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RESEARCH

A study on assessing the financial stability of banks in sultanate of Oman using Z-score analysis

C. Radha Priya[1*], D. Padma[2], Shagufta Mohammed Farooq[1] and V. Nirmala Devi[3]

[1]Department of Economics and Business Administration, University of Technology and Applied Sciences, Muscat, Sultanate of Oman
[2]Department of Commerce, NGM College Autonomous, Coimbatore, India
[3]Department of BCom CA., Karpagam Academy of Higher Education, Coimbatore, India

[*]**Correspondence:**
C. Radha Priya,
Radhapriya.Chinnaswamy@utas.edu.om

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This study analyzes the financial stability of commercial banks in the Sultanate of Oman using the Z-Score model developed by Edward Altman in 1968. The study examines the financial stability of five major banks listed on the Muscat Securities Market—Bank Muscat, Bank Dhofar, National Bank of Oman (NBO), Ahli Bank, and Bank Nizwa—over the 5-year period from 2018 to 2022. A quantitative research approach was adopted using secondary data obtained from the banks' annual financial statements, including balance sheets, income statements, and cash flow statements. The Z-Score model evaluates financial health using four key ratios: working capital to total assets, retained earnings to total assets, earnings before interest and taxes (EBIT) to total assets, and market value of equity to total liabilities. The results indicate varying levels of financial stability among the selected banks. Bank Muscat recorded a Z-Score of 1.329, placing it in the gray zone, primarily due to declining profitability. Bank Dhofar recorded a score of 1.0343, reflecting vulnerabilities associated with fluctuating liquidity and low retained earnings. NBO achieved a Z–Score of 1.251, indicating relatively stronger market equity but scope for improvement in working capital and profitability. Ahli Bank recorded a score of 1.11, suggesting financial distress despite some improvement in 2022. Bank Nizwa demonstrated comparatively stronger financial performance, particularly in liquidity and profitability. The findings provide useful insights for investors, regulators, and policymakers in assessing banking-sector stability and developing strategies for financial risk management and sustainable economic growth.

Keywords: Z-score, financial stability, financial performance, banks, Oman

Introduction

Background of the study

The banking sector plays a crucial role in the progress and development of a country. It plays the role of providing resources, moving funds around, acting as an intermediary between lenders and borrowers, creating incentives for investments. The article analyses the contributions of the banking sector to the formation of capital, financial intermediation, and stability of an economy. Banks use deposits of individuals and companies to ensure that people have the investment opportunities they need. As a result, capital is better allocated (1). Capital is allocated effectively by directing investment towards crucial components. The banking industry plays a crucial role in producing capital necessary for economic progress. Banks make capital available for businesses, which facilitates development, job creation, and technological investment (2). Banks are crucial for risk undertaking, including credit, market, and liquidity risk management in order to maintain a stable financial system (3).

Objectives of the study

Primary Objective: To assess the financial stability of banks in the Sultanate of Oman Using Z-score analysis.

Secondary Objectives:

1. To appraise the financial stability of banks listed in the Muscat Securities Market (MSX).
2. To predict the financial health and soundness of banks listed in the MSX.
3. To compare and evaluate the financial stability of banks listed in the MSX.

Research questions

1. What differences exist between the banks listed on the MSX in terms of their financial stability scores?
2. Which banks listed on the MSX have higher financial stability scores than the industry averages?
3. What factors impact the financial stability of banks that are listed on the MSX?

Scope of the study

This research studies the financial stability of banks through the Z-Score method in the Sultanate of Oman. The study analyzes the financial stability of the top five banks on the MSX as per the duration of 5 years from the year 2018 to 2022. The sample will be comprised of 5 banks out of the eight banks listed on the MSX based on their market capitalization. The Z-score of each of the banks will be computed and compared with the industry standards in the study. The results of the study will be exhibited through the charts, tables, and graphs for better understanding and valuable insights for the regulators, policy-makers, and the stakeholders of the banking industry.

Limitations of the study

1. The selection of five banks based on the market capitalization may not be representative of the entire banking industry of Oman making the findings hard to generalize.
2. Differences in the current reporting practices and the availability of the required information across the selected banks may also affect the credibility of the study's findings and conclusions.
3. The external factors potentially affecting specific banks' stability, for instance, the changes in the business environment or regulatory framework, have not been taken into account in the current research.

Related literature

The importance of the banking industry cannot be stressed enough since it mobilizes savings, credit is extended to individuals and businesses, and it ensures intermediation in finance. To achieve sustainable economic stability, it is important that banking industry is stable. The role of the banking industry in economic development cannot be overemphasized, especially in developing countries. Basha et al. (4) closed this research gap in this area by studying the relationship between gross domestic product (GDP) growth and banking performance using variables such as non-performing loan (NPL), domestic credit, return on equity, and capital ratios from 1990 to 2029 and applying regression and ordinary least squares (OLS) methodology. Financial performance studies such as Punagi et al. (5) investigated Indonesian banking industry in the time of COVID-19 and found that, while both capital adequacy and debt-equity ratios had no solid influence on the return on assets (ROA), non-performing loans negatively affected the performance, thus emphasizing the significance of prudent risk management. Financial health prediction models such as capital adequacy, asset quality, management, earnings, liquidity, and sensitivity to market risk (CAMELS), Bankometer, and Z-score are widely used for assessing bank stability. In Oman, CAMELS highlights the quality of a bank's capital and its risk responsiveness, while Z-score serves as a numerical tool for estimating chances of financial difficulties. Mahmud (6) provides insights into Z-score and its effectiveness for assessing stability of conventional banks in Bangladesh.

Research methodology

Research on Z-score evaluation of banking system of Oman has shown that there is a significant gap in empirical studies that are specifically tailored for banking system of Oman. Furthermore, the research on the application of Z-score models in the banks of Oman is very limited, given that several studies have addressed the use of these models in various foreign contexts. Thus, the current research is to close this gap and provide some insights regarding the usability and effectiveness of Z-score analysis in the processes of improving risk management and ensuring stability of banking industry of Oman.

Type of research

Quantitative research refers to empirical investigation of observable phenomena through means of statistical, mathematical or computational approaches.

Research approach

The present study uses a deductive research method in its analysis of financial stability in banks located in the Sultanate of Oman. Its deductive approach begins with Altman's Z-Score model (1968) which outlines the processes used for assessing the stability of financial institutions. The Z-Score is employed to assess financial soundness of the banks listed on the MSX and validates the deduction made in light of real evidence. Deductive reasoning involves coming up with a hypothesis resulting from a theory and verifying it afterwards.

Data collection

The research utilizes secondary data from reputable sources that include the official financial statements of the banks that are quoted on the MSX along with literature from books, journals, and articles from journals. The reports that are required to come up with ratios that will assist with Altman's Z-Score (7). Additional sources are incorporated to strengthen the theoretical framework. By using secondary data, the study is valid while being able to provide good analysis and insights of banks' financial stability in Oman.

Sampling

Creswell (7) explains that sampling refers to the process of choosing a group of people or things from a larger population so as to make statements about the population at large. The sampling method adopted may be probabilistic or non-probabilistic, depending on the aims of the research, the nature of the population and other practical aspects like time and costs. A representative sample guarantees the possibility of making generalizations.

Population

The target population for this study includes seven commercial banks in Oman during the period of 2018–2022. These banks play important roles in the financial system of Oman; hence, the research will aim at understanding the financial stability scenario in Oman as it relates to banking sector. The population includes five commercial banks in the study. The quality and reliability of the results have been enhanced since the results are representative of all commercial banks in Oman.

Sample size

Among the seven banks registered at MSX; five banks are needed to ensure a quality representative sample considering practical implications of the research. As the sample is of five banks, it is feasible to conduct a thorough analysis of a specific segment of the population and gather sufficient data for making wise comparisons and Z-Score evaluation.

Sampling technique: purposive sampling

Sampling methods may be classified into non-probabilistic, in which the selection relies on the competency of the researcher, or probabilistic, where the probability of each individual being selected is known (7). For purposes of the current study, purposive sampling, as the non-probabilistic method, therefore gives researchers a chance to choose their research component based on certain criteria related to their objectives. In this research, purposive sampling will be employed for the selection of banks which belong to the banking system of the Sultanate of Oman, with their financial stability being checked through conducting the Z-Score test.

Sampling design

This quantitative, cross-sectional study using Z-Score analysis to examine the financial stability of banks in the Sultanate of Oman. Secondary data is gathered from market data and financial statements of banks that are listed on the MSX.

Conceptual framework

This study applies the Altman Z-Score model to assess the financial stability of banks in Oman. Developed by Edward Altman, the Z-Score is a multivariate formula that combines key financial ratios into a single index to evaluate a firm's financial health and predict bankruptcy risk. Widely used in banking and finance, the model is particularly suited for private and non-manufacturing firms. The formula used is: $Z = 6.56T1 + 3.26T2 + 6.72T3 + 1.05T4$, Where:

T1 = working capital/total assets,
T2 = retained earnings/total assets,
T3 = earnings before interest and taxes/total assets,
T4 = market value of equity/total liabilities
and Z = overall index
Zones of discrimination
$Z > 2.6$ = "Safe"
Zone $1.1 < Z < 2.6$ = "Grey"
Zone $Z < 1.1$ = "Distress" Zone

Data and charts of bank

The benchmark score is an effective financial measure that gauges a bank's bankruptcy risk by considering important metrics like capital adequacy, profitability, liquidity, leverage, and asset management. A better score means greater financial health and a lesser risk of insolvency. During the period

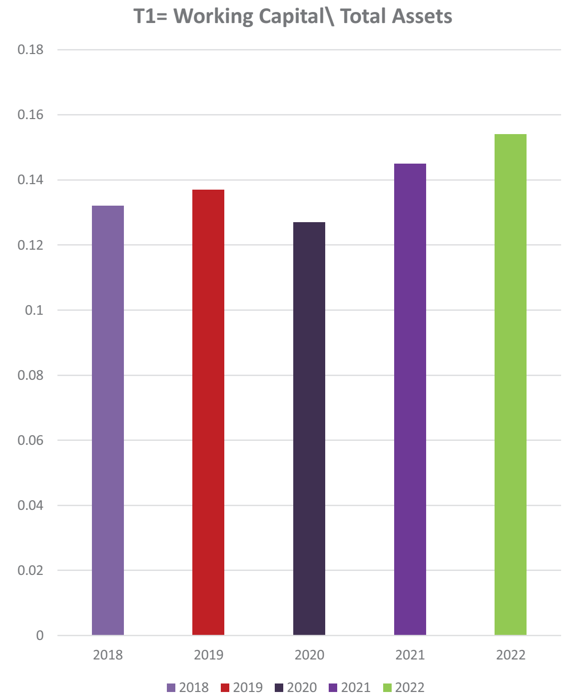

FIGURE 1 | Working capital to total assets ratio of Bank Muscat.

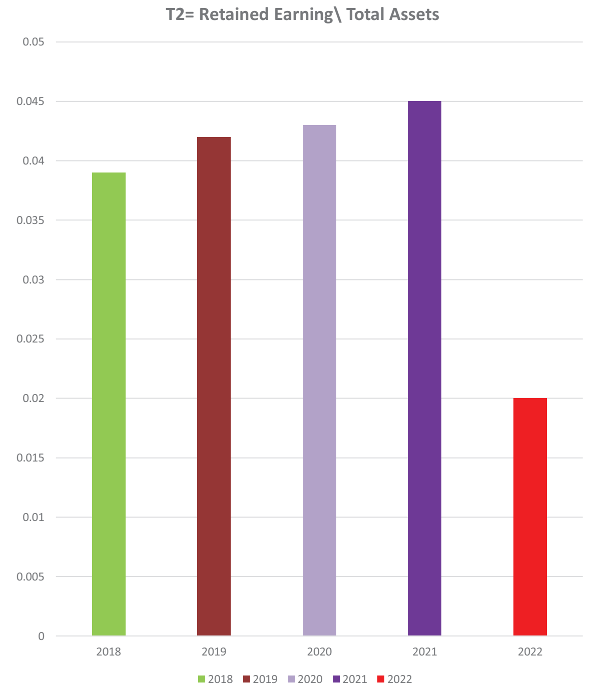

FIGURE 2 | Retained earning to total assets ratio of Bank Muscat.

TABLE 1 | Working capital to total assets ratio of Bank Muscat.

T1 = working capital\total assets			
Years	Working capital open market operations (OMR)	Total assets OMR	Ratio
2018	1,630,999,000	12,288,039,000	0.132
2019	1,686,460,000	12,290,608,000	0.137
2020	1,593,494,000	12,453,765,000	0.127
2021	1,901,860,000	13,072,538,000	0.145
2022	1,978,355,000	12,775,982,000	0.154
Average			0.140

Source: Annual reports of Bank Muscat.

TABLE 2 | Retained earnings to total assets ratio of Bank Muscat

T2 = retained earning\total assets			
Years	Retained earnings OMR	Total assets OMR	Ratio
2018	485,402,000	12,288,039,000	0.039
2019	526,487,000	12,290,608,000	0.042
2020	537,555,000	12,453,765,000	0.043
2021	594,847,000	13,072,538,000	0.045
2022	267,696,000	12,775,982,000	0.020
Average			0.0378

Source: Annual reports of Bank Muscat.

2018–2022, the ratio of working capital to total assets of Bank Muscat averaged 0.140 with a tendency for moderate liquidity improvements. The ratio surged from 0.132 in 2018 to 0.154 in 2022 which indicates greater efficiency (**Figure 1**; **Table 1**).

Bank Muscat

During the period 2018–2022, the ratio of retained earnings to total assets of Bank Muscat averaged 0.0378 with moderate level of profits volume retention. The ratio increased consistently from 0.039 in 2018 to 0.045 in the year 2021 and subsequently plunged to 0.020 in 2022 (**Figure 2**; **Table 2**) which demonstrates reduction in retained earnings.

Working capital to total assets ratio of Bank Muscat

During the period 2018–2022, the ratio of earnings before interest and taxes (EBIT) to total assets of Bank Muscat averaged 0.01731 and demonstrated stable profitability and efficient assets utilization despite small fluctuations, including the downturn in 2020 (**Figure 3**; **Table 3**).

Retained earnings to total assets ratio of Bank Muscat

During the period 2018–2022, the ratio of market value of equity to total liability of Bank Muscat increased from 0.116 to 0.195 which means an average of 0.144 and demonstrates steady growth of financial stability and increasing volume of equity compared to the liabilities of the company (**Figure 4**; **Table 4**).

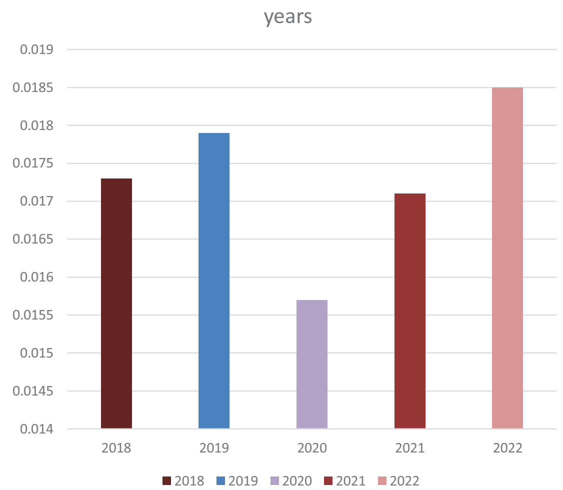

FIGURE 3 | Earnings before interest and taxes (EBIT) to total assets ratio of Bank Muscat.

TABLE 3 | EBIT to total assets ratio of Bank Muscat.

T3 = EBIT\total assets			
Years	**EBIT**	**Total assets**	**Ratio**
2018	213,151,000	12,288,039,000	0.017
2019	220,113,000	12,290,608,000	0.017
2020	195,649,000	12,453,765,000	0.015
2021	223,971,000	13,072,538,000	0.0171
2022	236,500,000	12,775,982,000	0.0185
Average			0.01731

Source: Annual reports of Bank Muscat.

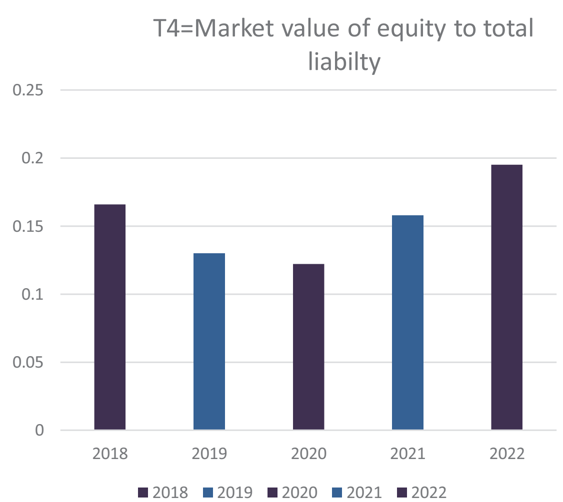

FIGURE 4 | Market value of equity to total liability ratio of Bank Muscat.

EBIT to total assets ratio of Bank Muscat

Bank Muscat maintained an average ratio of 0.01731 from 2018 to 2022 for the EBIT to total assets ratio, indicating the continued strength in profitability and asset utilization, although with slight fluctuations, specifically a drop in 2020 (Figure 3; Table 3).

TABLE 4 | Market value of equity to total liability ratio of Bank Muscat.

T4 = market value of equity\total liability			
Years	**Market value of equity (OMR)**	**Total liability (OMR)**	**Ratio**
2018	1,208,439,221	10,360,297,000	0.116
2019	1,343,135,983	10,287,972,000	0.130
2020	1,280,311,880	10,410,117,000	0.122
2021	1,730,045,799	10,921,694,000	0.158
2022	2,064,259,192	10,543,858,000	0.195
Average			0.144

Source: Annual reports of Bank Muscat.

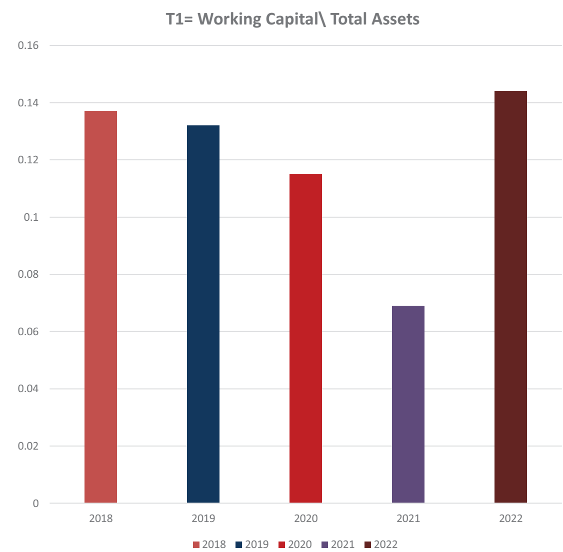

FIGURE 6 | Working capital to total assets ratio of Bank Dhofar.

Market value of equity to total liability ratio of Bank Muscat

Between 2018 and 2022, the market value of equity to total liability ratio at Bank Muscat increased from 0.116 to 0.195, with an average of 0.144, demonstrating a gradual increase in the company's financial stability due to higher equity facing lower liabilities (Figure 4; Table 4).

Market value of equity to total liability ratio of Bank Muscat: average Z-score ratio of Bank Muscat

T1, T2, T3, and T4 Z-score ratios at Bank Muscat, respectively amounting to 0.1405, 0.0378, 0.0173, and 0.144, are indicative of good liquidity, relatively low profitability, low dependency on retained profit proceeds, and good market position, confirming the overall financial stability of the bank (Figure 6; Table 5).

TABLE 5 | Average Z-score ratio of Bank Muscat.

	T1 Working capital to total assets ratio	T2 Retained earnings to total assets ratio	T3 EBIT to total assets ratio	T4 Market value of equity to total liability ratio
Average	0.1405	0.0378	0.0173	0.144

TABLE 6 | Working capital to total assets ratio of Bank Dhofar.

T1 = working capital\total assets

Years	Working capital OMR	Total assets OMR	Ratio
2018	578,412,000	4,213,490,000	0.137
2019	573,774,000	4,325,845,000	0.132
2020	492,504,000	4,257,023,000	0.115
2021	428,749,000	4,438,786,000	0.096
2022	624,623,000	4,317,332,000	0.144
Average			0.1253

Source: Annual report of Bank Dhofar.

TABLE 7 | Retained earnings to total assets ratio of Bank Dhofar.

T2 = retained earning\total assets

Years	Retained earning OMR	Total assets OMR	Ratio
2018	59,162,000	4,213,490,000	0.0140
2019	10,436,000	4,325,845,000	0.0024
2020	34,174,000	4,257,023,000	0.0080
2021	28,923,000	4,438,786,000	0.0065
2022	72,093,000	4,317,332,000	0.0166
Average			0.0095

Source: Annual report of Bank Dhofar.

Bank Dhofar

Working capital to total assets ratio of Bank Dhofar

In 2018 the Z-Score ratio was 0.317 which shows a strong position in liquidity. Whereas it starts decline to 0.132 in 2019, reflecting a drop on liquidity. Furthermore, it increased in 2020 to 0.115 raises concern about financial stability. The situation Worn out further in 2021 dropping of ratio to 0.096. results in lack of liquidity. Fortunately, the ratio had recovered to 0.144 in 2022, showing an improvement in liquidity (**Table 6**). The average ratio over these years are 0.1253 shows a moderate recovery with some fluctuations. Whereas the Bank Dhofar's liquidity shows some liquidity, the recovery in 2022 suggests a positive trend (**Figure 6**)

However, it slightly declined to 0.132 in 2019 showing decrease in liquidity. The ratio dropped to 0.115 in 2020, one of the worst such declines, raising questions about flexibility. The situation deteriorated further in 2021 when the ratio was 0.096, indicating a lack of liquidity. Fortunately, the ratio had recovered to 0.144 in 2022, signifying an improvement in liquidity (**Table 6**). These year's show some liquidity with fluctuations with the average ratio of 0.1253 (**Figure 6**). The recovery in 2022 shows a tendency with the Bank Dhofar's liquidity has shown a lack of stability.

Retained earnings to total assets ratio of Bank Dhofar

Table 7 showcases the ratio of retained earnings to total assets for Bank Dhofar between 2018 to 2022.The ratio fluctuating over the 5 years with ratio of 0.0140 in 2018, the return on assets was minimal. But in 2019, the ratio decreases precipitously to 0.0024, indicating a time of financial difficulties that may have been brought on by

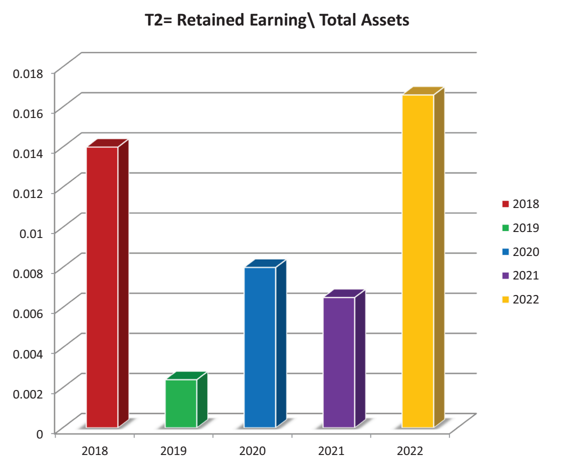

FIGURE 7 | Retained earnings to total assets ratio of Bank Dhofar.

decreased profitability or problems with operations. In 2020 and 2021, the ratio stayed low, but in 2022, it increased to 0.0166, indicating better financial success. This encouraging trend is reinforced by the 2022 increase in retained earnings, which reached open market operations (OMR) 72,093,000 (**Table 7**). The average ratio of 0.0095 shows that profitability stayed low during the period 5 years. Despite profitability issues, Bank Dhofar showed signs of improvement in 2022 (**Figures 7** and **8**).

EBIT to total assets ratio of Bank Dhofar

Market value of equity to total liability ratio of Bank Dhofar. From 2018 to 2022, Bank Dhofar's financial leverage and equity strength are shown by the Z-Score ratio (market value of equity to total liabilities). The ratio showed waning equity, falling from 0.132 in 2018 to a low of 0.081

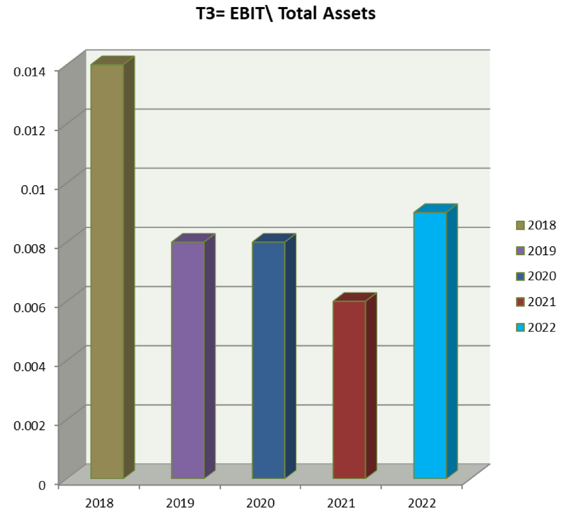

FIGURE 8 | EBIT to total assets ratio of Bank Dhofar.

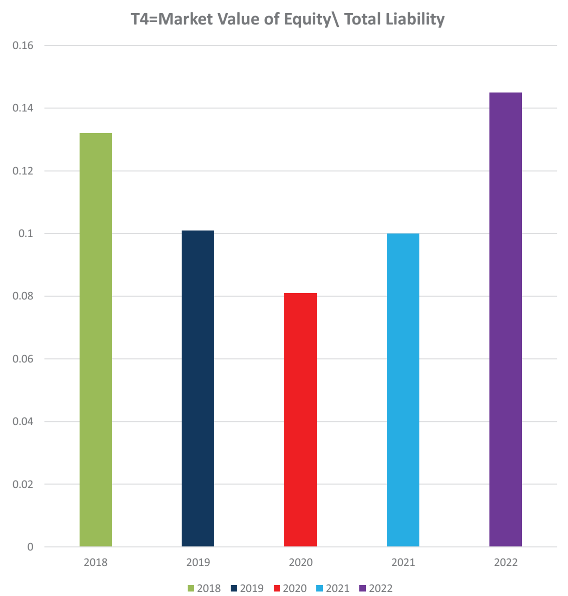

FIGURE 9 | Market value of equity to total liability ratio of Bank Dhofar.

in 2020. After a slow recovery, there was a noticeable rise to 0.145 in 2022, indicating better financial stability. Although the average ratio of 0.1121 shows general weakness, it also shows a positive change in 2022, indicating a stronger equity position in relation to liabilities (**Figure 9**; **Table 8**).

Average of Z-score ratio of Bank Dhofar

Average Z-Score ratios of Bank Dhofar for the period 2018–2022 indicate some concerns and a fare financial soundness. The ratio of working capital to total assets (T1) showed modest liquidity with an average of 0.1253. The ratios for retained earnings to total assets (T2) and EBIT to total assets (T3) were 0.0095 and 0.0093 respectively, which are low, suggesting poor earnings retention and little profitability. The ratio of market value of equity to total liabilities (T4)

TABLE 8 | EBIT ratio to total assets ratio of Bank Dhofar.

T3 = EBIT\total assets

Years	EBIT OMR	Total assets OMR	Ratio
2018	59,743,000	4,213,490,000	0.014
2019	36,092,000	4,325,845,000	0.008
2020	35,923,000	4,257,023,000	0.008
2021	29,455,000	4,438,786,000	0.006
2022	40,204,000	4,317,332,000	0.009
Average			0.0093

Source: Annual report of Bank Dhofar.

TABLE 9 | Market value of equity to total liability ratio of Bank Dhofar.

T4 = market value of equity\total liability

Years	Market value of equity OMR	Total liability OMR	Ratio
2018	464,854,521.9	3,515,328,000	0.132
2019	368,551,226.6	3,639,690,000	0.101
2020	290,646,089.3	3,561,159,000	0.081
2021	374,543,929.5	3,740,267,000	0.100
2022	524,361,501.3	3,600,255,000	0.145
Average			0.1121

Source: Annual report of Bank Dhofar.

averaged 0.1121, which is a rather poor equity position, although it increased in 2022. The bank's financial health was generally stable but cautious, with room for enhancement in capital structure and profitability (**Tables 9** and **10**).

NBO

Working capital to total assets ratio of NBO bank

The T1 ratio, measuring working capital as a percentage of total assets, reflects the National Bank of Oman (NBO) Bank's ability to finance its short-term operations and operational efficiency. Over the 5 years, the ratio was on a downward slope, reaching a low of 0.105 in 2021. This indicates that the company's ability to meet short-term obligations through readily available assets has been reduced. The average T1 of 0.6112 indicates an acceptable level of liquidity, but the continuous downward trend requires improvement in working capital management to sustain financial stability. Overall, the liquidity position of NBO Bank is not critical, but it is deteriorating and needs attention to safeguard its short-term financial health (**Figures 10** and **11**; **Table 11**).

Retained earnings to total assets ratio of NBO bank

Retained earnings to assets ratio went up slowly between 2018 and 2022. It started at 0.0355. Ended at 0.050. This means

TABLE 10 | Average of Z-score ratio of Bank Dhofar.

	T1 Working capital to total assets ratio	T2 Retained earnings to total assets ratio	T3 EBIT to total assets ratio	T4 Market value of equity to total liability ratio
Average	0.1253	0.0095	0.0093	0.1121

Source: The calculations from Tables 1–4.

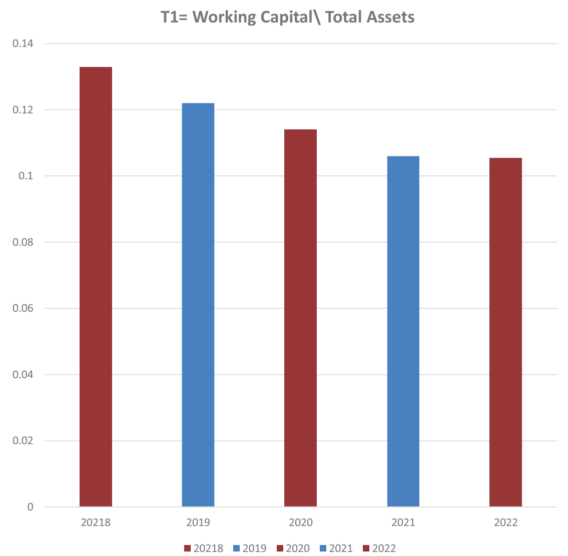

FIGURE 10 | Working capital to total assets ratio of National Bank of Oman (NBO) Bank.

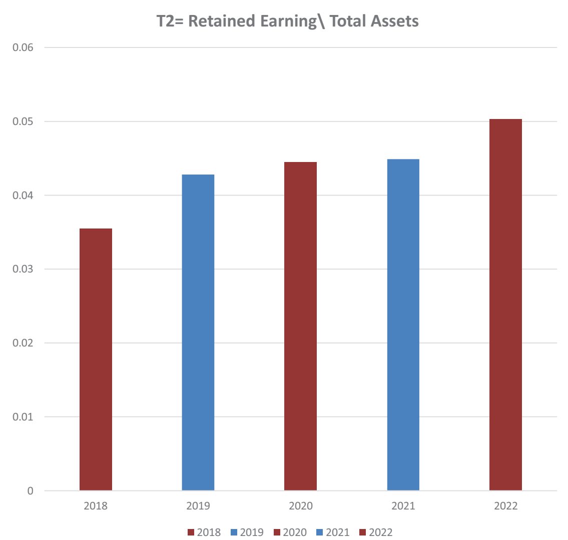

FIGURE 11 | Retained earnings to total assets ratio of NBO Bank.

that the Banks retained earnings are paying for a part of the bank's total assets. It shows that the bank has been able to keep more of its income. The ratio of retained earnings to assets has been going up steadily over time. This means that NBO Bank is using its money to fund itself. This can make the bank more financially stable. If we look at the period the average ratio of retained earnings to total assets at NBO

TABLE 11 | Working capital to total assets ratio of NBO bank.

T1 = working capital\total assets

Years	Working capital OMR	Total assets OMR	Ratio
2018	475,467,000	3,572,922,000	0.133
2019	446,410,000	3,644,694,000	0.122
2020	414,820,000	3,632,651,000	0.114
2021	432,767,000	4081,067,000	0.1060
2022	452,689,000	4294,080,000	0.105
Average			0.1162

Source: Annual reports of NBO.

TABLE 12 | Retains earnings to total assets ratio of NBO bank.

T2 = retained earning\total assets

Years	Retained earning (OMR)	Total assets (OMR)	Ratio
2018	127,1760,000	3,572,922,000	0.0355
2019	156,155,000	3,644,694,000	0.0428
2020	161,911,000	363,265,000	0.0445
2021	183,363,000	4,081,067,000	0.0449
2022	216,053,000	4,294,080,000	0.05031
Average			0.0436

Source: Annual report of NBO.

Bank was 0.0436. This tells us that the retained earnings have been going up slowly compared to the assets. To sum it up the ratio of retained earnings to assets at NBO Bank is 0.0436, on average. This average ratio has been rising slowly. It means that NBO Bank is getting better at funding itself and its finances are more stable.

EBIT to total assets ratio of NBO bank

The T3 ratio, which computes EBIT in relation to total assets, illustrates NBO Bank's operational efficiency and ability to generate profits from its assets in the above table. The ratio fluctuated throughout the course of the 5 years, reaching its lowest point in 2020 at 0.0060—a sign of the impact of decreasing earnings—before slightly increasing to 0.0133 in 2022. Operational efficiency is comparatively low, with an average ratio of 0.0362, suggesting that asset use could be enhanced to generate consistent profits (Table 12). NBO Bank's EBIT to total assets T3 ratio exhibits changing

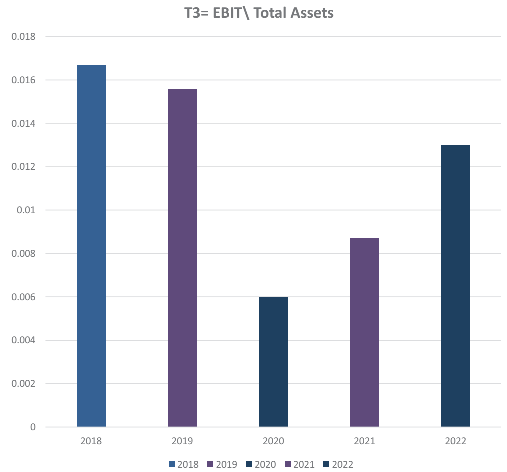

FIGURE 12 | EBIT to total assets ratio of NBO Bank.

TABLE 13 | EBIT to total assets ratio of NBO bank.

T3 = EBIT\total assets			
Years	**EBIT (OMR)**	**Total assets (OMR)**	**Ratio**
2018	59,876,000	3572,922,000	0.0167
2019	56,954,000	3,644,694,000	0.0156
2020	21,808,000	3,632,651,000	0.0060
2021	35,868,000	4,081,067,000	0.0087
2022	57,472,000	4,294,080,000	0.0133
Average			0.0362

Source: Annual reports of NBO.

TABLE 14 | Marks value of equity to total liability ratio of NBO bank.

T4 = market value of equity\total liability			
Years	**Market value of equity (OMR)**	**Total liability (OMR)**	**Ratio**
2018	295,922,172	3,036,432,000	0.0974
2019	299174064	3,090,844,000	0.096
2020	260,151,360	3,102418,000	0.0838
2021	318,685,416	3,525,612,000	0.0903
2022	469,898,394	3,653,246,000	0.1286
Average			0.0994

Source: Annual report of NBO.

operations due to its low average earnings production from its assets throughout the 5-year period, which is 0.0362 (**Figure 12**; **Table 13**).

Market value of equity to total liability ratio of NBO bank

By comparing the market value of shares to total liabilities, the market value of equity to total liability ratio illustrates the firm's equity strength in comparison to its financial responsibilities. Over the course of the 5 years, the ratio

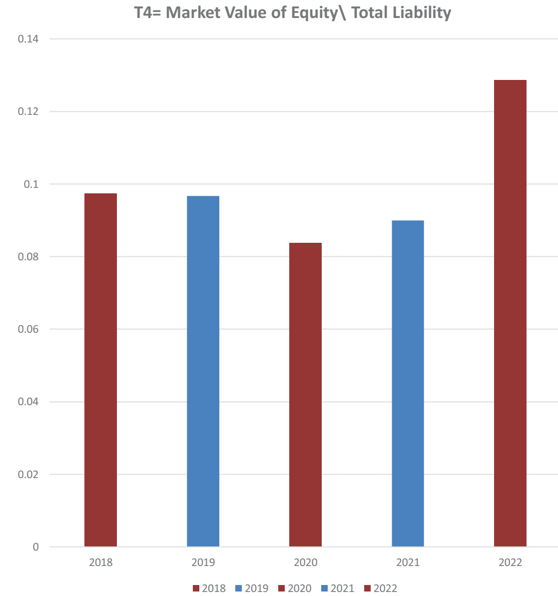

FIGURE 13 | Market value of equity to total liability ratio of NBO bank.

remained low, averaging 0.0994, indicating that liabilities significantly outpaced equity. However, there was still a slight upward trend, and the ratio reached its highest point of 0.1286 in 2022. This shows a consistent improvement in the company's equity position relative to its commitments (**Table 14**). The market value of NBO Bank's equity to total liability ratio of 0.099 indicates that, over the previous 5 years, the bank's equity position has been weak but has been gradually strengthening in comparison to its liabilities (**Figure 13**).

Average of Z-score ratio of NBO bank

Table 15 presents four financial ratios for NBO Bank as per the provided data: the market value of equity to total liabilities ratio (T4) is 0.994, the working capital to total assets ratio (T1) is 0.1162, the retained earnings to total assets ratio (T2) stands at 0.0436, and the EBIT to total assets ratio (T3) is at 0.0362. The retained earnings reflect a consistent dependence on internal funding, while the working capital to total assets ratio suggests limited liquidity.

Ahli Bank

Working capital to total assets ratio of Ahli Bank

The working capital to total assets ratio demonstrates the bank's short-term financial health and liquidity. Over these year from 2018 to 2022, the ratio has been falling from 0.14444 to 0.1193, before slightly increasing to 0.1256 in 2022. This reduction implies that while overall assets have expanded, the working capital hasn't kept pace which leads to potential liquidity difficulties. The average ratio of 0.1300 suggests a moderate level of working capital relative to total assets. Overall, the bank may need to increase its working

TABLE 15 | Average of z-scores ratio of NBO bank.

	T1 Working capital to total assets ratio	T2 Retained earnings to total assets ratio	T3 EBIT to total assets ratio	T4 Market value of equity to total liability ratio
Average	0.1162	0. 0436	0.0362	0.0994

Source: The calculations from **Tables 1–4**.

TABLE 16 | Working capital to total assets ratio of Ahli Bank.

T1 = working capital\total assets

Years	Working capital OMR	Total assets OMR	Ratio
2018	330,749,000	2,290,390,000	0.1444
2019	342,570,000	2,518,527,000	0.1360
2020	336,332,000	2,702,477,000	0.1245
2021	364,194,000	3,052,556,000	0.1193
2022	386,430,000	3,075,466,000	0.1256
Average			0.1300

Source: Annual report of Ahli Bank.

TABLE 17 | Retained earnings to total assets ratio of Ahli Bank.

T2 = retained earning\total assets

Years	Retained earning OMR	Total assets OMR	Ratio
2018	55,469,000	2,290,390,000	0.0242
2019	55,459,000	2,518,527,000	0.0220
2020	46,897,000	2,702,477,000	0.0174
2021	59,554,000	3,052,556,000	0.0195
2022	68,098,000	3,075,466,000	0.0221
Average			0.0210

Source: Annual report of Ahli Bank.

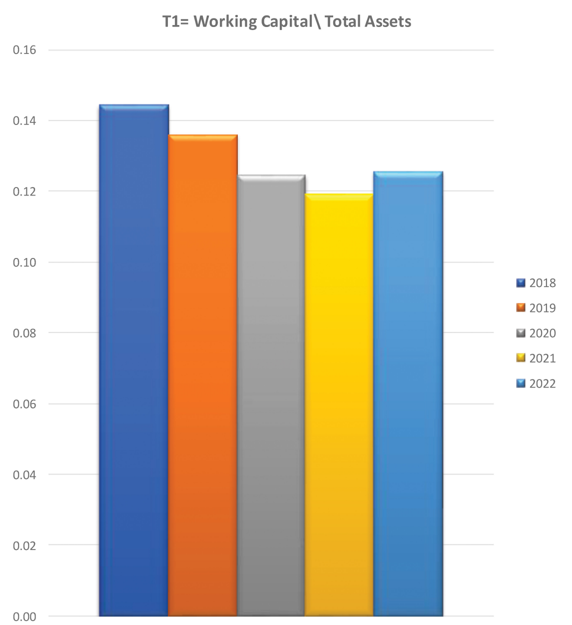

FIGURE 14 | Working capital to total assets ratio of Ahli Bank.

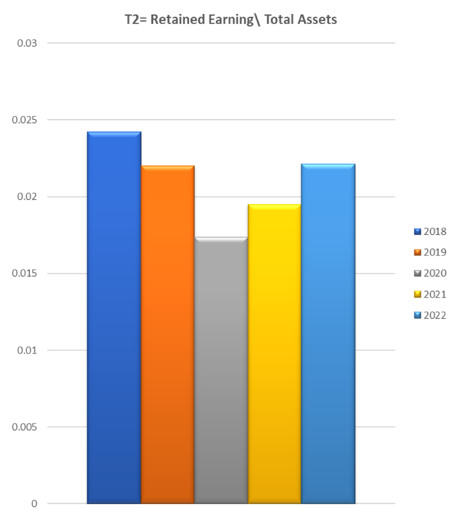

FIGURE 15 | Retained earnings to total assets ratio of Ahli Bank.

capital management to ensure higher liquidity (**Table 16**). The bank's working capital to total assets ratio has decreased, indicating possible liquidity issues (**Figure 14**).

Retained earnings to total assets ratio of Ahli Bank

From 2018 to 2020, the company's retained earnings were a decreasing percentage of its total assets, as indicated by the declining trend in the retained earnings to total assets ratio (T2). This drop raises the possibility of either higher asset creation without matching retained earnings or a possible deterioration in profitability. Though it was still below the 2018 level, the ratio did somewhat rise in 2021 and 2022, indicating a recovery in retained earnings in relation to total assets. A steady but moderate reliance on retained earnings as a source of funding is indicated by the average ratio of 0.0210 (**Table 17**). Retained earnings to total assets (T2) fluctuates, averaging 0.0210 after declining from 2018 to 2020 and then somewhat recovering (**Figure 15**).

EBIT to total assets ratio of Ahli Bank

The EBIT to Total Assets Ratio (T3), computed as EBIT divided by Total Assets, indicates the company's ability to create earnings from its assets over the years. From 2018 to 2022, the ratio fluctuated, peaking at 0.0148 in 2018 and reaching its lowest point of 0.0100 in 2020. The average ratio

TABLE 18 | EBIT to total assets ratio of Ahli Bank.

T3 = EBIT\total assets			
Years	**EBIT OMR**	**Total assets OMR**	**Ratio**
2018	33,793,000	2,290,390,000	0.0148
2019	36,229,000	2,518,527,000	0.0144
2020	26,999,000	2,702,477,000	0.0100
2021	32,160,000	3,052,556,000	0.0105
2022	38,402,000	3,075,466,000	0.0125
Average			0.0124

Source: Annual Report of Ahli Bank.

TABLE 19 | Market value of equity to total liability ratio of Ahli Bank.

T4 = market value of equity\total liability			
Years	**Market value of equity OMR**	**Total liability OMR**	**Ratio**
2018	218,458,048	1,931,410,000	0.1131
2019	204,243,260	2,129,332,000	0.0959
2020	209,506,439	2,314,127,000	0.0905
2021	218,407,816	2,625,559,000	0.0832
2022	333,391,347	2,614,527,000	0.1275
Average			0.1021

Source: Annual report of Ahli Bank.

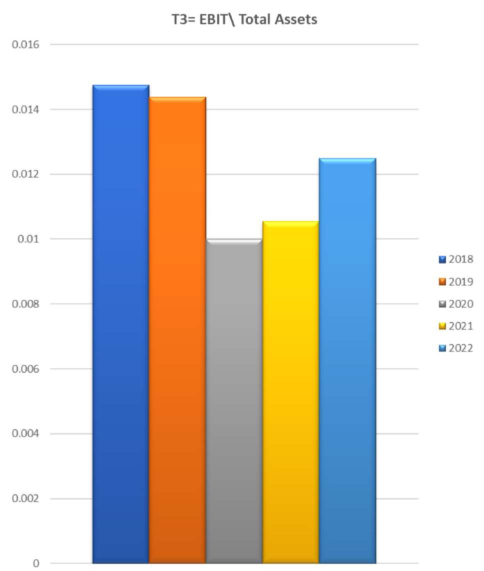

FIGURE 16 | EBIT to total assets ratio of Ahli Bank.

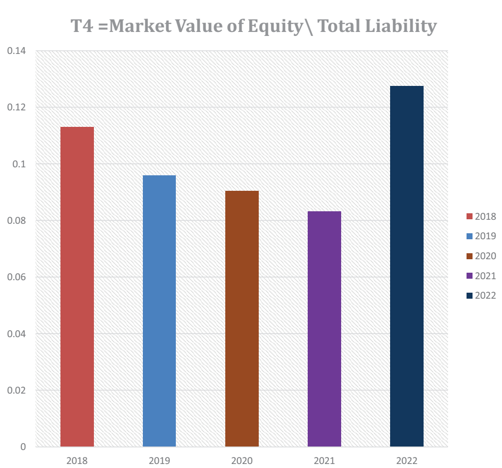

FIGURE 17 | Market value of equity to total liability ratio of Ahli Bank.

throughout this period is 0.0124, demonstrating a constant but modest level of asset efficiency in generating earnings. This shows that while the organization is capable of earning cash, there may be potential for improvement in asset use to enhance profitability (**Table 18**). The average EBIT to total assets ratio of Ahli Bank 0.0124 demonstrates low asset efficiency in generating EBIT (**Figure 16**).

Market value of equity to total liability ratio of Ahli Bank

The market value of equity to total liabilities ratio (T4) measures a bank's financial health and leverage from 2018 to 2022. A falling trend until 2021 shows increased financial risk due to reduced equity relative to liabilities. In 2022, the ratio improved to 0.1275, showing recovery. The 5-year average of 0.1021 demonstrates consistently low equity compared to liabilities, with substantial increase in the final year (**Figure 17**; **Table 19**).

Average Z-score ratio of Ahli Bank

Table 20 shows the mean ratios at four time points, Working capital to total assets (T1), market value of equity to total liabilities (T4), retained earnings to total assets (T2), and EBIT to total assets (T3). The T1 has the highest average value of 0.1300 and lower of 0.0210 and 0.0124 for T2 and T3 indicates the decline but the T4 show the recovery of rising to 0.1021. The variation on the variable show how financial factors change over time. The working capital to total assets ratio is the highest and the average ratio show notable fluctuation.

Bank Nizwa

Working capital to total assets ratio of Bank Nizwa

The working capital to total assets ratio fluctuated between 2018 and 2022, starting with 0.51132 in 2018 and peaking to 0.8022 in 2021, indicating improved liquidity and financial health during those years. The ratio decreased in 2019 and 2020 to the lowest point of 0.4185, suggesting potential liquidity constraints Whereas, there was a slightly recovery in 2021 and 2022 with ratio above 0.8 illustrating a strong working capital management. Overall, the average ratio of 0.5970 show a health balance between working capital and total assets over this period (**Figure 18**; **Table 21**) It results in

TABLE 20 | Average of Z-score ratio of Ahli Bank.

	T1 Working capital to total assets ratio	T2 Retained earnings to total assets ratio	T3 EBIT to total assets ratio	T4 Market value of equity to total liability ratio
Average	0.1300	0.0210	0.0124	0.1021

Source: The calculations from **Tables 1–4**.

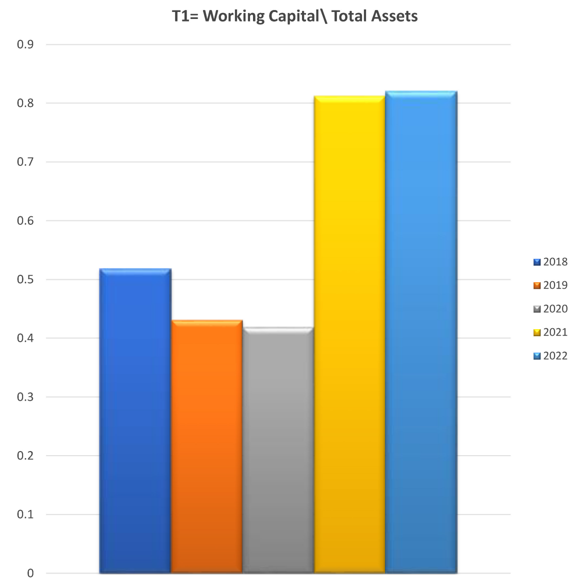

FIGURE 18 | Working capital to total assets ratio of Bank Nizwa.

improved liquidity, particularly in 2021 and 2022 averaging overall with ratio of 0.5970.

Retained earnings to total assets ratio of Bank Nizwa

The retained earnings to total assets ratio(T2) have gradual improvement from 2018 to 2022, Despite of initial losses the company's financial health is in recovery. In 2018, the ratio was negative at (−0.0171) due to significant retained earnings deficits. By 2022 it improved to 0.0115, indicating a modest increase in retained earnings to total assets, the avg ratio over the years remains close to zero 0.0001, suggesting that there has been progress. The overall retained earnings are still low compared to total assets. The retained earnings to total assets ratio (T2) shows an upward trend in financial health from 2018 to 2022 Hence the retained earnings improving but still in lower phase (**Figure 19**; **Table 22**).

EBIT to total assets ratio of Bank Nizwa

The ratio of EBIT to Total Assets (T3) reflects the bank ability to generate EBIT. Over the 5 years from 2018 to 2022, this ratio has shown slight fluctuations, with a peak of 0.0116 in 2019 and a low of 0.0097. in 2018 The average ratio over these years is 0.0108, showing that they are stable but modest performance in asset utilization for generating EBIT. This

TABLE 21 | Working capital to total assets ratio of Bank Nizwa.

T1 = working capital\total assets			
Years	**Working capital OMR**	**Total assets OMR**	**Ratio**
2018	447,571,926	872,167,540	0.5132
2019	445,803,854	1,034,363,502	0.4310
2020	504,811,000	1,206,259,000	0.4185
2021	1,126,944,000	1,404,823,000	0.8022
2022	1,219,057,000	1,486,123,000	0.8203
Average			0.5970

Source: Annual report of Bank Nizwa.

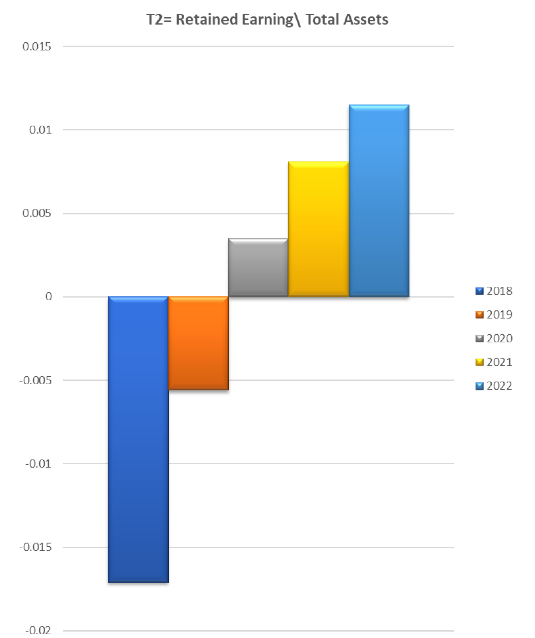

FIGURE 19 | Retained earnings to total assets ratio of Bank Nizwa.

suggest if the bank is profitably leveraging its assets, there may be opportunities for improvement. The average EBIT to total assets ratio over 5 years of 0.0108, indicating gradual asset efficiency in generating earnings (**Figure 20**; **Table 23**).

Market value of equity total liability ratio of Bank Nizwa

The market value of equity to total liability ratio rais and fall irregularly from 2018 to 2022 from 0.3309 to 0.2116 in 2020 indicating rising liabilities outpacing equity

TABLE 22 | Retained earnings to total assets ratio of Bank Nizwa.

T2 = retained earning\total assets			
Years	**Retained earning OMR**	**Total assets OMR**	**Ratio**
2018	(14,933,061)	872,167,540	(0.0171)
2019	(5,772,315)	1,034,363,502	(0.0056)
2020	4,188,000	1,206,259,000	0.0035
2021	11,413,000	1,404,823,000	0.0081
2022	17,038,000	1,486,123,000	0.0115
Average			0.0001

Source: Annual report of Bank Nizwa.

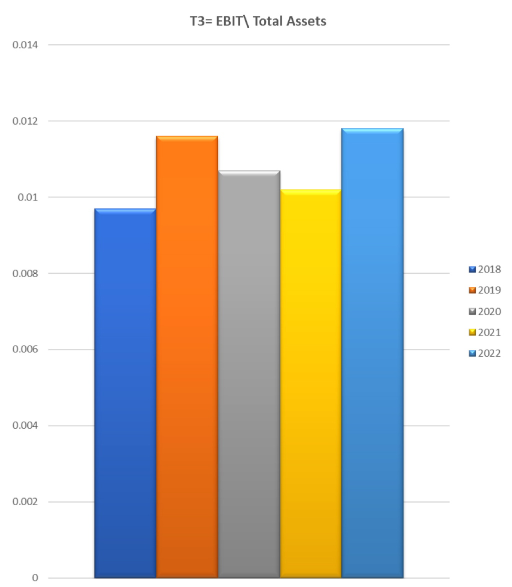

FIGURE 20 | EBIT to total assets ratio of Bank Nizwa.

TABLE 23 | EBIT TO total assets ratio of Bank Nizwa.

T3 = EBIT\total assets			
Years	**EBIT OMR**	**Total assets OMR**	**Ratio**
2018	8,442,718	872,167,540	0.0097
2019	11,993,341	1,034,363,502	0.0116
2020	12,898,000	1,206,259,000	0.0107
2021	14,343,000	1,404,823,000	0.0102
2022	17,516,000	1,486,123,000	0.0118
Average			0.0108

Source: Annual report of Bank Nizwa.

and weakening financial strength. Nevertheless, the ratio rebounded sharply to 0.8748 in 2021 and further to 0.9138 inn 2022, resulting in strong equity growth and improved financial health. The 5-year average of 0.5157 (Table 24) suggests moderate equity coverage overall with marked improvement in recent year indicating enhanced financial stability and investors' confidence (Figure 21).

TABLE 24 | Market value of equity total liability ratio of Bank Nizwa.

T4 = market value of equity\total liability			
Years	**Market value of equity OMR**	**Total liability OMR**	**Ratio**
2018	136,500,000	412,471,681	0.3309
2019	142,500,000	576,060,167	0.2474
2020	144,000,000	680,480,000	0.2116
2021	216,984,444.1	248,026,000	0.8748
2022	223,695,303.2	244,800,000	0.9138
Average			0.5157

Source: Annual report of Bank Nizwa.

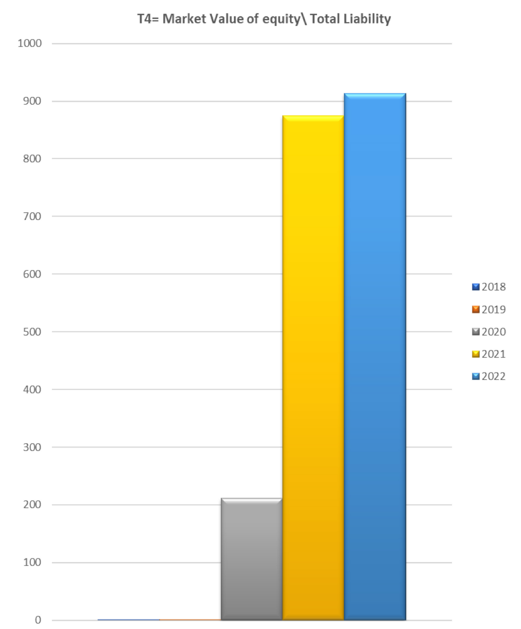

FIGURE 21 | Market value of equity to total liability ratio of Bank Nizwa.

Average of Z-score ratio of Bank Nizwa

The data reveals four key financial ratios: working capital to total assets, retained earnings to total assets EBIT to total assets and market value of equity to total liabilities. The working capital to total assets ratio averages 0.5970, indicating good liquidity management. However, the retained earnings to total assets ratio averages 0.0001, showing very little retained earnings compared to total assets. The EBIT to total assets ratio averages 0.0108, still low. Still low. The market value of equity to total liabilities ratio is much higher at 0.5157, which suggests a position in terms of equity compared to liabilities and possibly a different level of financial strength (Table 25).

These numbers show a difference: the first three ratios show low to moderate financial activity or strength while the market value of equity to total liabilities ratio shows much more strength.

An analysis of the performance of five major Omani banks—Bank Muscat, Bank Dhofar, NBO Ahli Bank and

TABLE 25 | Average of Z-score ratio of Bank Nizwa.

	T1 Working capital to total assets ratio	T2 Retained earnings to total assets ratio	T3 EBIT to total assets ratio	T4 Market value of equity to total liability ratio
Average	0.5970	0.0001	0.0108	0.5157

Source: The calculations from **Tables 1–4**.

Bank Nizwa—from 2018 to 2022 shows trends in liquidity, profitability and financial stability using four ratios: working capital to total assets (T1) retained earnings to total assets (T2) EBIT to total assets (T3) and market value of equity to total liabilities (T4). These were used to calculate the Z-score for each bank with the formula: Z = 6.56T1 + 3.26T2 + 6.72T3 + 1.05T4 (**Table 26**).

Bank Muscat had consistent financial health across all ratios. It had liquidity (T1 average: 0.144) moderate retained earnings (T2: 0.0378) and steady efficiency (T3: 0.0168). Its market value to liabilities ratio (T4: 0.144) stayed the same showing a financial position.

Bank Dhofar had weaker performance. Its liquidity (T1: 0.1253) dropped after 2019. Recovered a little in 2022. Retained earnings (T2: 0.0095) and EBIT (T3: 0.0093) remained low, while T4 averaged 0.1121, showing growth and profitability (**Table 27**).

NBO's results showed improving retained earnings (T2: 0.0436) but weak and falling liquidity (T1: 0.1162). The bank experienced a jump in EBIT in 2020 (T3: 0.0362), affecting the average. Its T4 ratio (0.0994) fluctuated over time, with performance slightly below that of other banks (**Table 28**).

Ahli Bank's liquidity (T1: 0.1300) and retained earnings (T2: 0.0210) changed over time. Its EBIT (T3: 0.0124) and market equity ratio (T4: 0.1021) remained stable, though at levels indicating a consistent but not strong financial situation (**Table 29**).

Bank Nizwa stood out with liquidity (T1: 0.5970), particularly in 2021 and 2022, showing good working capital management. However, profitability remained low (T2: 0.0001, T3: 0.0108). Its equity-to-liability ratio (T4: 0.5157) improved significantly, indicating a recovery from a weak start (**Table 30**).

The Z-score analysis assesses the stability of five banks across four metrics: T1 (working capital to total assets), T2 (retained earnings to total assets), T3 (EBIT to total assets), and T4 (market value of equity to total liabilities). Bank Muscat had a Z-score of 1.329, driven by a strong T1 value of 0.935, which indicates good liquidity and working capital management. Other metrics contributed marginally, placing the bank in a stable position (**Table 31**).

Bank Dhofar had a Z-score of 1.0343, indicating a riskier position. The main reason was a T1 value of 0.8224, showing the bank prioritizes working capital. T2 (0.0310), T3 (0.0630), and T4 (0.1177) had less impact, suggesting that while Dhofar has some liquidity and profitability, it needs to manage retained earnings and equity leverage (**Table 32**).

NBO Bank had a Z-score of 1.251, indicating a risk of bankruptcy. Despite a weak T1 part, a strong T4 ratio (0.1033) and moderate retained earnings (T2 = 0.752) helped it stay stable (**Table 33**).

Ahli Bank had a Z-score of 1.11, placing it in the "Gray Zone," indicating a moderate financial risk. Even though its T1 value was good the bank did not do well in retained earnings, EBIT and market equity ratios. Which results the bank need to improve profitability (**Table 34**).

TABLE 26 | T1 = working capital\total assets.

Bank\year	2018	2019	2020	2021	2022	Average
Muscat	0.132	0.137	0.127	0.158	0.195	0.144
Dhofar	0.137	0.132	0.115	0.096	0.144	0.1253
NBO	0.133	0.122	0.114	0.106	0.105	0.1162
Ahli	0.1444	0.1360	0.1245	0.1193	0.1256	0.1300
Nizwa	0.5132	0.4310	0.4185	0.8203	0.8203	0.5970

Source: Annual reports of Banks.

TABLE 27 | T3 = EBIT\total assets.

Bank\year	2018	2019	2020	2021	2022	Average
Muscat	0.017	0.017	0.015	0.017	0.018	0.0168
Dhofar	0.014	0.0083	0.0084	0.0066	0.0093	0.0093
NBO	0.0167	0.015	0.006	0.0087	0.0133	0.0362
Ahli	0.0148	0.0144	0.0100	0.0105	0.0125	0.0124
NIZWA	0.0097	0.0116	0.0107	0.0102	0.118	0.0108

Source: Annual reports of Banks.

TABLE 28 | T2 = retained earning\total assets.

Bank\year	2018	2019	2020	2021	2022	Average
Muscat	0.039	0.042	0.043	0.045	0.020	0.0378
Dhofar	0.0140	0.0024	0.0080	0.0065	0.0166	0.0095
NBO	0.0355	0.0428	0.0445	0.0449	0.0503	0.0436
Ahli	0.0242	0.220	0.0174	0.0195	0.0221	0.0210
Nizwa	(0.0171)	(0.0056)	0.0035	0.0081	0.0115	0.0001

Source: Annual reports of Banks.

TABLE 29 | T4 = market value of equity\total liability.

Bank\year	2018	2019	2020	2021	2022	Average
Muscat	0.116	0.130	0.122	0.0158	0.0195	0.144
Dhofar	0.132	0.101	0.081	0.100	0.145	0.1121
NBO	0.097	0.096	0.0087	0.090	0.128	0.0994
Ahli	0.1131	0.0959	0.0905	0.0832	0.1275	0.1021
Nizwa	0.3309	0.2474	0.2116	0.8748	0.9138	0.5157

Source: Annual reports of Banks.

TABLE 30 | Average of the years (2018–2022).

Banks	T1	T2	T3	T4
Muscat	0.1426	0.0378	0.0173	0.144
Dhofar	0.1253	0.0095	0.0093	0.1121
NBO	0.116	0.0436	0.0362	0.0994
Ahli	0.1300	0.0210	0.0124	0.1021
Nizwa	0.5970	0.0001	0.0108	0.5157

Source: The calculations from the tables of Banks.

TABLE 31 | Bank Muscat: Z-score.

Z = 6.56T1 + 3.26T2 + 6.72T3 + 1.05T4

Z-score component	Z-score multiple	Z-score value
T1	6.56*0.1426	0.935
T2	3.26*0.038	0.1251
T3	6.72*0.01731	0.1163
T4	1.05*0.144	0.152
Z-Score of Bank Muscat		1.329

TABLE 32 | Bank Dhofar: Z-score.

Z = 6.56T1 + 3.26T2 + 6.72T3 + 1.05T4

Bank Dhofar\Z-score component	Z-score multiple	Z-score value
T1	6.56*0.1253	0.8224
T2	3.26*0.0095	0.0310
T3	6.72*0.0093	0.0630
T4	1.05*0.1121	0.1177
Z-Score of Bank Dhofar		1.0343

Bank Nizwa had a Z-score of 1.1327, with a T1 value of 3.9163 indicating strong liquidity. Despite this the bank did better than some others. Still is in the risk zone (**Table 36**).

Among the five banks, Bank Muscat is the strongest, with a Z-score of 1.3290, indicating its financial position. It is followed by NBO Bank, Bank Nizwa, Ahli Bank, and Bank Dhofar (Z-score 1.034), which is the weakest (**Table 35**).

TABLE 33 | NBO bank: Z-score.

Z = 6.56T1 + 3.26T2 + 6.72T3 + 1.05T4

Z-score component	Z-score multiple	Z-score value
T1	6.56*0.1183	0.7524
T2	3.26*0.0436	0.1421
T3	6.72*0.0362	0.0813
T4	1.05*0.0994	0.1033
Z-score of NBO Bank		1.251

TABLE 34 | Ahli Bank: Z-score.

Z = 6.56T1 + 3.26T2 + 6.72T3 + 1.05T4

Z-score component	Z-score multiple	Z-score value
T1	6.56* 0.1300	0.8528
T2	3.26* 0.0210	0.06846
T3	6.72* 0.0124	0.083328
T4	1.05* 0.1021	0.107205
Z-Score of Ahli Bank		1.111793

TABLE 35 | Bank Nizwa: Z-score.

Z = 6.56T1 + 3.26T2 + 6.72T3 + 1.05T4

Z-score component	Z-score multiple	Z-score value
T1	6.56* 0.5970	3.9163
T2	3.26* 0.0001	0.0003
T3	6.72* 0.0108	0.0726
T4	1.05* 0.5157	0.5415
Z-Score of Bank Nizwa		1.1327

TABLE 36 | Sampled bank Z-score and ranking.

S. no.	Bank	Z-score	Rank
1.	Bank Muscat	1.329	1^{st}
2.	Bank Dhofar	1.034	5^{th}
3.	NBO Bank	1.251	2^{nd}
4.	Ahli Bank	1.1117	4^{th}
5.	Bank Nizwa	1.132	3^{rd}

Findings and discussion

Bank Muscat show the strongest financial position. It has a stable liquidity profile with an average working capital to total assets ratio of 0.140. Profitability index showed retained earnings at 3.78% of total assets and EBIT to Total Assets ratio of 0.0173. The bank's equity position also improved gradually over the time, with an average market value of equity to total liabilities ratio of 0.144 these factors collectively contribute to a Z score of 1.329 which leads Bank Muscat in the Gray Zone but at the upper hand, suggesting strong financial stability and relatively a low bankruptcy risk.

Bank Dhofar has signs on financial vulnerability. Its average working capital to total asset ratio was 0.1253 show unstable liquidity. The banks profitability was low throughout the period with average retained earnings at 0.00095 and EBIT at 0.0093 Whereas the market value of equity to total liabilities ratio remained weak at 0.1121, also a recovery in 2022 suggested some improvement Therefore, the overall z score of 1.0343 shows a fragile financial position with need for more robust liquidity and leverage management

National Bank of Oman (NBO) showed a mixed financial performance. Its liquidity ratio average of 0.116 with a downward trend suggest the need for improvement on working capital management. Profitability showed a positive momentum with retained earnings averaging of 0.0436 and EBIT of 0.0362. With the market vale of equity to total liabilities remained low at 0.099, With gradually improvement NBO's Z score of 1.251 which indicate a lower bankruptcy.

Ahli Bank has a moderate financial health with some fluctuations. The average working capital to total assets ratio was 0.1300 shows modest liquidity. Retained earnings averaged 0.0210, showing volatility and the EBIT to Total Assets ratio was low of 0.0124 reflecting limited operational efficiency. The market value of equity to total liabilities averaged of 0.1021 with noticeable improvement in 2022.The bank Z score of 1.11 which mean the bank is in Gray Zone shows moderate financial risk and highlight the need of strengthen earnings and liquidity positions.

Bank Nizwa has stood out with strong liquidity profile with averaging a working capital to total assets ratio of 0.5970 the highest among all five banks The retained earnings remained minimum averaging of 0.0001 despite the signs of improvement in recent years. The EBIT to Total Assets ratio of 0.0108 show modest earnings affirmative the market value of equity to total liabilities ratio was relatively strong with a average of 0.5157 shows improvement after 2020 with the Z score of 1.1327 Bank Nizwa has above average performance compared to peers' bit still remained within the Graz zone suggesting a financial risk.

The Z-score analysis revealed that Bank Muscat held the strongest financial position, followed by NBO, Bank Nizwa, Ahli Bank and Bank Dhofar showed weaker financial stability. While none of the banks fell into the high-risk "Distress Zone," all remained within the "Gray Zone," shows room of improvement with the help of money management and diversify strategies they can improve the financial stability.

Conclusion and recommendations

Recommendations

The Bank Muscat maintains liquidity levels but there has been decrease in reattained earnings compare to assets which concerns about profitability. So, the bank muscat should concentrate on refining its strategies for retain profits and improving efficiency to improve and stabilize their earnings. Bank Dhofar has Z score of 1.0343 leads to higher risk which can be solved by strengthening its capital base and efficiently addressing its liquidity concerns by implementing cost control measures and operational efficiency improvements to boost profitability. NBO needs to improve its liquidity management and build more resilient capital base. To stabilize Ahil Bank needs to decentralize its income streams and improve the operational efficiency through digital transformation. The Bank Nizwa should focus on productive lending and investments to improve profitability, All these banks need to focus on retaining more profits to build their reserve and reduce their reliance on external source of finance They should engage in proactive risk management practices and diversify their services across the sector to ensure their sustainable growth within the Gray zone.

Conclusion

While Bank Muscat maintains adequate liquidity also its dwindling with retained earnings relative to assets raise concerns about profitability, suggesting that they need to improve on making more enough money and improve their retention and efficiency. Bank Dhofar faces risk of having Z score of 1.0343 leads to profitability challenges. As a solution strengthening its capital base, managing liquidity, and enhancing operational efficiency through cost control would improve its financial position. NBO might faces bankruptcy risk they should work on optimizing asset utilization and increasing profitability to grow a strong growth foundation. Whereas Ahli Bank with Z score of 1.11 shows signs of financial distress and must enhance liquidity management and protect retained earnings to financial stabilization. Bank Nizwa has a positive liquidity and equity value position but it also needs to focus of increasing profitability and earning retention. Therefore, improving profitability and focusing on earnings retention will results in reducing bankruptcy risk across these banks.

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Conflict of interest

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