Effect of Corporate Governance on Cash Holdings of Nepalese Enterprises

Surakshya Shrestha, Sushil Bhattarai, Sandeep Pokhrel, Tilak Oli and Ramesh Rawat*

Abstract

The study examines the effect of corporate governance on cash holdings of Nepalese commercial banks. The dependent variables selected for the study are cash flow from operating activities and cash flow from investing activities. The selected independent variables are board size, female directors, independent directors, audit committee size, firm size and foreign ownership. The study is based on secondary data of 12 commercial banks with 108 observations for the study period from 2014/15 to 2022/23. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, publications and websites of Nepal Rastra Bank (NRB) and annual reports of the selected commercial banks. The correlation coefficients and regression models are estimated to test the significance and importance of corporate governance on cash holdings of Nepalese commercial banks.

The study showed that board size has a positive effect on cash flow from operating activities and cash flow from investing activities. It means that higher the number of directors on the board, higher would be the cash flow from operating activities and cash flow from investing activities. Similarly, female director has a negative effect on cash flow from operating activities and cash flow from investing activities. It means that increase in proportion female directors on board leads to decrease in cash flow from operating activities and cash flow from investing activities. The results of the study also showed that audit committee has a negative effect on cash flow from operating activities and cash flow from investing activities. It implies that larger the size of audit committee, lower would be the cash flow from operating activities and cash flow from investing activities. Likewise, independent director has a negative effect on cash flow from operating activities and cash flow from investing activities which indicates that higher number of independent directors leads to decrease in cash flow from operating activities and cash flow from investing activities. However, foreign ownership has a negative effect on cash flow from operating activities and cash flow from investing activities. It implies that higher proportion of foreign ownership leads to decrease in cash flow from operating activities and cash flow from investing activities. Similarly, firm size has a positive effect on cash flow from operating activities and cash flow from investing activities. It implies that increase in firm size leads to increase in cash flow from operating activities and cash flow from investing activities.

Keywords: board size, female directors, independent directors, audit committee size, firm

* Ms. Shrestha, Mr. Bhattarai, Mr. Pokhrel and Mr. Oli are Freelance Researchers, Kathmandu, Nepal and Mr. Rawat is the Research Assistant, Uniglobe College (Pokhara University Affiliate), Kathmandu, Nepal.

size, foreign ownership, cash holdings

1. Introduction

Strong corporate governance ensures that a company's liquid resources are managed efficiently and responsibly. It involves establishing transparent processes and mechanisms to monitor, oversee, and direct the use of these resources. Good governance practices help prevent misuse, fraud, or mismanagement of funds, ensuring that they are allocated effectively to support the company's strategic objectives and generate value for stakeholders. By promoting accountability, transparency, and ethical behavior, strong corporate governance fosters investor confidence and enhances the company's reputation, which can ultimately contribute to its long-term success and sustainability. Firms need cash for various reasons, such as day-to-day operations, to finance growth through profitable operations, to retire mature debts, for paying taxes, and for pre-cautionary motives (Kafayat et al., 2014). However, maintaining excessive cash reserves has both advantages and disadvantages. Firms need excessive cash reserves to prevent financial distress and precautionary motives. On the other hand, excess cash may incur opportunity costs by way of forgoing profitable projects (Uyar and Kuzey, 2014).

The amount of cash holding raises concerns about the agency cost of cash flow, and thus determining the optimal level of cash holding is difficult. For low cash holding firms, managers require large amounts of capital to keep investment opportunities with high return potential. The objective of effective corporate governance for these firms is to ensure that they maintain appropriate levels of cash (Harford et al., 2008). In contrast, the internal capital of high cash holding firms is sufficient enough for them to take advantage of profitable investment opportunities. Excess cash in high cash holding firms enables managers to pursue their own interests by spending on unnecessary expenses and unprofitable investments (Jensen, 1986). Effective corporate governance in these kinds of firms may create minority shareholder protections and therefore mitigate the agency problem of free cash flows by decreasing the level of cash holdings. This implies that corporate governance plays different roles in explaining corporate cash policy.

Chen et al. (2020) assessed the impact of corporate governance on cash holding in 41 countries. The study showed that enhanced corporate governance following board reforms leads to higher cash values. Kuan et al. (2012) investigated the role of ownership and control structure of firms when determining their cash holdings and focuses mainly on the association

between excess control rights and cash holdings. The result showed that fewer excess control rights affect cash holdings positively in low cash holding firms but negatively in high cash holding firm. The result also showed that family members holding the position of CEO affect cash holdings negatively in high cash holding firms. The study also suggested that firms with less cash holdings stockpile more cash reserves to take advantage of investment opportunities. Dittmar and Smith (2006) examined how corporate governance impacts firm value by comparing the value and use of cash holdings in poorly and well-governed firms. The result confirmed that governance has a substantial impact on value through its impact on cash. The result also showed that firms with poor corporate governance dissipate cash quickly in ways that significantly reduce operating performance.

Darma et al. (2021) examined the effect of corporate governance on cash holdings of the companies listed in the Indonesian Stock Exchange during 2015-2019, with 77 firm years. Using multiple regression analysis, the results showed that board independence negatively affect cash holdings, while family ownership, institutional ownership, and board size have not. Chua and Lee (2024) examined the effect of corporate governance on a company's cash holdings, focusing on a firm's compliance levels with core corporate governance indicators as outlined in the corporate governance report. The study analyzed the data utilizing a random effect generalized least squares (GLS) regression model, this study evaluates 812 firm-year observations from Korean publicly traded companies. The result showed that companies with robust governance structures generally maintain lower levels of cash holdings, corroborating the flexibility hypothesis. The study also showed that higher compliance levels with governance matters concerning shareholder protection and board of directors are associated with reduced cash holdings. The study showed that strict compliance with core corporate governance indicators, indicative of strong corporate governance, substantially affects a firm's cash management.

Strong corporate governance is necessary for the efficient utilization of firm's liquid resources such as cash, to minimize the agency cost of high cash holdings and to improve the value of cash. According to Akhtar et al. (2018), corporate governance mechanisms and cash holdings have received much attention during the past two decades. The combined effect of both country-level and the firm-level governance is lacking in the cash holdings. Additionally, this study found that much attention is paid to the developed markets, while only a few focused on the developing markets regarding cash holding literature, although the agency problems are high in developing

markets. Moolchandani and Kar (2022) examined whether family control exerts any influence on corporate cash holdings in Indian listed firms. The results showed that family control negatively impacts cash holdings in Indian firms. Further, the cash accumulation by family firms adversely affects the market valuation of the firm. These findings signal a principal–principal (P-P) agency conflict in Indian family firms, i.e., friction between family owners and minority shareholders' interests. Minority shareholders fear that a part of the cash reserves will be used by family members for personal benefits. Thus, they discount cash reserves in family firms.

Mohsen et al. (2022) examined the impact of board effectiveness (BE) on corporate cash holdings (CH) and financial performance (FP) levels. The study also investigated the impact of cash holdings on the FP. The empirical findings revealed that CH has a negative association with board independence as well gender diversity. While, the findings revealed a positive relationship with board size as well as CEO duality, but no linkage to board meetings. The result showed an insignificant association between board effectiveness and FP. Finally, an empirical study indicates there is no relationship between cash holdings and FP. Similarly, Narwal and Jindal (2017) examined the impact of corporate governance on the cash holding of the firms. The results showed that directors' remuneration and the number of audit committee members positively influence the cash holding and the board size also positively influences the cash holding. The result showed that non-executive directors and the board meetings do not play any role in enhancing the cash holding. Harford et al. (2008) investigated the corporate governance and firm cash holdings in the US. The result showed that firms with weaker corporate governance structures actually have smaller cash reserves. The result also showed that, there is only limited evidence that the presence of excess cash alters the overall relation between governance and profitability. This study showed that in the US, weakly controlled managers choose to spend cash quickly on acquisitions and capital expenditures, rather than hoard it. Paskelian et al. (2010) examined the impact of concentrated ownership on cash valuation and the level of cash holdings in firms the emerging nations of China and India. The study used data from 1993-2006 and Indian firms' data from 2003-2006. The result showed that Indian firms with high level of family ownership have low cash holdings and record better performance.

Corporate governance plays a significant role to overcome agency issues and develop the culture of transparency and openness. Aslam et al. (2019) scrutinized the impact of cash holding and corporate governance on the performance of non-financial firms from Karachi Meezan Index (KMI)

30 index and 42 non-Islamic firms from Karachi Stock Exchange (KSE) 100 index in Pakistan. The results showed that corporate cash holding has negative and significant relationship with earnings per share and returns on assets (EPS and ROA), while it has a positive and statistically significant relationship with Tobin's Q and market share price in both KMI 30- and KSE 100-indexed firms. The study showed that poor governance structure leads to the firms dispelling cash quickly, which significantly reduces the performance of these firms. Therefore, the firms can increase their performance by establishing effective corporate governance structure. Dwaikat (2023) investigated the impact of corporate governance (defined as companies' ownership structure and board of directors 'characteristics) on cash holdings in the context of Oman. This study adopted a quantitative panel pooled regression on a dataset of Omani non-financial firms from 2009–2015. The result showed a significant effect of ownership structure and board of directors' characteristics on cash holding in the context of Oman. Gul et al. (2020) examined the impact of corporate governance on cash holdings and the interplay of family ownership on this relationship through static and dynamic panel estimation models. The study adopted static panel data models to investigate the relation between corporate governance and cash holdings in family and non-family firms. The results showed that the average variances exist in family and non-family subsamples and no high correlation is reported among all the variables. The evidence contradicted that family ownership as a moderator weakens the impact of corporate governance mechanism on cash holdings.

Kwan et al. (2020) examined the relationships between corporate governance mechanisms and cash holdings, and the joint effects on firm performance of public listed hospitality firms in Malaysian and Singapore from the year 2005 to 2013. Using panel regression analysis, the results indicated that board of director characteristics plays a pivotal role in cash holdings. The result showed that board independence, board duality, board busyness and ownership structure are significantly associated with the cash reserves. The result also showed that although the relationship between good governance and corporate liquidity are not significant during crisis in general, the benefits are more pronounced during sudden crisis. The impact of such crisis is found to be significantly alleviated for firms with high cash holdings and good governance. This study showed insight on the importance of the disciplinary and monitoring role of boards of directors. Khan and Mushtaq (2020) revealed that for manufacturing firms the growth is found to be positively related with cash holdings, while size of firm, leverage and networking capital are negatively related to the cash holdings. The result also

showed that most of the proxies are found to be insignificant, which is an indication of weak corporate governance in Pakistan in determining the cash holding decision. The study showed that investigated cash holding pattern of firms in the services sector differs significantly from the manufacturing sector due to differences in their operational needs and R and D investments. Atif et al. (2022) examined the impact of corporate environmental, social and governance (ESG) disclosure on cash holdings, specifically during various stages of the firm life cycle of SandP 1500 indexed firms. The result showed a significantly negative relation between ESG disclosure and cash holdings in the introduction, growth and shake-out/decline stages, and those lower cash holdings are associated with higher firm performance and a positive value of cash.

In the context of Nepal, Binadi *et al*. (2022) examined the effect of corporate governance on bankruptcy of Nepalese commercial banks. The study showed that independent director, bank size, firm age, audit committee and foreign ownership have negative impact on non-performing loans of commercial banks. Similarly, the study also shows that board size, women director, institutional investor and board meeting have positive impact on non-performing loan of Nepalese commercial banks. KC *et al*. (2022) examined the corporate governance in banks and its impact on credit and liquidity risks in Nepalese commercial banks. The result showed that board size has negative impact on non-performing loan. Similarly, women director has positive impact on non-performing loan. The result also showed that audit committee has negative impact on non-performing loan. Pradhan *et al.* (2020) analyzed the corporate governance, risk taking and profitability of Nepalese commercial banks. The study found that female director has a positive and significant impact on bank risk which implies that higher the number of females in directors, lower would be the bank risk.

The above discussion shows that empirical evidences vary greatly across the studies on the impact of corporate governance on cash holdings of banks. Though there are above-mentioned empirical evidence in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The major objective of the study is to examine the impact of corporate governance on cash holdings of Nepalese commercial banks. Specifically, it examines the relationship of board size, female directors, independent directors, audit committee size, firm size and foreign ownership on cash flow

from operating activities and cash flow from investing activities in the context of Nepalese commercial banks.

The remainder of this study is organized as follows: Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were collected from 12 Nepalese commercial banks from 2014/15 to 2022/23, leading to a total of 108 observations. The study employed convenience sampling method. The main sources of data collected from the Bank Supervision Report published by Nepal Rastra Bank (NRB) and annual reports of the selected commercial banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1

List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
1	Nepal Bank Limited	2014/15 - 2022/23	9
2	NMB Bank Limited	2014/15 - 2022/23	9
3	Himalayan Bank Limited	2014/15 - 2022/23	9
4	Everest Bank Limited	2014/15 - 2022/23	9
5	Machhapuchchhre Bank Limited	2014/15 - 2022/23	9
6	Sanima Bank Limited	2014/15 - 2022/23	9
7	Siddhartha Bank Limited	2014/15 - 2022/23	9
8	Prime Commercial Bank Limited	2014/15 - 2022/23	9
9	Citizen Bank International Bank Limited	2014/15 - 2022/23	9
10	Rastriya Banijya Bank Limited	2014/15 - 2022/23	9
11	Standard Chartered Bank Nepal Limited	2014/15 - 2022/23	9
12	Nepal SBI Bank Limited	2014/15 - 2022/23	9
Total number of observations			**108**

Thus, the study is based on 108 observations.

The model

The model used in this study assumes that cash holdings depend upon corporate governance variables. The dependent variables selected for the study are cash flow from operating activities and cash flow from investing

activities. Similarly, the selected independent variables are board size, female directors, independent directors, audit committee size, firm size and foreign ownership. Therefore, the models take the following forms:

$$CFOA = \beta_0 + \beta_1 BS_{it} + \beta_2 FD_{it} + \beta_3 ID_{it} + \beta_4 ACS_{it} + \beta_5 FS_{it} + \beta_6 FOW_{it} + e_{it}$$

$$CFIA = \beta_0 + \beta_1 BS_{it} + \beta_2 FD_{it} + \beta_3 ID_{it} + \beta_4 ACS_{it} + \beta_5 FS_{it} + \beta_6 FOW_{it} + e_{it}$$

Where,

CFOA = Cash flow from operating activities, Rs. in billions.

CFIA = Cash flow from investing activities, Rs. in billions.

BS= Board size as measured by the number of board members, in numbers.

FD= Female directors as measured by the number of females in the board as a director, in numbers.

ID= Independent directors as measured by the number of directors in the board as an external, in numbers.

ACS= Audit committee size as measured by the number of audit committee members, in numbers.

FS = Firm size as measured by the total assets of the banks, Rs in billion.

FOW= Foreign ownership is a dummy variable which is measured as '0' if there is no foreign ownership and '1' as if there is foreign ownership.

The following section describes the independent variables used in this study along with hypothesis formulation:

Board size

Firms with higher board independence, smaller boards, and lower expected managerial entrenchment, have lower cash holdings (Lee and Lee, 2009). Cambrea et al. (2022) examined the relationship between the board of directors and cash holdings before and during the global financial crisis. The findings showed the different behaviors of the members of the board of directors in determining cash holdings in normal conditions and during a crisis. In normal periods, in line with agency theory, a vigilant board characterized by a high proportion of independent directors reduces cash holdings. Diversely, the presence of CEO duality and larger boards increase cash holdings. According to Ullah and Kamal (2017), smaller boards may have a closer-knit group of decision-makers, which could result in more focused discussions and quicker responses to changing circumstances. This agility might lead to lower cash holdings as decisions on investments, dividends,

or other uses of cash are made promptly. Based on it, this study develops the following hypothesis:

H_1: There is a positive relationship between board size and cash holdings.

Female directors

Cambrea et al. (2020) investigated the impact of gender diversity on corporate cash holdings by scrutinizing different positions covered by female board directors. The empirical findings demonstrated that the relationship between gender diversity and cash holdings depends on the role of female directors on the boards. Specifically, the evidence showed that women in monitoring functions, ruled by independent directors and female chairs, led to a decrease in cash reserves. Atif et al. (2019) examined whether board gender diversity affects corporate cash holdings using S&P 1500 index firms in the US for the period 2006–2015. The study documented a significantly negative relationship between board gender diversity and cash holdings. Tosun et al. (2022) revealed that, in the presence of overly confident CEOs, having more female directors on the board counteracts the tendency of such CEOs to reduce cash holding below an optimal level. Based on it, this study develops the following hypothesis:

H_2: There is a negative relationship between female directors and cash holdings.

Independent directors

Ozkan and Ozkan (2024) reported a negative and significant relationship between independent directors and cash holdings in UK firms. Kusumawardani et al. (2021) analyzed the effect of corporate governance, such as board size, and independence on cash holding of 373 firms in seven industries publicly tabulated on Indonesia Stock Exchanges (IDX) from 2008-2017 and 2,742 firm-year observations. The result showed that the independent board has a significant negative impact on cash holding. Kuan et al. (2012) suggested a negative relationship between the proportion of independent directors on a board and cash holdings. Based on it, this study develops the following hypothesis:

H_3: There is a negative relationship between independent directors and cash holdings.

Audit committee size

Choi et al. (2020) found that the presence of supervisory experts on ACs has a negative impact on the value of cash holdings. This result suggests

that supervisory experts on ACs weaken monitoring of managerial actions. The study also found that the negative effect of supervisory experts on the value of cash holdings is mitigated when there are other AC members with accounting expertise. According to Gill and Shah (2012), supervisory experts on ACs may intensify monitoring activities related to financial reporting and internal controls. Their expertise enables them to scrutinize financial statements and internal processes more effectively, reducing the likelihood of financial misstatements or fraud. As a result, managers may feel less need to hold excess cash as a precautionary measure against potential financial misconduct, leading to lower cash holdings. Cambrea et al. (2022) stated that the presence of audit committee experts has a negative impact on the value of cash holdings. Based on it, this study develops the following hypothesis:

H_4: There is a positive relationship between audit committee size and cash holdings.

Firm size

Ferreira and Vilela (2004) found that cash holdings are positively affected by the cash flows and negatively affected by asset's liquidity, leverage, and firm size. According to Magerakis et al. (2020) stated that larger firms often have easier access to external sources of financing, such as equity and debt markets. They can raise funds more readily through public offerings, private placements, or debt issuance. As a result, they may rely less on internal cash reserves for investment or operational needs, leading to lower cash holdings. Drobetz and Gruninger (2007) found a positive relationship between operating cash flows, CEO duality, and cash holdings. similarly, the study showed a negative relationship between firm size and cash holdings. Based on it, this study develops the following hypothesis:

H_5: There is a negative relationship between firm size and cash holdings.

Foreign ownership

Foreign-owned firms may have better access to global capital markets, including international debt and equity markets. As a result, they may rely less on internal cash reserves for financing needs, leading to lower cash holdings. Vo (2018) examined the link between foreign ownership and corporate cash holdings using a data sample of firms listed on the Ho Chi Minh City stock exchange covering the period 2007–2015. Employing different econometric techniques for panel data, the study found that higher foreign ownership is associated with lower corporate cash holdings. Loncan (2018) examined the relationship between foreign ownership and cash holdings. The results showed

a statistically significant negative relationship between foreign ownership and cash holdings. Mugableh (2021) examined the determinants of corporate cash holdings using a sample of manufacturing and services corporations listed on the Amman Stock Exchange over the period 2009–2020. He employed the fixed effects regression analysis. The results showed that there is a statistically significant negative effect of foreign ownership on corporate cash holdings. Based on it, this study develops the following hypothesis:

H_6: There is a negative relationship between foreign ownership and cash holdings.

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of selected dependent and independent variables during the period 2014/15 to 2022/23.

Table 2

Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 12 Nepalese commercial banks for the study period from 2014/15 to 2022/23. The dependent variables are CFOA (Cash flow from operating activities, Rs. in billions) and CFIA (Cash flow from investing activities, Rs. in billions). The independent variables are BS (Board size as measured by the number of board members, in numbers), FD (Female director as measured by the number of females in the board as a director, in numbers), ID (Independent directors as measured by the number of directors in the board as an external, in numbers), FS (Firm size as measured by the total assets of the banks, Rs in billion), FO (Foreign ownership is a dummy variable which is measured as '0' if there is no foreign ownership and '1' as if there is foreign ownership) and ACS (Audit committee size as measured by the number of audit committee members, in numbers).

Variables	Minimum	Maximum	Mean	Std. Deviation
CFOA	-14.74	247.51	6.24	26.55
CFIA	-32.74	1569.89	20.52	174.37
BS	5.00	11.00	7.1019	1.31
ID	.00	2.00	.6111	0.56
FD	.00	2.00	.5648	0.56
ACS	2.00	8.00	3.2963	0.94
FS	.084	394.02	133.001	82.13
FOW	.00	6.00	.5278	0.90

Source: SPSS Software

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3

Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 12 Nepalese commercial banks for the study period of 2014/15 to 2022/23. The dependent variables are CFOA (Cash flow from operating activities, Rs. in billions) and CFIA (Cash flow from investing activities, Rs. in billions). The independent variables are BS (Board size as measured by the number of board members, in numbers), FD (Female director as measured by the number of females in the board as a director, in numbers), ID (Independent directors as measured by the number of directors in the board as an external, in numbers), FS (Firm size as measured by the total assets of the banks, Rs in billion), FO (Foreign ownership is a dummy variable which is measured as '0' if there is no foreign ownership and '1' as if there is foreign ownership) and ACS (Audit committee size as measured by the number of audit committee members, in numbers).

Variables	CFOA	CFIA	BS	ID	FD	ACS	FS	FOW
CFOA	1							
CFIA	0.390**	1						
BS	0.111	0.189	1					
ID	-0.106	-0.146	-0.276**	1				
FD	-0.021	-0.134	-0.304**	0.314**	1			
ACS	-0.058	-0.026	-0.355**	0.131	0.207*	1		
FS	0.079	0.007	-0.131	0.353**	0.438**	-0.109	1	
FOW	-0.067	-0.064	0.231*	-0.126	0.124	0.241*	-0.256**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent respectively.

Table 3 shows that board size has a positive correlation with cash flow from operating activities. It means that higher the number of directors on the board, higher would be the cash flow from operating activities. Similarly, female director has a negative correlation with cash flow from operating activities. It means that increase in proportion female directors on board leads to decrease in cash flow from operating activities. The results of the study also shows that audit committee has a negative correlation with cash flow from operating activities. It implies that larger the size of audit committee, lower would be the cash flow from operating activities. Likewise, independent director has a negative correlation with cash flow from operating activities which indicates that higher number of independent directors leads to decrease in cash flow from operating activities. However, foreign ownership has a

negative correlation with cash flow from operating activities. It implies that higher proportion of foreign ownership leads to decrease in cash flow from operating activities. Similarly, firm size has a positive correlation with cash flow from operating activities. It implies that increase in firm size leads to increase in cash flow from operating activities.

Similarly, the result also shows that board size has a positive correlation with cash flow from investing activities. It means that higher the number of directors on the board, higher would be the cash flow from investing activities. Similarly, female director has a negative correlation with cash flow from investing activities. It means that increase in proportion female directors on board leads to decrease in cash flow from investing activities. The results of the study also shows that audit committee has a negative correlation with cash flow from investing activities. It implies that larger the size of audit committee, lower would be the cash flow from investing activities. Likewise, independent director has a negative correlation with cash flow from investing activities which indicates that higher number of independent directors leads to decrease in cash flow from investing activities. However, foreign ownership has a negative correlation with cash flow from investing activities. It implies that higher proportion of foreign ownership leads to decrease in cash flow from investing activities. Similarly, firm size has a positive correlation with cash flow from investing activities. It implies that increase in firm size leads to increase in cash flow from investing activities.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of board size, female directors, independent directors, audit committee size, firm size and foreign ownership on cash flow from operating activities in the context of Nepalese commercial banks.

Table 4

Estimated regression results of board size, female directors, independent directors, audit committee size, firm size and foreign ownership on cash flow from operating activities

The results are based on panel data of 12 commercial banks with 108 observations for the period of 2014/15-2022/23 by using the linear regression model and the model is CFOA $= \beta_0 + \beta_1 BS_{it} + \beta_2 FD_{it} + \beta_3 ID_{it} + \beta_4 ACS_{it} + \beta_5 FS_{it} + \beta_6 FOW_{it} + e_{it}$ where, the dependent variable is CFOA (Cash flow from operating activities, Rs. in billions) and CFIA (Cash flow from investing activities, Rs. in billions). The independent variables are BS (Board size as measured by the number of board members, in numbers), FD (Female director as measured

by the number of females in the board as a director, in numbers), ID (Independent directors as measured by the number of directors in the board as an external, in numbers), FS (Firm size as measured by the total assets of the banks, Rs in billion), FO (Foreign ownership is a dummy variable which is measured as '0' if there is no foreign ownership and '1' as if there is foreign ownership) and ACS (Audit committee size as measured by the number of audit committee members, in numbers).

Model	Intercept	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		BS	ID	FD	ACS	FS	FOW			
1	0.920 (4.160)**	0.056 (3.506)**						0.083	0.436	12.26
2	1.651 (29.31)**		-0.045 (0.871)					0.002	0.456	0.750
3	1.6701 (28.550)**			-0.007 (0.244)				0.008	0.457	0.570
4	4.617 (2.264)*				-0.265 (1.445)			0.009	0.453	2.070
5	2.155 (13.877)**					0.012 (3.161)**		0.067	0.440	9.971
6	2.175 (5.414)**						-0.006 (1.241)	0.004	0.454	1.540
7	0.920 (4.124)**	0.056 (3.371)**	-0.003 (0.056)					0.075	0.438	6.080
8	0.957 (3.951)**	0.056 (3.354)**	-0.001 (0.005)	-0.154 (0.361)				0.690	0.439	4.070
9	4.844 (2.395)*	0.062 (3.695)**	-0.029 (0.594)	-0.006 (0.223)	-0.361 (1.964)			0.090	0.434	4.071
10	3.454 (1.711)*	0.053 (3.234)**	-0.021 (0.397)	0.054 (1.733)	-0.184 (0.979)	0.013 (2.996)**		0.146	0.421	5.280
11	3.651 (1.826)*	0.055 (3.344)**	-0.047 (0.757)	-0.054 (1.741)	-0.149 (0.790)	0.014 (3.114)**	-0.007 (1.554)	0.155	0.418	4.820

Notes:

i. Figures in parenthesis are t-values.
ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
iii. Cash flow from operating activities is the dependent variable.

Table 4 shows that the beta coefficients for board size are positive with cash flow from operating activities. It indicates that board size has a positive impact on cash flow from operating activities. This finding is similar to the findings of Cambrea et al. (2022). Similarly, the beta coefficients for female director are negative with cash flow from operating activities. It indicates that female director has a negative impact on cash flow from operating activities. This finding is similar to the findings of Tosun et al. (2022). Likewise, the beta coefficients for audit committee size are negative with cash flow from operating activities. It indicates that audit committee size has a negative impact on cash flow from operating activities. This finding contradicts with the findings of Gill and Shah (2012). In addition, the beta coefficients for firm size are negative with cash flow from operating activities. It indicates that firm size has a negative impact on cash flow from operating activities. This finding is consistent with the findings of Magerakis et al. (2020). Further, the beta coefficients for foreign ownership are negative with cash flow from

operating activities. It indicates that foreign ownership has a negative impact on cash flow from operating activities. This finding is similar to the findings of Vo (2018).

Table 5 shows the regression results of board size, female directors, independent directors, audit committee size, firm size and foreign ownership on cash flow from investing activities in the context of Nepalese commercial banks.

Table 5

Estimated regression results of board size, female directors, independent directors, audit committee size, firm size and foreign ownership on cash flow from investing activities

The results are based on panel data of 12 commercial banks with 108 observations for the period of 2014/15-2022/23 by using the linear regression model and the model is $CFIA = \beta_0 + \beta_1 BS_{it} + \beta_2 FD_{it} + \beta_3 ID_{it} + \beta_4 ACS_{it} + \beta_5 FS_{it} + \beta_6 FOW_{it} + e_{it}$ where, the dependent variable is CFIA (Cash flow from investing activities, Rs. in billions). The independent variables are BS (Board size as measured by the number of board members, in numbers), FD (Female director as measured by the number of females in the board as a director, in numbers), ID (Independent directors as measured by the number of directors in the board as an external, in numbers), FS (Firm size as measured by the total assets of the banks, Rs in billion), FO (Foreign ownership is a dummy variable which is measured as '0' if there is no foreign ownership and '1' as if there is foreign ownership) and ACS (Audit committee size as measured by the number of audit committee members, in numbers).

Model	Intercept	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		BS	ID	FD	ACS	FS	FOW			
1	17.086 (6.643)**	0.112 (0.060)						0.005	5.081	0.367
2	15.772 (25.193)**		-0.295 (0.508)					0.006	5.083	0.258
3	15.296 (23.538)**			-0.177 (0.549)				0.006	5.082	0.302
4	57.729 (2.561)*				-3.817 (1.871)			0.021	5.017	3.501
5	16.63 (9.272)**					0.028 (0.621)		0.005	5.08	0.386
6	25.304 (5.734)**						-0.116 (2.221)*	0.032	4.989	4.932
7	16.989 (6.545)**	0.093 (0.483)	-0.215 (0.354)					0.012	5.099	0.245
8	16.738 (6.304)**	0.094 (0.485)	-0.173 (0.281)	-0.157 (0.481)				0.019	5.115	0.239
9	62.169 (2.635)*	0.026 (0.132)	-0.507 (0.803)	-0.113 (0.347)	-4.168 (1.938)			0.004	5.058	1.122
10	59.2 (2.435)*	0.044 (0.222)	-0.489 (0.771)	-0.215 (0.569)	-3.790 (0.098)	0.029 (0.595)		0.002	5.073	0.949
11	62.729 (2.616)*	0.013 (0.067)	-0.835 (1.297)	-0.216 (0.580)	-0.216 (1.406)	0.037 (0.693)	-0.122 (2.220)*	0.031	4.992	1.639

Notes:

i. Figures in parenthesis are t-values.
ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
iii. Cash flow from investing activities is the dependent variable.

Table 5 shows that the beta coefficients for board size are positive with cash flow from investing activities. It indicates that board size has a positive impact on cash flow from investing activities. This finding is similar to the findings of Ullah and Kamal (2017). Similarly, the beta coefficients for female director are negative with cash flow from investing activities. It indicates that female director has a negative impact on cash flow from investing activities. This finding is similar to the findings of Cambrea et al. (2020). Likewise, the beta coefficients for audit committee size are negative with cash flow from investing activities. It indicates that audit committee size has a negative impact on cash flow from investing activities. This finding contradicts with the findings of Choi et al. (2020). In addition, the beta coefficients for firm size are negative with cash flow from investing activities. It indicates that firm size has a negative impact on cash flow from investing activities. This finding is consistent with the findings of Drobetz and Gruninger (2007). Further, the beta coefficients for foreign ownership are negative with cash flow from investing activities. It indicates that foreign ownership has a negative impact on cash flow from investing activities. This finding is similar to the findings of Mugableh (2021).

4. Summary and conclusion

Strong corporate governance is essential for the efficient and responsible management of a company's liquid resources. Both board size and bank total assets play a crucial role in determining a firm's cash holding policies. Larger boards contribute to better governance and risk management, leading to higher cash reserves. Similarly, banks with substantial total assets maintain higher cash holdings to leverage their financial strength, comply with regulatory requirements, and ensure operational flexibility. This positive relationship underscores the importance of effective corporate governance and financial management practices in maintaining adequate liquidity levels.

This study attempts to analyse the impact of corporate governance on cash holdings of Nepalese commercial banks. The study is based on secondary data of 12 commercial banks with 108 observations for the period from 2014/15 to 2022/23.

The major conclusion of this study is that female directors, independent directors, audit committee size and foreign ownership have negative effect on cash flow from operating activities and cash flow from investing activities in the context of Nepalese commercial banks. Moreover, board size and firm size have positive effect on cash flow from operating activities and cash flow from investing activities in banks. Similarly, the study also concluded that

larger boards may tend to be more conservative and risk-averse, leading to a preference for holding more cash. This conservatism ensures the company has sufficient liquidity to meet unexpected needs or to invest in new opportunities without relying too heavily on external financing.

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