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Print ISSN: [3006-2497](https://doi.org/10.5281/zenodo.19470244) Online ISSN: [3006-2500](https://doi.org/10.5281/zenodo.19470244)Platform & Workflow by: [Open Journal Systems](https://doi.org/10.5281/zenodo.19470244)<https://doi.org/10.5281/zenodo.19470244>**Audit Committee Characteristics and Non-Performing Loans: Moderating Effect of Credit Exposure****Rehmat Ullah (Corresponding Author)**

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This study aims to investigate the role of audit committee characteristics in controlling non-performing loans. It also examines the moderating effect of credit exposure on the relationship between the audit committee meeting and non-performing loans. It uses secondary data from listed commercial banks in Pakistan for the period 2016-2024. The one-step system generalized method of moments (GMM) was utilized for the estimation of the results. The findings from a one-step system GMM indicate that audit committee size significantly and negatively affects non-performing loans. It suggests that a larger audit committee improves the quality of loans. Furthermore, credit exposure significantly negatively affects the association between the frequency of audit committee meetings and non-performing loans. This study helps to improve loan quality by strengthening the audit committee characteristics of listed commercial banks. Our findings offer valuable insights for regulators and policymakers of the listed commercial banks to enhance the audit committee's role in mitigating non-performing loans, thereby promoting a sound banking system.

Keywords: Non-Performing Loans, Audit Committee Characteristics, Credit Exposure

JEL Classification– G21; G28; G34.

Introduction

While maintaining a competitive presence in the sector, banks often put extra effort into achieving key performance indicators (KPI). In accomplishing loan targets, either borrowers are not properly scrutinized, or their financial conditions lead to default in loan repayment. This phenomenon eventually leads to an increase in non-performing loans (NPL). The NPL ratio is a key indicator for assessing the quality of a commercial bank's assets. NPL is a loan 90 days past due (Konstantakis *et al.*, 2016; Manz, 2019). NPL constitutes a major obstacle for banks globally, as it impacts their interest income, particularly in emerging markets (Rehman *et al.*, 2024). The global banking system faces instability due to rising NPL, restricting lending capacity, and increasing borrowing costs, which may lead to a credit crunch and economic stagnation. (Goyal *et al.* 2023). NPL negatively affects banks' performance, necessitating increased provision for loan losses and decreasing interest income (Boussaada *et al.*, 2023). NPL eventually leads to liquidity issues for banks, where depositors' claims cannot be recognized (Gosh,2017;

Rehman *et al.*, 2024). Hence, NPL is one of the crucial metrics to gauge the performance of a bank (Kartika *et al.*, 2022).

The banking industry in Pakistan is facing mounting non-performing loans (NPL), as the current NPL to gross advances ratio is 6.3% in 2024 (State Bank of Pakistan, 2024a), which is higher than the national standard NPL ratio of 5% (Rehman *et al.*, 2024). The increasing number of NPL poses a risk to Pakistan's financial stability (Akbar *et al.*, 2024). Such risk highlights the need for enhanced governance frameworks as corporate governance plays an important role in NPL reduction (Kartika *et al.*, 2022). A high volume of NPL can threaten profitability, liquidity, and systemic stability in the banking sector, particularly in developing economies. With strict banking regulations, banks can effectively manage NPL. This study examines the effects of the audit committee (AC) characteristics on the NPL in listed commercial banks in Pakistan. The State Bank of Pakistan (SBP), being the central bank of Pakistan, directs that NPL reduction strategies of banks should be referred to the audit committee (AC) for independent assessment (State Bank of Pakistan, 2024b). AC sets the 'top tune' and represents the board of directors (BOD) in its decision enforcement. Boards typically delegate risk-related duties to different board committees, including the AC. In such a role, the AC is tasked with examining the rules and procedures that dictate how risk assessment is evaluated (Hartmann and Carmenate, 2021). The condition of the bank loan portfolio is critical for financial stability in a developing country like Pakistan, where banks play a key role in credit allocation. Thus, AC has become a focal point for prudent and sound lending practices.

Effective corporate governance with strong risk management, open decision-making processes, and well-defined accountability can reduce NPL. Conversely, poor governance fails to recognize and manage new risks quickly (Hossain *et al.*, 2025). The governance mechanisms, particularly a robust AC, may bolster the oversight and maintain credit discipline, which eventually helps to curtail NPL, but these mechanisms may not always work in different financial conditions. The use of the (loan-to-deposit ratio) LDR as a moderating variable stem from its dual functions of liquidity and a proxy for credit exposure. The higher LDR, the higher credit exposure a bank faces, which may undermine the AC to manage NPL. High LDR can decrease profitability and thus represent an indication of financial risk (Işık 2022). On the flipside, banks with conservative LDR may allow AC to exercise more oversight over credit risk. By exploring this interaction, this study provides an understanding of how internal governance and liquidity risk metrics jointly affect loan quality.

The purpose of this study is to fill the void of governance mechanisms, particularly the audit committee (AC) characteristics, for reducing NPL. The prior literature has documented the effect of AC attributes on profitability (Maniruzzaman *et al.*, 2024), on different risk factors (Akbar *et al.*, 2024), and corporate sustainability reporting (Buallay and Al-Ajmi, 2020) in different economies. But there is a limited study on the effect of AC characteristics on NPL for listed commercial banks in an emerging economy like Pakistan. Our study contributes to the nascent academic literature on how the characteristics of AC, such as size, meeting frequency, and independence (Buallay and Al-Ajmi, 2020; Velte, 2023; Hossain *et al.*, 2025), can influence the NPL. Moreover, to the best of our knowledge, it is among the first empirical studies to explore the moderating role of credit exposure in the relationship between AC characteristics and NPL in Pakistan. The findings of this study will help policymakers and regulators to strengthen the governance mechanism for curtailing NPLs in Pakistan's banking sector.

Our findings affirm that the audit committee plays a vital role in reducing non-performing loans. The results reveal that audit committee size (ACS) significantly reduces non-performing loans (NPL). The findings also suggest that credit exposure plays a moderating role by decreasing the positive influence of audit committee meetings on non-performing loans. Our findings suggest that much of the earlier studies applies to the role of AC characteristics and thus support our conclusions. This study utilizes data from the listed commercial banks in Pakistan, broadening the latest related study and addressing gaps in this topic. The results guide the BOD of the listed commercial banks on the robust role of AC characteristics on NPL. Based on these findings, the SBP may further strengthen governance by increasing the effective role of AC for controlling the credit losses in commercial banks and decreasing the ratio of NPL.

This paper proceeds as follows. Section 2 highlights the literature review and hypothesis development. Section 3 presents the data and methodology, while Section 4 contains the study's results and findings.

The final section concludes the study by presenting policy implications and suggestions for future research.

Literature review and hypothesis development

This study is grounded in agency theory, as proposed by Jensen and Meckling (1976). Agency theory describes the relationship between shareholders/owners (the principal) and management (the agent). Agency conflict arises due to different interests between these two parties. A good corporate mechanism plays a key role in resolving such issues, and it is essential to ensure that the agent's actions align with the principal's interests, as demonstrated by the creation of shareholder value. It examines the dynamics between a principal and an agent. This theory suggests that conflicts may arise due to the separation of ownership and management.

Agency conflicts are likely to arise in commercial banks due to the aggressive lending behaviour of managers to obtain short-term gain. Agency theory underscores the role and control functions of the BOD and its formed committees, including AC. Therefore, this study employs agency theory to examine the role of audit committee characteristics in managing non-performing loans in commercial banks listed on the Pakistan Stock Exchange (PSX). Audit committee (AC), being an important component of the internal governance mechanism, plays the bridging role in the agency problems. AC characteristics included in this study are audit committee size (ACS), audit committee meeting (ACM), and audit committee independence (ACI).

Audit committee characteristics and non-performing loans

The non-performing (NPL) arises due to a borrower's failure to make a scheduled payment. Generally, these payments are overdue by more than 90 days and are unlikely to be repaid by the borrower (Bischof *et al.*, 2022). The pressure of increasing NPL raises concerns for banks' stakeholders as it not only reduces profitability but also decreases the quality of loans in the balance sheet of a bank. A decrease in NPL represents higher-quality assets in a bank's financial statements (Fan *et al.*, 2024).

Audit committee (AC) supports board of directors for the efficient and robust implementation of the internal control system. To assess the effectiveness of a bank's internal control, AC reviews its operating environment, financial system, and reporting structure. Similarly, AC in areas within its scope recommends policies to the BOD for approval. Banks incur NPL, but a high level signifies a bank's inability to manage its operations effectively; therefore, the role of AC is crucial for stabilizing and reducing NPL in banks (Kartika *et al.*, 2022; Ullah *et al.*, 2024). NPL is particularly challenging for emerging economies due to regulatory weaknesses (Hossain *et al.*, 2025; Rahman and Howlader, 2025). Therefore, strong internal governance mechanisms are an effective tool to overcome such challenges (Hossain *et al.*, 2025). The AC is responsible for overseeing the internal processes of banks, including audits, risk management, and financial reporting. The supervisory role assigned to the AC is anticipated to enhance commercial banks' financial performance. Thus, AC is considered as a tool to reduce NPL (Kartika *et al.*, 2022).

The AC with small strength is more flexible, but having a large committee size provides more insight to control NPL. The extensive size of the AC offers more prudence to control NPL due to the diverse backgrounds of each member. The existing literature on corporate governance provided a negative relationship between board size and NPL (Aslam *et al.*, 2021; Fiador *et al.*, 2021). Similarly, audit committee size (ACS) also has a positive influence on firm performance (Boshnak *et al.*, 2023; Karim *et al.*, 2024). Being more specific to the role of ACS in the literature, Hossain *et al.*, (2025) noted that it has negatively affected NPL.

However, Shan and Xu (2012) suggested that small-sized boards are more effective in controlling NPL. The argument in favour of the small-sized board is the effective communication due to the limited number of members. Because fewer members are more focused on reducing the risk appetite approach of management, which is helpful for NPL reduction. Thus, these arguments lead to the following hypothesis.

H1: The audit committee size reduces non-performing loans.

The meeting frequency of AC is important. More frequent meetings will enable AC members to review the internal control mechanism (Karim *et al.*, 2024). The earlier studies found a negative impact of ACM on NPL (Al-Zobi *et al.*, 2019; Amin *et al.*, 2019; Akter *et al.*, 2021; Aslam *et al.*, 2021). Contrary to these

findings, another study by Hossain *et al.* (2025) has found no role of ACM for the NPL reduction. Excessive meeting frequency also led to a repetitive nature of discussions, resulting in ineffective outcomes (Habtoor, 2022; Kamaludin *et al.*, 2023). From the governance perspective, this study proposes the following hypothesis.

H2: The higher frequency of audit committee meetings reduces non-performing loans.

In line with the agency theory, independent members in AC play the role of mediator between different stakeholders. Independent members are in a better position to increase accountability and control the risk appetite behaviour of managers (Kartika *et al.*, 2022; Hossain *et al.*, 2025). The independent members of AC are likely to discharge their responsibility in support of the shareholders. The presence of independent members influences bank management to control NPL. They are likely to ask the management to implement effective credit risk strategies for NPL reduction. Earlier studies have found an effective role of independent directors in reducing NPLs (Hasan *et al.*, 2019; Al-Zobi *et al.*, 2019; Sen *et al.*, 2022). Contrarily, few of the studies have found no role of independent members for controlling NPL (Khatun and Ghosh, 2019; Hossain *et al.*, 2025). Based on these different results in the literature, we formulate the following hypothesis.

H3: The audit committee's independence reduces non-performing loans.

The amount a commercial bank disburses to borrowers from the deposits of third parties shows the loan-to-deposit ratio (LDR), a proxy for credit exposure. Increasing credit exposure poses a major threat to default risk. Since the role of corporate governance is characterized by effective risk management and establishing accountability, including control of NPL. Therefore, an effective AC mechanism is helpful for credit discipline and monitoring the internal control system of a commercial bank. Increasing the LDR poses a higher credit exposure for a commercial bank.

The credit exposure serves as an important moderating factor in determining how effectively the AC characteristics can manage NPL. A high Loan to Deposit ratio (LDR) is an indication of an aggressive lending approach by a commercial bank compared to its deposits, which often increases credit risk. This will undermine the audit committee's ability to oversee and limit the risky lending behaviour of the managers (Louzis *et al.*, 2012). Therefore, such a move by the management will weaken the effectiveness of AC for controlling NPL.

Liquidity management is a critical area for a bank to determine its asset quality. Increasing LDR is critical for the smooth functioning of the banking system in emerging markets, causing a liquidity crisis (Işık, 2022). Higher LDR posits a bank with more credit risk and vulnerability toward NPL. An LDR exceeding 100% indicates overextension of lending, thus surpassing the aggregate deposits. Consequently, such lending is backed by shareholders' funds. Regulators discourage such lending behaviour due to the potential negative impact on a bank's liquidity and risk absorption capacity (Satria *et al.*, 2016). Therefore, increasing LDR not only puts banks at credit risk but also weakens effective governance. On the contrary, a conservative approach to granting loans may support AC in creating more space for controlling credit exposure and loan default. Banks with low LDR are considered to have alternative investments rather than lending activities (Satria *et al.*, 2016). Considering both aggressive and conservative lending approaches and recognizing the importance of audit committee (AC) characteristics in relation to non-performing loans (NPLs), this study proposes the moderating role of credit exposure and develops the following hypotheses.

H4: Credit exposure weakens the association between the frequency of audit committee meetings on non-performing loans.

Methodology

Sample

This study uses secondary data from 19 listed commercial banks in Pakistan for the period 2016-2024. The financial data of the banks were taken from the S&P Capital IQ (S&P Global) and the banks' annual reports. The corporate governance data of AC characteristics were manually collected from the annual reports of the banks. The GDP growth rate data were obtained from the World Development Indicators (WDI) of the World Bank. The sample size is limited to 19 commercial banks because these constitute the entire population of listed commercial banks operating in Pakistan.

Variables

non-performing loans (NPL)

A strong balance sheet reflects the financial health of a bank; loans are one of the key assets a bank owns as a quality asset. Non-performing loans are the result of the borrower's failure to make scheduled repayment. Generally, these payments are overdue by more than 90 days and are unlikely to be repaid (Konstantakis *et al.*, 2016; Manz, 2019; Bischof *et al.*, 2022). A high volume of NPL reflects a challenge for banks, and it further indicates a bank's struggle to manage its operations effectively. The NPL ratio is measured by dividing the non-performing loans by gross advances.

Audit Committee Characteristics

Following the financial crisis of 2007-2008, the Basel Committee made it mandatory for BOD and its committees to strengthen their oversight of banks' risk management (Nguyen, 2022). The Audit Committee (AC) is one of the fundamental pillars of corporate governance. This committee is tasked with internal control, the supervisory role, and overseeing financial reporting. These responsibilities are assigned by the BOD. Following the prior literature, this study examined the characteristics of the audit committee, i.e., Audit Committee Size (ACS), Audit Committee Meeting (ACM), and Audit Committee Independence (ACI). ACS represents the number of members in the AC (Al-Jalahma, 2022; Dang and Nguyen, 2022; Maniruzzaman *et al.*, 2024; Hossain *et al.*, 2025). ACM shows the number of meetings during a year (Al-Jalahma, 2022; Maniruzzaman *et al.*, 2024; Hossain *et al.*, 2025). ACI is the ratio of independent members in the AC (Al-Jalahma, 2022; Dang and Nguyen, 2022; Hossain *et al.*, 2025).

Moderating variable

The moderating variable employed for this study is credit exposure. It is measured by the loan-to-deposit ratio (LDR), which is the ratio of loans disbursed to the total deposits a bank holds (Işık, 2022). The LDR represents a perspective on the comparison of assets (loans) generated relative to liabilities (deposits). A high LDR suggests insufficient liquidity to meet funding needs and higher credit exposure. On the other hand, a low LDR indicates that a bank is unable to maximize its earning potential or has a low loan disbursement rate. Therefore, the credit exposure drops during low loan demand. LDR is a double-edged sword that requires constant attention. An optimal LDR represents the balance between funds raised and loans disbursed.

Control variables

We use both bank-specific and macroeconomic factors as control variables. The capital adequacy ratio (CAR) is a bank-level control variable. CAR is calculated as the ratio of eligible capital to risk-weighted assets (Shaheen *et al.*, 2024). CAR represents a bank's capital buffer compared to its risk-weighted assets. The Gross Domestic Product Growth Rate (GDPG) is a macroeconomic control variable.

Estimation strategy

The one-step system, Generalized Method of Moments (GMM), is used for this study. The one-step system GMM is especially employed for panel data analysis due to its various properties to control endogeneity, heteroscedasticity, and autocorrelation issues by using lagged variables as instruments and unobserved firm-specific effects. Therefore, compared to the static linear panel models, GMM offers more precise and accurate results (Karim *et al.*, 2024). In system GMM, the dependent variable of the study is treated as an endogenous variable. Precisely, a lagged dependent variable is applied as an instrument for the level equation and uses original lagged variables as instruments for the difference equation (Nguyen Trong and Nguyen, 2021). The dependent variable NPL of this study is measured by dividing the non-performing loans by gross advances (Akter *et al.*, 2021; Bischof *et al.*, 2022).

To investigate the effect of audit committee characteristics on non-performing loans, the following model is formulated: -

$$NPL_{it} = \beta_0 + \beta_1 NPL_{it-1} + \beta_2 ACS_{it} + \beta_3 ACM_{it} + \beta_4 ACI_{it} + \beta_5 LDR_{it} + \beta_6 ACM_{it} \times LDR_{it} + \beta_7 CAR_{it} + \beta_8 GDPG_{it} + \mu_i + \varepsilon_{it}$$

Where NPL is the dependent variable. β_0 is the constant and β_{1-8} are the coefficients of the following independent and control variables: -

1. NPL_{it-1} represents lagged NPL to advances ratio.
2. ACS: The audit committee size, consisting of the number of members.
3. ACM: The audit committee meeting frequency during a year.

4. ACI: The audit committee independence, consisting of independent members.
5. LDR is the portion of the deposit extended as advances to borrowers, included as a moderating variable and a proxy for credit exposure.
6. CAR (Capital adequacy ratio) is a bank-level control variable.
7. GDPG (GDP growth rate) is a macroeconomic control variable.

While it represents banks and years, respectively. μ_i are bank-specific fixed effects and ε_{it} is the error term of the regression model.

Results and discussion

Descriptive statistics

The descriptive statistics for NPL, AC characteristics, moderating, and control variables are shown in Table 1. The mean value of NPL indicates 9.32% for listed commercial banks, reflecting a higher than the national benchmark of NPL ratio of 5% (Rehman *et al.*, 2024). The mean of ACS is 3.75, with a minimum of 3 members, and the largest size is 6 members. The minimum size shows compliance with the regulatory requirements of a minimum of three members for the ACS. AC held on average 6 meetings per year, with a minimum of two per year; thus, the minimum frequency of meetings of each quarter in a fiscal year was not met as per the Code of Corporate Governance requirements. The average mean value of ACI indicates 1.918, and the standard deviation shows a very low dispersion value of 0.74 with the ranging value of 0 to 4, which suggests that a minimum of 0 independent and a maximum of 4 independent audit members in the audit committee. The mean of LDR depicts 54.70%, translating to nearly 55% of the deposits were granted as loans. Bank-level control variable CAR has a mean of 13.96% and a standard deviation are 16.33% respectively, dispersed around the mean. The mean of the macroeconomic control variable of GDP growth is 3.56%, and the standard deviation is 2.71%.

Table 1. Descriptive statistics

Variables	(1) Obs.	(2) Mean	(3) SD	(4) Min.	(5) Max.
NPL	171	9.32	11.55	0	69.95
ACS	171	3.75	0.79	3	6
ACM	171	5.53	1.79	2	13
ACI	171	1.918	0.74	0	4
LDR	171	54.70	12.92	21	107.55
CAR	171	13.96	16.33	-90.36	27.80
GDPG	171	3.56	2.71	-1.27	6.57

(Source: Authors' compilation)

Regression results

Table 2 reports the effects of audit committee (AC) characteristics on non-performing loans (NPL) using the dynamic panel one-step system GMM estimator. The dynamic model used the lagged dependent variable of NPL to gross advances, indicating a positive and statistically significant impact of one-year lagged NPL on current year NPL. It confirms that non-performing loans follow a dynamic process where past NPL affect current NPL.

The results reveal a significant negative effect of audit committee size (ACS) on NPL. It suggests that a unit increase in ACS reduces 2.251 units in NPL, *ceteris paribus*. This finding supports our hypothesis (H1), which states that audit committee size reduces NPL. This finding is consistent with the previous empirical work of Hossain *et al.* (2025). This suggests that members of the AC are competent to effectively control NPL. The larger size AC can provide new insights, and members have diverse backgrounds to enforce quality lending practices. Another possible reason is that the size of AC is professionally structured to monitor lending policies and make timely interventions. The presence of skilful members and effective strategies could also be linked to the Code of Corporate Governance in Pakistan being truly implemented in the listed commercial banks. This result is also aligned with the theoretical framework of agency theory, as increased monitoring will secure shareholders' interests in controlling NPL. ACS will likely enhance monitoring mechanisms due to the risk identification approach and financial acumen of the members.

The results show a significant positive effect of the frequency of audit committee meetings (ACM) on NPL. This suggests that the frequency of ACM is not effective for reducing NPL. This finding is in strong contrast with our hypothesis (H2), which states that the frequency of ACM reduces NPL. One potential rationale for this outcome is that the frequency of meetings may not have a direct effect on the NPL and thus fails to control agency problems. The frequency of AC meetings suggests inefficiencies in the decision-making process of the members regarding financial matters and performance. Therefore, this poses a challenge to conventional beliefs that the effectiveness of AC may be contingent on the quality of the agenda in the meeting rather than the frequency (Karim *et al.*, 2024). These findings align with the empirical results of Hossain *et al.* (2025) in Bangladesh, who document the ineffective role of ACM in reducing NPL. The possible ineffectiveness they cited includes a lack of financial qualifications and risk management behaviours of the members, among others. Another possible reason for the ineffective functioning of ACM might be the lower periodic meetings held to trace the credit risk in the financial records.

Further, the results reveal an unexpected positive impact of audit committee independence (ACI). This association is significant at the 1 percent level of significance, suggesting that ACI does not play an effective role in controlling NPL. This finding does not provide empirical support for our hypothesis (H3), which suggests that ACI reduces NPL. Possibly, independent members are not well conversant with the credit risk behaviour of listed commercial banks. Contrary to the agency theory, ACI is not potentially effective for the mitigation of credit risk in listed commercial banks in Pakistan. Furthermore, independent directors might lack the freedom, limited expertise, and resources to control NPL (Hossain *et al.*,2025). The independent members are engaged to fulfil the procedural requirements rather than the substantive independence, which is the true spirit of an independent director in the AC (Salehi, 2020; Hossain *et al.*,2025).

Table 2 also provides results regarding the moderating effect of credit exposure on the link between the frequency of audit committee meetings (ACM) and NPL. It shows that credit exposure significantly negatively influences the link between ACM and NPL at 1 percent significance level. It suggests that credit exposure weakens the association between ACM and NPL, providing support for our hypothesis (H4). This finding suggests that higher credit exposure enhances the vigilance of commercial banks by strengthening the audit committee’s monitoring and control functions. Consequently, the frequency of audit committee meetings helps to make better decisions for loan allocation to the deposit ratio, which reduces the non-performing loans and improves the asset quality of listed commercial banks in Pakistan.

The results of the control variables also provide a significant understanding of NPL. Bank-specific variable CAR indicates a statistically significant negative effect on NPL. Similarly, GDP growth rate has a significant negative influence on NPL, consistent with the findings of Gashi *et al.* (2022). This suggests that economic growth is likely to decrease the chance of default by improving the repayment capacity of the borrowers. Since the validity of the system GMM depends on the satisfaction of the overidentification restrictions (Hansen test) are fulfilled, that no autocorrelation beyond first order in the difference equation (Arellano-Bond tests), and the number of groups exceeds the number of instruments (Nguyen Trong and Nguyen, 2021). Therefore, the post-estimation tests of GMM have been done to check that there is no serial correlation, and the over-identification restriction confirms the validity of GMM estimates. The Arellano-Bond test has been applied to check serial correlations the Hansen test has been applied to confirm that the instruments are valid in the GMM estimation. The results confirm that there is no second-order serial correlation and the instruments are valid.

Table 2. Results of System GMM

Variables	GMM
NPL _{t-1}	0.555 (0.154)***
ACS	-2.251 (0.938)**
ACM	2.911 (0.962)***
ACI	1.001

	(0.543)***
LDR	0.291
	(0.178)
ACM×LDR	-0.054
	(0.020) ***
CAR	-0.304
	(0.095) ***
GDPG	- 0.309
	(0.169) *
Constant	-0.123
	(9.097)
AR (1)	(0.078) *
AR (2)	(0.183)
Hansen	(0.407)
No of observations	152

Note: Standard errors are in parentheses except for Arellano-Bond tests for serial correlations and the Hasen test of over-identifying restrictions, which are the p-values. *** p<0.01, ** p<0.05, * p<0.1

Source: Authors' own work

A robustness check was performed to evaluate the sensitivity of results to alternative measurements for the dependent variable. Table 3 presents the results using total NPL normalized by total assets rather than gross advances. The lagged value of NPL shows a positive and significant coefficient value at the 1% level, which is very close to the lagged NPL in Table 2. Similarly, ACS is reflecting a negative coefficient at the 10% level. The coefficient of ACM indicates a significant positive effect on NPL. The ACI shows an insignificant impact on NPL. The credit exposure has a significant negative influence on the link between ACM and NPL. Overall, the results are consistent with results using the total NPL to gross advances ratio.

Variables	GMM
LNPL	0.794 (0.049) ***
ACS	-0.677 0.380*
ACM	0.939 (0.298) ***
ACI	0.232 (0.167)
LDR	0.177 (0.102)
ACM×LDR	-0.019 (0.006) ***
CAR	0.001 (0.024)
GDPG	-0.048 (0.054)
Constant	-6.396 (4.38)
AR (1)	(0.314)
AR (2)	(0.191)
Hansen	(0.376)
No of obs	152

Note: Standard errors are in parentheses except for Arellano-Bond tests for serial correlations and the Hasen test of over-identifying restrictions, which are the p-values. * p<0.01, ** p<0.05, * p<0.1**
Source: Authors' own work

Conclusion

This study examines the role of AC characteristics on NPL in listed commercial banks in Pakistan from 2016 to 2024. The findings are consistent with the existing literature and present the latest update, particularly in an emerging economy. It also covered the moderating effect of credit exposure on this relationship. The analysis reveals that ACS reduces, while ACM and ACI increase NPL. Further, the results suggest that credit exposure moderates the link between ACM and NPL by decreasing the association between ACM and LDR.

The study's findings make a significant contribution to the existing literature on the role of AC in controlling NPL. The findings suggest that regulators need to incentivize strengthening corporate governance in the banking sector to ensure effective monitoring of NPL. Further, this study suggests that policymakers and regulators need to implement proactive measures to shield the banking sector from financial disruption. A key challenge is the independence of AC members to play an effective role in NPL reduction. Similarly, ACM meetings are also required to be strengthened to increase the focus on controlling NPL and quality loan management. Therefore, developing an ecosystem that facilitates a better decision-making process is required to enable the AC for the monitoring of loans. Thus, corporate governance can be an effective tool to enhance its resilience and efficiency. The findings of this study may be used with great care in other economies due to various differentiating factors, including culture and regulatory frameworks.

This study focused on the listed commercial banks in Pakistan; therefore, future studies can expand the work to include the listed commercial banks in South Asian economies to compare the governance structures for controlling NPLs. One aspect of the AC members is their association, such as politically connected members of the AC, which may influence NPL, and is another area to explore new dimensions. Similarly, the study can also be carried out on the role of AC on NPL for Islamic commercial banks compared to the conventional banks to get better insights into the emerging banking practices.

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