Interest banking spreads in Oman and Arab GCC

Saeed Al-muharrami and Y. Sree Rama Murthy
Department of Economics and Political Science, College of Muscat, Sultan Qaboos University, Oman

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Abstract

Purpose – Average bank net interest margins vary widely across Gulf Cooperation Council (GCC) countries, net interest margins of Omani banks are significantly higher. The resultant low level of financial intermediation implies reduced investment and economic growth. Understanding the reason for these high and persistent spreads is important to develop a policy for improving effectiveness of the banking system. The paper aims to discuss these issues.

Design/methodology/approach – Net interest margins of Arab GCC banks during the period 1999-2012 are examined using the balanced panel regression model with bank specific, financial/market structure specific and macroeconomic factors as determinants. The method used for estimation used is the estimated generalized least squares (EGLS) method with both fixed effects and random effects.

Findings – Bank-specific variables, which explain net interest margins in GCC, are bank capitalization ratios, loan ratios and overhead expenses. Spread of banking sector (as measured by ratio of total bank credit to GDP) is positive and highly significant, implying that along with the expansion of the banking sector in GCC economies, interest margins of banks also improved. Omani banks were able to increase interest margins by aggressively marketing high yield personal and credit card loans, and, zero interest paying deposit products. The study also finds a negative relationship between concentration and net interest margin, and attempts to explain this finding which is at variance with other country studies using the price leadership model of oligopoly.

Research limitations/implications – The standard, accepted econometric model of net interest margins which has been used in earlier studies is unable to explain the high net interest margins of banks in Oman although it is able to explain interest margins in other GCC countries. There is a need to develop non econometric models. More work is needed on the implications of NIM spreads for how they affect an economy.

Practical implications – The study shows that as the banking sector spreads in the economy, individual banks have more opportunities to market their products while at the same time maintaining interest margins. Bank managements should note this point and look for opportunities to expand.

Originality/value – There is no evidence of any empirical studies which focused on net interest margins in the GCC countries. This study attempts to fill in this gap with a view to nudge policy makers to look at the issue of high interest margins and its detrimental impact on economic growth and development in the Gulf region. The paper is useful for policy makers to understand and rectify the problem of excessive interest spreads which is hurting the financial intermediation process.

Keywords Fixed effects model, Gulf Cooperation Council (GCC), Net interest margin, Panel data regression, Random effects model

Paper type Research paper

1. Introduction

The spread between deposit rates and lending rates is widely regarded as an important indicator of the effectiveness of financial intermediation. High interest rate spreads and high net interest margins (interest income minus interest expense as a ratio of total assets) are an obstacle to financial intermediation, as they discourage both depositors and borrowers (Norris and Floerkemeier, 2007). High net interest margins and spreads imply a high lending rate and a comparatively low deposit rates. Low deposit rates discourage potential savers because of the low returns on deposits and high lending rates increase financing costs for borrowers. The resultant low level of financial intermediation implies reduced investment and growth opportunities in the economy. This is of particular concern for countries like Oman, where the financial system is largely bank based and the stock market is still in a

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developing stage, and is too shallow to allow for significant movement of funds from the net savers to net investors. Understanding the reason for these high and persistent spreads is therefore important to develop a policy for improving effectiveness of the banking system and achieving financial deepening.

The definition of net interest margin used in this study is the traditional definition from Bankscope, that is, net interest income minus net interest expense all divided by total assets. Average net interest margins of Omani banks are significantly higher than average net interest margins of banks in other Gulf Cooperation Council (GCC) countries (Bahrain, Qatar, Kuwait, Oman, Saudi Arabia and United Arab Emirates). Average net interest margins of Omani banks are the highest in GCC in most of the years over the period 1999-2012. Over the period 1999-2012, the average net interest margin of Omani banks was 4.09 percent while the average net interest margin of other GCC banks was 3.00 percent (Bank Scope, 2014) clearly indicating that net interest margins of Omani banks are much higher than the rest of the GCC banks.

This study looks at the determinants of bank net interest margins in Oman and the Gulf countries and covers the period 1999-2012. The study examines the role played by a variety of factors such as bank characteristics, bank loan to asset portfolio composition, market structure, financial structure and macroeconomics factors in determining net interest margins and banks spreads.

The study is divided into five sections. Section 1 presents Oman's banking industry. Section 2 reviews of past literature. Sections 3 and 4 discus the data and methodology, including the specification of the fixed effects and random effects model and a description of the variables used for estimation. Section 5 presents the empirical findings and includes a separate sub-sections on the determinants of net interest margins in Oman, policy implications and lessons for GCC banks from a managerial point of view.

1.1 Background about Oman banking sector

As at the end of 2012, the number of commercial banks in Oman stood at 16 of which seven were locally incorporated and nine were branches of foreign banks. Commercial banks operated in Oman with a network of 479 branches, an increase of 18 branches over the previous year (Central Bank of Oman (CBO), 2012). Locally incorporated commercial banks, in addition, had ten branches and two representative offices abroad. The locally incorporated commercial banks were Bank Muscat (BMU), National Bank of Oman, HSBC Bank Oman, Oman Arab Bank, Bank Dhofar, Bank Sohar and Al Ahli Bank. Of the seven local banks, six were listed at the Muscat Securities Market at the end of 2012. All commercial banks are privately owned, with the government having minority stakes in a few. Aggregate foreign ownership in locally incorporated banks is limited to a maximum equity share of 70 percent with prudential sub-limits imposed on the shareholding pattern. At the end of 2012, 11 commercial banks had approval to engage in specific investment banking activities on a tiered licensing system.

A significant development in the institutional framework was the merger of HSBC Bank Middle East Limited's Oman branches with Oman International Bank in June 2012. The registered name of the bank is now HSBC Bank Oman. On 6 December 2012, Bank Nizwa was licensed as the first full-fledged Islamic bank and had a soft launch in December 2012. It commenced business in January 2013 with two branches. Four local banks set up Islamic banking windows with nine branches during the first quarter of 2013. The commercial banking operations remained fairly concentrated with the three largest local banks accounting for 62 percent of the total assets, 61.7 percent of total credit, 60 percent of total deposits and had combined assets of RO 13 billion (US$33.8 billion) as at the end of December 2012. Commercial banks' liability profile continues to be dominated by customer deposits which represented 68 percent of total liabilities at the end of the year.

On the assets side, total credit accounted for 69 percent of total assets at the end of 2012 with bank credit to non-oil GDP at 89.9 percent. Commercial banks' core capital and reserves stood at RO 2.7 billion with the BIS capital adequacy ratio at 16 percent at the end of the year (CBO, 2012).

In addition to commercial banks, there are two government owned specialized banks in operation, namely, Oman Housing Bank and Oman Development Bank. These banks provide soft financing to mainly low and middle-income Omanis to build or purchase residential property and to private sector investors to finance small projects. Together the specialized banks operated with a network of 22 branches. With regard to non-bank financial intermediaries, six finance and leasing companies licensed by Central Bank of Oman (CBO) were engaged in leasing, hire purchase, debt factoring and similar asset-based financing. The six finance companies operated with 37 branches in Oman. As at the end of 2012, the number of money exchange establishments stood at 46 of which 15 operated under the license of money changing and draft issuance business, while the remaining were permitted to exclusively deal in money exchange activities.

In an economy like Oman which has open capital account, a certain level of dollarization is inevitable. The differential between the interest rates associated with the Rial Omani and the US dollar also affects the extent of dollarization of the economy. With narrowing of differential between the two, there has been some decline in the level of dollarization of the Omani economy in the recent period. This is reflected in the decline in commercial bank deposits in foreign currency to total deposits in 2012 and decline in commercial bank credit in foreign currency to total credit in 2011 and 2012. Table I presents the evolution of dollarization in Oman.

In order to raise funds from individuals and institutions, banks are required to establish decent rates on deposits to cover at least the inflation rates. Looking at Table II, in all recent years, the weighted average interest rate on deposits base is lower than the rate of inflation, that is, there is a negative real rate of return. Few banks offer deposits with rates which are higher than inflation rates, but the majority of accounts with a large amount of demand deposits gets rates of zero or close to zero.

Al-Muharrami (2015) in his recent study "interest rate in Oman: is it fair?" found that the trend analysis of commercial banks' interest rate spreads in Oman exposes the following facts. First, the implicit interest margin is relatively small (in the neighborhood of 1 percentage point). Second, profits constitute a substantial proportion of the margin. Third, the share of operating costs in the margin has been broadly constant over time. Fourth, reserve requirement costs have been reduced following the decline of the reserve requirement ratio. Fifth, the weighted average interest rate on deposits base is lower than the rate of inflation.

Table I.
Indicators of dollarization (percent)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Banks deposits in ForEx to total deposits	16.0	18.5	23.4	28.8	17.3	15.0	13.3	15.5	17.1	13.8
Banks credit in ForEx to total credit	23.1	21.8	21.3	20.4	23.6	21.1	21.2	20.6	17.5	13.7

Source: CBO Annual Reports

Table II.
Inflation and deposits rate in Oman banking (percent)

	2004	2005	2006	2007	2008	2009	2010	2011	2012
Inflation	0.7	1.9	3.4	5.9	12.4	3.4	3.2	4.1	2.9
Weighted average deposit interest rate	1.646	1.906	2.633	2.363	2.496	2.053	1.554	1.349	1.274

Source: CBO Annual Reports

2. Literature review

The seminal paper by Ho and Sanders (1981) provides a theoretical framework which is basis for most empirical studies on the determinants of bank net interest margins. They suggest that interest margin is a compensation for the bank for managing the risk involved in taking deposits and giving loans. Hanson and Rocha (1986) study, one of the earliest empirical investigations into the reasons for high interest spreads argued that a large spread between interest paid to deposit customers and interest charged from borrowers is an obstacle to financial intermediation, that is, the flow of funds from surplus units to deficit units. Low levels of intermediation may in turn choke economic growth and development, unless the capital market route is strong and vibrant which is definitely not the case in Oman and other GCC countries. In their comprehensive review paper Hanson and Rocha (1986) identified that the four main reasons for high bank spreads are inflation, lack of competition, financial repression and high operating costs. Demirgüç-Kunt and Huizinga (1999) published an influential study using bank-level data in which they examined the determinants of bank interest margins and profitability using data from 80 countries. They find that differences in interest margins reflect a variety of determinants which can classified into internal and external factors. Other panel country studies have focused on determinants of net interest margins or bank spreads in Europe, MENA region, Latin America, Sub-Saharan Africa, Central and Eastern Europe and emerging markets (Sahile *et al.*, 2015; Naceur and Omran, 2011; Perera *et al.*, 2010; Saunders and Schumacher, 2000; Molyneux and Thornton, 1992; Abreu and Mendes, 2002; Bashir, 2000; Demirgüç-Kunt and Huizinga, 1999).

Based on a broad sweep of existing literature we can identify three groups of factors influencing net interest margins. These are bank-specific factors, financial/market structure factors and macroeconomic factors.

2.1 Bank-specific factors

Bank-specific factors such as overheads, bank size, bank equity, credit risk, non-earning assets, and liquidity risk have been identified as important factors influencing bank interest margins (Nassar *et al.*, 2014). Demirgüç-Kunt and Huizinga (1999) found equity to total assets has a positive relationship with net interest income while non-interest earning assets to total assets are negatively related to net interest margins. They find that liability side factors such as customer deposits, demand deposits, savings deposits and time deposits do not significantly affect the net interest variable. Another bank-specific variable which has a significant negative influence on net interest margins is overheads to total assets ratio. Saunders and Schumacher (2000) reported that there is a trade-off between solvency and margins. They find that high capital to asset ratios imply low interest margins. However, some recent panel studies report a positive relationship between equity ratios, overhead ratios and net interest margins (Naceur and Omran, 2011, Moore, 2010). Results of a recent panel data study by Ahokpossi (2013) show that bank-specific factors such as credit risk, liquidity risk and bank equity are important determinants of interest margins.

2.2 Financial structure and market structure factors

Many studies have stressed the importance of financial structure and market structure factors in studying net interest margins (Ahokpossi, 2013; Dumičić and Rizdak, 2013). Demirgüç-Kunt and Huizinga (1999) included regulations, financial structure and legal indicators as determinants of net interest margins. The impact of market power on interest margins was analyzed by Carbo and Fernandez (2007). Market structure and regulation on bank entry influence the efficiency of financial intermediation (Demirgüç-Kunt *et al.*, 2004). Some studies have found that lower interest margins are associated with policies that promote competition and decrease market concentration (Naceur and Goaied, 2003; Ahokpossi, 2013). Influence of financial structure indicators such as stock market

capitalization and size of banking sector have also been examined. Naceur and Goaied (2003) found that disintermediation (as measured by stock market capitalization) is favorable to the banking system.

2.3 Macroeconomic factors

Macroeconomic factors are viewed as control variables to account for differences in the economic environment between different countries. Most studies on bank interest margins include bank-specific factors, market structure factors as well as macroeconomic factors in conjunction with each other. Macroeconomic factors such as inflation, economic growth, interest rate volatility, credit and macroeconomic risk premia are some of the variables which have been examined in different studies (Mlachila and Sanya, 2016; Ahokpossi, 2013; Demirgüç-Kunt *et al.*, 2004; Saunders and Schumacher, 2000; Naceur and Goaied, 2003; Angbaszo, 1997). Inflation and growth (GDP per capita growth) are two variables which have been identified as playing an important role in determining interest margins by many studies. Of the two, interest margins seem to be particularly sensitive to inflation. Inflation is seen as an indication of macroeconomic instability and informational asymmetries, and as such higher inflation leads to higher interest margins. On the other hand GDP growth is a proxy for economic development is expected to be negatively related to bank spreads (Dietrich *et al.*, 2015).

Both internal (bank-specific factors) as well as external factors such as macroeconomic variables and structure variables should be used as explanatory variables in any econometric investigation of bank margins. Further, there is no evidence of any empirical studies which focused on net interest margins in the GCC countries. This study attempts to fill in this gap with a view to nudge policy makers to look at the issue of high interest margins and its detrimental impact on economic growth and development in the GCC countries.

3. Data and methodology

This study looks at the determinants of bank net interest margins in Oman and the Gulf countries and covers the period 1999-2012. It examines the role played by a variety of factors such as bank characteristics, bank loan to asset portfolio composition, market structure, financial structure and macroeconomics factors in determining net interest margins and banks spreads. The first stage of the study was a series of interviews with bankers in local banks to understand the factors which influence net interest margins in Oman. The second stage and the primary method of analysis involved balanced panel regressions using bank-specific data of local banks operating in Oman and the GCC. The study covers only local commercial banks and does not include foreign banks. Since the structure of banking regulation is similar in the GCC countries, comparison of the behavior of Omani banks with banks in the other GCC countries allows us to identify which factors are responsible for the high banking spreads (measured in this study by net interest margins).

Data used for the study is drawn from balance sheet and income statement data of banks in Oman and banks in other GCC countries for the period 1999-2012. Table AI gives the list of banks included in the study along with their abbreviations and the country of origin. Table AII reports the descriptive statistics of each variable used in the estimation.

4. Econometric modeling

Data of 37 commercial banks which operated in GCC countries continuously from 1999 to 2012 is used in this study. The data set used is a combination of both cross-sectional and time series data and therefore balanced panel data regression techniques were considered as being suitable. Two methods of estimation were used for estimating the balanced panel

regressions: the random effects method (REM) and fixed effects model (FEM). The REM is also sometimes called "error components method."

A better methodology would have been the Panel Generalized Method of Moments (GMM), but the number of cross-sections n (37 banks) is small to apply the Panel GMM. Considering the size of sample, which consists of 37 banks covering 14 years, generalized least squares (GLS) technique is more appropriate.

Estimation using dynamic panel GMM technique which was used by some recent studies (Naceur and Omran, 2011; Goddard *et al.*, 2004) is inappropriate for the present study, because the issue in question is to explain the differences in interest margins among banks operating in different GCC countries, and not the change in net interest margin from one year to the next.

4.1 FEM

$$\mathrm{NIM}_{i,c,t} = \alpha_i + \beta_1 Y^B_{i,c,t} + \beta_2 Y^F_{c,t} + \beta_3 Y^M_{c,t} + \varepsilon_{i,c,t}$$

The subscripts (i, c, t) stand for individual bank, country and year. The dependent variable NIM represents individual bank net interest margins. Y^B, Y^F, and Y^M are vectors of bank-specific variables, financial sector variables and macroeconomic variables; ε represents residuals. The bank-specific effect is α_i. The FEM takes α_i to be a bank-specific constant term in the regression model.

4.2 Random effects model (REM)

$$\mathrm{NIM}_{i,c,t} = \alpha + \beta_1 Y^B_{i,c,t} + \beta_2 Y^F_{c,t} + \beta_3 Y^M_{c,t} + \omega_{i,c,t}$$

where $\omega_{i,c,t} = \mu_i + \varepsilon_{i,c,t}$.

The subscripts (i, c, t) stand for individual bank, country, and year. The dependent variable NIM represents individual bank net interest margins. Y^B,Y^F, Y^M and are vectors of bank-specific variables, financial sector variables and macroeconomic variables; ω represents residuals. The composite error term ω consists of two components, μ_i which is the bank-specific error component, and $\varepsilon_{i,c,t}$ which is the combined cross-section and time series-specific error component. To estimate the fixed effects and the random effects models the estimated generalized least squares (EGLS) technique was used.

4.3 Variable specification

The dependent variable in all panel regressions is net interest margin (NIM). Bank-specific independent variables considered in the study are equity to total assets (EQUITY), bank loan to total assets (LOAN), overheads to total assets (OVHD), non-earning assets to total assets (NEA) and log of total assets (SIZE). Equity to total assets (EQUITY) indicates a bank's dependence on shareholder's funds rather than borrowings and deposits for financing asset growth. Since a bank does not pay interest for shareholder's funds (unlike depositor's money on which a bank has to pay interest) NIM should improve if a bank has a higher equity to total assets ratio, because interest costs will be less. Loan to total assets (LOAN) indicates the extent to which a bank has been able to use depositors' money to give credit. Loans are extremely important sources of interest revenue for banks, especially in Oman and in the other GCC countries. We expect a positive relationship between interest margins and loan to total asset ratio. Overheads of banks mainly consist of staff salary and technology costs. Banks which spend more on overheads may reap the

benefits of superior loan quality and better deposit mix and service quality, and therefore higher overheads ratio should lead to higher interest margins (Demirgüç-Kunt and Huizinga, 1999). Log of total assets (SIZE) is used instead of total assets because total assets are used as denominator in specifying many of the independent variables. Non-earning assets to total assets (NEA) and loan to total assets variables are likely to be related to each other (inversely), and are therefore not introduced together. Any one of these variables is used in the regressions as an explanatory variable.

Financial structure variables used in the study are equity market capitalization to GDP (MRKT) and total bank credit to GDP (BNKCRDT), and bank concentration (CONC). Size of the banking sector in relation to the size of the economy is measured by the ratio of total bank credit to GDP (BNKCRDT). Stock market capitalization to GDP (MRKT) is used in this study as a measure of size and importance of the equity market in the country and as a proxy for financial market development. MRKT and BNKCRDT in conjunction with each other may also indicate the extent to which equity finance and bank credit act as substitutes or complements.

Empirical evidence of the effect of bank market structure on net interest margins is conflicting. According to the traditional market structure conduct performance hypothesis, there is a positive relationship between bank concentration levels and net interest margins. However, some studies such as Berger (1995) say that the relationship between a bank's performance and bank concentration critically depends on which factors are held constant. Concentration ratio (CONC) is estimated as the percentage of the total bank assets held by the three largest banks in the country. In this study concentration ratio is used as a proxy for the market structure of the banking sector in the country.

GDP per capita growth (GRW) and inflation (INFL) are the two macroeconomic variables included in this study. GRW is an index of economic growth, which reflects the mix of banking opportunities, and is expected to positively impact bank interest margins. However, some studies have reported GDP per capita growth variable as being insignificant in bank spread regressions (Demirgüç-Kunt and Huizinga, 1999). Inflation is a macroeconomic risk and can affect both deposit interest rates and loan rates. Maturity mismatch between a bank's deposits and loans implies that interest rates on deposits and loans do not change at the same time and to the same extent. If these rates adjust to inflationary pressures to different extents and at diverse speeds, net interest margins can get affected.

4.4 Endogeneity

Endogeneity between the net interest margin (NIM) and other bank-specific independent variables (equity to total assets, bank loan to total assets and overheads to total assets) is a problem which needs to be addressed before attempting empirical estimation. While one can assume that endogeneity is unlikely between net interest margin and external variables (macroeconomic, market structure and financial structure), there is a possibility of endogeneity between net interest margin and bank-specific variables. The standard and well accepted procedure in such situations is to use lagged explanatory variables (Reed, 2014). To overcome the endogeneity problem all the three bank-specific variables are introduced into the regression with a one period lag.

5. The empirical findings

5.1 Robustness checks

The method of GLS is used to tackle the problem of heteroscedasticity. GLS estimators are homoscedastic and this method produces estimators that are best linear unbiased (BLUE). Hausman test is used to check whether the random effects model is better than the fixed effects. χ^2 value of Hausman test at 32.39 indicates that FEM is the better of the two.

To correct for any possible autocorrelation, the study used the EGLS method. Coefficients obtained through EGLS have the usual optimum properties (BLUE) asymptotically (Gujarati, 2003). The regression results reported in Table III show robust (White's heteroscedasticity consistent) standard errors.

5.2 Results

Panel regression results are reported in this section. Although several combination of specification was estimated, the discussion focuses on the most robust empirical findings which are reported in Table III and Table IV. Table AIII reports results of other combinations of specifications estimated.

Table III reports the estimated results of the random effects model and the FEM whereas Table IV gives the associated bank-specific random effects and fixed effects. Both the random effects regression and the fixed effects regression are well estimated. Between the two the fixed effects (FEM) regression is better estimated. In the FEM, three variables – lagged loan ratio (LOAN-1), lagged overheads ratio (OVHD-1) and size of banking industry (BNKCRDT) have a strong and positive impact on net interest margins. Lagged equity to total assets (EQUITY-1) is positive but the level of significance is different between the fixed effects and random effects model. Equity ratio is highly significant in the random effects model while it is weak in the FEM. Bank size (SIZE) has a negative coefficient and is highly significant. Bank concentration variable has a strong negative coefficient in the random effects model but not in the FEM.

Equity to total assets variable indicates that well-capitalized banks has higher net interest margins. Similar results were reported by several studies (Demirgüç-Kunt and Huizinga, 1999, Naceur and Omran, 2011). A well-capitalized bank has lower funding cost because deposit costs are lower; to the extent lending can be financed from equity rather than deposits. One more reason could be that a well-capitalized bank can afford to take on more credit risk while lending because of its inherent balance sheet strength. Higher risk loans give higher returns and therefore higher net interest margins. Both the regressions show that banks with higher loan to total assets have higher net interest margins. Overheads to total assets variable has a very powerful positive influence on net interest

Robust (white's heteroscedasticity consistent) SE
Sample: 1999-2012
Number of cross-sections used: 37
Total panel (balanced) observations: 481

Random effects model (REM) Method: pooled EGLS Dependent variable: NIM			Fixed effects model (FEM) Method: pooled EGLS Dependent variable: NIM		
Variable	Coefficient	SE	Variable	Coefficient	SE
C	5.4180***	1.1110	C	3.8945**	1.6555
EQUITY(-1)	0.0214***	0.0075	EQUITY	0.0214**	0.0094
LOAN(-1)	0.0121***	0.0029	LOAN	0.0115***	0.0026
OVHD(-1)	46.1584***	8.8687	OVHD	40.4438***	8.4722
SIZE	−0.2070***	0.0451	SIZE	−0.1698***	0.0630
INFL	0.0038	0.0022	INFL	0.0044	0.0023
GRW	0.0088	0.0095	GRW	0.0051	0.0106
CONC	−1.5178***	0.5834	CONC	−0.1157	1.0308
MRKT	0.0005	0.0008	MRKT	0.0009	0.0008
BNKCRDT	0.0084***	0.0014	BNKCRDT	0.0089***	0.0018
R^2	0.4433		R^2	0.8153	

Notes: **,***Significant at the 5 and 1 percent, levels, respectively

Table III.
Panel data regression results

Country	Bank	Random effects	Bank	Fixed effects
Bahrain	AHU	−0.614603	AHU	−0.907859
Bahrain	ABC	−0.966977	ABC	−1.307901
Bahrain	BBK	−0.384168	BBK	−0.601955
Bahrain	GIB	−0.854597	GIB	−1.224183
Bahrain	NBB	−0.273962	NBB	−0.509772
Kuwait	AUK	−0.6081	AUK	−0.788814
Kuwait	CBK	0.00467	CBK	−0.164987
Kuwait	GUF	0.050195	GUF	−0.124866
Kuwait	NBK	0.454103	NBK	0.283558
Oman	DFO	0.597552	DFO	0.668167
Oman	BMU	0.70007	BMU	0.719051
Oman	HSO	0.188146	HSO	0.224197
Oman	NBO	0.068592	NBO	0.086601
Oman	OAB	0.5136	OAB	0.617536
Qatar	AHL	−0.439732	AHL	−0.671971
Qatar	CBQ	−0.013146	CBQ	−0.249879
Qatar	DOH	0.418273	DOH	0.224884
Qatar	QNB	0.207535	QNB	−0.090958
Saudi Arabia	ANB	0.482665	ANB	0.73057
Saudi Arabia	BJZ	−0.800404	BJZ	−0.540315
Saudi Arabia	FRN	0.164509	FRN	0.364675
Saudi Arabia	NCB	0.875904	NCB	1.118229
Saudi Arabia	RIB	0.327555	RIB	0.551861
Saudi Arabia	SAM	0.658821	SAM	0.880975
Saudi Arabia	SBB	0.490053	SBB	0.732873
Saudi Arabia	SHB	−0.062751	SHB	0.169918
Saudi Arabia	SIB	−0.298925	SIB	−0.109523
UAE	ADC	−0.197646	ADC	−0.200165
UAE	BSH	−0.297123	BSH	−0.211859
UAE	CMI	−0.292608	CMI	−0.127463
UAE	CBD	0.518564	CBD	0.654836
UAE	FGB	0.219721	FGB	0.281554
UAE	MSQ	−0.547074	MSQ	−0.508738
UAE	NBA	−0.32835	NBA	−0.353445
UAE	NBF	−0.607874	NBF	−0.509803
UAE	NBU	0.874905	NBU	1.089873
UAE	UNB	−0.227393	UNB	−0.194901

Table IV.
Bank-specific fixed effects and random effects

margins, which is line with several studies using bank-level data (Demirgüç-Kunt and Huizinga, 1999, Moore, 2010). Banks which spend more on staff and bank technology have higher interest margins. Investing in staff and technology is therefore very important for a bank to perform well. Our results also imply that cost minimization is not necessarily a good strategy for GCC banks.

Loan to total assets ratio has strong positive coefficient in both REM and FEM regressions. Demirgüç-Kunt and Huizinga, 1999 in their study using bank-level data covering 80 countries report a similar result. As argued earlier, the more the percentage of loans in a bank's asset portfolio the more the ability to earn interest. This is especially true in the GCC market because banks earn very little on their investments in money market securities and government paper. Net interest margins decrease as the size of the bank increases (SIZE), implying that larger the bank the lower the margins. This result is consistent with models that emphasize the negative role of bank size due to scale inefficiencies. Similar results were reported by several studies in the past (Berger *et al.*, 1987; Naceur and Goaied, 2003). In the context of GCC countries the negative impact of size on net

interest margins may also be explained by the limited size of the banking market. Bigger banks in search of new business often tap market segments which yield lower interest revenue which in turn leads lower interest margins. Impact of bank concentration ratio (CONC) on net interest margins is not clear, because in the fixed effects regression this variable is statistically insignificant while it is not in the random effects regression. Concentration ratio is statistically insignificant in other estimates which are reported in Table AIII implying that higher levels of competition did not reduce interest margins of GCC banks during the period 1999-2012. The literature suggests a positive relationship between concentration and net interest margin, yet this paper finds a negative relationship. Bank-level data seems to indicate that the largest banks in each of the GCC countries have the highest net interest margins. The explanation for the negative relationship (or the lack of relationship) between concentration and net interest margin can be found in the price leadership model of oligopoly. Anecdotal evidence gathered from local newspapers points to the existence of price leadership in the GCC banking market. The largest banks set the deposit and lending rates and other smaller banks are forced to follow. If this is true a decrease in concentration will not result in a decline in net interest margins, as rates are set by the largest banks. Similar results have been reported by other studies (Bikker and Haaf, 2002; Perera *et al.*, 2010). Bikker and Haaf (2002) in a study covering 23 European countries, report that a few large banks restrict competition and that the many smaller banks operating in the same market are not able to make themselves felt.

The bigger the size of the banking sector in the economy, as measured by bank credit to GDP ratio (BNKCRDT), the higher are the interest margins. This result is at variance with other studies which found that size of the banking sector tends to reduce interest margins. From a GCC point of view the results can be interpreted as follows. As the banking sector spreads in the economy, individual banks have more opportunities to market their products, and have opportunities for expanding their credit card and personal loan business which have higher interest rates. GCC banks were able to expand across the region while at the same continuing with oligopolistic practices. The positive sign of the BNKCRDT variable (spread of banking sector) in conjunction with the positive sign of the stock market capitalization ratio also indicates that these two segments, debt and equity markets, have a complementary effect. The bigger the stock market, the more are the opportunities for banks to lend, leading to better interest margins.

5.3 Interest margins in Oman

Table IV reports bank-specific random effects and fixed effects, reported in country wise order. In the FEM the bank-specific constant term shows the impact of an individual bank's own factors on net interest margins, after netting out the influence of other explanatory variables. For example, in case of BMU the bank-specific constant term is 0.71. This is the portion of the net interest margin which cannot be explained by the explanatory factors included in the regression (such as equity to total assets, loan to total assets, etc.) and is the portion which is due to the bank's own internal policies and strategies. The bank-specific constant terms of Omani banks in the FEM clearly show that Omani banks have the highest bank-specific constant terms, and are next only to Saudi banks. This result is also true for the random effects model where all Omani banks have positive random effects unlike UAE and Bahraini banks. The positive random effects imply above average net interest margins.

Table V shows the country wise average of the fixed effects coefficient. The average fixed effects for Omani banks is the highest at 0.46 followed by Saudi Arabia at 0.43. In case of UAE the average is 0.008. Bahraini banks have the lowest at −0.91. Omani banks earn net interest margins which are 0.46 higher than other GCC banks while UAE banks earn net interest margins which are in line with the rest of the GCC banks. If one were to hypothesize that lower the net interest margins lead to better financial intermediation, the data forces us

to conclude that Bahraini banks are most efficient and Omani banks are least efficient in financial intermediation.

The above results imply that factors such as equity ratio, loan ratio, overheads ratio, bank size, etc. (the explanatory variables included in the regressions) cannot explain the high net interest margins of banks in Oman. For example, we cannot say that banks in Oman have high net interest margins because their capital to assets ratio is high or that their overhead to assets ratio is high. Average fixed effects for Omani banks would have been near zero, if the explanatory variables included in the regression are able to account for the net interest margins of Omani banks during the sample period. The standard, accepted econometric model of net interest margins which was used in this study is unable to explain the high net interest margins of banks in Oman. Probably the answer is related to Omani banks own internal strategies and policies.

One can explain this result based on what was gathered in the series of interviews with bankers in Oman, which was the first stage of this study. Based on the discussions, it can be concluded that there are many reasons for the high net interest margins. The portion of personal loans in Omani banks is substantial and local banks charge much higher interest rates on personal loans compared to business loans. Banks also earn a lot of interest revenue through their credit card business and have even been able to sell medium to long-term loans using credit card limits as security. There are regulatory restrictions on the ratio of personal loans to total loans. Banks try to overcome this regulatory restriction by giving more business loans which in turn allows them to give morepersonal loans. Over the years CBO brought in many restrictions to control personal loan segment of the market. CBO imposed a ceiling on interest rate charged by banks on personal loans, and on several occasions the ceiling was lowered to reduce cost to borrowers.

Banks use lottery deposit schemes to raise savings deposits. These lottery deposit schemes give prizes to the winners and every depositor who has a savings deposit account is eligible to participate in the lottery. However, the lottery deposit schemes do not pay any interest to the depositors. The total cost of prizes in the lottery is much lower than what the bank would have paid as interest to depositors had it raised the same deposit through an interest paying deposit account. Local banks do not provide cheque book facility with savings deposit accounts, a practice which is common in other Asian countries. Customers who need cheque book facility have to necessarily keep their funds in current accounts which pay zero interest. Banks also do not offer swing and sweep accounts which allow automatic transfer of excess funds from zero interest paying current accounts to interest paying savings accounts and vice- versa. Customer awareness of interest paying deposits is low although these products exist. Lottery deposit schemes are marketed aggressively while there is almost no marketing of interest paying deposit schemes.

Local banks strive to lower deposit costs by aggressively marketing zero interest current accounts and zero interest savings accounts. Over a period of time local banks managed to increase average loan yields by selling high interest credit-related products such as personal loans and credit cards. We conclude that Omani banks are able to increase interest spreads and net interest margins by marketing a unique mix of loan and deposit products.

Oman	0.46311
Saudi Arabia	0.43325
UAE	−0.00801
Qatar	−0.19698
Kuwait	−0.19878
Bahrain	−0.91033

Table V.
Average of fixed effects country wise

5.4 Policy implications

Fixed effects coefficients reported in Table IV as well as country wise averages of fixed effects coefficients, reported in Table V, show that banks in several GCC countries have high net interest margins. High net interest margins are an obstacle to the process of financial intermediation and may hinder economic growth and development. Banks have a right to maximize profits as they are commercial organizations which work for the benefit of their shareholders. However, regulators need to understand and if necessary curb bad practices which hinder the intermediation process. The discussion on interest margins in Oman has several policy implications. Aggressive marketing is leading to ballooning of high yield personal and credit card loans, while at the same time customers are being pushed toward zero interest deposit products. Probably individual customers are not getting a fair deal. Increase in the share of personal loans in bank portfolios implies a lower availability of funds for business lending. However, more work is needed on the implications of NIM spreads for how they affect an economy.

5.5 Managerial implications for GCC banks

The panel regression model using EGLS is well estimated and may be used to draw lessons from managerial point of view. Typically top managements of banks are keen on increasing net interest margins as this ultimately contributes to improved profitability which in turn leads to strength and stability. The regression results imply that higher loan to total asset ratios combined with higher spending on overheads helps banks in increasing net interest margins. Increasing capital ratios help banks in achieving higher net interest margins. A surprising but important result from the panel regression is the finding that more overhead expenses leads to higher net interest margins.

One more important finding of the study which has strong managerial implication is the strong positive relationship between bank credit to GDP ratio and net interest margins. This is a country-specific effect. The results imply that it is in the interest of banks in any country to expand business through a larger network of branches and loan customer base as this is likely to help in achieving higher net interest margins. Results reported in Table IV support this conclusion. Fixed effects coefficient shows impact of bank-specific factors on net interest margins after netting out the influence of other explanatory variables included in regression. Bank-specific fixed effects are highest in case of Bank Muscat (BMU) in Oman, National Commercial bank (NCB) in Saudi Arabia and National Bank of Kuwait (NBK) in Kuwait. These are also the biggest banks in their respective countries. It appears that these banks, the biggest in their respective countries, have been able to overcome the diseconomies of scale.

6. Conclusion

Average bank net interest margins vary widely across GCC countries. Net interest margins of Omani banks are significantly higher. The resultant low level of financial intermediation implies reduced investment and economic growth. There is no evidence of any empirical studies which focused on net interest margins in the GCC countries. This study attempts to fill in this gap with a view to nudge policy makers to look at the issue of high interest margins and its detrimental impact on economic growth and development in the region.

The study uses Panel Data Regressions (the FEM and the Random Effects Model). Both models are very effective in explaining the behavior of net interest margins in the GCC countries over the period 1999-2012. To overcome the potential problem of endogeneity lagged values of bank-specific variables are used in estimation. Dynamic panel GMM estimation technique, which is popular in panel studies, is inappropriate as the focus of the study is a model to explain differences in net interest margins among banks operating in different countries and not the behavior of net interest margins from one period to the next.

The study considers three groups of determinants of net interest margins. Bank-specific variables (equity to total assets, loan to total assets, overheads to total assets and size), financial/market structure variables (equity market capitalization to GDP, total bank credit to GDP and bank concentration ratio) and macroeconomic variables (inflation and GDP per capita growth).

Impact of bank-specific variables on bank interest margins in GCC countries over the sample period is in line with results obtained by other cross-country panel studies. There is positive relationship between capital ratio (equity to total assets) and net interest margins, a conclusion which is in line with results reported by other panel studies. From a GCC banking system point of view, equity capital is an interest free source of funds for commercial banks. It leads to lower interest expenses and therefore higher net interest margins. Higher loan to total assets ratio has a positive impact on net interest margins which is as expected. In GCC countries yields on money markets instruments and government paper are relatively low implying that banks with higher loan to asset ratios generate higher net interest margins. Overhead expenses to total assets have a positive impact on net interest margins. Similar results have been reported by several other studies. Spending on staff salaries and technology could lead to a better quality and mix of loans and deposits, and therefore higher interest margins. If higher overhead expenditure is compensated by an even higher net interest income, a bank's profitability will improve. Our results also imply that cost minimization is not necessarily a good strategy for GCC banks.

The study concludes that banks in Oman have much higher interest margins compared to their counterparts in other GCC countries. The standard econometric model of net interest margins which was used in this study is unable to explain the high net interest margins of banks in Oman. This result can be explained based on information which was gathered in a series of interviews with bankers in Oman, which was the first stage of this study. Local banks strive to increase interest free deposits such as current accounts and lottery savings accounts, while at the same time increasing the share of very high yield loans, primarily personal loans and credit card loans. Increase in the share of personal loans in bank portfolios implies a lower share of loans to businesses. From a policy perspective, there is a case for regulatory restraints to ensure efficient financial intermediation.

Spread of banking sector (as measured by ratio of total bank credit to GDP) is positive and highly significant, implying that along with the expansion of the banking sector in the GCC countries, interest margins of banks also improved. Although this finding is contrary to other studies which claim that spread of banking sector tends to reduce interest margins due to competition, it can be explained by the expanding opportunities (fueled by high oil prices) in GCC countries, over the last decade, which have allowed banks to give business and personal loans at higher interest rates. This result finds support from the fact that impact of bank concentration on interest margins is unclear – higher levels of competition did not reduce interest margins. GCC banks were able to expand across the region while at the same time continuing with oligopolistic practices.

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Appendix 1

Identifier	Bank Name	Country
ahu	Ahli United Bank	Bahrain
abc	Arab Banking Corporation	Bahrain
bbk	BBK B.S.C.	Bahrain
gib	Gulf International Bank	Bahrain
nbb	National Bank of Bahrain	Bahrain
auk	Ahli United Bank	Kuwait
ahk	Al Ahli Bank of Kuwait	Kuwait
bur	Burgan Bank	Kuwait
cbk	Commercial Bank of Kuwait	Kuwait
guf	Gulf Bank	Kuwait
nbk	National Bank of Kuwait	Kuwait
dfo	Bank Dhofar	Oman
bmu	Bank Muscat	Oman
soh	Bank Sohar	Oman
hso	HSBC Bank Oman	Oman
nbo	National Bank of Oman	Oman
oab	Oman Arab Bank	Oman
ahl	Ahli Bank	Qatar
akc	Al Khalij Commercial Bank	Qatar
bar	Barwa Bank	Qatar
cbq	Commercial Bank of Qatar	Qatar
doh	Doha Bank	Qatar
ibq	International Bank of Qatar	Qatar
qnb	Qatar National Bank	Qatar
anb	Arab National Bank	Saudi Arabia
bjz	Bank Al-Jazira	Saudi Arabia
frn	Banque Saudi Fransi	Saudi Arabia
ncb	National Commercial Bank	Saudi Arabia
rib	Riyad Bank	Saudi Arabia
sam	Samba Financial Group	Saudi Arabia
sbb	Saudi British Bank	Saudi Arabia
shb	Saudi Hollandi Bank	Saudi Arabia
sib	Saudi Investment Bank	Saudi Arabia
adc	Abu Dhabi Commercial Bank	UAE
bsh	Bank of Sharjah	UAE
cmi	Commercial Bank International	UAE
cbd	Commercial Bank of Dubai	UAE
emr	Emirates NBD	UAE
fgb	First Gulf Bank	UAE
msq	Mashreqbank	UAE
nba	National Bank of Abu Dhabi	UAE
nbf	National Bank of Fujairah	UAE
nbu	National Bank of Umm Al-Qaiwain	UAE
unb	Union National Bank	UAE

Table AI.
List of banks with their abbreviations and the country of origin

Appendix 2

	Mean	Median	Maximum	Minimum	Observations	Cross-sections
NIM	3.15056	3.075	5.6	0.57	518	37
EQUITY	13.42081	12.64	36.77	0.77	518	37
LOAN	56.80378	57.615	82.33	19.27	518	37
OVHD	0.014727	0.014126	0.03878	−0.00225	518	37
SIZE	15.83267	15.90931	18.42849	13.03129	518	37
INFL	8.472707	10.39585	19.07108	−18.7874	518	37
GRW	−0.26546	0.195064	13.54371	−13.3333	518	37
CONC	0.718412	0.71356	0.931348	0.518009	518	37
MRKT	63.29691	52.51107	202.8702	5.489226	518	37
BNKCRDT	46.26156	42.12342	97.53465	−10.5077	518	37
NEA	0.070635	0.057208	0.293716	0.008167	518	37

Table AII.
The descriptive statistics of each variable used in the estimation

Appendix 3

Panel regression without one period lag in bank-specific variables
Sample: 1999-2012
Number of cross-sections used: 37
Total panel (balanced) observations: 518

Random effects modeL (REM)
Method: pooled EGLS
Dependent variable: NIM

Variable	Coefficient	SE
C	4.312***	0.844
EQUITY	0.032***	0.010
LOAN	0.012***	0.003
OVHD	47.695***	10.139
SIZE	−0.156***	0.025
INFL	0.002	0.002
GRW	0.009	0.008
CONC	−1.208**	0.573
MRKT	0.001	0.000
BNKCRDT	0.007***	0.001
R^2	0.4572	

Fixed effects model (FEM)
Method: pooled EGLS
Dependent variable: NIM

Variable	Coefficient	SE
EQUITY	0.025***	0.0088
LOAN	0.007***	0.0017
OVHD	52.36***	6.230
SIZE	−0.0756**	0.0388
INFL	0.001530	0.002
GRW	0.0088	0.006
CONC	−0.297	0.701
MRKT	0.0006	0.0004
BNKCRDT	0.0074***	0.0011
R^2	0.8095	

Other panel data regression results

Random effects model
Dependent variable: NIM

Variable	Coefficient	*t*-statistic
C	4.551195***	5.02314
EQUITY	0.03061***	4.467698
LOAN	0.011904***	4.788411
OVHD	47.04372***	6.978957
SIZE	−0.18634***	−4.73241
INFL	0.001614	0.874478
GRW	0.009094**	1.962743
CONC	−0.95415*	−1.94125
MRKT	0.000779	1.355281
BNKCRDT	0.006354***	5.385723
NEA	1.427537***	2.832828
R^2	0.792866	

Sample: 1999-2012
Number of cross-sections used: 37
Total panel (balanced) observations: 518

Fixed effects model
Dependent variable: NIM

Variable	Coefficient	*t*-statistic
EQUITY	0.029391***	4.094626
LOAN	0.011461***	4.222436
OVHD	43.40127***	6.114501
SIZE	−0.14538***	−3.14586
INFL	0.001969	1.084194
GRW	0.006694	1.451491
CONC	0.374802	0.54808
MRKT	0.001274**	2.172049
BNKCRDT	0.006752***	5.598692
NEA	1.548402***	3.055136
R^2	0.81557	

Sample: 1999-2012
Number of cross-sections used: 37
Total panel (balanced) observations: 518

Notes: *,**,***Significant at the 10, 5 and 1 percent levels, respectively

Table AIII. Results of other combinations of specifications estimated

Corresponding author
Y. Sree Rama Murthy can be contacted at: murthy@squ.edu.om