

**The Effect of Bank's Disclosure
on the Market Reaction to and Loan Loss Provisions**

Hyosoon Choi and Wook Sohn*

ABSTRACT

This paper examines whether a bank's disclosure level affects the loan loss provision (LLP) and the stock price's response to it using commercial banks and bank holding companies in 41 countries. We find that banks with higher disclosure levels tend to do less discretionary LLPs after controlling for the banks' incentives for discretionary accounting and the level of their home country's disclosure requirements and private monitoring. We also find that the stock prices of banks with higher disclosure levels respond less to LLPs than do those of banks with lower disclosure levels. These results imply that public disclosure has a commitment effect on bank managers' LLP accounting and reduces surprises from LLP announcements.

JEL Classification: G21, G28

Keywords: Bank's disclosure, Discretionary accounting, Loan loss provision, Stock price response, Commitment effect

* Hyosoon Choi: Korea Deposit Insurance Corporation, 33 Da-Dong, Seoul, 100-180, Korea; phone: 82-2-758-0613; e-mail: hschoi@kdic.or.kr. Wook Sohn: KDI School of Public Policy and Management, 207-43 Cheongnyangri 2-Dong, Seoul 130-868, Korea; phone: +82-2-3299-1062; e-mail: wooksohn@kdischool.ac.kr.

1. Introduction

More corporate disclosure provides more information, upon which market participants make their investment decisions for corporations. A great number of studies deal with economic consequences of enhanced disclosure.¹ One of the channels that connect corporate disclosures to economic consequences is the commitment effect (or governance role) of public information on corporate managers. According to this argument, the corporate disclosure level affects managers' investment decisions, risk taking, external financing and so on.

Due to banks' opacity, it is not easy for investors to understand their true value (Morgan, 2002). Even though most bank regulators have increased their requirements for banks to disclose more information, bank managers' discretionary accounting remains a prominent obstacle in understanding banks' value. This paper investigates whether banks' disclosure levels affect their discretionary accounting practices in loan loss provisions (LLPs) to which little attention has been paid. This paper also examines whether the banks' stock price responses to loan loss accounting information reflects the banks' disclosure level.

Having more information on a corporation can increase market participants' sophistication, which may enhance the participants' ability to analyze the managers' accounting reports. If corporate managers perceive this relationship, their discretionary

¹ Bushman and Smith (2003) argue that economic performance is affected by publicly reported financial information through three channels: project identification by managers and investors, governance on managers, and reduction in information asymmetries among investors.

accounting should be affected by the disclosure level. We hypothesize that banks with more disclosure levels do less discretionary LLPs than banks with less disclosure levels do. In testing this hypothesis we control for not only the incentives for discretionary LLPs – income smoothing, prospect signaling and capital management – but also the level of disclosure requirements and private monitoring of the banks' home country. Previous literature reports that banks' investors respond positively to discretionary LLPs and negatively to non-discretionary LLPs, but few studies identify the mitigating factors such as disclosure level which affect the investors' responses to the LLPs. In this vein, this paper hypothesizes that the price responses to LLPs are weakening due to the reduction in informational asymmetry caused by more disclosures.

The commitment effect of public disclosure on managers' discretionary reporting is an important issue for several reasons in terms of the scope of disclosure as well as the quality of the disclosed information. First, other roles that govern managers' behaviors are subject to evaluation by the accounting number reported, which is at the managers' discretion. Second, the feasibility of disclosure requirements as a tool of controlling discretionary accounting can be examined. Third, because both disclosure and accounting choice are discretionary and can possibly affect each other, the investigation of the relationship between them is helpful to form effective regulatory policy and to understand the quality of information disclosed.

The sample consists of 168 commercial banks and 76 bank holding companies from 41 countries over the period from 1997-2004. Individual banks' disclosure levels are obtained from two indices: the scope of individual banks' information disclosed in annual reports using the Baumann and Nier (2004) model and each country's degree of

bank disclosure requirements using a sub-index of the Barth et al (2004). Finally, the extent of discretionary LLPs is estimated based on the Beaver and Engel (1996).

We find that banks with higher disclosure levels tend to do less discretionary provision for loan losses after controlling for other discretionary provision incentives – income smoothing, prospect signaling and capital management – and country-level disclosure requirements and private monitoring. We also find that the stock prices of banks with higher disclosure levels respond less negatively (positively) to non-discretionary (discretionary) LLPs than do those of banks with lower disclosure levels. These findings imply that public disclosure has a commitment effect on bank managers' LLP accounting behaviors and reduces surprises in the stock markets from LLP announcements.

This paper is organized as follows. Section 2 describes the relationship between banks' disclosure and discretionary LLP accounting. Section 3 explains the methodology of research, sample and data used in this paper. In Section 4 we conduct the regression analyses and discuss the results. Section 5 draws conclusions.

2. Banks' disclosure and LLP accounting

The possible commitment effect of banks' disclosure is theoretically constructed by Cordella and Yeyati (1998) and Boot and Schmeits (2000). A bank that discloses its risk profile exposes itself to market discipline and will therefore be penalized by investors for choosing higher risk. Commitments to higher disclosure quality increase the precision of publicly available information about management's investment and operating

decisions; hence, disclosure commitments potentially reduce management's proclivity to invest in assets that destroy shareholder value (Kanodia and Lee, 1998; Healy and Palepu, 2001; Bens and Monahan, 2004).

More information on corporations can make market participants more sophisticated, which enhances their ability to recognize the managers' intention regarding discretionary accounting. Corporate managers' perception of this situation may affect their discretionary accounting. While many studies deal with the governance effect on bank managers' risk taking, little research examines the governance effect on managers' accounting and reporting behavior.²

A LLP is a large accrual for banks and, therefore, significantly impacts banks' earnings and value. In principle, the purpose of LLP is to adjust banks' loan loss reserves to reflect expected future losses on their loan portfolios. However, bank managers also have incentives to use LLPs to manage earnings and regulatory capital, and to signal private information about future earnings (Ahmed et al, 1999). Plenty of studies have focused bank managers' incentives for discretionary LLPs and empirical evidence on the incentives for discretionary provisions is not unanimous.³

There are a few studies that identify banks' disclosure as an intermediate factor between their discretionary loan loss accounting and their stock price response to it. Shaw (2003) finds that firms with higher-quality disclosures use discretionary accruals to

² One exception is Berger and Hahn (2003), who examine the impact of the promulgation of Statement of Financial Accounting Standards (SFAS) #131 on multi-segment firms. They find that firms facing the increased segment disclosure requirements of SFAS #131 experienced an increase in the likelihood of being taken over, suggesting that improved disclosure plays a governance role.

³ For an excellent literature review of banks' loan loss provision decisions, see Anandarajan et al (2005).

smooth earnings more aggressively than firms with lower-quality disclosures. However, it does not seem to prove the commitment effects of more disclosures on managers' accounting choices because the result may suggest that firms disclose more information because they are already doing more discretionary accounting.⁴

Beaver et al (1989) suggest that investors interpret an increase in LLPs as a sign of strength. Consistent with this signaling hypothesis, Wahlen (1994) documents a positive relationship between unexpected LLPs and contemporaneous stock returns. Beaver and Engel (1996), Liu and Ryan (1995) and Liu et al (1997) refine the result and document that the stock market responses to LLPs' discretionary and non-discretionary components are positive and negative, respectively, although Ahmed et al (1999) find contradictory evidence in the stock returns-based test.

3. Research design

Measuring disclosure level

This study uses the index model constructed by Baumann and Nier (2004) to measure bank's disclosure level. This index represents whether a bank discloses one or more sources of risk (e.g., interest rate risk, credit risk, liquidity risk, market risk) in the BankScope database. This composite index aggregates 17 dimensions of accounting

⁴ Kasznik (1999) reports that firms that disclose an earnings forecast manage their earnings using discretionary accruals toward their forecasts.

information in their published reports (see Appendix for the list of the 17 accounting information).

Measuring discretionary LLPs

Existing literature on bank loan loss accounting defines discretionary LLPs as a residual in the regression of total LLPs. This paper uses the Beaver and Engel (1996) model, which is modeled under the assumption that normal, non-discretionary LLPs can be explained by several loan related variables as follows:

$$LLP_{it} = \alpha_0 (1/GBV_{it}) + \alpha_1 NCO_{it} + \alpha_2 \Delta LOAN_{it} + \alpha_3 \Delta NPL_{it} + \alpha_4 \Delta NPL_{it+1} + Z_{it} \quad (1)$$

where LLP is loan loss provision, GBV is net book value of equity plus total reserve for loan losses, NCO is net charge-offs, $\Delta LOAN$ is the most recent change in total loans ($LOAN_t - LOAN_{t-1}$), ΔNPL is the most recent change in nonperforming loans ($NPL_t - NPL_{t-1}$), ΔNPL_{t+1} is one period-ahead change in nonperforming loans ($NPL_{t+1} - NPL_t$), and finally Z_{it} is regression residual.⁵ All variables are deflated by gross book value (GBV).

The random error term Z_{it} of Model (1) is an estimated discretionary part of LLP. If this discretionary LLP is caused by the bank's incentives for earnings management,

⁵ Firm size (GBV), net charge-off (NCO), change in total loan ($\Delta LOAN$) and change in non-performing loan (ΔNPL) have been proven in previous studies to be related to the normal, non-discretionary level of LLP.

signaling for future prospects and capital management, as reported in the previous literature, then Z_{it} can be explained by proxy variables indicating for those incentives.

$$Z_{it} = \lambda_0 + \lambda_1 EBTP_{it} + \lambda_2 \Delta EBTP_{it+1} + \lambda_3 CAP_{it} + \varphi_{it} \quad (2)$$

where $EBTP$ is net income before taxes and provision for loan losses, $\Delta EBTP_{t+1}$ is one-period ahead change in $EBTP$, and CAP is regulatory capital ratio.

Testing hypotheses

The primary question of this study is whether the banks' disclosure level affects the level of discretionary LLP. We hypothesize that more disclosure induces less discretionary LLP because of the disclosed information's governance effect. To test this hypothesis, the LLP is regressed on the disclosure level using the following model which comes from Models (1) and (2).

$$\begin{aligned} LLP_{it} = & \beta_0 + \beta_1(1/GBV)_{it} + \beta_2 NCO_{it} + \beta_3 \Delta LOAN_{it} + \beta_4 \Delta NPL_{it} + \beta_5 \Delta NPL_{it+1} \\ & + \beta_6 EBTP_{it} + \beta_7 \Delta EBTP_{it+1} + \beta_8 CAP_{it} + \beta_9 DDISC_{it} + \beta_{10} PMI_{it} \\ & + \beta_{11} DDISC * PMI_{it} + \varepsilon_{it} \end{aligned} \quad (3)$$

where $DDISC$ is individual bank's disclosure score, PMI is a country's private monitoring index, and ε_{it} is regression residual. An interaction term of $DDISC$ with PMI is also included as an explanatory variable.

It is important to distinguish mandatory disclosures from voluntary disclosures because they may have greatly different incentives and policy implications. So an individual bank's disclosure level is measured relative to a country's minimum disclosure requirements because the minimum disclosure level can be interpreted as the mandatory disclosures required by regulators. This gives the variable *DDISC* which is individual bank's disclosure level minus minimum disclosure score of each country and in each year. Beyond this regulatory requirement, a country's private monitoring environment may affect bank managers' discretionary accounting. The variable *PMI* is introduced to control this private monitoring level of a country. This variable is measured by an index model developed by Barth et al (2004), which includes information on the extent to which bank regulators force banks to maintain the accuracy of information disclosed to the public.⁶ The variables *EBTP*, $\Delta EBTP_{t+1}$ and *CAP* are employed to control for bank managers' incentives to use LLPs as a tool for earnings management, signaling future prospects and capital management, respectively. The coefficient β_9 in Model (3) captures voluntary disclosure's effects on discretionary LLP, and is expected to be negative.

The next question of this study is whether stock prices' responses to banks' discretionary LLPs are affected by the banks' disclosure level. To answer this question, we construct the base regression model as follows:

$$MV_{it} = \gamma_0 + \gamma_1 LLP_{it} + \gamma_2 DLLP_{it} + \gamma_3 NPL_{it} + \gamma_4 EBTP_{it} + \gamma_5 \Delta EBTP_{it+1}$$

⁶ As introduced in the appendix, Barth et al's (2004) private monitoring index includes sub-indices determined by a regulatory regime, not by a private sector. But, in the sense that such a regime also formulates the environment under which private investors make their decisions, private monitoring level needs to be controlled for when testing the effect of an individual bank's disclosure.

$$+\sum \gamma_6 Y E A R s + \delta_{it} \quad (4)$$

where MV is total market value of equity, $DLLP$ is discretionary LLP, $\Delta EBTP$ is change in EBTP, $YEARS$ are dummy variables for fiscal years from 1998-2004 with a reference year of 1997, and δ_{it} is regression residual.

The general conclusion of existing literature is that the stock prices respond negatively to the non-discretionary LLP and positively to the discretionary LLP. This result is attributed to investors interpreting that the unexpected increase in LLP signals a bank's financial strength or a bank's intention and ability in its management of problem debts. We hypothesize that the market reactions will be less evident for higher-disclosing banks; that is, the more disclosure, the less positive effects for discretionary LLP and less negative effects for non-discretionary LLP. We set a regression model as follows to test this hypothesis.

$$\begin{aligned} MV_{it} = & \gamma_0 + \gamma_1 LLP_{it} + \gamma_2 DDISC * LLP_{it} + \gamma_3 DLLP_{it} + \gamma_4 DDISC * DLLP_{it} \\ & + \gamma_5 PMI_{it} + \gamma_6 NPL_{it} + \gamma_7 EBTP_{it} + \gamma_8 \Delta EBTP_{it+1} \\ & + \sum \gamma_9 Y E A R s + \delta_{it} \end{aligned} \quad (5)$$

where interaction terms of $DDISC$ with LLP and $DLLP$, and PMI are added as explanatory variables to Model (4). The coefficients γ_2 and γ_4 in Model (5) capture the effects of disclosure level measured at bank level on investors' responses to non-discretionary and discretionary LLP, respectively.

Sample and data

The sample for this study consists of 168 banks and 76 bank holding companies from 41 countries. To be included in the sample, a bank must satisfy the following requirements over the period from 1997-2004: a security is listed on the stock exchange market, security price data are available in Bloomberg database, annual financial data are available in the BankScope database for four or more years, and average total asset is greater than 10 billion US dollar. These criteria result in 1,734 bank-year observations for the initial sample. Due to the first-differencing in total loans and one-year-ahead changes in earnings before taxes and provision, the final number of bank-year observations becomes 1,246, which includes 832 commercial banks and 414 bank holding companies.

4. Empirical evidence

Table 1 provides the descriptive statistics on bank disclosure. The average disclosure level of banks is 0.719 and that of commercial banks is not different from that of bank holding companies, although the standard deviation of the former (0.083) is less than that of the latter (0.138). On the other hand, the individual disclosure level's deviation from the minimum disclosure level in each country (*DDISC*) is smaller for commercial banks (0.178) than for bank holding companies (0.307).

Table 2 reports descriptive statistics on the LLP, market value and control variables and Table 3 shows the correlation coefficients of variables selected from them. We find that correlations between *LLP* and loan related variables are not so great except for that between *LLP* and *DLLP* (0.786). In regard to the disclosure variable, *DDISC* and

PMI have the same sign of correlations with loan related variables, but their relationships to the market value (*MV*) is opposite each other.

Disclosure's governance effect on LLP

Table 4 shows the ordinary least square regression results of models (1) to (3) for the effects of banks' disclosure level on the discretionary LLP. The estimated coefficient for the disclosure variable, β_9 , is negative (-0.438) and statistically significant at 1% level, which implies that banks with higher disclosure scores do less discretionary LLP than do banks with lower disclosure scores. The table also shows that banks whose home country's private monitoring level is high tend to do less discretionary LLP than banks with a lower level of private monitoring in their home country (the coefficient is -0.081 with $t = -2.100$). We interpret these results as disclosure's governance and monitoring effects, respectively. However, the estimated coefficients of *DDISC* and *DDISC*PMI* have an opposite sign and the total impact of *DDISC* on the LLP 0.003 for the average value of *PMI* (0.668). This result implies that a private monitoring level diminishes the impact of disclosure level on the LLP.

Consistent with previous studies, the estimated coefficients of the control variables *EBTP*, $\Delta EBTP_{t+1}$ and *CAP* show that there are significant incentives for discretionary LLP – income management, signaling future prospects and capital management, respectively. The employment of disclosure related variables in model (3) improves its ability to explain LLP according to the adjusted R^2 over the model (2) without those variables.

There is a possibility of an inverse relationship between the discretionary LLP and the disclosure level; that is, banks doing less discretionary LLP may disclose more than banks doing more discretionary LLP. To test this possibility, we run a two step least square regression. It turns out that this endogeneity possibility does not change the results qualitatively (see Table 5).

Disclosure's effect on the market reactions to LLP announcements

The next question of this study is whether the disclosure level plays a moderating role in the relationship between stock market responses to bank's LLP announcements. Table 6 shows that the estimated coefficients of *LLP* and *DDISC*LLP* are -3.565 and 12.375, respectively. The impact of *LLP* on the equity market value can be produced using the equation $-3.565 + 12.375 * DDISC$. Plugging the average value of *DDISC* (0.221) generates the total impact of *LLP* of -0.830. We see from this result that when disclosure level is zero, the impact of *LLP* on the equity market value is negative and large; and that as the disclosure level rises, the impact of *LLP* is reduced and the impact turns positive for the average disclosure level of banks. Similarly, the estimated coefficients of *DLLP* and *DDISC*DLLP* have an opposite sign and the total impact of *DLLP* on the equity market value is -1.232 for the average banks. These results imply that as a bank's disclosure level rises, it diminishes the information asymmetry between the bank and investors, which leads to a less surprising response of investors to both non-discretionary and discretionary LLPs.

5. Conclusion

This paper examines whether banks' disclosure level affects the discretionary LLPs and stock price responses to the discretionary LLPs using commercial banks and bank holding companies from 41 countries during the period from 1997-2004. The results show that banks with higher voluntary disclosure scores tend to do less discretionary provision for loan losses after controlling for other discretionary provision incentives – income smoothing, prospect signaling and capital management – and for disclosure requirements and private monitoring at the country level. The results also show that the stock prices of banks with higher disclosure scores respond less negatively (positively) to the non-discretionary (discretionary) LLPs than do those of banks with lower disclosure scores. These results imply that public disclosure has a governance effect on bank managers' loan loss accounting and reduces the market reactions to banks' LLP decisions.

Appendix

Disclosure Index (Baumann and Nier, 2004)

s1. Loans by maturity	s7. Securities by holding	s12. Reserves
s2. Loans by type	purpose	s13. Capital
s3. Loans by counterparty	s8. Deposits by maturity	s14. Contingent liabilities
s4. Problem loans	s9. Deposit by type of	s15. Off-balance-sheet
s5. Problem loans by type	customer	items
s6. Securities by type	s10. Money market funding	s16. Non-interest income
	s11. Long-term funding	s17. Loan loss provisions

Private Monitoring Index (Barth et al, 2004)

- 3.5 Is subordinated debt allowable as part of capital?
- 5.1 Is an external audit a compulsory obligation for banks?
- 5.3 Are auditors licensed or certified?
- 8.1 Is there an explicit deposit insurance protection system?
- 8.4 Were depositors wholly compensated (to the extent of legal protection) the last time a bank failed?
- 10.1.1 Does accrued, though unpaid, interest/principal enter the income statement while the loan is still non-performing?
- 10.3 Are financial institutions required to produce consolidated accounts covering all bank and any non-bank financial subsidiaries?
- 10.4.1 Are off-balance sheet items disclosed to the public?
- 10.5 Must banks disclose their risk management procedures to the public?
- 10.6 Are bank directors legally liable if information disclosed is erroneous or misleading?
- 10.7.1 How many of the top ten banks are rated by international credit rating agencies (e.g. Moody's, Standard and Poor)?

References

- Ahmed A. S., Takeda, C., Thomas, S., 1999. Bank loan loss provisions: a reexamination of capital management, earnings management and signaling effects. *Journal of Accounting Research* 28, 1-25.
- Anandarajan, A., Hasan, I., McCarthy, C., 2005. The use of loan loss provisions for earnings, capital management and signalling by Australian banks. Manuscript.
- Barth, J. R., Caprio, G., Levine, R., 2004. Bank regulation and supervision: what works best? *Journal of Financial Intermediation* 13, 205-248.
- Baumann, U., Nier, E., 2004. Disclosure, volatility, and transparency: an empirical investigation into the value of bank disclosure. *FRBNY Economic Policy Review* 10, 31-45.
- Beaver, W. H., Eger, C., Ryan, S. G., Wolfson. M., 1989. Financial reporting and the structure of bank share prices. *Journal of Accounting Research* 18, 157-178.
- Beaver, W. H., Engel, E. E., 1996. Discretionary behavior with respect to allowances for loan losses and the behavior of securities prices. *Journal of Accounting and Economics* 22, 177-206.
- Bens, D. A., Monahan, S. J., 2004. Disclosure quality and the excess value of diversification. *Journal of Accounting Research* 42, 691-730.
- Berger, P., Hahn, R., 2003. The impact of SFAS no. 131 on information and monitoring. *Journal of Accounting Research* 41, 163-223.
- Boot A. W., Schmeits, A., 2000. Market discipline and incentive problems in conglomerate firm with applications to banking. *Journal of Financial Intermediation* 9, 240-273.

- Bushman, R. M., Smith, A. J., 2003. Transparency, financial accounting information, and corporate governance. *FRBNY Economic Policy Review* 9, 65-87.
- Cordella, T., Yeyati, E. L., 1998. Public disclosure and bank failures. *International Monetary Fund Staff Papers*.
- Healy, P., Palepu, K., 2001. Information asymmetry, corporate disclosure and the capital markets: a review of the empirical disclosure literature. *Journal of Accounting and Economics* 31, 405-440.
- Kanodia, C., Lee, D., 1998. Investment and disclosure: the disciplinary role of periodic performance reports. *Journal of Accounting Research* 36, 33-55.
- Kasznik, R., 1999. On the association between voluntary disclosure and earnings management. *Journal of Accounting Research* 37, 57-81.
- Liu, C., Ryan, S. G., 1995. The effect of bank loan portfolio composition on the market reaction to and anticipation of loan loss provisions. *Journal of Accounting Research* 33, 77-94.
- Liu, C., Ryan, S. G., Wahlen, J. M., 1997. Differential valuation implications of loan loss provisions across banks and fiscal quarters. *The Accounting Review* 72, 133-146.
- Morgan, D., 2002. Rating banks: risk and uncertainty in an opaque industry. *American Economic Review* 92, 874-888.
- Shaw, K. W., 2003. Corporate disclosure quality, earnings smoothing, and earnings' timeliness. *Journal of Business Research* 56, 1043-1050.
- Wahlen, J. M., 1994. The nature of information in commercial bank loan loss disclosures. *The Accounting Review* 69, 455-478.

Table 1

Descriptive statistics on the disclosure index for the sample of 168 commercial banks and 76 bank holding companies from 1997-2004

DISC_min is the minimum disclosure score of a country; *PMI* is the private monitoring index of a country; *DISC* is disclosure score of individual bank; *DDISC* is *DISC* less *DISC_min*; within-country std. dev. is average of 41 countries' standard deviations in each variable; cross-country std. dev. is standard deviation in 41 countries' averages of each variable. CB indicates commercial bank and BHC indicates bank holding company.

	n	mean	std. dev.	min	median	max	within- country std. dev	cross- country std. dev.
Country level								
<i>DISC_min</i>		0.498	0.171	0.29	0.48	0.86		0.120
<i>PMI</i>		0.668	0.091	0.50	0.70	0.90		0.107
Bank level								
<i>DISC</i>								
CB	832	0.720	0.083	0.33	0.71	0.90	0.058	0.063
BHC	414	0.715	0.138	0.29	0.81	0.86	0.062	0.153
Total	1,246	0.719	0.105	0.29	0.76	0.90	0.061	0.065
<i>DDISC</i>								
CB	832	0.178	0.172	0.00	0.10	0.57	0.047	0.113
BHC	414	0.307	0.199	0.00	0.33	0.52	0.062	0.120
Total	1,246	0.221	0.192	0.00	0.24	0.57	0.047	0.103

Table 2

Descriptive statistics on the loan loss provision, market price and control variables for the sample of 168 commercial banks and 76 bank holding companies from 1997-2004

LLP is provision for loan losses; NCO is net charge-offs; $\Delta LOAN$ is change in total loans ($LOAN_t - LOAN_{t-1}$); ΔNPL is the most recent change in nonperforming loans ($NPL_t - NPL_{t-1}$); ΔNPL_{t+1} is one period-ahead change in nonperforming loans ($NPL_{t+1} - NPL_t$); $DLLP$ is estimated discretionary portion of the provision for loan losses; MV is total market value of equity; $EBTP$ is net income before tax and provision for loan losses; $\Delta EBTP_{t+1}$ is one-period ahead change in EBTP; CAP is regulatory capital ratio.

	mean	std. dev.	min	median	max
LLP	0.065	0.444	-15.02	0.05	1.14
NCO	0.058	0.226	-0.36	0.02	3.58
$\Delta LOAN$	0.556	2.403	-47.71	0.55	14.32
ΔNPL	0.019	0.387	-3.23	0.00	7.64
ΔNPL_{t+1}	-0.021	0.274	-3.23	-0.01	2.66
$DLLP$	0.019	0.074	-0.34	0.01	0.62
MV	1.649	1.196	-0.51	1.45	15.97
$EBTP$	0.203	0.156	-0.91	0.21	3.27
$\Delta EBTP_{t+1}$	0.000	0.163	-4.18	0.00	1.05
CAP	8.780	3.464	0.00	8.10	56.00

Table 3

Pearson correlations of selected variables

LLP is provision for loan losses; NCO is net charge-offs; $\Delta LOAN$ is change in total loans ($LOAN_t - LOAN_{t-1}$); ΔNPL is the most recent change in nonperforming loans ($NPL_t - NPL_{t-1}$); ΔNPL_{t+1} is one period-ahead change in nonperforming loans ($NPL_{t+1} - NPL_t$); $DLLP$ is estimated discretionary portion of the provision for loan losses; MV is total market value of equity; $DDISC$ is $DISC$ less $DISC_{min}$, where $DISC$ is a disclosure score of individual bank and $DISC_{min}$ is a minimum disclosure score of a country; PMI is private monitoring index of a country. ***, ** and * denote the significance levels of 1%, 5% and 10%, respectively.

	LLP	NCO	$\Delta LOAN$	ΔNPL	ΔNPL_{t+1}	$DLLP$	MV	$DDISC$
NCO	0.045							
$\Delta LOAN$	-0.183**	-0.048						
ΔNPL	0.161**	-0.075**	-0.068**					
ΔNPL_{t+1}	0.019	0.055	-0.077**	-0.044				
$DLLP$	0.786**	-0.102**	-0.042	-0.016	0.021			
MV	-0.006	0.002	-0.135**	-0.056	-0.011	-0.219**		
$DDISC$	0.007	-0.161**	-0.085**	0.045	0.072*	0.045	0.086**	
PMI	0.001	-0.141**	-0.074*	0.016	0.053	0.126**	-0.113**	-0.163**

Table 4

Pooled, cross-sectional OLS regressions of loan loss provisions (LLPs) on explanatory variables of normal, non-discretionary LLP, proxies for bank's incentives for discretionary LLP, and disclosure and private monitoring indices

The sample consists of commercial banks and bank holding companies listed on BankScope database for the period from 1997 through 2004. *GBV* is gross book value; *NCO* is net charge-offs; $\Delta LOAN$ is change in total loans ($LOAN_t - LOAN_{t-1}$); ΔNPL is the most recent change in nonperforming loans ($NPL_t - NPL_{t-1}$); ΔNPL_{t+1} is one period-ahead change in nonperforming loans ($NPL_{t+1} - NPL_t$); *EBTP* is net income before tax and provision for loan losses; $\Delta EBTP_{t+1}$ is one-period ahead change in EBTP; *CAP* is regulatory capital ratio; *DDISC* is disclosure scores minus minimum disclosure score of each country and in each year; *PMI* is private monitoring index of a country. All variables are deflated by gross book value (*GBV*). The number in parentheses is the t-statistic computed. The F statistic is for the null hypothesis that all the coefficients are zeros. ***, ** and * denote the significance of the parameter estimates at the 1%, 5% and 10% levels, respectively.

	Model (1)		Model (1)+(2)		Model (3)	
<i>Constant</i>			0.143***	(16.946)	0.192***	(6.374)
<i>1/GBV</i>	50.724****	(15.467)	-4.005	(-0.937)	-6.767	(-1.566)
<i>NCO</i>	0.383***	(14.634)	0.265***	(11.278)	0.259***	(10.732)
$\Delta LOAN$	0.002*	(1.791)	-0.002**	(-2.488)	-0.003***	(-3.015)
ΔNPL	0.038***	(5.671)	0.016***	(2.886)	0.017***	(3.007)
ΔNPL_{t+1}	-0.034***	(-3.209)	-0.019**	(-2.063)	-0.011	(-1.229)
<i>EBTP</i>			-0.202***	(-8.023)	-0.170***	(-6.238)
$\Delta EBTP_{t+1}$			0.109***	(3.305)	0.140***	(4.180)
<i>CAP</i>			-0.005***	(-7.223)	-0.004***	(-6.415)
<i>DDISC</i>					-0.438***	(-4.183)
<i>PMI</i>					-0.081**	(-2.100)
<i>DDISC*PMI</i>					0.660***	(4.152)
Adj. R ²	0.456		0.350		0.370	
F	139.76***		51.833***		41.124***	

Table 5

Pooled, cross-sectional 2SLS regression of loan loss provisions (LLPs) on explanatory variables of normal, non-discretionary LLP and disclosure and private monitoring indices

The sample consists of commercial banks and bank holding companies listed on BankScope database for the period from 1997 through 2004. *GBV* is gross book value; *NCO* is net charge-offs; $\Delta LOAN$ is change in total loans ($LOAN_t - LOAN_{t-1}$); ΔNPL is the most recent change in nonperforming loans ($NPL_t - NPL_{t-1}$); ΔNPL_{t+1} is one period-ahead change in nonperforming loans ($NPL_{t+1} - NPL_t$); *DDISC* is disclosure scores minus minimum disclosure score of each country and in each year; *PMI* is private monitoring index of a country. All variables are deflated by gross book value (*GBV*). Instrumental variables are net income before tax and provision for loan losses (*EBTP*), one-period ahead change in EBTP ($\Delta EBTP_{t+1}$) and regulatory capital ratio (*CAP*). The number in parentheses is the t-statistic computed. The F statistic is for the null hypothesis that all the coefficients are zeros. ***, ** and * denote the significance of the parameter estimates at the 1%, 5% and 10% levels, respectively.

	2SLS	
<i>Constant</i>	0.119***	(3.698)
<i>1/GBV</i>	3.700	(0.806)
<i>NCO</i>	0.296***	(11.279)
$\Delta LOAN$	-0.003***	(-2.568)
ΔNPL	0.028***	(4.722)
ΔNPL_{it+1}	-0.032***	(-3.282)
<i>DDISC</i>	-0.765***	(-7.052)
<i>PMI</i>	-0.100**	(-2.359)
<i>DDISC*PMI</i>	1.198***	(7.373)
Adj. R ²	0.237	
F	30.193***	

Table 6

Pooled, cross-sectional OLS regressions of equity's market value on loan loss provisions, disclosure and private monitoring indices, proxies for bank's incentives for discretionary LLP, non-performing loan, and year dummy variables.

The sample consists of commercial banks and bank holding companies listed on BankScope database for the period from 1997 through 2004. *LLP* is loan loss provisions; *DLLP* is discretionary loan loss provisions; *DDISC* is disclosure scores minus minimum disclosure score of each country and in each year; *PMI* is private monitoring index of a country; *NPL* is nonperforming loans; *EBTP* is net income before tax and provision for loan losses; $\Delta EBTP_{t+1}$ is one-period ahead change in EBTP. Dummy variables for fiscal years from 1998-2004 with a reference year of 1997 are regressed, although their estimated coefficients are not reported. The number in parentheses is the t-statistic computed. The F statistic is for the null hypothesis that all the coefficients are zeros. ***, ** and * denote the significance of the parameter estimates at the 1%, 5% and 10% levels, respectively.

	Model (4)		Model (5)	
<i>Constant</i>	0.722***	(5.586)	1.609***	(4.883)
<i>LLP</i>	-1.669*	(-1.783)	-3.565***	(-3.558)
<i>DDISC*LLP</i>			12.375***	(3.757)
<i>DLLP</i>	-0.282	(-0.329)	0.674	(0.637)
<i>DDISC*DLLP</i>			-8.623**	(-1.988)
<i>PMI</i>			-1.530***	(-3.708)
<i>NPL</i>	-0.234***	(-3.097)	-0.217***	(-2.930)
<i>EBTP</i>	4.847***	(11.647)	5.142***	(12.051)
$\Delta EBTP_{t+1}$	3.806***	(8.072)	3.795***	(8.171)
Adj. R ²		0.339		0.374
F		42.280***		37.538***