Corruption in Bank Lending: The Role of Timely Loan Loss Provisioning

B ATKINS

Y DOU

Jeffrey Tee Yong NG
Singapore Management University, jeffreyng@smu.edu.sg

Citation

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Brian Akins
Jones School of Business
Rice University
akins@rice.edu

Yiwei Dou
Stern School of Business
New York University
ydou@stern.nyu.edu

Jeffrey Ng
School of Accountancy
Singapore Management University
jeffreyng@smu.edu.sg

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Abstract

Building on the recent literature on corruption in bank lending, we examine the effect of country-level timely loan loss provisioning by banks on such corruption using a unique World Bank dataset that covers more than 3,600 firms across 44 countries. We find evidence consistent with timely loan loss provisions constraining lending corruption because it increases the likelihood of problem loans being uncovered earlier. This result is robust to using the tax-deductibility of loan loss provisions as an instrumental variable. In further analysis, we find timely loan loss provisioning less associated with reduced corruption in countries with deposit insurance schemes and significant government ownership in the banking system. This evidence is consistent with timely loan loss provisioning being less of a deterrent on lending corruption when banks are less disciplined by their capital providers (depositors and investors).

1.   Introduction

Banks provide a significant portion of firm financing and play an important role in economic development. Lending corruption is one of the major reasons for problem loans in many countries (Adams and Probe International, 1991; Lardy, 1998; Udell, 1989). Loans involving corruption are typically lower quality loans that may not have been approved otherwise and are, therefore, more likely to go bad. These loans are approved because the loan officer, while enjoying private benefits from the corruption, does not believe she will bear the full cost of the potentially bad loan. Hence, corruption in lending might be regarded as a classic agency problem where the agent (loan officer or manager) extracts private benefits at the expense of the principal (e.g., depositors, investors, etc.).

Lending corruption as a prevalent phenomenon reduces the banking system's efficiency in distributing scarce capital. Prior studies have examined various institutional factors—bank supervisory policies, competition among banks, information sharing about borrowers, and the media—that could help mitigate such corruption (Barth, Lin, Lin, and Song, 2009; Beck, Demirguc-Kunt, and Levine, 2006; Houston, Lin, and Ma, 2011). While these papers generally offer evidence that external monitoring deters lending corruption, no study has examined specifically how the provisioning for bad loans in a country can act to prevent corruption.

Loan loss provisioning is an important accrual process through which banks recognize future expected loan losses in the current period. Banks make provisions to capture expected losses and these provisions immediately reduce bank profits and regulatory capital, which, in turn, can warn the board, managers, and external stakeholders of problems facing the banks.[1] The provisions go into a loan loss reserve from which future actual losses are deducted. As part of the

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[1] The importance of accruing for loan losses can be seen from the numerous banking studies that have examined the implications of loan loss provisioning. See the survey by Beatty and Liao (2014) and discussion by Bushman (2014).

typical internal control process to ensure proper recording and prevent fraud and cover-ups, accounting for the loans, including provisions, is handled by the bank accountants and not the lending officers. In fact, the separation of duties between those engaging in and those accounting for the transactions is a common practice in many organizations.[2] Bank examiners and auditors likely increase pressure on internal bank accountants to be diligent about recording timely loss provisions (Dahl et al., 1998).

A key feature of loan loss provisioning, especially more timely loan loss provisioning, is that it serves as an early warning mechanism about the problem loans (including those arising from lending corruption) that a bank has. Therefore, stakeholders can better monitor and exert discipline on the bank's behavior (Bushman, 2014), and the corrupt bank personnel have less time or chance to conceal and/or escape with the gains from engaging in lending corruption. Hence, in anticipation of the sequence of events that could be triggered by earlier loan loss provisions, loan officers are more likely to refrain from lending corruption at loan origination.

To measure corruption, we follow prior studies (Barth et al., 2009; Beck et al., 2006; Houston et al., 2011) that have examined issues related to corruption in bank lending by utilizing the World Bank's World Business Environment Survey (WBES).[3] In particular, the survey includes the question: "Is the corruption of banking officials an obstacle for the operation and growth of your business?" We rely on the response by firms (borrowers or potential borrowers) to measure the degree of bank lending corruption. To measure the timeliness of loan loss provisioning within a country, we follow Bushman and Williams (2012). Their proxy quantifies

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[2] If internal control systems are weak, managers, even loan officers, may be able to influence the recording of financial data (Wickberg 2013). An essential part of assessing the internal controls is the examination of the proper separation of duties.

[3] As noted by Houston et al. (2011) and other studies, the relative lack of papers on bank corruption is not surprising given the difficulty of measuring bank corruption. The recent literature essentially relies on the survey by the World Bank to gauge lending corruption.

how well the country's systematic loan loss provisions capture next period's deterioration in loan portfolio quality while controlling for current and previous changes in portfolio quality, bank characteristics, and changes in macroeconomic conditions. An advantage of measuring bank lending corruption based on responses by firms and country-level corruption based on the financial reports of banks is that it reduces endogeneity concerns as the information obtained from two different parties are used to examine the relation between the two constructs of interest.

The merging of the data on banking corruption, the timeliness of loan loss provisioning, and other variables results in a sample of 3,611 firms from 44 countries. Controlling for the general level of corruption, financing obstacles, various dimensions of the firms' information environments, and a number of other aspects of the firm and bank environments and the economy, we document that more timely systematic loan loss provisioning is incrementally associated with less lending corruption. These results are robust to the inclusion of an extensive array of control variables and alternative measures of timeliness of loan loss provisions. Hence, the empirical evidence supports the hypothesis that timely loan loss provisioning serves as an early warning mechanism that deters bank corruption.

In an attempt to identify the effect of timely loan loss provisioning on lending corruption, we employ a two stage least squares (2SLS) instrumental variable approach with the instrumental variable being the corporate tax rate if the loan loss provision is tax deductible for a particular country. We argue that while a higher corporate tax rate provides incentives to make earlier loan loss provisions because it reduces the amount of near-term cash outflows to the tax authorities, it is unlikely to directly influence an individual's decision to engage in bribe taking. In the 2SLS regressions, we find robust evidence indicating that more timely loan loss provisions reduce lending corruption.

Next, we examine the institutional features related to the strength of market discipline and test whether these features affect the association between timely loan loss provisioning and lending corruption. In particular, we focus on two major capital providers for banks, depositors and government.[4] We argue that deposit insurance reduces the incentives of depositors to monitor the banks and to withdraw their deposits in the event that it is revealed that banks are suffering from significant loan losses (Billet et al., 1998; Demirguc-Kunt and Huizinga, 2004; Goldberg and Hudgins, 2002; Greenbaum and Thakor, 2007). We also argue that government ownership increases the likelihood that the bank will be bailed out in the event that it is in trouble due to problem loans. Other equity investors are less likely to closely monitor the bank due to the possible bailout (Borisova and Megginson, 2011; Li et al., 2009; Guedhami, Pittman, and Saffar, 2009; Wang et al., 2008). In line with these arguments, we find evidence that more timely loan loss provisioning is less negatively associated with lending corruption in banking systems with deposit insurance and with more government ownership of the banking system. Collectively, the results further enhance our confidence in interpreting the main effect, as it is more difficult to conceive an alternative story that simultaneously explains our primary results and interaction effects (Rajan and Zingales, 1998; Christensen, Hail, and Leuz, 2013).

We contribute to the literature in several ways. First, we contribute to the corruption literature, which does not typically consider informative financial reporting practices, such as banks' timely loan loss provisioning, as a deterrent to corruption (Barth et al., 2009; Beck et al., 2006; Houston et al., 2011).[5] These accrued loan losses, if recorded in a more timely fashion, can

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[4] Governments are major investors in the banking systems in many developing countries, which are the focus of the World Bank survey data used in this study.

[5] Ferraz and Finan (2008) is a somewhat related study that examines the effect of disclosing information about corruption practices on electoral accountability; this information is based on government audits of municipalities. They find the release of audit outcomes has a significant impact on incumbents' electoral performance, and that these effects were more pronounced in municipalities where local radio was present to divulge the information.

provide useful warnings of potential problems to outside monitors. Hence, banks provide a

powerful setting to examine the role of financial reporting in disciplining corruption. To the best

of our knowledge, this paper is the first to examine the effect of financial reporting, particularly

timely loan loss provisioning, on corruption in the banking sector.

Second, we contribute to the literature of the real effects of more timely loan loss

provisioning (e.g., Beatty and Liao, 2011; Bushman and Williams, 2012). Beatty and Liao (2011)

show that more timely loan loss provisioning is linked to a greater willingness to lend during a

financial crisis because earlier recognition of credit losses means less credit losses have to be

recognized during recessionary periods when regulatory capital declines and external financial

frictions increase.[6] Bushman and Williams (2012) find that more timely loan loss provisioning

reduces inappropriate risk taking. Our study suggests that the disciplining effect of more timely

loan provisioning on lending corruption is another reason to expect such provisioning to bring

about more lending efficiency in the banking industry. As noted in Shleifer and Vishny (1993),

Mauro (1995), and many other studies, corruption plays an important role in resource allocation,

especially in less developed countries, and is costly to economic development.

Finally, our findings that more timely loan loss provisioning is associated with less

lending corruption can inform standard setters. Recently, there has been debate over whether the

incurred or expected loss model is the more appropriate loan loss provisioning model. The

Financial Accounting Standards Board (FASB) proposes a new accounting model (the expected

loss model), which is intended to require more timely recognition credit losses (FASB, 2012).

Moreover, the International Accounting Standards Board (IASB, 2014) issued the finalized

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Unlike Ferraz and Finan (2008), we focus directly on how disclosure through financial reporting can impact corruption, as opposed to how disclosure about corruption can impact elections.
[6] Since credit losses reduce Tier 1 capital, their earlier recognition means there is less need to take losses that reduce Tier 1 capital at a time when capital is more constrained.

version of IFRS 9, which incorporates a new expected loss impairment model. While we are not able to directly test these models, to the extent that the expected loss model results in more timely loan loss provisioning, our paper provides some support for the beneficial effects of adopting the expected loss model.

The remainder of the paper is organized as follows. Section 2 presents our hypotheses. Section 3 introduces the data and measures. Section 4 covers the empirical analyses on bank corruption and the timeliness of loan loss provisions. Section 5 details some robustness analyses, and Section 6 concludes.

2.   Hypotheses development

2.1   Lending corruption and the timeliness of loan loss provisions

Corruption plays a role in the lending process around the world, and can lead to severe consequences across countries (e.g., Barth et al., 2009; Beck et al., 2006; Tanzi, 1998). For example, in September of 2014, the Indian government fired the chairman of the state-run Syndicate Bank for taking bribes for loans.[7] On August 4, 2013, India's Central Bureau of Investigation (CBI) arrested the chairman of Syndicate Bank over allegations he was seeking bribes to favor debtors.[8] The CBI recovered 5 million rupees that a New Delhi-based company allegedly paid, via middlemen, to the bank's head for a loan extension. The same month, the former head of one of China's largest banks, Postal Savings Bank of China, was charged with corruption offences, including making illegal loans and bribery.[9] This high profile arrest followed a 2010 case, in which a former vice-president of the China Development Bank was

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[7] http://timesofindia.indiatimes.com/business/india-business/Govt-sacks-suspended-Syndicate-Bank-chief/articleshow/43223687.cms.
[8] http://www.channelnewsasia.com/news/business/international/india-probes-bank-loan-to/1305934.html.
[9] http://www.chinadaily.com.cn/china/2014-08/14/content_18307135.htm.

given a suspended death sentence for receiving bribes in exchange for helping companies get loans.[10] Consistent with lending corruption being a problem in China, Chen et al. (2013) present evidence congruent with bribery being a primary factor in private firms' ability to access debt capital from any but the country's four largest banks.

While the headline-grabbing news stories tend to relate to corruption by top bank officials, it is important to remember that lending corruption also occurs at lower levels. Loan officers and managers can engage in arrangements to receive kickbacks from clients in various forms. For example, they can ask for bribes to approve a loan or collude with clients to obtain bogus loans and subsequently share in the proceeds. Udell (1989) notes that evaluations of many failed banks reveal kickbacks to loan officers. In a less extreme case of corruption, the loan officer may see the borrower as a possible future employer and be more lenient in granting a loan.

Given the potentially harmful consequences of lending corruption, it is important to have mechanisms in place to curtail corrupt lending practices. Earlier papers on such mechanisms have focused on the role of external mechanisms in mitigating lending corruption. Beck et al. (2006) find that bank supervisory policies that empower private monitoring reduce lending corruption but do not find evidence that empower supervisory agencies does. Barth et al. (2009) show that greater competition among banks and information sharing by private bureaus does the same. Houston et al. (2011) find that state ownership of the media and media concentration are associated with more lending corruption. In this paper, we argue that financial reporting, particularly more timely loan loss provisioning, plays a fundamental role in deterring banking corruption because of the information asymmetry between the banks and various stakeholders.[11]

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[10] http://www.chinadaily.com.cn/bizchina/2010-04/16/content_9738250.htm.
[11] The timeliness of loan loss provisioning is distinct from the concept of financial reporting accuracy because the regulatory standards underlying loan loss provisioning do not prescribe how timely the loan provisions must be. In particular, they do not specify the amount of loan loss provisions in the current period for each dollar of anticipated

To illustrate the role of timely loan loss provisioning in deterring lending corruption, we use a corrupt bank lending setting, similar to Barth et al. (2009). Barth et al. (2009) depict corrupt bank lending as a private negotiation between the bribe taker (lending officer) and the bribe payer (the borrowing firm). The bribe increases the income of the lending officer. However, the lending officer also has to weigh this benefit against the cost of being caught and penalized. Not only does she have to consider the likelihood of being caught, she also has to consider when this may occur because being caught early limits opportunities to obtain more bribes, as well as the chance to leave the bank before the bad loans are revealed.

As noted by Barth et al. (2009, p. 365), "Bribery, of course, could be detected and thus punished by the bank manager and/or regulators, in which case the loan officer will be penalized (e.g., demoted, fined, and/or even face more stringent legal sanctions)." More timely reporting of loan losses increases the likelihood of being caught early because the bank recognizes losses even before the loans turn bad. The separation of duties within a bank (or any other type of organization) is an important form of internal control which makes it hard for a corrupt loan officer to hide the loan losses. In fact, an important principle in accounting in many organizations, not just banks, is that the person doing the accounting should not be the person handling the transactions (e.g., Trenerry, 1999; Pickett, 2001). Further, external and internal auditors, who ensure that the loan loss provisions are appropriately made, should be as independent as possible from both parties. In the case of a bank, the loan officer (or even the higher-level executive, especially for larger loans) granting the loan should not also be the person doing the accounting for the loan, which includes documenting the loan and recording

increase in non-performing loans or chargeoffs in the future period(s) (Beatty and Liao, 2011; Bushman and Williams, 2012).

any loan loss provisions. Bank regulators also focus on separation of duties and adequacy of the loan loss provisions when examining the banks.[12]

Any detection of an improper separation of duties will increase the extent of the examination efforts. Furthermore, these parties could require the banks to record additional loan loss provisions should they deem the provisions inadequate given the nature of the non-performing loans that the bank has. Although the loan officer may be able to hide losses for a while on loans issued to poor quality borrowers who only obtained loans through bribery, lending officers cannot hide loan portfolio losses indefinitely. Eventually, the losses will be uncovered and accounted for through provisions and charge-offs. Accountants, external auditors, and bank supervisors have the authority to identify and force earlier recognition of impaired loans in the form of provisions (Gaston and Song 2014).

More timely loan provisions will draw earlier attention to a bank's problem loans. The negative impact on profitability and bank regulatory capital will also occur earlier, which in turn is likely to trigger earlier scrutiny of the bank by various stakeholders, including internal and external monitors. This early scrutiny increases the likelihood of earlier discovery and penalization of corrupt lending. Ex-ante, as we have argued earlier, this will constrain corruption. Hence, to the extent that on average, systematic lending corruption results in loans that are more likely to be non-performing, more timely loan loss provisioning will result in earlier detection of

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[12] According to a bank regulator we contacted about bank examinations, it is common for regulators to check that a bank has documented procedures to ensure proper separation of duties and also to talk with bank personnel to ensure the procedures are followed. With regard to loans, the regulators will ask for the customer loan files, analyze the condition of the customers based on information in these files (e.g., financial statements provided by customers and loan repayment records) and other information (e.g., information known about the customers via other bank examinations), and ensure that the bank has made adequate provisions for potential loan losses. The bank's track record in making adequate provisions for loan losses is an important consideration in determining whether it is likely making appropriate provisions for the current loans.

loans obtained through corruption.[13] This limits officers from benefitting from corrupt lending over a long period of time and/or escaping with their ill-gotten gains.[14] Thus, we argue that more timely loan loss provisions will discourage lending corruption ex ante because lending officers realize this greatly reduces their expected payoffs from engaging in corruption.

The effectiveness of more timely loan loss provisioning in reducing lending corruption might be mitigated by the possibility that the corrupt bank officers are able to manipulate the loan review process into treating the non-performing corrupt bank loans as performing loans. In this case, more timely loan provisioning has no effect in deterring bank corruption because no loan loss provisions have to be made at any time for performing loans. The separation of duties within the whole loan process and external examination by bank auditors and regulators also make it difficult for non-performing loans to stay hidden, at least for long. The bank employees making/approving the loans are not typically the same as those who review the loans to establish provisions (Udell, 1989). While collusion among employees is possible, there is always the likelihood that the collusion breaks down or is uncovered. When faced with more timely loan loss provisioning, the lending officer might be less inclined to engage in corrupt lending, ex ante. Hence, our main hypothesis, stated in the alternative form, is:

H1:   More timely loan loss provisioning reduces corruption in bank lending.

2.2   The role of market discipline

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[13] In fact, many cases of corporate misbehavior (e.g., fraud, accounting manipulation, and executive excesses) have been uncovered because of problems first reflected in corporate reports. Regulators, auditors, analysts, and other stakeholders scrutinize unusual patterns in reported numbers (across time for the firm or in comparison with other firms) to identify possible underlying problems, which may then trigger further investigations.

[14] Corrupt individuals often have short horizons and plan to flee with their ill-gotten gains before they are detected. For example, as part of President Xi's anti-corruption campaign, the Communist Party's Central Commission for Discipline Inspection, in an operation labelled "Fox Hunt 2014," set up a dedicated office to investigate allegedly corrupt officials who had absconded or sent relatives and assets abroad. http://www.telegraph.co.uk/news/worldnews/asia/china/10991255/China-launches-global-fox-hunt-for-corrupt-officials.html

We focus on the interaction between market discipline and timely loan loss provisions as Beck et al. (2006) find strategies intended to enhance stakeholders' private monitoring of banks are more successful in constraining lending corruption than strategies empowering supervisory agencies. Two key sources of capital for banks are deposits and equity funding. These two sources contribute to a large part of banks' total assets. To the extent that timely loan loss provisioning reveals earlier loan losses, such as from lending corruption, it can adversely affect the banks. Because timely loan loss provisions indicate when the loan portfolio becomes riskier, capital providers, specifically depositors and investors, might withdraw capital or at least be unwilling to provide more of it, especially in times when the bank needs more capital to offset the loan losses. All of these negative consequences give rise to further investigation, which potentially uncovers corruption and imposes penalties on corrupt individuals. The negative consequences (to banks and corrupt individuals) are pivotal to the market discipline mechanism.

In this section, we focus on how mitigated market discipline by capital providers could affect the relation between timely loan loss provisioning and lending corruption. The general intuition is that when banks are more concerned about market discipline arising from loan losses, particularly the earlier revelation of losses due to timely loan loss provisioning, bank managers and officers are more likely to refrain from lending corruption. When lenders are less concerned about this discipline, they are more likely to engage in lending corruption.

2.2.1   *The role of deposit insurance*

Deposit insurance exists because of the concern that market discipline by uninsured depositors may be too risky. Depositors may over-discipline banks by withdrawing funds from solvent banks, fearing their money is not safe. Furthermore, some argue that a contagion effect exists among banks because of shared systematic risk in their asset portfolios (Greenbaum and

Thakor, 2007). Thus, when one bank fails, depositors assume the failure is because of systematic

risks applicable to other banks, which can lead to a bank panic. In the U.S., deposit insurance

was originally offered through private clearing house arrangements established by bank

syndicates. However, the private arrangements could not eliminate the threat of bank runs

because the diversification they provided was limited by the size of the group of member banks

and there was no assurance of the complete integrity of the arrangements (Greenbaum and

Thakor, 2007). Therefore, the federal government began to provide deposit insurance in 1933.

While the actual scheme of the insurance varies, many countries now provide some form of

federal deposit insurance in the hope of promoting greater bank stability (Demirguc-Kunt and

Huizinga, 2004).

Despite the potential benefits of deposit insurance, it has introduced a new source of

moral hazard. Merton (1977) shows that deposit insurance can be viewed as a put option on bank

assets and banks that have it can increase their value by increasing risk.[15] Depositors' concern

with bank performance is decreasing in deposit insurance. Specifically, when banks have

insurance, depositors will be less concerned about whether corrupt lending results in bad loans

since they do not bear the cost of these losses if the loans fail. Hence, deposit insurance may

decrease market discipline for banks. While it has been suggested that outside stakeholders

cannot properly differentiate the risks undertaken by bank managers, evidence exists to the

contrary (Flannery and Sorescu, 1996). In fact, prior literature finds deposit insurance decreases

market discipline on risk taking for banks (Billet et al., 1998; Demirguc-Kunt and Huizinga,

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[15] Even in the U.S., where deposit insurance premiums have been related to risk since the 1980s, there is a limited number of risk categories and the premiums are only weakly related to risk for most banks (Greenbaum and Thakor, 2007).

2004; Goldberg and Hudgins, 2002; Greenbaum and Thakor, 2007).[16] Maechler and McDill (2006) find evidence suggesting that the depositor discipline constrains managerial risk taking. In an international study, Demirguc-Kunt and Detragiache (2002) find deposit insurance actually increases the likelihood of a bank crisis and that this effect is increasing in coverage when funded by the government. Berger and Turk-Ariss (2014) find significant depositor discipline prior to the crisis in both the U.S. and the EU. However, this discipline declined during the crisis except for small U.S. banks, consistent with depositors responding to actions taken by the government at the beginning of the crisis reducing this discipline.

Hence, when depositors do not exert market discipline on banks because they are protected by deposit insurance, bank officers (and managers) are less likely to be concerned about being punished after loan losses are revealed. In particular, if reported loan losses result in a bank run because depositors fear the loss of their deposits, the board of directors, top management, and/or regulators are more likely to step in and investigate the problems at the bank. This could lead to staff turnover and even criminal prosecution in the event that corruption is uncovered. Ex ante, in a banking system with a higher likelihood of a bank run due to no deposit insurance and an accounting system that results in more timely loan loss provisioning, bank officers are less likely to risk making bad loans in return for some personal benefits. Hence, our next hypothesis, stated in the alternative form, is:

H2a: More timely loan loss provisioning reduces corruption in bank lending less in banking systems with deposit insurance.

2.2.2   Government ownership in the banking system

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[16] Although earlier models of deposit insurance often find it to be an optimal policy, for example, Diamond and Dybvig (1983), they also acknowledge that it is a significant source of moral hazard (Demirguc-Kunt and Detragiache, 2002).

Shleifer and Vishny (1993) find the structure of government institutions to be important determinants of corruption. Governments are less likely to allow a firm in which they hold a greater ownership stake to fail. Many studies in the literature compare state-owned enterprises (SOEs) to non-SOEs and find that SOEs have lower costs of debt (Borisova and Megginson, 2011) and higher leverage (Li et al., 2009), are less likely to have Big Four auditors (Guedhami et al., 2009; Wang et al., 2008), and experience a less pronounced impact of audit quality on earnings management and cost of capital (Chen et al., 2011b).[17] Also, Calomiris et al. (2008) find a negative market reaction to unexpected decreased levels of government ownership of SOEs. All of these results are consistent with market participants believing governments implicitly guarantee SOEs.[18]

Hence, to the extent that more government ownership reduces the likelihood that banks will be allowed to fail, it will weaken market discipline for bad behavior like corruption and excessive risk taking (Caprio and Klingebiel, 1996; Dam and Koetter, 2012; Stern and Feldman, 2004). So even when banks have to accrue loan losses in anticipation of loans turning bad – accrued losses that lower earnings and reduce regulatory capital – banks are likely to receive support/bailouts from the government to stay afloat, even if the economically optimal decision is to let the bank fail. For example, the government might pump in additional capital or make it easier/cheaper for banks to borrow from the central bank. As a result, when bank managers and officers anticipate that any negative consequences will be mitigated by government support, they are more likely to engage in corrupt behavior – even if there is more timely reporting of the losses.

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[17] Chaney et al. (2011) find that politically connected firms have poorer accounting quality than other firms because they do not feel pressure to respond to market forces for higher quality accounting.

[18] Note that the literature does not suggest that these results are from superior operations. In fact, SOEs are found to have lower Tobin's Q (Wei et al., 2005) and less investment efficiency than other firms (Chen et al., 2011a).

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The increased probability of a bank surviving due to governmental support is important to the corrupt bank manager for a number of reasons. First, it increases the likelihood that the manager can avoid losing his job and continue to benefit from past and future corrupt behavior. Second, it reduces the likelihood that there will be extensive investigations (e.g., due to public pressure) into the problems that led to the bank failure, investigations that may uncover corruption. Note that the above argument does not require the bank manager to expect his corrupt behavior to be uncovered. All the anticipated government support has to do is to increase the net present value of his gains from his corrupt and non-corrupt actions (e.g., wages) because of the lack of market discipline over the negative economic consequences of his corrupt behavior.

Government ownership can also increase the likelihood that bad loans or the underlying lending corruption will be covered up, even if reported loan losses result in investigations that reveal the corruption. Specifically, it is unclear that punishment will be meted out against the wrongdoers because of bureaucracy, political protection/patronage, and cover-ups, which may be more prevalent when governments have a significant stake in a firm (Dinç, 2005). Gerschenkron (1962, p. 20) notes, "there is no doubt that the government as an *agens movens* of industrialization discharged in a role in a far less than perfectly efficient manner. Incompetence and corruption of bureaucracy were great." The lack of punishment further increases the net present value of the gains from corruption.

Houston et al. (2011) provide some initial evidence that government bank ownership moderates the effect of the information environment on lending corruption. Arguing that state ownership of the media weakens its ability to expose and deter corruption, they first document that state ownership of the media is positively associated with lending corruption. They then provide further evidence that this positive association is stronger in countries with a state-

controlled banking sector. Similar to Houston et al. (2011), we argue that more timely loan loss

provisioning is less likely to have a deterrent effect in a state-controlled banking system that

discourages following up on the discovery of lending corruption. Our final hypothesis, stated in

the alternative firm, is:

H2b: More timely loan loss provisioning reduces corruption in bank lending less in

countries where the government holds a more significant stake in the banking system.

3.   Data

3.1   Data sources

Our data come from the World Business Environment Survey (WBES) (2000),

Bankscope, and a variety of previous international studies. The WBES data are from firm-level

surveys conducted across an assortment of industries in different countries, many of them

developing countries. The survey is completed by managers, accountants, directors, and other

employees. It is conducted by independent contractors, and the firm identity is kept confidential

to ensure unbiased responses. The WBES data have been used in a number of previously

published academic articles (Barth et al., 2009; Beck et al., 2005, 2006, 2008; Houston et al.,

2011), and prior research has argued for and conducted validity tests of the survey results,

specifically on financing obstacles due to the corruption of banking officials (Barth et al., 2009;

Beck et al., 2006). Our measure for lending corruption and firm controls are taken from this

source.

We use Bankscope to calculate loan loss provision timeliness. Finally, many of our other

control variables are taken from prior international studies whose authors have graciously made

their data available. The source for each variable used in our study is listed in Appendix A. After

dropping observations missing the necessary control variables, our final sample is composed of

3,611 firms from 44 countries.

3.2 Measure of timely loan loss provisioning

Using Bankscope's annual data on banks spanning 1995-2006, we estimate loan loss

provision timeliness (*LLP Timeliness*) by country, following Bushman and Williams (2012).[19] It

is estimated from the following regression:[20]

$$LLP_{tj} = \gamma_0 + \gamma_1 Ebllp_{tj} + \gamma_2 \Delta NPL_{t+1j} + \gamma_3 \Delta NPL_{tj} + \gamma_4 \Delta NPL_{t-1j} + \gamma_5 \Delta NPL_{t-2j} +$$

$$\gamma_6 CAP_{t-1j} + \gamma_7 Size_{t-1j} + \gamma_8 \%\Delta GDP_{tj} + \epsilon_{tj,} \tag{1}$$

where LLP_{tj} is the loan loss provision scaled by lagged total loans for bank j in year t. $Ebllp_{tj}$ is

earnings before loan loss provisions and taxes for period t scaled by lagged total loans.

ΔNPL_{t+1j} is the change in non-performing loans over the period $t+1$ scaled by lagged total

assets. Following Bushman and Williams (2012), *LLP Timeliness* is measured using estimates of

γ_2, which captures how loan loss provisions predict future changes in loan portfolio

performances while controlling for current and past deteriorations.[21] The other variables in the

regression (equity capital to total assets, the natural logarithm of total assets, and the percentage

change in GDP) are intended to control for the non-discretionary fundamentals associated with

loan losses. We estimate equation (1) by country. Similar to Bushman and Williams (2012), we

assign a value of zero to *LLP Timeliness* if the coefficient on $\Delta NPL_{t+1j}, \gamma_2$, for a particular

country is not statistically different from zero.

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[19] To the best of our knowledge, Bushman and William (2012) is the only published study that has examined the role of loan loss provision timeliness across different countries.
[20] We choose the period straddling the survey year (WBES, 2000) to enhance the power of estimating the timeliness of the loan loss provisions. We also assess the robustness of our results by using data from 1995-1999 (Section 4).
[21] The ΔNPL_{t+1j} is likely to be correlated with future loan losses more generally, and using this variable is a parsimonious way of capturing provisioning for those future losses without losing too many observations by requiring more than one year ahead changes in non-performing loans.

Table 1 presents γ_2, *LLP Timeliness*, and the number of bank-year observations across countries. The mean of γ_2 is 0.016 compared to an average of 0.017 from Bushman and Williams (2012). The correlation coefficient between our *LLP Timeliness* estimates and their reported estimates is 0.67 (p<0.01).[22] We find that γ_2 is significantly different from zero in 29 of our 44 sample countries and see substantial variation in the measure across those countries. At the extreme end of a lack of timeliness of loan loss provisioning is a system in which loan losses are recognized only when the loans turn bad and are written off.[23]

3.3   Measure of lending corruption

Our measure of lending corruption (*Bank Corruption*) is taken from the response of firms (current or potential borrowers) to the WBES survey question: "Is the corruption of banking officials an obstacle for the operation and growth of your business?" The possible firm responses were 1 – no obstacle, 2 – a minor obstacle, 3 – a moderate obstacle, 4 – a major obstacle. Thus, the variable is increasing in the perceived severity of lending corruption. Beck et al. (2006, p. 2136-2137) provide an extensive justification for this measure.[24] Hence, we believe it to be a reasonable proxy for capturing lending corruption.

One possible limitation of our study is that we only have *Bank Corruption* for the year 2000. Unfortunately, subsequent iterations of the WBES survey do not ask about lending corruption as a firm obstacle. However, corruption in the lending process is likely to vary little over short periods of time. While we would like to examine the variable in a changes

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[22] In an untabulated regression of (1) pooled across all countries in our sample, we find the signs and significance of the coefficients comparable to those reported in Bushman and Williams (2012).

[23] Such a system is actually used for tax purposes in many countries (e.g., the United States). Taxable income can only be reduced by loan losses when the loan losses are charged off.

[24] A wide range of prior work shows this survey data on financing obstacles is generally correlated with firm growth, institutions, corruption, property rights, information sharing, and investment flow efficiency (Acemoglu and Johnson, 2005; Ayyagari et al., 2008; Beck et al., 2005; Djankov et al., 2003; Hellman et al., 2000).

specification, it is quite probable we would not have been able to do so even with a time series of observations because of its likely persistence.

3.4 Summary statistics

Table 2 shows the distribution of firms in our sample by country. The sample is primarily comprised of developing countries, which is where we expect to find greater variation in lending corruption.[25] We observe a large variation in mean *Bank corruption* across countries ranging from 3.308 (Thailand) to 1.045 (U.K.). Table 3 displays the descriptive statistics. *Bank corruption* for our sample averages 1.723, compared to 1.776 from Barth et al. (2009), consistent with the firms in our sample on average reporting bank corruption as a minor obstacle. Nevertheless, we observe a considerable variation in bank corruption, with a standard deviation of 1.032. Our country-level control variables have similar means to those in Barth et al. (2009).

4. Empirical design and results

4.1 Empirical design

To test H1, we follow the tests (Table 8) from Barth et al. (2009) because these tests contain their most comprehensive specifications. Note that this specification includes a series of macro and institutional indices not included in their primary tests to assure the robustness of their results.[26] We add our measure of timely loan loss provisioning and estimate the following specification using an ordered probit regression. Using linear specifications does not change the study's inferences.

$$Bank\ Corruption = \alpha + \beta_1 LLP\ Timeliness_t + Controls + \epsilon_t, \qquad (2)$$

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[25] The WBES does not sample many firms in more developed countries such as the United States and Canada. Thus, our sample includes a fewer number of observations from these countries, despite there (generally) being more banks available in these countries for calculating *LLP Timeliness*.

[26] We essentially follow Barth et al.'s (2009) Table 8, column 1. When following other specifications in columns 2-6, we obtain similar results with a smaller sample size. For reasons of brevity, we do not tabulate them.

where *Bank Corruption* is the firm-level response about how much of an obstacle lending corruption is. *LLP Timeliness* is a country-level measure calculated as described in Section 3.2.

We follow Barth et al. (2009) and include controls to capture the general information environment (*Public registry*, *Private bureau*, and *Firm auditing*) and bank ownership (*Private bank ownership* and *Foreign bank ownership*). We also include a number of controls for firm respondent characteristics (*Government*, *Foreign*, *Competitor*, *Firm size*, and *Exporter*). Moreover, we control for individual firms' perception of their legal environments (*Fair court* and *Law enforcement*). Following Beck et al. (2006) and Barth et al. (2009), we include overall financing obstacles as an additional control variable (*General financial obstacle*) based on the firm's response to the question "How problematic is financing for the operation and growth of your business?" (1—no obstacle, 2—a minor obstacle, 3—a moderate obstacle, 4—a major obstacle). As both studies point out, incorporating this control variable enables us to establish that the link we find is with corruption, not with overall complaints about the financial sector. Aggregating these firm-level responses to run cross-country studies may confound interpretation of the results because firm composition varies markedly across countries and firm characteristics are correlated with survey results (Beck et al., 2006).

We further control for different aspects of the banking sector (*Creditor rights*, *Deposit insurance*, and *Bank accounting disclosure*), overall control of corruption in the economy (*Control of corruption*), and more general country-level characteristics (*GDP per capita*, *Inflation*, *Government effectiveness*, *Rule of law*, *Voice and accountability*, *Democracy*, and *Openness*). We refer readers to Appendix A for definitions and sources of variables used. Standard errors are clustered by country in all of our tests.

4.2.   Empirical results

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4.2.1   The relation between timely loan loss provisioning and lending corruption

Table 4, Panel A presents our primary results examining whether loan loss provisioning reduces bank lending corruption. Column 1 (column 2) presents the results without (with) *LLP Timeliness*. In column 2, which is the main regression specification for this paper, we find that the coefficient on *LLP Timeliness* is -0.371 (t-stat = 2.13). In column 2, we observe negative coefficients on *Private bureau* and *Firm auditing*, consistent with Barth et al.'s (2009) conclusion that having a better information environment and verified disclosure deters lending corruption. *Government* and *Law enforcement* enter negatively, in line with Barth et al.'s (2009) findings that government owned borrowers and borrowers perceiving a better legal environment experience less lending corruption. *General financing obstacle*, *Exporter*, and *Deposit insurance* are significantly related to bank corruption as they are in Barth et al. (2009).

Panel B examines the significance of the economic impact of loan loss provision timeliness on lending corruption. We report changes in the probability that a firm rates lending corruption as no obstacle, a minor obstacle, a moderate obstacle, or a major obstacle for operations and growth associated with changes in loan loss provision timeliness. A one standard deviation increase (decrease) in *LLP Timeliness* is associated with a 1.0% (2.7%) decrease in the probability that a firm rates bank corruption as a major obstacle (no obstacle) to growth. A change in *LLP Timeliness* from the minimum to the maximum is associated with a 6.5% decrease (a 17.5% increase) in the probability that a firm rates lending corruption as a major obstacle (not an obstacle at all). Given that 11.0% (60.0%) of our sample reports corruption as a major obstacle (no obstacle) to growth, this is a sizable result.

Table 4, Panel B also provides the effects of changes in several of the indicator variables from zero to one. Having audited financial statements (a private bureau) leads to a 3.4% (3.2%)

decrease in the probability that firms rate lending corruption as a major obstacle and an 8.9%

(8.7%) increase in firms rating lending corruption as being no obstacle to growth. Having deposit

insurance leads to a 3.9% increase in probability that a firm cites lending corruption as a major

obstacle to growth, consistent with Barth et al. (2009) who find a 5.8% increase. Government

and foreign firm ownership are both associated with decreases in the probability of lending

corruption being a major obstacle.

Our primary measure of *LLP Timeliness* follows Bushman and Williams (2012). To

check the robustness, we re-estimate our primary results using four alternative measures to *LLP*

Timeliness. First, we use γ_2 estimated in equation (1) without assigning zero to statistically

insignificant γ_2. This will potentially add noise to the *LLP Timeliness* measure. As expected, we

obtain weaker results using this variable (Panel C column 1). Our second additional proxy is *LLP*

Timeliness estimated from 1995-1999 with the same equation. We estimate this proxy to help

reduce concerns about the simultaneous determination of *LLP Timeliness* and *Lending*

corruption.[27] Our third additional proxy is the incremental R^2 from adding ΔNPL_{t+1j} to equation

(1), capturing the additional explanatory power due to adding the one-year-ahead change in non-

performing loans. Our fourth additional proxy is the incremental R^2 from adding ΔNPL_{t+1j} to

Beatty and Liao's (2014) loan loss provision model (see their Table 4, Model (d)).[28] Table 4,

Panel C, column 2 (columns 3 and 4) presents the results with the coefficient on ΔNPL_{t+1j}

(incremental R^2 from our base model and from Beatty and Liao, 2014). The distribution of the

last three of these measures by country is shown in Appendix B. The coefficients with the

alternative proxies are -1.344 (t-stat = 3.90), -1.159 (t-stat = 2.07), and -1.025 (t-stat = 3.31) in

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[27] We have fewer sample countries calculating *LLP Timeliness* over this period because Bankscope's coverage is thinner.

[28] We do not include the Case-Shiller Real Estate Index, which is available only in the United States.

columns 2, 3, and 4, respectively. Hence, our conclusion that more timely loan loss provisioning is associated with less lending corruption remains robust to the use of alternative proxies.

While we have included an extensive array of control variables, endogeneity, especially arising from reverse causality, is likely to be a concern. One might argue that when there is more lending corruption in the banking system, managers are more likely to be less timely in loan loss provisioning to hide the losses arising from bad loans that are more likely with greater lending corruption. In other words, it is not more timely loan loss provisioning that reduces lending corruption, but reduced lending corruption increases timely loan loss provisioning. In addition, to the extent that we have not controlled for institutional features (e.g., culture) within each country that affect both loan loss provisioning timeliness and lending corruption, there could be correlated omitted variable biases.

To address this concern, we rely on the standard instrumental variable (IV) approach to examine whether there is an effect of timely loan loss provisioning on lending corruption. In the case of our study, a good instrument is one that is a significant determinant of timely loan loss provisioning but that (arguably) does not have a direct effect on lending corruption (Larcker and Rusticus, 2010).

Some countries allow banks to deduct their loan loss provisions for tax purposes, thereby creating an incentive for banks in those countries to provide timely loan loss provisions (Nichols et al., 2009). To proxy for tax incentives to provide earlier loan loss provisioning, we argue that a banks' tax incentive for providing timely loss provisioning increases with the corporate tax rate. Corporate tax rates are unlikely to be under the direct influence of the bank; this helps to increase the validity of the instrument. Furthermore, the corporate tax deductibility of loan loss provisions is unlikely to have a direct effect on individual corrupt lending behavior. A review of the

literature on lending corruption indicates that no paper has considered that tax rates could be an explanation for lending corruption. From a conceptual perspective, finding an instrument that the prior literature has not yet considered as an explanatory variable in the second stage regression helps to increase the likelihood that the instrument satisfies the exogeneity condition (Adams and Ferreira, 2009).

To construct the instrument, we use *Tax Deductible*, which is the corporate tax rate if the specific loan loss provision is tax deductible for a particular country and zero otherwise. The higher *Tax Deductible* is, the greater the incentive for banks to record timely loan loss provisions for tax purposes. Moreover, the tax feature in a country does not appear to be related to bank corruption though channels other than the timeliness of the loan loss provisioning. The information on whether loan loss provisions are deductible is gathered from Barth et al. (2006). We obtain the average tax rate from KPMG Tax Rate Survey in 2003, IMD World Competitiveness Yearbook 2000 and the World Bank. To implement the instrumental variables approach in an attempt to identify the effect of timely loan loss provisioning, we follow the standard two stage least squares (2SLS) regression specification.

Table 5 presents the results of the 2SLS regressions. In the first stage, we have *LLP Timeliness* as the dependent variable and *Tax Deductible* as an instrument. Column 1 presents the results of the regression. *Tax Deductible* is significant in the first stage. Column 2 presents results of the second stage regression that examines the effect of timely loan provisioning that uses the instrumented timely loan loss provisioning variable. The coefficient on this variable is negative and statistically significant at the 10% level in the second stage, consistent with more timely loan loss provisioning reducing lending corruption.

The results of tests of the necessity and validity of the instrumental variable approach are provided at the bottom of the table. The test of endogeneity indicates that there is significant evidence (F-stat = 5.755) to reject the null hypothesis that *LLP Timeliness* and *Bank corruption* are exogenous. This result provides support for the use of the instrumental variables approach to identify the effect of *LLP Timeliness* on *Bank corruption*. Diagnostic tests of the relevance of *Tax Deductible* as an instrument indicate that it is a powerful instrument: the partial R^2 is 0.052. The F-statistic is statistically significant (F-stat = 5.031).

In the following sections, we examine our second hypothesis about how market discipline could affect the relation between the timeliness of loan loss provisioning and bank corruption. In particular, we focus on two important institutional features in the banking systems of many countries: deposit insurance and government ownership of the banking system. In H2a, we argue that deposit insurance reduces the likelihood of bank runs (a form of market discipline) when loan problems are revealed earlier. We hypothesize that more timely loan loss provisioning reduces corruption in bank lending less in banking systems that have deposit insurance. In H2b, we argue that even if corruption is revealed earlier due to more timely loan loss provisioning, greater government ownership in the banking system reduces market discipline by bank investors because of implicit government backing. It also reduces the likelihood of punishment being meted out to the corrupt bank officers. Hence, we hypothesize that more timely loan loss provisioning reduces corruption in bank lending less in countries where the government holds a more significant stake in the banking system.

To examine the role of these institutional features, we modify equation 2 and interact *LLP Timeliness* with a proxy of the institutional feature being examined (*Institution*):

$$Bank\ Corruption = \alpha + \beta_1 LLP\ Timeliness_t + \beta_2 Institution_t + \beta_3 LLP\ Timeliness_t \times$$

$$Institution_t + Controls + \epsilon_{t,} \qquad\qquad\qquad\qquad\qquad\qquad\qquad (3)$$

where *Institution* is *Deposit insurance* in Section 4.2.2 and *Government bank ownership* in Section 4.2.3. Because of the difficulties involved with the interpretation of coefficients on interaction terms in non-linear models, we estimate the interactions specification using both an ordered probit and an OLS model (Angrist, 2009).

4.2.2 Deposit insurance (H2a)

Table 6 presents the results of the analyses of the effect of deposit insurance (*Deposit insurance*) on the relation between bank corruption and the timeliness of loan loss provisions. The coefficient of interest is on *LLP Timeliness × Deposit insurance*. In the first column with the ordered probit regression specification, the coefficient is 2.803 (t-stat = 2.30). In the second column with the OLS regression specification, the coefficient is 2.755 (t-stat = 2.50). Hence, there is statistically significant evidence that in banking systems with deposit insurance, the association between more timely loan loss provisioning and banking corruption is mitigated, consistent with H2a.

Following Barth et al. (2009), we run a probit model (untabulated) where the dependent variable is an indicator equal to zero if a firm's response to the question of lending corruption being an obstacle is "no obstacle" and one if the firm's response is "minor", "moderate", or "major." We obtain a negative significant marginal effect of *LLP Timeliness* (-1.490 with t-stat=-3.14) and a positive significant marginal effect of the interaction term (1.159 with t-stat=4.331) using Ai and Norton's (2003) approach. To compare the economic effects of deposit insurance, having a deposit insurance program in place that can fully compensate depositors reduces the impact of *LLP Timeliness* by 78% (=1.159/1.490).

4.2.3 Government ownership of the banking system (H2b)

Table 7 presents the results of the analyses of the effect of government bank ownership (*Government bank ownership*) on the relation between bank corruption and the timeliness of loan loss provisions. The coefficient of interest is on *LLP Timeliness × Government bank ownership*. In the first column with the ordered probit regression specification, the coefficient is 0.034 (t-stat = 1.79).[29] In the second column with the OLS regression specification, the coefficient is 0.029 (t-stat = 1.79). Hence, there is statistically significant evidence that in banking systems with higher government ownership of the banking system, the association between more timely loan loss provisioning and banking corruption is mitigated, consistent with H2b.

Following Bath et al. (2009), we run a probit model where the dependent variable is an indicator equal to zero if a firm's response to the question of lending corruption being an obstacle is "no obstacle" and one if the firm's response is "minor", "moderate", or "major." We obtain a negative significant marginal effect of *LLP Timeliness* (-0.250 with t-stat=-1.74) and a positive significant marginal effect of the interaction term (0.003 with t-stat=2.24) using Ai and Norton's (2003) approach. To compare the economic effects of government bank ownership, increasing the government ownership of the banking system by 10% reduces the impact of *LLP Timeliness* by 12% (=0.003*10/0.250).

4.2.5 Robustness

We examine whether our earlier evidence of a negative association between bank corruption and the timeliness of loan loss provisions is robust to variations in the empirical design. First, we examine whether the evidence is robust to the inclusion of additional bank characteristics as control variables. Next, we control for the composition of the loans held by

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[29] We exclude the variable *Private bank ownership*, because the sum of *Private bank ownership*, *Foreign bank ownership* and *Government bank ownership* is equal to one.

banks. Finally, we examine whether our evidence is robust to the exclusion of firms from countries that have a disproportionately large number of firms within our sample, as well as to the use of weighted least squares regression (weighted by the number of observations per country). Table 8 presents the results of the robustness analyses.

For Panel A, we include additional characteristics of the banking system within a country to ensure that our results are not driven by an omitted latent variable. Using the data from Bankscope, we calculate the means of non-performing loans, capital ratio, earnings before loan loss provisioning for each country over 1995-2006 (the same period for which we estimate *LLP Timeliness*). Note that *LLP Timeliness* is a characteristic of the banking system within a country. We continue to find that *LLP Timeliness* is significantly associated with lower *Bank corruption* when controlling for non-performing loans, capital ratio, earnings before loan loss provisioning, and all of these simultaneously.

Because the mix of loans could affect the calculation of *LLP Timeliness*, which is reported aggregating all types of loans, we control for the loan mix in Panel B. In column 1, we control for the proportion of long-term loans using the within-country averages. In column 2, we control for the proportion of loans that are commercial and industrial (*C&I loans*). Commercial and industrial loans for which provisions are made are usually classified as non-performing loans in the following period. However, the classification to non-performing is almost immediate for personal loans. We continue to find significant results when controlling for these types of loan mixes separately and together (column 3).

For Panel C, because observations from Russia and Poland make up a significant portion (about 13%) of our sample, we ensure that our results are not being driven by the relationship between *LLP Timeliness* and *Bank corruption* in these countries. Table 8, Panel C shows that our

results are robust to the exclusion of observations from Russia and Poland. We also re-estimate our results using a weighted least squares specification, weighting by the number of observations per country. These results are still significant at the 1% level, and are economically greater than in the base specification.

5.   Conclusion

It is important to control corruption, which is widespread around the world and has existed throughout history (Klitgaard, 1988). Corruption imposes a steep cost on society and can become normalized in organizations due to reinforcing processes such as institutionalization, rationalization, and socialization (Ashforth and Anand, 2003). Without proper constraints, individuals (and groups of individuals) will be tempted to engage in corruption, and such behavior can become so embedded within the organization that it is more or less taken for granted and perpetuated. Financial reporting is expected to hold an important disciplining role in reducing agency problems. Prior literature examining controls on lending corruption has considered external forces but largely ignored the information produced internally by banks. We examine whether the timeliness of loan loss provisioning is associated with lending corruption in an international setting. Our key result is that lending corruption is lower when loan loss provisioning is timelier.

Prior literature has found that strategies intended to enhance private monitoring of banks are more successful in constraining lending corruption than are strategies empowering supervisory agencies. Therefore, we examine whether our primary effect is mitigated in situations when we expect less market discipline (Beck et al., 2006). Specifically, we consider the market discipline imposed on banks by depositors and equity investors. We expect depositors

to monitor banks less in the presence of deposit insurance and investors to do the same when a significant portion of the banking system is owned by the government because of the implicit government support provided. We find that the effect of timely loan loss provisioning on lending corruption is mitigated in countries with a deposit insurance scheme and in those where the government controls a greater percentage of the banking industry's assets.

We acknowledge that endogeneity is an important concern in establishing that more timely loan provisioning indeed has a disciplining effect on lending corruption. In our study, we use a wide array of established techniques to deal with this concern. First, we use an extensive array of control variables guided by prior literature, particularly prior studies that have looked at the determinants of lending corruption. Second, we rely on an instrumental variable approach to better establish causality for the proposed relationship. We argue that our instrument, the corporate tax rate within a country if the loan loss provision is tax deductible, is likely to meet the exclusion requirements for an instrument because corporate tax deductibility is unlikely to have a direct effect on the corrupt behavior of individuals. Using 2SLS regressions with this instrument, we find that more timely loan loss provisioning reduces lending corruption. Third, we provide cross-sectional analyses to show that the combination of accounting information and the likelihood of stakeholders acting on the information is important to financial reporting system constraining corruption (Rajan and Zingales, 1998; Christensen, Hail, and Leuz, 2013). Finally, our primary results are also robust to controlling for additional country-level variables, using alternative measures for the timeliness of loan loss provisioning, and excluding the most represented countries from our sample. While each of the above techniques used to identify the effect of timely loan loss provisioning has its limitations, when viewed in aggregate, the results lend significant support to our hypothesis that more timely loan loss provisioning reduces

lending corruption. However, to the extent that one is still concerned that endogeneity might be driving our results and preventing a clear causal inference, we believe our findings are still interesting in that they are the first to document an association between timely loan loss provisioning and lending corruption.

To conclude, an important takeaway from our paper is that more timely loan loss provisioning, by acting as an early warning mechanism, may have the important ex-ante effect of constraining lending corruption. Thus, to the extent that one believes that corruption leads to capital allocation inefficiency, one might infer from our results that financial reporting has a role in facilitating the efficient allocation of funds by constraining the corruption that enables bad firms/projects to obtain debt capital. Future research could investigate whether more timely loan loss provisioning by lenders actually leads to firms' greater investment efficiency and affects economic growth.[30]

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[30] Mauro (1995) finds the degree to which business transactions involve corruption stymies investment and economic growth. But the paper does not examine lending corruption specifically and certainly not the timeliness of loan loss provisioning.

Appendix A: Variable Definitions

Variable	Definition	Original source
Bank corruption	Firm response to the question, "Is the corruption of bank officials an obstacle for the operation and growth of your business?" (1—no obstacle, 2—minor obstacle, 3—a moderate obstacle, 4—major obstacle.)	World Business Economic Survey (WBES) (2000)
LLP Timeliness	*LLP Timeliness* is computed following Bushman and Williams (2012). We first regress loan loss provisions at time t on change in non-performing loans at time t+1 and other variables by country: $LLP_{tj} = \gamma_0 + \gamma_1 Ebllp_{tj} + \gamma_2 \Delta NPL_{t+1j} + \gamma_3 \Delta NPL_{tj} + \gamma_4 \Delta NPL_{t-1j} + \gamma_5 \Delta NPL_{t-2j} + \gamma_6 CAP_{t-1j} + \gamma_7 Size_{t-1j} + \gamma_8 \%\Delta GDP_{tj} + \epsilon_{tj}$. *LLP Timeliness* is the coefficient on the change in non-performing loans, γ_2, if it is statistically significant, and zero if γ_2 is insignificant.	Our calculations using Bankscope
Public registry	Indicator variable equal to one if a public credit registry operates in the country by the end of 1999 and zero otherwise.	Djankov, McLeish, and Shleifer (2007)
Private bureau	Indicator variable equal to one if a private credit bureau operates in the country by the end of 1999 and zero otherwise.	Djankov, McLeish, and Shleifer (2007)
Firm auditing	Indicator variable equal to one if the firm provides its shareholders with annual financial statements that have been reviewed by an external auditor, zero otherwise.	WBES (2000)
Private bank ownership	The fraction of the banking system's assets in the banks that are 50% or more owned by private investors.	Barth, Caprio, and Levine (2006)
Foreign bank ownership	Percentage of bank assets in banks that are a majority foreign owned. This was collected from a survey of bank regulators in 2001.	Barth, Caprio, and Levine (2006)
Government	Indicator variable equal to one if any government agency or state body has a financial stake in the ownership of the firm and zero otherwise.	WBES (2000)
Foreign	Indicator variable equal to one if any foreign company has a financial stake in the ownership of the firm and zero otherwise.	WBES (2000)
Competitor	Number of competitors that the company manager perceives.	WBES (2000)
Fair court	A firm-level survey indicator measuring the enforceability of a court's decision, increasing in fairness. 'In resolving a business dispute, do you believe your country's court system to be fair and impartial?'' (0—never, 1—seldom, 2—sometimes, 3—frequently, 4—usually, 5—always. Higher value indicates better court quality.)	WBES (2000)

Law enforcement	A firm-level survey indicator measuring the fairness and impartiality of a court's decision, increasing in fairness. 'In resolving a business dispute, do you believe your country's court system to be decision enforced?'' (0—never, 1—seldom, 2—sometimes, 3—frequently, 4—usually, 5—always. Higher value indicates better law enforcement.)	WBES (2000)
General financing obstacle	"How problematic is financing for the operation and growth of your business?" (1—no obstacle, 2—a minor obstacle, 3—a moderate obstacle, 4—a major obstacle.)	WBES (2000)
Firm size	Natural log of firm sales in U.S. dollars.	WBES (2000)
Exporter	Indicator variable equal to one if the firm is an exporter and zero otherwise.	WBES (2000)
Creditor rights	An index which measures the power of secured lenders in bankruptcy defined in laws and regulations, ranging from zero to four, increasing in creditor rights.	Djankov, McLeish, and Shleifer (2007)
Deposit insurance	Indicates whether there is a deposit insurance scheme or whether depositors were fully compensated the last time a bank failed if there is no deposit insurance scheme.	Barth, Caprio, and Levine (2006)
Bank accounting disclosure	Indicates whether the income statement includes accrued or unpaid interest or principal on performing and non-performing loans and whether banks are required to produce consolidated financial statements, increasing in the informativeness of the bank account.	Barth, Caprio, and Levine (2006)
Control of corruption	Indicator measuring the extent to which public power is used for private gain, including corruption and the "capture" of the government by elites and private interests, increasing in control of corruption.	Kaufmann, Kraay, and Mastruzzi (2006)
GDP per capita	Natural log of gross national product per capita in 1999.	World Bank (2000)
Inflation	Three year average inflation (1998-2000), GDP deflator.	World Bank (2000)
Government effectiveness	Measuring the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies, increasing in the quality of public and civil service.	Kaufmann, Kraay, and Mastruzzi (2006)
Rule of law	The extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts as well as the likelihood of crime and violence, increasing in rule of law.	Kaufmann, Kraay, and Mastruzzi (2006)
Voice and	The extent to which a country's citizens are able to participate in	Kaufmann,

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accountability	selecting their government, as well as freedom of expression, association, and media, increasing in political rights.	Kraay, and Mastruzzi (2006)
Democracy	Indicator variable equal to one if the country was democratic in all years between 1950 and 2000.	Triesman (2000)
Openness	Imports as a share of GDP in 2000.	World Bank (2000)
Tax deductible	The corporate tax rate if the specific loan loss provision is tax deductible for a particular country, zero otherwise.	Barth et al. (2006)/ KPMG Tax Rate Survey in 2003/ IMD World Competitiveness Yearbook 2000 /World Bank
Government bank ownership	The percentage of the banking system's assets in banks more than 50% owned by the government.	Barth et al. (2006)
Industry Categories	We use the variable *actdummy* in WBES (2000): 1—manufacturing, 2—service, 3—other, 4—agriculture, 5—construction. If *actdummy* is missing, we use the other variable sector in WBES (2000): 1—manufacturing, 2—service.	WBES (2000)

Appendix B: Alternative measures of *LLP Timeliness* and the Instrumental Variable

Country	(1)	(2)	(3)	(4)	Country	(1)	(2)	(3)	(4)
Argentina		0.041	0.008	0	Malaysia	0.000	0.002	0.008	28
Azerbaijan		0.003	0.000	0	Mexico	0.000	0.004	0.031	35
Bolivia	0.441	0.000		25	Pakistan		0.010	0.002	43
Bosnia		0.000	0.012	10	Panama		0.017	0.000	0
Botswana		0.023	0.020	25	Peru	-0.105	0.013	0.008	30
Brazil		0.001	0.002	37	Philippines	-0.150	0.026	0.012	0
Canada	0.000	0.027	0.006	44.6	Poland	-0.123	0.026		34
Chile	0.000	0.003	0.017	15	Portugal	0.000	0.016	0.000	37.4
Colombia	-0.157	0.032	0.090	35	Russia		0.047	0.043	43
Costa Rica		0.007	0.013	30	Senegal		0.043		33
Croatia		0.020	0.005	20	Slovakia		0.004		19
Czech Rep		0.000	0.000	31	Slovenia		0.409		25
Ecuador		0.006	0.006	15	South Africa		0.001	0.002	35
El Salvador	0.000	0.021	0.000	25	Spain	-0.069	0.001	0.021	0
Germany		0.005	0.003	51.6	Thailand		0.012	0.003	30
Ghana		0.002		39.9	Turkey	0.000	0.002	0.024	33
Honduras		0.001		0	UK	0.000	0.003	0.002	30
Hungary		0.032	0.000	0	US	0.030	0.000	0.001	0
India		0.113	0.009	35	Ukraine		0.013	0.004	34
Italy	-0.023	0.009	0.001	37	Uruguay	0.296	0.006	0.000	30
Kenya		0.000	0.000	49.8	Venezuela	-0.360	0.000	0.031	0
Lithuania		0.002		15	Zimbabwe		0.100	0.000	30.9

This table presents the three alternative measures of *LLP Timeliness* and our instrumental variable for each of the 44 countries in our sample. Column 1 is *LLP Timeliness* estimated from 1995-1999. Column 2 is the incremental R^2 from adding ΔNPL_{t+1j} to equation (1), capturing the additional explanatory power due to adding the one-year-ahead change in non-performing loans. Column 3 is the incremental R^2 from adding ΔNPL_{t+1j} to Beatty and Liao's (2014) loan loss provision model (their Table 4, Model (d)). Column 4 is our instrumental variable which is the corporate tax rate if the loan loss provisions (for specific purposes) is tax deductible for a particular country and zero otherwise.

References

Acemoglu, D., and S. Johnson, 2005. Unbundling institutions. Journal of Political Economy 113, 949-995.

Adams, R., and D. Ferreira, 2009. Women in the boardroom and their impact on governance and performance. Journal of Financial Economics 94, 291-309.

Adams, P., and Probe International, 1991. Odious debts: loose lending, corruption, and the Third World's environmental legacy. No. GTZ-563 E10 A216o. Earthscan.

Ai, C., and E. Norton, 2003. Interaction terms in logit and probit models. Economics Letters 80(1), 123-129.

Angrist, J., and J. Pischke, 2009. Mostly harmless econometrics: an empiricist's companion. Princeton: Princeton University Press.

Ashforth, B., and V. Anand, 2003. The normalization of corruption in organizations. Research in Organizational Behavior 25, 1-52.

Ayyagari, M., A. Demirguc-Kunt, and V. Maksimovic, 2008. How well do institutional theories explain firms' perceptions of property rights? Review of Financial Studies 21, 1833-1871.

Barth, J., G. Caprio, and R. Levine, 2006. Rethinking bank regulation: till angels govern. New York: Cambridge University Press.

Barth, J., C. Lin, P. Lin, and F. Song, 2009. Corruption in bank lending to firms: cross-country micro evidence on the beneficial role of competition and information sharing. Journal of Financial Economics 91, 361-388.

Beatty, A., and S. Liao, 2011. Do delays in expected loss recognition affect banks' willingness to lend? Journal of Accounting and Economics 52, 1-20.

Beatty, A., and S. Liao, 2014. Financial accounting in the banking industry: a review of the empirical literature. Journal of Accounting and Economics 58, 339-383.

Beck, T., A., Demirguc-Kunt, and R. Levine, 2006. Bank supervision and corruption in lending. Journal of Monetary Economics 53, 2131-2163.

Beck, T., A., Demirguc-Kunt, and V. Maksimovic, 2005. Financial and legal constraints to firm growth: does size matter? Journal of Finance 60(1), 137-177.

Beck, T., A., Demirguc-Kunt, and V. Maksimovic, 2008. Financing patterns around the world: are small firms different? Journal of Financial Economics 89(3), 467-487.

Berger, A., and R. Turk-Ariss, 2014. Do depositors discipline banks and did government actions during the recent crisis reduce this discipline? An international perspective. Journal of Financial Services Research, forthcoming.

Billet, M., J. Garfinkel, and E. O'Neal, 1998. The cost of market versus regulatory discipline in banking. Journal of Financial Economics 48, 333-358.

Borisova, G., and W. Megginson, 2011. Does government ownership affect the cost of debt? Evidence from privatization. Review of Financial Studies 24(8), 2693-2737.

Bushman, R., 2014. Thoughts on financial accounting and the banking industry. Journal of Accounting and Economics, forthcoming.

Bushman, R., and C. Williams, 2012. Accounting discretion, loan loss provisioning, and discipline of banks' risk-taking. Journal of Accounting and Economics 54, 1-18.

Calomiris, C., R. Fisman, and Y. Wang, 2008. Profiting from government stakes in a command economy: evidence from Chinese asset sales. Journal of Financial Economics 96(3), 399-412.

Caprio, G., and Klingebiel, D, 1996. Bank insolvencies: cross-country experience. World Bank Publications.

Chaney, P., M. Faccio, and D. Parsley, 2011. The quality of accounting information in politically connected firms. Journal of Accounting and Economics 51, 58-76.

Chen, H., J. Chen, G. Lobo, and Y. Wang, 2011. Effects of audit quality on earnings management and cost of equity capital: evidence from China. Contemporary Accounting Research 28(3), 892-925.

Chen, Y., M. Liu, and J. Su, 2013. Greasing the wheels of bank lending: evidence from private firms in China. Journal of Banking and Finance 37, 2533-2545.

Christensen, H., L. Hail, and C. Leuz, 2013. Mandatory IFRS reporting and changes in enforcement. Journal of Accounting and Economics 56, 147-177.

Dahl, D., J. O'Keefe, and G. Hanweck, 1998. The influence of examiners and auditors on loan-loss recognition. FDIC Banking Review 11, 10-25.

Dam, L., and M. Koetter, 2012. Bank bailouts and moral hazard: Evidence from Germany. Review of Financial Studies 25(8), 2343-2380.

Demirguc-Kunt, A., and E. Detragiache, 2002. Does deposit insurance increase banking system stability? An empirical investigation. Journal of Monetary Economics 49(7), 1373-1406.

Demirguc-Kunt, A., and H. Huizinga, 2004. Market discipline and deposit insurance. Journal of Monetary Economics 51(2), 375-399.

Diamond, D., and P. Dybvig, 1983. Bank runs, deposit insurance, and liquidity. Journal of Political Economy 91(3), 401-419.

Dinç, S, 2005. "Politicians and banks: Political influences on government-owned banks in emerging markets." Journal of Financial Economics 77(2), 453-479.

Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer, 2003. Courts. The Quarterly Journal of Economics 118, 453-517.

Djankov, S., C. McLiesh, and A. Shleifer, 2007. Private credit in 129 countries. Journal of Financial Economics 84, 299-329.

Ferraz, C., and F. Finn, 2008. Exposing corrupt politicians: The effects of Brazil's publicly released audits on electoral outcomes. The Quarterly Journal of Economics 123(2), 703-745.

Financial Accounting Standards Board (FASB), 2012. Exposure draft: financial instruments– credit losses.

Flannery, M., and S. Sorescu, 1996. Evidence of bank market discipline in subordinate debenture yields: 1983-1991. Journal of Finance 51(4), 1347-1377.

Garelli, S. The world competitiveness yearbook, 2000. Lausanne, Switzerland: International Institute for Management Development World Competitiveness Center.

Gaston, E., and Song, I, 2014. Supervisory roles in loan loss provisioning in countries implementing IFRS. IMF Working Paper, WP/14/170.

Gerschenkron, A., 1962. Economic backwardness in historical perspective: a book of essays. New York: Praeger.

Goldberg, L., and S. Hudgins, 2002. Depositor discipline and changing strategies for regulating thrift instututions. Journal of Financial Economics 63, 263-274.

Greenbaum, S., and A. Thakor, 2007. Contemporary financial intermediation. 2nd ed. Burlington, Massachusetts: Academic Press.

Guedhami, O., J. Pittman, and W. Saffar, 2009. Auditor choice in privatized firms: empirical evidence on the role of state and foreign owners. Journal of Accounting and Economics 48,151-171.

Hellman, J., G. Jones, D. Kaufman, and M. Schankermann, 2000. Measuring governance and state capture: the role of bureaucrats and firms in shaping the business environment. European Bank for Reconstruction and Development, Working Paper 51.

Houston, J., C. Lin, and Y. Ma, 2011. Media ownership, concentration and corruption in bank lending. Journal of Financial Economics 100(2), 326-350.

International Accounting Standards Board (IASB), 2014. IFRS: Financial Instruments.

Kaufmann, D., A. Kraay, and M. Mastruzzi, 2006. Governance matters V: worldwide governance indicators, 1996-2005. World Bank Policy Research.

Klitgaard, R. Controlling corruption, 1988. Berkeley: Univ of California Press.

Larcker, D., and T. Rusticus, 2010. On the use of instrumental variables in accounting research. Journal of Accounting and Economics 49(3), 186-205.

Lardy, N., 1998. China and the Asian Contagion. Foreign Affairs 77(4), 78-88.

Li, K., H. Yue, and L. Zhao, 2009. Ownership, institutions, and capital structure: evidence from China. Journal of Comparative Economics 37, 471-490.

Maechler, A., and K. McDill, 2006. Dynamic depositor discipline in U.S. banks. Journal of Banking and Finance 30, 1871-1898.

Mauro, P, 1995. Corruption and growth. The Quarterly Journal of Economics 110(3), 681-712.

Merton, R., 1977. An analytic derivation of the cost of deposit insurance and loan guarantees. An application of modern pricing theory. Journal of Banking and Finance 1(1), 3-11.

Nichols, D., J. Wahlen, and M. Wieland, 2009. Publicly traded versus privately held: implications for conditional conservatism in bank accounting. Review of Accounting Studies 14, 88-122.

Pickett, S., 2001. Internal control: A manager's Journey. New York: John Wiley & Sons.

Rajan, R., and L. Zingales, 1998. Financial dependence and growth. The American Economic Review 88(3), 559-586.

Shleifer, A., and R. Vishny, 1993. Corruption. The Quarterly Journal of Economics 108(3), 599-617.

Stern, G., and R. Feldman, 2004. Too big to fail: the hazards of bank bailouts. Washington, DC: Brookings Institution Press.

Tanzi, V., 1998. Corruption around the world: causes, consequences, scope, and cures. Staff Papers – International Monetary Fund 45, 559-594.

Treisman, D., 2000. The causes of corruption: a cross-national study. Journal of Public Economics 76(3), 399-457.

Trenerry, A., 1999, Principles of internal control. Sydney: UNSW Press.

Udell, G., 1989. Loan quality, commercial loan review, and loan officer contracting. Journal of Banking and Finance 13, 367-382.

Wang, Q., T.J. Wong, and L. Xia, 2008. State ownership, the institutional environment, and auditor choice: Evidence from China. Journal of Accounting and Economics 46(1), 112-134.

Wei, Z., F. Xie, and S. Zhang, 2005. Ownership structure and firm value in China's privatized firms: 1991-2001. Journal of Financial and Quantitative Analysis 40(1), 87-108.

Wickberg, S., 2013. Corruption risks and mitigation strategies in small and medium size enterprise lending. Transparency International, Expert Answer 395.

World Bank. World business environment survey, 2000. Washington, D.C.: The World Bank.

Table 1: Sample for the estimation of loan loss provision timeliness

This table presents information related to the estimation of the timeliness of loan loss provisions, *LLP Timeliness,* from 1996-2005. We report γ_2, *LLP Timeliness*, and the number of bank-years for each country. *LLP Timeliness* is computed following Bushman and Williams (2012) for each country and then assigned to each firm in our sample. We regress loan loss provisions at time t on change in non-performing loans at time t+1 and control variables for each country (See equation (1)). *LLP Timeliness* is the coefficient on change in non-performing loans, γ_2, if statistically significant and zero otherwise. *, **, and *** denote significance levels at 10%, 5%, and 1% respectively.

Country	γ_2	*LLP Timeliness*	# Banks	Country	γ_2	*LLP Timeliness*	# Banks
Argentina	-0.138***	-0.138	125	Malaysia	-0.022*	-0.022	389
Azerbaijan	0.039	0	25	Mexico	0.042*	0.042	241
Bolivia	0.003	0	79	Pakistan	-0.044*	-0.044	131
Bosnia	0.022	0	16	Panama	0.109	0	42
Botswana	0.059*	0.059	23	Peru	-0.092***	-0.092	151
Brazil	0.024*	0.024	336	Philippines	-0.062**	-0.062	89
Canada	0.114***	0.114	189	Poland	0.049**	0.049	80
Chile	-0.092*	-0.092	314	Portugal	-0.110***	-0.11	196
Colombia	-0.111**	-0.111	103	Russia	0.140***	0.14	102
Costa Rica	0.037**	0.037	187	Senegal	-0.053*	-0.053	20
Croatia	0.054*	0.054	45	Slovakia	-0.03	0	18
Czech Rep	-0.01	0	38	Slovenia	0.995***	0.995	13
Ecuador	-0.046*	-0.046	127	South Africa	-0.035	0	53
El Salvador	-0.119***	-0.119	104	Spain	-0.016*	-0.016	383
Germany	0.014	0	32	Thailand	0.037*	0.037	103
Ghana	-0.053	0	17	Turkey	0.039	0	137
Honduras	-0.012	0	67	U.K.	0.022*	0.022	216
Hungary	-0.077*	-0.077	29	U.S.	-0.002	0	49627
India	-0.246***	-0.246	260	Ukraine	0.066*	0.066	58
Italy	-0.046***	-0.046	2305	Uruguay	0.050*	0.05	94
Kenya	-0.009	0	154	Venezuela	0.015	0	205
Lithuania	0.028	0	15	Zimbabwe	0.187***	0.187	31

Table 2: Loan loss provision timeliness, bank corruption, and sample size by country

This table presents information about the mean *Bank corruption* and the sample size for each of the 44 countries in our sample. The sample consists of 3,611 firms included in the World Bank's World Business Environment Survey. *Bank corruption* is the firm response to the question "Is the corruption of bank officials an obstacle for the operation and growth of your business (1-no obstacle, 2-minor obstacle, 3-a moderate obstacle, 4-major obstacle)." All following analyses are conducted at the firm (borrower or potential borrower) level.

Country	*Bank corruption*	# Firms	Country	*Bank corruption*	# Firms
Argentina	1.518	85	Malaysia	1.746	59
Azerbaijan	2.944	90	Mexico	2.011	88
Bolivia	1.651	86	Pakistan	2.446	74
Bosnia	1.714	42	Panama	1.407	81
Botswana	1.178	45	Peru	2.195	87
Brazil	1.291	79	Philippines	2.200	90
Canada	1.071	84	Poland	1.390	164
Chile	1.224	85	Portugal	1.453	75
Colombia	1.591	88	Russia	1.914	314
Costa Rica	1.778	81	Senegal	1.647	17
Croatia	1.827	98	Slovakia	2.040	75
Czech Rep	1.904	73	Slovenia	1.243	115
Ecuador	2.663	86	South Africa	1.127	71
El Salvador	1.728	81	Spain	1.263	76
Germany	1.516	62	Thailand	3.308	13
Ghana	1.800	25	Turkey	2.349	126
Honduras	2.051	39	U.K.	1.045	66
Hungary	1.528	72	U.S.	1.481	79
India	1.554	130	Ukraine	1.957	139
Italy	1.175	57	Uruguay	1.137	73
Kenya	1.455	44	Venezuela	1.550	80
Lithuania	2.300	60	Zimbabwe	1.526	57

Table 3: Descriptive statistics

This table presents descriptive statistics for the 3,611 firms (from 44 countries) used to examine the relation between bank corruption and the systematic timeliness of loan loss provisions. *Bank corruption* is the firm response to the question "Is the corruption of bank officials an obstacle for the operation and growth of your business (1-no obstacle, 2-minor obstacle, 3-a moderate obstacle, 4-major obstacle)." *LLP Timeliness* is computed following Bushman and Williams (2012) for each country and then assigned to each firm in our sample. We regress loan loss provisions at time t on change in non-performing loans at time t+1 and control variables for each country. (See equation (1).) *LLP Timeliness* is the coefficient on change in non-performing loans, γ_2, if statistically significant and zero otherwise. *Public registry* is an indicator variable, which takes the value one if a public credit registry operates in the country by the end of 1999 and zero otherwise. *Private bureau* is an indicator variable equal to one if a private credit bureau operates in the country by the end of 1999 and zero otherwise. *Firm auditing* is an indicator equal to one if the firm provides audited annual financials to its shareholders. *Private bank ownership* is the percentage of the banking system's assets in banks that are more than 50% owned by private investors. *Foreign bank ownership* is the percentage of the banking system's assets in banks that are more than 50% owned by foreign investors. *Government* is an indicator variable equal to one if any governmental agency or body has ownership in the firm and zero otherwise. *Foreign* is an indicator variable equal to one if any foreign company or individual has ownership in the firm and zero otherwise. *Competitor* captures the number of competitors the manager perceives. *Fair court* captures the enforceability of court decisions. *Law enforcement* is measures the impartiality of court decisions. *General financing obstacle* captures how difficult financing is for the operation and growth of the firm. *Firm size* is the natural logarithm of firm sales in US dollars. *Exporter* is an indicator variable equal to one if the firm is an exporter and zero otherwise. *Creditor rights* is an index capturing the power of secured lenders in bankruptcy laws and regulations. *Deposit insurance* is an indicator variable equal to one if the firm's country has a deposit insurance scheme or if depositors were fully compensated the last time a bank failed and zero otherwise. *Bank accounting disclosure* is an indicator equal to one if the income statement includes accrued interest or principal on both performing and non-performing loans and whether banks must produce consolidated financial statements. *Control of corruption* captures how well corruption is controlled within the country. *GDP per capita* is the logarithm of gross national product per capita in 1999. *Inflation* is the three year average percentage inflation, GDP deflator. *Government effectiveness* captures the quality of public services, civil service (and its independence from political influences), policy formation and implementation, and the government's commitment to these policies. *Rule of law* captures the extent to which agents have confidence in and follow the rules of society, particularly contract enforcement, police, the courts, and the probability of crime. *Voice and accountability* measures the extent to which people are able to select their government officials as well as different freedoms such as expression, association, and press. *Democracy* is an indicator equal to one if the firm's country was democratic in all years from 1950 until 2000. *Openness* captures imports as a share of GDP in 2000.

Variable	Mean	Std	p25	p50	p75
Bank corruption	1.723	1.032	1.000	1.000	2.000
LLP Timeliness	0.029	0.195	-0.046	0.000	0.050
Public registry	0.459	0.498	0.000	0.000	1.000
Private bureau	0.504	0.500	0.000	1.000	1.000
Firm auditing	0.659	0.474	0.000	1.000	1.000
Private bank ownership	47.670	28.047	17.430	55.700	67.200
Foreign bank ownership	32.900	28.645	8.800	20.600	46.800
Government	0.111	0.315	0.000	0.000	0.000
Foreign	0.189	0.392	0.000	0.000	0.000
Competitor	2.286	0.720	2.000	2.000	3.000
Fair court	2.386	1.418	1.000	2.000	4.000
Law enforcement	2.363	1.410	1.000	2.000	3.000
General financing obstacle	2.773	1.108	2.000	3.000	4.000
Firm size	10.265	7.908	1.609	13.122	16.811
Exporter	0.392	0.488	0.000	0.000	1.000
Creditor rights	1.822	1.101	1.000	2.000	3.000
Deposit insurance	0.797	0.402	1.000	1.000	1.000
Bank accounting disclosure	2.757	0.467	3.000	3.000	3.000
Control of corruption	0.037	0.943	-0.710	-0.240	0.710
GDP per capita	8.026	1.167	7.193	8.148	8.642
Inflation	12.496	17.744	2.848	6.274	12.759
Government effectiveness	0.205	0.825	-0.530	0.120	0.710
Rule of law	0.034	0.855	-0.740	-0.070	0.540
Voice and accountability	0.290	0.738	-0.430	0.400	0.960
Democracy	0.199	0.399	0.000	0.000	0.000
Openness	36.534	19.599	24.034	32.180	45.766

Table 4: Bank corruption and the timeliness of loan loss provisions

This table presents regression results examining the relation between the timeliness of loan loss provisioning and bank corruption. Panel A presents the coefficients of the regression. Panel B presents analyses of the economic significance of various coefficients. In Panel C, we examine whether our evidence of a negative association between bank corruption and the timeliness of loan loss provisions is robust to the use of alternative measures of timeliness of loan loss provisions. *Bank corruption* is the firm response to the question "Is the corruption of bank officials an obstacle for the operation and growth of your business (1-no obstacle, 2-minor obstacle, 3-a moderate obstacle, 4-major obstacle)." *LLP Timeliness* is computed following Bushman and Williams (2012) for each country and then assigned to each firm in our sample. We regress loan loss provisions at time t on change in non-performing loans at time t+1 and control variables for each country (See equation (1)). *LLP Timeliness* is the coefficient on change in non-performing loans, γ_2, if statistically significant and zero otherwise. t-statistics are presented beneath the coefficients within parentheses. The control variables are as previously defined. Standard errors are clustered by country. *, **, and *** denote significance levels at 10%, 5%, and 1% respectively.

Panel A: Ordered probit regression

	Dep=Bank corruption	
	(1)	(2)
LLP Timeliness		-0.371**
		(2.13)
Public registry	0.076	0.087
	(0.63)	(0.73)
Private bureau	-0.203	-0.230*
	(1.44)	(1.67)
Firm auditing	-0.232***	-0.231***
	(3.46)	(3.53)
Private bank ownership	-0.008**	-0.007*
	(2.05)	(1.88)
Foreign bank ownership	-0.006*	-0.007*
	(1.77)	(1.83)
Government	-0.177*	-0.167*
	(1.88)	(1.80)
Foreign	-0.058	-0.053
	(0.93)	(0.86)
Competitor	-0.036	-0.034
	(0.87)	(0.83)
Fair court	0.007	0.008
	(0.39)	(0.44)
Law enforcement	-0.115***	-0.113***
	(5.32)	(5.16)
General financing obstacle	0.225***	0.224***
	(10.42)	(10.35)
Firm size	0.007	0.004
	(0.79)	(0.44)
Exporter	-0.113*	-0.101*
	(1.88)	(1.69)

Creditor rights	-0.133***	-0.131***
	(3.07)	(3.14)
Deposit insurance	0.364***	0.321**
	(2.90)	(2.57)
Bank accounting disclosure	-0.181**	-0.166*
	(2.01)	(1.88)
Control of corruption	-0.255	-0.208
	(0.95)	(0.77)
GDP per capita	0.054	0.081
	(0.68)	(0.96)
Inflation	-0.000	-0.001
	(0.07)	(0.21)
Government effectiveness	0.129	0.110
	(0.47)	(0.40)
Rule of law	-0.018	-0.061
	(0.06)	(0.20)
Voice and accountability	-0.297**	-0.300**
	(2.37)	(2.41)
Democracy	-0.023	-0.010
	(0.15)	(0.06)
Openness	0.009***	0.009***
	(3.26)	(3.39)
Industry FE	Yes	Yes
Observations	3611	3611
Number of Countries	44	44
Pseudo R-squared	0.099	0.100

Panel B: Magnitude of timeliness of loan loss provisions' effects

		Bank corruption=			
		1 (59.98%)	2 (18.72%)	3 (10.33%)	4 (10.97%)
		no obstacle	a minor obstacle	a moderate obstacle	a major obstacle
LLP Timeliness	1 standard dev. Increase	0.027	-0.009	-0.008	-0.010
	Change from minimum to maximum	0.175	-0.057	-0.053	-0.065
Private bureau	Change from 0 to 1	0.087	-0.029	-0.026	-0.032
Firm auditing	Change from 0 to 1	0.089	-0.028	-0.027	-0.034
Deposit insurance	Change from 0 to 1	-0.118	0.043	0.035	0.039
Government	Change from 0 to 1	0.062	-0.022	-0.019	-0.021
Foreign	Change from 0 to 1	0.020	-0.007	-0.006	-0.007

Panel C: Alternative measures of *LLP Timeliness*

	Dep=Bank corruption			
	Without assigning zero to statistically insignificant γ_2	*LLP Timeliness Estimated 1995-1999*	*Incremental R-Squared from ΔNPL_{t+1}*	*Incremental R-Squared from ΔNPL_{t+1} (Beatty and Liao 2014)*
	(1)	(2)	(3)	(4)
Alternative Measures of LLP Timeliness	-0.283*	-1.344***	-1.159**	-1.025***
	(1.68)	(3.90)	(2.07)	(3.31)
Public registry	0.083	-0.151**	0.090	-0.091
	(0.69)	(2.02)	(0.80)	(0.52)
Private bureau	-0.221	3.525***	-0.232*	-0.331*
	(1.58)	(13.15)	(1.67)	(1.81)
Firm auditing	-0.231***	-0.149*	-0.215***	-0.204***
	(3.52)	(1.95)	(3.26)	(2.89)
Private bank ownership	-0.007*	0.039***	-0.008**	-0.008*
	(1.94)	(9.52)	(2.15)	(1.70)
Foreign bank ownership	-0.007*	0.056***	-0.007**	-0.007
	(1.84)	(11.01)	(2.14)	(1.42)
Government	-0.170*	-0.389*	-0.172*	-0.133
	(1.83)	(1.65)	(1.87)	(1.58)
Foreign	-0.055	-0.120	-0.054	-0.087
	(0.88)	(0.96)	(0.87)	(1.27)
Competitor	-0.035	-0.196**	-0.032	-0.034
	(0.85)	(2.37)	(0.78)	(0.69)
Fair court	0.008	0.047	0.011	0.027
	(0.43)	(1.10)	(0.59)	(1.37)
Law enforcement	-0.114***	-0.120**	-0.112***	-0.130***
	(5.19)	(2.56)	(5.12)	(4.81)
General financing obstacle	0.223***	0.262***	0.221***	0.227***
	(10.30)	(8.04)	(10.21)	(9.07)
Firm size	0.005	0.002	0.004	0.018*
	(0.52)	(0.19)	(0.39)	(1.83)
Exporter	-0.105*	-0.077	-0.100	-0.073
	(1.73)	(0.69)	(1.62)	(1.08)
Creditor rights	-0.129***	-0.120***	-0.130***	-0.198***
	(3.03)	(3.65)	(3.11)	(4.84)
Deposit insurance	0.331***	1.112***	0.342***	0.403***
	(2.60)	(4.65)	(2.85)	(3.44)
Bank accounting disclosure	-0.169*	0.997***	-0.161*	-0.239**
	(1.88)	(8.50)	(1.84)	(2.01)
Control of corruption	-0.222	-1.762***	-0.244	-0.127

	(0.82)	(16.77)	(0.94)	(0.44)
GDP per capita	0.077	0.587***	0.060	0.068
	(0.91)	(14.06)	(0.78)	(0.62)
Inflation	-0.001	0.085***	-0.001	0.005
	(0.16)	(16.68)	(0.41)	(1.39)
Government effectiveness	0.112	-3.201***	0.144	0.264
	(0.41)	(16.98)	(0.54)	(1.04)
Rule of law	-0.049	3.381***	-0.044	-0.314
	(0.16)	(18.84)	(0.15)	(0.90)
Voice and accountability	-0.299**	2.031***	-0.281**	-0.229*
	(2.39)	(20.25)	(2.34)	(1.87)
Democracy	-0.015	-1.858***	-0.016	-0.160
	(0.10)	(20.03)	(0.10)	(1.02)
Openness	0.009***	0.018***	0.009***	0.008**
	(3.35)	(13.60)	(3.29)	(2.46)
Industry FE	Yes	Yes	Yes	Yes
Observations	3611	1544	3611	3030
Number of Countries	44	18	44	36
Pseudo R-squared	0.099	0.139	0.100	0.106

Table 5: 2SLS regressions

This table presents the results of the 2SLS regressions used to identify the effect of loan loss provision timeliness on bank corruption. The instrument used in the first stage is *Tax Deductible*, the corporate tax rate in the firm's country if the loan loss provision is tax deductible and zero otherwise. Results of the standard tests of the validity of the 2SLS approach are reported at the bottom of the table. *Bank corruption* is the firm response to the question "Is the corruption of bank officials an obstacle for the operation and growth of your business (1-no obstacle, 2-minor obstacle, 3-a moderate obstacle, 4-major obstacle)." *LLP Timeliness* is computed following Bushman and Williams (2012) for each country and then assigned to each firm in our sample. We regress loan loss provisions at time t on change in non-performing loans at time t+1 and control variables for each country. (See equation (1).) *LLP Timeliness* is the coefficient on change in non-performing loans, γ_2, if statistically significant and zero otherwise. The control variables are as previously defined. Standard errors are clustered by country. *, **, and *** denote significance levels at 10%, 5%, and 1% respectively.

	LLP Timeliness	Bank corruption
	1st stage	2nd stage
	(1)	(2)
Tax Deductible	0.003***	
	(2.83)	
LLP Timeliness		-2.976*
		(1.74)
Public registry	0.036	0.234
	(0.59)	(1.35)
Private bureau	-0.108**	-0.554**
	(2.13)	(2.04)
Firm auditing	0.022	-0.128*
	(1.10)	(1.93)
Private bank ownership	0.002*	0.002
	(1.70)	(0.53)
Foreign bank ownership	-0.000	-0.005
	(0.27)	(0.96)
Government	0.039*	0.028
	(1.69)	(0.31)
Foreign	0.006	-0.001
	(0.79)	(0.02)
Competitor	0.006	0.006
	(0.76)	(0.15)
Fair court	0.005	0.015
	(1.12)	(0.83)
Law enforcement	0.007	-0.059***
	(1.44)	(2.80)
General financing obstacle	-0.005	0.149***
	(1.12)	(6.66)
Firm size	-0.009	-0.027
	(1.57)	(1.41)

Exporter	0.030	0.007
	(1.51)	(0.10)
Creditor rights	0.016	-0.073
	(0.89)	(1.34)
Deposit insurance	-0.100***	-0.262
	(3.05)	(1.24)
Bank accounting disclosure	0.059	0.049
	(1.29)	(0.35)
Control of corruption	0.111	0.314
	(1.65)	(0.80)
GDP per capita	0.106***	0.293*
	(2.72)	(1.79)
Inflation	-0.002	-0.008
	(0.90)	(1.40)
Government effectiveness	-0.064	0.024
	(0.59)	(0.07)
Rule of law	-0.095	-0.516
	(0.80)	(1.01)
Voice and accountability	-0.018	-0.270*
	(0.44)	(1.86)
Democracy	-0.033	0.081
	(0.48)	(0.32)
Openness	0.002	0.010**
	(1.48)	(2.38)
Constant	-0.889**	-0.354
	(2.61)	(0.27)
Industry FE	Yes	Yes
Observations	3611	3611
Number of Countries	44	44
R-squared	0.522	0.051
Tests of weak instrument:		
Partial R-squared	0.052	
F-statistic	5.031**	
Test of no endogeneity:		
F-statistic		5.755**

Table 6: The role of deposit insurance on the relation between bank corruption and the timeliness of loan loss provisions

This table presents the results of the analyses of the effect of deposit insurance on the relation between bank corruption and the timeliness of loan loss provisions (H2a). *Bank corruption* is the firm response to the question "Is the corruption of bank officials an obstacle for the operation and growth of your business (1-no obstacle, 2-minor obstacle, 3-a moderate obstacle, 4-major obstacle)." *LLP Timeliness* is computed following Bushman and Williams (2012) for each country and then assigned to each firm in our sample. We regress loan loss provisions at time t on change in non-performing loans at time t+1 and control variables for each country. (See equation (1).) *LLP Timeliness* is the coefficient on change in non-performing loans, γ_2, if statistically significant and zero otherwise. *Deposit insurance* is an indicator variable equal to one if the firm's country has a deposit insurance scheme or if depositors were fully compensated the last time a bank failed and zero otherwise. The control variables are as previously defined. Standard errors are clustered by country. *, **, and *** denote significance levels at 10%, 5%, and 1% respectively.

	Dep=Bank corruption	
	Ordered Probit	OLS
	(1)	(2)
LLP Timeliness	-3.175**	-3.011**
	(2.55)	(2.68)
LLP Timeliness ×Deposit insurance	2.803**	2.755**
	(2.30)	(2.50)
Deposit insurance	0.003	-0.083
	(0.02)	(0.82)
Public registry	0.042	0.026
	(0.30)	(0.22)
Private bureau	-0.180	-0.225*
	(1.26)	(1.88)
Firm auditing	-0.220***	-0.176***
	(3.40)	(3.38)
Private bank ownership	-0.006	-0.003
	(1.58)	(1.01)
Foreign bank ownership	-0.006*	-0.004
	(1.79)	(1.39)
Government	-0.168*	-0.100*
	(1.80)	(1.76)
Foreign	-0.044	-0.030
	(0.70)	(0.67)
Competitor	-0.035	-0.011
	(0.83)	(0.31)
Fair court	0.008	0.005
	(0.44)	(0.40)
Law enforcement	-0.116***	-0.079***
	(5.22)	(4.63)
General financing obstacle	0.227***	0.162***
	(10.85)	(8.80)

Firm size	-0.001	-0.002
	(0.12)	(0.23)
Exporter	-0.105*	-0.099**
	(1.78)	(2.38)
Creditor rights	-0.146***	-0.098***
	(3.69)	(3.18)
Bank accounting disclosure	-0.241**	-0.146
	(2.32)	(1.65)
Control of corruption	-0.143	0.004
	(0.56)	(0.02)
GDP per capita	0.122	0.091
	(1.32)	(1.17)
Inflation	0.000	-0.001
	(0.07)	(0.34)
Government effectiveness	-0.057	0.048
	(0.19)	(0.20)
Rule of law	-0.039	-0.176
	(0.13)	(0.66)
Voice and accountability	-0.266**	-0.234**
	(2.40)	(2.40)
Democracy	0.009	0.022
	(0.05)	(0.17)
Openness	0.009***	0.006**
	(3.27)	(2.57)
Industry FE	Yes	Yes
Observations	3611	3611
Number of Countries	44	44
Pseudo or Adj. R-squared	0.099	0.178

Table 7: The role of government ownership on the relation between bank corruption and the timeliness of loan loss provisions

This table presents the results of the analyses of the effect of government ownership of the banking sector on the relation between bank corruption and the timeliness of loan loss provisions (H2b). *Bank corruption* is the firm response to the question "Is the corruption of bank officials an obstacle for the operation and growth of your business (1-no obstacle, 2-minor obstacle, 3-a moderate obstacle, 4-major obstacle)." *LLP Timeliness* is computed following Bushman and Williams (2012) for each country and then assigned to each firm in our sample. We regress loan loss provisions at time t on change in non-performing loans at time t+1 and control variables for each country. (See equation (1).) *LLP Timeliness* is the coefficient on change in non-performing loans, γ_2, if statistically significant and zero otherwise. *Government bank ownership* indicates the fraction of the banking systems assets in the banks that are 50% or more owned by the government. The control variables are as previously defined. Standard errors are clustered by country. *, **, and *** denote significance levels at 10%, 5%, and 1% respectively.

	Dep=Bank corruption	
	Ordered Probit	*OLS*
	(1)	(2)
LLP Timeliness	-0.897**	-0.664**
	(2.50)	(2.60)
LLP Timeliness	0.034*	0.029*
× Government bank ownership	(1.79)	(1.79)
Government bank ownership	0.008**	0.005
	(2.28)	(1.49)
Public registry	0.087	0.084
	(0.79)	(0.84)
Private bureau	-0.288**	-0.277**
	(1.98)	(2.23)
Firm auditing	-0.207***	-0.169***
	(3.06)	(3.06)
Foreign bank ownership	0.001	-0.000
	(0.41)	(0.34)
Government	-0.178**	-0.098*
	(1.99)	(1.76)
Foreign	-0.056	-0.040
	(0.89)	(0.91)
Competitor	-0.036	-0.010
	(0.87)	(0.28)
Fair court	0.011	0.010
	(0.61)	(0.72)
Law enforcement	-0.109***	-0.073***
	(5.05)	(4.52)
General financing obstacle	0.221***	0.156***
	(10.10)	(8.46)
Firm size	0.005	0.003
	(0.52)	(0.34)

Exporter	-0.098	-0.084*
	(1.62)	(1.89)
Creditor rights	-0.112***	-0.067*
	(2.65)	(1.96)
Deposit insurance	0.394***	0.233*
	(2.91)	(1.93)
Bank accounting disclosure	-0.162*	-0.081
	(1.84)	(0.97)
Control of corruption	-0.310	-0.150
	(1.14)	(0.70)
GDP per capita	0.021	-0.002
	(0.23)	(0.02)
Inflation	-0.002	-0.003
	(0.46)	(0.68)
Government effectiveness	0.169	0.220
	(0.63)	(0.99)
Rule of law	0.040	-0.102
	(0.13)	(0.37)
Voice and accountability	-0.278**	-0.221**
	(2.32)	(2.05)
Democracy	0.062	0.103
	(0.39)	(0.96)
Openness	0.008***	0.005**
	(2.77)	(2.45)
Industry FE	Yes	Yes
Observations	3611	3611
Number of Countries	44	44
Pseudo or Adj. R-squared	0.101	0.177

Table 8: Robustness analyses

This table presents three sets of robustness analyses. In Panel A, we examine whether the evidence is robust to the inclusion of additional bank characteristics (aggregated to the country level) as control variables. In Panel B, we control for the portion of loans that are long term and that are commercial and industrial. Finally, in Panel C, we examine whether our evidence is robust to the exclusion of firms from countries that have a disproportionately large number of firms within our sample, as well as to the use of a weighted least squares regression (weighted by the number of observations per country). The dependent variable in each regression is *Bank corruption*, which is the firm response to the question "Is the corruption of bank officials an obstacle for the operation and growth of your business (1-no obstacle, 2-minor obstacle, 3-a moderate obstacle, 4-major obstacle)." *LLP Timeliness* is computed following Bushman and Williams (2012) for each country and then assigned to each firm in our sample. We regress loan loss provisions at time t on change in non-performing loans at time t+1 and control variables for each country (See equation (1)). *LLP Timeliness* is the coefficient on change in non-performing loans, γ_2, if statistically significant and zero otherwise. Standard errors are clustered by country. *, **, and *** denote significance levels at 10%, 5%, and 1% respectively.

Panel A: Controlling for additional bank characteristics (estimated at country level)

	Non-performing Loan	*Capital Ratio*	*Earnings Before LLP*	*All of (1), (2) and (3)*
	(1)	(2)	(3)	(4)
LLP Timeliness	-0.410**	-0.385*	-0.365**	-0.432**
	(2.28)	(1.93)	(2.12)	(2.21)
Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	3611	3611	3611	3611
Number of Countries	44	44	44	44
Pseudo R-squared	0.102	0.100	0.100	0.102

Panel B: Controlling for additional loan composition variables (at the country level)

	Proportion of Long-term Loans	*Proportion of C&I Loans*	*Both (1) and (2)*
	(1)	(2)	(3)
LLP Timeliness	-0.398**	-0.391**	-0.409**
	(2.33)	(2.20)	(2.39)
Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Observations	3611	3611	3611
Number of Countries	44	44	44
Pseudo R-squared	0.101	0.100	0.101

Panel C: Tests related to uneven representation across countries

	Excluding Russia	Excluding Poland	WLS by # of observations in each country
	(1)	(2)	
LLP Timeliness	-0.357**	-0.349**	-0.503***
	(2.23)	(2.08)	(2.86)
Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Observations	3297	3447	3611
Number of Countries	43	43	44
Pseudo R-squared	0.109	0.100	0.086