Effect of Cash Flow Statement on Profitability of Nepalese Commercial Banks

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Abstract

The study examines the effect of cash flow statement on the profitability of Nepalese commercial banks. Return on assets and net interest margin are selected as the dependent variables. The selected independent variables are share capital, cash flow from operating activities, cash flow from financing activities, cash flow from investing activities, reserve and cash and cash balance. The study is based on secondary data of 10 commercial banks with 100 observations for the period from 2013/14 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 cash flow activities on the profitability of Nepalese commercial banks.

The study showed that cash flow from operating activities has negative effect on return on assets and net interest margin. It shows that increase in cash flow from operating activities leads to decrease in return on assets and net interest margin. Similarly, cash flow from financing activities has negative impact on return on assets and net interest margin. It shows that increase in cash flow from financing activities leads to decrease in return on assets and net interest margin. However, cash flow from investing activities has positive impact on return on assets and net interest margin. It shows that increase in cash flow from investing activities leads to increase in return on assets and net interest margin. Moreover, cash and cash balance have negative impact on return on assets. It shows that increase in cash and cash balance leads to decrease in return on assets.

Keywords: return on assets, net interest margin, cash flow from operating activities, cash flow from financing activities, cash flow from investing activities, reserve, cash and cash balance

1. Introduction

The cycle of cash inflows and outflows determine the business solvency. Cash flow analysis helps to maintain adequate cash flow for the business and to provide the basis for cash flow management (Noor *et al.,* 2012). Cash flow issue raised an alarm in terms of cash management, since it greatly affects day to day operations of the firm cash which is the key engine to financial performance (Klonowski, 2012). Any operational firm that produces,

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manufactures, or provides services must carefully observe, monitor, and manage the flow of cash both inside and outside the company in order to remain financially stable. The most crucial indicator for assessing the state of a company's primary business activities may be found in operating cash flow, which can be accessed by analysts and information users. It is well recognized that maintaining accurate records of the variables that impact or could impact a company's financial performance aids in the effective administration of the decision-making process. From this perspective, it becomes critical to emphasize the potential impact of cash flows on company performance. Emphasizing the potential impact of cash sources on company performance becomes crucial (Olagunju *et al.,* 2022).

Cash flow from investing activities is an important aspect of growth and capital. Negative cash flow from investing activities includes the purchase of fixed assets, the purchase of investment instruments such as stocks, and lending money. However, positive cash flow from investing activities includes the sale of fixed assets, the sale of investment instruments, and the collection of loans and insurance proceeds (Lewellen and Lewellen, 2016). Cash flow statements help financial analysts to comprehend the use of short-term and long-term financial resources of a firm on cash basis (Motlagh, 2013). The cash flow from operating activities section of the cash flow statement highlights the cash generated from the bank's core operations. For a bank, this primarily includes interest income from loans, fees from various banking services, and other operational cash flows. A positive cash flow from operating activities indicates that the bank's core business is generating sufficient cash to cover its operating expenses and potentially expand its operations, thus contributing to profitability. Banks often invest in various financial instruments such as securities, bonds, and other financial assets. The cash flow statement reveals the cash flows associated with these investments. By analyzing the investing activities section, stakeholders can understand how effectively the bank allocates its capital to investments and assess the potential impact on profitability (Habrosh, 2017). Additionally, the cash flow from investing activities provides insights into the bank's risk management practices and its ability to generate returns on investments. The financing activities section of the cash flow statement details the cash flows related to the bank's financing and capital structure. This includes cash flows from issuing or repurchasing stock, issuing or repaying debt, and paying dividends. Analyzing this section helps stakeholders evaluate the bank's funding sources, its debt management practices, and the impact of financing decisions on profitability and overall financial stability (Fahlevi and Marlinah, 2018). Cash flow impacts a bank's

ability to manage risks effectively. Sufficient cash flow provides liquidity buffers that help banks withstand unexpected events, such as economic downturns or sudden withdrawals by depositors. Adequate liquidity reduces the likelihood of distress sales of assets or reliance on costly emergency funding, which can preserve profitability.

Ugwu and Oliver (2021) assessed relevance of cash flow activities to profitability of manufacturing firms in Nigeria. The study examined the relationship between net cash flow from operating activities. The study concluded that net cash flow from operating activities positively and significantly influence the profitability of manufacturing firms. Similarly, Olagunju *et al.* (2022) examined operating cash flow and financial performance of listed cement manufacturing companies in Nigeria. This study also examined the relationship between operating cash flow from net operating activities and financial performance of cement manufacturing companies. The study found that there is a positive but insignificant relationship between cash flow from operating activities and financial performance proxy by return on asset and return on capital employed. Al Hayek (2018) analyzed the relationship of sales revenue and net profit with net cash flows from operating activities in Jordanian industrial joint stock companies. The study found that there is a statistically significant relationship of sales revenue and net profit with net cash flows from operating activities in Jordanian industrial joint stock companies. In addition, Liman and Mohammed (2018) examined operating cash flow and corporate financial performance of listed conglomerate companies in Nigeria. The study showed a positive and insignificant impact between cash flow from operating activities and financial performance. Similarly, Arjanto *et al.* (2019) analyzed the effect of cash flows of operation and liquidity on profitability in processing and manufacturing industry sector's companies in PT Bank Brisyariah, TBK. The study found that operating cash flow has a positive and significant impact of profitability. The study also found that liquidity has a negative influence but not significant to profitability. Eyahuma and Miroga (2020) assessed influence of cashflow activities on financial performance of commercial banks in Kenya. The study concluded that cash flow from operating activities had a statistically significant influence on financial performance of commercial banks in Kakamega County.

Odhowa *et al.* (2022) examined cashflow management activities and financial performance of manufacturing firms listed at Nairobi Securities Exchange, Kenya. The study analyzed the influence of cash flow management from operating activities and how they influence financial performance of

industrial firms listed at the Nairobi securities exchange, Kenya. The study suggested that cash flow from operating activities, cash flow from financing activities and cash flow from investing activities have significant relationship with the financial performance. The cash flow statement complements other financial statements (such as the income statement and balance sheet) by providing a comprehensive view of the bank's cash flows. Understanding the sources and uses of cash helps stakeholders assess the sustainability of profits, evaluate the bank's ability to generate cash to support growth initiatives, and identify potential liquidity risks that could impact profitability. Shubita *et al.* (2023) examined the relationship between profitability and cash flow in Jordanian banks. The study also investigated whether there is a significant relationship between profitability and cash flow in Jordanian banks and to identify potential factors that influence this relationship. The study showed a significant link between profitability and cash flow in Jordanian banks.

In the context of Nepal, Sedhai (2022) analyzed the effect of free cash flow on the profitability of Nepalese commercial banks. The study showed that dividend payout ratio, free cash flow, and firm size have positive effect on return on equity of Nepalese commercial banks. However, cash flow from investing activities, cash flow from financing activities, current ratio and leverage has negative effect on return on equity. Similarly, free cash flow, cash flow from investing activities, cash flow from financing activities, and firm size have positive effect on return on assets of Nepalese commercial banks. However, dividend payout ratio, current ratio, and leverage have negative effect on return on assets. The study concluded that leverage is the most influencing factor that explains the changes in return on asset of Nepalese commercial banks. Similarly, the study also concluded that leverage followed by firm size is the most influencing factor that explains the changes in return on equity in context of Nepalese commercial banks. Adhikari (2021) analyzed the performance of Nepalese commercial banks through cash flow ratios. This study identified that all the sample banks are efficient to generate operating cash flow from sales and continued activities. Moreover, the cash generation efficiency from continued activities and asset utilization revealed sound in NBL and RBB than ADB in 2019/2020. Long term debt repayment and dividend payout has no effect on performance evaluation. The other cash flow sufficiency ratios have a similar trend in all banks.

The above discussion shows that empirical evidences vary greatly across the studies on the effects of cash flow on the bank profitability. Though there are above mentioned empirical evidences 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 main purpose of the study is to determine the effects of cash flow on the profitability of Nepalese commercial banks. Specifically, it examines the relationship of share capital, cash flow from operating activities, cash flow from financing activities, cash flow from investing activities, reserve and cash and cash balance on return on assets and net interest margin 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 sections draws conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 10 Nepalese commercial banks from 2013/14 to 2022/23, leading to a total of 100 observations. The study employed convenience sampling method. The main sources of data include Banking and Financial Statistics published by Nepal Rastra Bank and annual report of respective 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	Rastriya Banijya Bank Limited	2013/14-2022/23	10
2	Everest Bank Limited	2013/14-2022/23	10
3	NMB Bank Limited	2013/14-2022/23	10
4	Nepal Bank Limited	2013/14-2022/23	10
5	Machhapuchchhre Bank Limited	2013/14-2022/23	10
6	Nepal SBI Bank Limited	2013/14-2022/23	10
7	NIC Asia Bank Limited	2013/14-2022/23	10
8	Agricultural Development Bank Limited	2013/14-2022/23	10
9	Prime Commercial Bank Limited	2013/14-2022/23	10
10	Siddhartha Bank Limited	2013/14-2022/23	10
Total number of observations			**100**

Thus, the study is based on the 100 observations.

The model

The model used in this study assumes that bank performance depends on various financial ratios and indicators. The dependent variables selected for the study are return on assets and net interest margin. Similarly, the selected independent variables in this study are share capital, cash flow from operating activities, cash flow from financing activities, cash flow from investing activities, reserve and cash and cash balance. Therefore, the models take the following forms:

$$ROA_{it}=\beta_0 + \beta_1 SC_{it} + \beta_2 CFO_{it} + \beta_3 CFF_{it} + \beta_4 CFI_{it} + \beta_5 R_{it} + \beta_6 CB_{it} + e_{it}$$

$$NIM_{it} = \beta_0 + \beta_1 SC_{it} + \beta_2 CFO_{it} + \beta_3 CFF_{it} + \beta_4 CFI_{it} + \beta_5 R_{it} + \beta_6 CB_{it} + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net profit to total assets, in percentage.

NIM = Net interest margin as measured by the ratio of net interest income to the total assets, in percentage.

CFO = Cash flow from operating activities, Rs. in million.

CFF = Cash flow from financing activities, Rs. in million.

CFI = Cash flow from investing activities, Rs. in million.

SC = Share capital, Rs. in million.

R = Reserve as measured by the reserve maintained by the bank, Rs. in million.

CB = Cash and cash balance, Rs. in million.

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

Share capital

A strong share capital position can boost investor confidence in a bank, potentially making it easier and cheaper for the bank to raise additional capital in the future. Share capital represents the equity portion of a bank's capital structure. Adequate levels of share capital are essential for ensuring that a bank meets regulatory capital requirements. Maintaining sufficient capital buffers can enhance the bank's financial stability and resilience to economic downturns, ultimately supporting profitability (Ayaydin and Karakaya, 2017). Share capital can also influence a bank's lending capacity. With a robust capital

base, banks may feel more comfortable extending credit to borrowers, which can generate interest income and contribute to profitability. Additionally, higher capital levels may result in better credit ratings, reducing borrowing costs for the bank and improving its margins (Coccorese and Girardone, 2021). Shareholders' equity serves as a cushion against losses. Banks with ample share capital are better positioned to absorb unexpected losses or adverse events, reducing the likelihood of financial distress. Effective risk management supported by a strong capital base can enhance long-term profitability (Nyoka, 2019). Based on it, the study develops the following hypothesis:

H_1: There is a positive relationship share capital and bank profitability.

Cash flow from operating activities

A positive cash flow from operating activities indicates that the company's primary business activities are generating more cash than they are consuming. This suggests efficiency and effectiveness in generating revenue from its core operations, which is a key driver of financial performance (Hamshari, 2020). Alslehat and Al-Nimer (2017) examined the relationship between cash flow management and financial performance of the Jordanian insurance companies. The study found a positive relationship between cash flow management and return on assets. Ugwu and Oliver (2021) ascertained the relationship between net cash flow from operating activities and profit for the year of manufacturing firms in Nigeria. The study showed that net cash flow from operating activities is positively and significantly related to profit for the year of manufacturing firms. Companies with positive cash flow from operating activities have more flexibility to reinvest in their business for future growth. They can allocate funds towards research and development, capital expenditures, and strategic initiatives that enhance competitiveness and market position. By investing in growth opportunities, companies can potentially increase their revenue and profitability over time, further boosting financial performance (Khan, 2017). Okpe et al. (2015) assessed the effect of cash flow statement on companies' profitability of some selected banks in Nigeria. The study found that operating and financing cash flows have significant positive impact on a company's profitability in Nigeria's banking sector. Based on it, this study develops the following hypothesis:

H_2: There is a positive relationship between cash flow from operating activities and bank profitability.

Cash flow from financing activities

Cash flow from financing activities includes cash transactions related to raising capital or repaying debt. While raising capital through debt or equity issuance can provide a cash inflow, it also adds financial obligations in the form of interest payments, dividends, or repayment of principal. Similarly, repaying debt reduces future interest payments but may strain liquidity in the short term. Therefore, while certain financing activities can inject cash into the business, they may also impact profitability and financial flexibility in the long run (Soet et al., 2018). Prudent financing decisions aligned with the company's growth plans and capital structure goals are more likely to positively contribute to financial performance in the long term (Ali et al., 2018). Hamza et al. (2015) assessed cash management practices and its effect on the financial performance of SMEs in the Northern Region of Ghana. The findings of the study indicated that cash management and cash flow from financing activities have positive effect on financial performance at one percent significance level. Based on it, the study develops the following hypothesis:

H_3: There is a positive relationship between cash flow from financing activities and bank profitability.

Cash flow from investing activities

Cash flow from investing activities is an item on the cash flow statement that reports the aggregate change in a company's cash position resulting from investment gains or losses and changes resulting from amounts spent on investments in capital assets, such as plant and equipment. Cash flow from investing activities includes funds used for acquiring or selling assets such as loans, securities, and other investments. Effective investment decisions can enhance a bank's profitability by generating interest income, capital gains, or other returns (Bala, 2017). Olatunji and Adegbite (2014) examined the effect of investment in fixed assets on profitability. The study found that investments in fixed assets have strong and positive statistical impact on the bank profitability. Okwo et al. (2012) examined the impact of a company's investment in fixed assets on its operating profit margin. The study showed that there is insignificant positive relationship between investments in fixed assets and operating profit. The profitability of investments depends on the quality and performance of the assets acquired. Banks must carefully assess credit risk, market risk, and liquidity risk associated with their investment portfolios. Poorly performing assets or investments with high levels of risk may lead to losses and negatively impact profitability (Samryn, 2022). Based on it, the study develops the following:

H_4: There is a positive relationship between cash flow from investing activities and bank profitability.

Reserve

Banks typically hold reserves in the form of low-yielding assets such as deposits with central banks or highly liquid securities. If a bank holds excessive reserves beyond what is necessary for regulatory requirements or liquidity management, it may miss out on opportunities to deploy those funds into higher-yielding assets. This represents an opportunity cost that could reduce overall profitability (Albertazzi and Gambacorta, 2009). Reserves held by banks in the form of deposits with central banks or short-term investments may generate interest income. Central banks often pay interest on reserves held by commercial banks, although the rate may be relatively low. While interest income from reserves can contribute to profitability, it may not always be significant compared to other income-generating activities such as lending or fee-based services. Banks are typically required by regulators to maintain reserves, such as statutory reserves or reserves for liquidity and capital adequacy. While these reserves are essential for ensuring financial stability and meeting regulatory compliance, they do not directly contribute to profitability (Lee and Hsieh, 2013). Maintaining reserves involves certain costs for banks, such as the opportunity cost of funds that could have been invested elsewhere. Additionally, there may be administrative costs associated with managing reserves and complying with regulatory requirements. These costs can offset the benefits of holding reserves and may impact overall profitability (Haddawee and Flayyih, 2020). Based on it, the study develops the following hypothesis:

H_5: There is a negative relationship between reserve and bank profitability.

Cash and cash balance

A cash balance is the amount of money a company currently has available. This money is kept on hand to offset any unplanned cash outflows. Adequate cash reserves provide a buffer against unexpected liquidity shocks and mitigate the risk of insolvency. Banks with healthier cash balances are better equipped to withstand financial crises or economic downturns, thereby safeguarding profitability (Attari and Raza, 2012). Regulatory authorities often mandate minimum cash reserve ratios that banks must maintain. Compliance with these requirements ensures financial stability and enhances the bank's reputation, which can positively impact profitability (Uyar, 2009). Cash held by banks can be invested in short-term, interest-bearing assets

such as government securities or interbank loans. These investments generate interest income for the bank, contributing to profitability (Anser and Malik, 2013). Banks need to maintain sufficient cash reserves to meet customer withdrawal demands and operational needs. However, holding too much cash can be inefficient as it earns minimal returns. Therefore, effective liquidity management practices are crucial for optimizing profitability (Uremadu et al., 2012). Based on it, the study develops the following hypothesis:

H_6: There is a positive relationship between cash and cash balance and bank profitability.

3. Results and discussion

Descriptive statistic

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2022/23.

Table 2

Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 10 Nepalese commercial banks for the study period of 2013/14 to 2022/23. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total assets, in percentage) and NIM (Net interest margin as measured by the ratio of net interest income to the total assets, in percentage). The independent variables are CFO (Cash flow from operating activities, Rs. in million), CFF (Cash flow from financing activities, Rs. in million), FIN (Cash flow from financing activities, Rs in billions), CFI (Cash flow from investing activities, Rs. in million), SC (Share capital, Rs. in million), R (Reserve as measured by the reserve maintained by the bank, Rs. in million) and CB (Cash and cash balance, Rs. in million).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	0.55	3.22	1.55	0.50
NIM	1.50	5.60	3.19	0.78
SC	2031	19403	9270.60	4271.89
CFO	-14747	32805	3500.38	6804.42
CFF	-1803	11937	696.08	2021.31
CFI	-32744	8523	-3078.81	5809.09
R	-3296	34183	6008.22	5770.51
CB	396	28333	7627.47	6131.18

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation

coefficients are computed and 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 10 Nepalese commercial banks for the study period from 2013/14 to 2022/23. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total assets, in percentage) and NIM (Net interest margin as measured by the ratio of net interest income to the total assets, in percentage). The independent variables are CFO (Cash flow from operating activities, Rs. in million), CFF (Cash flow from financing activities, Rs. in million), FIN (Cash flow from financing activities, Rs in billions), CFI (Cash flow from investing activities, Rs. in million), SC (Share capital, Rs. in million), R (Reserve as measured by the reserve maintained by the bank, Rs. in million) and CB (Cash and cash balance, Rs. in million).

Variable	ROA	NIM	SC	CFO	CFF	CFI	R	CB
ROA	1							
NIM	0.634**	1						
SC	-0.141	0.056	1					
CFO	-0.059	-0.160	0.164	1				
CFF	-0.139	-0.162	0.293**	-0.122	1			
CFI	0.186	0.191	-0.302**	-0.739**	-0.035	1		
R	-0.041	0.119	0.599**	0.189	0.081	-0.250*	1	
CB	-0.235*	0.078	0.556**	0.096	0.112	-0.025	0.424**	1

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

Table 3 shows that share capital has a negative relationship with return on assets. It means that increase in share capital leads to decrease in return on assets. Similarly, cash flow from operating activities has a negative relationship with return on assets. It means that increase in cash flow from operating activities leads to decrease in return on assets. In contrast, there is a negative relationship between cash flow from financing activities and return on assets. It means that increase in cash flow from financing activities leads to decrease in return on assets. Likewise, cash and cash balance have a negative relationship with return on assets. It shows that higher the cash and cash balance, lower would be the return on assets. Moreover, there is a negative relationship between reserve and return on assets. It means that increase in reserve leads to decrease in return on assets. In addition, there is a positive relationship between cash flow from investing activities and return on assets.

It means that higher the cash flow from investing activities, higher would be the return on assets.

On the other hand, share capital has a positive relationship with net interest margin. It means that increase in share capital leads to increase in net interest margin. Similarly, cash flow from operating activities has a negative relationship with net interest margin. It means that increase in cash flow from operating activities leads to decrease in net interest margin. In contrast, there is a negative relationship between cash flow from financing activities and net interest margin. It means that increase in cash flow from financing activities leads to decrease in net interest margin. Likewise, cash and cash balance have a positive relationship with net interest margin. It shows that higher the cash and cash balance, higher would be the net interest margin. Moreover, there is a positive relationship between reserve and net interest margin. It means that increase in reserve leads to increase in net interest margin. In addition, there is a positive relationship between cash flow from investing activities and net interest margin. It means that higher the cash flow from investing activities, higher would be the net interest margin.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and the results are presented in Table 4 and Table 5. More specifically, Table 4 shows the regression results of share capital, cash flow from operating activities, cash flow from financing activities, cash flow from investing activities, reserve and cash and cash balance on return on assets of Nepalese commercial banks.

Table 4

Estimated regression results of share capital, cash flow from operating activities, cash flow from financing activities, cash flow from investing activities, reserve and cash and cash balance on return on assets

The results are based on panel data of 10 commercial banks with 100 observations for the period of 2013/14-2022/23 by using the linear regression model and the model is $ROA = \beta_0 + \beta_1 SC_{it} + \beta_2 CFO_{it} + \beta_3 CFF_{it} + \beta_4 CFI_{it} + \beta_5 R_{it} + \beta_6 CB_{it} + e_{it}$, the dependent variable is ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage). The independent variables are CFO (Cash flow from operating activities, Rs. in million), CFF (Cash flow from financing activities, Rs. in million), FIN (Cash flow from financing activities, Rs in billions), CFI (Cash flow from investing activities, Rs. in million), SC (Share capital, Rs. in million), R (Reserve as measured by the reserve maintained by the bank, Rs. in million) and CB (Cash and cash balance, Rs. in million).

Model	Intercepts	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		SC	CFO	CFF	CFI	R	CB			
1	1.68 (14.24)**	-0.14 (1.41)						0.02	0.50	2.00
2	1.56 (27.64)**		-0.06 (0.58)					0.01	0.50	0.34
3	1.57 (29.89)**			-0.14 (1.39)				0.03	0.50	1.94
4	1.60 (28.51)**				0.19 (1.88)			0.03	0.50	3.51
5	1.57 (21.56)**					-0.04 (0.41)		0.01	0.50	0.17
6	1.70 (21.63)**						-0.24 (2.40)*	0.05	0.49	5.71
7	1.70 (14.16)**	-0.14 (1.33)	-0.04 (0.36)					0.001	0.50	1.06
8	1.69 (13.96)**	-0.10 (0.91)	-0.06 (0.55)	-0.12 (1.10)				0.003	0.50	1.11
9	1.66 (13.73)**	-0.06 (0.50)	-0.14 (0.89)	-0.10 (0.92)	0.27 (1.72)			0.02	0.49	1.59
10	1.67 (13.59)**	-0.09 (0.71)	-0.13 (0.86)	-0.09 (0.85)	0.27 (1.73)	-0.07 (0.51)		0.02	0.50	1.32
11	1.66 (14.02)**	-0.08 (0.57)	-0.21 (1.39)	-0.10 (0.94)	0.38 (2.45)*	-0.11 (0.91)	-0.33 (2.69)**	0.08	0.48	2.37

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. Return on assets is the dependent variable.

Table 4 shows that that the beta coefficients for cash flow from operating activities are negative with return on assets. It indicates that cash flow from operating activities has a negative impact on return on assets. This finding is similar to the findings of Alslehat and Al-Nimer (2017). Likewise, beta coefficients for cash flow from financing activities are negative with return on assets. It indicates that cash flow from financing activities has a negative impact on return on assets. This finding is consistent with the findings of Hamza et al. (2015). However, the beta coefficients for cash and cash balance are negative with return on assets. It indicates that cash and cash balance have a negative impact on return on assets. This finding is similar to the findings of Anser and Malik (2013). Similarly, the beta coefficients for reserve are negative with return on assets. It indicates that reserve has a negative impact on return on assets. This finding is consistent with the findings of Haddawee and Flayyih (2020). In addition, the beta coefficients for cash flow from investing activities are positive with return on assets. It indicates that cash flow from investing activities has a positive impact on return on assets. This finding is similar to the findings of Okwo et al. (2012).

Table 5 shows the regression results of share capital, cash flow from

operating activities, cash flow from financing activities, cash flow from investing activities, reserve and cash and cash balance on net interest margin of Nepalese commercial banks.

Table 5

Estimated regression results of share capital, cash flow from operating activities, cash flow from financing activities, cash flow from investing activities, reserve and cash and cash balance on net interest margin

The results are based on panel data of 10 commercial banks with 100 observations for the period of 2013/14-2022/23 by using the linear regression model and the model is $NIM = \beta_0 + \beta_1 SC_{it} + \beta_2 CFO_{it} + \beta_3 CFF_{it} + \beta_4 CFI_{it} + \beta_5 R_{it} + \beta_6 CB_{it} + e_{it}$, the dependent variable is NIM (Net interest margin as measured by the ratio of net interest income to the total assets, in percentage). The independent variables are CFO (Cash flow from operating activities, Rs. in million), CFF (Cash flow from financing activities, Rs. in million), FIN (Cash flow from financing activities, Rs in billions), CFI (Cash flow from investing activities, Rs. in million), SC (Share capital, Rs. in million), R (Reserve as measured by the reserve maintained by the bank, Rs. in million) and CB (Cash and cash balance, Rs. in million).

Model	Intercepts	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		SC	CFO	CFF	CFI	R	CB			
1	3.10 (16.53)**	0.06 (0.55)						0.01	0.78	0.31
2	3.25 (37.47)**		-0.16 (1.61)					0.02	0.77	2.58
3	3.23 (39.61)**			-0.16 (1.62)				0.02	0.77	2.63
4	3.27 (37.60)**				0.19 (1.93)			0.03	0.77	3.71
5	3.09 (27.54)**					0.12 (1.18)		0.004	0.78	1.40
6	3.11 (24.97)**						0.08 (0.77)	0.004	0.78	0.60
7	3.12 (16.78)**	0.08 (0.83)	-0.17 (1.72)					0.01	0.77	1.64
8	3.07 (16.75)**	0.16 (1.53)	-0.22 (2.13)*	-0.24 (2.26)*				0.05	0.76	2.83
9	3.04 (16.45)**	0.19 (1.75)	-0.09 (0.61)	-0.22 (2.12)*	0.17 (1.14)			0.06	0.76	2.46
10	3.07 (16.45)**	0.11 (0.81)	-0.10 (0.66)	-0.21 (1.99)*	0.18 (1.17)	0.14 (1.09)		0.06	0.75	2.21
11	3.07 (16.36)**	0.11 (0.72)	-0.10 (0.64)	-0.21 (1.98)*	0.18 (1.12)	0.14 (1.08)	0.001 (0.01)	0.05	0.76	1.82

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. Net interest margin is the dependent variable.

Table 5 shows that that the beta coefficients for cash flow from operating activities are negative with net interest margin. It indicates that cash flow from operating activities has a negative impact on net interest margin. This finding

is similar to the findings of Khan (2017). Likewise, beta coefficients for cash flow from financing activities are negative with net interest margin. It indicates that cash flow from financing activities has a negative impact on net interest margin. This finding is consistent with the findings of Soet et al. (2018). However, the beta coefficients for cash and cash balance are positive with net interest margin. It indicates that cash and cash balance have a positive impact on net interest margin. This finding is similar to the findings of Uremadu et al. (2012). Similarly, the beta coefficients for reserve are positive with net interest margin. It indicates that reserve has a positive impact on net interest margin. This finding is consistent with the findings of Lee and Hsieh (2013). In addition, the beta coefficients for cash flow from investing activities are positive with net interest margin. It indicates that cash flow from investing activities has a positive impact on net interest margin. This finding is similar to the findings of Samryn (2022).

4. Summary and conclusion

Cash flow is a fundamental driver of bank profitability, impacting various aspects of their operations, risk management, and growth strategies. Banks that effectively manage their cash flows can enhance their profitability and resilience in dynamic market conditions. Positive cash flow allows banks to cover their operating expenses, such as salaries, rent, and technology investments. Managing cash flow effectively helps banks maintain operational efficiency and control costs, contributing to profitability. Conversely, negative cash flow or cash flow volatility may strain a bank's ability to cover its expenses, leading to reduced profitability.

This study attempts to analyze the effects of cash flow on the profitability of Nepalese commercial banks. The study is based on secondary data of 10 commercial banks with 100 observations for the study period from 2013/14 to 2022/23.

The study showed that share capital, cash flow from operating activities, cash flow from financing activities, reserve and cash and cash balance have negative impact on return on assets. However, cash flow from investing activities have positive impact on return on assets. The study also showed that share capital, cash flow from investing activities, reserve and cash and cash balance have positive impact on net interest margin. Likewise, cash flow from operating activities and cash flow from financing activities have negative impact on net interest margin. The study concludes that cash flow management has significant impact on the financial performance of commercial banks.

The study also concludes that positive cash flow from investing activities often indicates that a company is investing in productive assets such as property, plant, and equipment. These investments can lead to increased production capacity, efficiency improvements, and overall growth, which can boost return on assets.

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