

BANKS AND ECONOMIC GROWTH: IMPLICATIONS FROM JAPANESE HISTORY*

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ABSTRACT

Alexander Gerschenkron argued that banks facilitate growth in “backward” countries, and modern theorists sometimes similarly claim that banks can promote growth by reducing informational asymmetries and improving the allocation of funds. Japan has played a part in these debates. In early twentieth-century Japan, firms relied heavily on bank debt, observers argue. Those firms with preferential access to debt outperformed the others, and those that were part of the *zaibatsu* corporate groups obtained that access through their affiliated banks. In fact, Japanese banks did not play the role attributed to them. Japan was not a bank-centered economy; instead, firms relied on equity finance. It was not an economy where firms with access to banks outperformed their rivals; instead, such firms earned no advantage. And it was not a world in which the *zaibatsu* manipulated their banks to favor affiliated firms; instead, *zaibatsu* banks loaned affiliated firms little more than the deposits those firms had made with the banks. During the first half of the last century, Japanese firms obtained almost all their funds through decentralized, competitive capital markets.

Do firms need banks, or can they make do with stock markets? Do firms need stock markets, or can they make do with banks? Alexander Gerschenkron long ago argued that economically “backward” countries could not trust decentralized capital markets to provide their largest firms sufficient funds.¹ Instead, they needed banks. More recently, some theorists have reasoned from agency theory and the economics of information to much the same result.² And the transition in eastern Europe has given the issue a program-

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¹ Alexander Gerschenkron, *Economic Backwardness in Historical Perspective: A Book of Essays*, ch. 1 (1962).

² Though as James Dow and Gary Gorton nicely show, the dichotomy may be badly overdrawn: in theory, banks and stock markets “may be equally capable of . . . providing the

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matic touch: what should scholars tell the new finance ministers to do about banks and stock markets?

In this debate over the tie between corporate finance and economic growth, pre-World War II Germany and Japan have played a major symbolic role.³ Together, they stand as the key examples of once-backward countries that grew with spectacular speed through bank-centered finance. Whether the tale fits prewar Germany is not for us to say.⁴ Whether it fits prewar Japan is, and—alas for Gerschenkron and modern observers—it misses Japan by a mile. Firms in prewar Japan did not grow through bank finance. Access to bank credit did not give firms a competitive advantage. And contrary to the conventional wisdom, the large corporate groups (the *zaibatsu*) did not use their affiliated banks to favor their manufacturing firms.⁵ In pre-World War II Japan, firms grew instead by raising money on decentralized, competitive capital markets.

We begin by summarizing the debate over the relation between corporate finance and economic growth and the role that prewar Japan has played in this debate (Section I). We demonstrate how banks played almost no role in corporate finance (Section II) and how firms enjoyed no competitive advantage through any access to bank debt (Sections IIIA and IIIB). We conclude by showing that the *zaibatsu* corporate groups did not use their banks to favor their manufacturing concerns (Section IIIC).

link between economic efficiency and financial market efficiency.” See James Dow & Gary Gorton, *Stock Market Efficiency and Economic Efficiency: Is There a Connection?* 52 *J. Fin.* 1087, 1114 (1997). Note, moreover, that other scholars find empirically that stock markets and banks tend to grow in tandem. See, for example, Ash Demirgüç-Kunt & Ross Levine, *Stock Markets, Corporate Finance, and Economic Growth: An Overview*, 10 *World Bank Econ. Rev.* 223 (1996).

³ We address the state of postwar capital markets in Yoshiro Miwa & J. Mark Ramseyer, *The Fable of the Keiretsu*, 11 *J. Econ. & Mgmt. Strategy* 169 (2002); Yoshiro Miwa & J. Mark Ramseyer, *The Myth of the Main Bank*, 27 *Law & Soc. Inquiry* (forthcoming 2002); Yoshiro Miwa & J. Mark Ramseyer, *Directed Credit? The Loan Market in High-Growth Japan*, *J. Econ. & Mgmt. Strategy* (forthcoming 2003). In this article, however, we table the question of the role of banks in postwar Japan and Germany. Among the most prominent studies of the postwar period are (for Japan) Takeo Hoshi, Anil Kashyap, & David Scharfstein, *Bank Monitoring and Investment: Evidence from the Changing Structure of Japanese Corporate Banking Relationships*, in *Asymmetric Information, Corporate Finance, and Investment* (R. Glenn Hubbard ed. 1990); Takeo Hoshi, Anil Kashyap, & David Scharfstein, *Corporate Structure, Liquidity and Investment: Evidence from Japanese Industrial Groups*, 106 *Q. J. Econ.* 33 (1991); and (for Germany) Gary Gorton & Frank A. Schmid, *Universal Banking and the Performance of German Firms*, 58 *J. Fin. Econ.* 29 (2000).

⁴ Though the extensive research by Caroline Fohlin casts strong doubt on the proposition: Caroline Fohlin, *The Rise of Interlocking Directorates in Imperial Germany*, 52 *Econ. Hist. Rev.* 307 (1999); Caroline Fohlin, *Fiduciary and Firm Liquidity Constraints: The Italian Experience with German-Style Universal Banking*, 35 *Explorations Econ. Hist.* 83 (1998); Caroline Fohlin, *Universal Banking Networks in Pre-war Germany: New Evidence from Company Financial Data*, 51 *Res. Econ.* 201 (1997); Caroline Fohlin, *Relationship Banking, Liquidity, and Investment in the German Industrialization*, 53 *J. Fin.* 1737 (1998).

⁵ Contemporary accounts of the *keiretsu* are equally misleading. See Miwa & Ramseyer, *supra* note 3.

I. THE PROBLEM OF BANKS

A. *Banks and Economic Growth*

Gerschenkron. Some four decades ago, Gerschenkron—then an economic historian at Harvard University—published what would quickly become a classic on the mechanisms of growth among “backward” countries.⁶ By his account, those countries that industrialized first (such as the United States and the United Kingdom) could look to market competition and stock exchanges for finance and entrepreneurship. Those that were more “backward” needed a different route. Rather than rely on decentralized market processes to fund large industrial firms, they needed the visible hand of banks.⁷

Primarily, Gerschenkron illustrated his argument with prewar Germany. The rapid growth there, he argued, depended on strong, big banks. “The industrialization of England had proceeded without any substantial utilization of banking for long-term investment purposes,” explained Gerschenkron. By contrast, in “a backward country” such as Germany, the “investment banks must be conceived as specific instruments of industrialization.”⁸

Gerschenkron and Japan. Other scholars did not let Gerschenkron’s theory stop at Germany. Almost immediately, they applied it to Japan.⁹ As Kozo Yamamura noted skeptically in 1972, Gerschenkron’s account of Germany seemed to fit the stereotypical histories of Japan to a tee. Japan, by these accounts, was a world in which “the modern banking system, strongly encouraged by the government, was extremely important in providing the necessary industrial capital and, often, entrepreneurial guidance to rapidly growing industrial firms.” Japan, by these accounts, offered a tale begging for the Gerschenkronian formula.¹⁰

William Lockwood’s economic history of prewar Japan illustrates the stan-

⁶ Gerschenkron, *supra* note 1, ch. 1. Gerschenkron did not invent the United Kingdom–Germany contrast, of course. For an early discussion of the contrast in the Japanese literature, see Kamekichi Takahashi, *Nippon kin’yu ron* [Japanese financial theory], ch. 10 (1931).

⁷ Gerschenkron also argued that “hopelessly backward” countries such as Russia needed the visible hand of government. Gerschenkron, *supra* note 1, at 17, 20. Because the notion that the Russian government grew the economy is largely dead, we ignore it here. Note, however, that the Japanese analogue remains an active refrain outside economic circles. See, for example, Chalmers Johnson, *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925–1975* (1982); and Bruce Cummings, *The Origins and Development of Northeast Asian Political Economy: Industrial Sectors, Product Cycles, and Political Consequences*, in *The Political Economy of the New Asian Industrialism* 44, 58 (Frederic C. Deyo ed. 1987).

⁸ Gerschenkron, *supra* note 1, at 14.

⁹ The most involved attempt to test Gerschenkron’s applicability to Japan was Henry Rosovsky, *Capital Formation in Japan, 1868–1940*, ch. 4 (1961).

¹⁰ Kozo Yamamura, *Japan, 1868–1930: A Revised View*, in *Banking and Economic Development: Some Lessons of History* 168 (Rondo E. Cameron ed. 1972).

dard accounts. Prewar Japan, to Lockwood, had been a place where “[b]ig banks and trust companies were securely locked into” the *zaibatsu* conglomerates. Those “banking connections were especially important in a country where a wide public securities market was lacking,” he reasoned. And these “financial institutions of Japan, concentrated as they were in the hands of the government and big business, were the major source of capital for modern industry.”¹¹

Others have routinely repeated the refrain. “From the beginnings of industrialisation in the Meiji period,” explains William Tsutsui, “corporate finance in Japan has been predominantly ‘indirect.’ . . . [F]irms have tended to raise investment funds from financial intermediaries (especially banks) rather than by obtaining the required capital ‘directly’ through the sale of equities to individual savers.”¹² Claims sociologist Michael Gerlach, these banks “provided, through loans, over half of Japanese companies’ total external capital” during the prewar period.¹³ And business scholar Carl Kester flatly declares that “[l]ate nineteenth- and early twentieth-century Japan had essentially no securities market.”¹⁴

Given the parallel between Japan and Germany, for many scholars Gerschenkron explained Japan’s economic growth straightforwardly: Japan grew because big banks dominated industrial finance. The large banks did seem to have controlled corporate finance and did seem to have funded firms in the modern sectors. Perhaps, they reasoned, Japan grew quickly precisely *because* it avoided decentralized capital markets.

Normative Implications. During the 1990s, scholars of “transitional economies” gave Gerschenkron’s empirics a decidedly normative cast. Take Pranab Bardhan and John Roemer:¹⁵

[W]e are skeptical that the option of the “real thing,” Western-style capitalism is available to some of the East European countries, China, or Vietnam, however much some people in these countries may crave it. The institutions of Western capitalism . . . evolved over a long period. Some of them are not easily replicable. In fact the bank-centric organization . . . is a way of mitigating an historical handicap in

¹¹ William W. Lockwood, *The Economic Development of Japan: Growth and Structural Change, 1868–1938*, at 222 (1954). By contrast, recent work noting the importance of equity finance in prewar Japan includes Tetsuji Okazaki & Masahiro Okuno-Fujiwara, *Japan’s Present-Day Economic System and Its Historical Origins*, in *The Japanese Economic System and Its Historical Origins* (Tetsuji Okazaki & Masahiro Okuno-Fujiwara eds. 1999); and Takeo Hoshi, *Evolution of the Main Bank System in Japan: Changes on the Domestic and International Fronts*, in *The Structure of the Japanese Economy* (Mitsuaki Okabe ed. 1995).

¹² William M. Tsutsui, *Banking Policy in Japan: American Efforts at Reform during the Occupation 4* (1988).

¹³ Michael L. Gerlach, *Alliance Capitalism and the Social Organization of Japanese Business* 116 (1992).

¹⁴ W. Carl Kester, *Japanese Takeovers: The Global Contest for Corporate Control* 37 (1991).

¹⁵ Pranab Bardhan & John E. Roemer, *Market Socialism: A Case for Rejuvenation*, 6 *J. Econ. Persp.* 101, 103 (1992).

capital market institutions. It is important to realize that it was the underdevelopment of capital markets in late 19th-century Germany that gave rise to its present system of heavy bank involvement in financing and management of industrial companies. Even in the case of Japan, . . . the main bank system originated in the highly imperfect financial markets and economic uncertainties of the immediate postwar period.

Others continue to make similar appeals. In a recent World Bank study, Masahiko Aoki and Hyung-Ki Kim argue that the transitional economies will not be able to rely on capital markets for privatizing state-owned firms.¹⁶ In the same volume, Erik Bergloef writes that such economies will instead need to rely on banks, mutual funds, and concentrated debt and equity: “[s]tock and bond markets are not going to play a major role.”¹⁷

B. *The Zaibatsu and Banks*

If modern scholars regularly cite the putative dichotomy between the German-Japanese bank-centered and U.S.-U.K. stock-market-centered traditions, those in Japanese studies go further still. Typically, they claim that the *zaibatsu* families manipulated the capital market through their affiliated banks, routed loans on favorable terms to their industrial firms, and through this scheme gained a stranglehold over the Japanese economy.¹⁸

Zaibatsu Funding. On the use of house banks to fund internal *zaibatsu* production, historian and one-time ambassador Edwin Reischauer is typical. Each of the *zaibatsu*, he explains, was “centered around its own bank, which financed the other component parts.”¹⁹ Gerlach similarly asserts that each *zaibatsu* “started its own bank for the purpose of funding the activities of its group companies.” By the 1930s, he concludes, “banks increasingly replaced the [top-tier parent company] and the *zaibatsu* families as the main sources of working capital for the group companies.”²⁰ Lockwood argues that the “financial institutions of Japan, concentrated as they were in the hands of the government and big business, were the major source of capital for modern industry.”²¹ Business scholar Rodney Clark explains that “[e]ach *zaibatsu* had a bank, which acted as a money pump. Deposits from the public were channeled toward the other member companies of the group.”²² And

¹⁶ Masahiko Aoki & Hung-Ki Kim, Overview, in *Corporate Governance in Transitional Economies: Insider Control and the Role of Banks*, at xiii (Masahiko Aoki & Hung-Ki Kim eds. 1995).

¹⁷ Erik Bergloef, *Corporate Governance in Transition Economies: The Theory and Its Policy Implications*, in Aoki & Kim, eds., *supra* note 16, at 81–82.

¹⁸ Similar claims are of course made about the postwar *keiretsu*—and are even more misleading. See Miwa & Ramseyer, *supra* note 3.

¹⁹ Edwin O. Reischauer, *The Japanese 181* (1978).

²⁰ Gerlach, *supra* note 13, at 115.

²¹ Lockwood, *supra* note 11, at 222.

²² Rodney Clark, *The Japanese Company 42* (1979).

economists Richard Caves and Masu Uekusa flatly declare that for the *zaibatsu*, the “banks and financial intermediaries were principal suppliers of capital to the operating companies.”²³

According to many scholars, the *zaibatsu* used these internal financing patterns to extend their power. Lockwood, again, describes *zaibatsu* credit as a “[m]ost important . . . instrument of expansion.” *Zaibatsu* banks “held the deposits of affiliated companies . . . and were at the same time their chief source of capital. They were also powerful instruments for extending control over competitors, customers, and suppliers.”²⁴ During the prewar period, writes economist Takafusa Nakamura, the *zaibatsu* banks “used their clout to pull selected firms into their respective orbits.”²⁵ And in her recent economic history of Japan, Penelope Francks explains,²⁶

Companies within each *zaibatsu* group depended on finance from the group’s bank. . . . [C]ontrol over sources of finance was in many ways the key to *zaibatsu* organisation and to the ability of group companies to expand in capital-intensive areas. The growth of share-ownership among the wider public was very limited and the role of the stock exchange as a source of business capital has remained relatively small until quite recent times. . . . [As a result, the] system made it extremely difficult for businesses outside *zaibatsu* control to obtain investment funds on anything like the same terms as those within and inhibited the spread of capital ownership outside the groups.

The Tie to Supreme Commander for the Allied Powers Policy. Dispassionate scholars did not invent these tales. Instead, they borrowed them from the men and women in the occupation (known as office of the Supreme Commander for the Allied Powers, or SCAP) assigned to destroy the *zaibatsu* families. Among the academics, the key figure was Corwin Edwards, Northwestern University professor and former National Recovery Administration official. As head of the “Mission on Japanese Combines,” Edwards wrote the report that would justify confiscating *zaibatsu* wealth.²⁷

The outcome of Edwards’s mission was never at issue. As the report itself forthrightly began, the mission’s “assignment was to recommend . . . the

²³ Richard E. Caves & Masu Uekusa, *Industrial Organization in Japan* 60 (1976).

²⁴ Lockwood, *supra* note 11, at 222.

²⁵ Takafusa Nakamura, *Economic Growth in Prewar Japan* 205 (Robert A. Feldman trans. 1983); see also *id.* at 208 (increasing concentration in the banking industry allowed “idle funds of large firms to be used for extension of zaibatsu power”); W. G. Beasley, *The Rise of Modern Japan* 117 (2d ed. 1995) (“banking was a crucial factor in the growth of all four of these [zaibatsu] concerns. It not only gave them access to scarce capital in their formative years, but also enabled them to exercise influence, if not control, over a spread of companies stretching beyond their groups.”).

²⁶ Penelope Francks, *Japanese Economic Development: Theory and Practice* 250–51 (2d ed. 1999).

²⁷ [Corwin D. Edwards], *Report of the Mission on Japanese Combines, Part I* (Dep’t State Pub. No. 2628, Far Eastern Series 14, March 1946).

basic objective of destroying the power of the great Japanese combines and managerial families which are collectively known as the zaibatsu.” These families, Edwards asserted, had created an economy that “tends to hold down wages, to block the development of labor unions, to destroy the basis for democratic independence in politics.” Hence, they were “to be regarded as among the groups principally responsible for the war.”²⁸

For an essay by an economist, the report is remarkably devoid of economic logic; for a mission charged with collecting data, it is equally devoid of any new information. But if neither theoretically coherent nor empirically serious, it nonetheless established what would become the orthodoxy for decades:²⁹ “[B]ank credit has been the principal source of capital for Japanese industry. The older zaibatsu—the Mitsui, Mitsubishi, Sumitomo and Yasuda—have relied heavily for their growth upon their affiliated banks and insurance companies.”

Himself a SCAP veteran, T. A. Bisson repeated many of Edwards’s claims. “In Japan, under the old regime,” wrote Bisson, “privileged groups had exercised despotic power in every phase of economic life. Whether one looked at agriculture, labor, industry, banking, or trade, the picture was the same.” Given this semifeudal history, “Japan has had almost no laissez-faire experience or tradition.” And through their control over the banks, the *zaibatsu* families had controlled firms everywhere: “The significance of *zaibatsu* dominance in commercial lending activity is underscored by the relative unimportance of private saving and security purchase by individuals in Japan, making government or private bank loans the only major source of capital funds available to the Japanese businessman.”³⁰

Ever the polemicist, Bisson concluded, “[A]t the center of each of the economic empires controlled by Mitsui, Mitsubishi, Sumitomo, and Yasuda . . . is a great bank with deposits running into billions of yen. From these four banks, with their associated or subsidiary trust, insurance and holding companies, radiates the corporate network which owns the factories, the mines, the shipping firms, and the commercial enterprises of Japan. Eight *Zaibatsu* concerns, together with the Emperor . . . and some 3,500 big landlords, have held the country and its people as their economic fief.”³¹

Economist Eleanor Hadley had worked in the occupation too.³² As she saw it: “Where a combine possessed financial institutions, financing (pre-1945 style) was done mainly on an intracomcombine basis. . . . By reviewing

²⁸ *Id.* at iii, vii (emphasis added).

²⁹ *Id.* at 36.

³⁰ T. A. Bisson, *Zaibatsu Dissolution in Japan* 3, 6, 15 (1954).

³¹ T. A. Bisson, *Japan’s War Economy*, at vii (1945).

³² Eleanor M. Hadley, *Antitrust in Japan* 29, 163 (1970) (see also 157), quoting Eleanor Martha Hadley, *Concentrated Business Power in Japan* 272 (unpublished Ph.D. dissertation, Radcliffe Coll. 1949).

both short-term and long-term applications for credit, the combine bank [could supervise] . . . subsidiary activities.” Citing unspecified “private information” about the Mitsui, she further explained: “Although [Mitsui] Banking certainly did not confine extension of credit to the combine alone, combine interests naturally came first. More than this, Banking gave combine firms preferential interest terms and was slow to extend credit to outsiders who challenged or might challenge an important subsidiary in a particular field.”

Whether one reads scholars today or occupation officials of 50 years back, the message is clear: prewar firms relied crucially on bank loans; the *zaibatsu* controlled the key, large banks; they used those banks to funnel money to their favored firms; and through those preferential credit policies, they extended their grasp over the prewar Japanese economy. Unfortunately, none of this is true.

II. BANK DEBT AND EQUITY FINANCE IN PREWAR JAPAN

A. *Large-Firm Finance*

1. Introduction

For all the talk of Japan as a bank-centered economy, large Japanese firms (and Gerschenkron’s theory, after all, is a theory of large-firm finance) in the first half of the century did not rely on banks. Instead, for the bulk of their funds, they sold stock. Secondarily, they sold bonds and retained their earnings. Whatever the angle from which one examines the question, the answer is the same: banks played only a minor role in financing substantial prewar Japanese firms.³³

In the discussion below, we realize that readers will understandably worry about sample bias. We lack comprehensive accounting data for the economy as a whole, but to begin to address the issue, we explore the question from several disparate perspectives: we examine large-firm balance sheets across several industries (Section IIA2, below); flow-of-funds data for large firms in several industries (Section IIA3); the size of the stock markets (Section IIA4); and finance data for all firms (whether large or small) in the textile industry (Section IIB1), the railroad industry (Section IIB2), and the electric utility industry (Section IIB3).

2. Cross-Sectional Analysis

The Imuta Data. Begin with the obvious test: where did firms obtain their funds? Overwhelmingly, they relied on stock issues. Take Toshimitsu

³³ Moreover, having a banker on a firm’s board was not associated with increased profitability beyond that associated with the director’s simple prominence. Yoshiro Miwa & J. Mark Ramseyer, *The Value of Prominent Directors: Corporate Governance and Bank Access in Transitional Japan*, 31 *J. Legal Stud.* (forthcoming 2002).

TABLE 1
MEAN CAPITALIZATION OF FIRMS, 1897

	Food	Chemical	Brick	Cement	Metals	Machines
Paid-in capital (%)	64.6	71.1	71.8	53.1	72.5	66.3
Retained earnings (%)	15.6	5.3	14.9	18.4	7.3	7.3
Bonds (%)	3.4	0	0	10.3	0	0
Bank debt (%)	5.2	1.8	9.7	4.5	13.2	2.6
Other debt (%)	11.3	21.7	3.7	13.8	7.1	23.8
Number of firms	15	7	8	4	5	5
Mean assets (in 1,000s of yen)	196.7	206.5	57.9	340.4	253.5	596.3

SOURCE.—Toshimitsu Imuta, *Meiji ki kabushiki kaisha bunseki josetsu* [Introduction to the analysis of Meiji-era corporations] 138 (1976).

NOTE.—Sample construction described in text.

Imuta's study of 44 firms in six industries.³⁴ Imuta first identified those 187 firms that published their balance sheets in the Osaka *Asahi* newspaper between January and June 1898 (given the obvious sample bias, we present alternative data as well). He then excluded textile (51), railroad (27), and trade (21) firms; of the remaining 88 firms, he chose 44 that were in industries with data on multiple firms. Independently of Imuta, we report data on textile and railroad firms below.

Table 1 summarizes Imuta's results: at the turn of the century, banks seldom mattered. According to the table, the firms raised 53–73 percent of their funds through stock issues and another 5–18 percent through retained earnings. They raised 0–11 percent through bond issues and only 1–13 percent from banks. As we note below (Tables 4–6), cotton textile firms in 1898 raised 58 percent of their funds through stock issues, 10 percent through retained earnings, 5 percent through bond issues, and 11 percent through bank loans; railroad companies in 1898 raised 92 percent through stocks, 2 percent through retained earnings, 6 percent through bonds, and 1 percent through bank loans.³⁵

Our Own Data. We also independently collected balance sheet data on the largest Japanese firms in the 1920s and 1930s. This let us both avoid the potential bias introduced by Imuta's decision to examine firms advertising their financials and see whether this reliance on equity continued into the twentieth century. We began by replicating Shoichi Asajima's study of cor-

³⁴ Toshimitsu Imuta, *Meiji ki kabushiki kaisha bunseki josetsu* [Introduction to the analysis of Meiji-era corporations] (1976).

³⁵ We report the mean value of the firm assets involved in the last row of Table 1. As a comparative reference, note that per capita gross national expenditure in 1898 (current prices) was 53.9 yen. *Nihon tokei kyoku*, *Nihon choki tokei soran* [Historical statistics of Japan] (1988); 1 *id.* at 48; 3 *id.* at 344.

TABLE 2
 MEAN RATIOS OF BANK DEBT (*shakunyukin*)/ASSETS (*so shisan*) AND
 BANK DEBT/TOTAL CAPITAL, 1919–41

	1919	1926	1931	1936	1941
Food and paper:					
Bank debt/assets (%)	6.18	7.50	12.63	4.78	5.64
Bank debt/total capital (%)	8.51	12.70	51.90	8.23	8.38
Chemicals:					
Bank debt/assets (%)	4.75	4.70	6.99	2.12	14.29
Bank debt/total capital (%)	7.06	6.97	16.89	4.12	25.22
Steel machinery:					
Bank debt/assets (%)	4.17	11.98	12.46	4.94	12.98
Bank debt/total capital (%)	8.68	60.95	27.40	7.30	33.96
Mining:					
Bank debt/assets (%)	2.17	4.07	7.53	8.27	14.22
Bank debt/total capital (%)	3.03	5.12	11.43	10.20	29.78
Sugar:					
Bank debt/assets (%)	.19	1.75	8.12	7.98	1.64
Bank debt/total capital (%)	.30	4.93	27.54	20.64	3.73
<i>N</i>	57	61	52	67	104

SOURCE.—Osakaya shoten, *Kabushiki nenkan* [Stock annual] (various years).

NOTE.—For total capital, we sum legal capital (calculated at par value), reserves, carryforwards, and current profits. These are the largest firms—the size cutoffs are given in the text.

porate flow of funds (reported at Section II A3).³⁶ Asajima took four periods (1911–19, 1919–26, 1926–31, and 1931–36) and collected information on how large firms funded their projects from accounting data in the *Kabushiki nenkan* [Stock annual].³⁷ He defined “large” as all firms appearing in the *nenkan* with capital of at least 1 million yen in 1911, 5 million yen in 1919, or 10 million yen in 1926, 1931, or 1936.

We assembled data on several of Asajima’s industries (unfortunately, these do not track Imuta’s industry categories): textiles, mining, food and paper, chemicals, steel machinery, and sugar. Like Asajima, we used 1919, 1926, 1931, and 1936. We then added those firms in 1941 with capital of 20 million yen or more.

In Table 2, we report the mean ratio of bank debt to gross assets for these firms, cataloged by industry and by date.³⁸ For most industries and years,

³⁶ Shoichi Asajima, *Daikigyo no shikin chotatsu* [Capital raising among large firms], in *Nihon keiei shi 3: Dai kigyo jidai no torai* [History of Japanese management, 3: The advent of the age of the large firm] 219–69 (Tsunehiko Yui & Eisuke Daito eds. 1995).

³⁷ Osakaya shoten, *Kabushiki nenkan* [Stock annual] (various years). Although published by a rival company, this is a very similar volume to the source used in Jennifer L. Frankl, *An Analysis of Japanese Corporate Structure, 1915–1937*, 59 *J. Econ. Hist.* 997 (1999), discussed *infra* at Section III C.

³⁸ We here translate “*shakunyukin*” as “bank debt” and “*so shisan*” as “gross assets.” The categories are imprecise: some *shakunyukin* could be from sources other than banks, and (given the note discounting process) bank debt could appear in such other categories as “*tegata kariire*.” Tokyo shibaura denki, *Tokyo shibaura denki 85 nen shi* [An 85-year history of Toshiba] 185 (1963).

the ratio ranges from 2 to 8 percent. Of the 25 cells in Table 2, in only six is it over 10 percent, and in none is it over 20 percent. We follow that ratio with the ratio of bank debt to total capital (legal capital plus reserves, carryforwards, and current profits).³⁹ This number is larger, given that gross assets usually exceed total capital. Other than the few cells where firms with large losses had very small capital values, the ratios remain small.

In related research, we compare the equity/gross-assets and fixed-assets/gross-assets ratios for firms in heavy industry listed in the annual publication of the Mitsubishi Economic Research Center. We consistently find that the average equity ratio exceeded the fixed-assets ratio—whether the 206 firms in 1928, the 205 in 1930, the 187 in 1933, the 195 in 1937, the 199 in 1940, or the 209 in 1943. At least on average, the firms did not need debt to finance long-term investment. Instead, they used what bank debt they had for operating expenses.⁴⁰

Funds Availability. If firms did not borrow much, it was not because banks used their funds for stock instead. Kaichi Shimura studied the identity of the investors holding at least 1,000 shares of stock in the 511 firms listed in a 1919 national investor registry. Through this, he created a database of 8,506 investors in 379 companies—firms responsible for 62 percent of the legal capital of all extant corporations and virtually all listed companies.

Among the investors in Shimura's firms, banks held only 3.2 percent of the stock at issue. By contrast, individuals held 76.2 percent of the stock, and nonbank corporations held the rest. *Zaibatsu* families held only 2 percent of the stock. Of all firms nationally, from 1930 to 1940 banks held only 3.2–4.6 percent of the stock, and the large city banks (primarily *zaibatsu* banks) held only 1.3–2.4 percent of the stock.⁴¹

Fundamentally, prewar Japanese banks were not institutions that made large, long-term investments in firms. Bankers did search hard for firms willing to borrow, and bank histories recall the frustration they often felt.⁴²

³⁹ Given the practice in some Japanese firms of issuing stock at less than par but subject to call, we would have liked to have been able to calculate paid-in capital as well. Unfortunately, reliable figures for paid-in capital are hard to derive from the *Kabushiki nenkan*. In any event, given that a firm could not issue additional shares without first obtaining full par value from existing shareholders, and given that shareholders would be liable for the full amount of par in case of insolvency, legal capital is in some ways a more relevant figure anyway.

⁴⁰ Yoshiro Miwa & J. Mark Ramseyer, *Seisaku kin'yu to keizai hatten: Senzenki Nihon kogyo ginko no keesu* [Policy finance and economic growth: The case of the pre-war Industrial Bank of Japan], 66 *Keizaigaku ronshu* [Economic review of the University of Tokyo] 2, 29, table 7 (2000); Mitsubishi keizai kenkyu jo, *Honpo jigyo seisaku bunseki* [Analysis of Japanese firm performance] (various years). See also Tokyo shibaura, *supra* note 38, at 185.

⁴¹ Kaichi Shimura, *Nihon shihon shijo bunseki* [An analysis of Japanese capital markets] 386–90 (1969); *Honpo keizai tokei* [Domestic economic statistics] (Nihon ginko ed. 1960).

⁴² Mitsui ginko, *Mitsui ginko 80 nen shi* [An 80-year history of the Mitsui Bank] 381 (1957); Yoshio Asai, 1920 *nendai ni okeru Mitsui ginko to Mitsui zaibatsu* [The Mitsui Bank and the Mitsui *zaibatsu* in the 1920s], 11 *Mitsui bunko ronso* [Journal of the Mitsui Research Institute for Social & Economic History] 251, 257 (1977). During the period, banks generally lent out

Yet they primarily saw themselves as specializing in short-term loans and assorted payments functions. As the war intensified, the government increasingly pushed them to provide funds long-term to munitions firms, but this was not a change they voluntarily accepted. It was a change the government required. When Sumitomo CEO Masatsune Ogura became Minister of Finance in 1941, he promptly assembled the leading financiers to discuss the new corporate finance program. As he outlined it, the government would require banks to engage in “enterprise finance”: to supply funds long-term for expansions in productive capacity. Japanese banks, he noted, “have generally maintained lending practices directed toward commercial finance.” No longer would they be free to do so—“for banks now to promote enterprises will require a change in the methods they have traditionally used.”⁴³

3. Flow of Funds

If cross-sectional data show no evidence that big firms relied on bank debt, turn to the flow of funds—to the question of where large Japanese firms obtained any increase in funding. Toward that end, we report Asajima’s investigation of the largest Japanese firms over four periods (1911–19, 1919–26, 1926–31, and 1931–36). Using the size cutoffs described above, he obtained a cohort of 123 firms for 1911–19, 111 for 1919–26, 134 for 1926–31, and 155 for 1931–36.

As Table 3, panel A, shows, the big firms seldom borrowed the extra money they needed from banks. Instead, they relied on equity. When these firms needed additional funds, for 35–55 percent of the amount, they sold stock. For more modest amounts, they accumulated earnings and sold bonds. Even during the 1920s Japanese recession (from 1926 to 1931, per capita gross national product rose 2.4 percent),⁴⁴ they turned to banks for only 14.6 percent of any extra funds they needed.

Predictably, Table 3, panel A, masks some sectoral variation. In some industries during some periods, firms actually cut their total funding: ocean shipping during 1919–36, textiles during 1926–31, and the food and paper industry during 1931–36. Nonetheless, the picture that emerges across industries tracks the general message of Table 3, panel A: in none of the industries did the largest firms use bank loans for extra funds. Table 3, panel

considerably less than their total deposits. As the country went into war footing, the national bonds made up much of the difference. See generally Miwa & Ramseyer, *supra* note 40, at 13, table 1; Juro Teranishi, *Nihon no keizai hatten to kin’yu* [Japanese economic development and finance] 337 (1982); Haruhito Takeda, *Teikoku shugi to minpon shugi* [Imperialism and democracy] (1992).

⁴³ 31 *Nihon kin’yu shi shiryō, showa hen* [Materials on Japanese financial history, Showa period] 480 (*Nihon ginko* ed. 1971). Formally, Ogura had been *soriji* for the representative directors of the Sumitomo holding company.

⁴⁴ Kazushi Okawa, Nobukiyo Takamatsu, & Yuzo Yamamoto, *Choki keizai tokei: kokumin shotoku* [Long-term economic statistics: National income] 237 (1974).

TABLE 3
FLOW OF FUNDS MEASURES

A. SOURCE OF ADDITIONAL FUNDS, 1911–36				
	1911–19	1919–26	1926–31	1931–36
Equity (%)	34.4	48.8	39.4	53.6
Earnings (%)	33.4	4.8	–2.0	28.6
Bonds issues (%)	4.5	26.4	44.1	9.1
Bank loans (%)	4.6	6.4	14.6	–1.7
Trade credit (%)	6.3	11.4	–3.6	–2.6
Other loans (%)	16.9	2.2	7.5	13.3
Total net increase	2,292	4,394	2,601	2,676
Number of firms	123	111	134	155

B. RATIO OF NET INCREASE IN BANK DEBT TO NET INCREASE IN BOND AND STOCK ISSUES, 1911–36				
	1911–19	1919–26	1926–31	1931–36
Textiles	.046	.042	–.269	.277
Railroads	.046	.070	.321	–.112
Electrical utilities	.106	.084	.104	–.273
Chemicals	.105	.043	.155	.016
Brick	.018	.097	–.061	.216
Mining	.085	.053	.294	.262
Paper and food	.399	.059	.163	–.040
Ocean shipping	–.066	.382	–.257	–.113
Steel machinery	.355	.056	.437	–.010
Sugar	–.043	.111	.834	2.646
Others	.402	.056	.136	.279
All industries	.118	.085	.175	–.027

SOURCE.—Panel B: Calculated from data found in Shoichi Asajima, *Daikigyo no shikin chotatsu* [Capital raising among large firms], in *Nihon keiei shi 3: Dai kigyo jidai no torai* [History of Japanese management, 3: The advent of the age of the large firm] 235–38 (Tsunehiko Yui & Eisuke Daito eds. 1995).

NOTE.—Panel A: The first six lines present the percentage of the net increase in funding over the period accounted for by a given source. The seventh line presents the total net increase in funding for the firms, in millions of yen. Panel B: In each case, we present (1) the percentage of the net increase in funding at the firms in an industry represented by the net increase in bank debt, divided by (2) the percentage of that net increase represented by the net increase in bond issues plus paid-in capital. Size cutoffs (based on legal capital) are given in the text.

B, disaggregates the Table 3, panel A, sample into 11 industries and then divides the net increase in bank debt during each period by the sum of the net increases in bonds and paid-in capital. Of the resulting 44 cells, in only eight is the ratio of the increase in bank debt to the increase in bonds and stock issues greater than .3, in only four is it greater than .4, and in only two is it greater than .5.

4. Exchanges

Consistent with the way firms relied on stock, the turn-of-the-century Tokyo and Osaka stock exchanges thrived. If Japanese industrialists were importing and adapting engineering technology, Japanese financiers were

doing the same with financing technology. Founded in 1878, by 1900, the Tokyo Stock Exchange (TSE) listed the bonds of seven firms and the shares of 113. Ten years later, it listed 43 bonds and 142 stocks. By 1920, those numbers had climbed to 157 bonds and 569 stocks and by 1925 to 492 bonds and 665 stocks. Similarly founded in 1878, by 1900 the Osaka Stock Exchange (OSE) listed the bonds of one firm and the shares of 50. Ten years later, it listed no private-sector bonds but the shares of 64 firms. By 1920, those numbers had climbed to eight bonds and 206 stocks and by 1925 to an unspecified number of bonds and the shares of 191 firms.⁴⁵

These shareholders traded actively. During 1890, investors on the TSE contracted to sell 1.6 million shares. During 1900, they contracted for 3.7 million shares; in 1910, 11.0 million; in 1920, 37.5 million; and in 1925, 59.8 million. On the OSE during 1890, investors contracted to sell 982,000 shares. During 1900, they contracted for 5.2 million shares; in 1910, 11.2 million; in 1920, 22.3 million; and in 1925, 13.0 million.⁴⁶

Less so than their contemporaries at the New York Stock Exchange (NYSE) to be sure, investors on the TSE and OSE were still impressively active.⁴⁷ Collectively, they traded stocks valued at 512 million yen in 1900, 2.09 billion in 1910, 8.13 billion in 1920, and 4.13 billion in 1925. Calculated as a percentage of gross domestic product (GDP), these figures amounted to 21.2, 53.3, 51.1, and 25.4 percent, respectively. These numbers easily place them within the range of modern advanced economies: 1990 turnover/GDP ratios of 31.5 percent for the United States, 28.6 percent for the United Kingdom, 22.1 percent for Germany, and 12.4 percent for Canada.⁴⁸

B. Three Case Studies

1. Textiles

Both to give context to this data and to examine financing patterns at firms too small to appear in the samples above, we turn to comprehensive data on three important industries: cotton textiles, railroads, and electrical utilities. In the early 1900s, the Japanese cotton-spinning industry grew spectacularly

⁴⁵ Tokyo kabushiki torihiki jo, Tokyo kabushiki torihiki jo 50 nen shi [Fifty-year history of the Tokyo Stock Exchange], table 1 (1928); Osaka kabushiki torihiki jo, Daikabu 50 nen shi [50 year history of the Osaka Stock Exchange] suppl. 35–186 (1928). These numbers modestly overstate the number of firms listed on the exchange, since they count as separate entries the different classes of stock of those firms trading more than one class.

⁴⁶ Tokyo, *supra* note 45, table 3; Osaka, *supra* note 45, table 1.

⁴⁷ On the New York Stock Exchange, investors traded 139 million shares in 1900, 164 million in 1910, 227 million in 1920, and 454 million in 1925. See U.S. Bureau of the Census, Statistical Abstract of the United States (various years). The Osaka Stock Exchange data record the number of shares traded, but not their monetary value. Accordingly, we estimate that value based on the value of the shares traded on the Tokyo Stock Exchange in that year.

⁴⁸ World Bank, World Development Indicators, table 5.2 (2000).

quickly. From 60 million yen in 1894 (in constant 1934–36 prices), production climbed to 167 million yen in 1904, 447 million in 1914, 657 million in 1924, and 1,104 million in 1934. By the 1920s the Japanese firms were using more raw cotton than their British competitors. Domestically, they dominated the economy. During the 1930s, the cotton-spinning firms produced a quarter of all domestic manufactured goods and employed 40 percent of all factory workers.⁴⁹ According to Takatoshi Ito's standard text on the Japanese economy, they accomplished all this in the face of "the relative scarcity of 'venture capital' " by raising operating costs through bank loans. The firms, he explains, "were usually associated with a major bank, which provided an inexpensive source of operating funds."⁵⁰

Not so. The men who began these firms sold stock to a broad array of investors. Although the investors often came from a few towns or cities (a point that obviously facilitated trust), rarely did a single shareholder or group of shareholders dominate the firm. Kazuo Yamaguchi studied the 60-odd spinning firms operating in 1898.⁵¹ On average, the firms had 331 shareholders. The largest investor held about 8 percent of the stock, the largest five together held 24 percent, and the largest 10 held 33 percent. Only 11 percent of the firms (seven firms) had fewer than 100 shareholders, while 52 percent (32 firms) had 300 or more shareholders. In no firm did the largest shareholder hold 50 percent or more of the stock, and in only three firms did a single shareholder hold 20 percent or more of the stock.

Tables 4 and 5 illustrate the relative importance of equity issues and unimportance of bank debt. Table 4 gives the mean capitalization of the 52 spinning firms in 1898 with available data and confirms the way that firms of all sizes used equity rather than bank loans. In general, they raised 58 percent of their funds through stock issues, another 10 percent through earnings, and 5 percent through bonds. Only 11 percent of their funds did they borrow from banks. Although the largest half of the firms raised the least from the banks (9–10 percent for the 27 firms with 10,000 or more spindles), even the smaller firms raised less than 20 percent from banks. Table 5 confirms the way the reliance on dispersed shareholdings had persisted over time—even at the very outset of the industry in 1890, the firms had raised their equity from a mean 121 investors.

⁴⁹ Shozaburo Fujino, Shiro Fujino, & Akira Ono, *Choki keizai tokei: Sen'i kogyo* [Long-term economic statistics: Textiles] 246 (1979); Yoshiro Miwa & J. Mark Ramseyer, *Corporate Governance in Transitional Economies: Lessons from the Prewar Japanese Cotton Textile Industry*, 29 *J. Legal Stud.* 171, 178 (2000).

⁵⁰ Takatoshi Ito, *The Japanese Economy* 32–33 (1992).

⁵¹ Kazuo Yamaguchi, *Meiji 31 nen zengo boseki gaisha no kabunushi ni tsuite* [Regarding spinning firm shareholders at around 1898], 15(2) [Meiji daigaku] *Keiei ronshu* 1 (1968).

TABLE 4
MEAN CAPITALIZATION OF COTTON-SPINNING FIRMS, 1898

	NUMBER OF OPERATING SPINDLES				ALL FIRMS
	5,999 or Less	6,000–9,999	10,000–19,999	20,000 or More	
Paid-in capital	186 (64)	338 (59)	451 (59)	827 (55)	469 (58)
Retained earnings	7 (2)	11 (2)	65 (9)	226 (15)	84 (10)
Bonds	0 (0)	25 (4)	41 (5)	99 (7)	44 (5)
Bank debt	47 (16)	78 (14)	65 (9)	153 (10)	90 (11)
Other debt	51 (18)	123 (21)	136 (20)	188 (13)	128 (16)
Number of firms	12	13	12	15	52

SOURCE.—Toshimitsu Imuta, *Meiji ki kabushiki kaisha bunseki josetsu* [Introduction to the analysis of Meiji-era corporations] (20) (1976).

NOTE.—The table presents the mean per firm figure, in 1,000s of yen, followed by the percentage of total firm capitalization in parentheses. Bank debt includes *shakunyu kin* and *toza karikoshi*.

2. Railroads

By 1869, U.S. entrepreneurs had taken trains across the North American continent. They had also brought tales of these machines to Japan. Hearing their accounts, the new Japanese government was all too eager to respond. After some initial missteps, it ran tracks from Tokyo to Yokohama (18 miles). By 1874 it had finished the line from Osaka to Kobe, and the Tokyo-Yokohama line carried 1.6 million passengers a year.⁵²

In 1883, private entrepreneurs began running trains too. As they did, the focus in the industry increasingly shifted from the national railway to the private. In 1890, the national government owned 550 miles of track, while private firms owned 1,165 miles. By 1900, the government owned 1,059 miles and private firms 2,966, and by 1905 the government owned 1531 miles to the private firms' 3,251. In 1906, by fiat the government nationalized 2,823 miles of private track. By then, the various railroads constituted some 14 percent of all domestic investment.⁵³

From the outset, the railroads (they were much larger than the spinning firms—see Table 5) relied on stock issues.⁵⁴ Within a year of starting op-

⁵² J. Mark Ramseyer & Frances M. Rosenbluth, *The Politics of Oligarchy: Institutional Choice in Imperial Japan*, ch. 9 (1995).

⁵³ Ryoshin Minami, *Choki keizai tokei: Tetsudo to denryoku* [Long-term economic statistics: Railroads and electric utilities] 6 (1965).

⁵⁴ According to historian Steven Ericson, banks played a “vital contribution to the supply of ordinary share capital” in the railroad industry. Steven J. Ericson, *Railroads in Crisis: The Financing and Management of Japanese Railway Companies during the Panic of 1890*, in *Managing Industrial Enterprise: Cases from Japan's Prewar Experience* 121, 176–77 (William D. Wray ed. 1989). Ultimately, “the experience of Meiji railroads indicates that Gerschenkron's thesis concerning the late-comer's need for ‘special institutional devices’ to substitute for individual private enterprise still has relevance for the Japanese case.” Steven J. Ericson, *The Sound of the Whistle: Railroads and the State in Meiji Japan* 382 (1996). In the end, however, to show the “vital contribution” of banks, Ericson does no more than show that banks lent money on collateral, that they accepted stock as collateral, and that among the blue-chip stocks

TABLE 5
SHAREHOLDERS PER FIRM, BY INDUSTRY, 1890–98

	1890	1892	1894	1896	1898
Cotton-spinning shareholders:	121	172	222	280	457
Paid-in capital	143	. . .	271	379	456
Number of firms	61	. . .	53	76	71
Railroad shareholders:	939	769	669	695	1040
Paid-in capital	3253	3711	3034	3383	3665
Number of firms	12	13	20	26	42
Electrical utility shareholders:	225	161	119	109	107
Paid-in capital	168	152	120	145	141
Number of firms	8	11	20	29	45

SOURCE.—Toshimitsu Imuta, *Meiji ki kabushiki kaisha bunseki josetsu* [Introduction to the analysis of Meiji-era corporations] (59) (1976), as supplemented by *Nippon teikoku tokei nenkan* (Naikaku tokei kyoku ed. various years).

NOTE.—“Shareholders” gives the mean number of shareholders, per firm. “Paid-in capital” gives the mean paid-in capital per firm, in 1,000s of yen.

erations, the first private railroad listed its stock on the TSE. In 1886 another firm listed its stock; in 1887, two more; in 1888, three more; and in 1889, another three. During the 1890s, 23 additional railroad firms listed their stock, and through 1905, another 14. On the Osaka Stock Exchange, eight railroads listed their stocks during the 1880s and another 26 during the 1890s.⁵⁵

Even more than the cotton-spinning companies, the railroads sold their stock to a broad array of investors. As Table 5 shows, during the 1890s, the mean number of shareholders per railroad ranged from 600 to 1,100. Toshimitsu Imuta studied shareholder lists at three of the railroads. At the largest (the Nippon), in 1881 (with 5,597 total shareholders), the lead shareholder had 9.5 percent of the stock and the largest five collectively held 27.5 percent; in 1886 (3,098 shareholders), the lead held 3.7 percent and the largest five held 14.3 percent; and in 1898 (4,553 shareholders), the lead held 14.7 percent and the largest five held 22.2 percent.⁵⁶

At the Hokkaido takushoku railroad, in 1889 (with 946 shareholders), the lead shareholder (the Imperial Household Agency) held 7.7 percent, while the largest five held 15.4 percent; in 1894 (694 shareholders), the agency was still the lead shareholder with 7.7 percent, and the largest five held 26.9 percent. By 1902 (1,145 shareholders), the Mitsui group held larger interests (perhaps because the railroad complemented its Hokkaido coal-mining investments), and the agency’s interest had fallen to third. At the Kansai rail-

used as collateral for loans to individuals, railroad shares figured prominently. Even by Ericson’s own account, in other words, all banks did to promote railroads was to lend money to rich investors who owned, *inter alia*, railroad stock.

⁵⁵ Tokyo, *supra* note 45; Imuta, *supra* note 34, at (18).

⁵⁶ Imuta, *supra* note 34, at (64)–(87). Where necessary, we have estimated the total number of shares outstanding using data from Tokyo, *supra* note 45; and Tetsudo kyoku, Meiji 32 nendo Tetsudo kyoku nempo [1899 Railway Bureau annual report] (1900).

TABLE 6
CAPITALIZATION OF RAILROAD FIRMS, 1884–98

	1884	1886	1888	1890	1892	1894	1896	1898
Paid-in capital	5,163 (100)	8,062 (100)	14,997 (97)	38,493 (95)	46,737 (94)	59,177 (88)	89,011 (91)	169,999 (92)
Retained earnings	0 (0)	0 (0)	231 (2)	511 (1)	775 (2)	1322 (2)	1587 (2)	3374 (2)
Bonds	0 (0)	0 (0)	0 (0)	269 (1)	1710 (3)	5778 (9)	5350 (5)	10640 (6)
Bank debt	0 (0)	0 (0)	165 (1)	1162 (3)	580 (1)	877 (1)	2316 (2)	2190 (1)
Number of firms	1	2	6	12	13	20	27	41

SOURCE.—Tetsudo kyoku, Meiji 32 nendo Tetsudo kyoku nempo [1899 Railway Bureau annual report] 221–37 (1900).

NOTE.—The table presents current values, in 1,000s of yen, with percentages in parentheses. Bank debt excludes short-term debt. We do not compile data for the early twentieth century because the nationalization of the principal railroads in 1906 renders the issue moot.

road, in 1888, the lead shareholder held 3.3 percent and the largest five held 8.4 percent; in 1895 (1,456 shareholders), the lead held 9.0 and the largest five held 19.3 percent; in 1906, the lead held 2.5 and the largest five held 7.6 percent.

From these stockholders, the railroads raised virtually all their funds (Table 6). What else they needed they obtained by selling bonds. From banks, they raised only 0–3 percent.

3. Electrical Utilities

Like textiles and railroads, electrical power was a growth business in prewar Japan. The first commercial electrical power plant began operations in Great Britain in 1882. The first in Japan began in 1887, and from there the industry boomed. From 1 percent of gross national investment (GNI) at the turn of the century, it grew to 9 percent of GNI within 2 decades. From 1910 to 1920, consumption of electrical power in Japan rose from 523 kilowatt-hours to 3,795. By 1930, it stood at 12,618.⁵⁷

Although per capita consumption of electrical power lagged that of the United States, among manufacturing firms, the pace of electrification tracked the U.S. pace. From 1910 to 1920, the percentage (by horsepower) of electrically powered machines in Japan rose from 20 percent to 61, and over the

⁵⁷ Minami, *supra* note 53, at 6, table 14; Takeo Kikkawa, *Nihon denryoku gyo no hatten to Matsunaga Yasuzaemon* [Yasuzaemon Matsunaga and the development of the Japanese electrical power industry] 28 (1995).

TABLE 7
INDUSTRY CAPITALIZATION OF ELECTRIC UTILITY FIRMS, 1910–35

	1910	1915	1920	1925	1930	1935
Paid-in capital	86 (83)	305 (75)	660 (76)	1635 (61)	2306 (51)	2858 (57)
Retained earnings	5 (5)	13 (3)	46 (5)	89 (3)	148 (3)	213 (4)
Bonds	4 (4)	45 (11)	75 (9)	661 (25)	1456 (32)	1626 (32)
Bank debt	9 (8)	43 (11)	89 (10)	286 (11)	571 (13)	351 (7)
Number of firms	178	457	542	532	482	454

SOURCE.—Calculated from Takeo Kikkawa, *Nihon denryoku gyo no hatten to Matsunaga Yasuzaemon* [Yasuzaemon Matsunaga and the development of the Japanese electrical power industry] tables 1-1 & 1-3 (1995).

NOTE.—Current values are presented, in millions of yen, with percentage in parentheses.

next decade to 81. In the United States, the percentage of electrically powered machines rose from 25.4 percent (1909) to 55.0 (1919) to 82 percent (1929).⁵⁸

During most of this period, the Japanese electrical utility industry remained both competitive and unregulated. So competitive was it that of the 39 firms listed in the *Kabushiki nenkan* for 1911 and 1918, barely 15 were still in business in 1924. Only during the 1930s did the situation change: in 1932, the firms formed a cartel to stop price competition, and in 1939 the government began regulating them.⁵⁹

Like the spinning and railroad firms, the electrical utilities (closer in size to the spinning than the railroad firms—see Table 5) relied on stock and bond issues for their funds. As the cross-sectional figures in Table 7 show, from 1910 to 1935 the fraction of funds from stocks fell from 83 to 57 percent, while the fraction from bonds climbed from 4 to 32 percent. Bank debt, however, hovered in the 7–13 percent range. Table 8 tells a similar story: when firms needed extra money, they relied heavily on stock and bond issues. They turned to banks for less than a fifth of any additional funds.

Electrical utilities issued stock broadly. To explore shareholdings among the smaller firms as well as the larger, Takeo Kikkawa cataloged all 53 firms with relevant data for 1903. Only five of the firms had fewer than 30 shareholders, while 23 had 100 or more. Of the 130 firms with available data in

⁵⁸ The figures for Japan include “prime movers” only; the figures for the United States include all machinery. For Japan, see Minami, *supra* note 53, table 27; for the United States, see U.S. Bureau of the Census, *Historical Statistics of the United States*, tables P 68–73, S 32–43 (1975; 1997 CD-ROM version).

⁵⁹ Kikkawa, *supra* note 57, at 8, tables 1-11 & 1-16; Minami, *supra* note 53, at 4. The initial regulatory statute dated from 1931.

TABLE 8
SOURCE OF ADDITIONAL FUNDS PER YEAR FOR ELECTRIC UTILITY FIRMS, 1910–38

	1908–14	1915–18	1919–24	1925–30	1931–38
Paid-in capital	34 (75)	31 (72)	183 (61)	134 (37)	98 (79)
Retained earnings	1 (3)	4 (10)	8 (3)	12 (3)	12 (10)
Bonds	4 (9)	5 (10)	82 (28)	153 (43)	22 (18)
Bank debt	6 (13)	4 (8)	25 (9)	60 (17)	-8 (-7)

SOURCE.—Calculated from Takeo Kikkawa, *Nihon denryoku gyo no hatten to Matsunaga Yasuzaemon* [Yasuzaemon Matsunaga and the development of the Japanese electrical power industry] tables 1-1 & 1-3 (1995).

NOTE.—Current values are presented, in millions of yen, with percentage in parentheses.

1911, only 22 had fewer than 30 shareholders, and over half had 100 or more.⁶⁰

The larger firms sold stock to a broad swath of investors indeed. Take the 39 firms in both the 1911 and 1918 editions of the *Kabushiki nenkan* (disproportionately the larger firms). They had a mean 2.9 million yen in legal capital in 1911 and 421 shareholders. By 1918, they had 5.2 million in legal capital and 842 shareholders. Or take the 15 firms in both the 1918 and 1924 editions. They had 10.8 million yen in legal capital and 1,648 shareholders in 1918, and a mean 41.5 million in legal capital and 4,552 shareholders in 1924.⁶¹

Broad shareholdings continued until the war. On average, the 31 firms with shareholding data in the *Kabushiki nenkan* for 1930 had about 7,400 shareholders. No firm had fewer than 400 shareholders, and only four had fewer than 1,000. The lead shareholder held a mean 17 percent of the stock, and the largest five collectively held 31 percent. In only one firm did the lead shareholder hold a majority of the stock, and in only 10 did it hold more than 20 percent. Of the latter 10 firms, however, six were effectively subsidiaries of other electrical utilities. If we exclude those six, the mean equity interest of the largest shareholder drops to 11.9 percent.

As Tables 7 and 8 show, over time the industry shifted from stocks to bonds. This was particularly true among the five largest firms. During 1923–27, these firms raised only 31 percent of their funds from equity, and during 1928–31, only 14. Through bonds, however, they raised 49 and 79 percent in 1923–27 and 1928–31, respectively. More surprisingly perhaps,

⁶⁰ Kikkawa, *supra* note 57, table 1-6.

⁶¹ *Id.*, tables 1-1, 1-11, & 1-16.

they sold many of their bonds abroad (primarily in the United States)—about $\frac{2}{3}$ of the 1923–27 issues, and $\frac{2}{5}$ of the 1928–31 issues.⁶²

III. BANK DEBT, FIRM PERFORMANCE, AND ZAIBATSU AFFILIATION

A. Introduction

If some economists sometimes claim that prewar Japanese firms relied heavily on bank debt, scholars in Japanese studies routinely add a strategic angle. Routinely, they draw on prewar Japanese journalists and occupation officials to argue that the *zaibatsu* families used their control over banks to manipulate capital market imperfections to their private advantage. Indeed, SCAP had relied on precisely that claim to justify its destruction of the *zaibatsu* families.

Typically, these scholars proceed in three steps. First, they argue that some firms had easier access to credit than others and that this access gave the firms a competitive advantage in the product market. Second, they claim that the large *zaibatsu* groups had the market power to manipulate the allocation of credit. Third, they assert that the *zaibatsu* used that power in the credit market to gain control—through their affiliated manufacturing firms—over various product markets.

As oft repeated as the claim may be, for two reasons it is false. First, the most successful firms did not rely on bank debt (Section IIIB). Second, the *zaibatsu* groups did not use their affiliated banks to route funds to their affiliated manufacturing firms (Section IIIC). As central as the claim was to occupation policy, it was sheer fiction.

B. Debt and Performance

1. Introduction

To explore whether firms with favored access to bank debt performed better than those without, we regress two measures of firm performance on several measures of firm finance. On the one hand, if firms faced competitive capital markets, then, by standard theory, they would have chosen a capital structure that maximized shareholder returns. If so, then the level of bank debt at a firm would bear no systematic relation to firm performance, and our regressions would yield no statistically significant coefficients.

On the other hand, if the standard accounts were true, then firms with favored access to bank debt should have enjoyed a competitive advantage. If so, then firms with higher levels of bank debt should have outperformed firms with lower levels. Our regressions, in turn, should generate statistically significant positive coefficients on the level of bank debt at a firm.

⁶² *Id.*, table 1-34.

2. The Data

To assemble the necessary data, we first replicate Asajima's database (described above) for six key industries (as defined by the *Kabushiki nenkan*): steel machinery, chemicals, textiles, food and paper, mining, and sugar. Recall that Asajima collected data for 1919, 1926, 1931, and 1936. We add 1941 and calculate for each firm the levels of accounting equity (generally, the sum of legal capital, reserves, carryforwards, and current profits), bonds, direct bank borrowings, and gross assets.⁶³ In addition, we use *Kabushiki nenkan* data to estimate stock market capitalization. Because the *nenkan* gives only high and low stock prices for a year, we take the midpoint of the two values. We then multiply that figure by the estimated number of outstanding shares (legal capital divided by the customary par value of 50 yen).

Because many analysts believe that the *zaibatsu* groups manipulated capital markets to their advantage, we add dummy variables for *zaibatsu* affiliation. More specifically, we add dummy variables for each of the four principal *zaibatsu* groups (Mitsui, Mitsubishi, Sumitomo, and Yasuda-Asano), a dummy for all other *zaibatsu* (the Furukawa, Kawasaki, Nissan, Nihon Chisso, and Mori groups), and a dummy for whether the firm was a member of any *zaibatsu* ("Any *zaibatsu*"). In identifying *zaibatsu* affiliation, we rely on Asajima.⁶⁴ Tables 9 and 10 give selected summary statistics. Recall, as noted earlier, that the 1920s were years of economic stagnation in Japan.⁶⁵

3. The Tests

We report below the results of several tests. To examine the relation between bank debt and stock prices, we divide stock market capitalization by firm accounting equity. We then regress that ratio on a variety of accounting measures. We had hoped to use Tobin's Q instead, but we could obtain neither the market value of the firm's debt nor the replacement cost of the firm's assets. Secondarily, to examine the effect of bank debt on firm growth, we regress the growth in a firm's asset base from one period to the next over the firm's financials in the first period (Table 12, panel B). In other words, we regress 1919–26 growth (defined as (1926 gross assets)/(1919 gross assets)) on 1919 financials, 1926–31 growth (similarly defined) on 1926 financials, and so forth.

⁶³ On capital, see note 39 *supra*; on borrowings, see note 38 *supra*.

⁶⁴ The leading alternative classifications are those of Kamekichi Takahashi, *Nippon zaibatsu no kaibo* [An anatomy of Japanese *zaibatsu*] (1930), and Mochikabu gaisha seiri iinkai, *Nihon zaibatsu to sono kaitai* [The Japanese *zaibatsu* and their dissolution] (1951). We also ran these regressions using their classifications and generally obtained similar results. Takahashi's classification is plausible, but we believe the SCAP classification (dating from 1946) is too far removed in time to be appropriate here.

⁶⁵ Okawa, Takamatsu, & Yamamoto, *supra* note 44, table 32.

TABLE 9
CORPORATE FINANCE: SELECTED SUMMARY STATISTICS

	Minimum	Mean	Maximum
Financial values (pooled sample):			
Equity	1,322	47,441	572,313
Bonds	0	6,085	340,000
Bank debt	0	6,775	752,802
Gross assets	2,218	78,712	1,723,987
Total leverage	.001	.355	.941
Bank debt/gross assets	0	.071	.797
Market cap/equity	.065	1.087	3.002
<i>Zaibatsu</i> membership:			
Mitsui	0	.076	1
Mitsubishi	0	.028	1
Sumitomo	0	.021	1
Yasuda	0	.014	1
Other	0	.049	1

SOURCES.—Osakaya shoten, *Kabushiki nenkan* [Stock annual] (various years); Shoichi Asajima, *Daikigyo no shikin chotatsu* [Capital raising among large firms], in *Nihon keiei shi 3: Dai kigyo jidai no torai* [History of Japanese management, 3: The advent of the age of the large firm] 227–34 (Tsunehiko Yui & Eisuke Daito eds. 1995).

NOTE.—Total leverage is equal to $1 - (\text{equity}/\text{gross assets})$.

As explanatory variables, we focus on two financial measures. First, we use a firm's total leverage, defined as one less the ratio of a firm's equity to gross assets. Second, we use the bank debt/gross assets and bonds/gross assets ratios for each firm. The bank debt/gross assets variable nominally focuses more precisely than total leverage on the issue at stake in this study—the impact of bank debt on firm performance. Unfortunately, the accounting category we translate as “bank debt” (*shakunyukin*) probably includes modest amounts of nonbank debt and excludes the amounts banks advanced by discounting promissory notes. That the bank debt category misses considerable debt appears directly in Table 9. According to the table, firms had a mean leverage of 36 percent but bank debt of only 7 percent. Bonds formed another 6 percent. The rest was apparently a mix of discounted promissory notes and trade credit.⁶⁶

For the Table 11 regressions, we segregate the data by year, while for Table 12, we pool the data sets—a practice consistent with Jennifer Frankl's recent study of *zaibatsu* profitability.⁶⁷ In all regressions we add industry dummies, and in Table 12, we add year dummies as well. In the interests of space, we do not report their coefficient estimates. In all regressions, we calculate but do not report a constant term.

⁶⁶ Note that it was only after the war that Japanese banks began lending large amounts through the discounting process. See *Nihon ginko*, *supra* note 41, table 30.

⁶⁷ Frankl, *supra* note 37.

TABLE 10
NUMBER OF FIRMS

	1919	1926	1931	1936	1941
Steel machinery	13	13	9	14	41
Chemicals	10	10	7	15	16
Textiles	14	18	20	21	23
Food and paper	6	9	9	5	8
Mining	7	6	7	9	12
Sugar	8	8	7	6	4

SOURCES.—Osakaya shoten, *Kabushiki nenkan* [Stock annual] (various years); Shoichi Asajima, *Daikigyo no shikin chotatsu* [Capital raising among large firms], in *Nihon keiei shi* 3: *Dai kigyo jidai no torai* [History of Japanese management, 3: The advent of the age of the large firm] 227–34 (Tsunehiko Yui & Eisuke Daito eds. 1995).

4. The Results

None of the regressions using the market capitalization/equity ratio suggests that investors found debt advantageous. Where we use total leverage as the explanatory variable (Table 11, panel A), the coefficient on leverage is negative for 4 of the 5 years and significantly negative for 3. Where we use bank debt/gross assets (Table 11, panel B), the coefficient on bank debt is negative for all 5 years and significantly negative for 2. Hence the conclusion: firm size held constant, the more heavily a firm borrowed, the lower its ratio of market capitalization to equity.

For comparison, note the regressions on pooled data (Table 12; though common, the practice obviously presents potential serial correlation issues). The top panel confirms this negative relation between market valuation and leverage. The bottom panel produces similar results with a firm growth model. In general, one would expect the more successful firms both to enjoy higher share prices and to grow more rapidly than their competitors. As a result, if leverage does not increase share prices, one would not expect it to increase growth rates either. According to Table 12, panel B, it does not.

In separate unreported regressions, we use the Table 11 year-specific data sets to regress growth rates on firm financials. We also run the growth regressions with gross assets as an additional right-hand-side variable and run all our regressions without the *zaibatsu* variables. The results remain largely unchanged.

C. *Zaibatsu and Firm Performance*

1. The Question of *Zaibatsu* Success

But what of *zaibatsu* affiliation? Table for now the prime question—whether the *zaibatsu* gave their manufacturing firms a competitive edge by routing them preferential access to funds. Start instead with the preliminary

TABLE 11
REGRESSIONS BY YEAR

A. USING TOTAL LEVERAGE					
	1919	1926	1931	1936	1941
Total leverage	-.334 (.44)	-.819 (2.19)	-.772 (3.01)	-.899 (2.41)	.230 (1.06)
Gross assets	.235 (.87)	.403 (2.87)	.224 (2.30)	.217 (2.85)	.019 (1.38)
Mitsui	.139 (.59)	.295 (1.56)	.367 (2.41)	.223 (1.51)	.362 (3.86)
Mitsubishi	Dropped	-.012 (.02)	.094 (.22)	.579 (2.36)	.180 (1.35)
Sumitomo	Dropped	Dropped	Dropped	.470 (1.19)	.449 (3.00)
Yasuda	.056 (.13)	-.463 (1.26)	.009 (.03)	-.108 (.37)	.032 (.18)
Other <i>zaibatsu</i>	.525 (1.28)	.643 (1.75)	.404 (1.57)	.367 (1.86)	.119 (.84)
<i>N</i>	47	56	55	61	93
Adjusted <i>R</i> ²	.13	.27	.17	.18	.20
B. USING BANK DEBT/GROSS ASSETS					
	1919	1926	1931	1936	1941
Bank debt/gross assets	-1.343 (.97)	-.340 (.48)	-1.109 (2.21)	-.665 (.80)	-.763 (3.85)
Bonds/gross assets	2.377 (1.68)	-2.41 (3.53)	-1.120 (2.59)	-.822 (.73)	.838 (2.07)
Gross assets	.125 (.47)	.407 (3.08)	.190 (1.93)	.196 (2.46)	.026 (2.21)
Mitsui	.038 (.16)	.343 (1.93)	.343 (2.27)	.184 (1.18)	.381 (3.21)
Mitsubishi	Dropped	-.163 (.31)	-.000 (.00)	.434 (1.70)	.163 (1.36)
Sumitomo	Dropped	Dropped	Dropped	.438 (1.04)	.420 (3.06)
Yasuda	-.201 (.41)	-.392 (1.12)	.076 (.26)	-.048 (.15)	-.050 (.30)
Other <i>zaibatsu</i>	.306 (.73)	.732 (2.12)	.407 (1.59)	.254 (1.22)	.001 (.01)
<i>N</i>	47	56	55	61	93
Adjusted <i>R</i> ²	.18	.36	.17	.08	.34

SOURCES.—Osakaya shoten, *Kabushiki nenkan* [Stock annual] (various years); Shoichi Asajima, *Daikigyo no shikin chotatsu* [Capital raising among large firms], in *Nihon keiei shi 3: Dai kigyo jidai no torai* [History of Japanese management, 3: The advent of the age of the large firm] 227–34 (Tsunehiko Yui & Eisuke Daito eds. 1995).

NOTE.—The dependent variable is market capitalization/equity. All regressions use ordinary least squares and include industry dummies. Coefficients are presented, followed by the absolute value of the *t*-statistics in parentheses. Total leverage is equal to 1 - (equity/gross assets). The coefficients for gross assets are multiplied by 100,000. Coefficients for industry dummies and a constant term were calculated but are not reported.

TABLE 12
REGRESSIONS ON POOLED SAMPLE

A. DEPENDENT VARIABLE: MARKET CAPITALIZATION/EQUITY				
	(1)	(2)	(3)	(4)
Total leverage	-.504 (3.35)	-.466 (3.07)	. . .	. . .
Bank debt/gross assets	. . .	. . .	-.807 (3.51)	-.841 (3.66)
Bonds/gross assets	. . .	. . .	-.677 (2.40)	-.704 (2.50)
Gross assets	.054 (2.85)	.051 (2.70)	.051 (2.77)	.050 (2.70)
Mitsui	.302 (4.22)	. . .	.280 (3.95)	. . .
Mitsubishi	.431 (3.01)	. . .	.319 (2.24)	. . .
Sumitomo	.562 (2.69)	. . .	.595 (2.87)	. . .
Yasuda	-.115 (.84)	. . .	-.056 (.41)	. . .
Other <i>zaibatsu</i>	.332 (3.00)	. . .	.301 (2.75)	. . .
Any <i>zaibatsu</i>	. . .	.289 (4.89)	. . .	.268 (4.61)
<i>N</i>	312	312	312	312
Adjusted <i>R</i> ²	.44	.43	.45	.44
B. DEPENDENT VARIABLE: GROWTH				
	(1)	(2)	(3)	(4)
Total leverage	-1.062 (2.06)	-.989 (1.92)	. . .	. . .
Bank debt/gross assets	. . .	. . .	.190 (.18)	.094 (.09)
Bonds/gross assets	. . .	. . .	-1.56 (1.66)	-1.465 (1.57)
Mitsui	.053 (.24)	. . .	.016 (.07)	. . .
Mitsubishi	.320 (.59)	. . .	.215 (.39)	. . .
Sumitomo	.073 (.09)	. . .	.100 (.12)	. . .
Yasuda	.044 (.10)	. . .	.053 (.12)	. . .
Other <i>zaibatsu</i>	.867 (2.34)	. . .	.827 (2.23)	. . .
Any <i>zaibatsu</i>	. . .	.196 (1.01)	. . .	.163 (.84)
<i>N</i>	210	210	210	210
Adjusted <i>R</i> ²	.16	.16	.15	.15

SOURCES.—Osakaya shoten, *Kabushiki nenkan* [Stock annual] (various years); Shoichi Asajima, *Daikigyō no shikin chotatsu* [Capital raising among large firms], in *Nihon keiei shi 3: Dai kigyō jidai no torai* [History of Japanese management, 3: The advent of the age of the large firm] 227–34 (Tsunehiko Yui & Eisuke Daito eds. 1995).

NOTE.—All regressions use ordinary least squares and include industry and year dummies. We present coefficients, followed by the absolute value of the *t*-statistics in parentheses. Total leverage is equal to 1 – (equity/gross assets). In panel A, the coefficients on gross assets are multiplied by 100,000. In panel B, the independent financial variables are for the period preceding the dependent variable. Thus, where 1919–26 Growth is the dependent variable, the independent variables are for 1919, and so forth. Coefficients for industry dummies, year dummies, and a constant term were calculated but are not reported.

inquiry—were the *zaibatsu* firms in fact more successful than their competitors? Prewar journalists, occupation-era analysts, and contemporary historians have all claimed that they were. Yet economists who have attempted serious empirical studies report mixed results.

On the one hand, Frankl regressed several performance measures on *zaibatsu* affiliation to relatively little effect. Using financial data on 130 firms for 1915, 1921, 1927, 1932, and 1937, she asked whether *zaibatsu* firms had higher profit/revenue ratios, price/earnings ratios, profit/asset ratios, returns to equity, or sales growth. For the principal *zaibatsu* groups such as the

Mitsui and Mitsubishi), she obtained no significant coefficients. Only for the “new *zaibatsu*” (groups such as Nissan, often with close military ties) did she find a significant positive connection. On the other hand, when Tetsuji Okazaki regressed profitability over *zaibatsu* affiliation, he discovered a stronger relationship. Okazaki used *Kabushiki nenkan* and individual firm accounting report data on 135 large firms from a variety of industries (unlike us, he does not restrict his sample to manufacturing firms) from 1922 to 1936, but he did not distinguish among the *zaibatsu* groups. Using industry dummies, he found significant evidence that *zaibatsu* membership led to better performance in both the 1922–26 and the 1932–36 periods.⁶⁸

As our regressions show, *zaibatsu* firms did indeed outperform their rivals. First, in Table 11, the Mitsui firms had significantly higher market capitalization/equity ratios in 1926, 1931, and 1941, the Mitsubishi had a significantly higher ratio in 1936, the Sumitomo in 1941, and the “other *zaibatsu*” (such as Nissan) in 1926 and 1936. In Table 12, panel A, regressions on pooled data, the coefficients on *zaibatsu* affiliation are significantly positive for all except the Yasuda. In Table 12, panel B, the “other *zaibatsu*” firms experienced significantly higher growth rates.

Given the variation among the regressions, we suspect the issue of *zaibatsu* performance is sensitive to the regression specifications, firms, industries, and years included. In particular, we suspect that the years covered may explain some of the differences among our, Okazaki’s, and Frankl’s results. Although Frankl found no evidence that the traditional *zaibatsu* outperformed the non-*zaibatsu* firms, she closed her inquiry in 1937. By contrast, we obtain some of our more compelling evidence from 1936 and 1941, and Okazaki similarly finds some of his strongest results from the late 1930s.

2. The Relation between *Zaibatsu* Success and Banks

The Effect of Finance

So, *zaibatsu* firms were more successful than their rivals—the question is what to make of this. Did *zaibatsu* firms succeed because their affiliated banks routed them funds preferentially? As noted earlier, SCAP and the historians have argued that they did. In fact, they did not. First, as we find both in the regressions in Tables 11 and 12 and in other unreported regressions without *zaibatsu* variables, the firms that borrowed heavily did not do well. The *zaibatsu* firms could not have succeeded because they borrowed, because the firms that succeeded were not the borrowing kind.

Second, *zaibatsu* firms did not borrow heavily anyway. To illustrate the point, we take the pooled database and regress bank debt on *zaibatsu* affiliation, gross assets, and year and industry dummies. Through this exercise,

⁶⁸ Frankl, *supra* note 37; Tetsuji Okazaki, *Mochikabu gaisha no rekishi—zaibatsu to kigyo tochi* [A history of the holding company: *Zaibatsu* and corporate governance] (1999).

TABLE 13
FIRMS AND COEFFICIENTS

Firm	Coefficient
Mitsui	-8,040 (1.73)
Mitsubishi	-24,933 (2.55)
Sumitomo	496 (.04)
Yasuda	-9,205 (.98)
Other <i>zaibatsu</i>	-20,445 (2.89)

NOTE.— Values in parentheses are *t*-statistics. Adjusted $R^2 = .56$.

we obtain the coefficients (and *t*-statistics) shown in Table 13. If we use one dummy to capture membership in any of the *zaibatsu*, we generate a coefficient and *t*-statistic of -11,855 (3.14), with an adjusted R^2 of .56. The *zaibatsu* did not borrow more than other firms. Instead, they borrowed less.⁶⁹

Third, some of the most successful prewar enterprises were enterprises without affiliated banks. Take the Suzuki trading empire. A turn-of-the-century upstart, the Suzuki group grew with phenomenal speed. By 1917, its trading firm had sales of 1.5 billion yen to the Mitsui trading firm's 1.1–1.2 billion. By the mid-1920s, the group revolved around two trading firms that directly controlled 35 others and more indirectly another 30. All told, it controlled paid-in capital of 239 million yen to the Sumitomo's 188 million yen.⁷⁰ And all this it did without a bank. Or take the Nissan group, generally called one of the "new *zaibatsu*." From modest turn-of-the-century mining roots, it too expanded quickly. By the mid-1930s, it controlled paid-in capital of 470 million yen to the Sumitomo's 380 million. Again, it did this without a bank.⁷¹

⁶⁹ To be sure, what they borrowed they may have obtained from affiliated firms. Yutaka Kasuga, Mitsui *zaibatsu* [The Mitsui *zaibatsu*], in *Zaibatsu kin'yu kozo no hikaku kenkyu* [A comparative study of *zaibatsu* financial structure] 56–57 (Shoichi Asajima ed. 1987), collected data for six Mitsui firms for several years: Oji Paper borrowed an average of 88 percent of its loans from other Mitsui-affiliated firms (including the bank) over 8 years from 1931 to 1940, Toshiba borrowed 82 percent over 10 years, Kanebo borrowed 76 percent over 3 years, Nihon Steel borrowed 74 percent over 7 years, Denki Kagaku borrowed 74 percent over 8 years, and Dai-Nippon Celluloid borrowed 100 percent over 3 years. What they borrowed, they may well have borrowed from the affiliated financial firms; they simply did not borrow very much.

⁷⁰ Juro Hashimoto, *Zaibatsu no kotsuerunka* [Making conglomerates of the *zaibatsu*], in *Nihon keizai no hatten to kigyō shudan* [Corporate groups and the development of the Japanese economy] 92–93 (Juro Hashimoto & Haruhito Takeda eds. 1992); Haruhito Takeda, *Zaibatsu no jidai* [The age of *zaibatsu*] 179–80 (1995); Takeda, *supra* note 42, at 274; Takahashi, *supra* note 64, at 36.

⁷¹ Masaru Udagawa, *Kindai Nihon keiei shi no kiso chishiki: Meiji ishinki kara gendai made* [The evolution of the Nissan combine], in *Kindai Nihon keiei shi* [Early modern Japanese management history] 204, 206 (Keiichiro Nakagawa, Hidemasa Morikawa, & Tsunehiko Yui eds., rev. ed., 1979).

Zaibatsu Bank Policy

Directly contrary to the received wisdom, moreover, the *zaibatsu* banks deliberately tried to *limit* their loans to affiliated firms. Unfortunately, firm financials only haphazardly list the identity of the lenders, and bank histories only haphazardly identify borrowers. Nonetheless, through several disparate sources, we can reconstruct the following accounts.

Mitsui. From the central Mitsui firms, the Mitsui Bank took more than it lent. And from them it took massive deposits. During 1923–34 (in semi-annual accounting periods), from its five key firms (the holding company and the trading, mining, trust, and life insurance companies), it obtained 5–16 percent of its entire deposit base. It then lent these firms substantially less. From 1923 to 1934, in only one 6-month period (the second half of 1923) did it lend these firms more than they deposited. The lowest ratio of loans to deposits came in the first half of 1934, when these firms borrowed back only 26 percent of their deposits. The mean of the semiannual ratios came to 71 percent. Even if we include the 17 next-tier Mitsui firms, the bank lent this group of 22 in 1939 (the only year on which we have data) only slightly more (112 percent) than the amount they collectively deposited.⁷²

Because the Mitsui Bank found it so hard to locate good borrowers, by policy it restricted the deposits it took. Rightly seen as safe, during the 1920s, it faced a large influx of deposits from other banks. Had it tried to route funds to affiliated firms, it would have welcomed the new money. Instead, it actively discouraged it, first by cutting the interest it paid other banks and later by simply restricting new deposits.⁷³

Sumitomo. After its public stock offering in 1917, the Sumitomo Bank was no longer exclusively a creature of the *zaibatsu* (as of 1928, Sumitomo affiliates held 56 percent of its stock).⁷⁴ Yet already in 1902, the bank had stipulated by contract that it would pay the Sumitomo holding company no higher an interest rate on its deposits than it paid anyone else and demanded that the company provide security for all loans above 300,000 yen. More informally, it declared that it would never lend the holding company more than 10 percent of its deposit base. Even during the boom years of World War I, it lent the company no more than 7 percent of its loans; from 1932 to 1939, it lent the holding company and its 14 central affiliated firms only 1–9 percent of all loans, or .8–6 percent of all deposits.⁷⁵

Mitsubishi and Yasuda. Neither did the Mitsubishi bank lend its affiliated

⁷² Mitsui, *supra* note 42, at 387, 423; Asai, *supra* note 42, at 258. Only as the war escalated (and the government began actively to intervene in corporate finance) did loans to the central Mitsui firms begin to exceed their deposits.

⁷³ Asai, *supra* note 42, at 278–79.

⁷⁴ Takahashi, *supra* note 64, at 172.

⁷⁵ Sumitomo ginko, Sumitomo ginko 80 nen shi [Eighty-year history of the Sumitomo Bank] 242–45, 357, 362 (1979); Minoru Sawai, Senji keizai to zaibatsu [The *zaibatsu* and the wartime economy], in Hashimoto & Takeda eds., *supra* note 70, table 4-16.

firms a large fraction of its total loans. From 1926 to 1937, the holding company and eight central affiliated Mitsubishi firms borrowed (from all sources) a combined 19–76 million yen. For any given year, these amounts were equivalent only to 5–12 percent of all loans made by the Mitsubishi financial firms, or to 8–22 percent of all loans made by the Mitsubishi Bank.⁷⁶ Internal company documents indicate, moreover, that the Mitsubishi life insurance company (Meiji seimei) loaned no funds at all to Mitsubishi-affiliated firms.⁷⁷ Unfortunately, we lack comparable data on the Yasuda *zaibatsu*. Crucially, the group included relatively few nonfinancial firms.

Restating the Question

The *zaibatsu* firms did not succeed because of any special access to bank debt. Yet perhaps the very question of why they succeeded misstates the issues. Fundamentally, the *zaibatsu* firms simply illustrate the familiar problem of survivor bias. These firms did not succeed because they were *zaibatsu* firms. They were *zaibatsu* firms because they succeeded, and they succeeded for all the various reasons some firms succeed in competitive markets while others fail. More precisely, journalists and social commentators named these firms *zaibatsu* in the late 1920s because they were at the time making their investors very rich.

Put differently, the *zaibatsu* firms differed from other firms only *ex post*. *Ex ante*, in the mid-nineteenth century, many rich families resembled the Mitsui and Sumitomo.⁷⁸ In the transition to the new Meiji government, most lost their fortunes. If they survived the transition, most lost their fortunes during the next 2 decades.

Scholars sometimes claim that the *zaibatsu* succeeded because of government patronage, but even this did not distinguish the *zaibatsu* *ex ante*. True, in the 1870s, the Mitsui house provided the new national and prefectural governments various exchequer and tax-collecting services, but so did the Ono and Shimada houses. In the 1920s, the Mitsui and Mitsubishi bought politicians, but so did the Suzuki trading empire.

Even as late as the turn of the century, many firms resembled closely the ones that would become the *zaibatsu*. The Suzuki empire, for example, at the time was rapidly amassing both financial wealth and political connections. The Konoike house had built on its centuries-old sake-brewing and money-

⁷⁶ Shoichi Asajima, Mitsubishi *zaibatsu* [The Mitsubishi *zaibatsu*], in Asajima ed., *supra* note 69; Sawai, *supra* note 75, table 4-16. The figures exclude notes issued to the Mitsubishi trading firm. Mitsubishi borrowings increased as the government began to dominate finance during the war, but even in 1944, Mitsubishi borrowings remained less than half of all loans by Mitsubishi financial institutions.

⁷⁷ Asajima, *supra* note 76, at 154.

⁷⁸ For a discussion of the rivals to the Mitsui and Sumitomo at the time of the Meiji Restoration, see Shigeaki Yasuoka, *Zaibatsu keiseishi no kenkyu* [A study in the formation of the *zaibatsu*] 491–500 (1998).

changing experience to branch into fields such as shipping and financial services. By the early twentieth century, it boasted one of the most powerful banks in the country.

What distinguished the Mitsui, Mitsubishi, Sumitomo, and Yasuda from all these other groups was a fact observable only *ex post*: in the 1920s and 1930s, they were doing well where the others were not. The Ono and Shimada did not survive the 1870s. The Suzuki did not survive the 1920s. The Konoike survived (merging its bank into what would become the Sanwa Bank), but with no panache. In the Japanese economy from 1870 to 1930, as in all competitive economies, many firms failed while some survived and a few thrived. What distinguished the Mitsui, Sumitomo, Mitsubishi, and Yasuda (as well as firms like Nissan) was that they were making their investors rich in the late 1920s when muckraking journalists came looking for them.

The term *zaibatsu* itself is one that journalists invented as a variation on others they were already using. In the late nineteenth century, military and political leaders sometimes had shown regional loyalties. When they did, journalists and commentators had called the resulting groups *hanbatsu*—or “domainal factions.” When the military tried to manipulate the government, they had written about the *gunbatsu*—or “military factions.” And when wealthy industrialists seemed to buy political influence, they coined a term for them too. *Zaibatsu*—or “wealth factions”—was the result.

At root, academics take (and SCAP officers took) the concept of *zaibatsu* too seriously.⁷⁹ As used by its contemporaries, the idiomatic translation of *zaibatsu* was nothing so serious as “conglomerate,” “corporate group,” or even “financial clique.” It was “robber baron.” Although one can find an occasional reference to the term in the 1910s, as economic historian Haruhito Takeda notes, its widespread use dates only from the 1930s in essays by populist journalists.⁸⁰ These writers had no analytic category in mind. Instead, they simply wanted a catchy pejorative term.

And a catchy term it was. As it caught on, business leaders increasingly found their flexibility hampered by public and government pressure. Whether on the left or on the right, but particularly on the right, zealots were outraged by what they saw as *zaibatsu* greed. The “Blood Pledge Corps” acted first and in 1932 shot and killed both an ex-finance minister and the Mitsui CEO. Police found another Mitsui and three Mitsubishi executives on its hit list. Two months later, renegade military officers killed the prime minister and tried to bomb the Mitsubishi Bank. By then, *zaibatsu* leaders resisted the fascists at their peril, and they knew it.

⁷⁹ We table the question of whether senior SCAP officials such as MacArthur actually believed what analysts such as Edwards and Bisson told them or simply found their accounts a convenient justification for doing what they had already decided they wanted to do. Academics also take the postwar *keiretsu* too seriously, as we discuss in Miwa & Ramseyer, *supra* note 3.

⁸⁰ Takeda, *supra* note 70, at 4.

Given this etymology, to ask why the *zaibatsu* succeeded invents a problem where none exists. In the second half of the nineteenth century, some would-be industrialists had wealth, some had drive, some had talent, and some had luck. The few with a combination of several of these attributes made money; many others lost it. Those that made it diversified their wealth into several industries and augmented or at least protected those investments by currying favor with politicians. When they did, journalists and commentators called them the “*zaibatsu*.”

IV. CONCLUSIONS

Alexander Gerschenkron argued that in less developed economies, banks promote growth more effectively than decentralized stock and bond markets. With their focus on informational asymmetries in capital markets, modern scholars sometimes seem to echo his refrain. Yet Elizabeth Paulet finds no evidence that the key nineteenth-century French universal bank *Crédit Mobilier* monitored its debtors or eased liquidity constraints.⁸¹ Caroline Fohlin finds no connection between bank loans and investment patterns either in Italy or at the very heart of Gerschenkron’s thesis—in turn-of-the-century Germany.⁸²

And similarly Japan. In the decades before World War II, Japanese firms did not grow through bank funding, firms with close ties to banks did not enjoy a competitive advantage, and the great *zaibatsu* groups did not use their banks to route funds to affiliated manufacturing firms. Fundamentally, the story of prewar Japanese corporate finance is not a story about relationship banking. It is a story about firms that overwhelmingly raised funds through decentralized, competitive capital markets. And it is a story in which they used those funds to grow with spectacular speed.

BIBLIOGRAPHY

Aoki, Masahiko, and Kim, Hung-Ki. “Overview.” In *Corporate Governance in Transitional Economies: Insider Control and the Role of Banks*, edited by Masahiko Aoki and Hung-Ki Kim. Washington, D.C.: World Bank, 1995.

⁸¹ Elisabeth Paulet, *The Role of Banks in Monitoring Firms: The Case of the Crédit Mobilier* (1999). For the recent debate on tests for liquidity constraints—a debate with important ramifications for the well-known Hoshi-Kashyap-Scharfstein studies of modern Japanese banking (cited in *supra* note 3)—see, for example, Steven M. Fazzari, R. Glenn Hubbard, & Bruce C. Petersen, *Investment–Cash Flow Sensitivities Are Useful: A Comment*, 115 *Q. J. Econ.* 695 (2000); Steven N. Kaplan & Luigi Zingales, *Do Investment–Cash Flow Sensitivities Provide Useful Measures of Financing Constraints?* 112 *Q. J. Econ.* 169 (1997); Steven N. Kaplan & Luigi Zingales, *Investment–Cash Flow Sensitivities Are Not Valid Measures of Financing Constraints*, 115 *Q. J. Econ.* 707 (2000).

⁸² Fohlin, *Relationship Banking*, *supra* note 4, at 1739; Fohlin, *Italian Experience with German-Style Universal Banking*, *supra* note 4, at 98.

- Asai, Yoshio. "1920 nendai ni okeru Mitsui ginko to Mitsui zaibatsu" [The Mitsui Bank and the Mitsui *zaibatsu* in the 1920s]. *Mitsui bunko ronso* 11 (1977): 251–328.
- Asajima, Shoichi. "Mitsubishi zaibatsu" [The Mitsubishi *zaibatsu*]. In *Zaibatsu kin'yu kozo no hikaku kenkyu* [A comparative study of *zaibatsu* financial structure], edited by Shoichi Asajima, pp. 219–71. Tokyo: Ochanomizu shobo, 1987.
- Asajima, Shoichi. "Daikigyo no shikin chotatsu" [Capital raising among large firms]. In *Nihon keiei shi 3: Dai kigyo jidai no torai* [History of Japanese management. Vol. 3. The advent of the age of the large firm], edited by Tsunehiko Yui and Eisuke Daito, pp. 219–69. Tokyo: Iwanami shoten, 1995.
- Bardhan, Pranab, and Roemer, John E. "Market Socialism: A Case for Rejuvenation." *Journal of Economic Perspectives* 6 (1992): 101–16.
- Beasley, W. G. *The Rise of Modern Japan*. 2d ed. New York: St. Martin's, 1995.
- Bergloef, Erik. "Corporate Governance in Transition Economies: The Theory and Its Policy Implications." In *Corporate Governance in Transitional Economies: Insider Control and the Role of Banks*, edited by Masahiko Aoki and Hung-Ki Kim. Washington, D.C.: World Bank, 1995.
- Bisson, T. A. *Japan's War Economy*. New York: Institute of Pacific Relations, 1945; distributed by the Macmillan Company.
- Bisson, T. A. *Zaibatsu Dissolution in Japan*. Berkeley: University of California Press, 1954.
- Clark, Rodney. *The Japanese Company*. New Haven, Conn.: Yale University Press, 1979.
- Cummings, Bruce. "The Origins and Development of Northeast Asian Political Economy: Industrial Sectors, Product Cycles, and Political Consequences." In *The Political Economy of the New Asian Industrialism*, edited by Frederic C. Deyo, pp. 44–83. Ithaca, N.Y.: Cornell University Press, 1987.
- Demirgüç-Kunt, Ash, and Maksimovic, Vojislav. "Stock Market Development and Financing Choices of Firms." *World Bank Economic Review* 10 (1996): 341–69.
- Dow, James, and Gorton, Gary. "Stock Market Efficiency and Economic Efficiency: Is There a Connection?" *Journal of Finance* 52 (1997): 1087–1129.
- [Edwards, Corwin D.] *Report of the Mission on Japanese Combines, Part I*. Department of State Publication 2628. Far Eastern Series 14. Washington, D.C.: U.S. GPO, March 1946.
- Ericson, Steven J. "Railroads in Crisis: The Financing and Management of Japanese Railway Companies during the Panic of 1890." In *Managing Industrial Enterprise: Cases from Japan's Prewar Experience*, edited by

- William D. Wray, pp. 121–82. Cambridge, Mass.: Harvard Council on East Asian Studies, 1989; distributed by Harvard University Press.
- Ericson, Steven J. *The Sound of the Whistle: Railroads and the State in Meiji Japan*. Cambridge, Mass.: Harvard Council on East Asian Studies, 1996.
- Fazzari, Steven M.; Hubbard, R. Glenn; and Petersen, Bruce C. “Investment–Cash Flow Sensitivities Are Useful: A Comment.” *Quarterly Journal of Economics* 115 (2000): 695–705.
- Fohlin, Caroline. “Universal Banking Networks in Pre-war Germany: New Evidence from Company Financial Data.” *Research in Economics* 51 (1997): 201–25.
- Fohlin, Caroline. “Fiduciary and Firm Liquidity Constraints: The Italian Experience with German-Style Universal Banking.” *Explorations in Economic History* 35 (1998): 83–107.
- Fohlin, Caroline. “Relationship Banking, Liquidity, and Investment in the German Industrialization.” *Journal of Finance* 53 (1998): 1737–58.
- Fohlin, Caroline. “The Rise of Interlocking Directorates in Imperial Germany.” *Economic History Review* 52 (1999): 307–33.
- Francks, Penelope. *Japanese Economic Development: Theory and Practice*. 2d ed. London: Routledge, 1999.
- Frankl, Jennifer L. “An Analysis of Japanese Corporate Structure, 1915–1937.” *Journal of Economic History* 59 (1999): 997–1015.
- Fujino, Shozaburo; Fujino, Shiro; and Ono, Akira. *Choki keizai tokei: Sen’i kogyo* [Long-term economic statistics: Textiles]. Tokyo: Toyo keizai shimpo sha, 1979.
- Gerlach, Michael L. *Alliance Capitalism and the Social Organization of Japanese Business*. Berkeley: University of California Press, 1992.
- Gerschenkron, Alexander. *Economic Backwardness in Historical Perspective: A Book of Essays*. Cambridge, Mass.: Harvard University Press, 1962.
- Gorton, Gary, and Schmid, Frank A. “Universal Banking and the Performance of German Firms.” *Journal of Financial Economics* 58 (2000): 29–80.
- Hadley, Eleanor M. *Antitrust in Japan*. Princeton, N.J.: Princeton University Press, 1970.
- Hadley, Eleanor Martha. “Concentrated Business Power in Japan.” Unpublished Ph.D. dissertation, Radcliffe College, 1949.
- Hashimoto, Juro. “Zaibatsu no kotsuerunka” [Making conglomerates of the zaibatsu]. In *Nihon keizai no hatten to kigyo shudan* [Corporate groups and the development of the Japanese economy], edited by Juro Hashimoto and Haruhito Takeda. Tokyo: University of Tokyo Press, 1992.
- Hoshi, Takeo. “Evolution of the Main Bank System in Japan.” In *The Structure of the Japanese Economy: Changes on the Domestic and International Fronts*, edited by Mitsuaki Okabe. Oxford: Oxford University Press, 1995.
- Hoshi, Takeo; Kashyap, Anil; and Scharfstein, David. “Bank Monitoring and Investment: Evidence from the Changing Structure of Japanese Corporate

- Banking Relationships.” In *Asymmetric Information, Corporate Finance, and Investment*, edited by R. Glenn Hubbard. Chicago: University of Chicago Press, 1990.
- Hoshi, Takeo; Kashyap, Anil; and Scharfstein, David. “Corporate Structure, Liquidity, and Investment: Evidence from Japanese Industrial Groups.” *Quarterly Journal of Economics* 106 (1991): 33.
- Imuta, Toshimitsu. *Meiji ki kabushiki kaisha bunseki josetsu* [Introduction to the analysis of Meiji-era corporations]. Tokyo: Hosei University Press, 1976.
- Ito, Takatoshi. *The Japanese Economy*. Cambridge, Mass.: MIT Press, 1992.
- Johnson, Chalmers. *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925–1975*. Stanford, Cal.: Stanford University Press, 1982.
- Kaplan, Steven N., and Zingales, Luigi. “Do Investment–Cash Flow Sensitivities Provide Useful Measures of Financing Constraints?” *Quarterly Journal of Economics* 112 (1997): 169–215.
- Kaplan, Steven N., and Zingales, Luigi. “Investment–Cash Flow Sensitivities Are Not Valid Measures of Financing Constraints.” *Quarterly Journal of Economics* 115 (2000): 707–12.
- Kasuga, Yutaka. “Mitsui zaibatsu” [The Mitsui zaibatsu]. In *Zaibatsu kin’yu kozo no hikaku kenkyu* [A comparative study of zaibatsu financial structure], edited by Shoichi Asajima. Tokyo: Ochanomizu shobo, 1987.
- Kester, W. Carl. *Japanese Takeovers: The Global Contest for Corporate Control*. Boston: Harvard Business School Press, 1991.
- Kikkawa, Takeo. *Nihon denryoku gyo no hatten to Matsunaga Yasuzaemon* [Yasuzaemon Matsunaga and the development of the Japanese electrical power industry]. Nagoya: Nagoya daigaku shuppan kai, 1995.
- Lockwood, William W. *The Economic Development of Japan: Growth and Structural Change, 1868–1938*. Princeton, N.J.: Princeton University Press, 1954.
- Minami, Ryoshin. *Choki keizai tokei: Tetsudo to denryoku* [Long-term economic statistics: Railroads and electric utilities]. Tokyo: Toyo keizai shinpo sha, 1965.
- Mitsubishi keizai kenkyujo. *Honpo jigyo seisaku bunseki* [Analysis of Japanese firm performance]. Tokyo: Mitsubishi keizai kenkyujo, various years.
- Mitsui ginko. *Mitsui ginko 80 nen shi* [An 80-year history of the Mitsui Bank]. Tokyo: K. K. Mitsui ginko, 1957.
- Miwa, Yoshiro, and Ramseyer, J. Mark. “Corporate Governance in Transitional Economies: Lessons from the Prewar Japanese Cotton Textile Industry.” *Journal of Legal Studies* 29 (2000): 171–203.
- Miwa, Yoshiro, and Ramseyer, J. Mark. “Seisaku kin’yu to keizai hatten: Senzenki Nihon kogyo ginko no keesu” [Policy finance and economic growth: The case of the pre-war Industrial Bank of Japan], 66 *Keizaigaku ronshu* [Economic review of the University of Tokyo] (2000): 2–50.

- Miwa, Yoshiro, and Ramseyer, J. Mark. "Directed Credit? The Loan Market in High-Growth Japan." *Journal of Economics and Management Strategy* (forthcoming 2003).
- Miwa, Yoshiro, and Ramseyer, J. Mark. "The Myth of the Main Bank." *Law and Social Inquiry* 27 (forthcoming 2002).
- Miwa, Yoshiro, and Ramseyer, J. Mark. "The Value of Prominent Directors: Corporate Governance and Bank Access in Transitional Japan." *Journal of Legal Studies* 31 (forthcoming 2002).
- Miwa, Yoshiro, and Ramseyer, J. Mark. "The Fable of the Keiretsu." *Journal of Economics and Management Strategy* 11 (2002): 169–224.
- Mochikabu gaisha seiri iinkai. *Nihon zaibatsu to sono kaitai* [The Japanese zaibatsu and their dissolution]. Tokyo: Mochikabu gaisha seiri iinkai, 1951.
- Nakamura, Takafusa. *Economic Growth in Prewar Japan*, translated by Robert A. Feldman. New Haven, Conn.: Yale University Press, 1983.
- Nihon ginko, ed. *Honpo keizai tokei (Showa 35 nenban)* [Economic statistics of Japan (1960)]. Tokyo: Okura sho insatsu kyoku, 1960.
- Nihon ginko, ed. *Nihon kin'yu shi shiryō, Showa hen* [Materials on Japanese financial history, Showa period]. Tokyo: Okura sho insatsu kyoku, 1971.
- Nihon tokei kyoku. *Nihon choki tokei soran* [Historical statistics of Japan]. Tokyo: Nihon tokei kyoku, 1988.
- Okawa, Kazushi; Takamatsu, Nobukiyo; and Yamamoto, Yuzo. *Choki keizai tokei: kokumin shotoku* [Long-term economic statistics: National income]. Tokyo: Toyo keizai shinpo sha, 1974.
- Okazaki, Tetsuji. *Mochikabu gaisha no rekishi—zaibatsu to kigyo tochi* [A history of the holding company: Zaibatsu and corporate control]. Tokyo: Chikuma shinsho, 1999.
- Okazaki, Tetsuji, and Okuno-Fujiwara, Masahiro. "Japan's Present-Day Economic System and Its Historical Origins." In *The Japanese Economic System and Its Historical Origins*, edited by Tetsuji Okazaki and Masahiro Okuno-Fujiwara. Oxford: Oxford University Press, 1999.
- Osaka kabushiki torihiki jo. *Daikabu 50 nen shi* [50-year history of the Osaka Stock Exchange]. Osaka: Osaka kabushiki torihiki jo, 1928.
- Osakaya shoten. *Kabushiki nenkan* [Stock annual]. Osaka: Osakaya shoten, various years.
- Paulet, Elisabeth. *The Role of Banks in Monitoring Firms: The Case of the Crédit Mobilier*. London: Routledge, 1999.
- Ramseyer, J. Mark, and Rosenbluth, Frances M. *The Politics of Oligarchy: Institutional Choice in Imperial Japan*. New York: Cambridge University Press, 1995.
- Reischauer, Edwin O. *The Japanese*. Cambridge, Mass.: Harvard University Press, 1978.
- Rosovsky, Henry. *Capital Formation in Japan, 1868–1940*. New York: The Free Press of Glencoe, 1961.
- Sawai, Minoru. "Senji keizai to zaibatsu" [The zaibatsu and the war-time

- Economic Development: Some Lessons of History*, edited by Rondo E. Cameron, pp. 168–98. New York: Oxford University Press, 1972.
- Yasuoka, Shigeaki. *Zaibatsu keiseishi no kenkyu* [A study in the formation of the *zaibatsu*]. Tokyo: Mineruba shobo, 1998.