

Capital structure: Its effects on earnings volatility, cash flows, and financial performance in commercial banks



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ABSTRACT

This study aimed to clarify the effect of capital structure on earnings volatility and cash flows in the commercial banking sector. The research focused on all 15 banks listed on the Amman Stock Exchange, and data were gathered from their financial statements between 2018 and 2022. The study employed multiple regression analysis to assess the data and test hypotheses. Previous studies have shown mixed results, with some finding a positive relationship between capital structure and financial performance, while others presented opposing views. The findings of this study provide statistical evidence that the debt-to-asset ratio (DTA) positively influenced operating cash flows and their volatility, while negatively affecting profits and their volatility. Additionally, the debt-to-equity ratio (DETE) positively impacted operating cash flows, their volatility, and profit volatility. These results suggest that banks should aim for a balanced capital structure to maintain stable profits and cash flows over time. This requires careful consideration of risks, regulatory requirements, market conditions, and the cost of capital. A balanced approach, involving both debt and equity financing, helps banks manage the risks of fluctuating cash flows and profits.

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1. Introduction

Capital structure has a significant influence on bank operations and financial performance. A balanced capital structure can assist a bank in achieving its strategic objectives and enhancing profitability and stability (Birru, 2016). A bank with a higher proportion of debt may have lower capital costs but also greater susceptibility to profit instability due to financial leverage risks (Chadha and Sharma, 2015). In contrast, a bank with more equity may have higher capital costs but also greater resilience to financial shocks (Gill et al., 2011). Financial decisions are among the most critical in corporate finance, generally and in banking specifically. Banks differ from industrial, service, and

commercial companies in their reliance on external funding, which can reach up to 85% of total financing (Nguyen et al., 2021). The banking sector plays a vital role in any economy by aggregating savings and reinvesting them to facilitate financial and service transactions. Banks also connect domestic and foreign economies through traditional and innovative financial tools requiring reliable, stable financing (Saeed et al., 2013). Effective bank activities necessitate a balanced, diverse, and relatively stable capital structure accounting for regulatory and market factors and meeting capital adequacy requirements (Berger and Di Patti, 2006). Choosing appropriate funding in terms of cost, risk, stability, and return significantly impacts investment efficiency, profit continuity, and bank cash flows (Huizinga, 2000). Banks cannot efficiently perform their functions without adequate, balanced capital to provide credit, engage in investments, and offer services (Zafar et al., 2016). Banks weigh financing options based on interest, withdrawals, risks, returns, and timelines to achieve an optimal capital structure, maximizing value and profitability while

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enabling positive cash flows and profit stability (Vuong et al., 2017). Thus, this study investigates the impact of capital structure on earnings volatility and cash flows in Jordanian commercial banks.

The optimal capital structure for commercial banks remains controversial, with conflicting results across banking environments. Moreover, research on financial structure optimization in banking lags non-financial sectors (Berger et al., 2016). Bank risk management theory suggests shareholders benefit when banks maintain stable cash flows with minimal volatility (Iyer and Harper, 2017). Per Jayaraman (2008), stable cash flows can add value by reducing reliance on costly external financing. Empirically, Keefe and Nguen (2023) showed cash flow volatility is detrimental, impacting investment and deposit mobilization by increasing external capital costs. Banks with smoother cash flows garner greater stakeholder appreciation (Saeed et al., 2013; Alshehadeh et al., 2024). Specialized finance research indicates diverse factors influencing capital structure decisions. These factors vary across companies, industries, countries, and time, with differential effects on capital structure components (Mehmood et al., 2019). Reviews demonstrate inconsistent relationships between capital structure and financial performance (Dao and Ta, 2020). Results often show unbalanced capital structures adversely impact bank performance (Goyal, 2013; Birru, 2016; Siddik et al., 2017), implying banks fail to leverage financial advantages to bolster profits or face high external capital costs, hindering efficiency and profitability. As strategic decisions shape future cash flows, profitability, liquidity, leverage, and tax optimization (Frank and Goyal, 2009), financial choices are critical for banks (Jebril et al., 2023).

Intense competition and technological innovation add complexity and dynamism to bank financing decisions (Siddik et al., 2017). Optimal mix, cost, and investment avenues must balance profitability, market value, shareholder wealth, and profit stability (Nwude and Anyalechi, 2018). Using optimal financing lowers capital costs, raises market value, and increases income-generating investments and positive cash flows (Ardalan, 2017). Fundamentally, financial management involves financing and investment decisions aimed at maximizing stakeholder wealth, achieving tax and leverage benefits, and influencing market value, cash flows, and profit continuity.

Jayaraman (2008) argued that earnings volatility exceeding cash flow volatility can distort market information, with the divergence indicating potential earnings management. Given the reliance of banks on external financing and decisions on optimal capital structure, balancing low capital costs while maximizing profitability, market value, and profit stability (Shaik, 2024). Financing choices are critical. As such choices target maximized cash flows, profitability, mitigated profit instability risk, and shareholder returns, this study addresses the following questions:

1. Is there an impact of capital structure on the listed commercial banks in the Amman Stock Exchange on their profit volatility?
2. Is there an impact of capital structure on the listed commercial banks in the Amman Stock Exchange on their operational cash flows?
3. Is there an impact of capital structure on the listed commercial banks in the Amman Stock Exchange on their cash flow volatility?

2. Literature review

2.1. Capital structure and cash flow

A bank's capital structure significantly impacts stability and success in banking (Gill et al., 2011). Capital structure refers to the financing mix of equity and debt used to fund operations and investments (Birru, 2016). Equity represents ownership raised by selling shares, while debt constitutes borrowed funds (Chadha and Sharma, 2015). Scholars concur that lower capital costs increase discounted future cash flows, boosting shareholder wealth (Cho, 2022; Pongranga and Kurniawati, 2020). Thus, optimal capital structure minimizes weighted average capital costs. As critical profitability factors, capital structure and cash flow interrelations affect growth sustainability (Al-Shahadah et al., 2021). Cash flow refers to inflows and outflows of funds. Capital structure denotes financing composition and the ability to meet fixed obligations and interest payments on liabilities like deposits, irrespective of profitability or cash flow (Keefe and Yaghoubi, 2016; Alshehadeh et al., 2023).

While distinct, capital structure and cash flow connections significantly impact overall bank financial health. Weaker or irregular cash flows constrain capital cost payments, especially fixed deposit interest and principal (Demirgüç-Kunt and Huizinga, 2001). Banks with stable cash flows can sustain far higher debt levels and higher debt ratios in their optimal capital structure (Keefe and Nguen, 2023). Conversely, banks with volatile cash flows have minimal debt but large equity stakes (Rusdiyanto and Nasra, 2019). Positive cash flow provides for expenses, investments, and meeting obligations, chiefly capital costs (Memon et al., 2018). Without consistent cash flow, managing capital cost risk is challenging even for quite profitable banks (Karimli, 2018). Some banks post significant accounting profits yet still face liquidity shortfalls, distress, or failure due to high short and long-term commitments exceeding actual cash flows (Al-Omari et al., 2024), as witnessed in American banking over the past twenty years despite booked profits from accrual accounting (Kasasbeh et al., 2022).

2.2. Earnings volatility and cash flows

Sound cash flow management is vital for banks relying heavily on external financing, especially

deposits, unlike industrial and commercial companies (Alshehadeh, 2021). Positive cash flow allows prompt deposit repayment and interest servicing (Memon et al., 2018), lowering default risk and increasing creditworthiness (Shaik, 2024). Strong cash flow can also secure favorable depositor and creditor terms like lower interest rates or longer repayment periods (Keefe and Yaghoubi, 2016). Profits and fluctuations directly impact bank cash flows; consistent profitability provides more cash for reinvestment in loans, services, distributions, or debt servicing (Pongranga and Kurniawati, 2020). High profits can spur cash flow to finance operations, meet deposit withdrawals, and fund new ventures (Huq, 2016). In contrast, unprofitable banks may struggle to generate adequate cash for essentials or growth (Shahid, 2018; AlQudah et al., 2022).

Proper cash-flow management is critical for bank operations (Karimli, 2018). Consistent, positive cash flow ensures banks have sufficient liquidity for activities, expenses, and current and future investments (Goyal, 2013). Stable cash flows facilitate repaying withdrawals, securing attractive borrower terms, and benefiting from early deposit redemptions (Shaik, 2024). Conversely, weak cash-flow banks may fail to meet obligations, straining depositor relationships and damaging operations (Myers, 2001). Healthy cash flow allows banks to pursue growth investments in lending, services, products, or markets. These can increase long-term revenues and profits (Alshehadeh, 2021). In contrast, limited cash-flow banks may miss such opportunities, harming their ability to survive and compete amid complex markets and innovative financial technologies locally and globally (Alshehadeh and Al-Khawaja, 2022).

2.3. Earnings volatility and capital structure

Achieving steady profits and positive cash flows represents a primary goal and necessity for corporate survival and continuity, satisfying investor aspirations (Al-Shahadah et al., 2021). In banking, profit and cash flow are significant factors that influence financial risk management, especially capital costs (Rusdiyanto and Nasra, 2019). Greater profit stability lowers bank failure odds, facilitating deposit acceptance as the largest capital component, bearing associated costs and risks. This expands long-term lending capabilities, ensuring regular positive cash flows and enabling tax optimization (Shahid, 2018). Additionally, profit stability enables financing expansion to achieve more stable cash flows, reducing capital costs, particularly fixed deposit interest (Huq, 2016). Thus, consistently profitable banks often have greater deposit acceptance and tax savings from deposit expenses (Myers, 2001). Highly profitable banks can retain more earnings, decreasing leverage risks inherent in external bank capital obligations (Saeed et al., 2013). Sustained bank profitability can also support optimal capital structure maintenance (Siddik et al., 2017). Declining profits may constrain debt servicing and

capital adequacy (de Jong et al., 2008), prompting credit downgrades and increasing future capital sourcing difficulties. Hence, banks should ensure strong performance for long-term stability (Saeed et al., 2013).

Balanced capital structure requires weighing regulatory needs, market conditions, investor expectations, capital costs, and financial performance (Al-Chahadah et al., 2020). No uniform solution exists across differing banks; debt and equity mixes can achieve capital goals (de Jong et al., 2008). Success relies on the appropriate balance between stability and fulfilling investor and regulatory demands (Siddik et al., 2017). Sustained profitability necessitates a balanced bank capital structure. Decisions should account for risk appetite, regulations, markets, and costs (Myers, 2001). High-risk banks may use more debt, increasing returns but also profit instability from inefficient deployment (Cho, 2022). Regulations requiring minimum capital adequacy ratios to absorb potential losses also affect achieved and consistent profits (Saeed et al., 2013; Suleiman Alqudah and Almomani, 2024).

3. Methods

3.1. Study population

The study population comprises all commercial banks listed on the Amman Stock Exchange, totaling 15 commercial banks (ase.com.jo). In this case, the population is identical to the sample.

3.2. Data collection method

We used a descriptive-analytical method to present and describe the study variables, which is suitable for the theoretical part of the study. We defined capital structure, discussed its main theories, and examined earnings volatility, operating cash flow volatility, and their relationships. Additionally, we explored the connection between capital structure and both operating cash flows and their volatility.

To test the hypotheses, the study used annual reports and financial statements from Jordanian commercial banks, available on the Amman Stock Exchange website, covering the years 2018 to 2022. We manually gathered data on each study variable from the annual financial statements of each bank over this 5-year period.

3.3. Variables

Table 1 presents the main variables used in the research, including an explanation of each variable, its measurement method, and references to empirical studies that justify its inclusion. The variables are divided into three main categories: capital structure, earnings volatility, and cash flow volatility, along with a set of control variables. Each

variable was chosen for its relevance to the research topic and is supported by studies that used similar measures.

3.4. Study hypotheses

H01: There is no significant effect at the ($\alpha \leq 0.05$) level between capital structure in banks listed on the Amman Stock Exchange and their earnings volatility.

H02: There is no significant effect at the ($\alpha \leq 0.05$) level between capital structure in banks listed on the Amman Stock Exchange and their cash flows.

H03: There is no significant effect at the ($\alpha \leq 0.05$) level between capital structure in banks listed on the Amman Stock Exchange and their cash flow volatility.

3.5. Study models

The study consists of three models. The first model measures the impact of capital structure on profit fluctuations, the second model measures the impact of capital structure on operating cash flows, and the third model measures the impact of capital structure on the fluctuations of operating cash flows. Each model is supported by two controlling variables: bank size and liquidity ratio. The financial values for the indicators mentioned in the study's

equations were collected from the financial statements of the studied banks.

Model 1: Measuring the Impact of Capital Structure Dimensions on Profit Volatility: The first model of the study represents capital structure as an independent variable in earnings volatility as a dependent variable, as follows:

$$EVit = \beta_0 + \beta_1(DTAit) + \beta_2(DTEit) + \beta_3(DETEit) + \beta_4(SIZEit) + \beta_5(LIQit) + \epsilon it \tag{1}$$

Model 2: Measuring the Impact of Capital Structure Dimensions on Operating Cash Flows: In this step, capital structure is measured as an independent variable in cash flows as a dependent variable:

$$CFit = \beta_0 + \beta_1(DTAit) + \beta_2(DTEit) + \beta_3(DETEit) + \beta_4(SIZEit) + \beta_5(LIQit) + \epsilon it \tag{2}$$

Model 3: Measuring the Impact of Capital Structure Dimensions on Operating Cash Flow Volatility: The third model of the study represents capital structure as an independent variable in cash flow volatility as a dependent variable, as follows:

$$CFVit = \beta_0 + \beta_1(DTAit) + \beta_2(DTEit) + \beta_3(DETEit) + \beta_4(SIZEit) + \beta_5(LIQit) + \epsilon it \tag{3}$$

Table 1: Research variables and expected signs

Variable	Explanation	Measurement	Empirical research sources
Capital structure			
DTA	Debt ratio	Total debt/total assets	Goyal (2013)
DTE	Debt-to-equity ratio	Total debt/total equity	Nguyen et al. (2021)
DETE	Deposits-to-equity ratio	Total deposits/total equity	Hainaut et al. (2018)
Earnings volatility			
EV	Earnings-to- total assets ratio	Five-year standard deviation of the ratio of earnings before taxes, interest, and amortization to total assets	Arianpoor and Asali (2023)
Cash flows volatility			
CFV	Volatility operating cash flows-to- total assets ratio	Five-year standard deviation of the ratio of operating cash flows to total assets	Jayaraman (2008) Memon et al. (2018)
CF	Cash flows-to- total assets ratio	Operating cash flows to total assets	Keefe and Nguen (2023)
Control variables			
SIZE	Bank size	The natural logarithm of total assets	Goyal (2013)
LIQ	Liquidity ratio	Loans/deposits	Demirgüç-Kunt and Huizinga (2010)

3.6. Analysis method

To demonstrate the effect of capital structure on earnings volatility and operating cash flows and their volatility in the adopted model and thus achieve the study's objectives, we used multiple regression analyses. We relied on the SPSS 16 analysis program to conduct various tests and estimate the study model.

We estimated the regression model parameters using the least squares method. Applying this method requires meeting certain conditions to ensure the validity of its results. We conducted the following tests to verify these conditions:

1. Autocorrelation Problem: The presence of this problem leads to doubts about the validity of the study results. To ensure this problem did not exist in our study model, we used the Durbin-Watson

test. Upon examining the correlation coefficients in the Durbin-Watson table, we found this problem was not present.

2. Normality of Random Errors: The random errors of the regression model should follow a normal distribution. We used the Kolmogorov-Smirnov test, and the test result was not statistically significant at the 5% level.

3. Multicollinearity Problem: This problem arises when there is a linear relationship between independent and control variables or among themselves. We verified the absence of this problem by measuring the Variance Inflation Factor (VIF). Upon checking for this problem, it was clear that the value of this factor did not exceed 10, confirming the absence of a multicollinearity problem in the regression model. In all cases, we adopted the default significance level of 5%.

To conduct various tests and estimate the study model, we used multiple regression analyses to determine the direction of the relationship and the extent of influence between earnings volatility as a dependent variable and capital structure as an independent variable. Additionally, we sought to understand the direction of the relationship and the extent of influence between operating cash flows and their volatility as a dependent variable and capital structure as an independent variable, along with two controlling independent variables: bank size and liquidity ratio. This approach allowed us to determine the impact of each variable on the dependent variable and the magnitude of this impact.

4. Results

The results of the multiple regression analyses testing the impact of capital structure dimensions on earnings volatility in commercial banks listed on the Amman Stock Exchange are presented in Table 2. The statistical analysis showed a correlation coefficient (R) of 0.621 between capital structure dimensions and earnings volatility in commercial banks on the Amman Stock Exchange. The coefficient of determination (R²) was 0.514, indicating 51.4% of

variations in earnings volatility can be attributed to capital structure factors. The coefficient of influence (β) was 0.656- for the debt-to-assets (DTA) index, 0.407 for debt-to-equity (DTE), and 0.731 for debt-to-equity-and-deposits (DETE). These results indicate the independent variables DTE and DETE had a significant positive impact on earnings volatility (p > 0.05). This implies changes in these capital structure indices would increase profit volatility, confirming significance as shown by the computed F-value in Table 2. Furthermore, DTA had a significant inverse impact, implying changes in this index would result in fluctuations in profit volatility. This confirms accepting the alternative hypothesis of a significant effect (α ≤ 0.05) between capital structure dimensions and profit volatility. Additionally, Table 2 showed bank size (SIZE) and loan-to-deposit ratio (LIQ) had a significant positive impact (p < 0.05) on volatility. This confirms bank size and loan-to-deposit ratio have a positive and statistically significant impact on profits, attributed to enabling banks to reduce costs, diversify services, and increase investments. The regression model equation is:

$$EVit = \beta_0 + \beta_1(0.656) + \beta_2(-0.407) + \beta_3(0.731) + \beta_4(0.216) + \beta_5(0.428) \tag{4}$$

Table 2: Results of multiple regression analyses testing the impact of capital structure dimensions in commercial banks listed on the Amman Stock Exchange on earnings volatility

Dependent variable	Model summary		ANOVA			Coefficients				
	Correlation coefficient R	Coefficient of determination R ²	Degrees of freedom	F-value	P-value	Regression coefficient for study variables	T-value	P-value		
EV	0.621	0.514	Regression	1	44.315	0.002	DTA	-0.656	-11.267	0.004
							DTE	0.407	12.289	0.002
							DETE	0.731	8.623	0.000
			Residuals	74			SIZE	0.216	5.287	0.000
							LIQ	0.428	14.268	0.000

The results of the multiple regression analyses testing the impact of capital structure dimensions on cash flows in commercial banks listed on the Amman Stock Exchange are presented in Table 3. The statistical analysis results showed a correlation coefficient (R) of 0.519 between capital structure dimensions and operating cash flows in commercial banks listed on the Amman Stock Exchange. The coefficient of determination (R²) was 0.387, indicating that 38.7% of variations in operating cash flows can be attributed to factors related to capital structure dimensions. The coefficient of influence (β) was 0.742 for the DTA index, 0.513 for DTE, and 0.801 for DETE. These results indicate the independent variables DTA, DTE, and DETE had a

significant positive impact on operating cash flows (p > 0.05). This implies changes in these capital structure indices would increase operating cash flows, confirming significance as shown by the computed F-value in Table 3. Furthermore, SIZE and LIQ had a significant positive impact (p < 0.05) on operating cash flows. This confirms that bank size and loan-to-deposit ratio have a positive and statistically significant impact on profits, attributed to enabling banks to reduce costs, diversify services, and increase investment opportunities, thus impacting operating cash flows. The regression model equation is:

$$CFit = \beta_0 + \beta_1(0.742) + \beta_2(0.513) + \beta_3(0.801) + \beta_4(0.376) + \beta_5(0.637) \tag{5}$$

Table 3: Results of multiple regression analyses testing the impact of capital structure dimensions in commercial banks listed on the Amman Stock Exchange on cash flows

Dependent variable	Model summary		ANOVA			Coefficients				
	Correlation coefficient R	Coefficient of determination R ²	Degrees of freedom	F-value	P-value	Regression coefficient for study variables	T-value	P-value		
CF	0.519	0.387	Regression	1	25.310	0.000	DTA	0.742	13.568	0.000
							DTE	0.513	8.598	0.001
							DETE	0.801	5.637	0.003
			Residuals	74			SIZE	0.376	11.586	0.000
							LIQ	0.637	10.589	0.000

The results of the multiple regression analysis testing the impact of capital structure dimensions on cash flow volatility in commercial banks listed on the Amman Stock Exchange are presented in Table 4. The statistical analysis results showed a correlation coefficient (R) of 0.467 between capital structure dimensions and cash flow volatility in commercial banks listed on the Amman Stock Exchange. The coefficient of determination (R²) was 0.328, indicating that 32.8% of variations in cash flow

volatility can be attributed to factors related to capital structure dimensions. The coefficient of influence (β) was 0.359 for the DTA index, -0.243 for DTE, and 0.549 for DE TE. These results indicate the independent variables DTA and DE TE had a significant positive impact on cash flow volatility (p > 0.05). This implies changes in these capital structure indices would increase cash flow volatility, confirming significance as shown by the computed F-value in Table 4.

Table 4: Results of multiple regression analyses testing the impact of capital structure dimensions in commercial banks listed on the Amman Stock Exchange on cash flow volatility

Model summary		ANOVA			Coefficients					
Dependent variable	Correlation coefficient R	Coefficient of determination R ²	Degrees of freedom	F-value	P-value	Regression coefficient for study variables	T-value	P-value		
CFV	0.467	0.328	Regression	1	32.561	0.000	DTA	0.359	16.572	0.000
							DTE	-0.243	-14.536	0.000
							DE TE	0.549	9.578	0.001
							SIZE	0.189	7.893	0.000
							LIQ	0.378	11.862	0.002
		Residuals	74							

Furthermore, DTE had a significant inverse impact, implying changes in this index would decrease cash flow volatility. This confirms accepting the alternative hypothesis of a significant effect (α ≤ 0.05) between capital structure dimensions and cash flow volatility. Additionally, Table 4 showed SIZE and LIQ had a significant positive impact (p < 0.05) on volatility. The regression model equation is:

$$CFV_{it} = \beta_0 + \beta_1(0.359) + \beta_2(-0.243) + \beta_3(0.549) + \beta_4(0.189) + \beta_5(0.378) \quad (6)$$

5. Discussion

The importance of this study stems from the significance of its variables, primarily for the Jordanian banking industry sector in general. The Jordanian banking sector listed on the Amman Stock Exchange, consisting of 15 banks, is one of the most crucial pillars of the Jordanian economy, contributing 4.26% of the Gross Domestic Product (Salem et al., 2019). This study is of great importance, secondly, to parties interested in the economics of commercial banks, primarily bank management, investors including shareholders and depositors, financial analysts in stock exchanges, and the Central Bank overseeing these commercial banks. The results of this study are of great importance to bank management, as they are primarily responsible for the bank's business results before interested parties, especially shareholders and investors. One of the most important indicators of successful bank management is its ability to choose an appropriate mix of capital structure that achieves the highest return with the least possible risk. The capital structure decision is considered one of the most important strategic decisions for management, as these decisions affect multiple aspects of the bank's economics, most importantly its effect on earnings volatility and stability, as well as operating cash flow volatility.

The results of this study are of particular importance to investors and shareholders, as these

parties are primarily interested in factors affecting earnings volatility and operating cash flow volatility, considering them as returns on their invested values. This study attempted to demonstrate this by testing the effect of capital structure on earnings volatility and operating cash flow volatility. The results of this study are also of special interest to the Central Bank as the supervisory body on bank economics and finances. Undoubtedly, the composition of capital structure and its effect on earnings volatility and operating cash flows are at the core of the Central Bank's work when monitoring risks surrounding banks' operations and their business results.

For financial analysts, the results of this study are of particular importance as they provide financial analyses of banks' business results to interested parties. Earnings and their stability, cash flows and their volatility, and capital structure are considered among the most important accounting and financial variables that interest these parties who have a direct or indirect interest in bank economics. They are among the most used in judging financial performance efficiency in the banking industry sector.

Profit is considered a generally accepted measure by all parties interested in bank economics to judge their financial performance efficiency. It is also used to evaluate management's ability to efficiently and effectively use available resources to generate added value for the bank, manifested in increased wealth for owners, shareholders, and depositors. Cash flows are considered a measure of liquidity and the bank's ability to meet its obligations, especially unexpected withdrawals from deposits and current accounts.

The optimal capital structure in commercial banks is an important element in building a risk management strategy and complying with global bank capital adequacy rules and standards by finding the right balance between liabilities, especially customer deposits, and equity. The bank can mitigate financial risks and provide shareholders and depositors with a more stable return on their investments if this optimal structure is achieved.

Additionally, capital structure decisions are among the most complex financial decisions in banks, as there is no agreed-upon rule regarding the most appropriate mix of financing from external sources and equity. Its estimation is based on what is practiced in the sector and the bank's ability to achieve an investment return that exceeds the cost of capital.

The researchers hope that the results of this study will be a serious scientific and knowledge contribution to the current debate in previous studies on appropriate capital structure decisions and their impact on financial performance, especially earnings and operating cash flows and their volatility in the commercial banking sector. There are varying and sometimes contradictory results in previous studies regarding the relationship and impact that appropriate capital structure decisions play on earnings volatility and cash flows from operating activities and their volatility.

The findings of this study contribute significantly to existing research. They reveal that capital structure, as measured by the DTA ratio, positively influences operating cash flows and their volatility. However, it negatively impacts earnings and their volatility, which is expected, as higher debt generally reduces earnings due to capital costs. Additionally, the study confirms that capital structure, measured by the DTE ratio, positively affects operating cash flows and earnings volatility while it negatively impacts operating cash flow volatility, consistent with the idea that increased debt reduces cash flows due to capital costs. The results also show that capital structure, measured by the DEFE ratio, positively influences both operating cash flows and their volatility, as well as earnings volatility. These findings align with most capital structure theories.

After reviewing previous literature related to the study topic, a set of results from previous studies that agreed and disagreed with the results of this study can be observed. The results of [Cho \(2022\)](#) showed that earnings volatility negatively affected stock price response to information, and the more volatile earnings and components are, the more delayed the market's reaction to value-relevant information. Cash flow volatility is more influential than earnings and its components on the company's market value. While [Berger and Udell \(2006\)](#) found that profit efficiency, or how close a company's profits are to the benchmark of a company facing the same external conditions as other companies, financial leverage affects agency costs and thus affects company performance. This explains the inverse causal relationship between financial performance and capital structure.

[Saeed et al. \(2013\)](#) showed that there are significant positive relationships between profitability, liquidity, interest rate, growth rate, and capital structure. The key factors in achieving this positive relationship between these variables are the policymaker, bank manager, and financial analyst. Understanding the relationship between these variables affects banking industries and grants the

ability to increase competitiveness in banking industries.

[Gill et al. \(2011\)](#) found that changes in total indebtedness have no effect in explaining changes in companies' financial performance levels. [Chadha and Sharma's \(2015\)](#) results confirmed that there is a positive relationship between the ratio of short-term debt to assets and return on equity, and there is an inverse relationship between the ratio of long-term debt to assets and return on equity. There is a positive relationship between the ratio of total debt to total assets and return on equity. [Rusdiyanto and Nasra \(2019\)](#) found that the decision to choose a capital structure has a weak to no impact on company performance.

6. Conclusion

The financing decision in companies, especially in banks, is of paramount importance. It is a strategic decision affecting the bank's future cash flows, profitability, liquidity, risks, and operational costs. This decision involves determining the proportion of short-term and long-term financing, as well as the appropriate mix of debt and equity sources.

Using an appropriate financing mix is crucial as it reduces the bank's cost of capital, maximizes its market value, and increases profitable investment opportunities. Banks, particularly Jordanian ones, face various risks that are different from those of non-banking sectors, including credit, market, and operational risks. Without adequate and appropriate capital, banks are vulnerable to these risks and may incur significant losses, potentially leading to financial distress and bankruptcy, as recently happened with American banks.

Many capital structure theories and previous studies have agreed that debt financing is cheaper than equity financing due to tax-deductible interest. However, debt comes with the obligation of regular interest payments and principal repayment at maturity, which can strain the bank's cash flow and limit its ability to invest in growth opportunities. It also affects earnings volatility by impacting operational costs. Equity financing doesn't require regular interest payments and provides greater flexibility for the bank, but it dilutes current shareholders' ownership and may be more expensive than debt financing.

Jordanian banks listed on the Amman Stock Exchange should make additional efforts to achieve the required balance in bank capital structure decisions, particularly adhering to Basel III standards. This is necessary to achieve long-term stability in earnings and cash flows. These banks should consider several factors when making capital structure decisions, including risk appetite, regulatory requirements (especially Basel Committee standards), market conditions, and cost of capital. Generally, an appropriate mix of long-term deposit financing and equity is most suitable for Jordanian banks, allowing them to leverage the advantages of deposit financing, current credit

accounts, and equity to control the risks of irregular cash flows and earnings.

Compliance with ethical standards

Conflict of interest

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