



Examining Managerial Misbehavior in Asian Banks through Loan Loss Provisions*

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Abstract

This paper reviews the impact of corporate ownership concentration, insider ownership, and the development of regulatory and financial systems on the opportunistic behavior of managers to alter financial reporting. By using the panel data technique with a sample of banks from 25 Asian countries, the major findings indicate that ownership concentration as well as insider ownership positively impact the banks' accrual-based earnings management. Results also reveal that an improvement in regulatory and financial systems restricts executives' capacity to manage earnings. Islamic banking and IFRS adoption reduce the manipulation of earnings. Policy implications from the results are also discussed.

Keywords Asia; Bank; Corporate governance; Earnings management; Loan loss provision; Ownership structure

JEL Classification: C23, G21, L2

1. Introduction

While beneficial corporate governance reforms have been implemented throughout the world (McGee, 2009), corporate scandals continue to damage businesses (Aguilera and Crespi-Cladera, 2016). Many of these corporate scandals had their origin in the opportunistic manipulation of financial reporting. In the banking industry, accrual-based earnings management is usually performed through discretionary loan loss provisions (Kanagaretnam *et al.*, 2004; Yang, 2009; Ozili, 2015), which

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corresponds to opportunistic earnings management. Accrual-based earnings management is linked to the use of managers' judgment in financial reporting, which aims to mislead shareholders from true firm performance (Healy and Wahlen, 1999).

Banks in the Asian region have experienced several financial crises in last few decades. Prior studies reveal that in the event of financial instability, banks are liberal in earnings manipulation (Giroux, 2008; Manzanque *et al.*, 2016). But when the market becomes aware of such exploitation (i.e., Punjab National Bank in India, Higashi-Nippon Bank in Tokyo, Sonali Bank in Bangladesh, Asia Wealth Bank in Myanmar, etc.), financial institutions experience a substantial value loss (Manzanque *et al.*, 2016), which suggests that the market does not tolerate such accounting practices. In a study of accounting manipulation, Karpoff *et al.* (2008) reveal that this can significantly hurt firms' value. Examining the Tyco, Adelphia, Global Crossings, HealthSouth, Freddie Mac, and Fannie Mae cases, Giroux (2008) reports that earnings management had a direct association with these scandals. Similarly, Suffian *et al.* (2015) conclude that there is a high correlation between opportunistic managerial behavior and earnings manipulation and that both factors cannot be dissociated.

McGee (2009) summarizes 10 corporate governance studies conducted by the World Bank, revealing that the indicators of corporate governance practices among Asian countries are less than those of other regions. Like big financial scandals in the United States or Europe, active earnings management is also found to be associated with banking scandals in Asian countries. Asian banks that obscured their financial information include: Oriental Bank in Bangladesh in 2006; Hallmark-Sonali Bank, also in Bangladesh, in 2012; BCCI in Pakistan in 2004; Olympus in Japan in 2011; Asia Wealth Bank in Myanmar in 2008; the so-called 1MDB scandal in 2009 that has been named by the BBC as a case that is still affecting Malaysia; Asia Pacific Breweries in Singapore in 2009; and Long-Term Credit and Bank of Japan in 1998, among many others. Such managerial behavior in the banking industry may cause great economic damage because of confidence lost with subsequent credit rationing to firms and the public in general, and capital outflows (Hung *et al.*, 2012). Therefore, the analysis and dynamics of such opportunistic behavior through accrual-based earnings management—and specifically through discretionary loan loss provisions—in the Asian banking industry is an interesting and underexplored research field with a significant social and economic impact. We are interested in assessing the impact of both bank-level ownership concentration features and country-level governance dynamics, such as regulatory and financial systems, on the capacity of executives to discretionarily manage earnings in Asian banks.

This study contributes to the existing earnings management literature in several ways. First, to the best of our knowledge, discretionary managerial behavior in the Asian banking sector has not yet been widely studied (Sarkar *et al.*, 2008). Only a few studies have focused on single-country samples (Barth *et al.*, 1999; Healy and

Wahlen, 1999; Park and Shin, 2004; Sarkar *et al.*, 2008), but most of these studies are centered on developed markets (Cornett *et al.*, 2009; Leventis and Dimitropoulos, 2012; Tran *et al.*, 2020), and only a few deal with the Asian region (Aguilera and Crespi-Cladera, 2016; Andres and Vallelado, 2008; Claessens and Yurtoglu, 2013; Tan, 2014), with the subsequent downside of weak extrapolation to a wider institutional context. Consequently, we intend to close this gap in the empirical literature by considering a comprehensive multi-country sample from the unexplored Asian banking industry. Second, studying earnings management through the discretionary loan loss provision is significantly associated with better decision making. If earnings management dynamics are transparent, policy makers may take actions to reduce their negative impact on banks and, ultimately, on the economy as a whole. Third, from the scarce studies conducted for Asian countries—and also for developed economies such as the United States and Europe—most of the empirical literature has examined one or only a few of the determinants associated with the managerial altering of financial reporting. Thus, this paper fills the literature gap by not only examining earnings management materialized in the discretionary loan loss provisions in the Asian banking sector, but also by determining the factors behind these actions, which are generated at bank level as well as country level. Hence, this study provides a more comprehensive set of determinants of managerial misbehavior. Additionally, unlike much of the previous literature, the scope of analysis followed in this work is from a governance perspective, which allows us to examine some determinants of opportunistic managerial behavior not widely studied in the banking literature (e.g., ownership structure features, and legal and regulatory institutional variables). In this respect, this study goes one step further than the existing literature (e.g., Lassoued *et al.*, 2017; Sullivan and Spong, 2007) by analyzing how ownership structures balanced between insiders and external shareholders provide additional insights into the transparency of financial reporting in the Asian banking sector. Fourth, in addition to these contributions, the findings of this paper provide policymakers and regulators with an understanding of precautions for avoiding potential financial complexities such as earnings management. Finally, with particular relevance for Asian banking, this study also examines major relationships for the specific case of Islamic banking. In doing so, we provide further information about the asymmetric impact of governance systems between conventional banking and Islamic banking.

By using a model that allows us to better separate loan loss provisions in its normal component, from the non-normal component the major findings indicate that both ownership concentration and insider ownership exhibit a direct relationship with discretionary accrual-based earnings management in the Asian banking industry. The results also reveal that improvements in regulatory and financial systems substantially restrict earnings management. Moreover, adoption of International Financial Reporting Standards (IFRS) in place of local reporting systems constrains discretionary loan loss provisions. Most notably, our results reveal that as part of institutional variables, Islamic banks engage less actively in earnings

management as measured by discretionary loan loss provisions than their counterpart conventional banks.

The paper proceeds as follows. Section 2 examines the related literature and presents the hypotheses development. Section 3 describes the research design. Section 4 reports the results of the empirical analysis and finally, Section 5, summarizes the conclusions.

2. Literature Review and Hypotheses Development

2.1. Corporate Governance and Earnings Management

According to stewardship theory, corporate governance ensures efficient use of resources and aligns individual interests, corporate goals, and social obligations in a firm (Donaldson and Davis, 1991). Thus, corporate governance is defined as the structure of rights and responsibilities among stakeholders (Tan, 2014). Effective corporate governance works like a mechanism which ensures that stakeholders' interests are properly served by the executives. The traditional definition of corporate governance is linked with agency theory, which provides further understanding of the relationship between shareholders and managers. Companies with poor corporate governance are often found taking suboptimal strategies and manipulating actual performance to avoid takeover (Dalton *et al.*, 2007; Shleifer and Vishny, 1997). Earnings manipulation is a method used by managers to commit these suboptimal decisions (Claessens and Yurtoglu, 2013). Beneish (2001) defines earnings manipulation as a situation in which managers favorably represent the company's financial position. This definition implicitly indicates information asymmetry between managers and shareholders, where the former are eager to artificially enhance the company's earnings and its performance at the expense of the latter.

In their study, a few years before the global financial crisis, Graham *et al.* (2005) discover the core reason for possible financial calamity. They examine the determinants of earnings management in interviews with 401 executives. Their findings reveal that 78% of managers are willing to forego long-term financial value to better represent earnings because they believe "the market hates uncertainty" (p. 47). Executives are found to maintain shareholders' predictability between financial reporting and earnings. Executives also report candidly that they would take economic action to meet earnings benchmarks. These findings are similar to Roychowdhury (2006). And banks are not different from other public corporations in this respect. In fact, previous literature suggests that banks' management can be involved in opportunistic earnings manipulation for several reasons. These include: self-interest and the tunneling of wealth from shareholders in pay-for-performance cases (Bergstresser and Philippon, 2006; Davidson *et al.*, 2004); to avoid possible losses from debt valuation (Othman and Zeghal, 2006) and credibility (Burgstahler and Dichev, 1997); to evade the market's reaction from reporting losses or declines in earnings (Park and Shin, 2004); or as a consequence of regulatory requirements in the banking industry such as capital adequacy (Beatty *et al.*, 1995; Lassoued

et al., 2017; Shrieves and Dahl, 2003). Therefore, we can state that accrual-based earnings manipulation involves negative consequences for firms and banks.

2.2. Ownership Structure Features as Determinant of Earnings Management

2.2.1. Banks' Ownership Concentration.

According to Shleifer and Vishny (1986), under diluted ownership structure systems, blockholders have a strong incentive to monitor efficiently and influence firm management in order to protect their interests. Majority shareholders do this because their wealth is more heavily influenced by the firm's operating results as their ownership increases (Goh *et al.*, 2013). This relationship is known as the monitoring hypothesis. Hence, ownership concentration may be considered as an effective governance mechanism that mitigates agency costs by increasing monitoring (Jensen and Meckling, 1976). This means that the likelihood of opportunistic financial reporting is reduced when there are large shareholders that perform efficient monitoring of managerial behavior.

This basic agency relationship, however, takes place under the assumption of competent institutional settings and regulations, and the existence of diluted ownership structures—like those widely observed in developed, common-law countries such as the United States and the United Kingdom—efficient market for corporate governance that encourages hostile takeovers, and the presence of accountable boards of directors (Jin *et al.*, 2018; Macey and O'Hara, 2003; Millar *et al.*, 2005). However, this scenario is quite different from that in the Asian region. For instance, Claessens and Fan (2002) survey corporate governance studies among Asian corporations and conclude that the legal system provides low minority rights protection, deviations between control and cash flow rights, and highly concentrated ownership structures. Additionally, Claessens *et al.* (2000) emphasize that typical corporate governance mechanisms (e.g., takeovers and accountable boards of directors) are barely observed in the Asian region. Accordingly, the traditional manager–shareholder agency problem observed in widespread ownership structures in industrialized countries can take a different form in Asian countries, where ownership structures are particularly concentrated and business groups dominate the corporate network (Claessens and Fan, 2002; Fan and Wong, 2002).

Hence, it is expected that the conflict between managers and shareholders could mutate into a conflict between the controlling shareholder and minority shareholders, also known as Type II agency conflict. As described by Tran *et al.* (2020), owners with smaller stakes in a firm are more likely to adopt rational apathy because they bear most of the costs of monitoring (e.g., costs of storing, retrieving, and processing information) while receiving a limited share of gains from monitoring. Hence, these shareholders are more likely to use simple low-cost heuristics such as earnings-based benchmarks to assess banks' performance, which leads to greater incentives for bank managers to manipulate earnings for the appearance of better performance. This is known in the literature as the expropriation hypothesis, which emphasizes information asymmetry between majority and minority shareholders, in

which companies tend to act to the detriment of the wealth of minority shareholders as the proportion of majority shareholder ownership grows (Goh *et al.*, 2013; Kim and Yi, 2006; Kim *et al.*, 2018).

This expropriation effect can be materialized in opportunistic reporting of the financial statements, in which majority owners or blockholders influence managements' business operation decisions, cash flows, and tunneling through the overstatement of accounting earnings (Ali *et al.*, 2008; Kazemian and Sanusi, 2015).

In addition to the pattern mentioned above, there are clear incentives for large shareholders in obscuring the content of financial reports. First, as documented in previous studies, given that majority shareholders would suffer most of the costs of not meeting capital regulatory adequacy and given that regulators require banks to hold minimum regulatory capital to reduce the need for safety nets from government (Berger, 1995), there are incentives for those controlling shareholders to be permissive with managers before earnings management in a way that meets capital requirements (Ahmed *et al.*, 1999). Indeed, Beatty *et al.* (1995) state that incentives for earnings management result from the regulator's monitoring by means of capital accounting measures. Hence, banks disclose adjusted financial information to fulfill required capital standards, as recently reported by Lassoued *et al.* (2017). Second, banks take excessive risk by relying on guaranteed deposits by the government through their local central banks to lever up profits. Consequently, large shareholders are motivated to persuade managers to report information in such a way as to be perceived as less risky (Mishra, 2011; Jin *et al.*, 2018). Third, as the literature has recognized, large shareholders might use their voting power to customize the board of directors to influence managerial decisions in their own interest (Gaur *et al.*, 2015). As emphasized by Alves (2012), managers fear negative repercussions for declining performance from large shareholders, which incentivizes them to engage actively in earnings management. Fourth, majority shareholders may use certain accounting choices to isolate themselves from outside scrutiny, at the expense of minority shareholders, by reporting less informative earnings or statements aligned with market expectations. Finally, motivation arises when large shareholders want to keep the informative content of financial reports low in such a way that strategic information is not widespread among competitors and other market participants. Hence, these arguments emphasize that when ownership concentration increases in the Asian banking industry, the financial statements are more actively manipulated to mislead the market, as supported by the Type II agency conflict (Morck *et al.*, 1988).

Although the existing debate on concentrated ownership and earnings management is mixed (Saona, 2014), the weak institutional setting that fosters highly concentrated ownership structures in the Asian region suggests the dominance of an expropriation risk over the alignment of interests approach, which would trigger an active manipulation of financial reports. Thus, our first research hypothesis is:

H1. There exists a positive relationship between banks' ownership concentration and earnings manipulation, *ceteris paribus*.

2.2.2. *Banks' Insider Ownership.*

Insider ownership is another feature that drives earnings manipulation. As before, there are two competing arguments that support both a positive and negative relationship between managerial stock ownership and the manipulation of earnings. On the one hand, when insider ownership increases there is less room for managerial discretionary behavior (Jensen and Murphy, 1990), and consequently accrual-based earnings manipulation decreases. This is known as the convergence of interests hypothesis, which suggests that the interests of managers and insiders converge with those of the owners (Bennedsen and Nielsen, 2010). The alternative view posits that entrenched managers would over exercise their decision-making power since they see themselves relatively insulated from the disciplinary mechanisms of the markets for managerial labor and corporate control (de Miguel *et al.*, 2005; Denis and McConnell, 2003).

Taking into consideration the particularities of the institutional setting in Asia, Fan and Wong (2002) argue that due to the complex pyramidal and crossholding ownership structures in the region, a significant number of insiders actually possess more control than their equity ownership indicates, which further exacerbates the entrenchment effect. This disproportionate control, in conjunction with a lack of intervention from activists outside shareholders or an efficient market for corporate control in Asia, affords insiders significant autonomy over firm decisions. In this arena, management is perceived to report accounting values for self-interested purposes with the subsequent erosion of credibility of accounting earnings. Indeed, as Gopalan and Jayaraman (2012) evidence for a sample of 22 emerging markets, insider controlled firms are associated with more earnings management than non-insider controlled firms in weak investor protection countries. Therefore, as Gopalan and Jayaraman (2012) emphasize, this allows insiders to not only extract benefits when the firm performs well but also to keep a poorly performing firm alive. Hence, based on particularly high ownership in the hands of self-interested insiders (e.g., managers, executives, directors, cross-holding, among others) in the Asian context and in its negative impact on transparency as a consequence of the entrenchment effect (Huang *et al.*, 2013), we hypothesize that:

H2. There exists a positive relationship between banks' insider ownership and earnings manipulation, whilst all the other variables remain constant.

2.3. Institutional Setting as a Determinant of Earnings Management

2.3.1. *Quality of the Regulatory System.*

Drawing on the banking literature, earnings management is found to be associated with a country's regulatory system in many aspects. The supervisory framework of a country is one such aspect. According to Hasan and Wall (2004), banks across

countries have different inherent accounting rules and supervisory structures as a result of various national rules and pronouncements by regulatory authorities. This indicates that the quality of the regulatory and accounting system conditions management's decision making regarding the disclosure of financial reports. Barth *et al.* (2003) examine the structure, scope, and independence of the supervisory framework on the performance of 2300 banks from 55 countries worldwide. Their empirical evidence reveals that only the single-supervisor system has a weak influence (systemic relationship) on bank performance. Alternatively, some literature suggests that banks operating in countries with low levels of regulatory restrictions can boost their performance by overstating earnings. For instance, Ozili (2015) indicates that although regulatory standard setters emphasize good quality financial information reporting, bank managers still use loan loss provisions to smooth income, suggesting that regulation fosters transparency that must be complemented with other governance tools. In this respect, Demirgüç-Kunt *et al.* (2004) examine 72 countries' regulatory status to link bank performance and transparency. Their findings reveal that tighter regulations on bank activities are positively associated with transparency. Consequently, we expect that better regulatory systems across countries would reduce the discretionary capacity of executives to manage earnings, as well as improve the informative content of financial statements. We hypothesize that:

H3. There is a negative relationship between the quality of the regulatory system and accrual-based earnings management, *ceteris paribus*.

2.3.2. Islamic Banking.

Islamic banking corresponds to another institutional characteristic in Asia and the Middle East. Mersni and Ben Othman (2016) indicate that although Islamic banks are also exposed to conflicts of interest between managers and shareholders as well as to the existence of information asymmetrically distributed, the concept of earnings management seems to be contradictory to the ethical and moral values pursued by Islamic norms, and consequently managerial misbehavior and unethical practices such as accounting manipulation are clearly reprovved.¹

The literature reveals that there are three major reasons for expecting a lower opportunity to practice earnings management in Islamic banks compared to the conventional bank system (Quttainah *et al.*, 2013). First, in general, Islamic banks operate a dynamic loan loss provisional policy which allows them to declare provision for loan losses when they are expected rather than actual losses. Moreover, the loss and profit-sharing concept among Islamic banks allows them to set up a provision for any possible future loss. Second, Islamic Law, *Shariah*, is the key to restraining and empowering any source of income generation, distribution, and

¹As addressed by Hamdi and Zarai (2012), the adoption of *Shariah* leads Islamic banks to focus more on ethical and moral values, rather than credit value, in their banking industry.

above all, reporting. It is expected that managers would not tailor the amounts, as that would be disrespecting *Shariah* rules. Third and most significantly, Islamic banks must confirm implementation and approval of *Shariah* law for any type of transaction. Many Islamic banks around the world have an independent *Shariah* audit board—a committee responsible for checking whether Islamic banks are operating under the guidance of Islam—rather than a general board of directors. In a recent study of earnings management in Islamic banks, Elghuweel *et al.* (2017) use two major indicators: earnings loss avoidance and abnormal loan loss provisions. Their results reveal that *vis-à-vis* conventional banks, Islamic banks are less prone to earnings management. Similarly, in a recent study of Middle East banks, Mersni and Ben Othman (2016) find that the external *Shariah* audit committee reduces managerial discretion in Islamic banks with subsequent lower earnings management. Therefore, our hypothesis is that:

H4. Islamic banking, in comparison to traditional banking, negatively impacts earnings manipulation, whilst all other variables remain constant.

3. Research Protocol

3.1. Methodology

We are interested in assessing whether a change in bank ownership structure features in addition to changes in the regulatory system would predict a change in managerial discretionary behavior in Asian banks. Our sample is comprised of banks from 25 Asian countries as exhibited in Appendix. We obtained our data from three databases for the period 2007 to 2017. Financial information and banks' market value come from the Thomson Reuters Eikon database. Information concerning the development of the financial system at country level was obtained from updated data based on the work of Beck *et al.* (2000), which is publicly available on the World Bank web page. This dataset reports valuable information about financial development by country and year. Worldwide governance indicators concerning accounting standards and legal systems by country were obtained from the updated work of Kaufmann *et al.* (2011) whose data set is also publicly available.² In the case of mergers and acquisitions, the target and acquiring banks were treated separately as long as the data were reported separately. With a non-bank acquirer and no unconsolidated data available after the merger, the target bank was then excluded from the sample. The sample was also filtered by excluding banks with less than three consecutive yearly observations or if data on main variables were not available.

We build an unbalanced panel of 2147 bank-year observations from 347 commercial banks, implying that the average number of consecutive observations per bank is 6.2. The econometric problems of unobservable heterogeneity and endogeneity may typically arise in the empirical estimation of panel structures (Arellano,

²Updated information can be downloaded from www.govindicators.org.

2002; Baltagi, 2013). The constant and unobservable heterogeneity refers to specific, time-invariant characteristics of each bank (e.g., the bank's organizational culture, business strategy, internal policies, etc.). Since they are unobservable, they become part of the random component in the estimates. There is an endogeneity problem when the direction of the causality between some explanatory variables and managerial discretionary behavior is blurry and unclear (Durnev and Kim, 2005). Hence, these variables might impact earnings management, but the reverse, where the overstatement of the financial reports might trigger changes in the governance variables, is also possible.

In the empirical analysis, we use the Roodman (2009) specification for panel data models corresponding to the GMM system estimator (GMM-SE) with adjusted standard errors for potential heteroskedasticity as proposed by Blundell and Bond (1998). This specification fits two closely related models. The first is the Arellano and Bond (1991) estimator, characterized by not having the two-step standard error correction. The second is an augmented version outlined by Arellano and Bover (1995) and fully developed later by Blundell and Bond (1998). Hence we believe that the Roodman (2009) specification is superior because it made the Windmeijer (2005) finite-sample correction to the reported standard errors in two-step estimation, without which those standard errors tend to be severely downward-biased.

The GMM-SE is designed for panels characterized by a small number of time series and a relatively large number of individuals, as is our case, and for panels that may contain fixed effects and idiosyncratic errors that are heteroskedastic and correlated within but not across individuals.³ According to Saona (2016), the temporal and cross-sectional independence of the variables is not a relevant issue because the time effect and the individual effect are explicitly taken into account in these types of GMM-SE models. Therefore, according to Jara *et al.* (2008) the variables do not need to be transformed to stationary before estimating the model.⁴

Despite this major advantage, we follow Saona *et al.* (2018), Saona (2016), and Smith *et al.* (2004) and use unit root tests which are frequently applied to panel data to look for mean or trend reversion. Therefore, we apply a Fisher-type (Choi, 2001) test which has as a null hypothesis that all the panels contain a unit root to test the stationarity of the variables in the estimated models.⁵ The Fisher-type test

³Time-invariant fixed effects and heteroskedasticity problems were checked with preliminary diagnostic tests such as the Hausman (1978) contrast and the Breusch and Pagan (1979) test, respectively. For space saving reasons, such tests are not reported but are available upon request to the corresponding author.

⁴Another major advantage of panel data estimation with GMM-SE in comparison with time-series models is that, given the lengthy time period required by the time-series model, it is possible for the model to be misspecified due to non-stationarity (Koh, 2003).

⁵Panel data unit root tests have been developed by, among others, Im *et al.* (2003) as extensions of standard time series unit root tests, such as the Dickey-Fuller test or a Lagrange Multiplier test.

for panel data unit roots follows a meta-analysis perspective. That is, this test conducts unit-root tests for each panel individually, and then combines their p -values to produce an overall test.

The consistency of the regressors' estimates critically depends on the absence of second-order serial autocorrelation and on the validity of the instruments utilized in those variables that are, *a priori*, considered as endogenous. In our case, all the corporate governance variables at bank and country level are assumed to be endogenous and therefore instrumentalized with their $t - 1$ to $t - 3$ lagged values. Hence, the Hansen (1982) contrast of overidentified restrictions is used to check if the instruments are exogenously determined and the AR(2) statistic is used to measure the second-order serial correlation.⁶ As emphasized by Saona and Vallelado (2012), some degree of first-order serial correlation is expected given the use of first-difference transformations in the estimations, which does not invalidate the results. Therefore, the AR(1) contrast of first-order serial correlation is not reported. Additionally, the Wald test of joint significance for all independent variables is reported and the potential multicollinearity problems are assessed through the variance inflation factor (VIF). According to Roodman (2009) and Baltagi (2013), panel data have higher informative content than cross-sectional analyses, as they provide higher variability, lower collinearity among explicative variables, greater degrees of freedom, and higher efficiency.

3.2. Measures of Earnings Management

To test for earnings management, accruals are usually disentangled into accruals over which management has discretion—which can be used to manage earnings—and accruals over which management does not have discretion (Lassoued *et al.*, 2017). Therefore, a two-stage analysis is often chosen when researching accrual-based earnings management using loan loss provisions, which separates the discretionary component of the accruals from the non-discretionary part in the second stage (Kanagaretnam *et al.*, 2004). In the first stage the non-discretionary part of loan loss provisions is modeled and the residuals from this stage, which represent the discretionary part, are used in the second stage as the dependent variable.

Loan loss provisions are the largest of banks' accruals and can be used in isolation to study the banks' earnings management (Wahlen, 1994; Ahmed *et al.*, 1999; Anandarajan *et al.*, 2003; Ozili, 2015). Kanagaretnam *et al.* (2004) state that bank managers estimate loan loss provisions to reflect changes in future loan losses, which allows them wide latitude for discretion in the estimation of loan loss provisions.

Following Kim and Kross (1998) and Yang (2009), we use the change in non-performing loans (ΔNPL_{it}), the beginning balance of non-performing loans (NPL_{it-1}), and change in total loans (ΔTL_{it}) to estimate the current non-discretionary component of loan loss provisions ($NDLLP_{it}$) of bank i at time t .

⁶No rejection of the null hypothesis of no second-order autocorrelation indicates that the moment conditions are valid.

Consistent with Kanagaretnam *et al.* (2004), as a result of an increase in non-discretionary provisions for loan losses ($NDLLP_{it}$), the signs of the coefficient estimates of these three variables (ΔNPL_{it} , NPL_{it-1} , and ΔTL_{it}) are expected to be positive. That is, with a higher level of change in non-performing loans as well as a higher level of beginning non-performing loans, banks will have to make higher provisions for loan losses. Similarly, an increase in loans is likely to result in an increase in the loan loss provision due to doubtful loans, *ceteris paribus*. Thus, the model used to estimate the $NDLLP_{it}$ is:

$$NDLLP_{it} = \beta_0 + \beta_1 \Delta NPL_{it} + \beta_2 NPL_{it-1} + \beta_3 \Delta TL_{it} + \varepsilon_{it} \tag{1}$$

where the right-hand side variables account for the non-discretionary component of loan loss provisions, and consequently the discretionary component is given by the residual term ε_{it} computed under OLS estimation. $NDLLP_{it}$ is the provision for loan losses deflated by beginning total loans, ΔNPL_{it} is the change in value in non-performing loans deflated by beginning total loans, NPL_{it-1} is the beginning of period nonperforming loans deflated by beginning of period total loans, and ΔTL_{it} is the change in the value of total loans deflated by beginning total loans.

Therefore, the discretionary loan loss provision ($DLLP1_{it}$) according to our first model outlined in equation (1) would take the following form:

$$DLLP1_{it} = NDLLP_{it} - \hat{\beta}_0 - \hat{\beta}_1 \Delta NPL_{it} - \hat{\beta}_2 NPL_{it-1} - \hat{\beta}_3 \Delta TL_{it} \tag{2}$$

where the parameters of this equation correspond to the coefficients estimated based on equation (1).

We also follow Kanagaretnam *et al.* (2010) and Quttainah *et al.* (2013) and use another two-stage approach to examine the relationship between corporate governance mechanisms and earnings management through loan loss provisions. Hence, the normal or non-discretionary component of loan loss provisions is estimated by regressing loan loss provisions deflated by beginning total assets ($NDLLP2_{it}$), on beginning loan loss allowance deflated by beginning total assets (LLA_{it-1}), change in total loans outstanding (ΔTL_{it}) also deflated by beginning total assets, total loans outstanding (TL_{it}) deflated by beginning total assets, non-performing loans (NPL_{it}) deflated by beginning total assets, and a dummy variable ($DNPL_{it}$) that takes the value one if there is no available information for the non-performing loan (NPL_{it}) variable and zero otherwise.⁷ Finally, we enter in the estimation controls for period and country effects using the following model:

⁷In order to prevent losing large amounts of information when missing values, Greene (2003) suggests using a modified zero-order regression method that codes one if the corresponding variable is missing and zero if not missing. Given that non-performing loan information is missing for a considerable number of companies, we follow the zero-order regression approach in equation (3).

$$NDLLP2_{it} = \gamma_0 + \gamma_1 LLA_{it-1} + \gamma_2 \Delta TL_{it} + \gamma_3 TL_{it} + \gamma_4 NPL_{it} + \gamma_5 DNPL_{it} + \mu_{it} \quad (3)$$

The residuals from equation (3) are the abnormal or discretionary component of loan loss provisions according to our second model ($DLLP2_{it}$) outlined as:

$$DLLP2_{it} = NDLLP_{it} - \hat{\gamma}_0 - \hat{\gamma}_1 LLA_{it-1} - \hat{\gamma}_2 \Delta TL_{it} - \hat{\gamma}_3 TL_{it} - \hat{\gamma}_4 NPL_{it} - \hat{\gamma}_5 DNPL_{it} \quad (4)$$

In the second stage, we test the association between the corporate governance variables and the absolute value of the discretionary component of loan loss provisions ($|DLLP_{it}|$), due to the fact that we are interested in the magnitude of the discretionary capacity of management to overstate the financial reports in the banking industry in Asia and not the direction of such discretionary behavior.

Alternatively, we follow another eclectic approach focused on the loan loss avoidance behavior of financial intermediaries. According to this view, banks set loss avoidance as an important benchmark for managers, and consequently, managers would have high personal motivations to achieve the earnings benchmarks (DeGeorge *et al.*, 2013). Following Quttainah *et al.* (2013), loan loss avoidance LLA_{it} is defined as a dummy variable equal to one if a bank has a small return on assets before taxes in the interval of 0% and 1%, and zero otherwise.

3.3. Regression Model and Definition of Variables

Once the discretionary components of loan loss provisions are estimated through our two models mentioned above ($DLLP1_{it}$ and $DLLP2_{it}$) and the loan loss avoidance LLA_{it} , we examine the impact of the explanatory factors on these proxies of opportunistic banks' managerial behavior. We analyze the ownership structure features as bank-specific factors as stated in our hypotheses above. In addition, we consider other external corporate governance dynamics as the regulatory environment, if the bank operates under Islamic banking rules, and the characteristics of the development of the financial system where banks operate. Dechow (1994), Dechow *et al.* (1995), Sloan (1996), and Barth and Hutton (2004) among others, find that accruals are mean reverting, with the majority of the mean reversion occurring within a year. Consequently, similar to Koh (2003) and Jara and López (2014), we include in the specification the one-period lagged dependent variable ($|DLLP_{it-1}|$) to control for persistency and reduce misspecification problems in the case of mean reversion. Consistent with previous research (Barth and Hutton, 2004), the estimated coefficient for the one-period lagged dependent variable is expected to be positive but lower than one. Nevertheless, as described above, we check whether the panel data and the individual time series are stationary. Using the suggested Fisher-type test, we find no evidence of a unit root in the series under consideration. To do so, we repeat the test performing the augmented Dickey-Fuller test as well as the Phillips-Perron test that the variables follow a unit-root process (Im *et al.*, 2003; Smith *et al.*, 2004). As observed in Table 1, in all cases we find that

the variables are generated by a stationary process, which mitigates the problem that the changes in the dependent variable are driven by its mean reversion.⁸ These tests are in accordance with most of the literature, which assumes stationarity in the financial industry.

Regarding this, the GMM-SE technique outperforms in samples with abnormal past and present loan loss provisions and in cases of mean reversion or momentum (Kothari *et al.*, 2005; Louis and Robinson, 2005). Moreover, this setup also directly addresses the potential concern that our results might simply be due to reversion to the mean in discretionary loan loss provisions and not due to the response to changes in the right-hand side variables in the models (Irani and Oesch, 2016).

Thus, the regression model takes the form:

$$|DLLP_{it}| = \beta_0 + \beta_1|LLP_{it-1}| + \beta_2OWN_{it} + \sum_{k=1}^K \delta_k CL_{it} + \sum_{l=1}^L \theta_l CV_{it} + \mu_t + \varepsilon_{it} \quad (5)$$

where β_0 is the intercept; OWN_{it} is the ownership structure feature; δ_k is the vector of country-level variables that measure the institutional setting such as regulatory system and if the bank follows Islamic norms; and θ_l is the vector of control variables widely used in the empirical literature. Therefore, OWN_{it} measures the ownership structure features that include two variables to test the research hypotheses H1 and H2. First, bank ownership concentration (Own) is a measure of the proportion of outstanding stocks in the hands of the controlling shareholder. Second, closely held shares ($InsOwn$) is a measure of insider ownership, corresponding to the percentage of the outstanding shares belonging to executives, managers, directors, and crossholdings.⁹ Additionally, two indexed measures of ownership diversification are

⁸In all the cases displayed in Table 1, at least three out of the four tests reject the null hypothesis that panels contain unit roots except for the *Size* variable, in which two tests only reject the null hypothesis. Nevertheless, this does not invalidate our findings. By construction, the tests for dummy variables are not computed.

⁹We follow a similar approach as Rapp and Trinchera (2017) to double check the reliability of the ownership information provided by Thomson Reuters Eikon ownership module. This consists of a two-step cross-check in which, first, we carefully compare almost the entire sample of firm-year observations with information provided by other alternative sources such as Bureau van Dijk's Amadeus and Bloomberg databases. Thomson Reuters Eikon nicely matches the data from these sources. In the second step we compare the data with the well-established measure of insider ownership ($InsOwn$) corresponding to the closely held percentage of shares provided by Thomson Reuters Eikon ownership module used in previous empirical studies (Saona and Azad, 2018; Saona *et al.*, 2018; Thomsen *et al.*, 2006). Closely held shares are defined by Thomson Reuters Eikon as shares held by insiders, which includes (but is not restricted to) shares held by: officers, directors (and their immediate families), shares held in trust, crossholdings, pension plans, and other relevant shareholders which may also include the majority shareholder in case they perform executive or directorship duties. We conclude that our data are comparable to those reported in previous literature.

used to measure the balance between majority shareholding and the rest of the ownership. These indexed measures correspond to the Blau (1977) index (*OwnDiver1*) and the Shannon (1948) index (*OwnDiver2*) of diversification. The Blau index is computed as $OwnDiver1 = 1 - \sum_{i=1}^n P_i^2$, where P_i corresponds to the proportion of outstanding shares in each $n = 2$ category (controlling shareholding, *Own*, and the rest of the shareholders). The range of values of *OwnDiver1* variable is between zero, when there is no diversity at all and 0.5 when there is an equal proportion in the ownership structure between controlling and other shareholders. The Shannon index is calculated with the same inputs as the Blau index as $OwnDiver2 = \left| \sum_{i=1}^n LnP_i^{P_i} \right|$. The *OwnDiver2* variable takes values between zero, when technically there is no ownership diversification at all, and 0.693 when the firm's ownership structure is equally distributed between the controlling and non-controlling shareholders. This index assumes that $OwnDiver2 = 0$ when $Own = 0$. Based on the construction of these variables, we state that *OwnDiver2* is more sensitive to small changes in ownership diversity than *OwnDiver1* due to its logarithmic transformation (Abad *et al.*, 2017). Hence, we look at these variables as complementary measures of ownership structure diversity rather than substitute indicators, and consequently, both are used in our estimations.

The variables used to measure the quality of the regulatory system at country level were taken from Kaufmann *et al.*'s (2011) World Governance Index which includes the following indicators, resulting in a total of six dimensions of governance which go from approximately -2.5 (weak) to 2.5 (strong): (i) Voice and Accountability (*VA*); (ii) Political Stability and Absence of Violence/Terrorism (*PS*); (iii) Government Effectiveness (*GE*); (iv) Regulatory Quality (*RQ*); (v) Rule of Law (*RL*); and (vi) Control of Corruption (*CC*). Moreover, in order to assess the impact of the development of the financial system on earnings management, six financial system indicators are considered in the analysis: i) Deposit Money Bank Assets to Bank Assets (*DMBA*); ii) Central Bank Assets to GDP (*CBAGDP*); iii) Private Credit by Deposit Money Bank to GDP (*PCGDP*); iv) Stock Market Capitalization to GDP (*SMCGDP*); v) Stock Market Total Value Traded to GDP (*SMTVTGDP*); and vi) Stock Market Turnover Ratio (*SMTOR*). These variables are used to test our research hypothesis H3. Additionally, given the different dynamics between Islamic and traditional banking, we use the *Islamic* dummy variable to classify the banks and compare opportunistic managerial behavior to earnings management as stated in our research hypothesis H4. Finally, at the country level we also include the *IFRS* dummy variable which identifies banks that report their financial statements in compliance with IFRS.

The vector corresponding to the control variables includes bank size (*Size*) computed as the natural logarithm of a bank's total assets. This is the usual transformation of covariates which take positive values with large variance. Regulatory capital

ratio (*RegCap*), as in Collins *et al.* (1995), Liu *et al.* (1997), and Yang (2009), is computed as the ratio of the book value of owners' equity (common equity, preferred stocks, and preferred treasury stocks) to gross total assets. The bank's performance corresponds to the net interest margin ratio (*Nim*) calculated as net interest income over total assets, and bank deposits (*Dep*) are deposits over total assets. Following Lee *et al.* (2014) and Saona and Azad (2018), income diversification (*Diver*) is calculated as $Diver = 1 - \left[\left(\frac{NetIntInc}{OpInc} \right)^2 + \left(\frac{NetNonIntInc}{OpInc} \right)^2 + \left(\frac{LoanLossProv}{OpInc} \right)^2 \right]$, where *OpInc* denotes total operating income which is equal to the sum of the absolute values of net interest income (*NetIntInc*), net non-interest income (*NetNonIntInc*), and the provision for loan losses (*LoanLossProv*). This index ranges between zero when the bank is fully specialized in one source of income and 0.66, indicating that the bank generates a fully balanced revenue mix from all three areas. Credit risk (*CredRisk*) is measured as the total loan loss provision over gross loans. Given that this variable is highly sensitive to macroeconomic shocks, it also records economic downturns such as periods of economic recessions that have impacted the Asian region (Hellwig, 2009).¹⁰ Additionally, country and time dummy variables enter the models. ϵ_i , μ_t , and ε_{it} are the individual effect, temporal effect, and error term, respectively.

4. Results

4.1. Univariate Analysis

Table 2 provides basic statistical information of the most important variables used in the empirical analysis exhibiting the means and standard deviations for panel data. This table decomposes the standard deviation, minimum and maximum values into between and within components. The total number of observations is 2147, corresponding to 347 banks, implying that they were observed an average number of times equal to 6.2. The table also describes the zero-mean test which allows us to contrast the null hypothesis that the mean values obtained for our measures of earnings manipulation (*DLLP1*, *DLLP2*, and *LLA*) are different from zero. Testing this kick-off hypothesis is crucial to assess the existence of manipulation of financial information reported by banks before we proceed with the rest of the analysis. As observed, in all the cases we reject the fact that the mean value of our measures of earnings management is equal to zero, as displayed in the last column of Table 2. This means that on average the Asian banks included in our

¹⁰For our period of analysis, it is typically considered that the financial recession of 2007 and its aftermath correspond to the currency war and worldwide imbalances of 2010 in which the United States reviewed its pressures on China to let the Yuan reevaluate and so increase domestic demand. Meanwhile, China, other Asian countries, and Europe criticized the injection of money to the economy by the U.S. Federal Reserve due to the increase in global economic imbalances.

Table 1 Unit root test

This table reports the unit root test of all the variables used in the analyses. Variable definitions are provided in Section 3c. *** and ** denote significance at the 1% and 5% levels, respectively. The null hypothesis is that panels contain unit roots; whilst the alternative hypothesis is that at least one panel is stationary. Fisher-type unit-root test is used based on Phillips-Perron tests. P statistic requires number of panels to be finite; whilst the other statistics (e.g. Z , L^* , and Pm) are suitable for finite or infinite number of panels.

Variable	Description	Inverse χ^2 (P)	Inverse normal (Z)	Inverse logit (L^*)	Modified inv. χ^2 (Pm)
<i>DLLP1</i>	DLLP model 1	2429.1125***	-18.7586***	-36.1261***	52.948***
<i>DLLP2</i>	DLLP model 2	2642.39***	-16.7724***	-37.0408***	56.8675***
<i>LLA</i>	DLLP model 3	2855.0527***	-19.9704***	-43.893***	62.8399***
<i>Own</i>	% ownership majority shareholder	3370.3133***	-22.4256***	-53.903***	78.1036***
<i>InsOwn</i>	% shares closely held	880.5191***	-14.9434***	-38.3156***	38.8711***
<i>Owndiver1</i>	Blau index of InsOwn	888.5856***	-16.2428***	-40.2225***	39.3112***
<i>Owndiver2</i>	Shannon index of InsOwn	878.2663***	-15.2613***	-38.3856***	39.7482***
<i>Size</i>	Bank size	1501.266***	-0.8932	-12.8649	24.0731***
<i>RegCap</i>	Capital ratio	2769.9768***	-15.5663***	-37.5644***	59.6839***
<i>Nim</i>	Net interest margin	2938.6787***	-20.973***	-43.3472***	64.25***
<i>Dep</i>	Deposit/TA ratio	2867.395***	-16.223***	-39.6073***	62.72***
<i>Diver</i>	Income diversification (Lee <i>et al.</i> , 2014)	3491.1554***	-25.8243***	-52.8243***	80.7886***
<i>CredRisk</i>	LLP/Gross loans	3399.4435***	25.7494***	54.1351***	79.3007***
<i>IFRS</i>	1 if firm follows IFRS & 0 otherwise	—	—	—	—
<i>Islamic</i>	Islamic bank (1 if Islamic & 0 otherwise)	—	—	—	—
<i>VA</i>	Voice and accountability	3163.0435***	-20.2675***	-44.5945***	71.0226***
<i>PS</i>	Political stability	3744.3371***	-30.5125***	-59.1435***	87.347***
<i>GE</i>	Government effectiveness	2881.5586***	-24.3206***	-44.4991***	63.1177***

Table 1 (Continued)

Variable	Description	Inverse χ^2 (P)	Inverse normal (Z)	Inverse logit (L*)	Modified inv. χ^2 (Pm)
RQ	Regulatory quality	1786.16***	-11.1325***	-24.4329***	32.3559***
RL	Rule of law	2719.1368***	-19.075***	-38.4946***	58.5565***
CC	Control of corruption	2224.7618***	-8.2797***	-24.3731***	44.673***
FinSys1	Factor 1 from cluster analysis	1404.3278***	-7.247***	-16.0035***	27.4218***
FinSys2	Factor 2 from cluster analysis	3743.9598***	-34.0869***	-66.3721***	99.9707***
RegSys	Regulatory system	2807.2616***	-18.6011***	-39.7014***	61.0313***
DMBA	Deposit money bank assets to bank assets	1789.6474***	-10.8183***	-27.3964***	38.5557***
CBAGDP	Central bank assets to GDP	1651.0843***	-10.2028***	-24.1201***	34.3077***
PCGDP	Private credit by deposit money bank to GDP	1796.3205***	-11.79***	-22.9815***	34.5348***
SMCGDP	Stock market capitalization to GDP	1133.0044***	0.1136	-6.4696***	16.4109***
SMTVTGDP	Stock market total value traded to GDP	1424.202***	-3.3981	-12.4643***	24.9993***
SMTOR	Stock market turnover ratio	3086.3951***	-25.1966***	-48.9221***	73.9632***

sample overstate their financial reports through discretionary loan loss provisions and loan loss avoidance. Our measures report similar values to those in Lassoued *et al.* (2017) for Middle Eastern and North African countries or Ozili (2015) for Nigerian companies, and higher than Jin *et al.* (2018) for the developed context of U.S. banks. The measures of discretionary earnings management are computed in absolute values because we are interested in the degree of manipulation of financial reporting, not its direction.

The remaining variables correspond to those associated with our empirical hypotheses (e.g., variables concerning ownership structure features and institutional and legal systems) and bank-descriptive control variables. We observe that the majority shareholder (*Own*) typically holds 25.3% of the outstanding shares, whilst insider ownership (*InsOwn*) represents 13.5% of outstanding shares in the portfolios of executives, directors, and crossholdings. Insider ownership may also include the majority shareholder in case they perform executive or directorship duties. Additionally, the two measures of ownership diversification used in the empirical analysis indicate that there is an imbalance between insiders and outsiders (*OwnDiver1* and *OwnDiver2*). In fact, all these measures associated with corporate ownership structure evidence, on one hand, the existence of a high proportion of shares in the portfolio of the controlling shareholder, and, on the other, that insiders also hold a significant number of closely held shares in the company.

Concerning the variables that describe the institutional and regulatory setting by country, we observe that during the period of analysis 30.4% of the observations correspond to companies that reported their statements under IFRS (*IFRS*) and that almost 7.0% of the banks included in the sample are Islamic banks (*Islamic*).

Regarding the control variables, our findings show similar mean values as those observed by Saona and Azad (2018), who also used a sample of Asian banks. We observe that the capital ratio (*RegCap*) indicates that 9.2% of the banks' gross total assets are financed with common equity; and that the net interest margin is 2.4%. Total deposits as a source of external funding are 80.5% of assets.

Given that the country-level variables that measure the development of the regulatory system and the metrics used for the development of the financial system are highly correlated, for space-saving reasons we decided not to report the correlation coefficients between these variables. Instead, we paid attention to the bank-level variables and report their correlation coefficients in Table 3. First, as expected, all the proxies used to measure the managerial discretionary capacity (*DLLP1*, *DLLP2*, and *LLA*) are highly correlated given that they measure the same attribute. Second, all the measures of ownership structure features seem to be positively correlated with the discretionary loan loss provisions. Nevertheless, further analyses will be developed below and will reveal additional findings. We do not observe extremely high correlation coefficients between the independent variables, which might raise concerns regarding multicollinearity problems.

4.2. Multivariate Analysis

We estimate multivariate regressions in which we control for bank characteristics that might affect the use of loan loss provisions as a mechanism for managing earnings. The standard errors are corrected for the firm-clustering effect following Rogers (1993). The firm-clustering corrected standard errors allow for intra-bank correlation by relaxing the usual requirement that the observations must be independent. Thus, the observations are independent across banks but not necessarily within banks.

4.2.1. Relationships Between Ownership Structure Features, Institutional Variables and Earnings Management.

Table 4 shows the results of the impact of ownership concentration on earnings management. First, as expected, there is a certain level of persistency in the discretionary use of accounting policies as the coefficients of the one-period lagged dependent variables are statistically significant at least in two models. This means that the management of financial information is committed in the previous period; it is also expected that managers will do it again in subsequent periods. Concerning controlling shareholder ownership, we observe that three models in Table 4 exhibit a positive and statistically significant relationship between the proportion of shares in the hands of the majority shareholder (*Own*) and accrual-based earnings management measures (e.g. *DLLP1* and *DLLP2*), *ceteris paribus*. As stated by Claessens and Fan (2002), the lack of efficient corporate governance systems in Asia leads companies to configure highly concentrated ownership structures with subsequently low protection of the minority shareholders' interests. This scenario is what we observe in the major findings displayed in Table 4. Specifically, the traditional manager-shareholder agency conflict mutates into a different form in Asian countries where majority shareholders take advantage of their controlling power to expropriate the wealth of minority shareholders through greater manipulation of financial statements. In this case, controlling shareholders might influence management decisions through the overstatement of financial information and misreport earnings to gain private benefits at the expense of minority shareholders. This changes the traditional agency problem to a conflict between majority shareholders and minority shareholders. Hence, these findings allow us to accept our first research hypothesis, which justifies a positive relationship between ownership concentration and banks' earnings manipulation. Further analysis is developed later through ownership diversification.

The findings relating to the country-level governance variables are quite revealing. On the one hand, we find some evidence that earnings manipulation is constrained when companies changed from local accounting reporting systems to IFRS, as observed in the negative coefficients recorded by the *IFRS* variable. On the other hand, the first three models tabulated in Table 4 consider only two of six Kaufmann *et al.* (2011) Worldwide Governance Indicators, namely Regulatory Quality (*RQ*) and Control of Corruption (*CC*). We chose these two indicators because, by their very nature and construction, they may have a stronger impact on managerial

behavior concerning the opportunistic manipulation of financial information. As observed, for both variables we find strong evidence of a negative impact on earnings manipulation as regulatory quality (*RQ*) and control of corruption (*CC*) improve across countries. Specifically, it seems that the regulatory quality measure is more significant than the control of corruption in constraining managerial misbehavior, as *RQ* is significant in the first three models whilst *CC* is significant in models 1 and 3 only.

Given that all six Kaufmann *et al.* (2011) Worldwide Governance Indicators—Voice and Accountability (*VA*), Political Stability and Absence of Violence/Terrorism (*PS*), Government Effectiveness (*GE*), Regulatory Quality (*RQ*), Rule of Law (*RL*), and Control of Corruption (*CC*)—and the six financial system variables considered in the analysis—Deposit Money Bank Assets to Bank Assets (*DMBA*), Central Bank Assets to GDP (*CBAGDP*), Private Credit by Deposit Money Bank to GDP (*PCGDP*), Stock Market Capitalization to GDP (*SMCGDP*), Stock Market Total Value Traded to GDP (*SMTVTGDP*), and Stock Market Turnover Ratio (*SMTOR*)—are highly correlated,¹¹ they cannot enter the regressions together due to potential autocorrelation problems. Hence, we decided to tackle this issue by applying the cluster-focused principal component factoring technique. According to Kim and Mueller (1978), this technique has two major advantages. First, the factors created are not correlated, which minimizes autocorrelation problems in the regression estimations, and second, the created factors record a large extent of the variability of the covariates used to generate the factors. In our case, principal component factor analysis shows that one factor was created with an eigenvalue greater than the unit ($=1.177$) as the usual standard discrimination value, which records 83.88% of the variance of all six variables included in the factor—*VA*, *PS*, *GE*, *RQ*, *RL*, and *CC*. The name given to this factor is *RegSys*, corresponding to a composite variable that measures the quality of the regulatory system of each country. The greater the value of this factor, the better the regulatory environment across countries. Regarding the financial system variables, principal component factor analysis returned two factors, *FinSys1* and *FinSys2* with eigenvalues greater than one and that together record 79.66% of the variance of the six covariates that measure the development of the financial system—*DMBA*, *CBAGDP*, *PCGDP*, *SMCGDP*, *SMTVTGDP*, and *SMTOR*. Consequently, the last three models in Table 4 are reported by including the generated factors.¹²

As observed, there is clear evidence that improvements in the regulatory system (*RegSys*) and in the development of the financial system (*FinSys1*) negatively impact banks' earnings management. Indeed, we find that the legal framework reduces the opportunistic capacity of managers to manipulate financial statements. Similarly,

¹¹Not tabulated to save space.

¹²To save space we do not report the table with the other institutional variables. Findings are robust and consistent with those listed in the tables of this study and are available upon request to the corresponding author.

Table 2 Descriptive statistics

This table summarizes the descriptive statistics of the dependent and independent variables used in the empirical analysis. Variable definitions are provided in Section 3.c. The zero-mean test is used to assess if the mean values of the three alternative dependent variables are statistically significant from zero. The test p -value for these variables is reported in the last column.***Significance at the levels of 1%.

Variable		Mean	Std. Dev.	Min	Max	Zero-Mean Test
DLLP1	Overall	0.008	0.006	0.001	0.106	***
	Between		0.006	0.002	0.062	
	Within		0.004	-0.039	0.077	
DLLP2	Overall	0.005	0.002	0.000	0.030	***
	Between		0.003	0.000	0.030	
	Within		0.001	-0.004	0.014	
LLA	Overall	0.005	0.004	0.000	0.058	***
	Between		0.004	0.000	0.029	
	Within		0.002	-0.011	0.034	
Own	Overall	0.253	0.225	0.024	0.845	
	Between		0.225	0.024	0.845	
	Within		0.057	-0.478	0.640	
InsOwn	Overall	0.135	0.176	0.002	0.695	
	Between		0.186	0.002	0.695	
	Within		0.071	-0.173	0.722	
Owndiver1	Overall	0.172	0.182	0.002	0.500	
	Between		0.174	0.002	0.500	
	Within		0.074	-0.178	0.601	
Owndiver2	Overall	0.270	0.257	0.002	0.693	
	Between		0.241	0.002	0.693	
	Within		0.108	-0.224	0.864	
Size	Overall	23.549	1.666	17.402	28.162	
	Between		1.753	17.550	28.087	
	Within		0.329	21.908	25.266	
RegCap	Overall	0.092	0.047	0.028	0.393	
	Between		0.047	0.028	0.321	
	Within		0.016	-0.046	0.230	
Nim	Overall	0.024	0.013	0.000	0.089	
	Between		0.013	0.001	0.089	
	Within		0.003	-0.017	0.058	
Dep	Overall	0.805	0.101	0.226	0.937	
	Between		0.104	0.237	0.932	
	Within		0.033	0.452	1.008	
Diver	Overall	0.501	0.087	0.161	0.652	
	Between		0.079	0.221	0.633	
	Within		0.050	0.196	0.785	
CredRisk	Overall	0.007	0.006	0.000	0.034	
	Between		0.006	0.000	0.032	
	Within		0.004	-0.009	0.029	

Table 2 (Continued)

Variable		Mean	Std. Dev.	Min	Max	Zero-Mean Test
Islamic	Overall	0.069	0.208	0.000	1.000	
	Between		0.233	0.000	1.000	
	Within		0.000	0.045	0.045	
IFRS	Overall	0.304	0.460	0.000	1.000	
	Between		0.466	0.000	1.000	
	Within		0.153	-0.571	1.137	
VA	Overall	-0.049	0.979	-1.916	1.110	
	Between		0.975	-1.916	1.073	
	Within		0.087	-0.509	0.318	
PS	Overall	0.130	0.921	-2.738	1.528	
	Between		0.930	-2.666	1.293	
	Within		0.152	-0.671	0.818	
GE	Overall	0.819	0.752	-0.827	2.437	
	Between		0.742	-0.799	2.252	
	Within		0.120	0.412	1.157	
RQ	Overall	0.601	0.668	-0.717	2.261	
	Between		0.664	-0.673	1.997	
	Within		0.110	0.175	0.994	
RL	Overall	0.568	0.773	-0.969	1.861	
	Between		0.766	-0.879	1.710	
	Within		0.098	0.296	0.924	
CC	Overall	0.550	0.888	-1.087	2.248	
	Between		0.868	-1.037	2.147	
	Within		0.122	0.223	1.046	
FinSys1	Overall	0.366	1.015	-2.355	2.837	
	Between		1.040	-2.151	2.386	
	Within		0.279	-0.784	1.959	
FinSys2	Overall	0.078	1.014	-1.541	3.936	
	Between		0.898	-1.209	3.729	
	Within		0.374	-1.301	1.879	
RegSys	Overall	0.432	0.963	-1.601	2.040	
	Between		0.949	-1.561	1.948	
	Within		0.101	0.057	0.803	
DMBA	Overall	117.596	55.099	27.513	287.113	
	Between		52.811	29.289	229.918	
	Within		13.365	35.010	188.539	
CBAGDP	Overall	10.915	13.107	-1.542	54.368	
	Between		11.412	-1.542	54.368	
	Within		7.350	-6.308	43.301	
PCGDP	Overall	83.524	37.840	10.591	238.236	
	Between		37.191	13.510	193.001	
	Within		9.180	21.780	138.755	

Table 2 (Continued)

Variable		Mean	Std. Dev.	Min	Max	Zero-Mean Test
SMCGDP	Overall	99.605	173.714	-6.422	1213.687	
	Between		139.178	-2.607	1036.059	
	Within		27.218	-221.792	303.476	
SMTVTGDP	Overall	75.618	105.928	-65.390	822.317	
	Between		89.249	-51.635	595.003	
	Within		33.085	-203.311	335.384	
SMTOR	Overall	90.271	88.679	-240.286	557.038	
	Between		97.792	-197.171	456.728	
	Within		40.323	-146.378	395.641	
	Overall <i>N</i>	2147				
	Between <i>n</i>	347				
	Within T-bar	6.2				

when the financial system achieves higher levels of development, it necessarily is encompassed with greater levels of information, transparency, and fewer market frictions which constrain earnings management, as stated in our third research hypothesis H3.

Following the institutional setting analysis, we observe that in three out of six models there is some evidence that Islamic banks (*Islamic*) reduce earnings management in comparison to conventional banks as measured by discretionary loan loss provisions. This may be because major Asian Islamic banks have put in practice separate and independent *Shariah* audit boards which work alongside national or international reporting and regulatory authorities. Earlier research has revealed that having independent *Shariah* boards in addition to members of the board of directors allows less opportunity for managers to alter the numbers or practice earnings management (Grassa and Matoussi, 2014). In addition, the common characteristics of Islamic banks of sharing risk with depositors and internal independent *Shariah* for justification of all transactions and managerial reporting may have resulted in the negative relationship of Islamic banks to earnings management variables (Elghuweel *et al.*, 2017). Our findings are in accordance with previous literature which suggests that Islamic banks are less likely to conduct earnings management than conventional banks as measured by both earnings loss avoidance and abnormal loan loss provisions (Quttainah *et al.*, 2013). Hence, these results support our fourth research hypothesis, H4.

Taken together, our results mean that, in institutional settings characterized by weak protection of investor rights and highly concentrated corporate ownership structures such as in Asian banks, controlling shareholders take advantage of their uncontested voting rights to engage managers to manipulate financial reports to extract private rents. Additionally, improvements in the legal setting and in the financial system contribute to more transparent financial information.

Regarding the control variables, we find evidence of a positive and statistically significant relationship between the capital ratio (*RegCap*) and earnings management. This finding is in line with the hypothesis of capital management via discretionary loan loss provisions based on the idea that bank managers use provisions to avoid costs associated with the violation of capital adequacy requirements. In fact, some studies conclude that discretionary earnings management is a tool for managing regulatory capital. Curcio and Hasan (2015) find evidence that some managers adjust their banks' loan loss provisions and exercise discretion over the timing of reported loan loss provisions to avoid regulatory capital constraints. Similarly, for a sample of Japanese banks, Shrieves and Dahl (2003) find consistent evidence that banks utilize accounting discretion as a mean of managing earnings for regulatory-capital arbitrage. Consequently, our findings support the fact that bank managers engage more actively in earnings management as regulatory capital increases.

Banks' interest margin (*Nim*) and the deposit to total assets ratio (*Dep*) exhibit a positive relationship with discretionary loan loss provision measures and loan loss avoidance as proxies of earnings management. Interest margin and deposit ratio are typically designated as benchmarks that measure executives' performance. The results demonstrate that managers engage more actively in manipulating earnings when such benchmarks increase. This might be a way for them to keep their positions by outperforming the established standards.

In Table 4, income diversification (*Diver*) shows a negative relationship with earnings management. Studies conducted in the Asian banking industry have documented that financial liberalization has allowed banks to compete on a wider range of market segments, increasing income diversification and reducing risk (Nguyen *et al.*, 2012a, 2012b). Our finding is consistent with the idea that by diversifying their income sources and placing emphasis on revenue lines different from traditional lending operations, banks smooth their financial performance, which reduces the impact of idiosyncratic risk. Hence, in this case, managers are less impelled to discretionarily manipulate the bank's earnings. As concluded by Lin *et al.* (2012), in functionally diversified banks, net interest margins are less sensitive to fluctuations in bank risk factors than in more specialized banks. Hence, income diversification mitigates to a certain extent the demand for manipulating financial reports because of less volatile incomes, implying more transparent accounting information. Indeed, the measure of credit risk used (*CredRisk*) is computed based on bad loans, and it corroborates previous arguments by exhibiting a positive impact on earnings management. Credit risk is also a highly correlated measure, with macroeconomic shocks as bad loans increase in recessions and economic downturns which demonstrate that managers are more willing to engage actively in reporting less transparent financial statements to hide this operating risk from market scrutiny (Habib *et al.*, 2013). In fact, empirical evidence from the 1997 Asian financial crisis and earnings management studies demonstrate that managers implemented aggressive accounting policies to manipulate earnings during the crisis period (Ahmed *et al.*, 2008; Saleh and Ahmed, 2005). Our findings support this intuition that the bank's credit risk

Table 3 Correlation matrix

This table reports the correlation matrix of the bank-level variables only. Variable definitions are provided in Section 3c.

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1 <i>DLLP1</i>	1.000											
2 <i>DLLP2</i>	0.727	1.000										
3 <i>LLA</i>	0.462	0.585	1.000									
4 <i>Own</i>	0.116	0.178	0.410	1.000								
5 <i>InsOwn</i>	0.073	0.149	0.148	0.421	1.000							
6 <i>Owndiver1</i>	0.067	0.162	0.135	0.371	0.940	1.000						
7 <i>Owndiver2</i>	0.063	0.156	0.116	0.338	0.913	0.994	1.000					
8 <i>Size</i>	-0.269	-0.272	-0.206	-0.123	-0.252	-0.285	-0.290	1.000				
9 <i>RegCap</i>	0.197	0.227	0.384	0.392	0.222	0.254	0.243	-0.386	1.000			
10 <i>Nim</i>	0.182	0.293	0.496	0.408	0.072	0.065	0.047	-0.416	0.322	1.000		
11 <i>Dep</i>	-0.152	-0.171	-0.294	-0.267	-0.105	-0.055	-0.038	-0.009	-0.419	-0.275	1.000	
12 <i>Diver</i>	0.144	0.203	0.115	-0.093	0.050	0.037	0.037	0.267	-0.114	-0.295	-0.072	1.000
13 <i>CredRisk</i>	0.303	0.359	0.602	0.304	0.031	0.016	0.005	-0.092	0.292	0.377	-0.308	0.389

(*CredRisk*) during periods of economic shocks triggers more manipulation of earnings.

Table 5 tests research hypothesis H2 concerning managerial ownership (*InsOwn*) and can also be used as a robustness check for our preceding findings. There are two feasible explanations for the relationship between insider ownership and discretionary loan loss provisions. The first is the alignment of interests argument, which supports a negative relationship between the *InsOwn* variable and earnings management (Bennedsen and Nielsen, 2010), and the second is the entrenched-management hypothesis in which entrenched insiders and managers distort financial information and manipulate earnings to extract private benefits (de Miguel *et al.*, 2005). By doing this, insiders take advantage of their decision power to tunnel wealth from minority interests. In our case, the results strongly support the second approach of a positive impact on discretionary loan loss provisions as closely held shares (*InsOwn*) increase.

Under weak institutional systems, less-enforced outsider rights allow insiders to obtain private benefits. According to Huang *et al.* (2013), insiders have higher incentives to misreport financial information for rent-seeking activities since, on the one hand, their actions are largely unobservable, and on the other hand, their objectives are not necessarily aligned with those of the minority outside investors. Hence, due to high dependence on the judgment of managers, discretionary loan loss provisions reflect information asymmetry. As observed, Asian banks' pronounced incentives to manage earnings are partially explained by agency problems. Consequently, our findings support these arguments and allow us to accept our second research hypothesis, H2.

Regarding the institutional variables, the findings exhibited in Table 5 can be used as robustness checks of our major results. For instance, with regard to *Shariah*-compliance, Islamic banks exhibit less discretionary earnings management measured through the loan loss provisions, as seen in the negative and statistically significant coefficients of the *Islamic* variable. Since Islamic banks must align their business processes and report their activities not only to the board of directors but also to the separate *Shariah* board, they are subject to better governance which constrains earnings management. In addition, according to the the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) guidelines, an external *Shariah* audit committee is required to attain transparency of Islamic banks' compliance with regulatory and religious requirements (Quttainah *et al.*, 2013). Mersni and Ben Othman (2016) reveal that if external *Shariah* boards work for Islamic banks, the chance of earnings manipulation decreases.

We also find strong evidence that banks reporting their statements under IFRS norms exhibit less earnings manipulation than those following local accounting standards. We also observe consistent evidence of the negative impact on earnings management as the quality of the institutional environment improves across countries (e.g., see the *RQ*, *CC*, and *RegSys* variables). Finally, as observed in previous

Table 4 Panel data regressions: Ownership concentration

This table displays the panel data regression results according to the Roodman (2009) specification. Variable definitions are provided in Section 3c. Time and country effects are included in the estimations but not tabulated. The Wald test of statistical significance of independent variables is reported at the bottom of the table. Similarly, the second-order autocorrelation test is reported (AR(2)). The Hansen contrast is used to test the hypothesis that the instruments are properly chosen. z-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Variable	(1) DLLP1	(2) DLLP2	(3) LLA	(4) DLLP1	(5) DLLP2	(6) LLA
Dep. Variable _(t-1)	0.0524 (1.0076)	0.2215 (5.1187)**	-0.0268 (-0.7009)	0.0281 (0.8700)	0.3135 (8.3169)**	-0.0077 (-0.2436)
Own	0.0046 (1.7227)*	0.0002 (0.4100)	-0.0013 (-0.6497)	0.0025 (1.9475)*	0.0003 (3.8559)**	-0.0009 (-0.9563)
Size	0.0008 (1.4404)	0.0001 (0.7320)	0.0003 (0.6396)	0.0002 (0.4467)	-0.0001 (-0.7317)	-0.0004 (-1.1154)
RegCap	0.0648 (3.3169)**	0.0042 (1.0852)	0.0501 (3.6503)**	-0.0157 (-1.0047)	0.0092 (2.6238)**	0.0539 (4.9971)**
Nim	-0.0821 (-1.0988)	0.0697 (2.9309)**	0.1768 (3.4661)**	-0.0235 (-0.5253)	0.0475 (3.2250)**	0.1957 (4.8844)**
Dep	-0.0029 (-0.4480)	0.0066 (3.4078)**	0.0285 (5.5058)**	0.0137 (2.4882)**	0.0040 (2.7436)**	0.0226 (7.4115)**
Diver	-0.0439 (-7.3239)**	0.0011 (0.6815)	-0.0023 (-0.4241)	-0.0102 (-2.5178)**	0.0022 (1.5217)	0.0042 (1.2129)
CredRisk	0.4299 (5.4371)**	-0.0313 (-1.5196)	0.4752 (9.1301)**	0.2185 (4.6062)**	-0.0008 (-0.0506)	0.4258 (11.0682)**
Islamic	-0.0125 (-1.8268)*	-0.0026 (-1.4917)	-0.0007 (-0.1197)	-0.0045 (-0.4819)	0.0028 (1.3894)	-0.0147 (-2.7253)**
IFRS	-0.0079 (-5.5963)**	-0.0004 (-1.3291)	-0.0017 (-1.7894)*	-0.0015 (-1.1026)	-0.0006 (-1.6216)	-0.0011 (-0.7664)
RQ	-0.0033 (-2.1469)**	-0.0008 (-2.1132)**	-0.0019 (-1.7967)*			
CC	-0.0020 (-1.8783)*	-0.0003 (-0.8376)	-0.0043 (-5.0058)**			
RegSys						
FimSys1				-0.0081 (-6.0371)**	-0.0002 (-0.7352)	-0.0013 (-1.4652)
FimSys2				-0.0010 (-2.3054)**	-0.0003 (-2.0580)**	-0.0025 (-7.3326)**
Constant	0.0217 (1.5356)	-0.0062 (-1.2936)	-0.0330 (-2.8637)**	-0.0006 (-2.7632)**	-0.0000 (-0.3405)	0.0000 (0.2840)
Observations	1801	1884	1884	1529	1599	1599
Number of iden	347	347	347	347	347	347
Year & country FE	YES	YES	YES	YES	YES	YES
Wald test	150.2***	126.1***	735.2***	182.4***	224.6***	1614.0***
AR(2)	-0.250	-1.102	-1.381	-1.046	-0.473	-1.288
Hansen test	99.19	87.91	85.98	92.77	87.47	83.08

Table 5 Panel data regressions: Insider ownership concentration

This table displays the panel data regression results according to the Roodman (2009) specification. Variable definitions are provided in Section 3c. Time and country effects are included in the estimations but not tabulated. The Wald test of statistical significance of independent variables is reported at the bottom of the table. Similarly, the second-order autocorrelation test is reported (AR(2)). The Hansen contrast is used to test the hypothesis that the instruments are properly chosen. z-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Variable	(1) DLLPI	(2) DLLP2	(3) LLA	(4) DLLPI	(5) DLLP2	(6) LLA
Dep. Variable _(t-1)	0.0236 (1.9092)*	0.3124 (15.6600)***	0.0569 (3.8043)***	-0.0160 (-2.6417)***	0.1870 (12.1301)***	0.0345 (5.2130)***
InsOwn	0.0072 (12.0435)***	0.0012 (9.0409)***	0.0019 (0.0611)	0.0086 (38.8697)***	0.0017 (15.3181)***	0.0039 (0.0309)
Size	0.0006 (4.5413)***	0.0003 (5.1685)***	0.0004 (2.6764)***	0.0018 (11.6949)***	0.0001 (0.0040)	0.0009 (9.5566)***
RegCap	0.0434 (5.3720)***	0.0181 (14.9252)***	0.0289 (5.5197)***	0.0546 (13.1227)***	0.0235 (12.8830)***	0.0265 (11.2779)***
Nim	0.0306 (0.9934)	0.0990 (14.3543)***	0.2048 (10.3966)***	-0.0771 (-4.7222)***	0.0436 (12.7385)***	0.2756 (36.1434)***
Dep	0.0162 (7.7919)***	0.0038 (12.7633)***	0.0118 (10.0910)***	0.0175 (15.9121)***	0.0037 (6.8508)***	0.0155 (18.6858)***
Diver	-0.0017 (-0.8702)	-0.0062 (-13.4877)***	-0.0121 (-5.1054)***	-0.0114 (-8.8977)***	-0.0038 (-6.8609)***	-0.0096 (-7.1199)***
CredRisk	0.0847 (2.9357)***	0.1296 (19.1548)***	0.0503 (2.8039)***	0.0664 (5.5295)***	0.1021 (23.6545)***	0.0392 (4.0732)***
Islamic	-0.0046 (-4.2169)***	-0.0011 (-1.2899)	-0.0090 (-6.0153)***	-0.0073 (-7.8989)***	-0.0014 (-2.7156)***	-0.0076 (-11.2031)***
IFRS	-0.0029 (-5.2577)***	-0.0017 (-16.4929)***	-0.0017 (-4.7177)***	0.0003 (0.0484)	-0.0002 (-3.6752)***	-0.0015 (-6.3490)***
RQ	-0.0007 (-1.0563)	-0.0007 (-3.7874)***	0.0015 (2.5494)**			
CC	-0.0002 (-0.4384)	0.0007 (4.6904)***	-0.0034 (-7.7308)***			
RegSys				-0.0003 (-1.1016)	-0.0005 (-5.6154)***	-0.0010 (-3.5902)***
FinSys1				-0.0019 (-2.6323)**	0.0003 (7.7469)***	0.0006 (7.0996)***
FinSys2				-0.0004 (-0.1481)	-0.0001 (-4.1019)***	-0.0005 (-15.6377)***
Constant	0.0333 (7.7827)***	-0.0059 (-4.0875)***	-0.0096 (-2.2533)**	0.0678 (14.3261)	0.0055 (3.1912)***	-0.0176 (-7.0244)***
Observations	597	638	638	513	549	549
Number of iden	174	187	187	145	155	155
Year & country FE	YES	YES	YES	YES	YES	YES
Wald test	630.6***	360.4***	832.5***	7196.0***	4169.3***	4195.8***
AR(2)	-0.137	0.184	-2.924	0.732	-0.0438	-1.995
Hansen test	56.66	53.81	63.35	52.53	55.05	52.24

tables, the development of the financial system (see the *FinSys1* and *FinSys2* variables) also contributes to more transparent financial reporting.

4.2.2. Relationship Between Ownership Diversification, Institutional Variables, and Earnings Management.

Derived from the previous results, this part of the empirical analysis focuses on assessing banking ownership diversification between majority shareholders and all other shareholders and its impact on managers' discretionary capacity to manipulate financial reports. We use the Blau (1977) and Shannon (1948) indexes to shed light on this. Both measures take greater values as ownership diversification increases, or in other words, as controlling and other shareholders hold equal equity stakes in their portfolios.

Table 6 is designed in such way that the Blau (*OwnDiver1*) indicator and the Shannon (*OwnDiver2*) index enter the regression as right-hand side variables. As observed, there is a strong positive relationship between both indexes and earnings management in most of the tabulated models. Given that the mean value of the *Own* variable is below 50%, these findings indicate that as controlling shareholders increase their ownership in the company towards 50% from the left, the discretionary loan loss provisions also increase according to the two indexes. Hence, these results provide further evidence of the incentives of controller shareholders against the rest of the shareholders in pressuring managers to engage in aggressive accounting practices to reduce the informativeness of the financial reports. Controlling shareholders, unlike other shareholders, are motivated to opportunistically use discretionary loan loss provisions to fulfill regulatory capital requirements, take excessive risk to lever up profits, or blur information to avoid market scrutiny. Hence, when controlling ownership is excessively high, financial statements are less transparent.

All the other country-level institutional variables, in comparison to the previous findings, remain invariant concerning their relationships with earnings management. Consequently, Table 6 can also be considered as a robustness check of the major results. Briefly, Islamic banking as well as IFRS guidelines constrain managerial opportunistic behavior, leading to a reduction in the manipulation of earnings. Improvements in regulatory quality (*RQ*) in general, control of corruption (*CC*), and the development of the financial system (see *FinSys1* and *FinSys2* variables) all reduce the extent of earnings management.

4.2.3. Earnings Management in Islamic Banks.

To provide further insights into our research hypothesis H4, which is focused on Islamic banking, we conduct regression estimations only for this subsample of banks. Hence, Table 7 replicates previous tables but includes only Islamic banks. As in the pooled sample of banks, in Islamic banks we also observe a certain level of persistency in the manipulation of financial reports. This means that if management incurred discretionary accounting policies in the previous year, it is very likely that they will do it again to a certain extent during the current year.

Our variables of interest, however, are ownership concentration (*Own*) and ownership of insiders (*InsOwn*) as bank-level governance measures, in addition to the characteristics of the regulatory system as institutional variables of corporate governance. Contrasting with our previous findings for the overall sample of banks, Table 7 provides some weak evidence that majority shareholders (*Own*) constrain manipulation of financial statements, measured through loan loss avoidance (*LLA*), as observed in model 6. Hence, as the majority shareholder increases their equity participation in the company, managerial decisions are better monitored. Consequently, the executives' latitude to manipulate the financial reports is constrained. This finding is in line with findings reported in the previous tables and provides further support for our research hypothesis H4.

As for the pooled sample, we also find that the alignment of interests between insiders (*InsOwn*) and other stakeholders contributes to more transparent financial reports, and consequently managers are less likely to make discretionary accounting decisions. Hence, as insider ownership increases, earnings management decreases, as observed in models 7, 8, and 12 in Table 7. Additionally, we also observe some evidence that the regulatory system plays an active role as an external governance system in Islamic banking by restraining managers from active manipulation of financial reports (e.g., see the *RQ*, *FinSys1*, and *FinSys2* variables).

Finally, for the set of control variables, we observe results similar to those found in the previous tables, except for the *CredRisk* variable, which exhibits a negative and statistically significant relationship with the earnings management metrics.¹³ It seems that for the specific group of Islamic banks, as the operating risk increases, banks implement more conservative accounting-compliance policies and engage less actively in earnings management. By doing this, Islamic banks do not deviate from *Shariah* rules.

Moreover, as stated above, by construction, our measure of credit risk is closely related to economic recessions, and as Beck *et al.* (2013) and Hasan and Dridi (2011) emphasize, one notable phenomenon in Islamic banks is that they demonstrated a strong resilience amid the financial recession of 2008. Indeed, regarding corporate governance, the particular differences *vis-à-vis* the conventional banks mainly originate from the ethical aspects dominating the activities of Islamic banks and the regulatory environment in which they operate (Grassa and Matoussi, 2014). Hence, as our findings suggest, Islamic banks have fewer incentives to opportunistically manage earnings and mislead investors when credit risk increases.

5. Conclusions

This study reveals several significant findings regarding the relationships between ownership structure features, institutional variables, and discretionary loan loss

¹³Although we must recognize that the statistical significance of variables is in general lower than in previous findings, this fact does not invalidate the results.

Table 6 Panel data regressions: Diversity in ownership structure

This table displays the panel data regression results according to the Roodman (2009) specification. Variable definitions are provided in Section 3c. Time and country effects are included in the estimations but not tabulated. The Wald test of statistical significance of independent variables is reported at the bottom of the table. Similarly, the second-order autocorrelation test is reported (AR(2)). The Hansen contrast is used to test the hypothesis that the instruments are properly chosen. z-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	DLLPI	DLLP2	LLA	DLLPI	DLLP2	LLA	DLLPI	DLLP2	LLA	DLLPI	DLLP2	LLA
Dep_Variable _(t-1)	0.1192 (2.9974)***	0.1750 (3.2830)***	-0.0451 (-1.1202)	0.0750* (1.7575)	0.2372 (4.6815)***	0.0038 (0.1026)	0.1182 (2.9616)***	0.1631 (3.0365)***	-0.0396 (-0.9699)	-0.0615 (-1.3767)	0.2639 (5.2492)***	0.0251 (0.6294)
OwnDiver1	0.0163 (3.5080)***	0.0021* (1.7757)	-0.0024 (-0.6018)	0.0106 (3.0069)***	0.0015 (2.1278)**	0.0058* (1.6939)						
OwnDiver2							0.0112 (2.6894)***	0.0011 (0.9672)	-0.0015 (-0.4122)	0.0123 (3.1797)***	0.0014 (2.0415)**	0.0086 (2.7220)***
Size	0.0033 (4.5913)***	0.0002 (1.2736)	0.0001 (0.1572)	0.0014 (1.9876)**	-0.0001 (-0.6217)	-0.0001 (-0.2130)	0.0029 (4.0587)***	0.0002 (1.0156)	0.0002 (0.5142)	0.0011 (1.5586)	-0.0000 (-0.3645)	0.0000 (0.0266)
RegCap	0.0815 (4.0264)***	0.0109 (2.5340)**	0.0327 (2.1830)**	0.0578 (3.0625)***	0.0123 (3.0363)***	0.0236 (1.7343)*	0.0722 (0.5846)	0.0100 (2.2993)**	0.0367 (2.3477)**	0.0626 (3.1363)***	0.0084 (2.2548)**	0.0127 (0.9767)
Nirm	0.2327 (3.0182)***	0.0469 (1.8598)*	0.0675 (1.1187)	-0.0120 (-0.1692)	-0.0052 (-0.3113)	0.0040 (0.0939)	0.2193 (2.8319)***	-0.0225 (-0.8802)	0.0614 (0.9860)	-0.0125 (-0.1628)	0.0221 (1.2438)	0.0557 (1.1849)
Dop	0.0041 (0.5740)	0.0074 (3.6920)***	0.0185 (3.9596)***	0.0160 (2.6580)***	0.0054 (3.3404)***	0.0213 (5.2312)***	0.0089 (1.3387)	0.0080 (4.1888)***	0.0207 (4.1028)***	0.0160 (2.7610)***	0.0045 (3.0792)***	0.0176 (3.6567)***
Dner	-0.0396 (-5.4892)***	-0.0003 (-0.0165)	0.0061 (1.3838)	-0.0174 (-2.8008)***	0.0009 (0.5191)	-0.0024 (-0.6057)	-0.0377 (-5.5743)***	0.0014 (0.7510)	0.0082 (1.8966)*	-0.0173 (-2.7590)***	0.0020 (1.1312)	-0.0021 (-0.5403)
CraftRisk	0.4166 (4.5184)***	-0.0151 (-0.5822)	0.3509 (6.1566)***	0.4010 (5.4349)***	0.0098 (0.4632)	0.501 (9.9029)***	0.4713 (5.0278)***	-0.0236 (-0.8977)	0.3482 (5.9708)***	0.4409 (5.6384)***	0.0010 (0.0445)	0.5552 (9.3322)***
Islamic	-0.0176 (-2.3565)**	-0.0044 (-0.8209)	-0.0022 (-0.8209)	0.0118 (1.6131)	-0.0043 (-2.7038)***	-0.0061 (-1.7104)*	-0.0148 (-2.0477)**	-0.0036 (-0.0013)	-0.0038 (-1.2635)	0.0098 (1.2186)	-0.0030 (-1.8891)*	0.0033 (0.8746)
IFRS	-0.0084 (-4.3050)***	-0.0019 (-3.1377)***	-0.0035 (-2.4478)**	0.0005 (0.2319)	-0.0024 (-3.2651)***	-0.0007 (-0.3773)	-0.0067 (-3.6033)***	-0.0013 (-2.4141)**	-0.0032 (-2.3359)**	0.0005 (0.2101)	-0.0020 (-2.7254)***	0.0005 (0.2398)
RQ	-0.0045 (-2.6974)***	-0.0007 (-1.5653)	0.0005 (0.3327)	0.0005 (-1.5653)	0.0005 (-1.5653)	0.0005 (-1.5653)	-0.0052 (-3.4010)***	-0.0009 (-2.1765)**	0.0000 (0.0046)	0.0000 (0.0046)	0.0000 (0.0046)	0.0000 (0.0046)
CC	-0.0040 (-3.4257)***	-0.0010 (-2.8867)***	-0.0040 (-5.1475)***	-0.0040 (-4.8078)***	-0.0040 (-1.9182)*	-0.0040 (-1.3821)	-0.0042 (-3.9758)***	-0.0009 (-2.8921)***	-0.0039 (-5.0569)***	0.0005 (-2.3359)**	-0.0020 (-2.7254)***	0.0005 (0.2398)
RegSys				-0.0062 (-4.8078)***	-0.0006 (-1.9182)*	-0.0013 (-1.3821)	-0.0054 (-4.0287)***	-0.0006 (-2.1471)**	-0.0006 (-0.8596)	-0.0054 (-4.0287)***	-0.0006 (-2.1471)**	-0.0008 (-0.8596)

Table 6 (Continued)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	DLLPI	DLLP2	LLA	DLLPI	DLLP2	LLA	DLLPI	DLLP2	LLA	DLLPI	DLLP2	LLA
<i>FinSys1</i>				-0.0018	-0.0002	-0.0021				-0.0013	0.0001	0.0020
				(-3.5946)***	(-1.2431)	(-4.3338)***				(-2.5375)**	(0.6450)	(4.3978)***
<i>FinSys2</i>				-0.0003	-0.0002	-0.0003				-0.0007	-0.0002	-0.0003
				(-0.9612)	(-2.0308)**	(-1.7670)*				(-2.2949)**	(-2.6140)***	(-1.4035)
Constant	-0.0401	-0.0060	-0.0176	-0.0261	-0.0001	-0.0175	-0.0373	-0.0064	-0.0235	-0.0216	-0.0013	-0.0194
	(-2.2422)**	(-1.2826)	(-1.6098)*	(-1.5065)	(-0.0283)	(-1.7479)*	(-2.1234)	(-1.3573)	(-2.1962)**	(-1.2260)	(-0.3307)	(-1.7671)*
Observations	1801	1884	1884	1529	1599	1599	1801	1884	1884	1529	1599	1599
Number of iden	322	329	329	287	292	292	322	329	329	287	292	292
Year & country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Wald test	1620.0***	2315.0***	1238.4***	6900.6***	2220.4***	6540.0***	882.9***	191.7***	406.2***	3037.4***	5624.5***	4375.0***
AR(2)	-0.380	-0.134	-2.872	0.781	0.265	-2.148	-0.564	0.0764	-3.242	0.884	0.202	-2.389
Hansen test	52.08	52.49	65.12	55.05	54.49	51.19	52.17	54.25	60.99	56.59	53.96	51.40

Table 7 Panel data regressions: Ownership concentration and insider ownership in islamic banking

This table displays the panel data regression results according to the Roodman (2009) specification. Variable definitions are provided in Section 3c. Time and country effects are included in the estimations but not tabulated. The Wald test of statistical significance of independent variables is reported at the bottom of the table. Similarly, the second-order autocorrelation test is reported (AR(2)). The Hansen contrast is used to test the hypothesis that the instruments are properly chosen. z-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	DLLPI	DLLP2	LLA	DLLPI	DLLP2	LLA	DLLPI	DLLP2	LLA	DLLPI	DLLP2	LLA
Dep. Variable _(t)	0.0824 (1.8130)* 0.0004 (0.0054)	0.511 (3.1181)** 0.0083 (0.7356)	-0.0208 (-0.1443) 0.0186 (0.4081)	-0.0698 (-0.8742) -0.0318 (-0.2069)	-0.1772 (-0.3185) -0.0080 (-0.2377)	0.4966 (1.7597)* -1.3619 (-1.7350)*	0.1230 (1.8211)*	0.1171 (0.2983)	0.1973 (1.8370)*	-0.1869 (-1.1507)	-0.7741 (-0.6815)	0.6554 (1.6323)
InsOwr							-0.0094 (-2.5548)**	-0.0027 (-2.7675)**	0.0100 (1.0945)	-0.0153 (-0.4093)	-0.0103 (-0.7128)	-0.0826 (-2.2577)**
Size	0.0028 (0.5476)	-0.0010 (-0.7723)	-0.0013 (-2.3241)**	-0.0026 (-0.3003)	-0.0041 (-1.7782)*	-0.0839 (-1.6421)	0.0023 (0.6287)	-0.0007 (-3.7674)**	0.0021 (0.5899)	0.0222 (0.8586)	-0.0007 (-0.1887)*	0.0098 (0.6656)
RegCap	0.0214 (2.2318)**	-0.0001 (-0.0044)	0.0286 (0.6432)	0.0234 (3.3735)**	-0.0122 (-0.2249)	-0.0804 (-1.0173)	-0.0481 (-0.8175)	-0.0139 (-0.4119)	0.1833 (2.4235)**	0.1538 (0.1720)	0.0051 (0.0820)	-0.1556 (-1.6163)
Nim	-0.4013 (-0.4886)	-0.0581 (-0.6740)	0.2742 (1.5352)	-0.1465 (-0.1844)	-0.2795 (-0.8502)	14.6212 (1.6770)*	0.2018 (0.7465)	0.1077 (0.6172)	1.4995 (2.2813)**	0.0931 (0.0716)	-0.1313 (-0.2863)	1.5402 (1.8485)*
Dep	-0.0147 (-0.6526)	-0.0015 (-0.8189)	0.0107 (2.0983)**	0.1649 (1.4448)	-0.0279 (-1.2105)	-1.2129 (-1.6163)	-0.0018 (-0.0620)	-0.0018 (-0.4409)	0.0165 (0.4198)	-0.0620 (-0.2531)	0.0159 (0.1921)	0.0395 (0.6047)
Diver	0.0312 (0.7522)	-0.0013 (-0.3689)	0.0174 (0.7620)	-0.0092 (-0.1258)	-0.0307 (-1.1964)	0.6391 (1.5927)	-0.0004 (-0.0115)	0.0221 (1.3442)	-0.0298 (-1.5773)	0.0799 (0.6471)	0.0105 (0.4207)	0.0076 (0.4138)
CredRisk	0.1351 (2.129)	-0.0518 (-1.7977)*	0.1599 (1.3166)	-1.3953 (-1.0058)	-0.1880 (-1.4214)	-6.9937 (-1.7441)*	-0.1366 (-0.2791)	-0.1366 (-1.4817)	-0.3536 (-2.1148)**	-3.3202 (-1.7928)*	0.1366 (0.1727)	-1.2052 (-2.1192)**
IFRS	0.0001 (0.0010)	0.0019 (1.4727)	-0.0019 (-0.0890)	-0.0253 (-0.1741)	0.0044 (0.1781)	-1.1099 (-1.6872)*	-0.0010 (-0.1201)	-0.0012 (-0.8513)	0.0045 (0.5815)	-0.0533 (-0.4927)	0.0000 (.)	0.0000 (.)
RQ	-0.0236 (-1.8889)*	-0.0024 (-0.9490)	-0.0025 (-0.2416)				-0.0094 (-0.7922)	-0.0029 (-0.7433)	0.0152 (1.6670)			
CC	-0.0161 (-1.1478)	-0.0039 (-1.8674)*	0.0029 (0.8513)				-0.0095 (-0.8074)	0.0004 (0.1309)	-0.0119 (-1.4686)			

Table 7 (Continued)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	DLLP1	DLLP2	LLA	DLLP1	DLLP2	LLA	DLLP1	DLLP2	LLA	DLLP1	DLLP2	LLA
RegSys				-0.0150 (-1.2423)	-0.0052 (-1.1539)	0.1131 (1.4836)				-0.0130 (-0.2010)	0.0013 (0.0509)	0.0442 (1.6130)
FinSys1				-0.0009 (-0.0373)	-0.0123 (-1.6604)*	-0.0242 (-1.3391)				0.0101 (0.5112)	-0.0034 (-0.4075)	-0.0071 (-0.6071)
FinSys2				-0.0019 (-0.1123)	-0.0048 (-1.6067)	-0.0361 (-1.7315)*				0.0062 (0.5748)	0.0116 (1.0571)	-0.0495 (-2.4101)**
Constant	-0.0534 (-0.3197)	0.0174 (0.6214)	0.0015 (0.0243)	0.0253 (0.0738)	0.1583 (1.4668)	3.5928 (1.6705)*	-0.0355 (-0.3760)	0.0186 (0.9073)	-0.0272 (-0.2741)	-0.4339 (-0.9179)	0.0041 (0.0199)	-0.2343 (-0.6546)
Observations	180	178	178	155	165	165	176	162	162	115	125	125
Number of iden	21	21	21	16	16	16	20	19	19	15	14	14
Year & country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Wald test	49599.7***	463.9***	4927.5***	2191.0***	329.7***	299.9***	341.3***	24.20**	23.19**	169.2***	25.60**	82.78***
AR(2)	0.409	1.418	1.0722	0.448	1.220	-1.324	1.147	1.099	-2.734	2.437	1.371	-2.470
Hansen test	11.52	10.06	8.570	5.476	1.505	3.364	7.860	2.381	2.434	4.063	5.350	4.634

provisions in the Asian banking context. A permanent corporate concern in this region is expropriation of wealth of minority interested parties. This situation literally contributes to a new form of agency conflict between minority and blockholders instead of the typical manager versus shareholders agency conflict. In summary, the higher the ownership concentration, the higher the possibility of earnings management in Asian banks. Regarding closely held shares, results indicate that discretionary loan loss provisions increase as insider ownership increases due to the managerial entrenchment problem. From the institutional point of view, this research also reveals a statistically significant and negative relationship between the adoption of IFRS and earnings management. When looking at Islamic banks *vis-à-vis* conventional banking, our findings provide evidence that Islamic banks are less prone to using actively discretionary loan loss provisions. Additionally, an asymmetric impact of certain governance structures between Islamic and conventional banks on managerial discretionary capacity to overstate financial reports is observed. Consequently, our research emphasizes the need for greater levels of information, transparency, and fewer market frictions through the development of financial systems and regulatory frameworks to restrain managers' opportunistic behavior for earnings management.

The results of this study suggest the following managerial implications. First, our results reveal that regulatory quality works less effectively than corruption control in restraining managers' capability for earnings management. Similarly, several other aspects of ownership structure and institutional variables were found to be significantly associated with earnings management. Studying both bank-level and country-level governance dynamics, this study found that ownership concentration, managerial ownership, and the development of regulatory and financial systems impact the discretionary capacity of bank managers to manipulate financial reporting. Moreover, Islamic banks are found to be less prone to earnings management via discretionary loan loss provisions because of their special regulatory settings and operation principles.

One specific recommendation for investors is that, according to our findings, majority shareholders use their excessive decision-making power and influence managers to make suboptimal reporting decisions. Consequently, it is suggested that economic authorities enhance external governance systems to reduce ownership concentration that leads to opportunistic accounting practices. As observed, an increase in loan loss provisions not only indicates banks' future earning potential but also may indicate a threat to managers' opportunistic earnings management behavior.

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Appendix

Dependent variables by country

Country	<i>DLLP1</i>	<i>DLLP2</i>	<i>LLA</i>	Obs.	(%)
Bahrain	0.0142	0.0061	0.0051	35	1.6302
China	0.0053	0.0032	0.0051	157	7.3125
Hong Kong	0.0035	0.0024	0.0029	67	3.1206
Indonesia	0.0080	0.0049	0.0087	209	9.7345
Israel	0.0047	0.0037	0.0011	35	1.6302
Japan	0.0069	0.0042	0.0020	654	30.4611
Jordan	0.0156	0.0064	0.0053	92	4.2850
Kazakhstan	0.0410	0.0212	0.0244	8	0.3726
Korea; Republic (South)	0.0038	0.0037	0.0052	22	1.0247
Kuwait	0.0130	0.0075	0.0099	46	2.1425
Lebanon	0.0121	0.0028	0.0027	12	0.5589
Malaysia	0.0070	0.0050	0.0033	76	3.5398
Oman	0.0091	0.0060	0.0040	51	2.3754

Appendix (*Continued*)

Country	<i>DLLP1</i>	<i>DLLP2</i>	<i>LLA</i>	Obs.	(%)
Pakistan	0.0159	0.0074	0.0053	24	1.1178
Palestine	0.0088	0.0030	0.0007	9	0.4192
Philippines	0.0091	0.0049	0.0057	81	3.7727
Qatar	0.0085	0.0046	0.0032	45	2.0959
Saudi Arabia	0.0067	0.0045	0.0048	83	3.8659
Singapore	0.0050	0.0032	0.0023	33	1.5370
Sri Lanka	0.0142	0.0055	0.0023	12	0.5589
Taiwan	0.0030	0.0030	0.0043	121	5.6358
Thailand	0.0097	0.0073	0.0086	96	4.4714
Turkey	0.0117	0.0056	0.0114	48	2.2357
United Arab Emirates	0.0130	0.0075	0.0109	110	5.1234
Vietnam	0.0079	0.0048	0.0080	21	0.9781
Total	0.0081	0.0048	0.0049	2147	100

This table displays the mean values of the dependent variables described in Section 3c by country.