The Competitive Nature of the Arab Middle Eastern Banking Markets

WALEED MURJAN* AND CRISTINA RUZA**

Abstract

The competitive nature of the Arab Middle Eastern (AME) banking markets during the 1990s is the focus subject of this study. Using banks data from nine AME countries, and utilizing the so-called Rosse-Panzar test to quantitatively appraise the dominant competitive conditions in these markets between 1993-97, this study concluded that banking markets have been operating in the region under conditions of monopolistic competition. An important finding revealed by this study is that in the AME region, where two distinct economic spectrums dominate the markets, banking sector in the oil-producing countries (Gulf States) appears to be less competitive than its counterpart in non-oil countries. (JEL G28)

Background of Study

Over the last two decades, the banking sector has been expanding very rapidly in the Arab Middle Eastern (AME) region. In the 1960s and 1970s, the region was characterized by mainly small-sized banks primarily serving the requirements of the limited domestic markets, at a time when no local commercial banks had internationalized their operations to any significant extent. Yet today the whole financial scene has been transformed with a substantial increase in the size and number of local banks, a rapid expansion of branch networks, and an enormous widening in the range of financial services provided by domestic institutions.

The 1990s in particular have witnessed dramatic changes in the entire region's economy that in turn have influenced its banking systems. These changes can be attributed to three key factors: the world-wide trend of globalization, the Gulf war in 1990-91 that resulted in devastating consequences for the whole region's economy, and the advent of the peace process that rendered changes in many countries towards directing their resources into developing and raising the efficiency of their economy instead of military spending.

When focusing on the broad characteristics of the region's economy, two main distinct spectrums of the banking economic environment can be appreciated. On the one hand, banking markets in the rich oil exporting countries have been closely linked with the oil industry and its level of prices. Traditionally, banking sectors in this region have been tightly regulated (except in Bahrain, which has followed a more liberal regulatory environment). Despite the measures taken by some authorities to enhance competition and raise the banking sector's efficiency (like the case of Kuwait and to lesser extent, Qatar), the sector appears to remain relatively restricted with regard to competition.

Non-oil countries, on their part, are characterized by financial institutions that rely on a wider array of domestic and regional resources in order to mobilize savings and investments.

The journey towards financial liberalization started earlier in these countries than in the Gulf states. It seems that, out of necessity, regulators in non-oil countries have been more active at introducing serious forms of financial deregulation as the removal of exchange controls that permits a movement towards currency convertibility, the issuance open investment laws and the promotion of privatization.

Motivated by the desire to closely scrutinize the effects of these interrelated economic dimensions on the banking sector, this study is intended to provide an empirical analysis of the existing competitiveness in AME banking markets during the 1990s.

Literature Review

The issue of determining the level of competition in the banking sector has been subject to an extensive investigation carried out by bankers, academics, and policymakers alike. Traditionally, there have been different approaches for the empirical study of competitive outcomes in banking. Among all, the focus will be directed to the so-called New Industrial Organization literature. Particularly, Baumol, Panzar, and Willig [1982] provide a theory that shows that market competitiveness can be inferred irrespective of the structure of the market. This theory argues that competitive pricing could result for any number of firms in a market if an entering firm can attract customers by charging a low price and could recover any cost of entry, while abandoning the market if older firms retaliate by underpricing in turn.

Simultaneously, an empirical technique called the Rosse-Panzar test has been developed to examine competitive conditions in the light of this contestability theory [Rosse and Panzar, 1977; 1982; 1987]. It has primarily emerged to test market conditions that encompass all spectrums of competitiveness away from the restrictions brought about by the structural concepts. Basically, it depends on the relationship between gross revenues of the firm and the change in its input prices by using a statistic that measures the sum of elasticities of total revenue with respect to each input price.

Among the early attempts to apply the Rosse-Panzar test to the banking industry, there should be cited the empirical studies conducted by Shaffer [1981; 1982], who divides the substantial costs of a banking firm into three categories: cost of physical capital (premises, furniture, fixtures, and equipment), cost of labor (wages, salaries, and other personnel expenses), and cost of funds. Other studies that utilized the Rosse-Panzar test in analyzing banks environment are Nathan and Neave [1989], Lloyd-Williams, Molyneux, and Thornton [1996], Davis and De Bandt [1998], among others.

Data Methodology

As far as this study is concerned, the approach suggested by Shaffer [1981; 1982] and Nathan and Neave [1989] is followed for estimating a reduced form equation to model the behavior of the banks' revenues in relation to changes in cost factors in the AME banking sector.

Data Collection and Sample Design

Data have been obtained from the Fitch-IBCA, Ltd. Bankscope CD-ROM as items taken from banks financial statements (balance sheets and income statements) as they appear at December 31 each year, and then a balanced sample for the period 1993-97 has been constructed. In regard of the sample selection, some selectivity has been necessary in the coverage. Due to the peculiar circumstances related to specific countries, a number of markets were excluded and the sample was finally constructed from nine AME countries such as the

six Gulf Cooperation Council States (Saudi Arabia, Kuwait, Bahrain, Qatar, Oman, and United Arab Emirates), Egypt, Jordan, and Tunisia.

Lastly, it is pointed out that the sample is comprised of 141 banks: 16 in Bahrain, 35 in Egypt, 13 in Jordan, 10 in Kuwait, 10 in Oman, six in Qatar, 12 in Saudi Arabia, 17 in Tunisia, and 22 in the United Arab Emirates (UAE).

Description of Variables
Dependant Variables

Modern trends in banking recognize the proportion of interest revenue as a primary source of banks income, and this is precisely the prevailing situation in the AME banking sector where traditional activities still dominate the bulk of banks business. In the sample, net interest revenue represents, on average, 71 percent of bank income. Therefore, the items included in the gross interest revenue are interest received on loans, interest on discounted commercial paper and securities, and other interest received.

Independent Variables

The cost variables are shown below.

1) *Price of funds (IE/IBF)*
   In order to be compatible with previous Rosse-Panzar type studies, banks are treated as firms producing loans and investments. Deposits and other funding are regarded as the banks' productive inputs. For this variable, the ratio of interest expenses (IE) to interest bearing funds (IBF) is used. Interest expenses comprise of interest paid on deposits, interest paid on borrowing, and other interest paid, whereas interest bearing funds includes customers deposits, interbank deposits, subordinated debt, and other long-term debt.

2) *Price of labor and physical capital (TOE/AS)*
   Due to the constraint imposed by the different accounting practices adopted in each country, the price of labor, physical capital, and other non-interest expenses are combined into the equation as a single variable. This variable comprises wages and salaries, general and administrative costs, physical depreciation, depreciation of investment securities, and other overheads, the sum of which is expressed as a ratio over total assets.

Firm-specific variables are included below since they are other factors that are believed to influence banks' overall earnings-revenues capacity.

1) Total assets (AS) is incorporated as a proxy for bank size to account for the existence of economies of scale. However, the effect of this variable is indeterminate on the grounds that any positive influence on revenues (as generated from economies of scale) may be offset by larger banks being capable of diversifying their business and spreading the risk of business.

2) Net loan/Total assets (NL/AS) is chosen to account for bank-specific risk. In particular, it reflects both credit and interest rate risk, given the special features of loans in the bank's portfolio of assets. In principle, a high ratio is indicative of bank's relative illiquidity and limited capacity of further lending, but positively associated with revenues. In addition, to capture the effects of loan quality, loan loss reserve was netted out from total loans.

3) Cash and due/Deposits (C&D/DEP) is included as a proxy for the liquidity characteristics of a bank firm. A higher ratio suggests a more liquid bank and vice versa. Thus, one would expect this variable to be inversely related to a bank earnings-revenues capability.

4) Equity (EQU), is considered as indicative of capacity. This variable is expected to exert a positive impact on revenue earned since the more equity capital the bank possesses, the more it can extend credit and hence collect greater interest revenue.

5) Dummy variable for Islamic banks (DI), is included since a distinct feature of these institutions is the cheap cost of funds they entail because they do not pay fixed interest on their deposits, and they distribute dividends to their depositors depending on their reported profits. The significance and the impact of this dummy coefficient is expected to be positive.

Model Specification

Econometric Model

The model is expressed as a reduced form revenue equation in logarithmic form, stemming from log-linear revenue and cost functions as follows:

$$\ln(TIR) = a + b\ln(IE/IBF) + c\ln(TOE/AS) + d\ln(AS) + e\ln(NL/AS) \quad (1)$$
$$+ f(C+D)/DEP + g\ln(EQU) + hD(I) \quad ,$$

where TIR is total interest revenue; IE/IBF is the ratio of interest expenses to interest bearing funds; TOE/AS is the ratio of total other expenses to total assets; AS is total assets; NL/AS is the ratio of net loan to total assets; $(C+D)/DEP$ is the ratio of cash and due from banks to total bank's deposits; EQU is the bank's equity; DI is a dummy variable equal to 1 if the bank is Islamic and 0 otherwise.

Table 1 briefly presents the main conclusions that can be derived from the different H statistic outcomes, defined as the sum of the following estimated coefficients: $H = (b + c)$.

TABLE 1

The Rosse-Panzar H-Statistic Possible Outcomes

Estimated H	Industry Equilibrium/Competitive Environment
$H \leq 0$	Monopoly or conjectural variations short-term oligopoly.
	Each bank operates independently as under monopoly profit maximizing conditions.
	H is a decreasing function of the perceived demand elasticity.
$0 < H < 1$	Monopolistic competition.
	Free entry (Chamberlinian) equilibrium excess capacity.
	H is an increasing function of the perceived demand elasticity.
$H = 1$	Perfect competition, or natural monopoly in a perfect contestable market, or sales maximizing firm subject to break even constraint.
	Free entry equilibrium with full (efficient) capacity utilization.

Source: Molyneux, Lloyd-William, and Thornton [1994].

Time Dimension

The traditional approach for studying banking competition is to report cross-sectional results for each year independently and to compare those results to draw conclusions about the trend of competition in a specific banking market. However, Davis and De Bandt [1998] argued that running a cross-sectional ordinary least-squares (OLS) regression on a reduced form revenue equation can provide irregular results.

In the current study, two sets of regressions, in terms of time dimension, are employed. First, the OLS equation is estimated with a constant term on a pooled sample of banks over each year by assuming that all observations are independent. Second, to account for time varying factors and to detect the importance of any changes in banks behavior during the period, interactive time dummies (DU_t from $t = 1, .., T - 1$) are introduced in the equation with each input price using year 1993 as a benchmark.

Regional Effect

It has to be emphasized that two economic patterns dominate the region: oil dependent Gulf States and other non-oil countries. In order to interpret the results with caution and to avoid a loss of information that could result from pooling the data, a two-region estimation is carried out by separately applying the model for the aforementioned two groups of countries. In doing so, one will be better able to detect any difference in the competitive behavior stemming from regional factors.

Primary Results

Full Pooled Sample Results

In the pooled sample, the H-statistic values for all different model specifications happened to lie between 0 and 1, being statistically significant (see Table 2 below). Thus, it may be concluded that banks' revenues have been earned during the period as if under conditions of monopolistic competition, and therefore there is support to reject the hypotheses that banks operated in a monopolist fashion, conjectural variations of short-run oligopoly or perfect competition.

In terms of other exogenous variables, the coefficient of total assets was positive and highly significant. Thus, size seems to be a major factor in determining a bank's level of revenues and economies of scale brought about by operating with a large precipitated asset base, achieving high revenues in a region where bank size varies considerably. Net loans to total assets exerted a positive impact, and cash and due to deposits was not significant at all, implying that the banks' liquidity positions had a little impact on revenues. Surprisingly, the variable of equity had, contrary to expectations and conventional wisdoms in banking theoretical backgrounds, a negative and statistically significant coefficient. In addition, the dummy variable for Islamic banks was indistinguishable from zero, implying no excess revenues generated by these institutions *vis-à-vis* commercial and investment banks.

The introduction of the interactive time dummies was feasible, given the significant F-value of 9.9. The rise in the H-value between 1993-97 appears as a signal that banks have witnessed a significant increase in the baking climate towards more competitive conditions.

Regional Sample Estimates

The results of the two regional estimates were primarily consistent with the full sample estimate itself. Overall, the H-values were statistically different from both 0 and 1, reflecting that banks in the two groups behaved as if under conditions of monopolistic competition. The total assets variable was positive and highly significant in the two groups. The Islamic banking variable had a negative impact on the Gulf banks' revenues (at varying significance levels), whereas equity exerted a inverse influence for both groups.

High F-values for time dummy regressions highlights a change towards a more competitive banking environment in the two regions over the period of the study. However, the most interesting finding is the size of the H-statistic that was notably higher for non-Gulf countries. This could point to the fact that the deregulation process, which has started earlier in those countries, has helped to promote a higher degree of competition. Additionally, the impetus of structural reform programs have gained more focus in non-Gulf countries, resulting in a more competitive environment as well.

TABLE 2
Results for Full-Pooled Sample

	Constant	$\ln(TOE/AS)$	$\ln(IE/IBF)$	$\ln(AS)$	$\ln(NL/AS)$	$(C\&D)/DEP$	$\ln(EQU)$	DI	H
Estimation on Full Panel Data ($R^2 = 94$ percent)									
$\ln(TIR)$	-2.0457*	0.0634**	0.1515*	1.1046*	0.0994*	0.0107	-0.1421*	-0.0652	0.2150
	(-13.1282)	(2.2142)	(5.9252)	(55.4685)	(5.0997)	(0.9326)	(-6.4435)	(-1.2513)	(5.00)*[a]
									(-18.45)*[b]
Estimation with Interactive Time Dummy ($R^2 = 94$ percent)									
$\ln(TIR)$	-2.0765*	0.0492	0.1778*	1.1084*	0.0972*	0.0117	-0.1509*	-0.0686	0.2270
	(-13.4687)	(1.4429)	(5.1718)	(56.3185)	(5.0464)	(1.0262)	(-6.8980)	(-1.3325)	(5.37)*[a]
									(-18.29)*[b]

F test for regression significance (adding interactive time dummies) $F_{2,687} : TIR(9.93)*$

Note: t-statistics are in parenthesis. * denotes significance at the 1 percent level and **dentoes significance at the 5 percent level. [a] denotes the t-statistics for testing the hypothesis H=0 and [b] denotes the t-statistics for testing the hypothesis H=1. Countries included: all sample (1993-97).

TABLE 3
Results for Gulf Countries

	Constant	$\ln(TOE/AS)$	$\ln(IE/IBF)$	$\ln(AS)$	$\ln(NL/AS)$	$(C\&D)/DEP$	$\ln(EQU)$	DI	H
Estimation on Full Panel Data ($R^2 = 93$ percent)									
$\ln(TIR)$	-2.1491*	0.0607	0.0951**	1.0839*	0.2364*	0.5685	-0.1105*	-0.1617**	0.1558
	(-9.1117)	(1.4208)	(2.3930)	(30.7150)	(6.6634)	(1.2734)	(-2.6324)	(-1.9530)	(2.55)**[a]
									(-13.83)*[b]
Estimation with Interactive Time Dummy ($R^2 = 93$ percent)									
$\ln(TIR)$	-2.2306*	0.6496	0.0995***	1.0884*	0.2154*	0.4075	-0.1226*	-0.1548***	0.1645
	(-9.6123)	(1.2314)	(1.7683)	(31.5239)	(6.1175)	(0.9171)	(-2.9784)	(-1.9106)	(2.72)*[a]
									(-13.84)*[b]

F test for regression significance (adding interactive time dummies) $F_{2,687} : TIR(9.43)*$

Note: t-statistics are in parenthesis. * denotes significance at the 1 percent level, **dentoes significance at the 5 percent level, and *** denotes significance at the 10 percent level. [a] denotes the t-statistics for testing the hypothesis H=0 and [b] denotes the t-statistics for testing the hypothesis H=1. Countries included: Saudi Arabia, Kuwait, Bahrain, Qatar, Oman, and UA (1993-97).

TABLE 4
Results for Non-Gulf Countries

	Constant	ln(TOE/AS)	ln(IE/IBF)	ln(AS)	ln(NL/AS)	(C&D)/DEP	ln(EQU)	DI	H
			Estimation on Full Panel Data ($R^2 = 97$ percent)						
ln(TIR)	-0.8429*	0.1392*	0.5160*	1.0546*	-0.0120	0.0064	-0.4892**	0.1625	0.6552
	(-4.2282)	(4.6215)	(14.1358)	(60.3945)	(-0.7753)	(0.9766)	(-2.2221)	(0.3033)	(11.55)*[a]
									(-6.08)*[b]
			Estimation with Interactive Time Dummy ($R^2 = 98$ percent)						
ln(TIR)	-0.7710*	0.1918*	0.4787*	1.0643*	-0.0163	0.0118***	-0.7370*	0.0087	0.6705
	(-4.0150)	(5.5002)	(10.7336)	(62.9201)	(-1.0919)	(1.8241)	(-3.3888)	(0.1700)	(12.09)*[a]
									(-5.94)*[b]

F test for regression significance (adding interactive time dummies) $F_{2,687}: TIR(9.93)^*$

Note: t-statistics are in parenthesis. * denotes significance at the 1 percent level, **dentoes significance at the 5 percent level, and *** denotes significance at the 10 percent level. [a] denotes the t-statistics for testing the hypothesis H=0 and [b] denotes the t-statistics for testing the hypothesis H=1. Countries included: Jordan, Egypt, and Tunisia (1993-97).

Discussion and Conclusions

An important finding revealed by this study supports the view that banks in the AME region have been earning revenues as if under conditions of monopolistic competition. This sort of conclusion may help policy makers in determining future measures aimed at improving efficiency of these banking systems by further liberalizing and achieving a more competitive environment.

On these grounds, it should be taken into account that during the 1990s, AME banking markets have already witnessed unprecedented steps towards a more open financial system, particularly in the non-Gulf countries, where financial liberalization has started relatively early. They tend to show higher doses of competitiveness as compared to its counterparts.

Nevertheless, it should be stated that many protective measures are still active in many countries in the region. The overall implication is that by easing the heavy regulations that restrict the banking industry in some countries may positively contribute to the purpose of raising the efficiency of the financial system and the economy as a whole, without harming the domestic banking system. In the end, further deregulation and structural reforms will contribute to match the higher level of competitiveness that characterizes the U.S. and the European markets.

References

Baumol, W. J.; Panzar, J.; Willig, R. *Contestable Markets and the Theory of Industry Structure*, San Diego: Harcourt Brace Jovanovich, 1982.

Davis, E.; De Bandt, O. "Competition, Contestability, and Market Structure in European Banking Sector on the Eve of EMU," Working paper presented at the V11 Tor Vergata Financial Conference, Rome, November 26-27, 1998.

Lloyd-Williams, D.; Molyneux, P.; Thornton, J. "Competition and Market Contestability in Japanese Commercial Banking," *Journal of Economics and Business*, 48, 1996, pp. 33-45.

Molyneux, P.; Lloyd-Williams, D.; Thornton, J. "Competitive Conditions in European Banking," *Journal of Banking and Finance*, 18, 1994, pp. 445-59.

Nathan, A.; Neave, H. "Competition and Contestability in Canada's Financial System: Empirical Results," *Canadian Journal of Economics*, 22, 1989, pp. 576-94.

Rosse, J.; Panzar, J. "Chamberlin vs. Robinson: An Empirical Test for Monopoly Reans," Bell Laboratories, Economics discussion paper, 1977.

Rosse, J.; Panzar, J. "Structure, Conduct and Comparative Statistics," Bell Laboratories, Economics discussion paper, 1982.

—. "Testing for Monopoly Equilibrium," *Journal of Industrial Economics*, 35, 1987, pp. 443-56.

Shaffer, S. "Banking: Empirical Test for Competitive Conduct," Banking Studies Department, FRB of New York, August 18, 1981.

—. "Non-Structural Test for Competition in Financial Markets," *Bank Structure and Competition*, Conference proceedings, Chicago, FRB of Chicago, 1982, pp. 225-43.