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Determinants of Voluntary Bank Disclosure: Evidence from Japanese Shinkin Banks

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ABSTRACT

Disclosure is widely regarded as a necessary condition for market discipline in a modern financial sector. However, the determinants of disclosure decisions are still unknown, particularly among banks. This paper investigates the determinants of disclosure by Japanese Shinkin banks in 1996 and 1997. This period is unique because disclosure by these banks was voluntary during this time. We find that banks with more serious bad loan problems, more leverage, less competitive pressure, and smaller banks were less likely to choose to voluntarily disclose. These results suggest that there may be a role for compulsory disclosure, as weak banks appear to disproportionately avoid voluntary disclosure.

Keywords: disclosure, Japanese banking, market discipline

JEL Classification nos.: G18, G21

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1. Introduction

In the wake of worldwide financial deregulation and technological development in the financial sector, the task of bank supervision and regulation has become even more difficult. In this environment, the benefits of banks voluntarily disclosing their balance sheet positions can be even greater. Self-disclosure provides a channel for enhancing market discipline in the financial sector. Market discipline plays an important role in the new Basel Banking Committee framework for bank supervision, where it is considered one of the “three pillars” of bank regulation and supervision.¹

There are a number of papers in the literature that identify empirical examples of market discipline. Flannery and Sorescu (1996), Morgan and Stiroh (2001), and Hancock and Kwast (2001) find a significant positive relationship between US bank bond spreads and indicators of risk to the U.S. banking sector.

There are also proposals to require banks to issue subordinated debt to facilitate market discipline [e.g. Calomiris (1999)]. The motivation behind these proposals is that subordinated debt holders will have an incentive to monitor bank positions and spreads on subordinated debt will provide information of potential use to regulators as well as market participants. Recent evidence indicates that private yields reflect information that differs from that possessed by regulators, suggesting that market discipline can enhance the regulatory environment [De Young, et al. (2001), Krainer and Lopez (2002)]. Moreover, the Federal Reserve Board considers market information such as stock prices and interest rate spreads in their bank supervision activities [Federal Reserve Study Group on Disclosure (2000)].

Since firm disclosure enhances market discipline, regulatory authorities design regulations and accounting standards to enhance the level of disclosure. Nevertheless, there is a wide disparity in disclosure levels across nations. U.S. disclosure standards are considered high relative to the rest of the world, while disclosure rules in Japan are less stringent.

It is not clear whether private firms would reveal the optimal amount of disclosure without government intervention. Some argue that market forces encourage disclosure, so that depositors and creditors would require higher premia or deny funds to banks revealing less than the optimal level of disclosure. These market forces would then lead banks to optimal disclosure levels.

¹ Basel Committee on Banking Supervision, (1999).

However, there are also reasons to believe that the level of disclosure chosen by banks on their own would fall below the optimal level. As the government is usually a residual claimant on bank assets due to its role as a deposit insurer and a potential lender of last resort, the private sector has less than full incentive to monitor the disclosure levels of banks and to discipline banks for failing to disclose. This would lead us to expect that banks would not voluntarily engage in full disclosure.

Indeed, there appears to be evidence that they do not. For example, Gunther and Moore (2000) investigate the impact of bank exams in the US on the adequacy of the allowance for loan and lease losses. They find that bank exams affect the accuracy of financial information released to the public. In the absence of regulatory exams, banks underestimate the share of non-performing loans in their balance sheet.

In addition, it must also be acknowledged that full disclosure is not necessarily optimal, at both the private and social levels. Banks would respond to disclosure requirements in a number of dimensions, some likely to be unintended. For example, a bank wishing to avoid releasing information to a potential rival may call in loans from a problem debtor rather than release information on them publicly.

Nevertheless, the general consensus is that the level of disclosure undertaken by Japanese banks is far below the social optimum, although the level of disclosure does appear to be improving over time.² For example, Balic, Bradley and Kiguchi (2002) evaluate the disclosure practices of major Japanese companies. They conclude that Japanese “disclosure levels still fall short of the leaders in the Asia Pacific region and the U.S.”³

Moreover, there is wide speculation that the degree of disclosure is particularly sub-optimal among Japanese banks. After the burst of the bubble economy, Japanese banks had large holdings of bad loans, but they did not disclose their holdings in a timely manner, even though market participants requested these figures.

While required Japanese disclosure standards were minimal during the 1990s, some banks responded to requests for disclosure by voluntarily revealing their asset positions. The characteristics of banks that chose to voluntarily disclose this information is of interest, both as an indicator of the incentives faced by Japanese banks and more broadly as an indicator of the

² Singleton and Globerman (2002) find that voluntary disclosure of Japanese firms increased significantly over time.

³ Yamori and Baba (2001) survey the literature on the international comparison studies on disclosure standards.

factors that lead to voluntary bank disclosure. The latter question is also relevant to bank regulation outside Japan, such as in the United States, where disclosure standards are so strict that there is usually little heterogeneity across banks in their disclosure levels.

As such, the conditions that induce banks to voluntarily disclose their asset positions is of regulatory interest. In this paper, we examine that question by investigating the degree of disclosure among small Japanese banks known as Shinkin banks. In this paper, we examine the impact of Shinkin bank characteristics in 1996 and 1997 on their decisions concerning bad loan disclosure. Our sample is unique because disclosure by Shinkin banks was voluntary over this period, but became compulsory in 1998. As a result, we can use bank conditions in 1998 to estimate the conditions faced by banks that chose not to disclose in 1996 and 1997.

Using this data, we examine a number of hypotheses concerning the determinants of disclosure decision:

Our first hypothesis is that larger Shinkin banks would be more likely to voluntarily disclose. Larger Shinkin banks usually operate in more sophisticated financial environments with depositors that are more adamant about demanding balance sheet information. There may also be economies of scale in the calculation of financial information. Finally, there are regulatory reasons; the National Association of Shinkin Banks (NASB) recommended, but did not require, disclosure by Shinkin banks with deposits exceeding 100 billion yen.

Our second hypothesis is that Shinkin banks would be less likely to voluntarily disclose adverse information. As we discuss below, the relative willingness to disclose adverse information is ambiguous in the literature. Firms may wish to disclose good information to distinguish themselves from their competitors, but they may also feel a need to disclose bad information to avoid exposure to lawsuits. In the case of banks, we believe that the presence of deposit insurance would seem to limit the pressure to voluntarily disclose adverse information, leading us to predict relatively less adverse information disclosure.

Our third hypothesis concerns the impact of financial strength. Traditionally, the Ministry of Finance (MOF) executed the ‘convoy system’ regarding Japanese banks,⁴ in which stronger banks were limited in their ability to compete against weaker banks. For example, deposit interest rates were limited to levels consistent with profitability by the most inefficient banks.

⁴ See Spiegel (1999) for details of Japanese convoy system.

However, by the time of our sample (March 1996 and 1997), the failures of many financial institutions suggest that the MOF had at least partially abandoned the convoy system.⁵ Without the convoy system, a bank could benefit from distinguishing its financial situation from those of its rivals. As such, since we believe that the system had been at least partially abandoned by the time of our sample, our third hypothesis is that institutions with lower leverage levels would be more likely to voluntarily disclose their balance sheet information.

Our final hypothesis concerns market conditions. We would expect a bank that operated in a more competitive market to be more likely to pursue voluntary disclosure for a number of reasons: First, one would expect that a bank in a more competitive market would need to be more responsive to depositor demands for disclosure. Second, one would expect that in a less competitive market, banks would be less likely to voluntarily disclose information that was of potential use to rival banks.⁶ Our third hypothesis is therefore that voluntary disclosure would be more prevalent in less concentrated markets.

Our results demonstrate that banks with more serious bad loan problems are less likely to choose to voluntarily disclose. Second, market forces, as measured by the intensity of local competition, did not measurably affect bank disclosure decisions in 1996, but did in 1997. Finally, we find that larger Shinkin banks were more likely to disclose information, in keeping with the corporate literature on disclosure.

This paper consists of six sections. In section 2, we examine the history of bank disclosure in Japan. Section 3 surveys the literature on voluntary disclosure. In section 3, details of Japanese bank disclosure regulation are explained. Section 4 motivates the hypotheses we study in this paper and discusses our data sources. Section 5 discusses our empirical results. Finally, section 6 concludes.

2. History of Disclosure by Japanese Financial Institutions

In the 1980s, Japanese banks outperformed U.S. and European banks. However, the 1990s sluggish economy and asset price deflation changed Japanese banks' financial condition

⁵ Spiegel and Yamori (2003) found that the convoy system changed over this period, as too-big-to-fail protection narrowed.

⁶ Darrough and Stroughton (1990) provide a theoretical model of this impact of market concentration on voluntary disclosure by firms.

dramatically. Non-performing loans totaled about 10 % of GDP in 1995 [Cargill et al. (1997)].⁷ When defaults occurred, collateral values (primarily backed by land and real estate) were not large enough to cover the losses. This led to the current bad loan problems faced by Japanese financial institutions.

Japanese banks were initially very reluctant to disclose their bad loan exposure. Moreover, initially the MOF did not require disclosure. However, the public demanded bank bad loan disclosures. This led to large banks (city banks, long-term credit banks, and trust banks) being forced to disclose the magnitude of ‘loans to failed borrowers,’ which we label BAD1, and ‘loans to borrowers who can not pay within six months of due date,’ which we label BAD2 at the end of March 1993. First and second regional banks, which are on average smaller than large banks, were also forced to disclose BAD1, but they were not required to disclose BAD2.

Banks sometimes engaged in “evergreening” of loans, i.e. renegotiating loan interest rates and due dates in order to avoid default. This practice left disclosure of BAD1 and BAD2 insufficient to estimate a bank’s true financial condition. In response, since September 1995, large banks have also been required to disclose the magnitude of ‘loans with interest rates lower than Bank of Japan’s discount rates,’ which we label BAD3. Regional banks were initially exempt from this requirement.

Six months later, regional banks were also obligated to begin disclosing BAD2 and BAD3. At that time, large banks also began disclosing ‘the amounts of loans to borrowers whom banks supported,’ which we label BAD4.

Regulation forcing smaller regional financial institutions to disclose was slower in coming. In the early stages, the MOF encouraged, but did not force smaller financial institutions, such as Shinkin Banks and Credit Unions, to disclose these figures⁸. After the failure of several small financial institutions, however, the public demanded the disclosure of information concerning these small institutions’ financial condition as well.

The MOF began releasing figures for smaller banks in September 1995. However, the MOF responded by disclosing only the aggregate figures for problem loans in these financial

⁷ The figures are generally considered even higher in the late 1990s. An economist at Goldman Sachs estimates that the figure in 2001 is 236.6 trillion yen, or 50% of GDP. See Kashyap (2002).

⁸ Shinkin banks are special financial institutions that serve small and medium-sized businesses in localized areas. They are organized as non-profit cooperatives. Their members are small and medium enterprises and local residents. See Hsu (1999) for more details.

institutions. Individual bad loan figures were not released.⁹ The MOF defended its disclosure policy on the basis of concerns that adverse news about individual small banks might trigger runs. However, this policy was strongly criticized after many banks that reported adequate capital positions eventually failed. There was a growing consensus that transparency in the Japanese financial sector would facilitate the revitalization of the sector.

Because of this external pressure, the National Association of Shinkin Banks (NASB) recommended that the Shinkin banks holding deposits equal to or larger than 100 billion yen disclose their *BADI* positions at the end of March 1996 and that all Shinkin banks disclose their *BADI* positions at the end of March 1997. However, as we demonstrate below, some Shinkin that fell within this criterion did not disclose their bad loan figures at the end of March 1996. Indeed, a few Shinkin did not even disclose their bad loan figures by the end of March 1997.

In March of 1998, the NASB directed all Shinkin banks to disclose their *BADI*, *BAD2*, *BAD3*, and *BAD4* positions. It follows that the disclosure of balance sheet positions was “voluntary” for Shinkin banks only in 1996 and 1997. Table 1 summarizes the development of disclosure regulation in terms of financial institutions.

Table 1. “Bad-loan” Disclosure Requirements Among Japanese Financial Institutions^a

	BAD1	BAD2	BAD3	BAD4
Large Banks (City, long-term credit, and trust banks)	March 1993	March 1993	March 1996 ^b	September 1996 ^c
Regional Banks	March 1993	March 1996	March 1997 ^d	March 1997
Second Regional Banks	March 1993	March 1997 ^d	March 1997 ^d	March 1997
Shinkin Banks	March 1996 ^e	March 1998	March 1998	March 1998

a. This table is based on financial statement disclosure requirements. The total amount of bad loan that the entire deposit-taking financial institutions held has been disclosed since September 1995.

b. Voluntary disclosure has existed since September 1995. However, the figures were not included in the official financial statements for that year.

c. The figures have been voluntarily disclosed in annual report since March 1996.

d. The disclosure for March 1996 was voluntary and became required after March 1997. However, all banks actually voluntarily disclosed their figures in March 1996.

e. The National Association of Shinkin Banks recommended disclosure by Shinkin banks with deposits exceeding 100 billion yen. However, compliance was not universal.

⁹ The knowledge of aggregate problem loan figures by the MOF implies that small financial institutions calculated these figures, because the aggregate figure was calculated as the sum of these individual bank figures. Consequently, the claim sometimes made that smaller institutions were incapable of calculating their own problem loan figures appears to be implausible.

3. Previous Disclosure Studies

Because of the limited disclosure discretion faced by banks in the United States, evidence on voluntary bank disclosure in the US is limited. However, there is a large literature on voluntary disclosure across US corporations. Skinner (1994, 1997) posits that managers choose voluntary disclosure to limit exposure to stockholder litigation. Skinner (1994) finds that managers voluntarily disclose adverse earnings news “early,” or before the mandated release date. Skinner (1997) also finds that early voluntary disclosure lowers expected legal costs. These results suggest that managers voluntarily disclose bad news more than good news.

Other research investigates whether voluntary disclosure reduces the cost of capital, as enhanced disclosure reduces information asymmetries. Botosan (1997) finds that greater disclosure is associated with a lower cost of equity capital for firms with low analyst followings. Information asymmetries would be greatest among these firms. Lang and Lundholm (2000) find that firms increase their disclosure activity prior to an equity offering announcement.¹⁰ These results suggest that firms disclose favorable information to distinguish themselves from less successful firms.

Concerning the disclosure decisions of Japanese corporations, Cooke [(1991), (1992), (1996)] uses annual reports of Japanese corporations to measure the degree of voluntary disclosure. Cooke [(1991) and (1992)] finds that size is the most important determinant of voluntary disclosure by Japanese firms. In addition to size, Cooke [(1991), (1992)] finds that firm voluntary disclosure decisions are affected by their equity listing characteristics, including whether and where a firm is listed (domestically or internationally). He also finds that the degree of voluntary disclosure is affected by industry type, distinguishing between manufacturing and other industries, and by firm leverage.

Cooke (1996) examines the effect of Keiretsu membership on corporate disclosure. A firm in a Keiretsu may face a less severe information asymmetry problem than a firm that is not in one as it primarily obtains its financing from a Keiretsu main bank partner. Within the Keiretsu, information may be more widely shared already. This would give a firm within a Keiretsu less motivation to voluntarily disclose. However, after controlling for size, stock market listing status,

¹⁰ Lang and Lundholm also find that firms that *substantially* increase their disclosure activity before the offering suffer much larger price declines at the announcement of their intent to issue equity. They interpret this fact as suggesting these firms use voluntary disclosure to “hype the stock.”

leverage, and industry type, Cooke finds no evidence supporting the hypothesis that Keiretsu firms disclose less information than other firms.

Singleton and Globerman (2002) also find that larger Japanese corporations tend to disclose more information. Singleton and Globerman do not investigate the impact of equity-market-listings or industry-types because they limited their sample to manufacturing firms listed on the Tokyo Stock Exchange.

4. Hypotheses Concerning Disclosure levels

As our sample consists of only Shinkin banks, there is no issue of listing status or industry type. Rather than trading publicly, Shinkin banks are all unlisted closed membership cooperatives.¹¹ Also, due to regulatory constraints, the basic activity of Shinkin banks are all identical. That is, they collect deposit from their member firms and local depositors near their headquarters and lend to member firms. In this section, we elaborate on the hypotheses we test in our study.

4.1 Size

We expect size to have a positive effect on a firm's disclosure activity due to a number of reasons: First, as larger firms need to raise capital in the market more frequently, they are under greater pressure from shareholders and market analysts for increased disclosure. While Shinkin banks raise little capital in the market, larger Shinkin banks may face greater disclosure pressure from their depositors because they usually operate in more financially-sophisticated environments than smaller Shinkin banks. Customers (both depositors and borrowers) of larger Shinkin banks are more often approached by commercial bank competitors, such as city banks and regional banks. In contrast, small Shinkin banks usually enjoy relatively isolated long-term relationships with their member firms, and are not as exposed to market pressures. For example, the largest Shinkin bank in Japan, Jonan Shinkin bank, is located in Tokyo, the second largest Shinkin bank, Okazaki Shinkin bank, is located in Aichi, and the third largest Shinkin bank,

¹¹ Because Shinkin banks are unlisted, a number of the potential considerations for voluntary disclosure raised in the literature may not be relevant. For example, Healy and Palepu (2001) suggest that disclosure may reduce transactions costs in capital markets by lowering information asymmetries, affect corporate control contests, circumvent inside trade regulation when managers exercise stock options, or signal management talent. Some of these considerations may be irrelevant for unlisted Shinkin banks, while others may manifest themselves in different ways than they would under listed firms.

Kyoto-Chuo Shinkin banks, is located in Kyoto. These are all major urban areas with sophisticated financial environments.

Another reason to expect that voluntary disclosure would be positively related to bank size concerns economies of scale. In particular, smaller institutions often are too small to calculate financial information in a timely manner. For example, Kyobashi Shinkin bank employed only 23 managers and workers as of March 1998. However, we doubt the relevance of this human capacity argument for Shinkin banks. First, the bad loan amount figures we consider should be relatively easy for banks to calculate. Moreover, as the MOF has reported aggregate bad loan figures for Shinkin banks since 1995, they must have received the disaggregated number from all of the Shinkin banks, including the smaller ones.

Finally, there may be regulatory reasons for larger banks to be more likely to voluntarily disclose. The National Association of Shinkin Banks recommended, but did not require, disclosure by Shinkin banks with deposits exceeding 100 billion yen. Therefore, larger Shinkin banks were under more pressure from the NASB. On the other hand, bank regulation may induce a negative relationship between size and disclosure if larger Shinkin banks are considered too-big-to-fail. However, based on the results of Spiegel and Yamori (2003), we doubt this possibility because several banks larger than the largest Shinkin banks were allowed to fail by the time of our sample.

4.2 Leverage

Leverage has also been identified as an important determinant of voluntary disclosure. Firms with higher leverage ratios will incur higher monitoring costs. These costs may be alleviated by more comprehensive levels of disclosure [e.g. Cooke (1996)].

In addition, leverage levels affect depositors' interpretation of the severity of bad loan difficulties. Disclosure of bad loan levels may be positive news if they indicate that management intends to address a bank's bad loan problem. This would of course depend on a bank's capacity to address its difficulties, which would be greater at less leveraged banks, holding all else equal. This may leave managers of less leveraged banks more willing to disclose information on bad loans.

4.3 Adverse News

Whether disclosure revealed good or bad news concerning the bank's underlying financial position is obviously also relevant. As discussed above, however, the literature is mixed as to whether firms would be more willing to disclose good information or bad information.

Skinner (1994), among others, argued that managers had incentives to disclose adverse news to expected legal costs from failing to reveal such news and to enhance their reputations from the disclosure of such news. Darrrough and Stroughton (1990) argue that managers are more likely to disclose bad news for entry deterrence reasons. Teoh and Hwang (1991) argue that disclosing adverse reveals that a firm can handle the release of such news, and therefore serves as a positive signal of firm quality.

On the other hand, many studies predict that managers would be more willing to disclose relatively good news in order to distinguish their firms from the mean. For example, Lev and Panman (1990), among others, documented that managers disclose good news forecasts more often than bad news forecasts. Scott (1994), examining Canadian firms' voluntary disclosure of defined benefit pension plan information, also found that good news is more likely to be disclosed.

Verrecchia (1983) finds that more favorable news is more likely to be disclosed, although disclosure levels would be inversely related to disclosure costs. As we discuss above, however, we believe that disclosure costs were minimal for Shinkin banks because these figures were already being calculated and sent to the MOF. Chen et al. (2002), examining voluntary disclosure of balance sheet information in quarterly earnings announcements, argued that it is unlikely that disclosure-related costs are a consideration in management's disclosure decision.

Usually, one would have difficulty calculating the impact of news quality on the disclosure decision, as conditions faced by banks deciding not to disclose would be unobservable. However, in the case of our sample, all Shinkin banks have faced compulsory disclosure since March 1998. Although there will be some disparities, we believe that the disclosure figures in March 1998 are good predictors of conditions that were not disclosed in 1996 and 1997.

We can test this conjecture by looking at the correlation among banks that did choose to disclose during the voluntary periods. The correlation coefficient between *BADI* in March 1996 and that in March 1998 is 0.88 for Shinkin banks that disclosed both figures and the correlation

coefficient between *BADI* in March 1997 and March 1998 is 0.94. These high correlation coefficients would appear to confirm our conjecture.

4.4 Market Structure

Shinkin Banks generally operate within a prefecture or smaller region where their headquarters are located. Although these banks specialize in small-size business lending, they do face competition from the rest of the banking industry within their area. It is well known that the level of this competition varies greatly across the nation [Kano and Tsutui (2003)].

We would expect a bank that operated in a more competitive market to be more likely to pursue voluntary disclosure for a number of reasons: First, a bank in a more competitive market would be likely to need to be more responsive to depositor demands for disclosure. Second, one would expect that in a less competitive market, banks would be less likely to voluntarily disclose information that was of potential use to rival banks.¹²

4.5 Data

Our dependent variable is binary, representing the discrete disclosure decision of a Shinkin bank concerning the relevant bad loan measure. Our data source is *Financial Statements of Shinkin Banks* (FSSB) which is published annually by the Kinyu Tosyo Consultant Sha. This is the only available data source regarding Shinkin banks. If the relevant figures are not reported in the FSSB, then we assume that the Shinkin banks did not disclose these figures.¹³

The level of Shinkin bank disclosure in our sample is summarized in Table 2. There were 416 Shinkin Banks at the end of March 1996, and 407 at the end of March 1997. At the end of March 1996, 305 of the 416 Shinkin banks disclosed *BADI*. No banks disclosed *BAD2* or *BAD3*.

¹² Chen et al. (2002) finds that investors demand greater disclosure when reported losses are higher. In response, managers disclose more when reported losses are large. Therefore, we include profits as a proxy for expected future performance. However, profits also increase a bank's ultimate capacity to write off its bad loans. The impact of profitability on willingness to disclose is therefore ambiguous.

We added the natural log of business profits (*Gyomu-rieki*) as of March 1998 in our first stage estimation. However, this variable was insignificant. To save space, we report only our results without the Business Profit variable.

¹³ There is a possibility of errors in some of our Shinkin bank disclosure indicators. A footnote in the FSSB notes that 18 Shinkin banks claimed that their figures were not available at the FSSB's publication deadline for the March-1996 version, but that they would be disclosed later. However, this claim appears to be dubious, as the publication deadline occurred after the June members' meeting, for which financial statements would have to be calculated and approved by auditors. We therefore treat these 18 banks as failing to disclose. Information is unavailable as to whether or not they did eventually disclose their positions that year. We therefore check the robustness of our results below by re-running our specification with these 18 Shinkin banks excluded from our sample.

We use a qualitative variable, *DISC96* as our dependent variable for the March 1996 sample. *DISC96* takes unit value if the Shinkin bank disclosed *BADI* in March 1996 and zero value otherwise.

For March 1997, only 33 Shinkin banks, or 8% of the industry, pursued no voluntary disclosure. 139 out of the 407 Shinkin Banks disclosed *BADI*, *BAD2*, and *BAD3*. While this represented an increase in disclosure levels, it still fell below the rest of the financial sector. Large banks had all disclosed *BADI*, *BAD2*, and *BAD3* since September 1995, while regional banks had disclosed *BADI*, *BAD2*, and *BAD3* since March 1996. For our March 1997 sample, we use an ordered-dummy variable, *DISC97*, to indicate disclosure intensity. *DISC97* takes value zero if a Shinkin bank did not disclose *BADI*, takes value one if it disclosed only *BADI*, and takes value two if it disclosed both *BADI* and *BAD2*. Similarly, it takes value three if it disclosed *BADI*, *BAD2*, and *BAD3*.¹⁴

Table 2 also displays the geographic distribution of Shinkin disclosure. It can be seen that the magnitude of disclosure by Shinkin banks is asymmetric by region. For example, 94% of Shinkin banks in Kanto (excluding Tokyo) disclosed *BADI* at the end of March 1996, while only 46% of Shinkin banks in Tohoku disclosed *BADI* in that year. This suggests that regional factors also affect the disclosure decision of Shinkin banks.

Concerning the independent variables, we use assets as of March 1998 as a proxy for size (*LASSET*). We use the capital ratio as of March 1998 as a proxy of bank leverage (*CAPRATIO*). We use two measures of the severity of bad loan news contained in the disclosure. *HATANRATIO* is defined as the ratio of *BADI* to total loans on March 1998. *FURYORATIO* is defined that the ratio of *BAD2* and *BAD3* to total loans on March 1998¹⁵.

We also use two measures of market competitiveness. *LGDPBRANCH96* is defined as the log of Gross Prefectural Product (for fiscal year 1995, ending at March 1996) divided by total bank branches and Shinkin banks in March 1996. *LGDPBRANCH97* is defined in the same manner and is used for the 1997 disclosure decision estimation. A low value of *LGDPBRANCH*

¹⁴ Scott (1994) uses a similar ordered-dummy variable method to indicate disclosure levels. In his study, firms can disclose both pension costs and interest assumptions, only pension costs, or neither.

¹⁵ We do not anticipate any causality problems with these variables. Bank bad loan problems had been growing since the late 1980s, while Shinkin banks were not required to disclose their bad loan amounts before the mid-1990s. It is therefore unlikely that disclosure affected the severity of the bad loan problem in our sample. Of course, both disclosure levels and bank performance may be endogenous, leading to spurious correlation. See Core (2001) for further discussion.

would imply greater competition in that prefecture. Therefore, the coefficient on *LGDPBRANCH* is expected to be negative as competition would force banks to disclose more information.

Table 2. The Disclosure Levels of Shinkin Banks by Region

Area	March 1996			March 1997				
	Nothing	BAD1	Total	Nothing	BAD1	BAD1+2	BAD1+2+3	Total
Hokkaido	13	19	32	1	19	0	12	32
Tohoku	21	18	39	2	15	3	12	35
Kanto (excluding Tokyo)	3	47	50	1	39	1	9	50
Tokyo	12	39	51	7	38	1	1	49
Koushinetsu	3	17	20	1	10	0	9	20
Hokuriku	8	17	25	1	4	0	20	25
Tokai	1	46	47	1	20	0	26	47
Kinki	9	44	53	6	32	0	15	53
Chugoku	18	20	38	2	25	0	7	36
Shikoku	2	12	14	1	3	0	10	14
Kyushu	21	26	47	2	25	0	18	46
Total	111	305	416	24	230	5	139	398

Notes: Nothing: No disclosure regarding any kinds of bad loans.

BAD1: Only loans to failed companies are disclosed.

BAD1+2: Loans to failed companies and loans six month overdue are disclosed.

BAD1+2+3: In addition to above two loans, loans whose interest rates are lower than Bank of Japan's discount rates are disclosed.

5. Results

5.1 Results for Failed Banks

Before formally investigating the determinants of Shinkin bank disclosure, we first check the disclosure patterns of the subset of Shinkin banks that failed after the end of March 1997.

There was one Shinkin bank failure in 1999, seven in 2000, six in 2001, and 13 in 2002. Disclosure decisions for these failed banks are compared to the rest of the sample in Table 3. Our results demonstrate that these failed 27 Shinkin banks chose disclosure less frequently than the rest of the sample. Only 50% of Shinkin banks that failed between 1998 and 2001 disclosed *BADI* in March 1996, while 75% of the surviving Shinkin banks reported *BADI* in that year.

Table 3. Disclosure by Failed Shinkin Banks

Ex Post Solvency	<i>March 1996</i>		<i>March 1997</i>			
	Total	BAD1	Total	BAD1	BAD2	BAD3
	<i>Number</i>					
Not Failed	389	291	371	345	131	126
Failed in 1999, 2000, and 2001	14	7	14	10	2	2
Failed in 2002	13	8	13	10	2	1
	<i>Ratio</i>					
Not Failed	389	75%	371	93%	35%	34%
Failed in 1999, 2000, and 2001	14	50%	14	71%	14%	14%
Failed in 2002	13	62%	13	77%	15%	8%

Note: Failure date was based on when the Deposit Insurance Corporation decided to give funds to merging institutions.

It is also interesting to compare Shinkin banks that failed during 1998 to 2001 with those that failed in 2002. The former group, for whom failure was apparently more imminent in March 1997, were more reluctant to disclose bad loan information than the latter group. This finding is consistent with the hypothesis that banks with solvency problems and adverse news disclosed less and that the magnitude of their difficulties affected their disclosure decision.

5.2 Disclosure Decisions in March 1996

As our dependent variable is binary, we report the results of both OLS and PROBIT estimation. Missing data reduced our sample size from 416 banks to 387 banks.¹⁶

Our results for 1996 are shown in Table 4. The results for OLS or probit estimation are essentially the same. First, our size variable, *LASSET*, is positive and significant as predicted and consistent with earlier studies.¹⁷

Table 4. Estimation Results for Disclosure Choices

Variable	March 1996		March 1997			
	OLS	Probit	OLS	Ordered Probit	OLS Binary Disclosure	Probit Binary Disclosure
Constant	-1.908** (0.418)	-11.758** (2.015)	2.845** (1.131)		1.102** (0.525)	1.635 (1.611)
LASSET	0.210** (0.022)	1.045** (0.129)	0.090 (0.059)	0.144** (0.072)	0.026 (0.027)	0.084 (0.083)
CAPRATIO	0.002 (0.006)	0.001 (0.028)	0.044** (0.018)	0.050** (0.022)	0.019** (0.008)	0.045* (0.025)
HATANRATIO	-2.765** (1.249)	-10.285** (5.179)	-1.226 (3.501)	-0.597 (4.260)	-1.108 (1.627)	0.293 (5.453)
FURYORATIO			-8.688** (2.331)	-8.851** (2.853)	-4.524** (1.083)	-25.161** (5.236)
LGDPBRANCH96	0.034 (0.085)	0.084 (0.375)				
LGDPBRANCH97			-0.467** (0.237)	-0.552* (0.291)	-0.208* (0.110)	-0.560* (0.340)
# of observations	387	387	382	382	382	382
Adjusted R-squared	0.246		0.121		0.139	
Log likelihood	-160.603	-150.215	-527.081	-329.22	-234.28	-215.097
LR Index (Pseudo R-squared)				0.060		
MacFadden R-squared		0.288				0.149
%correct		80.10				67.02

(note) the figures in the parentheses are standard errors.

** Statistically significant at 5% confidence level.

* Statistically significant at 10% confidence level.

¹⁶ Financial statements as of March 1998 for 29 Shinkin banks were not available because of mergers or failures.

¹⁷ One interesting possible reason for our positive coefficient was that too-big-to-fail protection was not extended to Shinkin banks at the time of our study. The lack of too-big-to-fail protection would encourage depositors to pressure their Shinkin banks into disclosing their bad loan positions. The conjecture that Shinkin banks were not protected by such policy would be consistent with the results in Spiegel and Yamori (2003).

It appears that the primary motivation for the more frequent disclosure by larger Shinkin banks was the NASB recommendation that Shinkin banks holding larger than 100 billion yen deposits disclose their values of *BADI*. To investigate this possibility, we split the sample into two sub-samples based on whether deposit amounts in March 1998 were larger or smaller than 100 billion yen. Out of the 245 Shinkin banks exceeding this deposit level in 1998, only 14 did not disclose their values of *BADI* in March 1996. In contrast, out of the 142 Shinkin banks with less than 100 billion yen in assets, 65 did not disclose *BADI*. Therefore, the NASB's recommendation was apparently an important factor Shinkin bank disclosure decisions.¹⁸

The estimated coefficient on our leverage measure, *CAPRATIO*, is positive but insignificant, implying that leverage was not a very important factor in 1996 disclosure choices.

Turning to our bad loan measures, the estimated coefficient for *HATANRATIO* is significantly negative at the 5% critical level for both specifications. This suggests that Shinkin banks that held more bad loans were less likely to disclose *BADI* in March 1996. This implies that Shinkin banks were more likely to withhold bad information. However, the estimated coefficient for *LGDPBRANCH96* is not significant and unexpectedly positive. This suggests that disparities in market competition did not influence disclosure decisions in 1996.¹⁹

5.3 Disclosure Decisions in March 1997

As *DISC97* is also a qualitative dependent variable, we again report the results of both OLS and ordered probit estimation. Our specification now also includes the *FURYORATIO* variable. As shown in Table 2, most Shinkin banks disclosed *BADI* for March 1997. Therefore, *HATANRATIO* was disclosed for most Shinkin banks, while *FURYORATIO* was still undisclosed for most banks.

¹⁸ As discussed in Section 3, larger banks are in general under more competitive pressure. The competition effect may be another reason for this positive coefficient. In fact, the coefficient for *LASSET* is still significantly positive for a large Shinkin sub-sample. This suggests that in addition to NASB's recommendation, other factors, such as competition, may affect the disclosure decision.

¹⁹ Twelve Shinkin banks claimed that they planned to disclose *BADI* in 1996, but were late for the publication date. We classified these banks as failing to disclose their bad loan positions. However, to check the robustness of our results, we re-estimated our specification with these 12 Shinkin banks omitted. Our results remained qualitatively the same and are available from the authors upon request.

The results are shown in Table 4. The coefficient for *LASSET* is positive for both the OLS and ordered probit estimations. These results suggest that size was still an important determinant of Shinkin banks' disclosure decisions in 1997.²⁰

The coefficient on our leverage variable, *CAPRATIO*, is now significant. This is quite distinct from our 1996 results and appears to be attributable to the decline in Japanese financial conditions between 1996 and 1997. With this decline in financial conditions, the value to sound banks of distinguishing themselves from the rest of the industry was increased.

Both *HATANRATIO* and *FURYORATIO* take their expected negative coefficients as adverse news is less likely to be disclosed. However, the *HATANRATIO* coefficient is insignificant in both models, while the coefficient for *FURYORATIO* is highly significant in both models. This disparity appears to be attributable to the fact that by 1997 there was little variability across Shinkin banks in the disclosure of *BADI*, as almost all banks disclosed this figure.

The coefficient for *LGDPBRANCH97* is now significantly negative at around 5% the critical level. This suggests that competition promotes bank disclosures, as predicted.

To check our robustness, we considered an alternative indicator of disclosure in 1997. We specify *DISCL97b* as a binary variable that takes value zero if there was no disclosure or if only *BADI* was disclosed, and value one otherwise. Under this specification, 238 Shinkin banks in the sample are given value zero, and 144 Shinkin banks are given value 1. The results are shown in Table 4. The size variable, *LASSET*, is now insignificant, but the remaining results are all the same. The coefficients on *CAPRATIO*, *FURYORATIO*, and *LGDPBRANCH97* all enter significantly with their predicted signs. We therefore conclude that our results are fairly robust to using a binary dependent variable for the 1997 sample.

6. Conclusion

Disclosure is widely regarded as a necessary condition for market discipline in a modern financial sector. However, the determinants of disclosure decisions are still unknown, particularly among banks. To formulate optimal disclosure policy, it is necessary to know what factors affect disclosure decision of banks. In this paper, we investigate the determinants of

²⁰ There was a decrease in the significance level compared with the results for March 1996. This decrease is partially attributable to the fact that OLS is an inappropriate estimation method for four-ordered dependent variables. However, it is also in part likely to be attributable to the fact that pressure to disclose was more universal.

Shinkin banks' bad loan disclosure for March 1996 and 1997. This period is unique because disclosure was voluntary for Shinkin banks during this time.

We obtain several interesting results. First, banks with more serious bad loan problems were less likely to choose to voluntarily disclose. Second, market forces, as measured by the intensity of local competition, did not force banks to disclose more information in March 1996, but did in March 1997. Third, larger Shinkin banks were more likely to disclose information, consistent with the corporate literature on disclosure.

There are several questions for future investigation. First, in this paper, we only investigated the decision to disclose bad loan ratios. Some analysts contend that bad loan disclosure is insufficient to evaluate banks' financial conditions. It is therefore important to examine the determinants of disclosure of other types of bank information. Second, the credibility of the disclosed information is another problem in Japan²¹. As Hutchison (1997) pointed out, the MOF several times changed financial disclosure and accounting rules to allow stock losses to be deferred and to delay the effect of real estate price declines on banks' reported capital. The credibility of banks' disclosed information could affect their decisions as to whether or not to disclose.

Third, our study demonstrates that weak banks are less likely to voluntarily disclose. There may therefore be a role for compulsory disclosure, as such a requirement may disproportionately fall on weaker banks. It would be interesting to evaluate the impact of such disclosure requirements on bank behavior.

Finally, the impact of disclosure on bank systematic risk is also of interest. Banks' assets are opaque, in the sense that it is hard for outsiders to evaluate bank loan quality due to information asymmetry. Furthermore, banks rely heavily on short-term liabilities. Disclosure by individual banks may trigger market-wide actions by private stakeholders, leading to systemic risk [Federal Reserve System Study Group on Disclosure (2000)].²² Regarding U.S. banks, Jordan et al. (2000) found that disclosure was not destabilizing. It would be interesting to examine if this was also the case for Japan.

²¹ Although only limited information is available, there is some evidence that Japanese markets did discipline riskier banks (e.g., Genay 1999, Yamori 1999, Bremer and Pettway 2002). Therefore, disclosure may enhance market discipline.

²² For example, Cordella and Yeyati (1998) construct a theoretical model to study the effect of disclosure on the probability of banking crises. They find that when banks do not control their risk exposure, disclosure may increase the probability of bank failures.

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