Bank Accounting Regulations, Enforcement Mechanisms, and Financial Statement Informativeness: Cross-Country Evidence

Abstract

We construct measures of accounting regulations and enforcement mechanisms that are specific to a country's banking industry. Using a sample of major banks in 37 economies, we find that the informativeness of banks' financial statements, measured by the value relevance of earnings and common equity, is higher in countries with stricter bank accounting regulations and countries with stronger enforcement. These findings suggest that superior bank accounting and enforcement mechanisms enhance the informativeness of banks' financial statements. In addition, we find that the effects of bank accounting regulations are more pronounced in countries with stronger enforcement in the banking industry, suggesting that enforcement is complementary to bank accounting regulations in achieving higher value relevance of financial statements. Our study has important policy implications for bank regulators.

***JEL Classification Numbers*:** M41; M48

***Keywords*:** bank accounting regulations; Industry-specific enforcement mechanisms; financial statement informativeness; banking transparency

1. Introduction

As financial intermediaries between firms (borrowers) and household depositors, commercial banks play a central role in a country's financial system and are subject to intense government regulation. Prior banking literature (e.g., Barth et al., 2004; Tadesse, 2006; Laeven and Levine, 2009) has examined the effects of various bank regulations, including capital adequacy, competition, and transparency-related regulations, on bank development and stability. For example, Barth et al. (2004) and Tadesse (2006) find that stronger transparency-related regulations are associated with better bank development and a lower incidence of banking crisis, consistent with bank transparency promoting the financial health of the banking system. Although bank transparency is crucial to the banking industry (e.g., Bushman, 2016; Bushman and Williams, 2012; Basel, 1998), the linkage between bank regulations and bank transparency is merely assumed in prior literature without empirical support (e.g., Tadesse, 2006). Our study aims to fill this gap by investigating whether and how accounting and enforcement-related bank regulations affect bank transparency.

This research question is important for the following two reasons. First, banks are inherently more opaque than non-financial firms (e.g., Flannery et al., 2013; Morgan, 2002), due to the private information based nature of their balance sheets' assets (e.g., Diamond, 1984; Boyd and Prescott, 1986).[1] Given that banks are associated with excessive opaqueness (Morgan, 2002) and highly leveraged capital structures (Jensen and Meckling, 1976), it is particularly important to identify those factors that are likely to strengthen or weaken banks' information environment faced by regulators and capital providers. Second, the banking industry is characterized by excessive risk-taking by individual banks at the cost of depositors and the risk to the overall financial system due to correlated risk-taking across banks (e.g., Hanson et al.,

[1] One major argument for prudential bank regulation is bank-depositor information asymmetry (Beatty and Liao, 2014).

2011). Yet the traditional shareholder-oriented governance mechanisms such as executive compensation contracts, which focus on maximizing shareholder value while overlooking the interests of debtholders and financial stability, are not effective in addressing excessive risk-taking and the resulting bank transparency problem (e.g., Laeven, 2013). Thus, whether and how other mechanisms such as bank regulations affect bank transparency should be of great interest to regulators and investors.

Specifically, we focus on an important dimension of bank transparency, the informativeness of banks' financial statement, because financial accounting information "forms the foundation of the firm-specific information set" and "plays a fundamental role in prudential oversight of banks" (Bushman and Williams, 2012, p. 4). We analyze bank regulations that directly regulate banks' reporting and disclosure behavior (hereafter, bank accounting regulations). In addition, we investigate the role of banking industry-specific enforcement mechanisms. As Brown et al. (2014) note, the measurement of enforcement adopted in prior accounting literature (e.g., Daske et al., 2008; Landsman et al., 2011) generally captures a country's legal setting without considering enforcement of accounting standards per se. To mitigate this deficiency, we consider three mechanisms that are best suited for enforcing accounting standards in the banking industry: bank regulatory supervision, market discipline, and audit services.[2] These mechanisms are comprehensive in that they cover both public enforcement (i.e., enforcement by state-funded regulators) and private enforcement (i.e., enforcement by private parties), as suggested in prior law and finance studies (e.g., La Porta et al., 2006; Djankov et al., 2008).

[2] The importance of market discipline and bank supervision is underscored by the fact that two of the three pillars of the recent international prudential standards, Pillar 2 and Pillar 3 in the Basel II and Basel III Regulatory Frameworks (Basel Committee on Banking Supervision, 2006 and 2011), focus on these enforcement mechanisms. Both market discipline (Pillar 3) and supervision (Pillar 2) are complementary and self-reinforcing in their twin goals of mitigating problems of both moral hazard and asymmetric information that are endemic in the banking industry. Pillar 1 deals with minimum bank capital requirements.

We develop three hypotheses regarding the effects of bank accounting regulations and enforcement mechanisms on the informativeness of banks' financial statements. As prior literature (e.g., Beatty and Liao 2014) suggests, bank managers have incentives to manage accounting amounts for meeting regulatory capital requirements which masks the bank's economic substance and thus reduces the informativeness of its financial statements. Stricter bank accounting regulations lead to more extensive and comprehensive reporting and disclosure (e.g., Barth et al., 2004). Such regulations not only limit managers' accounting discretion in various line items of financial statements (e.g., Barth et al., 2008), but also promote outsiders' ability to detect accounting manipulation through providing increased disclosure (e.g., Jo and Kim, 2007). Therefore, our first hypothesis predicts that the informativeness of banks' financial statements increases with the strength of bank accounting regulations.

Our second hypothesis concerns the role of enforcement mechanisms in affecting the informativeness of banks' financial statements. As the prior accounting literature suggests (e.g., Kothari, 2000; Brown et al., 2014), the enforcement of accounting standards affects the quality of financial statement numbers. A stronger enforcement environment in the banking industry increases the power and responsibility of market participants, auditors, and regulatory agencies (e.g., Barth et al., 2004), thus encouraging these parties to take action in case of infringements. This, in turn, increases the demand of these outsiders (e.g., depositors, information intermediaries, and regulators) for transparent information to facilitate their analyses, and thus promote better compliance with bank accounting regulations. Accordingly, our second hypothesis predicts that stronger enforcement in the banking industry is conducive to the informativeness of banks' financial statements.

Our third hypothesis focuses on the interaction effect between bank accounting regulations and enforcement mechanisms. Prior literature suggests competing arguments. On one hand, stronger enforcement mechanisms increase the cost to management of abusing the discretion afforded by a country's given regulations (e.g., Burgstahler et al., 2006), thus limiting managerial manipulation of financial statements for a given level of regulations. These arguments suggest that the positive effect of bank accounting regulations on financial statement informativeness increases with the strength of enforcement. On the other hand, one may argue that a country may substitute strong legal enforcement for weak laws and rules (e.g., La Porta et al., 1998). Thus, to the extent that both accounting regulations and enforcement mechanisms serve the same purpose of enhancing bank transparency, they are likely to substitute for each other. This line of reasoning suggests that the positive effect of bank accounting regulations on financial statement informativeness decreases with the strength of enforcement.

Following prior literature (e.g., Collins et al., 1997), we measure the informativeness of financial statements using the relevance of major financial statement items (i.e., earnings and common equity) to equity valuation. This measure reflects the ability of financial statements to summarize information that influences stock values. To measure the strength of bank accounting regulations and enforcement mechanisms, we follow prior banking literature (Barth et al., 2006) and construct two indexes using the World Bank's survey data. One index captures the strictness of a country's bank accounting regulations, and the other index proxies for the strength of enforcement mechanisms including market discipline, audit services, and regulatory supervision in a country's banking industry.

Using a sample of major banking institutions across 37 economies, we find that the informativeness of banks' financial statements is higher in countries with stricter bank

accounting regulations and countries with stronger enforcement in the banking industry. This finding suggests that superior bank accounting regulations and stronger enforcement mechanisms reduce the opportunistic use of accounting discretion by bank institutions, thus increasing the credibility and informativeness of banks' financial statements. More importantly, we find that the interaction effect of bank accounting regulations and banking industry-specific enforcement mechanisms is positively associated with financial statement informativeness, consistent with the notion that accounting regulations and enforcement mechanisms are complements rather than substitutes.

We further perform tests to identify the specific rules and regulations that drive the results. We find that five out of the six reporting/disclosure requirements that constitute the index of bank accounting regulations are positively and significantly associated with the informativeness of banks' financial statements, suggesting that most reporting/disclosure requirements contribute to higher financial statement informativeness. In addition, we find that, two of the three components of our enforcement measure, audit services and regulatory supervision, play an important role in enhancing banks' financial statement informativeness.

We also perform a battery of robustness tests. First, we adopt multiple methods (e.g., change regressions and two-stage instrumental variables regressions) to mitigate endogeneity bias arising from reverse causality or correlated omitted variables. We find that our results remain robust after correcting for endogeneity bias. Second, our results are also robust to two alternative measures of enforcement mechanisms and one alternative measure of financial statement informativeness. Finally, because U.S. banks account for a large proportion of our sample banks, we exclude them and find that our results and inferences hold for the sample of non-U.S. banks.

Our study makes three main contributions to prior literature. First, it contributes to the literature on the effects of bank regulations. Cross-country studies such as Barth et al. (2004) and Tadesse (2006) find that the banking industry is more developed and stable in countries with stronger bank accounting regulations and regulations that foster private-sector monitoring. Exploiting variation in the adoption of disclosure and supervision regulation across U.S. states, Granja (2014) suggests that stricter state-level disclosure requirements enhance stability and development of commercial banks. Although bank transparency is a critical topic of bank regulations, whether bank accounting and enforcement regulations actually enhance bank transparency remains an unresolved issue. Our study addresses this gap by documenting that stricter bank accounting regulations enhance the informativeness of banks' financial statements. In addition, we find that this effect is more pronounced in countries with stronger accounting enforcement in the banking industry.

Second, we contribute to the prior accounting literature on the role of enforcement mechanisms in affecting financial reporting quality. Unlike the prior literature (e.g., Leuz et al., 2003; Burgstahler et al., 2006; Daske et al., 2008; Li, 2010; Landsman et al., 2012) that focuses on non-bank firms, we focus on banks. In addition, as Brown et al. (2014) note, the prior literature generally adopts enforcement proxies based on a country's overall legal enforcement, which do not capture enforcement of accounting standards specifically. Our study mitigates this deficiency by compiling an index that measures the strength of *accounting enforcement* in the banking industry *per se*. We find that stronger banking industry-specific enforcement mechanisms enhance financial statement informativeness. We further find that such enforcement mechanisms are complementary to bank accounting regulations in enhancing banks' financial statement informativeness.

Finally, our study also adds to the literature on the informativeness of banks' financial statements and disclosures. A long strand of literature has examined the informativeness of banks' derivatives disclosures (e.g., Venkatachalam, 1996), fair value estimates of investment securities (e.g., Barth, 1994), fair value estimates of financial instruments (Barth et al., 1996), and recognition versus disclosure of derivative fair values (Ahmed et al., 2006). Anandarajan et al. (2011) also examine the role of country-level factors in affecting the informativeness of financial statements. Unlike Anandarjan et al. (2011) which focuses on a country's "generic" accounting regulations and legal origin (i.e., common law versus code law), our study focuses on accounting regulations and enforcement mechanisms that are "specific" to a country's banking industry.

Our findings have important policy implications for banking supervisory authorities and policy-makers. Bank regulators (e.g., the Federal Deposit Insurance Corporation (FDIC) in the US, and the Financial Conduct Authority (FCA) in the UK), and global standard-setters for prudential bank regulation such as the Basel Committee on Banking Supervision, have generally argued that greater bank transparency is a fundamental contributor to the stability of the banking system (e.g., Basel, 1998, 2001; FDIC, 2002; FCA, 2016). Our evidence suggests that an effective way to improve bank transparency such as banks' financial statement informativeness is to adopt stricter bank accounting regulations and implement regulations that foster and strengthen enforcement mechanisms. Importantly, our results also suggest that the positive effect of bank accounting regulations on banks' financial statement informativeness increases with the strength of enforcement. Therefore, supervisory agencies and policy-makers should pay attention to the combination of both factors in order to implement more effective regulatory policies.

The remainder of our study is organized as follows. In Section 2, we discuss some related literature and present our testable hypotheses. In Sections 3 and 4, we describe our research design and report our empirical results, respectively. Finally, we summarize and conclude in Section 5.

2. Literature Review and Hypothesis Development

2.1. Information asymmetry, agency problems, and accounting manipulation in banks

Unlike most business and manufacturing industries, the banking industry is a highly regulated industry. Commercial banks serve as financial intermediaries between depositors and firms (borrowers) by repackaging deposits into loans that are provided to firms. Yet, due to information asymmetry, dispersed depositors are not able to monitor and control bank managers' risk-taking behavior effectively (e.g., Flannery et al, 2004; Beatty and Liao, 2014). This calls for government regulation on banks' capital adequacy, information disclosure, private-sector monitoring, official supervision, and other aspects (Barth et al., 2004; Beatty and Liao, 2014). Prudential bank regulations in general aim to not only protect small depositors by limiting bank failures, but also protect the entire banking system by limiting systemic banking crises (Rochet, 2005).

Bank managers have incentives to manage accounting amounts for meeting regulatory capital requirements. One major agency problem of banks is the manager-depositor agency conflict, where bank managers tend to engage in excessive risk-taking activities at the expense of investors such as depositors (e.g., Chen, 1999; Bushman, 2016). As Beatty and Liao (2014) note, such risk-taking behavior reduces capital ratios and thus is likely to trigger regulatory interventions and negative reactions from market participants. This, in turn, motivates bank

managers to manipulate accounting numbers for the purposes of avoiding violations of capital requirements. For example, they can use accounting discretion in bank loan loss provisions to manage regulatory capital (e.g., Ahmed et al., 1999) and/or earnings (e.g., Collins et al., 1995), thus meeting regulatory requirements. Such manipulative behaviors, however, likely reduce the ability of financial statements to reflect underlying economic substance, thereby impairing the informativeness of financial statements (e.g., Fan and Wong, 2002; Marquardt and Wiedman, 2004).

2.2. Prior literature on accounting standards, enforcement and financial reporting quality

Our cross-country banking study is related to a large body of literature regarding the effects of accounting standards on financial reporting quality in cross-country settings (see, for example, De George et al.'s (2016) review of the International Financial Reporting Standards (IFRS) literature). Examining non-bank industries, the literature generally suggests that higher quality accounting standards enhance firms' financial reporting quality (e.g., De George et al., 2016; Barth et al., 2008; Daske et al., 2008).

Regarding enforcement, a long stream of law and finance literature find evidence suggesting that the quality of enforcement mechanisms plays an important role in affecting financial development and various corporate behaviors (e.g., La Porta et al, 1997, 1998 and 2006; DeFond and Hung, 2004; Dyck and Zingales, 2004; Djankov et al., 2008; Knoeber and Walker, 2013). Various scholars (e.g., Wade, 2007; Malsch and Gendron, 2011) further argue that enforcement is critical to the stability of the global financial system. In addition, prior accounting literature also concludes that strong enforcement is a crucial factor in constraining

earnings management and enhancing financial reporting quality (e.g., Kothari, 2000; Leuz et al., 2003; Burgstahler et al., 2006; Leuz 2010).

Absent adequate enforcement, the rules (e.g., laws and standards) intended to regulate corporate behavior would be relegated to requirements only on paper (e.g., Burgstahler et al., 2006; Hope, 2003). Thus, the strength of enforcement is likely to moderate the effect of accounting standards. Prior accounting literature generally finds that the benefits of high-quality accounting standards (e.g., enhancing financial reporting quality, improving market liquidity, and reducing the cost of capital) are more pronounced in countries with stronger enforcement. For example, Daske et al. (2008) and Li (2012) find that the capital market benefits of adopting IFRS are present only in countries with relatively strong enforcement regimes, and Landsman et al. (2012) document that the increasing effect of IFRS adoption on the information content of earnings is greater for firms in countries with stronger legal enforcement.

2.3. Hypothesis development

Our study examines the impact of bank accounting regulations and enforcement mechanisms on the informativeness of banks' financial statements. Our first hypothesis concerns the role of bank accounting regulations. These regulations focus on the extent and comprehensiveness of financial reporting and disclosure by banks. As Barth et al. (2004, 2006) show, countries vary substantially regarding items required to be reported or disclosed to the public by banks. High-quality reporting standards directly limit bank managers' accounting discretion and enhance the informativeness of financial statements (Barth et al., 2008).[3] In

[3] For example, if accrued, though unpaid interest on nonperforming loans is not allowed to enter the income statement, it reduces bank managers' ability to overstate earnings (and thus bank capital). As another example, not all countries require financial institutions to produce consolidated accounts covering all bank and any nonbank financial subsidiaries. Obviously, compared with the financial statements of the parent bank firm alone, consolidated statements are more informative and can better summarize information that influences the value of the entire group including the parent firm and its subsidiaries.

addition, increased bank disclosure required by high-quality disclosure standards, such as disclosure of off-balance sheet financial instruments and risk management procedures, enhances outsiders' understanding of various line items in banks' financial statements. Importantly, such increased disclosure helps outsiders to better detect managerial manipulation of accounting amounts in financial statements, thus reducing managers' incentive/ability to engage in such behavior (e.g., Jo and Kim, 2007). These arguments suggest that stricter bank accounting regulations would lead to greater informativeness of banks' financial statements. Thus, we state the following hypothesis:

H1: *Bank accounting regulations are positively associated with the informativeness of banks' financial statements.*

Our second hypothesis focuses on the role of enforcement mechanisms. Brown et al. (2014) define accounting enforcement as "the activities undertaken by independent bodies (*monitoring*, reviewing, educating and *sanctioning*) to promote firms' compliance with accounting standards in their statutory financial statements" (Brown et al., 2014, p. 3). [4] In addition, prior literature (e.g., La Porta et al., 2006; Djankov et al., 2008) also suggests that the enforcement of rules (e.g., laws and standards) indeed includes both public enforcement and private enforcement. We therefore focus on three key accounting enforcement mechanisms that are particularly suited for the highly regulated banking industry: two private enforcement mechanisms (i.e., market discipline and audit services) and one public enforcement mechanism (i.e., regulatory supervision). Among these mechanisms, market discipline and regulatory supervision are two of the three pillars in the Basel II and Basel III Regulatory Frameworks (Basel Committee on Banking Supervision (Basel), 2006, 2011). Specifically, while Basel

[4] Earlier studies (e.g., Daske et al., 2008; Christensen et al., 2016) generally use the rule-of-law or security regulation indices to measure the strength of enforcement. However, these measures are deficient in capturing compliance with accounting regulations *per se* (Brown et al. 2014).

identifies market discipline as an important enforcement mechanism through which market participants such as credit rating agencies, depositors, and shareholders monitor and discipline banks' behavior that may cause bank failures (Stephanou, 2010)[5], regulatory supervision of banks serves as a critical public enforcement mechanism where bank supervisory agencies enforce compliance with various bank regulations (Barth et al., 2004; Demirgu-Kunt et al., 2008).

Stronger enforcement mechanisms in the banking industry are likely to constrain banks managers' manipulation of accounting numbers for the following reasons. First, market participants such as credit rating agencies rely on financial information reported by firms (e.g., Blume et al., 1998), thus they play an important role in enforcing bank accounting regulations. For example, if banks are required to obtain credit ratings, credit rating agencies would demand more transparent information about these banks in order to facilitate their analyses. This in turn mitigates bank managers' incentive to manage accounting numbers. Second, various studies (e.g., Ball et al., 2003; Brown et al., 2014; Hope, 2003) and regulatory bodies (e.g., FEE, 2001; World Bank, 2011; SEC, 2002; CESR, 2003) emphasize the importance of audit services as an accounting enforcement mechanism that promotes compliance with accounting standards. A stronger audit environment that fosters high-quality audit services, such as regulations requiring audit by a licensed or certified auditor, is likely to increase firms' reporting and disclosure quality (e.g., Brown et al., 2014). Finally, effective regulatory supervision of banks relies on transparent bank information (e.g., Flannery and Thakor, 2006). Strengthening the power and responsibility of a regulatory agency would increase the regulator's demand for transparent

[5] Ball et al. (2003) note the important role of the private sectors in enforcing accounting standards, in particular, in common-law countries. Indeed, market discipline and regulatory supervision are closely related in the banking industry. Market discipline not only exerts direct influence on banks, but also triggers regulatory intervention by transferring market signals such as price movements of bank securities (e.g., Rochet 2005; Stephanou 2010).

information. In turn, it would encourage banks to provide the required information and help reduce bank managers' manipulation of accounting amounts. Accordingly, we state our second hypothesis as follows,

H2*: Stronger enforcement mechanisms are positively associated with the informativeness of banks' financial statements.*

Bank accounting regulations are also likely to interact with the strength of enforcement mechanisms in affecting the informativeness of banks' financial statements. However, prior literature suggests competing arguments. On one hand, stronger enforcement increases the cost to managers of abusing accounting discretion afforded by the accounting standards (e.g., Burgstahler et al., 2006; Hope, 2003); thus, bank managers are less likely to manipulate accounting amounts at a *given* level of bank accounting regulations. This line of reasoning suggests an increasingly positive association between financial statement informativeness and bank accounting regulations as enforcement mechanisms become stronger.

On the other hand, one may argue that strong enforcement mechanisms may substitute for high-quality accounting standards in constraining accounting manipulation (e.g., La Porta et al., 1998; Hope, 2003).[6] To the extent that both strong enforcement and strong accounting regulations serve the same purpose of enhancing financial statement informativeness, the role of stronger bank accounting regulations will become less important in environments with stronger enforcement. This suggests an increasingly *negative* association between financial statement informativeness and bank accounting regulations as enforcement becomes stronger.

Given these competing arguments, we state our third hypothesis in its null form:

H3*: The interaction between bank accounting regulations and enforcement is not associated with the informativeness of banks' financial statements.*

[6] La Porta et al. (1998) and Hope (2003) discuss the possibility that a country may substitute strong legal enforcement for weak laws and rules, though this possibility is not supported in their studies.

3. Research Design, Sample Selection, and Descriptive Statistics

3.1. Measurement of Regulations and Enforcement

Following prior bank regulation studies (e.g., Tadesse, 2006), we construct our variables of bank accounting regulations and enforcement using the World Bank's Bank Regulation and Supervision Survey related to disclosure practices. Since late 1990s, the World Bank has funded and/or implemented four surveys on how banks are regulated and supervised around the world, released in 2001, 2003, 2007, and 2012, respectively. Three of these surveys were designed and implemented by Barth, Caprio and Levine (2004, 2006 and 2008), with guidance and help from bank supervisors, financial economists, and World Bank staff. These researchers had those officials at national regulatory and supervisory agencies of a broad cross-section of countries complete the survey questionnaires. The questions cover the administrative structure of bank supervision, selective aspects of the banking industry, and the banks' regulatory and supervisory environment (Barth et al., 2001). The first (117 countries) and second (152 countries) surveys generally capture the state of regulation as of the end of 1999 and 2002, respectively.[7] The third survey, which focuses on 142 countries, captures regulatory practices as of the end of 2005. The fourth survey (143 countries), coordinated by Cihak et al. (2012), and assisted by numerous bank regulation experts, is based on a substantially revised and improved questionnaire. This survey captures information on bank regulation and supervision as of the end of 2010.

These World Bank surveys have two important merits. First, their data collection process is rigorous and helps ensure the validity of the data. To achieve accuracy in the responses,

[7] According to Barth et al. (2001, 2008), most of the responses to the first survey were received during 1998 – 1999, and a small number of the responses were received in 2000.

several officials from the same country were asked to complete the surveys. Importantly, the completion of the survey entailed several steps such as collecting initial survey responses, reconciling conflicting responses from different officials in the same country, cross-checking the data with surveys by other agencies, further reconciling any inconsistencies, and even repeatedly communicating with authorities for accurate information (Barth et al. 2001).[8] Therefore, these surveys provide a very solid database of cross-country bank regulation and supervision. Second, unlike prior literature that focuses on a country's "generic" accounting regulations and legal origin (e.g., De George et al., 2016), these surveys cover data items of accounting regulations and enforcement mechanisms that are "specific" to a country's banking industry. This affords us the opportunity to *directly* explore the impact of bank accounting and enforcement mechanisms on the informativeness of banks' financial statements.

We aggregate the responses to individual questions in the surveys into indexes of accounting regulations and enforcement standards. Specifically, to measure bank accounting regulations, we construct an index, *RegFinReport*, based on the six survey responses on questions related to bank reporting and disclosure (See Table 1). Higher values indicate that banks are required to provide more information to external investors (Barth et al., 2006). Also, as discussed in Section 2.3, there are three key enforcement mechanisms in bank accounting regulations. Accordingly, we construct a comprehensive index of a country's bank enforcement regime, *Enforce*, which includes the three enforcement mechanisms: audit services (*Audit*), market discipline (*MktDiscip*), and direct supervision by bank regulatory agencies (*DirectSup*). Higher values of this index indicate stronger enforcement (i.e., greater ability to take actions if banks violate regulations including accounting regulations) (Barth et al., 2006).

[8] Barth et al. (2001, 2004, 2006 and 2013) describe the survey questions and data collection process in detail.

3.2. Measurement of Financial Statement Informativeness

Following prior literature (e.g., Ohlson, 1995; Collins et al., 1997), we employ the ability of the book value of earnings and common equity in explaining market value (i.e., the value relevance of earnings and common equity) as a measure of financial statement informativeness. Specifically, we estimate the equation below for each bank to calculate our measures. Each bank-specific regression is estimated using quarterly data over a three-year window.

$$\textit{Market Value per Share} = \alpha + \beta_1 \textit{ Book Value per Share} + \beta_2 \textit{ Earnings per Share} + \varepsilon \qquad (1)$$

The variable *Market Value per Share* is equal to the market value of the bank divided by the number of shares outstanding. The variable *Book Value per Share* equals the book value of common equity divided by the number of shares outstanding. The variable *Earnings per Share* is constructed as net income divided by the number of shares outstanding. Based on the estimation of this regression, we compute two bank-level measures of value relevance. Our first measure, *VR_SumCoeff*, is the summation of the coefficients on *Book Value per Share* and *Earnings per Share.* Our second measure, *VR_RSquare*, is the adjusted *R*-squared of this regression.

3.3. Empirical Models

To test Hypotheses 1 and 2, we estimate the following equation:

$$\textit{ValueRelevance} = \alpha + \beta_1 \textit{RegFinReport} + \beta_2 \textit{Enforce} + \beta_3 \textit{Control variables} + \textit{Country effects} + \textit{Year effects} + \varepsilon \qquad (2)$$

The dependent variable *ValueRelevance* is either *VR_SumCoeff* or *VR_RSquare*. Our test variables of interest are the two index variables, *RegFinReport* and *Enforce*. Hypotheses 1 and 2 predict that these two variables are positively associated with the value relevance of financial

statements. To test Hypothesis 3, we add an interaction of *RegFinReport* and *Enforce* to Equation (2), which leads to the following equation:

$$ValueRelevance = \alpha + \beta_1 RegFinReport*Enforce + \beta_2\ RegFinReport + \beta_3\ Enforce + \beta_4\ Control\ variables + Country\ effects + Year\ effects + \varepsilon \quad (3)$$

If enforcement mechanisms complement (substitute) bank accounting regulations, we expect the coefficient on this interaction term to be positively (negatively) associated with the informativeness of banks' financial statements.

We control for several variables that are likely to affect the informativeness of banks' financial statements. Six control variables are country-level variables. Specifically, three of these variables, *IFRSorGAAP*, *ActRes*, and *CapitalStringency*, are constructed using the World Bank's survey data. *IFRSorGAAP* is equal to one if a country adopted International Financial Reporting Standards (IFRS) or US Generally Accepted Accounting Principles (GAAP) and zero otherwise. We expect *IFRSorGAAP* to have a positive impact on our informativeness variables, because IFRS and US GAAP are generally regarded as higher quality accounting standards (Barth et al., 2008; Cahan et al. 2009). *ActRes* measures whether banks have enough freedom to conduct insurance and other business activities. We expect this variable to be negatively associated with the informativeness of financial statements, because banks with fewer activities are more easily valued by external investors. *CapitalStringency* measures the level of capital stringency. We expect this variable to be positively related to banks' financial statement informativeness because heightened capital regulations better protect banks' financial health and increase investors' confidence in banks' financial statements.

The other three country-level control variables, *InstitutionalQuality*, *LogGDPPerCapita*, and *GDPGrowth*, are employed to measure the level of institutional quality, economic development, and current economic growth. *InstitutionalQuality* is a revised combined measure from Polity IV. This variable measures the level of democracy of a country, ranging from -10 to +10, where -10 indicates a strongly autocratic country and +10 a strongly democratic one. We prefer this measure of institutions because it is based on not perceptions, but law on the books, and thus is more exogenous. *LogGDPPerCapita*, and *GDPGrowth* are from the World Development Indicator database. We include these variables to control for country-wide economic and political factors that are likely to affect the quality of financial reporting.

We also include several firm-level control variables calculated based on the data from the Bankscope database. We control for firm size (*Size*) because book values are more emphasized than earnings by investors in valuing smaller companies (Collins et al., 1997). We measure *Size* by the logarithm of the bank's total assets. We also control for two measures of bank risk, *ProblemLoan* and *StdROA*. *ProblemLoan* is measured by a bank's total problem loans scaled by its total assets, and *StdROA* is measured by the standard deviation of return of assets over the preceding five-year period. We expect bank risk to have a negative influence on value relevance, because riskier banks are more likely to inflate earning numbers (Anandarajan et al., 2011). As a key information intermediary in capital markets, financial analysts play an important role in corporate transparency and governance (e.g., Jensen and Meckling, 1976; Kelly and Ljungqvist, 2012). Thus, we control for the number of analysts (*Analyst*), which is calculated using I/B/E/S data, and expect this variable to be positively associated with financial statement informativeness. We also control for a bank's capital ratio (*CapitalRatio*), because banks' managers have incentives to manage accounting amounts to meet regulatory capital

requirements. Following Nier and Baumann (2006), we further control for a bank's annual report disclosure index (*DisclosureIndex*). We expect this variable to be positively associated with financial statement informativeness.

Finally, we include a series of country and year dummies to control for country-level fixed effects (e.g., a country's legal system) and worldwide secular trends. We use robust standard errors clustered by country to account for potential correlation within a country.

3.4. Sample Selection and Descriptive Statistics

To construct our sample, we merge each of the four World Bank Surveys, which capture information on bank accounting regulations and enforcement in 1999, 2002, 2005, and 2010, with value relevance measures calculated over the corresponding subsequent three-year period, i.e., 1999-2001, 2002-2004, 2005-2007, and 2010-2012, respectively. This lead-lag design helps address simultaneity concerns. We further retain only economies with at least two banks. The final sample includes 731 major banks from 37 economies over the sample period. The total assets of our sample account for more than 90% of those of the banking industry worldwide.

Panel A of Table 2 describes the number of banks and the mean value of the bank regulation and enforcement variables by economy. In our sample, the U.S. has the highest number of banks (301 banks). The mean of the variable *RegFinReport* in Korea, Singapore and South Africa has the highest value of 6, and the mean of the variable *Enforce* in the U.S. has the highest value of 20.83.

(Insert Table 2, Panel A about here)

Table 2, Panel B presents summary statistics of all variables in the entire sample. The mean and standard deviation of our bank accounting regulation variable, *RegFinReport,* is 5.19

and 0.75, respectively. Our proxy for the strength of enforcement mechanisms, *Enforce*, has a mean of 16.56 and a standard deviation of 2.81. In addition, 66.06% (52.29%) of our sample countries have adopted policies that led to changes in *RegFinReport* (*Enforce*) during the sample period, with a mean change of 2.65 (1.14). Because *RegFinReport* and *Enforce* are time-variant, the inclusion of country fixed effects does not absorb their effects on financial statement informativeness. Finally, regarding the measures of financial statement informativeness, sample banks have a mean *VR_SumCoeff* of 0.33 and a mean *VR_RSquare* of 0.09.

(Insert Table 2, Panel B about here)

Table 2, Panel C presents the Pearson correlations of our country-level regulation-related variables. The correlation coefficient between *RegFinReport* and *Enforce* is 0.1888. Therefore, a country with stricter bank accounting regulations does not necessarily have stronger enforcement mechanisms. In addition, these two variables are not highly correlated with country-level control variables (i.e., *IFRSorGAAP* and *ActRes*). Therefore, multicollinearity does not appear to be a serious concern in our study.

(Insert Table 2, Panel C about here)

4. Empirical Results

4.1. Univariate Tests

We first perform a univariate analysis. Specifically, to test Hypothesis 1, we partition the entire sample into two subsamples by the median of *RegFinReport*. The "High" ("Low") subsample refers to those banks with *RegFinReport* higher (lower) than the median value. We then compute the mean of financial statement informativeness for each subsample and test the

difference between the two mean values. Similarly, to test Hypothesis 2, we partition the entire sample into two subsamples by the median of *Enforce*.

Table 3, Panel A presents the results with *VR_SumCoeff* as our proxy for financial statement informativeness. When *RegFinReport* is used as the partitioning variable, the mean values of *VR_SumCoeff* for the "High" and "Low" subsamples are 0.3308 and 0.2754, respectively. The difference in mean *VR_SumCoeff* between these two subsamples, 0.0554, is positive and statistically significant ($p < 0.01$). When we split the entire sample by *Enforce*, the difference in mean *VR_SumCoeff* between the "High" and "Low" subsamples is 0.0200, significant at $p < 0.01$. These results suggest that banks' financial statement informativeness is higher in countries with stricter bank accounting regulations and countries with stronger enforcement. These results are consistent with Hypotheses 1 and 2.

(Insert Table 3, Panel A about here)

Table 3, Panel B presents the results with *VR_RSquare* as the measure of financial statement informativeness. Again, the general picture in this panel is similar to that in Panel A: we find a higher mean value of *VR_RSquare* in the subsample with higher *RegFinReport* (*Enforce*), compared with the corresponding low subsample.

(Insert Table 3, Panel B about here)

To test Hypothesis 3, we split the entire sample into four groups (2×2) based on two dimensions: (1) banks in countries with high regulations on bank accounting versus those in countries with low regulations and (2) banks in countries with high enforcement versus banks in countries with low enforcement. "High" ("Low") regulations (enforcement) refers to the value of *RegFinReport* (*Enforce*) higher (lower) than the corresponding median value. After calculating the average of informativeness for each of the four groups, we then compare the differential

effect of bank accounting regulations in strong enforcement countries versus weak enforcement countries. Table 3, Panels C and D present the results. As shown in Panel C, the difference in *VR_SumCoeff* between a high regulation regime and a low regulation regime is 0.0301 when enforcement is weak, and the difference becomes 0.0396 when enforcement is strong. The difference between these two differences is 0.0095, which is significant at $p < 0.1$. Therefore, our results indicate that stronger enforcement is complementary to bank accounting regulations in enhancing the informativeness of banks' financial statements. The results presented in Panel D are also consistent with the prediction of this hypothesis.

(Insert Table 3, Panels C and D about here)

4.2. Multivariate Tests

Table 4 presents the baseline results of regression analyses regarding the effects of bank accounting regulations and enforcement. Columns (1) through (3) use *VR_SumCoeff* as a proxy for the informativeness of financial statements. The model in Column (1) is a reduced model including *RegFinReport* and *Enforce* as well as country and year dummies only. We find that the coefficients on both *RegFinReport* and *Enforce* are positive and significant at $p < 0.01$. These results are consistent with the predictions of Hypotheses 1 and 2 that the informativeness of banks' financial statements is higher in countries with stricter bank accounting regulations and countries with stronger enforcement mechanisms. We further include various firm-level and country-level control variables. As shown in Columns (2), the results of the full model remain robust. In Column 3, we add an interaction term between *RegFinReport* and *Enforce* to test Hypothesis 3. We find that the interaction term is positively associated with *VR_SumCoeff*, suggesting that stronger enforcement mechanisms in the banking industry are complementary to stronger bank accounting regulations in enhancing the informativeness of financial statements.

One policy implication is that, to improve the informativeness of banks' financial statements, not only should a country heighten its accounting regulations, it should also strengthen various mechanisms to enforce such regulations. Column (4) through (6) of Table 4 also presents the multivariate results with *VR_RSquare* as a proxy for informativeness. The results and inferences remain essentially unchanged.

Our results are also economically significant. For example, based on the full-model results shown in Column (2) of Table 4, a one-point increase in *RegFinReport* increases *VR_SumCoeff* by 0.0101, which amounts to approximately 3.06% of the mean value of *VR_SumCoeff* (i.e., 0.0101/0.3299). The changes that occurred in Chile, Peru, and other countries during our sample period belong to this case.[9]

(Insert Table 4 about here)

Regarding control variables, we find that the variable *Analyst* is positively associated with the proxies for informativeness, suggesting that financial analysts play an important role in enhancing corporate transparency and improving the market's understanding of financial statements. In addition, the variable *StdROA* is negatively associated with informativeness. One possible interpretation for this result is that volatile financial performance reduces the ability of market participants to incorporate accounting information into equity valuation. Finally, the variable *DisclosureIndex* is positively associated with *VR_SumCoeff*.

In the above tests, *RegFinReport* and *Enforce* are based on Barth et al.'s (2006) indices, which cover a large number of questions regarding various dimensions of a country's bank regulations. Below, we further perform several tests to identify specific rules and regulations affecting financial statement informativeness. We first construct six dummy variables, one for

[9] For example, as the comparison between surveys in 2006 and 2010 shows, Chile and Peru increased their bank accounting regulations from 5 to 6 during this period.

each of the six survey questions employed to create the bank accounting regulation variable, *RegFinReport*. As shown in Panel A of Table 5, five out of the six dummy variables, except for the dummy variable of the reporting requirement for accrued interest/principal on performing loans (Q1), are all positively and significantly associated with informativeness. We also create six interaction terms, one for each of the six dummy variables interacting with *Enforce*. Again, the results show that, except for the interaction term between Q1 and *Enforce*, all other interaction variables are positively and significantly associated with the informativeness of banks' financial statements. Therefore, most of these reporting/disclosure requirements contribute to higher informativeness.

[Insert Table 5, Panel A about here]

In Panel B of Table 5, we also examine the effects of *Audit*, *MktDiscip*, and *DirectSup*, the three components of the composite index *Enforce*. Columns (1) and (3) shows that both *Audit* and *DirectSup* are significantly and positively associated with the informativeness of financial statements. In addition, in Column (3) where *VR_RSquare* is the dependent variable, the coefficient on *MktDiscip* is also positive and significant at $p < 0.1$. We further create three interaction terms between each of the three enforcement variables and *RegFinReport*. The results in Columns (2) and (4) show that *RegFinReport*×*Audit* and *RegFinReport*×*DirectSup* are both positively and significantly associated with informativeness. Therefore, we conclude that audit services and regulatory supervision play an important enforcement role in affecting the informativeness of banks' financial statements.

l B about here]

4.3. Tests correcting for endogeneity bias

In this section, we conduct several tests to address endogeneity bias. First, to mitigate the concern of reverse causality, we use the change regression approach to examine the relation between changes in informativeness and changes in bank accounting regulation and enforcement. If bank accounting regulations and enforcement mechanisms drive changes in informativeness, then as the strength of bank accounting regulations and/or enforcement mechanisms increases over time, we would observe corresponding changes in informativeness in *subsequent* periods. As the sample selection procedure shows, we merge each of the four World Bank surveys with informativeness measures calculated over its corresponding *subsequent* three-year period. In the change regressions below, we further use the lagged difference of regulations and enforcement to explain the difference of our informativeness variables. Table 6 presents the results of these change regressions. In Columns (1) and (3), changes in informativeness (*ΔVR_SumCoeff* and *ΔVR_RSquare*) are regressed on changes in the strength of bank accounting regulations (*ΔRegFinReport*), changes in the strength of enforcement mechanisms (*ΔEnforce*), and changes in other determinants in prior periods. We find a positive association between *ΔRegFinReport* (*ΔEnforce*) and subsequent changes in informativeness, significant at the 1% level, suggesting that prior increases in bank accounting regulations and enforcement lead to increases in informativeness in subsequent periods. In addition, in Columns (2) and (4), we find that the interaction between *ΔRegFinReport* and *ΔEnforce* is also positively associated with informativeness.

[Insert Table 6 about here]

Second, to further address endogeneity bias arising from reverse causality or omitted factors, we adopt a two-stage instrumental variables (IV) regression method. Specifically, following the spirit of prior research (e.g., John et al., 2008; John and Kadyrzhanova, 2008), we

instrument *RegFinReport* (*Enforce*) with the average values of the corresponding bank accounting regulations (enforcement) in the region where the bank's home country is located, *excluding* the bank's country. We define the following regions, using World Bank's classification: (1) Africa, (2) East Asia and the Pacific, (3) Eastern Europe and Central Asia, (4) Western Europe and other developed counties, (5) Latin America and the Caribbean, (6) Middle East and North Africa, and (7) South Asia. The two instruments (*AvgRegFinReport* and *AvgEnforce*) make intuitive sense, because regulatory developments in the region where a bank's country is located are likely to influence the regulation practices of that country, thus meeting the relevance requirement. In addition, such regulatory developments in the same region, *excluding* the country, are not likely to directly affect the behavior (e.g., financial reporting behavior) of individual banks in that country, thus satisfying the exclusion restrictions.[10] Therefore, we believe that the two variables are valid instruments for bank accounting regulations and enforcement.

We re-estimate Equation (1) using the two-stage IVs regression method, and report results in Table 7. Column (1) ((2)) reports the results of the first-stage regression where *RegFinReport* (*Enforce*) is regressed on *AvgRegFinReport*, *AvgEnforce*, various country-level variables as well as country and year dummy variables. As expected, our instruments are positively associated with both the bank accounting and enforcement variables ($p < 0.01$), suggesting that our instruments are relevant to the first-stage endogenous variables. Column (3) and (5) of Table 7 presents the results of the second-stage regressions which include the predicted values of *RegFinReport* (i.e., *Fitted RegFinReport*) and *Enforce* (i.e., *Fitted Enforce*) as standalone variables. In Columns (4) and (6), we further include the interaction of *Fitted RegFinReport* and *Fitted Enforce* in the second stage regressions. Again, the second-stage results

[10] For the use of a similar type of IVs, see Acemoglu et al. (2015) and Delis et al. (2017).

are similar to those baseline results in Table 4. Therefore, our results remain robust to controlling for the endogeneity of bank accounting regulations and enforcement.

[Insert Table 7 about here]

Third, to further rule out an alternative explanation that *RegFinReport* (*Enforce*) may capture those omitted factors other than bank accounting regulations (enforcement mechanisms), we interact *RegFinReport* (*Enforce*) with the quality of a country's general institutions.[11] If these two variables measure bank accounting regulations and enforcement mechanisms respectively, we expect the effects of these two variables to be more pronounced in countries with high-quality general institutions. Conversely, if they merely capture those omitted factors, we are not likely to observe such results. We use *InstitutionalQuality*, a measure of a country's democracy, as a proxy for the quality of its general institutions. We add the interaction terms, *RegFinReport* × *InstitutionalQuality* and *Enforce* × *InstitutionalQuality*, to Model (2). As shown in Table 8, the coefficients on the interaction terms are positive and statistically significant for both measures of informativeness as the dependent variable, which is consistent with the above conjecture. Therefore, *RegFinReport* and *Enforce* are not likely to capture those omitted unobservable factors.

[Insert Table 8 about here]

4.5. Other tests

We further examine the moderating role of bank size. Specifically, we investigate whether bank accounting regulations and enforcement have differential effects on large versus small banks. Many large banks have emerged over the last several decades. Yet the recent financial crisis shows that large banks impose substantial risk on a country's economy. One

[11] We appreciate an anonymous referee for suggesting this test.

reason may be that it is more difficult to regulate and supervise large banks as opposed to small banks (Barth et al., 2012). If this notion also holds for bank accounting-related regulations and enforcement, we expect the effects of these factors on the informativeness of financial statements to concentrate in small banks. To test this conjecture, we split the full sample by the median of bank size. We denote those banks with total assets greater (less) than the median as large (small) banks. We present the split-sample results in Table 9. In both large and small bank subsamples, *RegFinReport* and *Enforce* are positively and significantly associated with the informativeness of financial statements. These results suggest that these regulations and enforcement mechanisms are effective for both large and small banks.

[Insert Table 9 about here]

We also perform three robustness checks. First, we use two alternative measures of enforcement mechanisms in the banking industry. The enforcement index in the foregoing main analyses includes audit services (*Audit*), market discipline (*MktDiscip*), and direct supervision by bank regulatory agencies (*DirectSup*). Brown et al. (2014), however, note that compliance with accounting standards is enforced primarily through external audit and the activities of government-authorized enforcement bodies. Therefore, adopting this narrower definition of accounting enforcement, we construct an alternative enforcement index (*Audit&DirectSup*) that covers the enforcement strength of both audit services (*Audit*) and regulatory supervision (*DirectSup*) in the banking industry while excluding the market discipline dimension. Prior literature (e.g., Flannery and Thakor, 2006; Brown et al., 2014) also emphasizes the role of public enforcement of accounting standards by government authorized bodies. Indeed, one important task that has been delegated to bank regulatory agencies is to supervise and enforce banks' compliance with mandatory bank accounting standards. Therefore, we construct another

measure of enforcement, *DirectSup*, to capture the strength of direct supervision by bank regulatory agencies. As shown in Table 10, the results and inferences are still the same as those of Table 4. Therefore, our findings remain robust to alternative measures of enforcement.

[Insert Table 10 about here]

Second, we use an alternative measure of the informativeness of financial statements. Specifically, we estimate the two equations below, separately.

$$Market\ Value\ per\ Share = \alpha + \beta_1\ Book\ Value\ per\ Share + \varepsilon \quad (4)$$

$$Market\ Value\ per\ Share = \alpha + \beta_1\ Earnings\ per\ Share + \varepsilon \quad (5)$$

We then compute the sum of the coefficients on *Earnings per Share* and *Book Value per Share* as our third measure of the informativeness of financial statements. Our results based on this third measure remain essentially unchanged (untabulated).

Finally, we reestimate our baseline models using the subsample of non-U.S. banks. U.S. banks account for 41.2% of our sample banks. In addition to comprehensive regulatory disclosure and effective enforcement mechanisms in the US, these US banks are characterized by various firm-level governance mechanisms that effectively constrain managerial agency problems and protect the credibility of financial statements. Thus, one may argue that our main results are driven by the subsample of US banks, due to their effective firm-level governance, rather than by country-level bank accounting regulations and enforcement mechanisms. To address this concern, we exclude US banks from our sample and re-estimate Equations (2) and (3) for non-US banks. Our results on the main effects of bank accounting regulations and enforcement mechanisms as well as the interaction effect of these two factors remain essentially unchanged (untabulated).

5. Conclusion

Bank transparency is crucial to the banking industry. Due to information asymmetry between banks and household depositors, bank managers are likely to engage in excessive risk-taking activities. This in turn may not only cause bank failures, but also harm the health of the entire banking system. The goal of prudential bank regulations is to limit bank failures and promote the health of the banking system. Although prior studies find evidence consistent with stronger bank regulations enhancing bank development and reducing bank crises, there is little direct evidence regarding the effect of bank regulations on bank transparency and information asymmetry. Our study aims to fill this gap by investigating whether and how accounting and enforcement-related bank regulations affect financial statement informativeness.

Using a sample including major banking institutions in 37 economies, we find that the informativeness of banks' financial statements is higher in countries with stricter bank accounting regulations and countries with stronger enforcement mechanisms. These findings suggest that stricter bank accounting regulations and stronger enforcement mechanisms enhance the informativeness of banks' financial statements. We further find that the increasing effects of bank accounting regulations on financial statement informativeness are more pronounced in countries with stronger enforcement standards. These results imply that stricter enforcement increases the cost to managers of abusing accounting discretion at a given level of bank accounting regulations. Thus, stronger enforcement is complementary to bank accounting regulations in achieving higher levels of financial statement informativeness. We also perform a battery of robustness tests, including alternative measures of enforcement and the informativeness of financial statements, and multiple methods to address endogeneity biases. We find that our results remain essentially unchanged.

Our findings have important implications to investors, banks, and regulators. Financial transparency plays a central role in facilitating resource allocation in capital markets (Bushman and Smith, 2003). In addition, banking crises are less likely in countries with higher bank transparency (e.g., Tadesse, 2006). Therefore, to investors in global markets, our results suggest that they should invest in banks of those countries with stronger bank accounting regulations and enforcement, because these banks tend to have higher transparency and thus investors are less vulnerable to banking crises. In addition, since their banking system stability is higher, our results also imply that banks of these countries have advantages in attracting capital in global markets.

Our results also have policy implications for bank regulators regarding the design of regulations and enforcement in the banking industry. Specifically, our evidence suggests that an effective way to improve bank transparency, a crucial regulatory tool in the banking industry (Bushman and Williams, 2012), is to have stricter country-level bank accounting regulations and enforcement mechanisms such as audit regulations, strict supervision and market discipline, which result in higher informativeness of financial statements. Moreover, we shed light on the complementary nature of stronger enforcement and bank accounting regulations in achieving higher levels of banks' financial statement informativeness. Our results imply that focusing only on regulation may be insufficient in some countries to enhance accounting transparency and protect investors, thus emphasizing the importance of enforcement mechanisms. As such, regulatory policymakers and agencies around the world would find the findings of this cross-country analysis useful in developing and implementing regulations and enforcement mechanisms to enhance the informativeness of financial statements.

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Table 1. Variable Construction and Data Sources

Variable	Definition	Sources
Dependent variables		
VR_SumCoeff	The summation of the parameters of Book Value per Share and Earnings per Share from equation (1).	Datastream
VR_RSquare	The adjusted *R* square from equation (1).	Datastream
Regulation and enforcement variables		
RegFinReport	"The sum of assigned values of the questions as below (by default, 1 if it equals "yes" and 0 otherwise.): (1) Does accrued, though unpaid interest/principal enter the income statement while the loan is still performing? (2) Are financial institutions required to produce consolidated accounts covering all bank and any nonbank financial subsidiaries? (3) Are off-balance sheet items disclosed to the public? (4) Must banks disclose their risk management procedures to the public? (5) Are bank directors legally liable if information disclosed is erroneous or misleading? (6) Does accrued, though unpaid interest/principal enter the income statement while the loan is still nonperforming? (1 if it is No; 0 otherwise.)" Barth et al., (2006).	World Bank surveys
Audit	"The sum of assigned values of the questions as below (by default, 1 if it equals "yes" and 0 otherwise.): (1) Is an external audit a compulsory obligation for banks? (2) Are specific requirements for the extent or nature of the audit spelled out? (3) Are auditors licensed or certified? (4) Do supervisors get a copy of the auditor's report? (5) Does the supervisory agency have the right to meet with external auditors to discuss their report without the approval of the bank? (6) Are auditors required by law to communicate directly to the supervisory agency any presumed involvement of bank directors or senior managers in illicit activities, fraud, or insider abuse? (7) Can supervisors take legal action against external auditors for negligence?" Barth et al., (2006).	World Bank surveys
MktDiscip	"The sum of assigned values of the questions as below (by default, 1 if it equals "yes" and 0 otherwise.): (1) What percentage of the top ten banks are rated by international credit rating agencies (e.g., Moody's, Standard and Poor)? (1 if it equals 100%; 0 otherwise.) (2) How many of the top ten banks are rated by domestic credit rating agencies? (1 if it equals 100%; 0 otherwise.) (3) a. Is there an explicit deposit insurance protection system? b. Were depositors wholly compensated (to the extent of legal protection) the last time a bank failed? (1 if a =0 and/or b=0, 0 otherwise.) (4) a. Is subordinated debt allowable as part of capital? b. Is subordinated debt required as part of capital? (1 if a or b equals "yes") (5) Are bank regulators/supervisors required to make public formal enforcement actions, which include cease and desist orders and written agreements between a bank regulatory/supervisory body and a banking organization?" Barth et al., (2006).	World Bank surveys
DirectSup	"The sum of assigned values of the questions as below (by default, 1 if it equals "yes" and 0 otherwise.): (1) Can the supervisory authority force a bank to change its internal organizational structure? (2) Are off-balance sheet items disclosed to supervisors? (3) Can the supervisory agency order the bank's directors or management to constitute provisions to cover actual or potential losses? (4) Can the supervisory agency suspend the directors' decision to distribute dividends? (5) Can the supervisory agency suspend the directors' decision to distribute Bonuses? (6) Can the supervisory agency suspend the directors' decision to distribute management fees? (7) Who can legally declare - such that this declaration supersedes the some of the rights of shareholders - that a bank is insolvent: bank supervisor, court, deposit insurance agency, bank restructuring, asset management agency or other. (bank supervisor = 1; deposit insurance agency=0.5; bank	World Bank surveys

	restructuring or asset management agency=0.5; 0 otherwise.) (8) According to the Banking Law, who has authority to intervene – that is, suspend some or all ownership rights- a problem bank? Bank supervisor, court, deposits insurance agency, bank restructuring, asset management agency or other. (bank supervisor = 1; deposit insurance agency=0.5; bank restructuring or asset management agency=0.5; 0 otherwise.) (9) Regarding bank restructuring and reorganization, can the supervisory agency or any other government agency supersede shareholder rights? Bank supervisor, court, deposits insurance agency, bank restructuring, asset management agency or other. (Bank supervisor = 1; deposit insurance agency=0.5; bank restructuring or asset management agency=0.5; 0 otherwise.) (10) Regarding bank restructuring and reorganization, can the supervisory agency or any other government agency remove and replace management? Bank supervisor, court, deposits insurance agency, bank restructuring, asset management agency or other. (Bank supervisor = 1; deposit insurance agency=0.5; bank restructuring or asset management agency=0.5; 0 otherwise.) (11) Regarding bank restructuring and reorganization, can the supervisory agency or any other government agency remove and replace directors? Bank supervisor, court, deposits insurance agency, bank restructuring, asset management agency or other. (bank supervisor = 1; deposit insurance agency=0.5; bank restructuring or asset management agency=0.5; 0 otherwise.)" Barth et al., (2006).	
Enforce	Audit + MktDiscip + DirectSup	
Audit&DirectSup	Audit + DirectSup	
Control variables		
IFRSorGAAP	"The assigned values of the questions as below (by default, 1 if it equals "yes" and 0 otherwise.): Are accounting practices for banks in accordance with International Accounting Standards or U.S. Generally Accepted Accounting Standards?" Barth et al., (2006).	World Bank surveys
ActRes	"The sum of assigned values of the questions about whether banks can engage in securities, insurance, and real estate activities. Unrestricted = 1 = full range of activities can be conducted directly in the bank; Permitted = 2 = full range of activities can be conducted, but some or all must be conducted in subsidiaries; Restricted = 3 = less than full range of activities can be conducted in the bank or subsidiaries; and Prohibited = 4 = the activity cannot be conducted in either the bank or subsidiaries. Higher values indicate greater restrictiveness." Barth et al., (2006).	World Bank surveys
CapitalStringency	"The sum of dummy variables or assigned values of questions (by default, 1 if it equals "yes" and 0 otherwise.): (1) Is the minimum capital-asset ratio requirement risk weighted in line with the Basel I guidelines? (2) Does the minimum ratio vary as a function of an individual bank's credit risk? (3) Does the minimum ratio vary as a function of market risk? (4) Before minimum capital adequacy is determined, which of the following are deducted from the book value of capital? Market value of loan losses not realized in accounting books? (5) Unrealized losses in securities portfolios? (6) Unrealized foreign exchange losses? (7) Is the faction of revaluation gains allowed as part of capital less than 0.75? (8) Are the sources of funds to be used as capital verified by the regulatory/supervisory authorities? (9) Can the initial disbursement of subsequent injections of capital be done with assets other than cash or government securities? (1 if it equals "no" and 0 otherwise.) (10) Can initial disbursement of capital be done with borrowed funds? (1 if it equals "no" and 0 otherwise.)" Barth et al. (2006).	World Bank surveys
InstitutionalQuality	Revised combined polity score.	Polity IV
logGDPPerCapita	Log of GDP per capita.	World Development Indicator

GDPGrowth	GDP growth.	World Development Indicator
Size	Log (a bank's total assets).	Bankscope
ProblemLoan	A bank's total problem loans scaled by its total assets.	Bankscope
Analyst	The number of financial analysts, who are associated with a bank.	IBES
CapitalRatio	Capital ratio.	Bankscope
StdROA	The standard deviation of return of assets over the preceding five-year period.	Bankscope
DisclosureIndex	Disclosure index following Nier and Baumann (2006)	Bankscope

Table 2. Descriptive statistics

Panel A

Country	Number of Banks	RegFinReport	Enforce
Australia	11	5.5000	18.5000
Austria	3	4.3333	16.0000
Belgium	4	5.0000	16.0000
Brazil	13	5.0000	19.0000
Canada	8	5.5000	13.5000
Chile	5	5.2500	17.3333
Colombia	6	5.0000	18.3333
Denmark	40	5.5000	15.6667
Finland	2	5.5000	12.5000
France	18	4.7500	13.7500
Germany	9	4.3333	15.0000
Greece	10	5.0000	15.2500
Hong Kong	10	5.3333	16.3333
India	17	4.6667	16.0000
Indonesia	11	5.0000	19.2500
Ireland	3	5.3333	16.2500
Italy	20	5.3333	13.3333
Japan	84	4.6667	18.5000
Korea	15	6.0000	16.5000
Malaysia	11	5.5000	17.0000
Mexico	4	5.2500	16.6667
Netherlands	2	5.0000	15.0000
Norway	13	4.0000	15.2500
Pakistan	14	5.6667	19.5000
Peru	6	5.2500	17.7500
Philippines	13	5.6667	16.6667
Poland	8	5.0000	16.6667
Portugal	5	5.0000	19.0000
Singapore	3	5.5000	19.5000
South Africa	7	6.0000	13.5000
Spain	14	5.5000	16.7500
Sweden	4	4.6667	11.5000
Taiwan	10	5.2500	19.0000
Thailand	9	5.3333	18.3333
Turkey	9	5.0000	17.5000
United Kingdom	9	5.2500	15.5000
United States	301	5.2500	20.3750

Panel A of Table 2 describes the number of banks, and the mean value of accounting and enforcement regulations by country. We show the detailed definitions of our variables in Table 1.

Panel B

Variable	Mean	Std. Dev.	5th Pctl.	50th Pctl.	95th Pctl.
VR_SumCoeff	0.3299	0.0350	0.2296	0.3369	0.3623
VR_RSquare	0.0853	0.0144	0.0491	0.0889	0.0980
RegFinReport	5.1927	0.7513	4.0000	5.0000	6.0000
Enforce	16.5585	2.8063	12.0000	17.0000	20.0000
IFRSorGAAP	0.7024	0.4600	0.0000	1.0000	1.0000
ActRes	6.8785	1.9844	4.0000	7.0000	10.0000
CapitalStringency	6.3061	1.8854	2.0000	6.0000	9.0000
InstitutionalQuality	8.4466	3.0445	3.0000	10.0000	10.0000
logGDPPerCapita	8.9903	1.2026	6.6847	8.8565	10.4720
GDPGrowth	2.2231	1.7554	-0.7955	2.0598	5.0987
Size	15.2449	1.9677	12.3694	15.0524	18.7809
ProblemLoan	0.0128	0.0207	0.0004	0.0043	0.0525
Analyst	6.4808	2.8894	2.0000	6.0000	11.0000
CapitalRatio	13.4856	4.4141	9.2100	12.4800	21.2000
StdROA	0.0307	0.0030	0.0300	0.0301	0.0337
DisclosureIndex	0.7616	0.1407	0.4500	0.8000	0.9000

Panel B of Table 2 describes descriptive statistics for the entire sample. We show the detailed definitions of our variables in Table 1.

Panel C

	RegFinReport	Enforce	IFRSorGAAP	ActRes	CapitalStringency	InstitutionalQuality	logGDPPerCa
Enforce	0.1888*	1					
	(0.0684)						
IFRSorGAAP	0.1855*	0.1857	1				
	(0.0912)	(0.1083)					
ActRes	0.0913	0.3798***	-0.1252	1			
	(0.3497)	(0.0002)	(0.2625)				
CapitalStringency	0.0333	0.1820*	0.2114*	-0.0038	1		
	(0.7447)	(0.0954)	(0.0706)	(0.9710)			
InstitutionalQuality	-0.1944**	-0.2689	-0.1103	-0.2971***	0.0121	1	
	(0.0491)	(0.0108)	(0.3332)	(0.0026)	(0.9090)		
logGDPPerCapita	-0.1008	-0.2821***	-0.0494	-0.3776***	0.0190	0.4985***	1
	(0.2972)	(0.0059)	(0.6557)	(0.0001)	(0.8528)	(0.0000)	
GDPGrowth	-0.0157	-0.1112	0.0278	0.0708	-0.0398	-0.1310	-0.0629
	(0.8717)	(0.286)	(0.8015)	(0.4685)	(0.6969)	(0.1873)	(0.5159

Panel C of Table 2 present the correlation table about our country-level variables. We show the detailed definitions of our variables in Table 1.

Table 3. Univariate Analysis

Panel A

	VR_SumCoeff		
Partitioning Variables	High	Low	High-Low
RegFinReport	0.3308	0.2754	0.0554***
Enforce	0.3303	0.3103	0.0200***

Panel B

	VR_RSquare		
Partitioning Variables	High	Low	High-Low
RegFinReport	0.0862	0.0639	0.0223***
Enforce	0.0861	0.0812	0.0049***

Panel C

VR_SumCoeff	High Enforce	Low Enforce	High-Low (Enforce)
High RegFinReport	0.3318	0.2675	0.0643***
Low RegFinReport	0.2922	0.2374	0.0548*
High-Low (RegFinReport)	0.0396***	0.0301*	0.0095*

Panel D

VR_RSquare	High Enforce	Low Enforce	High-Low (Enforce)
High RegFinReport	0.0896	0.0763	0.0133***
Low RegFinReport	0.0724	0.0619	0.0105*
High-Low (RegFinReport)	0.0172***	0.0144**	0.0028**

Table 3 describes univariate analysis. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. We show the detailed definitions of our variables in Table 1.

Table 4. Effects of Bank Accounting Regulations and Enforcement

Dependent Variable	VR_SumCoeff			VR_RSquare		
	(1)	(2)	(3)	(4)	(5)	(6)
RegFinReport * Enforce			0.0018**			0.0004**
			(0.0485)			(0.0147)
FinReport	0.0115***	0.0101**	-0.0242	0.0043***	0.0046***	-0.0038
	(0.0000)	(0.0237)	(0.1799)	(0.0000)	(0.0001)	(0.2353)
Enforce	0.0032***	0.0033***	-0.0047	0.0010***	0.0009***	-0.0011
	(0.0000)	(0.0054)	(0.1976)	(0.0000)	(0.0023)	(0.1395)
IFRSorGAAP		0.0018	0.0013		0.0010	0.0008
		(0.5700)	(0.6094)		(0.2122)	(0.1712)
ActRes		-0.0009	0.0002		0.0001	0.0004
		(0.6762)	(0.9079)		(0.8703)	(0.4895)
CapitalStringency		0.0006	-0.0005		-0.0000	-0.0003
		(0.6932)	(0.7463)		(0.9319)	(0.3965)
InstitutionalQuality		0.0004	-0.0003		0.0003*	0.0001
		(0.5340)	(0.5330)		(0.0846)	(0.1873)
logGDPPerCapita		-0.0018	0.0102		-0.0024	0.0005
		(0.9154)	(0.4179)		(0.5792)	(0.8725)
GDPGrowth		-0.0093	-0.0084		-0.0014	-0.0012
		(0.4371)	(0.3368)		(0.6652)	(0.6433)
Size		0.0000	0.0000		-0.0000	-0.0000
		(0.8241)	(0.8712)		(0.7719)	(0.7594)
ProblemLoan		-0.0193	-0.0221		-0.0180	-0.0187
		(0.4366)	(0.3734)		(0.2991)	(0.2834)
Analyst		0.0003***	0.0003***		0.0001***	0.0001***
		(0.0029)	(0.0025)		(0.0000)	(0.0000)
CapitalRatio		0.0001	0.0001		0.0001**	0.0001**
		(0.1012)	(0.1031)		(0.0123)	(0.0130)
StdROA		-0.4507***	-0.4522***		-0.4968***	-0.4971***
		(0.0000)	(0.0000)		(0.0000)	(0.0000)
DisclosureIndex		0.0041***	0.0043***		-0.0006	-0.0005
		(0.0044)	(0.0041)		(0.3055)	(0.3598)
Country effects	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1711	1031	1031	1711	1031	1031
R square	0.710	0.677	0.678	0.754	0.855	0.856

Table 4 describes the effects of bank accounting regulations and enforcement. P-value are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. We show the detailed definitions of our variables in Table 1.

Table 5. Individual Effects of Bank Accounting Regulations and Enforcement

Panel A

Dependent Variable	VR_SumCoeff	VR_SumCoeff	VR_RSquare	VR_RSquare
	(1)	(2)	(3)	(4)
Q1* Enforce		0.2933		0.0087
		(0.2500)		(0.2295)
Q2* Enforce		0.0957***		0.0029**
		(0.0000)		(0.0325)
Q3* Enforce		0.0020***		0.0013***
		(0.0000)		(0.0000)
Q4* Enforce		0.0522***		0.0010***
		(0.0000)		(0.0001)
Q5* Enforce		0.0140***		0.0146**
		(0.0000)		(0.0342)
Q6* Enforce		0.0865***		0.0015***
		(0.0000)		(0.0094)
Q1	-0.0014	-4.0666	-0.0035	-0.1209
	(0.8668)	(0.5000)	(0.1202)	(0.9270)
Q2	0.0048***	0.0001	0.0022***	0.0020
	(0.0000)	(0.2346)	(0.0095)	(0.4354)
Q3	0.0260***	0.0914	0.0109***	0.0156
	(0.0016)	(0.4500)	(0.0000)	(0.9002)
Q4	0.0166***	-0.9673	0.0072***	-0.0135
	(0.0002)	(0.5632)	(0.0000)	(0.2611)
Q5	0.0061***	4.7863	0.0050***	0.1428
	(0.0042)	(0.3400)	(0.0000)	(0.5274)
Q6	0.0185*	0.0020	0.0070*	0.0001
	(0.0993)	(0.3678)	(0.0998)	(0.4256)
Enforce	0.0035***	0.0201	0.0007***	0.0007
	(0.0005)	(0.9000)	(0.0002)	(0.2058)
IFRSorGAAP	-0.0016	0.1772***	-0.0001	0.0049**
	(0.4617)	(0.0000)	(0.8709)	(0.0370)
ActRes	0.0034	0.0577	0.0011	0.0011
	(0.6032)	(0.5000)	(0.6008)	(0.2452)
CapitalStringency	-0.0002	0.0340***	-0.0002	0.0016***
	(0.8772)	(0.0000)	(0.3889)	(0.0038)
InstitutionalQuality	-0.0008	0.0216***	-0.0001	0.0003
	(0.2368)	(0.0000)	(0.6021)	(0.2596)
logGDPPerCapita	-0.0058	0.4851***	0.0031***	0.0102
	(0.2427)	(0.0000)	(0.0011)	(0.1022)
GDPGrowth	0.0263	0.0491***	0.0090	0.0191***
	(0.2353)	(0.0000)	(0.1138)	(0.0007)
Size	0.0000	0.0000	-0.0000	-0.0000
	(0.8630)	(0.9166)	(0.7524)	(0.7549)
ProblemLoan	-0.0200	-0.0230	-0.0179	-0.0188
	(0.4093)	(0.3496)	(0.3046)	(0.2884)
Analyst	0.0003***	0.0003***	0.0001***	0.0001***
	(0.0023)	(0.0015)	(0.0000)	(0.0000)
CapitalRatio	0.0001	0.0001*	0.0001**	0.0001**
	(0.1027)	(0.0985)	(0.0121)	(0.0125)

StdROA	-0.4515***	-0.4480***	-0.4961***	-0.4964***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
DisclosureIndex	0.0042***	0.0047***	-0.0005	-0.0005
	(0.0022)	(0.0010)	(0.3318)	(0.3837)
Country effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
Observations	0.678	0.679	0.856	0.856
R square	1031	1031	1031	1031

Panel A of Table 5 describes the individual effects of bank accounting regulations. The variable RegFinReport includes the six survey questions, which are "(Q1) Does accrued, though unpaid interest/principal enter the income statement while the loan is still performing? (Q2) Are financial institutions required to produce consolidated accounts covering all bank and any nonbank financial subsidiaries? (Q3) Are off-balance sheet items disclosed to the public? (Q4) Must banks disclose their risk management procedures to the public? (Q5) Are bank directors legally liable if information disclosed is erroneous or misleading? (Q6) Does accrued, though unpaid interest/principal enter the income statement while the loan is still nonperforming? (1 if it is No; 0 otherwise.)" Barth et al., (2006). P-value are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. We show the detailed definitions of our variables in Table 1.

Panel B

Dependent Variable	VR_SumCoeff	VR_SumCoeff	VR_RSquare	VR_RSquare
	(1)	(2)	(3)	(4)
RegFinReport * Audit		0.0091***		0.0010***
		(0.0000)		(0.0001)
RegFinReport * MktDiscip		0.0047		0.0015
		(0.8000)		(0.7000)
RegFinReport * DirectSup		0.0003***		0.0006***
		(0.0000)		(0.0000)
Audit	0.0072***	-0.0437	0.0019***	-0.0041
	(0.0001)	(0.7000)	(0.0000)	(0.6033)
MktDiscip	0.0032	0.0242	0.0013*	-0.0072
	(0.4467)	(0.5000)	(0.0761)	(0.7000)
DirectSup	0.0030***	0.0038	0.0008***	0.0045
	(0.0003)	(0.6032)	(0.0000)	(0.7000)
RegFinReport	0.0110***	0.0311	0.0050***	0.0007
	(0.0000)	(0.7000)	(0.0000)	(0.5599)
IFRSorGAAP	-0.0004	0.0003	-0.0001	0.0009**
	(0.9287)	(0.7016)	(0.9090)	(0.0154)
ActRes	0.0016	0.0023	0.0007	0.0012
	(0.4366)	(0.6000)	(0.4388)	(0.6000)
CapitalStringency	-0.0013	0.0014***	-0.0004	0.0010***
	(0.5419)	(0.0000)	(0.1399)	(0.0000)
InstitutionalQuality	0.0008	0.0008***	0.0004***	0.0002***
	(0.1353)	(0.0000)	(0.0010)	(0.0001)
logGDPPerCapita	0.0736*	0.0363***	0.0145**	0.0280***
	(0.0938)	(0.0059)	(0.0420)	(0.0000)
GDPGrowth	-0.0258	0.0141***	-0.0020	0.0077***
	(0.1473)	(0.0065)	(0.4588)	(0.0000)
Size	0.0000	0.0000	-0.0000	-0.0000
	(0.8743)	(0.9155)	(0.7534)	(0.7549)
ProblemLoan	-0.0195	-0.0234	-0.0185	-0.0188
	(0.4216)	(0.3415)	(0.2935)	(0.2866)
Analyst	0.0003***	0.0003***	0.0001***	0.0001***
	(0.0020)	(0.0015)	(0.0000)	(0.0000)
CapitalRatio	0.0001	0.0001*	0.0001**	0.0001**
	(0.1032)	(0.0983)	(0.0134)	(0.0124)
StdROA	-0.4495***	-0.4474***	-0.4964***	-0.4964***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
DisclosureIndex	0.0045***	0.0047***	-0.0005	-0.0005
	(0.0010)	(0.0010)	(0.3864)	(0.3898)
Country effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
Observations	1031	1031	1031	1031
R square	0.678	0.679	0.856	0.856

Panel B of Table 5 describes the individual effects of enforcement. The variable RegEnforce includes the three variables RegAudit, RegMktDiscip, and RegDirectSup. P-value are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. We show the detailed definitions of our variables in Table 1.

Table 6. Change Regressions

Dependent Variable	ΔVR_SumCoeff	ΔVR_SumCoeff	ΔVR_RSquare	ΔVR_RSquare
	(1)	(2)	(3)	(4)
ΔRegFinReport* ΔEnforce		0.0010***		0.0003***
		(0.0000)		(0.0000)
ΔRegFinReport	0.0136***	0.0158	0.0060***	0.0066
	(0.0000)	(0.2000)	(0.0000)	(0.3000)
ΔEnforce	0.0019***	0.0015	0.0004***	0.0003
	(0.0000)	(0.5000)	(0.0021)	(0.4231)
ΔIFRSorGAAP	0.0043***	0.0049***	0.0018**	0.0020**
	(0.0001)	(0.0000)	(0.0170)	(0.0114)
ΔActRes	0.0014	0.0016	0.0006	0.0007
	(0.2000)	(0.3000)	(0.4000)	(0.3000)
ΔCapitalStringency	0.0002	0.0002	-0.0003	-0.0003
	(0.3743)	(0.2474)	(0.2002)	(0.3004)
ΔInstitutionalQuality	0.0017***	0.0020***	0.0007***	0.0008***
	(0.0000)	(0.0000)	(0.0009)	(0.0005)
ΔlogGDPPerCapita	0.0001	0.0002	0.0001	0.0002
	(0.7213)	(0.7143)	(0.7114)	(0.8113)
ΔGDPGrowth	0.0004	0.0001	0.0020	0.0002
	(0.7113)	(0.7113)	(0.7113)	(0.7113)
ΔSize	-0.0054	-0.0054	-0.0017	-0.0017
	(0.1002)	(0.2002)	(0.3137)	(0.4137)
ΔProblemLoan	0.0182	0.0182	-0.0088	-0.0088
	(0.7213)	(0.7133)	(0.7901)	(0.8801)
ΔAnalyst	0.0010	0.0002	0.0003	0.0004
	(0.8113)	(0.7111)	(0.7112)	(0.7114)
ΔCapitalRatio	-0.0003	-0.0003	-0.0002	-0.0002
	(0.1021)	(0.1021)	(0.1949)	(0.1949)
ΔStdROA	0.0215	0.0215	-0.2959***	-0.2959***
	(0.8712)	(0.8712)	(0.0000)	(0.0000)
ΔDisclosureIndex	0.0436***	0.0436***	-0.0024	-0.0024
	(0.0006)	(0.0006)	(0.6023)	(0.6023)
Country effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
Observations	561	561	561	561
R square	0.470	0.470	0.661	0.661

Table 6 describes the change regression. P-value are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. We show the detailed definitions of our variables in Table 1.

Table 7. Instrumental Variable Regressions

Dependent Variable	RegFinReport	Enforce	VR_SumCoeff	VR_SumCoeff	VR_RSquare	VR_RSquare
	(1)	(2)	(3)	(4)	(5)	(6)
Fitted RegFinReport * Fitted Enforce				0.0002*		0.0002***
				(0.0558)		(0.0077)
Fitted RegFinReport			0.1029***	-0.1000	0.0312***	-0.0278
			(0.0055)	(0.4489)	(0.0029)	(0.5394)
Fitted Enforce			0.0352***	-0.0339	0.0116***	-0.0101
			(0.0030)	(0.4613)	(0.0056)	(0.4983)
AvgRegFinReport	1.1084**	3.4171***				
	(0.0150)	(0.0072)				
AvgEnforce	0.3099**	0.9359***				
	(0.0469)	(0.0013)				
IFRSorGAAP	1.0267***	1.3756**	0.1717	0.1629	0.0554	0.0451
	(0.0000)	(0.0321)	(0.2472)	(0.5217)	(0.3047)	(0.5756)
ActRes	-0.2494	-1.8628	-0.1003	-0.0951	-0.0318	-0.0257
	(0.2465)	(0.3382)	(0.2462)	(0.5220)	(0.3146)	(0.5855)
CapitalStringency	0.2224	1.0704	0.0664	0.0629	0.0209	0.0169
	(0.1555)	(0.1929)	(0.2584)	(0.5293)	(0.3285)	(0.5962)
InstitutionalQuality	0.0642	0.2600	0.0177	0.0168	0.0059	0.0048
	(0.1906)	(0.1399)	(0.2174)	(0.5280)	(0.2543)	(0.5614)
logGDPPerCapita	-1.8269	-50.5728	-0.8452	-0.8008	-0.2726	-0.2209
	(0.8176)	(0.1614)	(0.2507)	(0.5287)	(0.3081)	(0.5832)
GDPGrowth	0.5734	20.2405*	-0.4762	-0.4521	-0.1505	-0.1224
	(0.8656)	(0.0804)	(0.2504)	(0.5180)	(0.3181)	(0.5834)
Size			0.0000	0.0000	-0.0001	-0.0001
			(0.9651)	(0.9637)	(0.7048)	(0.7069)
ProblemLoan			-0.0175	-0.0177	-0.0167	-0.0169
			(0.4936)	(0.4906)	(0.3309)	(0.3317)
Analyst			0.0003***	0.0003***	0.0001***	0.0001***
			(0.0026)	(0.0025)	(0.0000)	(0.0000)
CapitalRatio			0.0001	0.0001	0.0001**	0.0001**
			(0.1096)	(0.1091)	(0.0131)	(0.0132)
StdROA			-0.4488***	-0.4490***	-0.4957***	-0.4959***
			(0.0000)	(0.0000)	(0.0000)	(0.0000)
DisclosureIndex			0.0037**	0.0037**	-0.0007	-0.0007
			(0.0288)	(0.0278)	(0.2778)	(0.2769)
Country effects	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1031	1031	1031	1031	1031	1031
R square	0.959	0.975	0.668	0.668	0.849	0.849

Table 7 describes instrumental variable regressions. Column (1) and (2) report the results in the first stage. P-value are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. We show the detailed definitions of our variables in Table 1.

Table 8. Interaction Effects of Bank Accounting Regulations (Enforcement) and Institutional Quality

Dependent Variable	VR_SumCoeff	VR_RSquare
	(1)	(2)
RegFinReport * InstitutionalQuality	0.0020***	0.0007***
	(0.0023)	(0.0001)
Enforce * InstitutionalQuality	0.0022***	0.0005***
	(0.0001)	(0.0001)
RegFinReport	-0.0077	-0.0018
	(0.1011)	(0.1167)
Enforce	0.0241	0.0057
	(0.8000)	(0.7000)
IFRSorGAAP	0.0029	0.0008*
	(0.1410)	(0.0863)
ActRes	0.0010	0.0008
	(0.6192)	(0.1320)
CapitalStringency	0.0004	-0.0002
	(0.7452)	(0.4117)
InstitutionalQuality	0.0214***	0.0034***
	(0.0000)	(0.0004)
logGDPPerCapita	0.0008	0.0006
	(0.9399)	(0.8291)
GDPGrowth	0.0136*	-0.0021
	(0.0584)	(0.3744)
Size	0.0000	-0.0000
	(0.8793)	(0.7685)
ProblemLoan	-0.0210	-0.0180
	(0.3893)	(0.2993)
Analyst	0.0003***	0.0001***
	(0.0020)	(0.0000)
CapitalRatio	0.0001*	0.0001**
	(0.0990)	(0.0124)
StdROA	-0.4531***	-0.4977***
	(0.0000)	(0.0000)
DisclosureIndex	0.0045***	-0.0005
	(0.0020)	(0.3886)
Country effects	Yes	Yes
Year effects	Yes	Yes
Observations	1031	1031
R square	0.679	0.856

Table 8 describes the interaction effects of bank accounting regulations (enforcement) and institutional quality. P-value are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. We show the detailed definitions of our variables in Table 1.

Table 9. Subsample Tests

Dependent Variable	VR_SumCoeff		VR_RSquare		VR_SumCoeff		VR_RSquare	
	Small Bank				Large Bank			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
RegFinReport * Enforce		0.0037***		0.0013***		0.0013*		0.0005*
		(0.0000)		(0.0000)		(0.0836)		(0.0998)
RegFinReport	0.0029**	0.0650	0.0040***	0.0193	0.0169***	-0.0101	0.0062***	0.0167
	(0.0378)	(0.1200)	(0.0000)	(0.2500)	(0.0001)	(0.6835)	(0.0000)	(0.1216)
Enforce	0.0078***	-0.0107	0.0019***	-0.004	0.0025*	-0.0034	0.0008*	0.0031
	(0.0000)	(0.3400)	(0.0000)	(0.2301)	(0.0704)	(0.5383)	(0.0605)	(0.1255)
IFRSorGAAP	0.0107***	-0.0014	0.0016*	0.0016*	-0.0006	0.0017	-0.0006	-0.0015
	(0.0030)	(0.3347)	(0.0983)	(0.0561)	(0.8836)	(0.6683)	(0.7511)	(0.3658)
ActRes	0.0035**	0.0011*	-0.0006	0.0010***	0.0009	0.0010	0.0014***	0.0014***
	(0.0424)	(0.0726)	(0.2093)	(0.0078)	(0.5291)	(0.5086)	(0.0070)	(0.0007)
CapitalStringency	0.0091***	0.0024**	0.0013	0.0010*	-0.0012	-0.0016	-0.0010	-0.0008
	(0.0039)	(0.0327)	(0.2277)	(0.0741)	(0.6165)	(0.4341)	(0.3218)	(0.2915)
InstitutionalQuality	0.0002	-0.0000	-0.0000	-0.0001	0.0014*	0.0007	0.0005**	0.0008***
	(0.7190)	(0.9025)	(0.8759)	(0.2874)	(0.0606)	(0.2671)	(0.0213)	(0.0017)
logGDPPerCapita	0.0693***	0.0255**	0.0129**	0.0020	0.0085	0.0190	0.0017	-0.0024
	(0.0002)	(0.0008)	(0.0121)	(0.5558)	(0.7716)	(0.4910)	(0.9053)	(0.8318)
GDPGrowth	0.1020***	0.0397**	0.0195***	0.0018	0.0051	0.0144	0.0032	-0.0004
	(0.0003)	(0.0005)	(0.0036)	(0.7421)	(0.7735)	(0.4191)	(0.7220)	(0.9542)
Size	-0.0007	-0.0007	-0.0007***	-0.0007***	-0.0003	-0.0003	-0.0006***	-0.0006***
	(0.1261)	(0.1042)	(0.0000)	(0.0000)	(0.1076)	(0.1137)	(0.0000)	(0.0000)
ProblemLoan	-0.0395	-0.0411	-0.0216**	-0.0222**	-0.0890*	-0.0932*	-0.0485	-0.0468
	(0.1150)	(0.1012)	(0.0361)	(0.0299)	(0.0734)	(0.0634)	(0.1958)	(0.2152)
Analyst	0.0002***	0.0002**	0.0001***	0.0001***	0.0004***	0.0004***	0.0002***	0.0002***
	(0.0089)	(0.0092)	(0.0002)	(0.0002)	(0.0010)	(0.0010)	(0.0000)	(0.0000)
CapitalRatio	0.0001	0.0001	0.0001***	0.0001***	0.0000	0.0001	0.0000	0.0000
	(0.4629)	(0.5066)	(0.0001)	(0.0000)	(0.5079)	(0.5003)	(0.8826)	(0.8883)
StdROA	-0.2817	-0.1116	-0.9527**	-0.8945**	-0.4150***	-0.4172***	-0.4165***	-0.4156***
	(0.7629)	(0.9017)	(0.0217)	(0.0289)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
DisclosureIndex	0.0000	-0.0002	0.0044***	0.0045***	0.0081***	0.0083***	0.0023***	0.0022***
	(0.9802)	(0.8734)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(0.0001)
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	458	458	458	458	573	573	573	573
R square	0.652	0.653	0.817	0.818	0.698	0.698	0.907	0.907

Table 9 describes the effects of bank accounting regulations and enforcement in the small and large bank subsample. P-value are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. We show the detailed definitions of our variables in Table 1.

Table 10. Alternative Measures of Enforcement

Dependent Variable	VR_SumCoeff		VR_RSquare		VR_SumCoeff		VR_RSquare	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
RegFinReport * Audit&DirectSup		0.0031**		0.0005*				
		(0.0240)		(0.0674)				
RegFinReport * DirectSup						0.0022**		0.0010*
						(0.0175)		(0.0934)
RegFinReport	0.0094*	-0.0418	0.0045***	-0.0043	0.0095*	0.0329	0.0045***	0.0149
	(0.0724)	(0.2726)	(0.0009)	(0.5026)	(0.0694)	(0.1585)	(0.0096)	(0.1201)
Audit&DirectSup	0.0028**	-0.0118	0.0007**	-0.0018				
	(0.0412)	(0.1599)	(0.0345)	(0.3227)				
DirectSup					0.0013*	0.0124	0.0003***	0.0052
					(0.0670)	(0.2605)	(0.0097)	(0.1720)
RegIFRSorGAAP	0.0059	0.0084**	0.0021**	0.0025**	0.0083	0.0043	0.0027*	0.0009
	(0.1379)	(0.0201)	(0.0361)	(0.0113)	(0.1521)	(0.4945)	(0.0571)	(0.5511)
RegActRes	-0.0012	-0.0001	-0.0000	0.0001	-0.0040	-0.0031	-0.0008	-0.0004
	(0.6837)	(0.9682)	(0.9607)	(0.8399)	(0.3690)	(0.4595)	(0.4862)	(0.7068)
RegCapitalStringency	0.0003	-0.0010	-0.0001	-0.0003	0.0020	0.0018	0.0003	0.0003
	(0.8730)	(0.5992)	(0.8385)	(0.4597)	(0.4908)	(0.5237)	(0.6393)	(0.7345)
InstitutionalQuality	0.0009	0.0001	0.0004**	0.0003**	0.0013**	0.0017**	0.0005***	0.0007***
	(0.1862)	(0.8439)	(0.0177)	(0.0267)	(0.0260)	(0.0279)	(0.0004)	(0.0008)
logGDPPerCapita	-0.0096	-0.0132	-0.0039	-0.0045	-0.0338	-0.0210	-0.0109	-0.0052
	(0.6405)	(0.4406)	(0.4578)	(0.3335)	(0.2385)	(0.4560)	(0.1252)	(0.4448)
GDPGrowth	-0.0132	-0.0170	-0.0033	-0.0040	-0.0278	-0.0092	-0.0060	0.0023
	(0.4291)	(0.2051)	(0.4581)	(0.3230)	(0.1457)	(0.7080)	(0.2136)	(0.7118)
Size	0.0001	0.0000	-0.0000	-0.0000	0.0001	0.0001	-0.0000	-0.0000
	(0.7948)	(0.8456)	(0.7809)	(0.7716)	(0.7727)	(0.7756)	(0.7875)	(0.7854)
ProblemLoan	-0.0175	-0.0197	-0.0176	-0.0180	-0.0201	-0.0199	-0.0183	-0.0182
	(0.4777)	(0.4263)	(0.3117)	(0.3028)	(0.4386)	(0.4373)	(0.2985)	(0.2980)
Analyst	0.0003***	0.0003***	0.0001***	0.0001***	0.0003***	0.0003***	0.0001***	0.0001***
	(0.0031)	(0.0025)	(0.0000)	(0.0000)	(0.0040)	(0.0036)	(0.0000)	(0.0000)
CapitalRatio	0.0001	0.0001	0.0001**	0.0001**	0.0001	0.0001	0.0001**	0.0001**
	(0.1032)	(0.1031)	(0.0130)	(0.0133)	(0.1114)	(0.1095)	(0.0155)	(0.0138)
StdROA	-0.4520***	-0.4534***	-0.4972***	-0.4974***	-0.4564***	-0.4540***	-0.4983***	-0.4973***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
DisclosureIndex	0.0041***	0.0045***	-0.0006	-0.0005	0.0038**	0.0037**	-0.0006	-0.0007
	(0.0050)	(0.0030)	(0.3243)	(0.3791)	(0.0155)	(0.0145)	(0.2589)	(0.2390)
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1031	1031	1031	1031	1031	1031	1031	1031
R square	0.676	0.677	0.855	0.855	0.673	0.673	0.854	0.854

Table 10 describes the effects of bank accounting regulations and alternative measures of enforcement, Audit&DirectSup and DirectSup. P-value are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. We show the detailed definitions of our variables in Table 1.