



Assessing profit performance efficiency-An evidence from banking sector in Sultanate of Oman

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Abstract

Banking sector has undergone major changes in the mode of operation and the activities undertaken in the normal course of business. There has been a complete overhaul in banking activities wherein banks have emerged from conventional lending and borrowing business to financial conglomerates. This dynamism in banking industry has triggered paradigm shift in academic and applied research. Analysis of performance of banking industry has always been an area of interest not only among the academicians but also among the analysts and practitioners. Here in this study a different and unconventional approach to assess the efficiency of profit management for banks has been developed. This approach, is named as Profit Identity Approach. The primary objective of the study is two fold. First, to assess the overall development of banking industry in Oman and second to assess the profit performance efficiency with the application of Profit Identity Approach. The study reveals that the time series data showed considerable movement over the period. It can be established from the results that spread and burden are the significant variables, which influence the profit of the banks in Oman. Further, this study suggest that banks react mostly in a comparable manner for the profitablity performance over the period of time.

Keywords: Banking, Financial Conglomerates, Profit Identiy Approach, Profitability Performance, Spread, Burden.

JEL Codes: G21, N25, C13, C21, C51

Introduction

For commercial entities, maximisation of profit has been a paramount objective of doing business. Profit goal drives organisation not only towards efficiency but also towards optimal allocation of scarce resources. Unlike manufacturing organizations, where profit is a variable derived from the contribution to the bottom line, banks differ due to the nature of the business. In case of

banks, profit is primarily a function of managing the assets and liabilities. Conventionally, profit is a function of income and expenses, however, applying it to banks in the recent scenario, is challenging.

Banking sector has undergone major changes in the mode of operation and the activities undertaken in the normal course of business. There has been a complete overhaul in banking activities wherein banks have



emerged from conventional lending and borrowing business to financial conglomerates. This dynamism in the banking industry has triggered the paradigm shift in academic and applied research. Today banking practices have integrated conventional banking practices with technological innovations. These synergies have resulted in new and evolving challenges. Practitioners and academicians are continuously focusing their efforts in seeking solutions to cater to these challenges. Their inputs enable policymakers to gain meaningful insight in development of banking practices reforms on a global platform.

Analysis of performance of banking industry has always been an area of interest not only among the academicians but also among the analysts and practitioners. With changing business environment, there has been a need to provide distinct and innovative

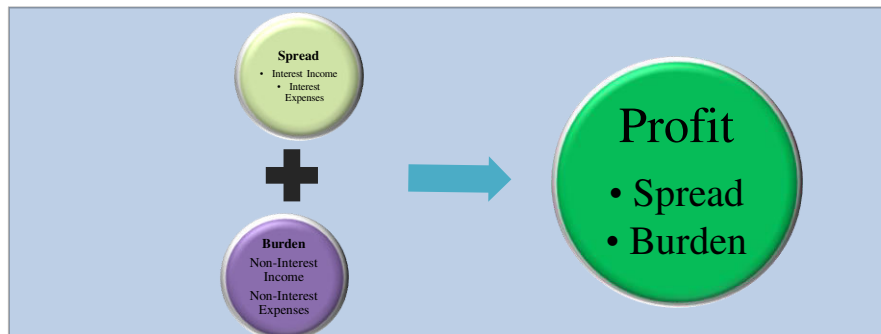
models providing valuable information to the stakeholders.

Here in this study, a different and unconventional approach to assess the efficiency of profit management for banks has been developed. This approach is named as Profit Identity Approach, hereafter referred as PIA. PIA will help to identify profit for banks using the twin concepts of spread and burden. For the purpose of this research, the spread is defined as interest spread which is the difference between interest income and interest expense. Likewise, the burden is derived from the difference between noninterest income and noninterest expense. The concept of PIA is graphically represented in diagram 1 for better understanding.

The model graphic representation of PIA is given as follows-

Diagram 1

Profit Identity Approach (PIA)



Literature Review

In literature, bank profitability is usually expressed as a function of internal and external factors. The internal determinants of bank profitability are also known as micro or bank-specific determinants. These can be broadly classified into two-financial statement variables and non-financial statements variables. The financial statement variables, which determine bank profitability, our expense management, loan composition, bank credit, and composition of bank deposits, market interest rates, bank earning and operating efficiency, changes in capital and liquidity management. The non-financial statement variables, which determine bank profitability, include the number of bank branches, bank size, and bank location. The external determinants are

variables that are not related to bank management but reflect the economic and legal environment that affect the operation and performance of financial institutions (Athanasoglou, N., & D.Delis, 2008).

Borio, Gambacorta, and Hofmann (2015) studied the relationship between interest rate structure and profitability in 109 large international banks headquartered in 14 major advanced economies for the period 1995–2012. The study measured the impact of changes in the interest rate structure (level of the short-term rate and yield curve slope) on all main income statement components-net interest income, non-interest income and bank loss provisions-as well as on overall profitability, measured by Return on Assets (ROA). Analysis revealed that the correlation between the level of interest rates and



steepness of the yield curve on one hand, and ROA on the other is positive: higher rates and steeper yield curve boost profitability (Borio, Gambacorta, & Hofmann, 2015).

Angbazo (1997) studied the relationship between bank net interest margins and interest rate risk, default risk, and off-balance sheet banking activities. He investigated the determinants of bank profitability using a sample of banks in United States of America with data from 1989-1993 times. He concluded that the net interest margins of money-center banks are affected by default risk, but not by interest rate risk, which is consistent with their greater concentration in short-term assets and off-balance sheet (OBS) hedging instruments. By contrast, (super-) regional banking firms are sensitive to interest-rate risk but not to default risk (Angbazo, 1997).

Using system estimation approach, Nguyen(2012) examined the determinants of bank NIM and non-traditional banking activities from 1997 to 2004 for commercial banks in financially liberalized countries. The results showed a significant negative relationship between NIM and non-traditional banking activities for the period between 1997 and 2002 but a generally positive and statistically insignificant association for 2003 and 2004 (Nguyen, 2012). Lartey, Antwi&Boadi(2013) showed a correlation coefficient of 0.826 between Net Interest Margin (NIM) and ROA, indicating that 82.65 of ROA is explained by NIM and showing that when NIM decreases, ROA decreases; and vice versa. For this, they used financial data from 7 listed banks in Ghana involving trend, correlation and regression analysis (Lartey, Antwi, & Boadi, 2013).

There are a plethora of studies on banks profitability involving international and domestic banks measuring the determinants of profitability, an association of profitability with various factors and variables. Still, there are very few studies about banking sector in Sultanate of Oman (hereafter referred as Oman). Bologna and Prasad (2010) studied the impact of financial stress on Oman's banking system to conclude that banking system is resilient to credit and market risks. The reason being the liquidity and prudential measures introduced by the authorities mitigated the adverse effects of the crisis on the banking system. Banks continue to make profits despite higher provisioning. Banks have limited exposure to derivatives and the majority of the off-balance sheet exposures is

conventional and relatively secures (Bologna & Prasad, 2010).

The past studies undertaken had been mainly concentrating on the analysis of the performance of banks in the Gulf region. Limited studies are undertaken with respect to banks in Oman in particular. Tarawaneh (2006) compared the financial performance of commercial banks in Oman to classify them in cohesive categories based on financial ratios. Using financial analysis and simple regression, he estimated the impact of asset management, operational efficiency and bank size on the financial performance of five Omani commercial banks. The study revealed that the bank with higher total capital, deposits, credits or total assets do not necessarily lead to better profitability performance (Tarawaneh, 2006).

However, these have limited approach and application in analyzing profit performance of banks. Moreover, these studies in the environment of recent financial crisis, evolving new intermediation and advancement in technology, pose a question on their application in assessing performance efficiency of banks. The present study intends to fill this gap by providing an alternative approach, which will take care of limitations sighted in earlier studies. It is presumed that this approach will provide an alternative to bank management and policymakers in assessing the efficiency of banks.

The study in its current form aims to:

1. Assess overall growth of banking industry in Oman from the year 2000 to 2014.
2. Measure and assess profit performance efficiency with the application of PIA.
 - a. Understanding time series dynamics of profit, spread, and burden.
 - b. Identify and quantify the relationship between profit, spread, and burden.
 - c. Assess the degree of dependency of profit on spread and burden respectively.

Research Methodology

The current study will apply PIA model to commercial banks in Oman. For the application of this approach, banks listed on Muscat Securities Market (MSM) have been selected for the obvious reason that audited financial data is available from this source. Consequently, financial data from five listed banks in Oman have been collected for fifteen years from the year 2000 to the year 2014. For the purpose of the current study, financial statements from-Bank Muscat, National



Bank of Oman (NBO), Bank Dhofar, Hong Kong Shanghai Banking Corporation (HSBC) (formerly Oman International Bank (OIB)) and Al Ahli bank, have been used. Income statements of these banks from the financial year 2000 to 2014 have been downloaded from MSM website and used to fulfill the objectives of this study.

Following null hypotheses have been formulated to achieve the objectives of this study:

H01: There is no significant correlation between profit and spread.

H02: There is no significant correlation between profit and burden.

These hypotheses are tested using appropriate statistical applications of correlation and regression.

Banking Sector in Oman

The banking sector is one of the pillars for economic development and prosperity. Banks-whether central or commercial play a pivotal role in the development of any economy. Central banks act as the implementer of monetary policy, sole issuer of currency and regulator and lender of last resort for commercial banks. As such, the Central bank of a country acts as a regulator and supervisor for the banking system in a country. Commercial banks are institutions that engage in two distinct types of activities: one on each side of the balance sheet-deposit taking and lending (K., Raghuram, & C., 2002). They provide various financial services to public, businesses, and companies while ensuring economic and social growth and stability of the economy. All these functions performed by the commercial banks adhere to

the guidelines issued by the central bank. This holds true for Sultanate of Oman as well.

The history of banking in Oman has been in tandem with the socio-economic development of the country. Development of banking in Oman dates back to the early 1970s when Central Bank of Oman (CBO) replaced the Oman Currency Board which was performing the function of issuing currency, managing government accounts and executing banking transaction with commercial banks and international institutions. Acting as banker and advisor to the government, the central bank has been instrumental in establishing and implementing credit and monetary policy. While promoting the stabilization in the value of Omani Rial, the bank plays a vital role in managing and safeguarding the country’s foreign exchange reserves. Since its establishment, CBO has been actively involved in development and expansion of commercial banks, specialized financial institutions and promoting banking habits among the citizens. The Central bank while fulfilling its regulatory and supervisory role has been instrumental in introducing new technologies and channels for financing development activities in the country.

In 1972, the banking sector in Oman consisted of only three registered banks in Oman (Kalmoor, 2010). At present, there are seven local and nine foreign conventional commercial banks, two specialized banks, two full-fledged Islamic banks and six Islamic windows of conventional banks, besides the other components, which dominate the banking landscape in Oman (Bhandari, 2014). The details of these banks are as represented in Table 1.

**Table 1:
 Banks in Oman**

Locally incorporated commercial banks	Foreign commercial banks	Islamic banks	Islamic Windows	Specialized banks
Bank Muscat	Standard Chartered Bank	Bank Nizwa	Meethaq	Oman Housing Bank
National Bank of Oman	Habib Bank	Al-Izz Islamic Bank	Muzn Islamic	Oman Development Bank
HSBC Bank Oman	Bank Melli Iran		Maisarah Bank	
Oman Arab Bank	Bank Saderat Iran		Al Yusr Bank	
Bank Dhofar	Bank of Baroda		Sohar Islamic	
Bank Sohar	State Bank of India		Al Ahli	
Al Ahli Bank	National Bank of Abu Dhabi			
	Bank of Beirut and Qatar National Bank			

Source: Central bank of Oman’s annual report 2015



The commercial banks in Oman have been involved in performing various functions as necessitated for a developing country. Banks in Oman have a business model strongly focused on corporate and retail lending, with limited investment banking. Exposure to derivatives is very small and the majority of the off-balance sheet items are conventional and relatively secure. The role of wholesale funding is also limited, with most liabilities comprising customer and government deposits (Bologna & Prasad, 2010). Keeping pace with the rapid

technological changes, these banks are providing their services using internet, SMS and mobile applications.

Operating through a network of 420 branches, 1,109 automated teller machines (ATMs) and 254 cash deposit machines across the country, these conventional banks own assets to the tune of 27,051.8 million Omani Rials (Central Bank of Oman, 2016). The following table provides an overview of growth and development in deposits, credits and assets of banks in Oman.

Table 2:
Deposits, credits and assets of commercial banks in Oman (Million Omani Rials)

	2000	2005	2010	2014	2015	2016
Deposits	2,507.40	3,761.50	15,647.70	17,278.90	17,873.00	18,253.70
Credits	2,980.70	3,896.40	10,724.30	16,898.40	18,315.70	19,704.60
Assets	3,963.60	5,629.90	10,516.80	24,821.30	28,189.20	27,051.80

Source: Annual reports published by Central Bank of Oman

Application of PIA

Before commencing with the analysis, distribution pattern of the time series needs to be studied. Hence the measures of central tendency and dispersion have been applied to assess any abnormalities or outliers present in

the dataset. This will help in gaining reliable and consistent results for the application of the model. Table 3 presents the calculated descriptive statistics for profit, spread and burden for the five banks under study.

Table 3:
Descriptive Statistics

		Mean	Median	Standard deviation	Relative Standard deviation	Skewness
Bank Muscat	Profit	76016000	73718000	51040000	0.67144	0.30767
	Spread	134800000	124820000	47548000	0.5205	0.13654
	Burden	-49236000	-40512000	86384000	0.41017	-0.43081
NBO	Profit	19415000	27171000	27260000	1.4041	-1.1287
	Spread	46771000	40042000	17834000	0.3813	0.55115
	Burden	-8039000	-9408000	9226000	1.1476	0.84437
OAB	Profit	21963000	22790000	12351000	0.56235	0.10882
	Spread	38742000	30356000	21158000	0.54611	0.31409
	Burden	-12785000	-9700000	9236000	0.72246	-1.4759



Bank Dhofar	Profit	21963000	22790000	12351000	0.56235	0.10882
	Spread	38742000	30356000	21158000	0.54611	0.31409
	Burden	-12665000	-9700000	9109000	0.71927	-1.5365
HSBC	Profit	18103000	17091000	8870000	0.49	0.082368
	Spread	32626000	30848000	8054000	0.24688	0.94389
	Burden	-13067000	-9250000	10342000	0.79147	-1.3271
Al Ahli Bank	Profit	9442100	4417900	9091600	0.96288	0.69395
	Spread	14261000	7181600	12623000	0.88521	0.82661
	Burden	-2669900	-2118500	1982800	0.74265	-0.73785

The above table 3 reveals the data dynamics for a period of fifteen years from the year 2000 to 2014 for five banks in Oman. The total population consists of forty-five observations encompassing three variables for each bank.

The cursory observation of all the five banks reveals that there are differences in the values of selected three variables. These differences have been quantified by the use of standard deviation. Standard deviation exhibits the variation of the time series from its mean. The high value of standard deviation indicates significant volatility in the data which may influence the results. If the difference between mean and median for profit, spread and burden are significant, it is evident that there are outliers in the data set which will affect the analysis and make the results inconsistent. The same can be supported with high values for standard deviation.

To capture the relation between the mean values of variables of PIA and their standard deviation, the relative standard deviation has been calculated. Relative standard deviation shows the dispersion of data points around the mean. A smaller value of relative standard deviation reveals the preciseness of the data.

As observed in case of the values of mean and median show a sizeable difference. Substantiated with the higher value of standard deviation shows a relatively higher degree of dispersion. This observation can be seen in the values of relative standard deviations suggesting

the high degree of deviations observed during the period of study.

The skewness data shows the majority of the variables for the selected banks have a low value of skewness. This means that the data is not perfectly symmetrical.

Due to this dynamism observed over a period of time in the data, the time series have been converted in first difference $\ln Y_t - \ln Y_{(t-1)}$. This conversion removes the trend and outliers present in the data. The differences time series is used to run the OLS estimates to generate results.

To derive the relationship among the existing variables of PIA, correlation coefficient has been calculated individually for each bank. Further to get an overall picture of the entire banking industry, correlation analysis for all the banks together is conducted for all banks in aggregate. To test the null hypotheses, t -statistic has been calculated using the following formula:

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

P values have been derived using the t -statistic calculated using the above formula.



Table 4:
Correlation between profit and spread

		Profit					
		Bank Muscat	NBO	Bank Dhofar	HSBC	Al Ahli Bank	Overall
Spread	Correlation	0.9663	0.6767	0.9616	-0.1349	0.9869	0.932
	Sign	Positive	Positive	Positive	Negative	Positive	Positive
	Strength	High	Moderate	High	Low	High	High

It is evident from the results derived in table 4 that correlation between profit and spread is positive, HSBC being an exception. The degree of correlation is high in case of Bank Muscat, Bank Dhofar and Al Ahli Bank, while it is moderate for NBO. HSBC is an exception with negative and low degree of correlation due to its recurrent losses over a long period of time. However the overall results for all the five banks, show a positive and a high degree of correlation between profit and spread.
 Testing of hypothesis 1

H₀₁: There is no significant correlation between profit and spread.

H_{a1}: There is a significant correlation between profit and spread.

This relationship is robustly tested using the *t*-statistic and P values at 5% level of significance. The results have been derived and summarised as shown in table 5

Table 5:
***t*-statistic and P values for profit and spread**

	Bank Muscat	NBO	BD	HSBC	Al Ahli Bank	Overall
t Stat	9.241465651	5.276534616	6.577694534	4.515586472	4.744111446	-4.29671
P(T<=t) 2-tail	2.45914E-07	0.000117055	1.23365E-05	0.000484527	0.000313917	5.2E-05
t Critical 2-tail	2.144786688	2.144786688	2.144786688	2.144786688	2.144786688	1.992543

The above results for profit and spread indicate that derived *t*-statistic for the individual banks is less than its critical value. The derived *t*-statistic for all the banks is less than its critical value. The P-values derived from the test are less than 5% level of significance for all the banks individually and collectively. This proves that there is statistically significant linear relationship

between profit and spread. Consequently, it rejects the first null hypothesis which states that there is no significant correlation between profit and spread.

Further to study the relation between profit and burden for banks in particular and the industry in general, the derived results from correlation are exhibited in following table 6



Table 6:
Correlation between profit and burden

		Profit					
		Bank Muscat	NBO	Bank Dhofar	HSBC	Al Ahli Bank	Overall
Burden	Correlation	-0.6355	-0.2333	-0.7207	0.534	-0.6104	-0.737921
	Sign	Negative	Negative	Negative	Positive	Negative	Negative
	Strength	Moderate	Low	Moderate	Moderate	Moderate	Moderate

It is evident from the above table that profit and burden share a negative correlation, HSBC being an exception here as well. The degree of correlation observed in all the banks is moderate. In case of NBO the correlation between profit and burden is low however, it is still negative. The overall results for all the five banks, reveal a negative and moderate degree of correlation between profit and burden.

Testing of hypothesis 2

H₀₁: There is no significant correlation between profit and burden.

H_{a1}: There is a significant correlation between profit and burden.

This relationship is robustly tested using the *t*-statistic and P values at 5% level of significance . The results have been derived and summarised as shown in table 7

Table 7:
***t*-statistic and P values for profit and burden**

	Bank Muscat	NBO	BD	HSBC	Al Ahli Bank	Overall
t Stat	7.378027344	3.457890289	6.725069712	12.94611577	4.50146602	4.155772
P(T<=t) 2-tail	3.46746E-06	0.003843864	9.70276E-06	3.51042E-09	0.000497793	8.61E-05
t Critical 2-tail	2.144786688	2.144786688	2.144786688	2.144786688	2.144786688	1.992543

The above results for profit and burden indicate that derived t-statistic for the individual banks is more than its critical value. The derived t-statistic for all the banks is significantly more than its critical value as well. The P-values derived from the test are less than the assumed 5% level of significance for all the banks individually and collectively. This proves that there is a statistically significant linear relationship between profit and burden. Consequently, the second null hypothesis is rejected.

Estimation Results

Correlation gives the direction in which the variables react however, it fails to provide the degree of variation between variables. After establishing and

testing the relationships, an attempt is made to assess the impact of variation in spread and burden on profit. To assess this impact, a linear regression model is applied.

$$y_{it} = \beta_1 + \beta_2 x_{it} \dots(i)$$

The purpose of the regression analysis is to estimate the constant term (β_1) and the slope coefficient (β_2) of the above linear model.

Here profit is assumed as a dependent variable and spread and burden as the independent variable. The data gathered for spread, burden, and profit shows high volatility which is evident by the high values of standard



deviation and relative standard deviation. Therefore, prior to running the estimation, the data is detrended to show percentage change. This data transformation ($\ln X_t - \ln X_{(t-1)}$) is done for variables used in OLS estimation to derive consistent coefficients. This detrending resulted in the loss of one observation.

For estimation analysis, OLS estimation is applied assuming percentage change in profit as a dependent variable and percentage change in spread and percentage change in burden as independent variables.

The results are derived through the DGP displayed as follows

$$y_{it} = \hat{\beta}_1 + \hat{\beta}_2 x_{it} + \hat{\mu}_i \dots (ii)$$

$$y_{it} = \hat{\beta}_3 + \hat{\beta}_4 z_{it} + \hat{\vartheta}_i \dots (iii)$$

Where,

- y_{it} = Percentage change in profit (Percentage Profit),
- x_{it} = Percentage change in spread (Percentage Spread),
- z_{it} = Percentage change in burden (Percentage Burden),
- $\hat{\mu}_i$ & $\hat{\vartheta}_i$ are white noise and is time invariable.
- i = banks and t = year 2002 to 2014

Table 8:
OLS Estimation

	Bank Muscat	NBO	Bank Dhofar	HSBC	Al Ahli
Spread ¹	0.7029***	1.0345***	0.5614***	-0.2326	0.7108***
2-Tailed P-value	4.85251E-09	0.0056	0.0000	0.4021	0.0000
R ²	0.9337	0.4580	0.9247	0.0546	0.9740
Burden ²	-1.606***	-0.6892	-0.9771***	0.4462**	-2.7989***
2-Tailed P-value	0.0109	0.4028	0.0024	0.0257	0.0157
R ²	0.4038	0.0544	0.5194	0.3280	0.3726

*** indicates statistical significance at 1% level ** indicates statistical significance at 5% level

Observations 2002-2014 ($t = 13$); Dependent variable: Percentage Profit

Independent variables: Percentage Spread¹ & Percentage Burden²

HAC standard errors, bandwidth 1 (Bartlett kernel)

The estimation is done for all the five banks separately and the results have been derived for each bank. As it can be observed from the OLS estimation presented in table 8, out of five banks, for four banks (Bank Muscat, NBO, Bank Dhofar and Al Ahli Bank), the spreading coefficient (β_2) asserts a positive impact on the profit. Moreover, the value of spread coefficients is positive for all the banks with an exception of HSBC. In case of Bank Muscat and Al Ahli Bank, the value of spread coefficients is 0.7029 and 0.7108 respectively; indicating approximately 70% variation in profit is explained due to variation in the spread. In case of NBO, this spread coefficient value is greater than 1 and

statistically significant. This value indicates that a unit change in the spread would cause a greater than a unit change in profit. The negative value of spread coefficient in case of HSBC indicates erosion of profit due to change in spread.

The calculated P-values for the coefficient of spread and profit prove statistically significant at 1% level of significance, HSBC being an exception. This dependency of profit on the spread is further explained by the derived values of R square. R square is a measure of goodness of fit shows the appropriateness of this model. Out of five selected banks, significantly high values of R square are observed in case of three-Al Ahli Bank, Bank Muscat,



and Bank Dhofar. This shows in the majority of cases, the PIA model generates desired results for the relation between profit and spread. This finding is evident in establishing that spread management in banks is an important function for managing profit performance.

For burden, the value of coefficients is negative for all the banks, except HSBC. This substantiates the negative impact of the burden on profit of banks. In case of Bank Muscat, Bank Dhofar and Al Ahli Bank, the values of burden coefficient are high and statistically significant. This implies for these banks the change in burden has an adverse impact on profit. In case of Bank Muscat and Al Ahli Bank, the burden coefficient is greater than 1 which indicates a unit change in burden results in more than a unit change in profit. In case of Bank Dhofar, the burden coefficient value is -0.9771 which indicates a unit change in burden results in approximately a similar change in profit. However, in case of HSBC the burden coefficient is positive this indicates that burden is influencing profit positively and this is also in line with the results derived from spread coefficient.

To assess and validate the profit and burden relationship and to validate the significance of model (Equation 2), P value and R square have been derived. The P values calculated reveals that the burden coefficient is statistically significant for all banks except NBO.

The observed Rsquare value indicates that the independent variable burden moderately influences the explanatory variable profit. In case of Bank Muscat, Bank Dhofar, HSBC and Al Ahli Bank the influence has been moderate, however, in case of NBO it is marginal.

Conclusion

In meeting the objectives of financial intermediation, banks have been playing a crucial role in the economy. Banks also perform paramount objective of providers and creators of capital in the economy. The financial health and efficiency of banking industry portray the well being of the economy.

The development of banking in Oman has substantiated the economic development in the Sultanate. The business model governing banking sector in Oman comprises a mix of modern commercial banking and conventional Islamic banking.

The current study emphasized on analyzing the profit performance of locally incorporated commercial banks with the application of Profit Identity Approach (PIA) Model. A three-stage analysis is carried out in the process of application of PIA. Under Stage 1, the three variables profit, spread, and burden, time series dynamics are assessed. Mean, median, standard deviation and skewness are calculated to quantify the dispersion observed in the distribution of selected variables for individual banks. The study reveals that the time series data showed considerable movement over the period. The deviations observed in the dispersion of variables were relatively high particularly in case of National Bank of Oman followed by Al Ahli Bank. In case of Bank Muscat, Bank Dhofar, and HSBC the observed dispersion in the time series data is moderate.

Under Stage 2 of the PIA model, the relationship between profit, spread, and the burden is established, quantified and tested with the help of correlation. The results of the analysis reveal positive and a high degree of correlation between profit and spread. Further, the relationship between profit and burden exhibits negative and a moderate degree of correlation. Hence, it can be established from the above results that spread and burden are the significant variables, which influence the profit of the banks in Oman. Thereby substantiating the underlining assumption of PIA model which states financial efficiency is a function of managing profit, spread, and burden.

The robustness in the interrelationship among the profit, burden, and spread was assessed during the final stage of PIA model. In the final stage, a regression model using OLS estimators is applied. The empirical findings of this study suggest that banks react mostly in a comparable manner for the profitability performance over the period of time. The regression analysis as per the PIA model reveals positive and high values of spread coefficients of all the banks except HSBC. This means spread which is a function of interest income and interest expense had been the major variable which influenced the profit during the period under the study. From the above results, it can be derived that, the spread is an important variable which has a profound impact on profit performance of banks. Further, it is also observed that banks in Oman are predominantly engaged in conventional banking activities of lending and borrowing.



It can be said till the time the banks continue with their conventional activities, spread and burden would always occupy a significant position influencing the profit performance of the banks. And until that time, PIA model would be an important tool in the hands of the analysts, government, and management of the banks. Today banks in the global arena are experiencing an epoch from conventional to modern banking practices. With this changing environment banking business is evolving with dynamic challenges and to encounter these challenges banks are resorting to the application of high-

end technological software and support. In coming times, when banks will evolve to incorporate the dynamic requirement of financial intermediation and establish themselves as financial conglomerates, the PIA will have limited applications then. Hence future research can be undertaken to broaden the coverage of PIA model to suit the needs of modern banking. The study endeavors to undertake further research to incorporate more variables in the model to justify and validate the effective analysis of profit performance of banks.

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