shows, the ratio of private deposits to equity capital in 1890 was 0.83 for national banks (excluding the Fifteenth Bank), 5.97 for Mitsui Bank and Yasuda Bank and 0.23 for other private banks. This ratio was almost certainly even lower for quasi banks. Since very small banks had scant deposit liabilities or government credit in the early period so that most of their loanable funds came from equity capital, they were little more than a type of moneylending company (Kato [1957]).

Second, as already noted, the allocation of government credit (G) also differed among various types of banks. Government deposits were supplied mainly to national banks and large private banks. Only national banks were allowed to issue bank notes.

The correspondence between the high deposit-equity ratio and the preferential allocation (and withdrawal) of G in national banks and large private banks suggests an interesting problem in the transmission of government credit policy. The effect of G policy was probably more direct on national banks and large private banks, and was diffused to other banks through

market forces. This problem deserves further investigation.

(2) Patterns of bank development

Assume hypothetically a market for banking services, composed of demand for services by business firms and individual asset holders and supply of services by banks. The equilibrium quantity of bank services increases as the demand and supply functions shift over time. Ordinarily, the shift of the demand function is caused by changes in the parameters of the asset preference functions,¹ in transaction costs, and in such real variables as income, wealth and the rate of return on capital. The shift of the supply function depends on improvements in banking operations as well as changes in the degree of competitiveness of the banking industry, including competition with other financial institutions.

The early development of Japanese banking differs from this ordinary pattern² in one important respect; i.e. the role of government in shifting the demand and supply functions for banking services. As demonstrated in the previous section, Japanese government credit policy was highly effective in bringing about shifts in the deposit supply function

¹This is often described as the rise in the "banking habit," a term which refers to enhanced private sector willingness to hold deposits for transactions and savings purposes but which has not been precisely defined. A narrow definition is that the "banking habit" is a shift parameter for the demand for bank services function determined by increases in knowledge of asset holders and changes in their tastes. A broader definition would include parameter shifts due to changes in transactions costs in general, including transportation services changing access to banking facilities.

²This corresponds to the demand-following pattern in Patrick [1966].

for banking services. And the postal savings system was initially important on the demand side. The number of postal offices handling postal savings increased to more than three thousand as early as 1886, covering most local towns and villages. Although quantitatively not as important as in the interwar period, there is no doubt that the system was qualitatively significant in encouraging private saving and promoting the use of saving accounts as a store of value. This educational role of the postal savings system in developing what is popularly termed the "banking habit" is an important area to be investigated further.

Thus, the pattern of banking development in early modern Japan is generally characterized by the leading role of government.¹ It is important, however, to note a significant exception in this generalization. In Japan many, perhaps most, of the small private banks and quasi banks were established by business firms with the main purpose to finance their own business needs. In this case, the shift of the supply function is caused not by the spontaneous change in the banking sector nor by the government, but by business firms. This has been termed in the Japanese literature as the organ bank (kikan ginko) pattern.² It is not yet possible to assess the precise quantitative and qualitative significance of this exception and further research is certainly required.

¹This corresponds to the supply leading pattern in Patrick [1966], although the present definition is considerably narrower.

²The term kikan ginko appeared originally in business magazines such as Toyokeizai Shinpo around 1900, to describe small, fragile banks closely related to business firms. In particular, kikan ginko was characterized by its high share of loans to a particular business firm with the shares of the firm as collateral. Organ banks thus differ in these respects from the zaibatsu banks which were an integral part of family-owned conglomerates but were large and perceived as very strong.

In conclusion, this paper finds that earlier analyses have tended to set the date in which Japanese banks became important in the economy somewhat too early; major increases in significance occurred in the mid-1890s, and by 1905 the banking system was well developed. At the same time government policy, especially its credit, was particularly important in what was indeed an early establishment of banks, and in their later, more gradual development into a true banking system based on private deposits as a major portion of bank liabilities.

STATISTICAL TABLE I: 1874-1887

	(1)	(2) National Bank Funds		(4)	(5) Private Bank Funds		(7)	(8) Quasi Bank Funds		(9)
	Gross Capital Stock at Current Prices	Private Deposits	G	Equity and Reserves	Private ^b Deposits	G ^c	Equity ^d and Reserves	Private ^b Deposits	Equity ^d and Reserves	
1874 ^a	4,636	4	9	3						
1875 ^a	4,648	2	6	4						
1876 ^a	4,344	2	4	3	0	?	2			
1877 ^a	4,053	2	10	21	0	?	2			
1878 ^a	4,584	5	21	25	0	?	2			
1879	4,561	12	39	42	1	?	4			
1880	4,299	11	39	45	2	8	7	0		1
1881	4,512	14	42	45	3	?	11	2		6
1882	4,482	13	43	48	5	7	18	2		9
1883	4,823	18	42	49	7	6	20	4		13
1884	4,886	14	40	49	5	6	21	4		17
1885	4,757	21	39	50	8	?	20	6		17
1886	5,445	25	40	50	9	?	20	8		17
1887	5,709	27	41	52	9	?	21	8		17
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)		
	Yokohama Specie Bank Funds				Number of Banks			Changes in Aggregate Expenditure Price Index (%)		
	Private Deposits	G ^e	Equity ^f and Reserves	Postal Saving Deposits	National Bank	Private Bank	Quasi Bank			
1874					4					
1875					4					
1876					5	1				
1877					26	1				
1878					95	1				
1879					151	9				
1880	1	2	3	1	151	38	120	12.0		
1881	1	4	3	1	148	85	369	9.9		
1882	1	3	3	1	143	164	438	-6.5		
1883	1	12	3	2	141	199	573	-12.0		
1884	3	17	3	5	140	213	741	-2.7		
1885	1	16	3	9	139	217	745	-0.3		
1886	1	11	3	15	136	219	749	-10.4		
1887	12	14	5	18	136	218	741	5.9		

Statistical Table I (continued)

Unit: Million yen for (1)~(13).

Notes: ^a Figures for national banks are at the end of June.

^b Estimated by applying the private deposits-equity ratio of national banks to the capital of private banks and quasi banks.

^c The government deposits of only Mitsui Bank and Yasuda Bank. The figure for Mitsui Bank is at the end of June.

^d Estimated by applying the reserves-equity ratio of national banks to the capital of private and quasi banks.

^e Government deposits and deposits from abroad.

^f Only paid-in capital.

Sources:

- (1) Gross capital stock at 1934-36 prices (including housing) from LTES Vol. 3 multiplied by the price index for investment goods (including housing) from LTES Vol. 8.
- (2),(4) Goto [1970] table 1. Capital is paid-in capital.
- (3) Goto [1970] table 11. Includes furidashi tegata. Goto [1970] and annual Ginko Kyoku Nenpo. Composed of national bank notes (circulation outside banks), borrowings and government deposits.
- (6) Mitsui Bank and Yasuda Bank company histories.
- (7) Equity capital from Goto [1970] table 17.
- (9) Equity capital from Asakura [1961] p. 187.
- (10), (11), (12) Bank of Japan [1966].
- (13) Asahi Shinbun [1930]. Sum of postal savings and postal transfer savings deposits.
- (14), (15), (16) Goto [1970] table 10, Asakura [1961] p. 187, and Nakamura [1964].
- (17) LTES, Vol. 8, Prices, Table 1, p. 134.

Statistical Table II: 1888-1913

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Gross Capital Stock at Current Prices	Total Paid-in Corporate Capital & Reserves	Government Domestic Debt	Bank Assets		Bank Funds			Number of Banks
				Lending	Securities	Private Deposits	G	Equity & Reserves	
1888	6342	198	252	-	-	56	75	100	1076
1889	6467	237	254	-	-	61	74	106	1084
1890	6418	266	271	-	-	66	73	113	1108
1891	6219	283	272	-	-	70	68	116	1106
1892	6555	291	278	-	-	86	62	116	1137
1893	6694	291	244	197	61	100	69	106	762
1894	7249	317	292	215	76	122	71	117	866
1895	8334	371	401	274	84	174	95	134	1041
1896	9031	524	438	391	108	221	121	194	1337
1897	10505	663	428	415	146	290	121	213	1598
1898	10855	788	436	505	122	354	108	256	1805
1899	11260	862	438	672	140	520	140	298	2030
1900	12046	992	475	786	145	558	125	355	2339
1901	11990	1071	513	757	157	563	69	381	2384
1902	11526	1172	532	832	163	679	64	401	2342
1903	11901	1214	536	897	170	746	59	412	2307
1904	11742	1300	809	927	216	805	91	419	2255
1905	13308	1378	1052	1053	240	968	133	437	2229
1906	14279	1538	1168	1426	290	1382	133	471	2210
1907	16019	1782	1205	1473	289	1299	163	533	2200
1908	15481	2296	1182	1449	306	1274	111	557	2171
1909	14850	2499	1689	1507	378	1468	71	583	2151
1910	15353	2668	1546	1717	413	1613	135	604	2143
1911	16085	2823	1716	1984	418	1736	167	646	2144
1912	18146	3147	1752	2250	438	1886	189	701	2151
1913	18738	3499	1667	2498	428	2029	158	763	2156

Statistical Table II (continued)

	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Rate of Interest on Bank Loans	Rate of Interest on Time Deposits	Yield on Stocks (Excluding Capital Gains & Losses)	Yield on Stocks (Including Capital Gains & Losses)	Yield on Government Bonds (Excluding Capital Gains & Losses)	Yield on Government Bonds (Including Capital Gains & Losses)	GNE (at Current Prices)	Population	Postal Savings Deposits
1888	11.69	4.17	15.08	11.74	5.64	2.98	866	390	20
1889	12.12	4.30	14.60	17.42	5.30	11.61	955	395	20
1890	12.30	4.50	12.13	15.68	5.62	-0.10	1056	399	20
1891	11.90	4.55	8.56	22.81	5.08	15.23	1139	403	20
1892	11.24	4.30	6.89	22.24	4.81	6.12	1125	405	23
1893	10.35	4.10	6.37	18.54	4.51	10.60	1197	409	25
1894	11.32	4.45	6.80	23.26	4.61	2.50	1338	411	25
1895	11.57	4.85	6.04	11.64	4.95	-1.61	1552	416	28
1896	11.46	5.10	20.16	32.34	0.00	6.81	1666	420	28
1897	11.81	5.35	6.68	-26.36	5.01	2.25	1957	424	26
1898	12.48	6.25	9.46	-16.14	5.24	0.96	2194	429	23
1899	10.40	6.30	9.05	35.03	5.09	8.04	2314	434	23
1900	12.15	6.80	8.78	-7.62	5.18	0.80	2414	438	24
1901	13.10	7.23	13.73	0.49	5.58	1.02	2484	444	27
1902	12.08	7.00	11.49	35.81	5.49	7.06	2537	450	29
1903	10.69	6.20	11.63	11.97	5.30	8.88	2696	455	32
1904	10.73	5.98	15.00	6.66	5.56	0.88	3028	461	39
1905	10.99	6.10	16.14	50.30	5.70	3.28	3084	466	53
1906	10.29	5.90	23.00	85.99	5.35	13.12	3302	470	74
1907	9.89	5.70	12.51	-2.65	5.51	2.39	3743	474	94
1908	10.80	6.10	16.57	-26.42	5.76	1.20	3766	480	109
1909	10.00	5.80	11.19	28.69	5.27	14.35	3780	486	130
1910	8.69	5.00	7.07	34.16	4.70	12.40	3925	492	170
1911	8.36	4.70	13.67	-3.59	4.77	1.04	4463	499	192
1912	8.94	5.20	5.63	13.81	5.19	-1.86	4774	506	206
1913	9.64	6.00	9.03	2.53	5.32	2.80	5013	513	205

Statistical Table II (continued)

	(19)	(20)	(21)	(22)	(23)
	Total Currency	Currency held by Banks	Currency in Circulation	Time Demand Deposits	Change in Aggregate Expenditure Index (%)
1888	166	25	141	.373	-0.3
1889	172	30	142	.339	5.3
1890	199	26	173	.328	5.3
1891	197	32	165	.380	4.2
1892	200	32	168	.332	-5.3
1893	219	24	195	.339	1.0
1894	219	31	188	.315	3.6
1895	248	37	211	.265	10.0
1896	263	42	221	.276	9.7
1897	284	45	239	.250	11.4
1898	268	47	221	.237	7.9
1897	327	59	268	.287	-5.0
1900	303	65	238	.352	11.6
1901	290	69	221	.368	-2.2
1902	309	77	232	.386	3.1
1903	311	81	230	.396	4.6
1904	369	93	276	.357	2.3
1905	405	115	290	.367	4.0
1906	442	149	293	.373	2.4
1907	484	138	346	.517	10.3
1908	476	135	341	.573	-4.7
1909	483	139	344	.580	-4.2
1910	539	144	395	.611	0.3
1911	574	151	423	.607	6.8
1912	588	166	422	.708	5.9
1913	568	181	387	.824	2.8

Statistical Table II (continued):

Units: Million yen for (1)~(9), (17) and (19)~(21). Percent for (11)~(16). Hundred thousand for (18). Ratios for (21)~(25).

Notes: Coverage of banks is national banks, private banks, quasi banks and Yokohama Specie Bank for 1888-1892. From 1893, banks are composed of ordinary banks, savings banks, national banks (until 1898), Yokohama Specie Bank, Japan Hypothec Bank (from 1897), Japan Industrial Bank (from 1902), Hokkaido Colonial Bank (from 1898), prefectural agricultural banks (from 1898), and branch offices of foreign banks (from 1904). For (25) only ordinary banks.

Sources:

- (1) Gross capital stock at 1934-36 prices (including housing) in LTES Vol. 3 multiplied by price index of investment goods (including housing) from LTES Vol. 8.
- (2) Bank of Japan [1966]. During 1888-1913, the equity capital of Japan National Railway is added from Asahi Shinbun [1930]. Also, the bank equity and reserves are added during 1885-1895. In 1888, paid-in capital is assumed to be one-half total equity capital. During 1888-1893, reserves are assumed to be 5% of paid-in capital.
- (3) Estimated from Kokusai Enkakuryaku Vol. 1, annual Kinyujiko Sankosho, and Meiji Taisho Zaiseishi (Kokusai). Composed of domestic national bonds, government borrowing and local government bonds; excludes government currency in circulation.
- (4), (5) Based on annual Ginko Kyoku Nenpo.
- (6) Based on annual Ginko Kyoku Nenpo. Private deposits during 1888-1892 of quasi banks are estimated by applying the private deposits-capital ratio of private banks to the equity capital of quasi banks.
- (7) Composed of national bank notes, central bank loan to private sector and government deposits. For the shares see Table 1.
- (8) Based on annual Ginko Kyoku Nenpo. Reserve funds of quasi banks during 1888-1892 are estimated by applying the ratio of reserves to the capital of private banks to the equity capital of quasi banks.
- (9) For 1888-1894, the same sources as Statistical Table I. From 1895, Goto [1970] Table 18-1. Excludes branch offices of foreign banks and the Bank of Japan.
- (10) (11) Same as Figure 4 .

Statistical Table II (continued):

- (12), (13), (14), (15) Fujino and Akiyama [1977]. (12) is $P_1(F)$ on p. 293 (y_2 , 1914-16 base), (13) $P_1(F)$ on p. 294. (y_3 , 1914-16 base), (14) $P(F)$ on pp. 382-384 (i_1 , 1934-36 base) and (15) $P(F)$ on pp. 388-389 (i_2 , 1934-36 base).
- (16) LTES Vol. 1, Table 1.
- (17) Bank of Japan [1966].
- (18) Asahi Shinbun [1930]. Sum of postal savings and postal transfer savings deposits.
- (19) Total currency supply as the sum of (a) national bank notes, (b) government currency and (c) Bank of Japan notes. (a) is obtained from annual Ginko Kyoku Nenpo; (b) is estimated from Meiji Zaiseishi Vol. 11 and 12 and other sources; (c) is obtained from Goto [1970].
- (20) Obtained from annual Ginko Kyoku Nenpo. (Before 1892, estimated by use of data after 1893.)
- (21) For ordinary banks only, computed from Asakura and Nishiyama [1973] pp. 107-8, adjusted by subtracting government deposits.
- (22) LTES, Vol. 8 Prices Table 1.

STATISTICAL TABLE III

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	1890 National Banks other than the 15th national bank ^a	1891			1902			1912		
		Private Banks		Special Banks	Ordinary Banks		Special Banks	Ordinary Banks		Special Banks
		City ^b Banks	Local ^c Banks		City Banks	Local Banks		City Banks	Local Banks	
1. Number of Banks	133	2	292	1	5	1831	50	5	1611	50
2. Paid-in Capital and Reserves	392	30 ^d	296	45 ^d	140	2441	548	50	319	1360
3. Total Deposits	325	179	68	54	1098	4269	640	279	1078	2030
4. Loans	586	189	220	70	909	6067	922	266	1257	480
5. Share of Government Deposits in Total Deposits	0.15	0.18 ^e	0.00 ^e	0.18 ^f	?	?	?	?	?	?
6. Share of Time Deposits in Total Deposits	0.24	?	?	0.02	0.36	0.28	?	0.49	0.41	?
7. Ratio of (3) to (2)	0.83	5.97	0.23	1.20	7.84	1.75	1.17 ^g (1.47)	5.58	3.38	1.49 ^g (3.48)
8. Ratio of Borrowings to Total Deposits	0.33	?	?	?	0.02	0.13	?	0.10	0.04	?
9. Ratio of Security Investments to Loans	?	?	?	1.03	0.32	0.14	0.28	0.27	0.17	0.11

Units: (1) ~ (4) million yen for 1912. For other years, 100 thousand yen.

Notes: ^aThe Fifteenth Bank is excluded on account of its unique nature; ^bMitsui Bank and Yasuda Bank. Figures for Mitsui Bank are at the end of June; ^cIncludes saving banks; ^dexcludes reserves; ^egovernment deposits of local banks are assumed to be zero. Total government deposits at private banks were 3,243,000 yen at the end of 1891, while government deposits at Mitsui bank were 3,929,000 yen at the end of June 1891; ^fincludes deposits from abroad; ^gfigures in parentheses include financial debentures in numerators.

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