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LONG-TERM EFFECTS OF THE BANK-FIRM RELATIONSHIP ON FIRM PERFORMANCE: COMPARING THE INFLUENCE OF THE MAIN BANK AND THE OTHER BANKS

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Abstract

We examine in this paper long-term effects of the close bank-firm relationship on firm performance using data of large corporations in Japan, comparing two periods with different financial constraints. Under strong financial constraints, higher dependence on the main bank significantly lowers profit rate and growth rate of the client firms. However, after the liberalization of the Japanese financial market, close relationship with the main bank has no significant influence on firm performance. These findings give evidence for the hypothesis that the liberalization of the financial market reduced bargaining power of the main bank against client firms.

Key Words: Main Bank, Firm Performance, Corporate Governance
JEL classification: G32, G34, G38

I. *Introduction*

In the Japanese system of corporate governance, the main bank[1] played an essential role. Under strong financial constraint, where the firms depend on the bank loan for the lack of alternative financing measures, the firms with a close relationship with the main bank have

[1] The definition of the main bank differs among researchers. Most authors define the main bank as the largest creditor with some shareholding of the client firms. Our definition will be presented in Section 3.

better and stable access to capital for the investment,[2] so these firms have better opportunity to grow and develop.

Moreover, the main bank has a strong incentive to monitor the client firms as both the largest creditor and a major shareholder. The main bank is also capable of monitoring the client firms efficiently. The main bank as an "insider" of the client firms through long-term relationship can easily obtain internal information about them through personal relationship and by observing the daily movements of payments into and out of their settlement accounts.[3] So the main bank has remarkable informational advantages over the other lenders, which provides it with the capability of efficient monitoring. Thus the firms with intensive main bank relationship are expected to show superior performance. Such a positive view of the main bank system, highlighting its positive effects on the performance of the client firms, seems to have been widely accepted.

However, close relationship between banks and client firms has its costs as well as benefits. Rajan (1992) presents one of the first theoretical analyses in this regard. A bank with a close relationship with a client obtains internal information about the firm exclusively and so has a superior position to the other lenders. Such a situation may easily lead to the hold-up problem. So the bank with a close relationship has stronger bargaining power against the client and is able to expropriate a part of the profit of the client as a rent.

The influence of the main bank on the investment of a client firm as well as its bargaining power depends essentially on the intensity of the competition among banks in the financial market and the availability of alternative measures of financing for the clients. The more competitive the financial market is, the more difficult is the ex post rent expropriation for the bank, and so the less attractive for the bank is a close relationship with the clients [Petersen and Rajan (1995)]. From this point of view, the costs of a close bank-firm relationship may become an essential problem of the Japanese main bank system.

The purpose of this paper is to estimate the effects of the main bank relationship on growth and profitability of the client firms using data of large corporations, comparing two periods under different financial constraints: the first period (1977-1985) under strong constraints and the second period (1993-1998) under weak constraints on corporate finance. Our original contribution can be found mainly in the following two points: First, we shed light on the long-term effects of the main bank relationship on the performance of client firms. Second, we compare explicitly the function of the main bank with that of the other creditors and the other shareholders.

In the next section, we give a brief survey of the previous study to make clear the main contribution of this paper. In Section 3, we explain the characteristics of the sample firms. Models, hypotheses and the results of our empirical analysis are presented in Section 4. Concluding remarks are given in Section 5.

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[2] Hoshi et al. (1990) show that the investment of the keiretsu firms of the largest banks is less likely to be constrained by internal capital compared to the independent firms.

[3] See Aoki (1994) for further details of monitoring by the main bank.

II. *Previous Study*

In surveying the previous study, we will concentrate our attention on the empirical studies about the effects of the main bank relationship on profitability and growth of the client firms in Japan. Though there are already a considerable number of empirical studies on the main bank relationship, direct analyses of the effects on firm performance, especially on profitability and growth of the client firms, are relatively scarce.[4]

Based on a panel data set of the manufacturing companies listed on the Tokyo Stock Exchange from 1977 to 1986, Weinstein and Yafeh (1998) show that the profit rate of the firms affiliated to the main bank[5] is significantly lower than the others, even after controlling for the ownership structure, whereas the growth rate of sales is not significantly different between the sample groups with and without a main bank. They consider that the rent of the firms from improved availability of capital is expropriated by the main bank.

Miarka (2000) follows the models of Weinstein and Yafeh (1998). Using panel data of the firms listed on the Tokyo Stock Exchange from 1985 to 1998, he shows that the shareholding by banks has significant negative effects on profit rate. The main bank affiliation has no significant effects.

Morck, Nakamura and Shivdasani (2000), based on a cross-section analysis of the firm listed on the Tokyo Stock Exchange in 1986, also find that the shareholding by the main bank has significant negative effects on the profit rate. Moreover, they show that belonging to a financial keiretsu does not influence significantly the profitability of the firm.

The results of the relevant empirical studies so far seem to support the expropriation hypothesis. There are, however, also empirical studies that suggest efficiency and benefit effects of the main bank relationship.

Using panel data of the listed manufacturing firms from 1976 to 1989, Lichtenberg and Pushner (1994) demonstrate that the firms with higher shareholding ratio by banks and lower shareholding ratio by non-financial corporations tend to have higher profit rate on asset.[6]

Okamuro (2001) examines the long-term (ten years) effect of the governance structure on profitability and growth of the relatively new and small firms among the listed corporations (Second Section) for 1965-75 and 1975-85 and find that stable relationship with the main bank and the shareholding by the creditors have significant positive effects, whereas the shareholding by non-financial corporations has significant negative effects.

Thus recent empirical studies support partly the efficiency hypothesis and partly the expropriation hypothesis. Summing up the previous studies, however, we can point out some shortcomings. First, in all studies but Miarka (2000), the estimation period is up to the 1980s,

[4] The effect on profitability and growth of the client firms has been examined rather in regard to corporate groups. See Nakatani (1984) for example. Some authors such as Uchida (1997) and Morck et al. (2000) pay attention to the influence on firm value. Another important measure of firm performance is the growth of total factor productivity (TFP). Horiuchi and Hanazaki (2000) report that there is no evidence that the main bank relationship has contributed to the growth of TFP.

[5] In their analysis [also in Miarka (2000)], the affiliation with the main bank is based on the definition of a database of the Dodwell Marketing Consultant. Here they measure the main bank relationship only as a dummy variable.

[6] Note that they examine the effect of shareholding by banks as a whole and not by the main bank only.

so it would be interesting to see if the effect of the main bank relationship has substantially changed since then. Second, some of them use a dummy for the main bank affiliation as the only variable for the main bank relationship. So they do not examine the effect of the intensity of the main bank relationship. Third, the studies on the main bank relationship so far have concentrated themselves on the role of the main bank, ignoring the role of the other banks. Last but not least, all studies but Okamuro (2001) examine the short-term effect, that is, it is implicitly assumed that the main bank relationship affects the performance immediately, or that the main bank relationship remains very stable even in details. But Okamuro (2001) shows that this is not necessarily the case. In this paper we will cope with these shortcomings.

III. *Data and Sample Characteristics*

1. Data Sources and Sample Periods

In our analysis we use data of the large manufacturing corporations in Chemical, Electric Machinery and General Machinery Industries listed on the First Section of the Tokyo Stock Exchange. Financial data are taken from the "Development Bank of Japan Database" (1999 version) edited by the Development Bank of Japan. Data on the bank relationship (ratio of loan and shareholding) are taken from the "Kigyo Keiretsu Soran" of the Toyo Keizai Shinposha. The sample consists of 285 firms whose data are continuously and consistently available from both data sources and for the periods 1977-1985 and 1993-1998.

Thus we compare the analyses for two periods: The liberalization of the Japanese financial market, especially the deregulation of the bond issue, has proceeded substantially in the second half of the 1980s. So the first period of our analysis (1977-1985) corresponds to the period before liberalization, where most firms were under strong financial constraints and forced to depend on bank loan. On the other hand, the regulation of the shareholding of non-financial business corporations by banks was strengthened in the second half of the 1980s. According to a revision of the Anti-Monopoly Law in 1977, the upper limit of the bank shareholding was lowered from 10% to 5% of the total shares, so the banks have not been allowed to hold more than 5% of the shares of a non-financial corporation since 1987. So we consider the bank influence on client firms through shareholding to be potentially reduced after 1987.

Thus we set two sample periods, one before liberalization of the financial market and with higher ratio of bank shareholding, and another after liberalization and with lower ratio of bank shareholding. Avoiding the turbulent period of the so-called Bubble Economy, the second period to be compared is set for the years 1993 to 1998.

2. Bank Relationship and Ownership Structure of the Sample Firms

In this section, we describe briefly the bank relationship and the ownership structure of the sample firms during the estimation period. We begin with the definition of the main bank in this paper.

We define the main bank in this paper as the bank that remains the largest creditor during the estimation period and belongs to the ten largest shareholders. Note that, following Flath (1996) and Uchida (1997), we use hereafter the sum of the loan and shareholding ratio of the

TABLE 1. GOVERNANCE STRUCTURE OF THE SAMPLE FIRMS (%)

	The First Period (1977-1985)					The Second Period (1993-1998)				
	Beginn. (a)	End (b)	Mean (a+b)/2	Change (b−a)	N	Beginn. (a)	End (b)	Mean (a+b)/2	Change (b−a)	N
MBS	8.6	8.5	8.5	−0.1	211	8.7	8.3	8.5	−0.5	206
MBL	8.9	6.5	7.7	−2.4	211	7.1	7.8	7.5	0.6	206
FIS	33.2	37.1	35.2	4.0	285	42.3	39.7	41.0	−2.6	285
BDEBT	36.1	22.1	29.1	−14.1	285	17.2	17.2	17.2	0.0	285
NONFCS	22.7	23.7	23.2	1	285	22.8	21.1	22.0	−1.7	285

Note: Description of the variables is shown in Table 3.
Sources: "Kigyo Keiretsu Soran" and The Development Bank of Japan Database

financial institutions (commercial banks, trust banks and insurance corporations) belonging to the same financial group (such as the Mitsubishi Group) as that of the main bank, for we assume that the banks in the same group often have similar interests and harmonize their behavior towards client firms. Thus, in the following analysis, we use the term "main bank" in the sense of the "main bank group". This applies especially to the city banks.

Table 1 summarizes the shareholding by the main bank and the dependence of the sample firms on the main bank loan. The ratio of shareholding by the main bank remains quite stable during both periods. Comparing the first and the second period, we find that the shareholding ratio by the main bank did not substantially decrease in the second period, though the legal upper limit of the bank shareholding was lowered from 10 to 5% in the meantime. This fact suggests that a decrease of the shareholding by a (main) bank was compensated by an increase of the shareholding by the other institutions in the same financial group, or that relatively few firms held more than 5% of shares of their client firms before 1986.

The ratio of the main bank loan to total asset is at most 10% at the beginning of the first period and declined during this period. In the second period, this ratio remains quite stable in spite of the changed conditions of corporate finance.

Now let us compare the importance of the main bank with that of the other financial institutions and the non-financial business corporations. The shareholding ratio of the other creditors increased remarkably throughout both periods, whereas that of the non-financial corporations remained stable in the same period. Together with the stability of the main bank shareholding, this fact suggests that the shareholding by the creditors relatively increased in spite of the liberalization of the financial market.

The ratio of loan of the financial institutions other than the main bank has decreased throughout both periods in much larger extent compared to the main bank. This fact suggests that the client firms tend to concentrate their borrowing to the main bank in the context of the decreasing dependence on bank loan as a whole. We will examine in the next section whether this tendency in the bank-firm relationship affects the firm performance, especially the control power of the main bank.

IV. *Empirical Analysis*

1. Models and Variables

We examine in this section the effects of the relationship with the main bank and the other creditors on the long-term performance of the client firms. Comparing the estimation results for the first and the second period, we further find out if and how the influence of the bank-firm relationship changed with the development of the liberalization of financing.

We follow Okamuro (2001) in stressing the long-term effects of the main bank relationship, but have some original points in the analysis especially in controlling for some important influence factors, as discussed below.

We use the following models for OLS regressions:

$$\begin{aligned} ODPA = {} & CONS + \alpha_1 MBS + \alpha_2 GMBS + \alpha_3 MBL + \alpha_4 GMBL + \alpha_5 FIS + \alpha_6 GFIS \\ & + \alpha_7 BDEBT + \alpha_8 GBDEBT + \alpha_9 NONFCS + \alpha_{10} GNONFCS \\ & + \alpha_{11} LOGA + \alpha_{12} SDORPA + \alpha_{13} PODPA + \alpha_{14} ID + \mu_1 \end{aligned} \tag{1}$$

$$\begin{aligned} GROWS = {} & CONS + \beta_1 MBS + \beta_2 GMBS + \beta_3 MBL + \beta_4 GMBL + \beta_5 FIS + \beta_6 GFIS \\ & + \beta_7 BDEBT + \beta_8 GBDEBT + \beta_9 NONFCS + \beta_{10} GNONFCS \\ & + \beta_{11} LOGA + \beta_{12} SDORPA + \beta_{13} PODPA + \beta_{14} ID + \mu_2 \end{aligned} \tag{2}$$

where CONS is the constant and μ is the error term. The other variables are defined and described below.

Dependent Variables

The dependent variables in our models, the measures of performance of the client firms, are the average ordinary profit rate on asset (ODPA) and the annual growth rate of sales (GROWS) for the estimation period. The latter is calculated as

$$GROWS = \sqrt[8]{Sales85/Sales77} - 1 \tag{3}$$

for the first period.

It is important that we adopt long-term performance measures, as mentioned above. It is also noteworthy that we use the ordinary profit rate on asset as the measure of the profitability to shed light on the rent expropriation problem by the main bank as suggested in Weinstein and Yafeh (1998). The ordinary profit shows the profit after extracting the financial costs like interest payments to the creditors, so we can indirectly compare the efficiency effect and the rent expropriation effect of the main bank relationship by focusing on the ordinary profit rate.

Main Independent Variables:

We use the ratio of shareholding by the main bank to total shares (MBS) and the ratio of loan from the main bank to asset (MBL), both at the beginning of the estimation period, as the measure of the intensity of the main bank relationship. For the firms without main bank relationship according to our definition (70 firms in the first and 79 firms in the second period), we regard that these variables take the value of zero, following Uchida (1997).

Moreover, to compare the influence of the main bank relationship with that of the

TABLE 2. SUMMARY STATISTICS

	The First Period (1977-1985), N=280				The Second Period (1993-1998), N=281			
Variables	Mean	St.Dev.	Minimum	Maximum	Mean	St.Dev.	Minimum	Maximum
ODPA	0.065	0.051	−0.037	0.253	0.031	0.035	−0.062	0.199
GROWS	0.090	0.049	−0.031	0.264	0.004	0.043	−0.141	0.147
MBS	0.074	0.067	0.000	0.271	0.075	0.067	0.000	0.235
GMBS	−0.001	0.020	−0.068	0.064	−0.005	0.013	−0.094	0.052
MBL	0.070	0.066	0.000	0.412	0.043	0.056	0.000	0.382
GMBL	−0.025	0.047	−0.384	0.064	0.004	0.043	−0.305	0.279
FIS	0.261	0.140	0.006	0.651	0.350	0.134	0.048	0.755
GFIS	0.040	0.072	−0.239	0.261	−0.021	0.066	−0.259	0.239
BDEBT	0.289	0.180	0.000	0.795	0.125	0.120	−0.005	0.678
GBDEBT	−0.112	0.139	−0.741	0.174	−0.005	0.080	−0.250	0.468
NONFCS	0.225	0.180	0.004	0.773	0.228	0.156	0.015	0.677
GNONFCS	0.009	0.068	−0.194	0.378	−0.016	0.043	−0.224	0.262
LOGA	7.567	0.528	6.534	9.363	8.050	0.515	6.923	9.604
SDORPA	0.029	0.017	0.005	0.097	0.018	0.013	0.002	0.080
PODPA	0.078	0.060	−0.019	0.344	0.057	0.039	−0.058	0.203

Note: Description of the variables is given in Table 3.

relationship with the other creditors, which is one of the main original contributions of our analysis, we use further the ratio of shareholding by the other creditors to total shares (FIS) and the ratio of loan from the other creditors to asset (BDEBT), both at the beginning of the estimation period. At the same time, we put the ratio of shareholding by the non-financial business corporations at the beginning of the estimation period (NONFCS) into the models to prove the influence of the shareholding by non-financial corporations and to compare it with that of the main bank and the other creditors.

Control Variables:

We need several control variables in our analysis. First, we use the natural logarithm of the value of asset at the beginning of the estimation period (LOGA) to control for the influence of the firm size. For we may expect higher profit rate for larger firms and higher growth rate for smaller firms.

Second, the ownership and the loan structure change over time, as shown in Table 1, and we should control for these changes in examining the long-term effects. Otherwise we could not tell the effects of the bank-firm relationship at the beginning of the period from that of the changes of the relationship during the period, where it is difficult to cope with the problem of the inverse causality. For this reason, we put into the models the following variables representing the changes of the relationship: the increase/decrease of MBS (GMBS), of MBL (GMBL), of FIS (GFIS), of BDEBT (GBDEBT), and of NONFCS (GNONFCS) during the estimation period.

We assume that both banks and shareholders are interested in the intensive relationship with the firms that are expected to show good performance in the future. If the relationship with shareholders and creditors at the beginning reflects such expectation, the firms with

TABLE 3. DESCRIPTION OF VARIABLES

Variables	Description
ODPA	Average ordinary profit rate on total asset during the estimation period
GROWS	Annual growth rate of total sales for the estimation period
MBS	Ratio of shares held by the main bank (group) to total outstanding shares at the beginning of the estimation period
GMBS	Increase/decrease of MBS during the estimation period
MBL	Ratio of loan from the main bank (group) to total asset at the beginning of the estimation period
GMBL	Increase/decrease of MBL during the estimation period
FIS	Ratio of shares held by the financial institutions other than the main bank to total outstanding shares at the beginning of the estimation period
GFIS	Increase/decrease of FIS during the estimation period
BDEBT	Ratio of loan from the financial institutions other than the main bank to total asset at the beginning of the estimation period
GBDEBT	Increase/decrease of BDEBT during the estimation period
NONFCS	Ratio of shares held by non-financial corporations to total outstanding shares at the beginning of the estimation period
GNONFCS	Increase/decrease of NONFCS during the estimation period
LOGA	Natural logarithm of total asset at the beginning of the estimation period
SDORPA	Standard deviation of operating profit rate on total asset during the estimation period
PODPA	Average ordinary profit rate on total asset for 10 years preceding the estimation period

intensive main bank relationship may show better performance afterward, not because of the durable direct influence of the intensive relationship, but because of their high potential. To control for this effect, we add to the models the average profit rate of the firms *prior to* the estimation period (PODPA).

Profit rate and growth rate of the firms are expected to depend on the business risk and some industry-specific factors. To control for these factors, we further add the standard deviation of the operational profit rate on asset during the estimation period (SDORPA) and two industry dummies (ID).

Table 2 summarizes the descriptive statistics of the data used in our analysis. The definition of the variables presented above is summarized in Table 3.

2. Hypotheses

Firms with a close relationship with the banks have more advantageous position than the others in regard to financing, and so have weaker financial constraint on investment [Hoshi, Kashyap and Scharfstein (1990)]. The main bank is able to monitor the management efficiently because of easy and better access to detailed internal information, as discussed in the first section. Moreover, the main bank as a major shareholder restrains the main bank as the largest creditor from excessively requiring the management of the client firms to be risk-averse and so correct biased monitoring [Giavazzi and Battaglini (1998)]. From these arguments we may expect that an intensive relationship with the main bank has significant positive effect on growth and profitability of the client firms.

However, with incomplete competition in the financial market and under restricted

TABLE 4. REGRESSION RESULTS ON PROFIT RATE (1)
(The First Period: 1977-1985, N=280)
Dependent Variable: ODPA

	1	2	3	4	5
MBS	−0.098***		−0.132***		
	(−2.890)		(−3.290)		
GMBS	0.011		0.022		
	(0.110)		(0.180)		
MBL		−0.214***			
		(−4.350)			
GMBL		−0.223***			
		(−3.530)			
FIS	0.006	−0.002		0.057***	
	(0.350)	(−0.100)		(2.940)	
GFIS	0.022	0.018		0.121***	
	(0.720)	(0.600)		(3.500)	
BDEBT	−0.155***	−0.125***			
	(−8.980)	(−6.700)			
GBDEBT	−0.186***	−0.148***			
	(−9.980)	(−7.070)			
NONFCS					−0.005
					(−0.360)
GNONFCS					−0.111***
					(−2.970)
LOGA	0.001	−0.002	0.001	−0.006	−0.005
	(0.270)	(−0.450)	(0.210)	(−1.200)	(−1.130)
SDORPA	0.340***	0.355***	0.487***	0.517***	0.530***
	(2.800)	(2.980)	(3.400)	(3.610)	(3.650)
PODPA	0.283***	0.270***	0.446***	0.458***	0.480***
	(6.710)	(6.490)	(10.850)	(11.630)	(11.820)
Adj.R^2	0.608	0.622	0.424	0.431	0.418
F-statistics	40.39	42.65	30.39	31.22	29.62

Note: 1. *, **, ***: significant at the 10%, 5% and 1% level respectively. t-values are in parentheses.
2. All regression models include industry dummies, which are not shown in the table.

availability of financing measures, we may also expect that the main bank can expropriate the rent of the client firms through a close relationship, for it has a monopoly of information about them and so a strong bargaining power against them [Petersen and Rajan (1995); Weinstein and Yafeh (1998)]. So we may assume that, with intensive competition in the financial market, it will be difficult for the main bank to expropriate the rent ex post. Thus we can expect that a high ratio of main bank loan and shareholding would have significant negative effect on firm performance in the first period, but no significant effect in the second period, if this expropriation hypothesis holds.

The financial institutions other than the main bank have in general smaller ratio of shares of the clients than the main bank. Some of them have no shareholding at all. So they are mainly interested in collecting their loan safely and do not like the client firms undertaking highly profitable (and accordingly risky) investment projects. Therefore, they are likely to be sensitive to business risk of the client firms and so subject to myopic behavior, withdrawing their loan easily. From this point of view, we may expect the ratio of loan from these creditors

TABLE 5. REGRESSION RESULTS ON PROFIT RATE (2)
(The Second Period: 1993-1998; N=281)
Dependent Variable: ODPA

	1	2	3	4	5
MBS	−0.009		−0.015		
	(−0.340)		(−0.540)		
GMBS	0.106		0.216		
	(0.830)		(1.590)		
MBL		−0.007			
		(−0.180)			
GMBL		−0.060			
		(−1.490)			
FIS	0.043***	0.044***		0.053***	
	(3.200)	(3.300)		(4.080)***	
GFIS	0.093***	0.091***		0.113***	
	(3.760)	(3.690)		(4.570)	
BDEBT	−0.046***	−0.041**			−0.058***
	(−2.810)	(−2.230)			(−3.490)
GBDEBT	−0.076***	−0.064***			−0.088***
	(−3.860)	(−2.950)			(−4.310)
NONFCS					−0.018*
					(−1.660)
GNONFCS					−0.021
					(−0.560)
LOGA	−0.004	−0.004	0.003	−0.004	0.000
	(−1.100)	(−1.250)	(1.040)	(−1.100)	(−0.020)
SDORPA	−0.051	−0.040	−0.042	−0.079	−0.049
	(−0.390)	(−0.310)	(−0.300)	(−0.600)	(−0.370)
PODPA	0.362***	0.375***	0.468***	0.441***	0.387***
	(7.450)	(7.660)	(10.590)	(10.830)	(7.870)
Adj.R^2	0.477	0.479	0.393	0.447	0.440
F-statistics	24.20	24.39	26.90	33.32	25.41

Note: 1. *, **, ***: significant at the 10%, 5% and 1% level respectively. t-values are in parentheses.
2. All regression models include industry dummies, which are not shown in the table.

to have negative effect on growth and profitability of the client firms.

However, the higher the ratio of loan from the creditors other than the main bank, the less dependent are the client firms on the main bank loan and so less likely is the hold-up by the main bank. Then it is also possible that the ratio of loan from the creditors other than the main bank has positive effect on firm performance.

Moreover, with higher presence of the creditors (especially in regard to shareholding) other than the main bank, it becomes easier for the client firms to change the main bank, which weakens its dominance. So the hold-up problem of the main bank can be mitigated. Thus the shareholding ratio of the creditors other than the main bank is likely to have positive influence on the performance of the client firms.

In regard to the shareholding by the non-financial corporations, we follow the argument of Lichtenberg and Pushner (1994) and expect the ratio of their shareholding to have negative effect on firm performance, for it would protect managers from the pressure of the capital market and preserve inefficient management.

TABLE 6. REGRESSION RESULTS ON GROWTH RATE (1)
(The First Period: 1977-1985, N=280)
Dependent Variable: GROWS

	1	2	3	4	5
MBS	−0.023		−0.064		
	(−0.540)		(−1.430)		
GMBS	−0.138		−0.120		
	(−1.090)		(−0.880)		
MBL		−0.144**			
		(−2.350)			
GMBL		−0.226***			
		(−2.870)			
FIS	0.012	0.007		0.046**	
	(0.580)	(0.330)		(2.180)	
GFIS	0.119***	0.107***		0.176***	
	(3.150)	(2.870)		(4.680)	
BDEBT	−0.081***	−0.054**			
	(−3.770)	(−2.300)			
GBDEBT	−0.129***	−0.093***			
	(−5.590)	(−3.560)			
NONFCS					−0.009
					(−0.580)
GNONFCS					−0.111***
					(−2.680)
LOGA	−0.006	−0.005	−0.008	−0.009*	−0.012**
	(−1.060)	(−1.030)	(−1.520)	(−1.740)	(−2.220)
SDORPA	0.301**	0.311**	0.390**	0.439***	0.422***
	(2.000)	(2.080)	(2.430)	(2.820)	(2.630)
PODPA	0.004	0.003	0.077*	0.074*	0.092**
	(0.070)	(0.070)	(1.670)	(1.720)	(2.060)
Adj.R^2	0.338	0.356	0.213	0.267	0.228
F-statistics	13.97	14.99	11.80	15.55	12.76

Note: 1. *, **, ***: significant at the 10%, 5% and 1% level respectively. t-values are in parentheses.
2. All regression models include industry dummies, which are not shown in the table.

3. Estimation Results

Tables 4 and 5 show the regression results on the profit rate of the sample firms. In the first period, both the ratios of main bank loan and main bank shareholding have significant negative effect on the profit rate of the client firms. On the contrary, the shareholding by the creditors other than the main bank has significant positive effect, whereas the influence of their loan is significantly negative. Shareholding by the non-financial corporations has the expected sign, but has no significant effects.

In the second period, in regard to the influence of the main bank, neither shareholding nor loan has any significant effects, whereas the influence of the other creditors remains unchanged in general. Shareholding by the non-financial corporations has now significant negative effect.

Regression results on the growth rate are presented in Tables 6 and 7. Both in the first and second period, shareholding by the main bank has negative but not significant effect on the growth rate of sales, whereas that of the other creditors has significant positive effect. The

TABLE 7. REGRESSION RESULTS ON GROWTH RATE (2)
(The Second Period: 1993-1998, N=281)
Dependent Variable: GROWS

	1	2	3	4	5
MBS	−0.023		−0.017		
	(−0.570)		(−0.410)		
GMBS	0.343*		0.512**		
	(1.760)		(2.500)		
MBL		−0.107*			
		(−1.800)			
GMBL		−0.090			
		(−1.470)			
FIS	0.013	0.011		0.037*	
	(0.630)	(0.510)		(1.870)	
GFIS	0.176***	0.181***		0.204***	
	(4.670)	(4.810)		(5.410)	
BDEBT	−0.093***	−0.067**			−0.103***
	(−3.760)	(−2.420)			(−4.01)
GBDEBT	−0.040	−0.029			−0.057*
	(−1.330)	(−0.870)			(−1.810)
NONFCS					0.001
					(0.050)
GNONFCS					−0.042
					(−0.730)
LOGA	0.005	0.003	0.011**	0.004	0.009*
	(1.020)	0.670	(2.250)	(0.690)	(1.790)
SDORPA	0.726***	0.719***	0.731***	0.662***	0.752***
	(3.670)	(3.620)	(3.480)	(3.260)	(3.610)
PODPA	−0.022	−0.024	0.163**	0.148**	0.034
	(−0.300)	(−0.330)	(2.440)	(2.380)	(0.450)
Adj.R^2	0.212	0.212	0.105	0.169	0.130
F-statistics	7.85	7.85	5.71	9.10	5.66

Note: 1. *, **, ***: significant at the 10%, 5% and 1% level respectively. t-values are in parentheses.
2. All regression models include industry dummies, which are not shown in the table.

dependence on bank loan has significant negative effect in both periods, whether it comes from the main bank or the other institutions. Finally, shareholding by the non-financial corporations has no significant effects in both periods. So we find no substantial differences between the two periods.

The results of our analysis support as a whole the expropriation hypothesis: In the first period with incomplete competition in the financial market and limited availability of alternative financing measures for the firms, the main bank had a strong bargaining power and could expropriate the rent of the client firms based on the close relationship. In the second period (1990s), however, with the liberalization of the financial market and the improved availability of alternative measures of corporate finance, negative effects of the main bank relationship have clearly weakened. On the other hand, shareholding by the other banks turned out to improve the performance of the client firms, restraining the main bank from rent expropriation.

V. *Concluding Remarks*

In this paper we examined the long-term effects of the bank-firm relationship and the ownership structure on firm performance, contrasting the influence of the main bank and the other creditors and comparing two periods with different financial constraints. The results of our empirical analysis are consistent with the expropriation hypothesis rather than the well-accepted efficiency hypothesis:[7] Under strong financial constraints, higher dependence on the main bank significantly lowers profit rate and growth rate of the client firms. However, after the liberalization of the Japanese financial market, close relationship with the main bank has no significant influence on firm performance. Moreover, we confirmed that the creditors other than the main bank play an important role of the countervailing power against the main bank.

It is noteworthy that our results provide further evidence for the expropriation hypothesis of the main bank, though we focus on, unlike the previous studies, long-term effects for 8 to 10 years. This suggests that the negative effects of the close main bank relationship are durable. For further investigation, it would be desirable to compare short-term and long-term effects using the same dataset and to use panel data analysis for the estimation of the long-term effects, for example by using lagged performance measures.

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[7] The results of this paper are quite different from those of Okamuro (2001) which are consistent with the efficiency hypothesis. Such a difference may be attributed to the difference of the models and variables and of the estimation period. However, we suppose that the difference of the sample firms plays a more important role. (In Okamuro 2001 the sample is restricted to smaller firms, that is, the firms listed in the second section of the Tokyo Stock Exchange).

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