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Bank-Firm Relationships and Security Analyst Activities: Evidence from Japan*

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ABSTRACT

Banks play a critical role in corporate governance in many economies around the world. This paper empirically compares the activities of security analysts (i.e., analyst coverage, forecast accuracy and forecast agreement) between firms with and without close working relationships with their banks in order to gain insights into how bank-firm relationships affect the information environments for capital market investors. Close bank-firm relationships signal the banks' positive evaluation of the firms because the banks screen the firms before entering or extending the relationships. Further, during the relationships, the banks monitor these firms. Thus, capital market investors are less motivated to scrutinize the firms, thereby demand less information. Investigating Japanese firms, we document that security analysts' forecasts are less accurate and less agreed (i.e., more dispersed) for the firms with long-established relationships with banks. Likewise, analyst coverage, forecast accuracy and forecast agreement are all lower for the firms with a larger amount of loans (i.e., private debt). The associations between bank-firm relationships and security analyst activities hold after controlling for the potential correlated variables (i.e., capital market financing, performance volatility, financial distress, cross-holding).

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1. Introduction

This paper empirically compares the activities of security analysts between firms with and without close working relationships with their banks in order to gain insights into how bank-firm relationships affect the information environments for capital market investors. Accounting research about bank-firm relationships remains scarce,[1] despite the critical role that banks play in corporate governance in many economies around the world (Shleifer and Vishny 1997). A difficulty of investigating bank-firm relationships in a cross-country study, a common research design in international accounting, is their correlation with other institutions, such as the strength of legal protection provided to capital market investors (Ali and Hwang 2000; Bushman and Piotroski 2006). We, therefore, apply a single-country setting (specifically, Japan) to this study and control for the cross-country variations in other institutions. This paper enhances the understanding of the association between the information environments and the institutions of corporate governance.

Shleifer and Vishny (1997) identify two fundamental institutions of corporate governance around the world: legal protection provided to capital market investors; and large capital providers, such as banks. In many economies, especially in continental Europe (Rajan and Zingales 1995) and Asia (Cooke 1996), banks play a critical role in corporate governance. Firms mostly raise capital from banks, which, in turn, assume the roles of screening and monitoring the firms (Boyd and Prescott 1986; Diamond 1991; Fama 1985; Hoshi et al. 1990b).

The corporate governance through the banks' screening and monitoring differs in several ways from the corporate governance by capital market investors. Because the banks that provide capital to each firm are more concentrated than dispersed capital market investors, the firm can maintain close working relationships with its banks and share information with them privately (Hoshi et al. 1990b; 1991; Kang and Stulz 2000). In contrast, the great number of capital market investors, as well as regulation (e.g., Regulation Fair Disclosure in the U.S.), constrains the firm's channel to disseminate information mostly to public disclosure. Sharing information privately with few banks is less costly for the firm than disclosing information publicly to many capital market investors. Accordingly, the information asymmetry between a firm and banks is smaller than the information asymmetry between the firm and capital market investors (Jacobson and Aaker 1993). This information advantage permits the banks to perform screening and monitoring roles (Bharath et al. 2008; Boyd and Prescott 1986; Diamond 1991). Also, the few banks suffer from a smaller free-rider problem when monitoring the firm because it is easier to coordinate among a small number of banks (Diamond 1984).

On the other hand, banks have a different incentive from capital market investors. Banks are motivated to monitor a firm when it performs poorly in order to prevent the firm from financial distress, but less so during the periods of good performance. Financial distress diminishes the firm's capability to repay the banks' loans. In contrast, capital market investors have an incentive to monitor the firm regardless of its performance. Also, the banks may extend loans to less risky but less profitable firms and may direct the firms to forego risky but profitable investment projects (Jensen and Meckling 1976). The banks' screening and monitoring, therefore, affects the information environments differently from the corporate governance by capital market investors.

Although close bank-firm relationships are globally prevalent, the accounting literature has

[1] An exception is Choi (2004) who investigates the association between bank-firm relationships and accrual quality. Bushman and Piotroski (2006) also explores the effect of bank-firm relationships on accounting conservatism by using a country level proxy of bank-firm relationships.

not directly investigated how bank-firm relationships affect the information environments for capital market investors, presumably because, in a cross-country study, the importance of bank-firm relationships in an economy is correlated with other institutions, such as the strength of legal protection provided to capital market investors (Ali and Hwang 2000; Bushman and Piotroski 2006). The strong correlation makes it difficult to disentangle the effects of bank-firm relationships.

We, therefore, apply a single-country setting (specifically, Japan) to this study and control for the cross-country variations in other institutions. Although prior research has classified Japan as a code-law country, where firms typically raise capital from banks (Ball et al. 2000; Cooke 1996; Rajan and Zingales 1995), there is a variation in the closeness of a firm's relationships with its banks. While some Japanese firms have historically preserved close relationships with their banks (Cooke 1996), others have maintained looser ties (Hoshi et al. 1991). This variation increases the power of statistical tests on bank-firm relationships.

Specifically, this paper empirically compares analyst coverage, forecast accuracy and forecast agreement between Japanese firms with and without close relationships with their banks. The security analyst literature has interpreted the activities of security analysts as proxies of the information environments for capital market investors (Lang et al. 2003). The information is rich when many security analysts cover the firm with accurate and agreed (i.e., not dispersed) forecasts.

Japan provides an additional advantage in data collection. In their financial statements, Japanese firms report information on their relationships with the banks. This paper, thus, has an advantage in measuring the closeness of a firm's relationships with its banks. We measure each firm's extent of bank relationships by three different variables: the affiliation with industrial groups called keiretsu within which group banks fund group firms, the monetary amount of loans (i.e., private debt) and the proportion of ownership by banks.

This paper contributes to the international accounting literature by documenting that bank-firm relationships are an institution associated with security analyst activities in an economy where banks play a critical role in corporate governance. Specifically, security analysts' forecasts are less accurate and less agreed (i.e., more dispersed) for firms affiliated with industrial groups. Among the firms independent of industrial groups, the amount of loans is negatively associated with analyst coverage, forecast accuracy and forecast agreement. Likewise, the ownership by banks is negatively associated with analyst coverage and forecast accuracy. The negative associations are generally stronger among low performance firms, which the banks have a strong incentive to monitor. Consequently, the information environments for capital market investors deteriorate with close bank-firm relationships, especially when the firms perform poorly.

This paper also contributes to the corporate governance literature by providing evidence that the banks' screening and monitoring play roles in the associations between bank-firm relationships and security analyst activities. Close bank-firm relationships can affect security analyst activities in two ways. First, close bank-firm relationships signal the banks' positive evaluation of the firms because the banks screen the firms before entering or extending the relationships (Boyd and Prescott 1986). Further, during the relationships, the banks monitor these firms (Diamond 1991; Hoshi et al. 1990b). Thus, capital market investors are less motivated to scrutinize the firms, thereby demand less information. Second, bank loans substitute for financing from capital markets (Hoshi et al. 1990b; 1991), therefore, the firms reduce their public disclosures (Frankel et al. 1995; Healy et al. 1999; Lang and Lundholm 2000). The associations between bank-firm relationships and security analyst activities hold after controlling for capital market financing as well as other potential correlated variables (i.e., performance volatility, financial distress, cross-holding). The results indicate that the banks' screening

and monitoring play roles in the associations.

This paper's two contributions shed light on how the corporate governance by a group of capital providers (i.e., the banks' screening and monitoring) affects another group's information environments (i.e., the information environments for capital market investors). Past studies have shown that corporate governance mechanisms enrich information environments in general (e.g., Hope 2003; Lang et al. 2003). In contrast, this paper finds that the information environments for capital market investors deteriorate when the banks' screening and monitoring take place in close bank-firm relationships. The findings are relevant not only to international accounting but also in northern America where banks have become an important source of capital (Bharath et al. 2008).

The remainder of this paper is organized as follows. The next section reviews the literature and develops hypotheses. Sections 3 and 4 describe the data and sample, respectively. Section 5 reports the results of testing the hypotheses. The final section concludes the paper.

2. Literature and Hypotheses

2.1 Bank-Firm Relationship Literature

An extensive body of the finance literature investigates how bank-firm relationships affect corporate governance and investment decisions. Theoretically, Diamond (1984) and Fama (1985) view banks as financial intermediaries specializing in the acquisition of client-firm information. This information advantage permits banks to perform a screening role (Boyd and Prescott 1986) and a monitoring role (Diamond 1991).

Many empirical studies documenting the banks' monitoring role investigate Japanese firms. Kaplan (1994), Kaplan and Minton (1994) and Kang and Shivdasani (1995; 1997) find that Japanese firms with close working relationships with their banks experience higher levels of CEO turnover, director appointments and asset restructuring during the periods of poor performance than firms without such ties. Banks monitor the firms through these activities.

Overall, the finance literature claims that banks assume the roles of screening and monitoring the firms to which the banks provide capital. The banks fulfill this role with close working relationships with the firms, which result in small information asymmetry (Hoshi et al. 1990b; 1991; Jacobson and Aaker 1993).

2.2 Security Analyst Literature

The security analyst literature has documented the association between security analyst activities and firms' disclosure levels. In a cross-sectional study of U.S. firms, Lang and Lundholm (1996) show that analyst coverage, forecast accuracy and forecast agreement are positively associated with the analyst ratings of firms' disclosures. Likewise, examining firms in 22 countries, Hope (2003) finds a positive association between forecast accuracy and firms' disclosure levels. Healy et al. (1999) document an increase in analyst coverage and a decrease in forecast dispersion among the firms that substantially improve the analyst ratings of firms' disclosures.

Analyst coverage, forecast accuracy and forecast agreement, in turn, are negatively associated with the firms' costs of capital (Gebhardt et al. 2001) and positively related with security prices (Lang et al. 2003). In the context of corporate governance, Lang et al. (2004) find a positive valuation effect when security analysts cover firms characterized by the combination of concentrated ownership (i.e., weak internal governance) and weak investor protection by the government (i.e., weak external

governance).

In summary, the security analyst literature maintains that analyst coverage, forecast accuracy and forecast agreement are related with firms' public disclosures as well as security analysts' private information acquisition (Lang et al. 2003). Furthermore, security analysts may serve the monitoring role and substitute for other corporate governance mechanisms such as high quality auditors or strict enforcement of accounting standards (Lang et al. 2004).

Chang et al. (2002) find that firms' affiliation with industrial groups is associated with analyst coverage and forecast accuracy in 15 emerging economies. Chang et al. use the group affiliation as a broad proxy for the lack of transparency. This paper differs from Chang et al. by explicitly linking group affiliation to the construct of bank-firm relationships and employing two additional variables to fully measure the construct: the amount of loans and the ownership by banks. The three measures together draw a comprehensive picture of bank-firm relationships and their association with security analyst activities.

2.3 Hypotheses

The bank-firm relationship literature characterizes close bank-firm relationships by the banks' screening and monitoring roles (Kang et al. 2000) and the bank loans that substitute for the firms' financing from capital markets (Hoshi et al. 1990b; 1991). Nevertheless, the firms with close bank relationships may not always raise less capital from the markets. The markets react positively to the announcements of new security issuance for the firms with close bank relationships because the banks screen and monitor the firms (Kang and Stulz 1996). The same premium does not exist for the firms without bank ties. The premium may encourage the firms with close bank relationships to access capital markets despite the bank loans. In fact, no study empirically documents that the extent of bank-firm relationships is negatively associated with capital market financing.

Therefore, we develop hypotheses based on the banks' screening and monitoring roles, without taking into account the firms' financing from capital markets. In the regression analyses, we control for the firms' capital market financing to isolate the association between bank-firm relationships and security analyst activities through the banks' screening and monitoring.

Close bank-firm relationships signal the banks' positive evaluation of the firms because the banks screen the firms before entering or extending the relationships. Further, during the relationships, the banks monitor these firms. Thus, capital market investors are less motivated to scrutinize the firms, thereby demand less information. As such, the firms should publicly disclose less and security analysts should make less effort in analyzing these firms. Consequently, fewer analysts should cover the firms with close bank relationships, and their forecasts should be less accurate and less agreed (i.e., more dispersed).

H_1: *Analyst coverage, forecast accuracy and forecast agreement are negatively associated with the extent of bank-firm relationships.*

Banks are motivated to monitor a firm when it performs poorly in order to prevent the firm from financial distress, but less so during the periods of good performance. Therefore, the negative associations between analyst coverage, forecast accuracy and forecast agreement, and the extent of bank-firm relationships should be stronger among low performance firms.

H_2: *Analyst coverage, forecast accuracy and forecast agreement are associated with the extent of bank-firm relationships more negatively among low performance firms than high performance firms.*

The research setting of Japan introduces an empirical tension in H_2. As in many code-law countries, banks in Japan can hold other firms' equity. If banks behave as shareholders rather than debtholders, banks have an incentive to monitor the firm regardless of its performance. We conjecture, however, that banks' interest as debtholders dominates that as shareholders because a Japanese bank's ownership in each firm is not large; the commercial law does not permit a bank to own each firm's equity more than five percent. In an interview survey, bankers stress the importance of debtholder interest over shareholder interest because "70 to 80 percent of a bank's assets are loans while the ownership of other firms' equity represents no more than five percent" (Hirota 1999).

3. Data

3.1 Dependent Variables

We measure a firm's information environment by three variables of security analyst activities: analyst coverage, forecast accuracy and forecast agreement. Data for these variables are collected from the IBES Summary File.

We define the variables of security analyst activities according to Hope (2003), Lang and Lundholm (1996) and Lang et al. (2003). Analyst coverage (COVER) is the number of analysts in IBES who forecast the firm's annual earnings.[2] Forecast accuracy (ACCURACY) is the negative of the absolute value of the median analyst forecast error, scaled by the beginning stock price.[3] A high value of ACCURACY represents accurate forecasts. Forecast agreement (AGREE) is the negative of the standard deviation of analyst forecasts, scaled by the beginning stock price. A high value of AGREE indicates a high level of agreement (i.e., low level of dispersion) among forecasts.

Following Lang and Lundholm (1996), this paper computes analyst coverage (COVER), forecast accuracy (ACCURACY) and forecast agreement (AGREE) as the average of each measure across the 12 monthly reporting periods of the IBES Summary File during the firm's fiscal year.[4] Furthermore, in the regression analyses, we logarithmically transform COVER (i.e., lnCOVER). Because ACCURACY and AGREE contain a few outliers with extremely small values, these variables are winsorized at the first percentile, as in Lang et al. (2003).

3.2 Independent Variables

In Japan, firms can establish close working relationships with banks by three means. First, firms can enjoy close bank relationships through the affiliation with industrial groups called *keiretsu*. At the

[2] When IBES does not report any security analyst for the entire fiscal year, we interpret that COVER is missing. We also perform the regression analyses by setting the value of COVER to zero instead of missing. The results are similar to this paper's findings. When IBES does not report any security analyst for some months of the fiscal year, we interpret that none covered the firm in those months and set COVER to zero in those months.

[3] We perform the regression analyses scaling ACCURACY and forecast agreement (AGREE) by total assets per share. The results are similar to this paper's findings.

[4] The original timing of the security analyst forecasts may influence the 12 month averages of ACCURACY and AGREE. For example, if many security analysts forecast a firm's annual earnings only later in a fiscal year, ACCURACY is likely to be high. As such, we perform the regression analyses using only the data from the 11th month of fiscal year. The results are similar to this paper's findings.

center of each *keiretsu* are banks that extend loans to the firms within the group. At the same time, these banks own equity in the group firms (Sheard 1985).[5]

Finance and accounting studies on Japanese industrial groups identify each firm's affiliation with the six major *keiretsu*, Daiichi Kangyo, Fuyo, Mitsubishi, Mitsui, Sanwa and Sumitomo (Gramlich et al. 2004; Hoshi et al. 1991; Kang et al. 2000). We employ Brown (2001)[6] to distinguish group and independent firms. Using a four-star scale, Brown rates each firm by how intensely the firm is affiliated with one of the major *keiretsu*. Brown assesses the affiliation intensity by qualitative and quantitative factors, including historical background, sources and amounts of bank loans, ownership and the appointment of board directors. Following Gramlich et al. (2004), this paper classifies a firm with three- and four-star ratings as a group firm pertaining to one of the six major *keiretsu*. The indicator variable, GROUP, takes the value of one if the firm is affiliated with a *keiretsu*.[7]

Joining a *keiretsu* is not easy because *keiretsu* are exclusive groups of firms with long-established relationships. An independent firm, however, can still establish close working relationships with banks by taking out a substantial amount of loans from the banks. The banks also hold a significant proportion of the firm's equity. Even the banks that extend small amounts of loans to the firm may still own its equity in order to strengthen the bank-firm relationships upon loan commitment agreements. In a loan commitment agreement, the banks commit to offer a predetermined amount of loan when the firm requests it (Hirota 1999). The loan commitment agreement motivates the banks to monitor the firm in order to maintain its capability to repay *future* loans. Upon establishing the ownership, the banks often send directors to the firm's board. These board directors facilitate the information flow between the banks and the firm (Hoshi et al. 1990a).

A large amount of bank loans and a large proportion of ownership by banks are the other means for independent firms to establish close working relationships with banks. This paper employs two additional measures to capture the closeness of a firm's relationships with its banks: the monetary amount of long-term loans,[8] scaled by the beginning total assets (LOAN); and the proportion of ownership by banks (BNK_OWN).[9] These measures follow Ely and Pownall (2002). We collect data for LOAN from the Nikkei Financial Quest database. We measure BNK_OWN in 2000 using data in Brown (2001) that reports the ownership of large Japanese firms by the 15 major banks. Although other banks may also own equity of these large firms, the aggregate ownership by the 15 major banks should capture each firm's overall relationships with banks because the large firms maintain the closest relationships with the 15 major banks. For BNK_OWN after 2000, we use Toyo Keizai (2002-2005), which contains data similar to Brown. Because Brown reports the ownership of only

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[5] For example, a Mitsubishi manufacturing firm borrows substantially from the Bank of Tokyo-Mitsubishi and the Mitsubishi Trust and Banking, all affiliated with the Mitsubishi group. Further, each Mitsubishi bank owns as much as five percent of equity in the Mitsubishi manufacturing firm, the maximum proportion the commercial law permits.

[6] Brown is the successor of Dodwell Marketing Consultants that published the same book in older editions. Ely and Pownall (2002) and Gramlich et al. (2004) use the editions by Dodwell Marketing Consultants.

[7] We perform the regression analyses using different *keiretsu* classifications. An alternative classification is the membership of presidents' council in each *keiretsu*. The presidents of the core *keiretsu* firms meet monthly to discuss the *keiretsu* strategy. Presidents' council membership is unambiguous because each *keiretsu* explicitly defines core firms and only allows the presidents of those core firms to attend. The results do not qualitatively change when we replace GROUP with the presidents' council membership. We also adopt the classification by Keiretsu No Kenkyu that earlier studies use (Hoshi et al. 1990a; Hoshi et al. 1991; Nakatani 1984) and confirm that the results do not qualitatively change. We acknowledge Jun-Koo Kang and Kwangwoo Park for sharing their *keiretsu* affiliation data based on Keiretsu No Kenkyu.

[8] Inclusion of short-term loans does not qualitatively change the results.

[9] We perform the regression analyses by scaling BNK_OWN as well as foreign ownership (FRG_OWN) not by total equity but by the book value of total assets. The results are similar to this paper's findings.

large firms, the sub-sample with BNK_OWN is smaller than the full sample.

We do not have any prediction about group firms' amount of loans (LOAN) and proportion of ownership by banks (BNK_OWN) because the group affiliation, itself, should warrant close relationships with the group banks regardless of the LOAN and BNK_OWN levels. Accordingly, the regression analyses include the interactions between group affiliation (GROUP), and LOAN and BNK_OWN, respectively, in order to isolate the effects of the amount of loans and the ownership by banks among the *independent* firms.

3.3 Control Variables

The association between bank-firm relationships and the firm's financing from capital markets is ambiguous. Accordingly, we develop this paper's hypotheses based on the banks' screening and monitoring roles, without taking into account the firms' capital market financing. In the regression analyses, we control for the firms' capital market financing by including the total amount of capital (i.e., stocks and bonds) raised from the Tokyo Stock Exchange during the 36 months centered around the fiscal year, scaled by the beginning total assets (CAPITAL).

Hadlock and James (2002) find that firms raise capital from banks instead of markets when the firms' business environment is highly uncertain. The extent of uncertainty may also affect security analyst activities. This paper controls for the extent of uncertainty using performance volatility, earnings surprise and industry indicator variables. We measure performance volatility by the standard deviation of ROA (i.e., earnings before extraordinary items over total assets), over the preceding seven fiscal years (PERF_VOL)[10]; and earnings surprise by the absolute value of change in earnings before extraordinary items from the prior fiscal year, scaled by the beginning stock price (SURPRISE). In addition, the regression analyses include 35 industry indicator variables based on two-digit Nikkei industry codes.

The firm experiencing temporary financial distress but with positive long-term prospects choose banks over markets because the banks' information advantage facilitates the banks to verify the firm's state (Chemmanur and Fulghieri 1994). The financial distress may also affect the security analyst activities (Behn et al. 2008). This paper controls for temporary financial distress by the negative of current ratio (i.e., the ratio of current assets to current liabilities) (DISTRESS).

Japanese group firms own equity of other firms within the group. The cross-holding constrains the trade volume of the firms' shares, which, in turn, may discourage security analysts to make effort in analyzing these firms. The regression analyses control for the proportion of ownership by block shareholders (BLC_OWN) reported in the financial statements.

This paper also incorporates additional control variables. First, this paper controls for firm size by the market value of equity at the fiscal year beginning after logarithmic transformation (lnSIZE). Second, the regression analyses include a variable for the proportion of ownership by foreigners (i.e., non-Japanese) (FRG_OWN). Third, this paper incorporates the book value of outstanding bonds, scaled by the beginning total assets (BOND). Fourth, the regression analyses include firm performance that should be related with the disclosure level (Lang and Lundholm 1993; Miller 2002). We measure firm performance by ROA after subtracting the industry median[11] in each year (ROA). We also include year indicator variables.

All the control variables are computed from the data in the Nikkei Financial Quest database,

[10] We require more than five fiscal year data to compute PERF_VOL.

[11] We identify 36 industries by two-digit Nikkei industry codes.

the Tokyo Stock Exchange Monthly Statistics and Toyo Keizai's Stock Price CD-ROM. We use financial data from the consolidated financial statements.[12] When a firm does not report consolidated financial statements, however, we use the parent firm's financial statements, assuming that the firm did not have any subsidiary that requires financial statement consolidation.

4. Sample

This paper imposes a few criteria on the sample. First, we include the firm-years of those firms listed on the Tokyo Stock Exchange First and Second Sections, and of which fiscal years end between 2000 and 2004. The period between 2000 and 2004 is relevant to this paper's hypotheses, which we develop based on the banks' screening and monitoring roles without taking into account the firms' financing from capital markets. The stagnant Japanese capital markets during the sample period discouraged firms from raising capital (Isoyama and Matsuura 2001). The sample period makes it easier to control for the firms' capital market financing. Second, the firm-years must have all the necessary data. Third, we drop financial institutions from the sample because they, themselves, are capital providers that are irrelevant to this study.

The selection criteria leave 4,956 firm-years to the full sample for analyst coverage (COVER) (Table 1, Panel A). There are 4,912 firm-years with data for forecast accuracy (ACCURACY). In the analysis of forecast agreement (AGREE), we use 2,697 firm-years with non-missing AGREE.[13] The sub-sample with the ownership by banks (BNK_OWN) diminishes to 1,700, 1,698, and 1,062 firm-years for COVER, ACCURACY and AGREE, respectively.

Panel B of Table 1 presents the sample's distribution across years. The full sample's number of firm-years decreases from 1,185 in 2001 to 861 in 2002 because of the reduction in the firms that the IBES Summary File covers.

Panel C reports descriptive statistics. The median analyst coverage (COVER) is 2.83, which is smaller than the 10.8 of the Japanese sub-sample in Hope (2003) with only 190 firm-years, but close to 3.0 in Lang et al. (2003) with 1,880 firm-years. The median forecast accuracy (ACCURACY), –0.016, is similar to Hope's –0.013, but worse than Lang et al.'s –0.0031.[14] The difference between this study and Lang et al. should derive from the timing when forecast accuracy is measured; we measure ACCURACY as the average over the entire fiscal year, whereas Lang et al. measure forecast accuracy in the 11th month of the fiscal year.[15] The median forecast agreement (AGREE) of –0.007 resembles Lang and Lundholm's (1996) –0.005 among U.S. firms.[16]

The full sample's 19.2 percent is affiliated with one of the six major *keiretsu* (GROUP). The levels of the amount of loans (LOAN) and the ownership by banks (BNK_OWN) are equivalent to Ely and Pownall (2002) who study Japanese firms. The first and third quartiles of the amount of capital raised from the markets (CAPITAL) are zero. Most firms did not access the capital markets, probably because of the stagnant Japanese markets. Little capital market financing

[12] Exceptions are bank and foreign ownerships (BNK_OWN and FRG_OWN, respectively). We use the ownership data of the parent firms' financial statements, which are the only sources of these data.

[13] By definition, when less than two security analysts cover the firm, the value of AGREE is missing.

[14] This paper's median ACCURACY is worse than Land and Lundholm's (1996) –0.008 among U.S. firms.

[15] We perform the regression analyses using only the data from the 11th month of fiscal year. The results are similar to this paper's findings.

[16] Neither Hope (2003) nor Lang et al. (2003) reports the forecast agreement among Japanese firms.

Table 1: Sample

Panel A: Number of observations in the sample selection process

Sample selection process	Full sample Firm-years	Sub-sample Firm-years
Full sample observations with data for group affiliation, loan amount and all the control variables	7,023	
(Less) Brown (2001) does not cover (Missing bank ownership data)		4,808
Sub-sample observations with data for all the independent and control variables		2,215
(Less) IBES does not cover	2,067	515
Sample for analyst coverage (COVER)	4,956	1,700
(Less) Missing forecast accuracy data	44	2
Sample for forecast accuracy (ACCURACY)	4,912	1,698
(Less) Missing forecast agreement data	2,215	636
Sample for forecast agreement (AGREE)	2,697	1,062

Panel B: Distribution by year of the sample for analyst coverage (COVER)

Year in which fiscal year ends	Full sample Firm(-year)s	Sub-sample Firm(-year)s
2000	1,115	412
2001	1,185	426
2002	861	298
2003	887	288
2004	908	276
Total	4,956	1,700

Panel C: Descriptive statistics

Variable	Firm-years	Mean	Standard deviation	First quartile	Median	Third quartile
Dependent variable						
COVER	4,956	4.93	5.07	1.00	2.83	7.33
ACCURACY	4,912	–0.049	0.101	–0.043	–0.016	–0.006
AGREE	2,697	–0.010	0.012	–0.012	–0.007	–0.004
Independent variable						
GROUP	4,956	0.192	–	–	–	–
LOAN	4,956	0.102	0.120	0.010	0.066	0.150
BNK_OWN	1,700	0.083	0.054	0.043	0.077	0.119
Control variable						
CAPITAL	4,956	0.016	0.046	0.000	0.000	0.000
PERF_VOL	4,956	0.019	0.015	0.009	0.015	0.024
SURPRISE	4,956	0.019	0.025	0.005	0.011	0.024
DISTRESS	4,956	–1.736	1.382	–1.988	–1.369	–0.997
BLC_OWN	4,956	0.444	0.147	0.337	0.422	0.545
SIZE	4,956	232	862	16	41	142
FRG_OWN	4,956	0.093	0.104	0.015	0.057	0.135
BOND	4,956	0.037	0.062	0.000	0.000	0.060
ROA	4,956	0.007	0.042	–0.016	0.000	0.022

(*Continued*)

(-*Continued*)

COVER:	Monthly average of the number of security analysts who forecast the firm's annual earnings during the fiscal year.
ACCURACY:	Monthly average of the negative of the absolute value of median analyst forecast error during the fiscal year, scaled by the beginning stock price.
AGREE:	Monthly average of the negative of the standard deviation of analyst forecasts during the fiscal year, scaled by the beginning stock price.
GROUP:	Indicator variable with the value of one if the firm pertains to one of the six major keiretsu; and zero otherwise.
LOAN:	Amount of long-term loans, scaled by the beginning total assets.
BNK_OWN:	Proportion of ownership by banks.
CAPITAL:	Total amount of capital (i.e., stocks and bonds) raised from the Tokyo Stock Exchange during the 36 months centered around the fiscal year, scaled by the beginning total assets.
PERF_VOL:	Standard deviation of ROA (i.e., earnings before extraordinary items over total assets) over the preceding seven fiscal years.
SURPRISE:	Change in earnings before extraordinary items from the prior fiscal year, scaled by the beginning stock price.
DISTRESS:	The negative of current ratio (i.e., the ratio of current assets to current liabilities).
BLC_OWN:	Proportion of ownership by block shareholders.
SIZE:	Market value of equity at the fiscal year beginning, in billion yen.
FRG_OWN:	Proportion of ownership by foreigners (i.e., non-Japanese).
BOND:	Book value of outstanding bonds, scaled by the beginning total assets.
ROA:	ROA (i.e., earnings before extraordinary items over total assets) after subtracting industry median in each year.

should limit its effect on security analyst activities and makes it easier to control for the firms' capital market financing in the regression analyses.

Table 2 shows the correlations among the variables. Among the dependent variables, analyst coverage (lnCOVER), forecast accuracy (ACCURACY) and forecast agreement (AGREE) are positively and significantly correlated with one another. The positive correlations endorse that lnCOVER, ACCURACY and AGREE capture the same construct of the information environments for capital market investors. The firms' capital market financing (CAPITAL) is positively and significantly correlated with group affiliation (GROUP) and the amount of loans (LOAN), respectively. CAPITAL is not correlated with the ownership by banks (BNK_OWN) at a conventional level. The non-negative correlations are in line with our inference that the association between bank-firm relationships and the firms' capital market financing is not necessarily negative.

5. Results

5.1 Tests of H_1

Ordinary least square regressions of a pooled sample across fiscal years may suffer from inflated statistical significance because of the autocorrelation among multiple observations of the same firm. Accordingly, we employ clustered standard errors[17] (Petersen 2009) to assess the statistical significance, which we report using a one-sided test. H_1 hypothesizes that analyst coverage, forecast accuracy and forecast agreement are negatively associated with the extent of bank-firm relationships.

[17] We perform the regression analyses applying the Fama and MacBeth method to address the autocorrelation among multiple observations in the same year. The results do not qualitatively change.

Table 2: Correlation

	lnCOVER	ACCURACY	AGREE	GROUP	LOAN	BNK_OWN	CAPITAL	PERF_VOL	SURPRISE	DISTRESS	BLC_OWN
lnCOVER	–	0.345	0.231	0.141	–0.145	–0.090	0.347	0.006	0.040	–0.137	–0.183
ACCURACY	0.232	–	0.594	–0.029	–0.208	–0.035	0.132	–0.066	–0.095	–0.203	0.038
AGREE	0.191	0.553	–	–0.103	–0.329	–0.005	0.012	–0.054	–0.080	–0.281	0.075
GROUP	0.140	–0.015	–0.116	–	0.156	–0.130	0.149	–0.118	–0.037	0.181	–0.117
LOAN	–0.141	–0.174	–0.224	0.123	–	0.133	0.189	–0.204	–0.133	0.647	–0.183
BNK_OWN	–0.052	–0.033	0.009	–0.130	0.053	–	0.032	–0.179	–0.100	0.072	–0.276
CAPITAL	0.216	0.090	0.068	0.038	0.090	0.016	–	–0.216	–0.099	0.216	–0.213
PERF_VOL	–0.003	–0.038	–0.004	–0.113	–0.113	–0.132	0.014	–	0.389	–0.306	0.151
SURPRISE	0.037	–0.009	–0.054	–0.050	–0.083	–0.109	0.009	0.458	–	–0.196	0.086
DISTRESS	–0.118	–0.133	–0.154	0.135	0.374	0.084	0.076	–0.202	0.169	–	–0.120
BLC_OWN	–0.174	0.041	0.065	–0.107	–0.109	–0.307	–0.090	0.106	0.066	–0.091	–
lnSIZE	0.778	0.238	0.222	0.152	–0.106	0.027	0.221	–0.093	–0.019	–0.084	0.258
FRG_OWN	0.534	0.156	0.131	0.040	–0.183	–0.158	0.130	0.130	0.124	–0.232	0.096
BOND	0.286	0.056	–0.046	0.136	0.165	0.098	0.397	–0.157	–0.071	0.211	0.258
ROA	0.178	0.258	0.303	–0.105	–0.228	–0.062	0.023	0.177	0.212	–0.276	0.179

	lnSIZE	FRG_OWN	BOND	ROA
lnCOVER	0.811	0.674	0.331	0.208
ACCURACY	0.363	0.310	0.041	0.384
AGREE	0.307	0.246	–0.120	0.420
GROUP	0.162	0.070	0.181	–0.118
LOAN	–0.097	–0.240	0.287	–0.337
BNK_OWN	0.008	–0.092	0.140	–0.026
CAPITAL	0.393	0.229	0.543	–0.030
PERF_VOL	–0.126	0.095	–0.242	0.118
SURPRISE	–0.048	0.105	–0.128	0.188
DISTRESS	–0.067	–0.296	0.285	–0.342
BLC_OWN	–0.275	–0.186	–0.290	0.153
lnSIZE	–	0.639	0.399	0.149
FRG_OWN	0.547	–	0.164	0.285
BOND	0.383	0.070	–	–0.177
ROA	0.154	0.255	–0.146	–

Note: Pearson product moment correlation beneath the diagonal and Spearman rank order correlation above the diagonal.
The numbers of firm-years included in the correlations with ACCURACY, AGREE and BNK_OWN are 4,912, 2,697 and 1,700, respectively. The number of firm-years included in all the other correlations is 4,956.
For the measurements of variables, see Table 1 Panel C.

5.2 Primary Results

Panel A of Table 3 presents the primary results for the full sample. Model 1 has analyst coverage (lnCOVER) as the dependent variable. Overall, the coefficient estimates on the control variables have the expected sign. The coefficient estimate on group affiliation (GROUP) is not negative (0.051), not consistent with H_1. Chang et al. (2002) find a similar result in 15 emerging economies. Supporting H_1, the loan amount of independent firms (LOAN) is negatively (–0.302) associated with lnCOVER at the 0.05 level. The larger the independent firm's loans, the fewer the security analysts who cover the firm.

Models 2 and 3, which have forecast accuracy (ACCURACY) and forecast agreement (AGREE) as the dependent variables, include analyst coverage (lnCOVER) to control for its effects on ACCURACY and AGREE. In Model 2, the coefficient estimate on group affiliation (GROUP) is negative (–0.008) and statistically significant at the 0.05 level. The result supports H_1. Security analysts forecast group firms' earnings less accurately by 0.008 of the stock price than those of independent firms. The magnitude is economically significant relative to the full sample's median ACCURACY of –0.016 in Table 1, Panel C. The result is in line with Chang et al. (2002). The coefficient estimate on independent firms' loan amount (LOAN) is also negative (–0.119) and statistically significant at the 0.01 level, consistent with H_1. In Panel C of Table 1, the standard deviation of LOAN is 0.120. The coefficient estimate of –0.119 indicates that when an independent firm's LOAN increases by a standard deviation, the analyst forecasts become less accurate by 0.014 of the stock price. Again, the magnitude is economically significant.

In Model 3 with forecast agreement (AGREE), the coefficient estimates on group affiliation (GROUP) and independent firms' loan amount (LOAN) are negative (–0.001 and –0.011) and statistically significant at the 0.1 and 0.01 levels, respectively. The results support H_1.

Panel B reports primary results for the sub-sample with the ownership by banks. In Models 4 and 5, which have analyst coverage (lnCOVER) and forecast accuracy (ACCURACY) as the dependent variables, the coefficient estimates on independent firms' bank ownership (BNK_OWN) are negative (–1.279 and –0.105) and statistically significant at the 0.01 and 0.1 levels, respectively. The results for group affiliation (GROUP) and independent firms' loan amount (LOAN) are largely consistent with the full sample in Panel A.

In summary, the primary results show that group affiliation (GROUP) is negatively associated with forecast accuracy (ACCURACY) and forecast agreement (AGREE). Likewise, independent firms' loan amount (LOAN) is negatively associated with analyst coverage (lnCOVER), ACCURACY and AGREE. Furthermore, independent firms' bank ownership (BNK_OWN) is negatively associated with lnCOVER and ACCURACY. Collectively, these results support H_1.

5.3 Results of Change Regressions

In the previous analyses, we run the regressions by using the levels of all the variables. The persistency in dependent and independent variables over time, however, may have distorted the primary results. Accordingly, we perform the analyses with the change in each dependent, independent or control variable over three years.[18,19] Because group affiliation (GROUP) does not

[18] We winsorize the changes in forecast accuracy (ΔACCURACY) and forecast agreement (ΔAGREE) at the first and 99th percentiles.

[19] Using the changes over two or four years does not qualitatively change the results.

Table 3: Primary Results For Testing H_1

Panel A: Full sample

Independent or control variable	Hypothesized sign in H_1	Model 1 [lnCOVER]†	Model 2 [ACCURACY]†	Model 3 [AGREE]†
Intercept		–1.128 (0.00)***	–0.057 (0.00)***	–0.013 (0.00)***
GROUP	–	0.051 (0.83)	–0.008 (0.05)**	–0.001 (0.09)*
LOAN	–	–0.302 (0.04)**	–0.119 (0.00)***	–0.011 (0.00)***
GROUP*LOAN		0.427 (0.12)	0.031 (0.43)	–0.014 (0.07)*
lnCOVER		–	0.007 (0.00)***	0.001 (0.31)
CAPITAL		1.122 (0.00)***	0.093 (0.00)***	0.018 (0.00)***
PERF_VOL		1.651 (0.31)	–0.419 (0.01)***	–0.091 (0.00)***
SURPRISE		0.670 (0.59)	–0.100 (0.30)	–0.042 (0.00)***
DISTRESS		–0.007 (0.58)	–0.001 (0.17)	–0.000 (0.02)**
BLC_OWN		0.012 (0.93)	0.042 (0.00)***	0.003 (0.15)
lnSIZE		0.502 (0.00)***	0.008 (0.00)***	0.002 (0.00)***
FRG_OWN		1.192 (0.00)***	–0.036 (0.08)*	–0.009 (0.02)**
BOND		0.877 (0.00)***	0.013 (0.68)	–0.008 (0.13)
ROA		0.913 (0.11)	0.486 (0.00)***	0.082 (0.00)***
Industry		Included	Included	Included
Year		Included	Included	Included
R^2		0.655	0.174	0.286
Firm-years		4,956	4,912	2,697

Note: † denotes dependent variable.
Coefficient estimates in the upper rows. p-values upon clustered standard errors in the lower rows in parentheses (one-sided if the sign is hypothesized, two-sided otherwise).
*, ** and *** denote statistical significance at the 0.1, 0.05 and 0.01 levels, respectively.
For the measurements of variables, see Table 1 Panel C.

(*Continued*)

change, we exclude GROUP from the regressions and focus on independent firms' loan amount (LOAN) and bank ownership (BNK_OWN). Accordingly, we limit the sample to independent firms.

In Panel A of Table 4 for the full sample, the results from the change regressions are similar to the primary results; independent firms' change in loan amount (ΔLOAN) is negatively associated with the changes in analyst coverage (ΔlnCOVER), forecast accuracy (ΔACCURACY) and forecast agreement (ΔAGREE). In Panel B for the sub-sample with bank ownership, independent firms' change in bank ownership (ΔBNK_OWN) is negatively associated with ΔCOVER. In Model

(*-Continued*)

Panel B: Sub-sample with bank ownership				
Independent or control variable	Hypothesized sign in H_1	Model 4 [lnCOVER]†	Model 5 [ACCURACY]†	Model 6 [AGREE]†
Intercept		–1.234 (0.00)***	–0.053 (0.04)**	–0.016 (0.00)***
GROUP	–	0.113 (0.89)	–0.025 (0.01)***	–0.004 (0.02)**
LOAN	–	–0.099 (0.34)	–0.101 (0.05)**	–0.020 (0.03)**
GROUP*LOAN		0.235 (0.44)	0.062 (0.32)	–0.003 (0.83)
BNK_OWN	–	–1.279 (0.01)***	–0.105 (0.09)*	0.004 (0.65)
GROUP*BNK_OWN		–0.369 (0.61)	0.145 (0.13)	0.010 (0.43)
lnCOVER		–	0.007 (0.13)	0.000 (0.78)
CAPITAL		1.539 (0.02)**	0.164 (0.01)***	0.034 (0.00)***
PERF_VOL		4.312 (0.05)**	–0.631 (0.03)**	–0.095 (0.05)**
SURPRISE		2.158 (0.03)**	–0.361 (0.04)**	–0.014 (0.59)
DISTRESS		–0.007 (0.80)	–0.001 (0.74)	0.000 (0.70)
BLC_OWN		–0.200 (0.31)	0.052 (0.07)*	0.008 (0.07)*
lnSIZE		0.516 (0.00)***	0.008 (0.03)**	0.003 (0.00)***
FRG_OWN		1.462 (0.00)***	–0.077 (0.08)*	–0.013 (0.04)**
BOND		1.045 (0.03)**	0.116 (0.01)***	–0.003 (0.79)
ROA		0.289 (0.75)	1.022 (0.00)***	0.116 (0.00)***
Industry		Included	Included	Included
Year		Included	Included	Included
R^2		0.777	0.199	0.362
Firm-years		1,700	1,698	1,062

Note: † denotes dependent variable.
Coefficient estimates in the upper rows. p-values upon clustered standard errors in the lower rows in parentheses (one-sided if the sign is hypothesized, two-sided otherwise).
*, ** and *** denote statistical significance at the 0.1, 0.05 and 0.01 levels, respectively.
For the measurements of variables, see Table 1 Panel C.

12 with ΔAGREE, the coefficient estimate on ΔBNK_OWN is also negative (–0.019) though not statistically significant at a conventional level (p value 0.11). Although the results from the change regressions are somewhat weaker than the primary results, the persistency in dependent and independent variables over time does not appear to distort the primary results.

Table 4: Results of Change Regressions For Testing H_1

Panel A: Full sample

Independent or control variable	Hypothesized sign in H_1	Model 7 [ΔlnCOVER]†	Model 8 [ΔACCURACY]†	Model 9 [ΔAGREE]†
Intercept		–0.143 (0.00)***	0.013 (0.00)***	0.003 (0.00)***
ΔLOAN	–	–0.721 (0.00)***	–0.152 (0.05)**	–0.016 (0.00)***
ΔlnCOVER		–	0.004 (0.13)	–0.001 (0.44)
ΔCAPITAL		–0.446 (0.11)	–0.006 (0.84)	–0.002 (0.76)
ΔPERF_VAR		4.111 (0.00)***	0.446 (0.05)**	–0.008 (0.81)
ΔSURPRISE		0.902 (0.07)	–0.088 (0.31)	–0.048 (0.00)***
ΔDISTRESS		–0.024 (0.26)	–0.005 (0.09)*	–0.000 (0.17)
ΔBLC_OWN		–0.001 (1.00)	0.029 (0.23)	0.004 (0.14)
ΔlnSIZE		0.428 (0.00)***	0.031 (0.00)***	0.008 (0.00)***
ΔFRG_OWN		1.075 (0.00)***	0.022 (0.60)	0.006 (0.29)
ΔBOND		–0.119 (0.63)	–0.064 (0.06)*	–0.005 (0.36)
ΔROA		–0.059 (0.89)	0.283 (0.00)***	0.018 (0.05)**
Year		Included	Included	Included
R^2		0.217	0.107	0.241
Firm-years		2,705	2,702	1,267

Note: † denotes dependent variable.
Coefficient estimates in the upper rows. p-values upon clustered standard errors in the lower rows in parentheses (one-sided if the sign is hypothesized, two-sided otherwise).
*, ** and *** denote statistical significance at the 0.1, 0.05 and 0.01 levels, respectively.
Variables are the changes in each variable in Table 1 Panel C over thee years.

(*Continued*)

5.4 Results of Two-Stage Least Square Regressions

An endogeneity problem may exist in analyzing analyst coverage (lnCOVER) and forecast accuracy (ACCURACY) separately. Alford and Berger (1999) suggest lnCOVER and ACCURACY are simultaneously determined. This paper applies two-stage least square regressions for lnCOVER and ACCURACY to address the endogeneity problem. Similar to Alford and Berger's (1999) model, we estimate a system of equations that include the monetary amount of trade volume (VOLUME) as an endogenous variable,[20] and prior fiscal year's extraordinary items scaled by the prior fiscal year beginning total assets (EXTRA) as an exogenous variable.

[20] VOLUME also addresses the potential correlated variable problem that bank ownership may capture the lack of liquidity instead of bank-firm relationships.

(*-Continued*)

Panel B: Sub-sample with bank ownership

Independent or control variable	Hypothesized sign in H_1	Model 10 [ΔlnCOVER]†	Model 11 [ΔACCURACY]†	Model 12 [ΔAGREE]†
Intercept		–0.237 (0.01)***	0.021 (0.04)**	0.004 (0.00)***
ΔLOAN	–	–0.693 (0.05)**	–0.004 (0.48)	–0.020 (0.10)*
ΔBNK_OWN	–	–1.062 (0.03)**	–0.019 (0.42)	–0.019 (0.11)
ΔlnCOVER		–	0.018 (0.01)***	–0.000 (0.87)
ΔCAPITAL		–0.253 (0.76)	–0.168 (0.19)	–0.005 (0.58)
ΔPERF_VAR		3.175 (0.33)	0.523 (0.24)	0.003 (0.96)
ΔSURPRISE		1.097 (0.38)	0.157 (0.40)	–0.022 (0.46)
ΔDISTRESS		–0.092 (0.15)	–0.018 (0.14)	0.000 (0.92)
ΔBLC_OWN		–0.011 (0.97)	0.061 (0.41)	–0.000 (0.99)
ΔlnSIZE		0.325 (0.00)***	0.038 (0.00)***	0.010 (0.00)***
ΔFRG_OWN		1.310 (0.00)***	–0.047 (0.57)	–0.006 (0.45)
ΔBOND		–0.599 (0.26)	–0.009 (0.90)	0.009 (0.44)
ΔROA		–1.097 (0.30)	0.464 (0.00)***	0.021 (0.34)
Year		Included	Included	Included
R^2		0.232	0.141	0.339
Firm-years		600	600	350

Note: † denotes dependent variable.
Coefficient estimates in the upper rows. p-values upon clustered standard errors in the lower rows in parentheses (one-sided if the sign is hypothesized, two-sided otherwise).
*, ** and *** denote statistical significance at the 0.1, 0.05 and 0.01 levels, respectively.
Variables are the changes in each variable in Table 1 Panel C over thee years.

Same as the primary results, in Table 5, Panel A for the full sample, group affiliation (GROUP) is negatively associated with forecast accuracy (ACCURACY), and independent firms' loan amount (LOAN) is negatively associated with both analyst coverage (lnCOVER) and ACCURACY. In Panel B for the sub-sample with the ownership by banks, independent firms' bank ownership (BNK_OWN) is negatively associated with lnCOVER and ACCURACY. Overall, endogeneity does not appear to distort the primary results.

5.5 *Tests of H_2*

H_2 hypothesizes that analyst coverage, forecast accuracy and forecast agreement are associated with the extent of bank-firm relationships more negatively among low performance firms than high

Table 5: Results of Two-Stage Least Square Regressions For Testing H_1

Panel A: Full sample

Independent or control variable	Hypothesized sign in H_1	Model 13		
		[lnCOVER]†	[ACCURACY]†	[lnVOLUME]†
Intercept		2.429 (0.00)***	–0.031 (0.00)***	–4.870 (0.00)***
GROUP	–	0.060 (0.91)	–0.007 (0.08)*	0.165 (0.00)***
LOAN	–	–0.333 (0.01)***	–0.125 (0.00)***	0.749 (0.00)***
GROUP*LOAN		0.426 (0.09)*	0.029 (0.30)	–0.172 (0.61)
lnCOVER		–	0.018 (0.00)***	1.054 (0.00)***
ACCURACY		4.746 (0.00)***	–	1.771 (0.06)*
lnVOLUME		0.392 (0.00)***	–	–
CAPITAL		0.022 (0.94)	–	
PERF_VOL		–	–0.485 (0.00)***	–0.016 (0.99)
SURPRISE		–	–0.123 (0.07)*	–
DISTRESS		–	–	0.087 (0.00)***
BLC_OWN		–		–2.289 (0.00)***
lnSIZE		–	–	0.510 (0.00)***
FRG_OWN		0.545 (0.00)***		–
BOND		0.785 (0.00)***	–	–
ROA		–	0.483 (0.00)***	–
EXTRA		–	–0.052 (0.33)	–
Industry		Included	Included	Included
Year		Included	Included	Included
Adjusted R^2		0.567	0.158	0.759
Firm-years			4,911	

Note: † denotes dependent variable.
Coefficient estimates in the upper rows. p-values in the lower rows in parentheses (one-sided if the sign is hypothesized, two-sided otherwise).
*, ** and *** denote statistical significance at the 0.1, 0.05 and 0.01 levels, respectively.
VOLUME: Average trade volume of each month's last trading day during the fiscal year, in billion yen.
EXTRA: Prior fiscal year's extraordinary items, scaled by the prior fiscal year beginning total assets.
For the measurements of the other variables, see Table 1 Panel C.

(*Continued*)

(*-Continued*)

Panel B: Sub-sample with bank ownership

Independent or control variable	Hypothesized sign in H_1	Model 14		
		[lnCOVER]†	[ACCURACY]†	[lnVOLUME]†
Intercept		2.256 (0.00)***	–0.021 (0.22)	–5.144 (0.00)***
GROUP	–	0.161 (0.99)	–0.018 (0.04)**	0.094 (0.33)
LOAN	–	–0.153 (0.24)	–0.110 (0.00)***	0.692 (0.02)**
GROUP*LOAN		0.202 (0.46)	0.058 (0.12)	–0.051 (0.87)
BNK_OWN	–	–1.596 (0.00)***	–0.102 (0.06)*	–0.878 (0.17)
GROUP*BNK_OWN		–0.597 (0.36)	0.117 (0.19)	–0.708 (0.41)
lnCOVER		–	0.017 (0.00)***	0.810 (0.00)***
ACCURACY		2.362 (0.00)***	–	0.499 (0.61)
lnVOLUME		0.429 (0.00)***	–	–
CAPITAL		0.226 (0.72)	–	–
PERF_VOL		–	–0.739 (0.00)***	–2.923 (0.22)
SURPRISE		–	–0.391 (0.01)***	–
DISTRESS		–	–	0.030 (0.35)
BLC_OWN		–	–	–2.154 (0.00)***
lnSIZE		–	–	0.643 (0.00)***
FRG_OWN		0.643 (0.02)**	–	–
BOND		1.017 (0.00)***	–	–
ROA		–	0.938 (0.00)***	–
EXTRA		–	–0.057 (0.54)	–
Industry		Included	Included	Included
Year		Included	Included	Included
Adjusted R^2		0.695	0.163	0.841
Firm-years			1,698	

Note: † denotes dependent variable.
Coefficient estimates in the upper rows. p-values in the lower rows in parentheses (one-sided if the sign is hypothesized, two-sided otherwise).
*, ** and *** denote statistical significance at the 0.1, 0.05 and 0.01 levels, respectively.
VOLUME: Average trade volume of each month's last trading day during the fiscal year, in billion yen.
EXTRA: Prior fiscal year's extraordinary items, scaled by the prior fiscal year beginning total assets.
For the measurements of the other variables, see Table 1 Panel C.

performance firms. In order to test H_2, we create a rank variable, RANK, that represents the quintile of ROA (i.e., earnings before extraordinary items over total assets, after subtracting industry median in each year). RANK takes the value of zero for the lowest ROA quintile and four for the highest ROA quintile.[21] H_2 predicts that the interactions between RANK and each of group affiliation (GROUP), and independent firms' loan amount (LOAN) and bank ownership (BNK_OWN), are positively associated with security analyst activities. We present the results from the clustered standard error regressions.[22]

Table 6, Panel A presents the results for the full sample. For parsimony, Table 6 reports the coefficient estimates and the p-values only for the independent variables. In Models 15 to 17, the coefficient estimates on the interaction between performance rank (RANK) and group affiliation (GROUP) are not statistically significantly at a conventional level. In Models 16 and 17, the interaction between RANK and independent firms' loan amount (LOAN) is positively and statistically significantly associated with forecast accuracy (ACCURACY) and forecast agreement (AGREE) at the 0.01 level (0.070 and 0.008, respectively). These results support H_2.

In Panel B's Models 19 and 20, the interaction between performance rank (RANK) and independent firms' bank ownership (BNK_OWN) is positively and statistically significantly associated with forecast accuracy (ACCURACY) and forecast agreement (AGREE) at the 0.05 level (0.113 and 0.015, respectively). In these models, the interaction between RANK and group affiliation (GROUP) is positively and statistically significantly associated with ACCURACY and AGREE at the 0.05 and 0.1 levels (0.012 and 0.001), respectively, as well.[23]

In summary, the interaction between performance rank (RANK) and independent firms' loan amount (LOAN) is positively associated with forecast accuracy (ACCURACY) and forecast agreement (AGREE). The interactions between RANK, and group affiliation (GROUP) and bank ownership (BNK_OWN) are also positively associated with ACCURACY and AGREE in the sub-sample. Collectively, the results provide evidence to support H_2.

5.6 Additional Analyses

Hadlock and James (2002) find that firms raise capital from banks instead of markets when the firms' business environment is highly uncertain. We control for the extent of uncertainty in the regression analyses using performance volatility (PERF_VOL), earnings surprise (SURPRISE) and industry indicator variables. If these variables do not effectively capture the uncertainty, however, the regression analyses may suffer from an omitted correlated variable problem. Accordingly, we add the control variables that Hadlock and James use to measure the extent of uncertainty: stock return volatility, the book-to-market ratio of equity, the book value of property, plant and equipment, and firm age. The results (untabulated) are similar to this paper's findings; an omitted correlated variable does not appear to distort the results.

[21] We perform the regression analyses replacing RANK with actual ROA. The results are similar to this paper's results.

[22] We perform the regression analyses with two-stage least square for lnCOVER and ACCURACY. The results do not qualitatively change.

[23] In Models 16 and 17 for the full sample, the coefficient estimates on the interaction between RANK and GROUP are not statistically significant at a conventional level. We attribute the different results between the full and sub-samples to whether BNK_OWN appears in the models. When we exclude BNK_OWN from the regression in the sub-sample, the coefficient estimates on the interaction become statistically insignificant at a conventional level, as in the full sample.

Table 6: Results for Testing H_2

Panel A: Full sample

Independent or control variable	Hypothesized sign in H_2 (H_1)	Model 15 [lnCOVER]†	Model 16 [ACCURACY]†	Model 17 [AGREE]†
Intercept		–1.172 (0.00)***	–0.073 (0.00)***	–0.017 (0.00)***
GROUP	(–)	0.044 (0.70)	–0.013 (0.10)*	–0.001 (0.29)
RANK*GROUP	+	0.009 (0.40)	0.003 (0.22)	–0.000 (0.53)
LOAN	(–)	–0.410 (0.04)**	–0.216 (0.00)***	–0.025 (0.00)***
RANK*LOAN	+	0.127 (0.12)	0.070 (0.00)***	0.008 (0.01)***
GROUP*LOAN		0.810 (0.05)**	0.088 (0.20)	–0.011 (0.43)
RANK*GROUP*LOAN		–0.246 (0.23)	–0.019 (0.47)	0.001 (0.82)
RANK		0.054 (0.00)***	0.012 (0.00)***	0.002 (0.00)***
Other control variables included		CAPITAL PERF_VOL SURPRISE DISTRESS BLC_OWN lnSIZE FRG_OWN BOND Industry Year	lnCOVER CAPITAL PERF_VOL SURPRISE DISTRESS BLC_OWN lnSIZE FRG_OWN BOND Industry Year	lnCOVER CAPITAL PERF_VOL SURPRISE DISTRESS BLC_OWN lnSIZE FRG_OWN BOND Industry Year
R^2		0.659	0.204	0.302
Firm-years		4,956	4,912	2,697

Note: † denotes dependent variable.
Coefficient estimates in the upper rows. p-values upon clustered standard errors in the lower rows in parentheses (one-sided if the sign is hypothesized, two-sided otherwise).
*, ** and *** denote statistical significance at the 0.1, 0.05 and 0.01 levels, respectively.
RANK: Quintile rank of ROA (i.e., earnings before extraordinary items over total assets, after subtracting industry median in each year).
For the measurements of the other variables, see Table 1 Panel C.

(*Continued*)

(*-Continued*)

Panel B: Sub-sample with bank ownership				
Independent or control variable	Hypothesized sign in H_2 (H_1)	Model 18 [lnCOVER]†	Model 19 [ACCURACY]†	Model 20 [AGREE]†
Intercept		–1.267 (0.00)***	–0.059 (0.05)**	–0.015 (0.00)***
GROUP	(–)	0.140 (0.84)	–0.043 (0.02)**	–0.006 (0.02)**
RANK*GROUP	+	–0.014 (0.59)	0.012 (0.04)**	0.001 (0.08)*
LOAN	(–)	–0.410 (0.16)	–0.188 (0.02)**	–0.029 (0.07)*
RANK*LOAN	+	0.185 (0.19)	0.064 (0.04)**	0.010 (0.11)
GROUP*LOAN		0.764 (0.14)	0.079 (0.43)	–0.006 (0.77)
RANK*GROUP*LOAN		–0.326 (0.21)	–0.011 (0.80)	–0.002 (0.81)
BNK_OWN	(–)	–0.430 (0.33)	–0.327 (0.04)**	–0.028 (0.13)
RANK*BNK_OWN	+	–0.448 (0.86)	0.113 (0.04)**	0.015 (0.05)**
GROUP*BNK_OWN		–1.435 (0.25)	0.416 (0.08)*	0.052 (0.09)*
RANK*GROUP*BNK_OWN		0.568 (0.32)	–0.159 (0.05)**	–0.021 (0.06)*
RANK		0.036 (0.43)	0.006 (0.28)	0.001 (0.36)
Other control variables included		CAPITAL PERF_ VOL SURPRISE DISTRESS BLC_ OWN lnSIZE FRG_ OWN BOND Industry Year	lnCOVER CAPITAL PERF_ VOL SURPRISE DISTRESS BLC_ OWN lnSIZE FRG_ OWN BOND Industry Year	lnCOVER CAPITAL PERF_ VOL SURPRISE DISTRESS BLC_ OWN lnSIZE FRG_ OWN BOND Industry Year
R^2		0.778	0.205	0.368
Firm-years		1,700	1,698	1,062

Note: † denotes dependent variable.
Coefficient estimates in the upper rows. p-values upon clustered standard errors in the lower rows in parentheses (one-sided if the sign is hypothesized, two-sided otherwise).
*, ** and *** denote statistical significance at the 0.1, 0.05 and 0.01 levels, respectively.
RANK: Quintile rank of ROA (i.e., earnings before extraordinary items over total assets, after subtracting industry median in each year).
For the measurements of the other variables, see Table 1 Panel C.

6. Conclusion

This paper empirically compares the activities of security analysts between firms with and without close working relationships with their bank. This paper contributes to the international accounting literature by documenting that bank-firm relationships are an institution associated with security analyst activities in an economy where banks play a critical role in corporate governance. This paper also contributes to the corporate governance literature by providing evidence that the banks' screening and monitoring play roles in the association between bank-firm relationships and security analyst activities.

The implications of this paper extend beyond these contributions. The corporate governance literature has classified the corporate governance models around the world into stakeholder and shareholder governance (e.g., Ahmadjian and Robbins 2005; Ball et al. 2000; Ball et al. 2003). No study to date, however, has empirically investigated how the corporate governance models relate to the information environments, presumably because the international differences in security analysts' tasks, experiences and resources (Barniv et al. 2005) make a direct comparison difficult.

This paper has implications as to which corporate governance model leads to richer information environments. Bank-firm relationships are a key institution that distinguishes stakeholder and shareholder governance (Rajan and Zingales 1995). Accordingly, it is reasonable to assimilate the firms with close bank relationships with stakeholder governance and the firms without such ties with shareholder governance. Under this interpretation, this paper's findings imply that capital market investors under stakeholder governance face poorer information environments than under shareholder governance. Certainly, this interpretation is not conclusive; bank-firm relationships are not the only institution distinguishing stakeholder and shareholder governance. Still, this paper provides evidence to infer reasonably that stakeholder governance results in poorer information environments than shareholder governance.

This paper has implications to standard setters as well. The International Accounting Standards Committee has developed the International Accounting Standards (IAS)[24] in order to generate comparable financial information across countries (Ashbaugh and Pincus 2001), thereby leveling the information environments. This paper, however, documents that the information environments of the firms with close bank relationships are poorer than the firms without such ties under the same Japanese GAAP. Accordingly, the findings imply that the IAS alone may not sufficiently level the information environments (Ball et al. 2003), given the variation in bank-firm relationships.

There are caveats to this paper. In particular, the findings' external validity may be limited because we investigate only Japanese firms. Nevertheless, there is evidence suggesting that bank-firm relationships are relevant in other countries as well. Choi (2004) documents among U.S. firms that close bank-firm relationships are associated with low accrual quality. Also in the U.S., James (1987) and Lummer and McConnell (1989) find that stock prices respond positively to the announcements of bank loan agreements, especially, renewals, indicating that bank-firm relationships transmit information to capital markets. These studies suggest that bank-firm relationships are relevant even in northern America, where banks may not play as important a role. This paper investigates Japanese firms because the extent of bank-firm relationships varies significantly in Japan. A study in Japan should increase the power of statistical tests on bank-firm relationships.

[24] IAS were succeeded by International Accounting Standards Board's International Financial Reporting Standards in 2001.

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