Internal control quality and earnings management. Lessons from microfinance institutions

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Abstract: This study examines the effect of internal control quality on the earnings quality of microfinance institutions (MFIs). Our analysis is based on an unbalanced sample of 374 ratings reports produced by Planet Rating over the period 2001 to 2012. Given that the cross-sectional dimension is dominant in our observations, we pooled the data and controlled for year-fixed effects. To check for the consistency of our results, we re-estimated our baseline model after controlling for the endogeneity of internal control quality (self-selection bias) and including additional control variables. The results reveal a significant negative association between internal control quality and abnormal loan loss provisions (ALLP) suggesting that setting-up sound internal control mechanisms limit discretion in reporting provisions and thus improves earnings quality.

Keywords: internal control quality; agency problems; earnings management; loan loss provisions; microfinance institutions; MFIs.

JEL codes: G21, G23, M41.

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1 Introduction

Microfinance has earned its place in the global financial system, particularly in developing countries, by extending its outreach to low-income clients who are typically excluded from the services of traditional banks (Kolloju and Meoli, 2022), and by contributing significantly to poverty alleviation. The development of the microfinance industry has shown evidence of success, although not in all cases, as failures have also been recorded in microfinance institutions (MFIs) such as COFINEST-Cameroon, CFCC-Cote d'Ivoire, CANEF-Mali and Bank Dagang Bali-Indonesia (Riquet and Poursat, 2013). These microfinance failures have been attributed to within-MFI factors, such as weaknesses in corporate governance and the lack of adequate and effective internal controls (Marulanda et al., 2010). Risk management and internal controls are still among the top ten risks faced by MFIs (Centre for the Study of Financial Innovation, 2018), especially considering that they mainly serve low-income clients who lack adequate collateral. Undoubtedly, these deficiencies negatively affect MFIs, including the inability to manage credit portfolios, the production of unreliable financial and portfolio information (Riquet and Poursat, 2013), and possibly low quality of earnings reported to key stakeholders. The objective of this study is therefore to investigate whether implementing sound internal control mechanisms as perceived by a third-party rating agency improves earnings quality in social enterprises such as MFIs.

Studies associating internal control with earnings quality have been conducted in developed economies, and show that internal control improves persistence, predictability, timely loss recognition (Brown et al., 2014; Gong et al., 2021), and firm performance (Vu and Nga, 2022). In addition, firms that disclose internal control weaknesses have higher abnormal accruals (Ashbaugh-Skaife et al., 2008; Chan et al., 2008; Ji et al., 2017). In the financial services sector, Altamuro and Beatty (2010) show that the validity of loan loss provisions was improved for banks that complied with FDICIA's internal control regulations.

Studies on earnings management in MFIs focus on the effects of corporate governance[1] and ownership type (Beisland and Mersland, 2014; Lassoued, 2023; de Oliveira Leite et al., 2020; Tchakoute Tchuigoua, 2018). Tchakoute Tchuigoua (2018) shows that effective corporate governance limits managerial discretion in reporting loan loss provisions, reducing the likelihood that MFIs will report small positive earnings. Beisland and Mersland (2014) find no significant difference in earnings quality between for-profit and non-profit MFIs, while de Oliveira Leite et al. (2020) show that for-profit MFIs engage in more earnings management than non-profit MFIs when facing distress. In addition, Lassoued (2023) finds evidence that the type of earnings management differs by ownership structure and that cooperatives tend to engage in opportunistic earnings management while privately owned MFIs manage earnings efficiently. Regarding the benefits of implementing sound internal control mechanisms, the paper by Tchakoute Tchuigoua and Soumaré (2019) appears to be the only study to explore this issue. The authors show that effective internal controls reduce microfinance risk. As little attention has been paid to the effect of internal control on earnings quality in MFIs, the empirical gap that our study aims to fill is to examine whether internal control contributes to improving reporting quality in MFIs. Based on these previous studies, we expect that the quality of internal control improves earnings quality of MFIs.

We also account for the uniqueness of the microfinance sector which is characterised by the coexistence of different types of MFIs, some profit-driven, such as shareholder-based MFIs, and others pro-social, such as cooperatives and NGOs. Each MFI type is associated with specific managerial and private incentives to engage in earnings management (Galema et al., 2012; Servin et al., 2012). For example, for-profit MFIs, also known as shareholder-based MFIs, are bank-like institutions, since they apply market-based management principles, such as performance-based compensation. Incentives depend on both the size and quality of the loan portfolio (recorded loan losses). Managers and staff of for-profit MFIs may therefore have private incentives to misreport compared to non-profit MFIs. Notwithstanding, the managers of pro-social enterprises are also likely to be self-interested, less for personal gain at the expense of the organisation, than in the interest of the organisation. Earnings may be managed to signal competence and efficiency in the use of resources provided by external stakeholders (Greenwood and Tao, 2021). We also examine whether the effect of internal control quality may vary according to MFI profit orientation.

To achieve our objective, we use a sample of 374 observations of MFIs assessed by Planet Rating from 2001 to 2012. Given that the cross-sectional dimension is dominant in our observations, we pooled the data and controlled for year-fixed effects. The findings reveal a significant negative association between internal control and discretionary loan loss provisions, suggesting that discretionary loan loss provisions are lower when MFIs implement adequate internal controls, mainly for shareholder-based MFIs. Our findings are consistent after controlling for selection bias using the Heckman two-step procedure, auditor type, and the accounting standards used to prepare financial statements.

Our findings relate to previous studies in several ways. Tchakoute Tchuigoua (2018) focuses on the principal-agent problem of MFI managers, implicitly assuming that the quality of reporting of losses and provisions is solely attributable to MFI managers. In our study, we assume that the reporting process involves both managers and staff, some of whom have decision-making authority, and others who are involved in loan monitoring and tracking. In addition, the study by Beisland and Mersland (2014) is exploratory; they compare some non-accrual earnings management indicators according

to MFI ownership type. Contrary to their findings, we show that controlling for joint effects, for-profit MFIs are more likely to report higher abnormal loan loss provisions (ALLP) than non-profit MFIs. Finally, one problem MFIs face is the existence of phantom loans. If internal control is of better quality, it can reduce anti-selection problems and limit the approval of phantom loans. Given that phantom loans are more likely to become delinquent or problematic, this will increase the level of provisioning recorded by an MFI. If internal control mechanisms are effective, phantom loans will be limited and the level of provisions recorded will decrease. This is documented by Tchakoute Tchuigoua and Soumaré (2019), who limit their study to whether internal control mitigates agency problems when decision-making authority is delegated to the loan officer, thus focusing on the screening stage of the loan process. In contrast to these authors, our study focuses on the reimbursement stage and analyses how the quality of internal control can help limit the variability in the amount of recorded loan loss provisions due to the behaviour of agents in MFIs.

The remainder of the paper is organised as follows: Section 2 presents the background, while Sections 3 and 4 present the methodology and results, respectively. Section 5 concludes the paper.

2 Background

2.1 Earnings quality in microfinance

Quality financial information is essential to all stakeholders, mainly because it affects decision making; hence the view that high-quality information leads to higher quality judgments and decisions or that high quality financial reporting information is more decision-useful than low quality information (Francis et al., 2008).

Earnings quality estimates in the microfinance literature use accounting-based measures since market-based measures are not applicable as MFIs are rarely listed. Among the accounting-based measures, the most commonly used is the accrual measure represented by loan loss provisions, which is considered the largest accrual in the banking industry. Loan loss provisions are expenses that capture expected future losses that are likely to occur if a borrower fails to repay the bank according to the terms of the loan contract (Cornett et al., 2009). Accounting standards recommend that these expenses should only be recognised if they are likely to occur in the future. This allows banks some flexibility in accounting for loan loss accruals as judgement is required in estimating the likelihood of a loan loss to occur (Fonseca and Gonzalez, 2008), especially as banks have superior information relative to investors and other stakeholders about the default risks inherent in their loan portfolios (Kanagaretnam et al., 2005). Loan loss provisions thus reflect information asymmetry that is at the heart of the banking literature (Beatty and Liao, 2014). Loan loss provisions have a non-discretionary and discretionary component. The former generally arises from doubtful debts and cannot be controlled by managers, while the latter measures the amount of discretion a manager applies in estimating expected losses (Lassoued, 2022) and can serve as a tool to manage earnings.

We capture earnings quality by the discretionary component of loan loss provisions, that is, factors that are controlled by agents and that do not reflect clients' ability to repay loans.

At least three situations illustrate the alterity of provisions in MFIs at the loan recovery stage.

In some cases, the loan officer, to whom authority over loan recovery has been delegated, collects the loan repayment from the client and deliberately does not record the amount collected. In the MFI's accounts, the loan appears as non-performing if it is overdue by the repayment date. This scenario is common when the delegated loan officer issues manual receipts because loan repayments are collected outside the office premises. In another case, the loan officer may not have authority over loan recovery, and clients are expected to repay their loans at the teller. If there is no information system or the existing management information system is weak, a self-interested cashier may collect the loan repayment and decide not to record it in the MFI's accounts. In both cases, a possible implication of a self-interested loan officer or cashier is that the recorded provisions are altered by the loan officer's and cashier's behaviour and do not reflect the borrowers' ability to repay loans. Ultimately, the loan could be repaid and recorded in the MFI's accounts, but the self-interested manager still decides to manipulate provisions to obtain private benefits that may be linked to the performance-based compensation schemes.

Earnings management incentives in MFIs are similar to those in regular firms and banks, although one peculiarity is the dual objective status of MFIs. MFI managers may manage earnings to hide eventual losses and to present acceptable portfolio quality for contracting purposes, mainly to attract capital providers or to reap earnings-based compensation (Lassoued, 2022). Based on the profit orientation of MFIs, for-profit MFIs are motivated by the need to attract commercial and international capital while non-profit MFIs need to attract donor capital.

2.2 Hypothesis development

The foundation between internal control and earnings quality lies in the existence of moral hazard and asymmetric information resulting from agency relationships in an organisation. In an organisation where the transfer of specific knowledge is costly, the transfer of decision-making rights is an alternative to maximise set objectives. However, this is not sufficient as all individuals are self-interested; thus, control systems are needed to align their interests more closely with those of the firm (Jensen and Meckling, 2009). For example, Khanchel and Bentaleb (2022) provide evidence that pressure from independent directors and institutional owners leads managers of Tunisian firms to increase voluntary corporate disclosure. Khanchel and Lassoued (2024) also provide evidence that information asymmetry increases in CSR firms under deteriorating macroeconomic conditions, which is reflected in income-enhancing earnings management. Therefore, the implementation of sound internal controls may mitigate information asymmetry in CSR^2 firms during economic downturns.

Internal control also serves as one of such mechanisms that mitigate agency problems within firms and is related to the decentralisation and delegation of authority within firms. The microfinance sector is an ideal framework to assess the benefits of establishing effective internal control mechanisms relative to information quality, insofar as loan monitoring and loan reporting in MFIs are labour-intensive and decentralised (Basel Committee on Banking Supervision, 2010; Christen et al., 2012). Given that agents are more likely to be self-interested (Jensen and Meckling, 2009), one would expect MFI

staff and managers to misreport loan losses and alter earnings quality if the application of internal control mechanisms is lax.

Internal control is a process effected by an entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relative to operations, reporting, and compliance, through five components: control environment, control activities, risk assessment, information and communication and monitoring (Committee of Sponsoring Organisations, 2013). Good internal controls detect, limit, or prevent fraud while weak internal controls create opportunities for intentional misrepresentation or unintentional accounting estimation errors that can increase or decrease earnings, thereby reducing financial reporting quality (Ashbaugh-Skaife et al., 2008). Ensuring the trustworthiness of financial reporting is crucial for MFI stakeholders, as they study accounting reports in detail before contracting with an MFI (Beisland and Mersland, 2013). It imposes market discipline, especially for MFIs seeking to attract more investors, creditors, and donors (Hartarska, 2009), and also ensures the financial viability and sustainable growth of MFIs. As this requires appropriate control mechanisms, this study investigates the effect of internal control on MFIs' earnings quality in addition to their profit status.

At the heart of internal control is the existence of agency problems within the firm, as staff and managers may be self-interested. As a means of mitigating divergent interests, principals may use different incentives to monitor their agents (Khanchel and Bentaleb, 2022). Effective internal control is therefore designed to limit the principal-agent problem by aligning an individual's interests more closely to the organisation's objectives (Brickley et al., 2003; Jensen and Meckling, 2009). From an accounting perspective, internal control serves as an alignment mechanism that provides reasonable assurance of the quality of financial reporting and makes fraud easier to detect and more difficult to carry out (LaFond and You, 2010). It also minimises or prevents potential risks within the enterprise (Vu and Nga, 2022). Weak internal control characterised by material weaknesses reduces the accuracy of financial reporting numbers and leads to less reliable information for creditors to assess default risk or debt covenant violations, thus increasing the cost of capital (Dhaliwal et al., 2011).

Findings of previous studies provide evidence that firms that comply with internal control regulations have improved earnings quality in terms of persistence, predictability, and timely loss recognition (Brown et al., 2014; Gong et al., 2021). Also, firms that disclose material weaknesses in their internal controls under SOX sections 302 and 404 show higher discretionary accruals compared to non-internal control weakness firms, and firms that remediate their ICDs show significant improvements in their accrual quality (Ashbaugh-Skaife et al., 2008; Chan et al., 2008). Li et al. (2020) also show that internal control moderates the effect of financial distress on real and accrual-based earnings management and similarly, Chi and Gooda (2024) show that Chinese firms engage less in real earnings management when internal control and financial debt risk are high. In contrast, Song et al. (2022) emphasise on the effect of internal control and find that accrual and real earnings management increase when Chinese firms are subject to mandatory internal control regulations. This suggests that Chinese firms respond to the pressure of mandatory internal control regulations by altering their financial reporting quality.

In the banking industry, the objective of internal control over financial reporting should be to fulfill the information objective of presenting timely and reliable financial statements and other financial information needed for decision-making (Basel Committee

on Banking Supervision, 1998). Altamuro and Beatty (2010) and Lafond and You (2010) provide evidence that banks regulated by FDICIA show improvement in their loan loss provisions. In addition, Jin et al. (2013) also provide evidence that FDICIA regulated banks have lower risk-taking behaviour. Similarly, Cho and Chung (2016) find that banks with material internal control weaknesses have higher amounts of loan loss provisions and reserves than banks without internal control weaknesses. Internal controls are relatively essential for MFIs, whose core lending activities are more relational rather than transactional, and where the use of soft information by agents that is difficult to observe, verify or transmit to others can lead to agency problems (Berger and Udell, 2002). Loan agents and MFI managers with specific knowledge of the nature of their clients may use the opportunity to alter the reporting of provisions for their self-interests. Internal controls, therefore, minimise risks in MFIs (Tchakoute Tchuigoua and Soumaré, 2019). Besides meeting their financial objectives, MFIs are also social enterprises. As such, internal controls in non-profit organisations provide information on whether a non-profit is effectively carrying out its mission-related activities and can identify potential weaknesses that could lead to the loss of subsequent donations (Petrovits et al., 2011).

We rely on these points to predict that:

Hypothesis 1 Internal control has a significant positive effect on earnings quality of MFIs.

Firm characteristics can influence the quality of financial reporting, of which ownership structure is among the prominent. To gain better access to capital and liquidity and to enhance monitoring of firms' managers, private firms may transform into public firms by issuing public equity (Givoly et al., 2010). For MFIs, the transformation involves changing their structure from NGO MFIs to shareholder-owned MFIs. This change allows them to obtain better access to local and international funding, diversify their financing mix (D'Espallier et al., 2017) and benefit from better governance mechanisms such as market control, compensation-based schemes, and regulatory scrutiny, which improve their overall performance (Tchakoute Tchuigoua, 2018). Given the different MFI ownership types, managerial discretion is unlikely to be the same (Servin et al., 2012). For-profit MFIs' connection with capital markets requires them to signal higher levels of profitability and efficiency (Kolloju and Meoli, 2022). Consequently, they face higher demands to report positive results, and this provides an incentive for managers to use their discretion in reporting. Managers may also use discretion in reporting for job security concerns especially when compensation schemes are linked to performance. In the non-profit sector, earnings could be managed either downwards to demonstrate the need for additional funding and signal the efficient use of donated resources or upwards to demonstrate creditworthiness when lobbying for debt (Verbruggen and Christiaens, 2012; Greenwood and Tao, 2021). Verbruggen and Christiaens (2012) show that non-profit organisations are more likely to engage in downward than upward earnings management, while for-profit organisations are more likely to engage in upward earnings management (Lassoued, 2022).

The existing microfinance literature provides mixed evidence on the financial and accounting performance across different MFI characteristics. On one hand, Beisland and Mersland (2014) show that there is little or no significant difference in earnings quality between for-profit and non-profit MFIs. Similarly, Leite et al. (2019) show that there are no significant differences in profitability and risk between for-profit and nonprofit MFIs, except for yield. On the other hand, Pignatel and Tchakoute-Tchuigoua (2020) show that

for-profit as well as young and mature MFIs are more likely to adopt IFRS, which implies a reduction in earnings management opportunities and an improvement in the overall quality of financial reporting. Additionally, de Oliveira Leite et al. (2020) also show that for-profit MFIs have more incentives and are more likely than non-profit MFIs to manage earnings during times of distress and recession. Kolloju and Meioli (2022) examine differences in MFI performance according to their religious status, and their results suggest that secular-based MFIs have higher financial efficiency, while faith-based MFIs have higher social efficiency.

Building on the above studies that highlight the heterogeneity in MFI performance, we examine whether the effect of the quality of MFIs' internal control systems on the misreporting of loan loss provisions differs between for-profit and non-profit MFIs. Controls are essential in both types of MFIs, but the quality of control may vary depending on the monitoring incentives of key MFI stakeholders. Given that for-profit MFIs focus on value maximisation; and are considered to have better governance structures, we expect their internal controls to be more effective in reducing discretion in reporting compared to non-profits whose key stakeholders may be inattentive to or unaware of existing problems (Petrovits et al., 2011). Based on these arguments, we propose a second hypothesis as follows:

Hypothesis 2 The effect of internal controls on earnings quality varies by microfinance ownership type.

3 Materials and methods

3.1 Sample and data

We collected data for the study from two sources. First, we collected data on internal control and other MFI-level variables from rating reports published by Planet Rating, one of the main actors in the microfinance institutional rating market between 2001 and 2013. Planet Rating provides an opinion on the long-term financial sustainability of MFIs (Abrams, 2012) using six dimensions: governance, information, risk management (internal control), activities, funding and liquidity, efficiency, and profitability. A rating is assigned to each dimension, ranging from a = excellent performance, to e = weak performance. In the rating market, Planet Rating is the only rating agency that assesses and rates the effectiveness of the internal control systems (Tchakoute Tchuigoua, 2018). Country-level data were obtained from the World Development Indicators (WDI) database of the World Bank.

The initial sample comprised of approximately 400 rating reports from 2001 to 2013. Some observations were dropped due to missing internal control rating grades. Finally, 374 rating reports covering 280 MFIs over the period of 2001–2012[3] were retained. The distribution across the five regions is shown in Table 1.

The un-tabulated classification of the 374 MFIs by legal status shows 166 non-governmental organisations, 67 cooperatives, and 141 shareholder-based MFIs, hence 233 (62.3%) non-profit and 141 (37.7%) for-profit MFIs in the sample.

Table 1 Distribution of sample per region and per internal control rating score

Region	*1*	*2*	*3*	*4*	*5*	*Total*	*%*
Sub Saharan Africa	7	50	46	17	12	132	35.29
East Asia and the Pacific (EAP)	0	2	8	17	1	28	7.49
Eastern Europe and Central Asia (EECA)	0	2	8	31	15	56	14.97
Latin America and Caribbean (LAC)	1	16	52	61	11	141	37.7
Middle East and North Africa (MENA)	0	0	4	4	9	17	4.55
Total	8	70	118	130	48	*374*	*100*

3.2 The empirical model

The 374 rating reports used in this study come from 280 MFIs over the period from 2011 to 2012. Our data structure, therefore, resembles strongly unbalanced panel data, as internal control data and other MFI-level indicators were not always available for a given MFI at each point in time. Indeed, the un-tabulated[4] exploratory results show that only a few MFIs renewed their ratings over the period considered, and for these MFIs, the internal control rating score varied very little over time, suggesting that the cross-sectional dimension may be dominant in our data. We therefore pooled the data and controlled for year-fixed effects.

Our outcome variable is earnings management, which we proxy with an accrual-based measure, namely the discretionary component of loan loss provisions. In MFIs, loan loss provisions are subject to accounting manipulation (Microrate, 2014). Therefore, we implement a two-step procedure (e.g., Beatty et al., 2002; Kanagaretnam et al., 2010), whereby in the first step, based on the current banking and microfinance literature on MFI provisioning behaviour (Hessou et al., 2021), we model loan loss provisions as a function of some MFI-level variables and a country factor (GDP growth):

$$Loan\ Loss\ Provisions_{it} = \alpha_0 + \beta_{it} MFI\ level_{it} + \lambda_{jt} Country\ level_{jt} + \varepsilon_{it} \quad (1)$$

where *i* indexes the MFI, *j* indexes the country, and *t* indexes the year. *MFI* level is the vector of the non-discretionary components of loan loss provisions which includes the riskiness of the loan portfolio, lending methodology, capital structure, profitability, average loan size per borrower[5], and size (number of offices). The *country-level* variable captures GDP growth, and the residual of the equation captures the discretionary component of the abnormal loan loss provision and its absolute value[6] is our earnings management measure.

In the second step, we regress our earnings management metric on internal control rating after controlling for both the *MFI-level* and *country-level* variables. The estimated baseline model is:

$$\begin{aligned} ALLP_{it} = |\varepsilon_{it}| = \alpha_0 + \alpha_{it} Internal\ control\ ratings_{it} + \beta_{it} MFIcontrol_{it} \\ + \lambda_{jt} Country\ control_{jt} + \delta_t + \theta_k + \varepsilon_{it} \end{aligned} \quad (2)$$

where i indexes the MFI, j indexes the country, t indexes the year, and k indexes the region. ALLP is the unsigned abnormal loan loss provision. Internal control rating is the score assigned by Planet Rating to each rated MFI. A negative coefficient of the internal control variable indicates that the better the internal control rating, the less the MFI engages in earnings management, and thus the better the earnings quality. The assessment of the strengths and weaknesses of the internal control system is based on a number of core pillars, including risk cartography, procedures, internal control, and internal audit (see Appendix 1). The ratings are presented on an ordinal scale from the lowest (1) to the highest grade (5). MFI control is the vector of the MFI-level control variables, which include profit status (for-profit), profitability (ROA), age (maturity), breadth of outreach, and size (number of offices) (Brown et al., 2014; Cho and Chung, 2016; Hartaska, 2009; Ji et al., 2017; Khanchel and Lassoued, 2024; Lassoued, 2022). Country control includes country-level variables, such as country governance quality (corruption index) and macroeconomic conditions (Ahlin et al., 2011; Khanchel and Lassoued, 2024) that we capture by GDP growth. δ_t and θ_k capture year and region fixed effects respectively, and ε_{it} the residuals. To assess whether the effect of internal control varies according to MFIs' commercial orientation, we introduce the cross-product *Internal control*For-profit* in equation (2) and re-estimate the model.

4 Results and discussion

4.1 Descriptive statistics

Table 2 presents the summary statistics. On average, provisions are set aside for about 2% of the loan portfolio, while 4% of the total loan portfolio consists of non-performing loans. In addition, the mean value of the internal control variable is 3.37. This is as expected, since more than 66% of MFIs in the sample received scores of 3 or 4, implying that more than an average number of MFIs in the sample can be said to have established moderate internal control systems. Following Gutiérrez-Nieto and Serrano-Cinca (2007), 34.76% scored 4, indicating that their short and medium-term risks are low and/or well managed, identifying areas that needed improving and revising, while 31.55% scored 3, indicating that short and medium-term risks are moderately high but not fully addressed, and that most management processes and systems are in place but need to be refined or updated. About 38% of the rated MFIs are privately owned.

Table 3 shows that multicollinearity bias is limited, as the correlations are lower than 0.5 for almost all the variables (Table 3).

4.2 Multivariate results

The results of the first-stage of the model (Table 4) on the level of reported provisions indicate the riskiness of the loan portfolio. The higher the portfolio at risk and loan price, the higher the amount allocated for loan losses. The lending methodology used to screen and monitor loans is positively associated with provisions. We use the residuals of this first stage as values for the discretionary loan loss provisions (DLLP) in the second stage.

We find that internal control is positively associated with earnings quality. The internal control coefficient is negative and significant at a 5% level in columns 1 and 2 (Table 5), suggesting that effective internal control limits MFI manager and staff

discretion over reporting of provisions and limits opportunistic behaviour on loan tracking and monitoring. Instituting adequate and effective internal control reduces discretionary accruals, and improves earnings quality (Altamuro and Beatty, 2010; Ji et al., 2017; Van de Poel and Vanstraelen, 2011). This supports our first hypothesis that internal control has a significant positive effect on discretionary loan loss provisions of MFIs.

Columns 3 and 4 of Table 5 report the results of the joint effect estimations, which assess whether the effect of internal control on earnings quality varies across MFI types. The findings suggest that for-profit MFIs are more likely to engage in earnings management, perhaps because they have strong contracting incentives (reliance on commercial sources of funding) and more private incentives to engage in earnings management. The internal control coefficient is negative and insignificant, suggesting that internal control is less effective as a mechanism to prevent the risk of fraud and accounting manipulation in non-profit MFIs. The coefficient of the cross-product internal control*for-profit is negative and significant in model 3 (*–0.00391*) and model 4 (*–0.00372*). The total net effect is *–0.00475* (*–0.000840 –0.00391*) in model 3 and *–0.004639* (*–0.000919 –0.00372*) in model 4. These findings imply that instituting proper internal control in for-profit MFIs reduces the amount of ALLP and improves earnings quality in for-profit MFIs. These results are consistent with our assumptions in the second hypothesis. However, one size does not necessarily fit all, as the effect of internal control on earnings quality varies according to MFIs' profit status.

4.3 Robustness checks

All MFIs in the sample are rated, meaning that they voluntarily submitted themselves to be rated, and hence the possibility of selection bias in the sense that the data are skewed toward better-performing MFIs. In addition, our main test variable, internal control, is measured with an aggregate index. Internal control ratings are only assigned (observed) to an MFI if it chooses to be rated. Thus, there may be self-selection issues that bias our baseline models. To control for this selection bias, we applied the Heckman's (1979) two-step procedure. First, we constructed a control sample of 561 unrated MFI-year observations extracted from the microfinance information exchange (MIX) database from 2001 to 2012. We borrow from the existing literature on ratings to identify the potential determinants of an MFI's decision to seek a rating (e.g., Tchakoute Tchuigoua and Soumaré, 2019). The estimated probit model is (see Table 6):

$$\begin{aligned} Probit\ (Rating\ decision) = {} & \beta_0 + \beta_1 Maturity_{it} + \beta_2 Gross\ loan\ portfolio \\ & + \beta_3 Portfolio\ at\ risk 30\ days_{it} + \beta_4 ROA_{it} \\ & + \beta_5 For-profit_{it} \\ & + \beta_6 Breadth\ of\ outreach_{it} + \delta t + \varepsilon_{it} \end{aligned} \tag{3}$$

where *i* indexes the MFI, *j* indexes the country, and *t* indexes the year.

This first step allows us to calculate the inverse Mills ratio that is added to equation (2) to control for selection bias. The re-estimated model is:

$$\begin{aligned} ALLP_{it} = {} & \alpha_0 + \alpha_{it} Internal\ control\ ratings_{it} + \beta_{it}\ MFI\ control_{it} \\ & + \lambda_{jt} Country\ control_{jt} + IMR_{it} + \delta t + \theta_k + \varepsilon_{it} \end{aligned} \tag{4}$$

Table 2 Descriptive statistics

Variable	*Definition*	*Observation*	*Mean*	*Standard deviation*	*Minimum*	*Maximum*
Panel A: first stage loan loss provision model						
Loan loss provisions	Impairment losses on loans divided by average total assets (MIX)	367	0.0207	0.0229	–0.01	0.073
Portfolio at risk	Outstanding loans due above 30 days divided by gross loan portfolio	373	0.0417	0.0450	0.0005	0.169
Individual lending	Individual lending methodology loans/gross loan portfolio	371	0.6079	0.4148	0	1
Leverage	Total debt divided by total equity	364	2.5777	2.2111	0.16	8.06
Return on assets	Net income after taxes and before donations/average assets	374	0.0345	0.0554	–0.084	0.1297
Yield on loan portfolio	(yield on gross portfolio (nominal) – inflation rate)/(1 + inflation rate)	343	0.3806	0.1886	0.022	1.102
Depth of outreach	Average loan size per borrower/GNI per capita	322	0.7466	1.2770	0	9.52
Size	Number of branch offices	374	2.3069	0.9746	0	6.0186
GDP growth	Annual growth rate of the real gross domestic product	373	0.05598	0.0252	0.0106	0.1079
Panel B: second stage – discretionary loan loss provision model						
Internal control score	Planet rating scores on an ordinal scale from 1 (lowest) to 5 (highest)	374	3.3743	0.9981	1	5
For-profit	Dummy that takes the value 1 if the MFI is for-profit or 0 otherwise	374	0.3770	0.4853	0	1
Profitability	Net income after taxes and before donations/average assets	374	0.0345	0.0554	–0.084	0.1297
Age: young	4 to 8 years	374	0.3101	0.4632	0	1
Age: mature	> 8 years	374	0.5160	0.5004	0	1
Breadth of outreach	Number of clients with an outstanding loan balance	374	9.0161	1.5027	3.1355	13.0758
Size	Ln number of branch offices	374	2.3069	0.9746	0	6.0186
GDP growth	Annual growth rate of the real gross domestic product	373	0.05598	0.0252	0.0106	0.1078
Corruption index	Estimate of governance (ranges from approximately –2.5 (weak) to 2.5 (strong) governance performance)	373	–0.4764	0.3646	–1.1485	0.2593

Notes: This table presents the summary statistics. The number of observations differs by variables due to missing values for some years and countries.

Table 3 Correlation matrix

Panel A: first-stage regression									
	Loan loss provisions	*Portfolio at risk*	*Individual lending*	*Leverage*	*Return on assets*	*Yield on loan portfolio*	*Depth of outreach*	*Size*	*GDP growth*
Loan loss provisions	1								
Portfolio at risk	0.4042	1							
Individual lending	0.0234	0.1358	1						
Leverage	0.0548	0.0189	0.3191	1					
Return on assets	–0.2745	–0.3559	0.0081	–0.1409	1				
Yield on loan portfolio (real)	0.3377	0.0054	–0.2684	–0.1262	0.0186	1			
Depth of outreach	–0.1280	0.1019	0.3181	0.1717	–0.1543	–0.2201	1		
Size	–0.0399	–0.1236	0.0264	0.1490	0.0506	–0.0708	–0.0785	1	
GDP growth	–0.0657	–0.0290	–0.0301	–0.0946	0.0688	–0.0649	–0.0125	–0.0451	1

Panel B: second-stage regression										
	DLLP	*Internal control*	*For-profit*	*Profitability*	*Age: young*	*Age: mature*	*Outreach*	*Size*	*GDP growth*	*Corruption index*
Discretionary loan loss provisions (DLLP)	1									
Internal control	–0.1834	1								
For-profit	0.0041	0.2780	1							
Profitability	–0.1385	0.1406	–0.0490	1						
Age: Young	–0.0152	–0.0140	0.1105	0.0650	1					
Age: Mature	–0.0369	0.0094	–0.2403	0.1216	–0.6924	1				
Outreach	–0.0887	0.2985	0.0666	0.0956	–0.0828	0.1252	1			
Size	–0.0875	0.2064	0.1334	0.0506	–0.0941	0.1412	0.5576	1		
GDP growth	–0.0400	–0.0871	0.0445	0.0688	0.1068	–0.0443	–0.0504	–0.0451	1	
Corruption index	0.1424	0.1765	0.0352	0.0511	–0.0536	0.0334	–0.0388	0.0117	–0.1125	1

Notes: This table presents the Pearson correlation matrix of the variables. The DLLP value is obtained from the residual of the first-stage model and is presented in absolute value. The variables are described in Table 2.

Table 4 First stage regression-loan loss provision model

Loan loss provisions	*Coefficient*	*t-statistics*
Constant	–0.0055	–1.09
Portfolio at risk	*0.1763***	5.38
Individual lending	*0.0055**	1.81
Leverage	0.0007	1.28
Return on assets	*–0.0705****	–2.73
Yield on loan portfolio	*0.0418****	6.88
Depth of outreach	*–0.0025****	–3.29
Number of offices	0.0003	0.32
GDP growth	0.0293	0.66
Number of observations	307	
F statistic	23.95***	
R-squared	0.3382	

Notes: This table presents the results of the pooled OLS analysis of the effect of some MFI specific and country level characteristics on loan loss provisions. All variables are winsorised to control for the presence of outliers.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5 Regression of internal control on discretionary LLP

	Unsigned accrual: absolute value of abnormal loan loss provisions			
	(1)	*(2)*	*(3)*	*(4)*
_Constant	0.0274***	0.0298***	0.0208**	0.0228**
	(0.00788)	(0.00859)	(0.00860)	(0.00962)
Internal control	–0.00230**	–0.00214**	–0.000840	–0.000919
	(0.00103)	(0.000999)	(0.00142)	(0.00137)
For-profit	0.000918	0.00114	0.0147**	0.0140**
	(0.00168)	(0.00173)	(0.00654)	(0.00667)
Profitability (ROA)	–0.0255	–0.0212	–0.0243	–0.0220
	(0.0182)	(0.0184)	(0.0168)	(0.0174)
Age: young	0.000523	0.000713	0.000997	0.00114
	(0.00195)	(0.00197)	(0.00194)	(0.00197)
Age: mature	–0.0000940	–0.000304	0.0000317	–0.0000867
	(0.00188)	(0.00181)	(0.00185)	(0.00180)
Outreach	0.000159	0.000182	–0.0000501	0.0000374
	(0.000568)	(0.000577)	(0.000580)	(0.000582)

Notes: This table presents the pooled OLS estimation of the effect of internal control on MFI earnings quality after controlling for year and region fixed effects. The dependent variable is the absolute value of ALLP. Standard errors in parentheses are adjusted for heteroscedasticity and clustered by MFI. * $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5 Regression of internal control on discretionary LLP (continued)

	Unsigned accrual: absolute value of abnormal loan loss provisions			
	(1)	*(2)*	*(3)*	*(4)*
Size: number of offices	–0.000806	–0.000507	–0.000444	–0.000252
	(0.000796)	(0.000815)	(0.000787)	(0.000812)
GDP growth	–0.0272	–0.0142	–0.0322	–0.0186
	(0.0311)	(0.0345)	(0.0308)	(0.0340)
Corruption index	0.00576***	0.00593***	0.00601***	0.00632***
	(0.00190)	(0.00197)	(0.00178)	(0.00193)
Internal control * For-profit			–0.00391**	–0.00372**
			(0.00181)	(0.00183)
Year fixed effects	Yes	Yes	Yes	Yes
Region fixed effects	No	Yes	No	Yes
Number of observations	307	307	307	307
R-squared	0.127	0.140	0.148	0.158
Adjusted R-squared	0.066	0.067	0.086	0.083

Notes: This table presents the pooled OLS estimation of the effect of internal control on MFI earnings quality after controlling for year and region fixed effects. The dependent variable is the absolute value of ALLP. Standard errors in parentheses are adjusted for heteroscedasticity and clustered by MFI. * $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6 Heckman first stage regression

Rated	*Coefficient (1)*	*t-statistics (2)*
Constant	*2.1320***	3.92
Age: young	*–0.3243**	–1.79
Age: mature	*–0.9323****	–5.54
Gross loan portfolio	–1.7235	–4.94
Portfolio at risk 30	–1.1383	–0.96
Profitability (ROA)	*2.8420**	2.66
For-profit	–0.3162	–3.32
Outreach	*–0.1399****	–5.67
Year fixed effects	Yes	
Number of observations	880	
Chi 2	163.41	
Pseudo R^2	0.1468	
Log pseudolikelihood	–511.43062	

Notes: This table presents the pooled probit estimation of the decision to seek a rating after controlling for year fixed effects. The dependent variable is a dummy that takes value 1 if the MFI is rated, and 0 otherwise. z-values are reported in column 2 and are based on robust standard errors adjusted for heteroscedasticity. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7 Heckman second stage regression

	Unsigned accrual: absolute value of abnormal loan loss provisions			
	(1)	*(2)*	*(3)*	*(4)*
_Constant	0.0270***	0.0293***	0.0202**	0.0223**
	(0.00932)	(0.00973)	(0.00991)	(0.0106)
Internal control	–0.00229**	–0.00214**	–0.000827	–0.000895
	(0.000982)	(0.000976)	(0.00139)	(0.00135)
For-profit	0.000714	0.000802	0.0145**	0.0139**
	(0.00230)	(0.00222)	(0.00646)	(0.00655)
Profitability (ROA)	–0.0251	–0.0203	–0.0234	–0.0216
	(0.0159)	(0.0164)	(0.0151)	(0.0160)
Age: young	0.000458	0.000519	0.000833	0.00103
	(0.00240)	(0.00244)	(0.00230)	(0.00235)
Age: mature	–0.000353	–0.000817	–0.000479	–0.000393
	(0.00361)	(0.00377)	(0.00347)	(0.00359)
Outreach	0.000154	0.000139	–0.0000924	0.0000247
	(0.000737)	(0.000769)	(0.000753)	(0.000763)
Size: number of offices	–0.000750	–0.000463	–0.000383	–0.000203
	(0.000801)	(0.000821)	(0.000790)	(0.000816)
GDP growth	–0.0247	–0.0125	–0.0297	–0.0168
	(0.0310)	(0.0340)	(0.0307)	(0.0337)
Corruption index	0.00571***	0.00588***	0.00596***	0.00628***
	(0.00189)	(0.00198)	(0.00177)	(0.00194)
Internal control * for-profit			–0.00393**	–0.00378**
			(0.00182)	(0.00182)
Inverse mills ratio	–0.0000216	0.000425	0.000389	0.0000631
	(0.00583)	(0.00604)	(0.00553)	(0.00567)
Year fixed effects	yes	yes	yes	yes
Region fixed effects	no	yes	no	yes
Number of observations	306	306	306	306
R-squared	0.129	0.141	0.151	0.160
Adjusted R-squared	0.064	0.065	0.085	0.081

Notes: This table presents the pooled OLS estimation of the effect of internal control on MFI earnings quality after controlling for year and region fixed effects, and self-selection bias. The dependent variable is the absolute value of ALLP. Standard errors in parentheses are adjusted for heteroscedasticity and clustered by MFI. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The findings reported in Table 7 are consistent with our baseline findings and do not change our story.

As a second robustness test (Table 8), we introduce two additional control variables, one indicating whether the MFI complies with IFRS in drafting its financial statements,

and the other accounting for whether the MFI's financial statements are audited by a Big 4 audit firm. Adding these variables does not change the course of our story, as we still find consistent evidence, further strengthening confidence in our results.

Table 8 Additional control variables

	Unsigned accrual: absolute value of abnormal loan loss provisions			
	(1)	*(2)*	*(3)*	*(4)*
_Constant	0.0296***	0.0344***	0.0227***	0.0272***
	(0.00735)	(0.00785)	(0.00797)	(0.00867)
Internal control	–0.00279***	–0.00260***	–0.00124	–0.00132
	(0.00102)	(0.000977)	(0.00137)	(0.00131)
For-profit	–0.000209	0.000193	0.0154**	0.0140**
	(0.00192)	(0.00184)	(0.00630)	(0.00634)
Profitability (ROA)	–0.0259	–0.0195	–0.0247	–0.0202
	(0.0176)	(0.0173)	(0.0161)	(0.0163)
Age: young	0.000343	0.000730	0.000838	0.00119
	(0.00192)	(0.00193)	(0.00188)	(0.00191)
Age: mature	–0.000340	–0.000607	–0.000265	–0.000400
	(0.00184)	(0.00176)	(0.00179)	(0.00173)
Outreach	0.0000937	0.0000144	–0.000168	–0.000160
	(0.000584)	(0.000600)	(0.000592)	(0.000604)
Size: number of offices	–0.000859	–0.000538	–0.000461	–0.000266
	(0.000826)	(0.000842)	(0.000816)	(0.000839)
IFRS	0.00221	0.00320	0.00281	0.00347
	(0.00213)	(0.00243)	(0.00208)	(0.00235)
Big 4	0.00185	0.00245	0.00242*	0.00272*
	(0.00162)	(0.00154)	(0.00146)	(0.00142)
GDP growth	–0.0342	–0.0259	–0.0418	–0.0316
	(0.0295)	(0.0322)	(0.0293)	(0.0320)
Corruption index	0.00607***	0.00640***	0.00646***	0.00687***
	(0.00190)	(0.00195)	(0.00178)	(0.00191)
Internal control * For-profit			–0.00450**	–0.00404**
			(0.00179)	(0.00178)
Year fixed effects	yes	yes	yes	yes
Region fixed effects	no	yes	no	yes
Number of observations	307	307	307	307
R-squared	0.137	0.156	0.165	0.176
Adjusted R-squared	0.070	0.077	0.097	0.097

Notes: This table presents the pooled OLS estimation of the effect of internal control on MFI earnings quality after controlling for year and region fixed effects, and additional variables. The dependent variable is the absolute value of ALLP. Standard errors in parentheses are adjusted for heteroscedasticity and clustered by MFI. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5 Conclusions

Using a cross-country sample of rated MFIs, this study shows that internal control reduces discretionary loan loss provisions and thus improves earnings quality, specifically, in shareholder-based MFIs. Since internal controls constitute part of the transparency process in MFIs, the results support the transparency debate, as high-quality financial reporting ensures transparency and builds trust with stakeholders in both for-profit and non-profit MFIs (Goodell et al., 2020), potentially accompanied by better access to external funding.

Our study has policy implications for regulators and MFIs. On the MFI side, our findings call for MFIs to ensure that internal control is a never-ending process, as it serves as a mechanism to improve financial reporting. MFIs should adopt a level of professionalism that continuously emphasises the formalisation and updating of internal controls to reduce portfolio risk and improve overall performance. On the regulatory side, our study suggests that regulators should be more attentive to MFI financial reporting and continuously update microfinance regulations on internal control to reflect the challenges and changes arising in MFIs. Regulators in emerging markets could also ensure the enforcement and implementation of internal control, as it has been shown to positively improve overall financial reporting.

This study is limited in that the sample only includes MFIs assessed by Planet Rating, and therefore cannot be considered fully representative of the general population of MFIs. In addition, it was not possible from the documents consulted to identify the models used to produce the internal control scores. It is also unclear how Planet Rating valued some internal control mechanisms over others. We would have liked to contact Planet Rating to conduct interviews and request access to the details of the methodology used to produce the rating. However, Planet Rating went bankrupt in 2013. Since we measure our variable of interest using ratings, a subjective judgement bias of the qualitative assessments could affect the scores assigned by Planet Rating (Beisland et al., 2014). In addition, the use of Planet Rating limited the study period of our sample to the period before its closure. However, it was the only microfinance rating agency that provided a detailed assessment of internal control for the MFIs it rated. Despite this, we believe that internal control remains a relevant mechanism for improving governance quality, and that the concept has not received sufficient attention in microfinance studies, hence our motivation for the study. We therefore recommend conducting single-country studies using recent data to examine the effect of internal control on MFI earnings quality.

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Notes

1 Ali et al. (2022) provide a bibliometric analysis of the key issues discussed in the microfinance literature, highlighting performance and corporate governance as some of these key issues.

2 Moreover, social and governance disclosures have an undesirable effect on firm risk in the long run, compared to environmental disclosures (Khanchel and Lassoued, 2022).

3 Due to the collapse of Planet Rating in 2013, our sample period was limited to 2012 and we were not able to collect data until 2022.

4 Available upon request

5 We acknowledge that we could have controlled for the gender composition of the microfinance loan portfolio by including the percentage of female borrowers. However, some recent studies provide evidence of no significant association between female borrowers and credit risk in microfinance (e.g., Hessou et al., 2021). Additionally, Leite and Civitarese (2019), show that gender portfolio composition effect seems to be spurious in microfinance repayment performance literature, thus, we excluded this variable from our study.

6 We use abnormal loan loss as our outcome variable, given our small sample size. Splitting the sample according to the sign of the residuals may have resulted in a very small sample size for each subgroup. We thus traded off sample size against splitting the sample size.

Appendix

Core points assessed by Planet Rating

Internal control effectiveness dimension	*Items*
Risk cartography	Definition of appropriate levels of risk
	Identification of main operational risks
	Clear definition of risk categories, their potential impact and probability of occurrence
Internal control and procedures	Procedures are well formalized and communicated
	The quality of separation of tasks and several layers of hierarchical control maximize the probability that deviations from procedures are identified
	Supervision and control duties ensure good financial reporting quality and financial data reliability
	Daily reconciliation between accounting, portfolio, and bank accounts. Numerous cross-checks performed on loan files
	Cash risk and cash management
Internal audit	Auditing procedure
	Identification of main operational risks and level of compliance with procedures at the branch level
	Periodicity of audits
	Formalization and presentation of audit reports
	The capabilities of the internal audit department
	The reporting scheme for internal audit compliance with best practices

Source: Adapted from published rating reports