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Market Structure and Performance in the GCC Banking Sector: Evidence from Kuwait, Saudi Arabia, and UAE

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Abstract

There are two main competing approaches with regard to market structure and business performance. These are the structure-conduct-performance (SCP) paradigm and the efficient market (EM) hypothesis. The former emphasizes market collusion, while the latter stresses the superior operating efficiency of particular firms. In this paper we present the results from testing both hypotheses in the Kuwaiti, Saudi, and UAE banking markets for the period 1999-2002. The results support the EM hypothesis in both Kuwait and the UAE, and the SCP paradigm in Saudi Arabia. Thus, our findings suggest that promoting bank mergers in Kuwait and the UAE will enhance their efficiency, while in Saudi Arabia this would lead to higher concentration and hence less competition and profitability in the entire banking system.

JEL Classifications: G21; G32; R11

Keywords: Profitability; Market Share; Concentration; Performance; GCC countries.

Market Structure and Performance in the GCC Banking Sector: Evidence from Kuwait, Saudi Arabia, and UAE

1. Introduction

Traditionally, banking sectors in the Gulf Region – with the exception of that in Bahrain – have been protected from foreign competition through regulations that impose barriers to entry. However, there has been a noticeable reversal in such policies as of late. In line with their membership obligations, the World Trade Organization is pressuring the Gulf Cooperation Council (GCC) countries to tear down barriers to foreign competition[1]. In response, the financial landscapes in countries such as Kuwait, Saudi Arabia, and the United Arab Emirates (UAE) have already undergone significant changes in the past couple of years.

Beginning with Kuwait, we note that in January 2004, the National Assembly approved an amendment to the 1968 banking law thereby

[1] GCC countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates.

permitting foreign banks to set up operation in Kuwait[2]. At the same time, the Central Bank of Kuwait is also planning on issuing new licenses to Islamic banks, another move which is likely to increase competition among the existing commercial banks, as well as with the current sole Islamic bank.

Saudi Arabia has also taken steps in a similar direction. One of the most significant developments there took place in May 2004, when the Saudi Arabian Monetary Authority (SAMA) granted new single-branch licenses to several global players including BNP Paribas, Deutsche Bank, and JP Morgan Chase, and authorized HSBC to establish an investment bank with its local affiliate – Saudi British Bank. By then, several regional banks such as Gulf international Bank, National Bank of Kuwait, National Bank of Bahrain and Emirates International Bank had all already secured licenses to operate in the kingdom as part of the GCC agreement to open up their regional financial markets. In addition, four finance houses, who have to date been operating outside the official banking sector, are expected to merge into a sizeable bank with a considerable branch network. Also worth mentioning is the fact that the Saudi banking system

[2] EIU (2004a). However, the implications of this legislation should not be overstated given that it restricts foreign banks to one branch and requires that half the workforce is to be composed of Kuwaiti nationals within a period of three years. Furthermore, new foreign entrants are unlikely to want to compete in the traditional banking areas in which competition is already fierce, and are instead more likely to focus on areas such asset management. The same also applies to the Saudi banking system.

has seen two mergers in its recent history, with United Saudi Commercial Bank merging with Saudi Cairo Bank in 1997, and the resulting United Saudi Bank merging with Saudi American Bank (SAMBA) in 1999[3].

And in the UAE, much like its counterparts in Saudi Arabia and Kuwait, the Central Bank announced that it would be issuing new licenses to foreign banks in 2005, and also indicated that it would soon allow existing foreign banks to open more branches (current restrictions limit foreign banks to a maximum of eight branches), provided that they comply with Emiratization quotas[4]. Such a policy represents a reversal of an almost two-decades long policy of not issuing any licenses to new banks: with the exception of Dubai Bank (which was set up in 2002 by using a dormant license held by Emirates Bank International) no new banks have been allowed to establish operations following the country's 1980s banking sector crisis[5]. Since then, nine institutions have disappeared, with eight consolidating and one liquidating. Still, it remains unclear how many banks will wish to enter the market given that it is already somewhat over-banked.

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3 EIU (2004b).

4 EIU (2004c). Decree No.43 calls for 4 percent of employees of financial institutions to be nationals.

5 There was a run on the currency which caused a near-crisis. Two banks went under during that time.

In all three countries, the increase in competition that is likely to be associated with the entrance of new players will probably have a negative impact on the profits of weaker banks, thereby potentially acting as a catalyst for consolidation. Not only that, but yet another factor which may further increase the possibility of bank mergers is the dismantling of trade and investment barriers within the region, which in turn may tempt GCC banks to merge with one another as part of an attempt to create pan-GCC franchises. Against this background, the question that poses itself is: How would such moves affect the structure – and hence performance – of the banking sectors in these countries?

In an effort to address this question, our paper examines the validity of the Structure-Conduct-Performance and the Efficient Market hypotheses within the context of the Saudi, Kuwaiti and UAE banking markets by using data for the period 1999-2002.[6] The former hypothesis emphasizes market collusion, while the latter stresses the superior operating efficiency of particular firms. Thus, one can argue that if the existing market structures reflect the collusive behavior of banks, the opening up of the banking sector to foreign entry is likely to lead to a reduction in markets concentration. On the other hand, if the efficiency hypothesis is found to hold in these markets, then policies of promoting mergers and accession to these markets can be justified on efficiency grounds.

[6] The study only covers Saudi Arabia, Kuwait and the UAE due to the unavailability of data relating to Oman, Qatar and Bahrain.

The paper is organized as follows. The next section presents an overview of the size and profitability of the banking sectors in the sample countries. Section 3 provides background information relating to concentration of the banking sectors in our sample. The literature pertaining to bank market structure and performance is then reviewed in Section 4. Section 5 reviews the methodology adopted in the literature and proposes the hypotheses tests, while Section 6 presents the descriptive statistics of the variables used in the study and the empirical results. Finally, Section 7 closes the paper with some concluding remarks and suggestions for future research.

2. Overview of the Kuwaiti, Saudi and UAE Banking Sectors

The Kuwaiti banking system is comprised of six commercial banks, one foreign bank operating as a branch (the 50% Kuwaiti-owned Bank of Bahrain and Kuwait), the Kuwait Finance House (which operates on Islamic banking principles), and two specialized banks (Industrial Bank of Kuwait and Kuwait Real Estate Bank)[7]. As for the Saudi banking sector, it is composed of ten commercial banks, three of which are 100% Saudi-owned: National Commercial Bank, Riyadh Bank, and Al Rajhi Banking and Investment Company (which is run on Islamic banking principles).

[7] The listed commercial banks are: National Bank of Kuwait, Commercial Bank of Kuwait, Gulf Bank, Burgan Bank, Bank of Kuwait and the Middle East, and the Al Ahli Bank. Note that the Kuwait Finance House was not included in the study, however it does play a prominent role in the Kuwaiti financial sector.

The remaining seven are joint ventures with foreign banks[8]. Lastly, the UAE's banking sector, which is considered to be highly over-banked, is made up of 20 local banks, 26 foreign banks, two specialized banks, and around 40 representative offices, all set up to serve a population of only around 4 million[9].

Table (1) reveals that the Saudi banking sector is by far the largest in the region, boasting average total assets worth $122 billion, total loans of $39 billion and deposits of $88 billion between 1999 and 2002, followed by the UAE and the Kuwaiti banking sectors, whose average total assets stood at $74 billion and $41 billion, respectively. In all three countries the banking sectors enjoyed strong business growth over the period of the study, although the Saudi sector did not perform as well as its counterparts in Kuwait and the UAE, with its assets growing by approximately 20% from $111 billion to $133 billion between 1999 and 2002 (as opposed to approximately 34% growth in both Kuwait and the UAE), its loans shrinking back to $39 billion by the end of 2002 after reaching a high of $41 billion in 2000 (while in Kuwait and the UAE they increased by 53% and 28%, respectively) and its deposits growing by 27% (compared to increases of 31% and 37% in Kuwait and the UAE, respectively).

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8 These are: Al Bank Al Saudi Al Fransi, Arab National Bank, Bank Al Jazira, SAMBA Financial Group, Saudi British Bank, Saudi Hollandi Bank, and Saudi Investment Bank.

9 Due to the unavailability of data, our sample included only 41 of the 46 commercial banks operating in the UAE.

The profitability of the banking sectors in all three countries in the sample improved during the period of the study (although ROAE and ROAA dipped slightly in the UAE in year 2001 when high loan-loss provision charges dented earnings slightly)[10]. The most profitable overall was the Saudi sector, with an average ROAA of 1.9% and an average ROAE of 19.7%, followed by the Kuwaiti sector which achieved an average ROAA of 1.7% and an average ROAE of 13.4%, and finally the UAE sector whose average ROAA and ROAE were 1.4% and 9.6%, respectively.

3. Banking Market Concentration

The most widely used measures of monopolistic power in the banking markets are concentration ratios. Their popularity stems from the relative ease with which they can be calculated and understood. The two main measures of market concentration that have been proposed in the literature are the concentration ratio (CR*k*) and the Herfindahl-Hirschman Index (HHI). CR*k* is the market share of the *k* largest banks in the market, ignoring the remaining banks in the market; and the HHI, which is based on the idea that the behavior of a market is dominated by a small number of large banks, is calculated by summing the squared market shares of all banks in the market. According to U.S. guidelines in this regard, the banking industry is regarded to be a competitive one if the HHI is less than 1,000, somewhat concentrated if the HHI lies between 1,000 and 1,800,

[10] See GCC Annual Banking Review (2004).

and very concentrated if HHI is more than 1,800. We use both these measures to assess the degrees of concentration in the three banking markets, considering the CR*k* ratio in terms of both deposits and loans, and for the shares of both the top three and the top five banks in each country. The results are reported in Table (2) and discussed below.

It is the Kuwaiti banking sector which displayed the highest level of concentration in all indicators reported (as would be expected given that it is only composed of six commercial banks). The control of the top three banks (National Bank of Kuwait (NBK), Gulf Bank, and Commercial Bank of Kuwait) of the total banking system's deposits hovered around 65%, while their control of its loans hovered around 62%. In fact, NBK alone accounts for over 30% of the total banking system's assets, which is more than twice as much as its closest competitor. The HHI also attested to the highly concentrated nature of the Kuwaiti banking system, with the index rising steadily over the period from 2,039 to 2,165.

As for the Saudi banking market, although HHI declined during the period of the study (from 1,411 to 1,364), it remained a somewhat concentrated market. The trends of concentration ratios mirrored that of the HHI, with the market share of deposits of the three largest banks declining steadily from 54.4% in 1999 to 50.7% in 2002, while their share of loans declined from 57.9% to 44.0%.

Finally, we see that the UAE's banking sector was the least concentrated out of the three. In fact its HHI, which fluctuated between 768 and 727, indicates that it is a relatively competitive market. However, its CR3 ratios – both of which remained above 30% – tell a slightly different story, given that they are high compared to international standards (although the market share of the three largest banks in terms of deposits did decline somewhat from 37.4% to 34.2% over the period of study).

Having established that the banking market in each of the three countries was relatively concentrated during the period of the study, we proceed in the next section to examine whether such conditions are conducive to collusive behavior or to the efficiency paradigm.

4. Literature Review on Bank Market Structure and Performance

The notion of dominant economic power and its consequences in terms of prices and profits has long been of interest to economists. Economic theory suggests that there exists a direct relationship between the structure of the market and the performance of firms in it, and the nature of this relationship has been examined in a considerable number of empirical studies. In this regard, two main competing hypotheses have been proposed in the literature: the Structure-Conduct-Performance (SCP) hypothesis and the Efficient Market (EM) hypothesis.

The early classical work in this area is by Bain (1951), who developed what has come to be known as the SCP hypothesis. Bain postulated that in a market with relatively few firms and with barriers to entry, firms would, through collusion or price leadership, be able to achieve supernormal prices and profits. The traditional interpretation of the SCP paradigm is based on the proposition that market concentration fosters collusion among firms in the industry. The hypothesis that is typically maintained has been that explicit or tacit collusion is more likely in markets with a limited number of large competitors and that it should result in a statistically significant positive relationship between market concentration and the profitability of the firms operating in the market[11]. In an attempt to identify the causality more clearly, some researchers examined this traditional hypothesis by substituting price data for profit data and focusing on the correlation between concentration and price levels[12].

On the other hand, one criticism of the traditionalist view comes from the proponents of the contestability theory who argue that there are several sets of conditions that can yield competitive outcomes, with competitive outcomes possible even in concentrated systems. This contention was initiated by Baumol, Panzer and Willing (1982); and Evanoff and Fortier (1988) found evidence that after controlling for efficiency, some profit-

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[11] See Gilbert (1984) for a review of such studies.

[12] See Berger and Timothy (1989), Calem and Carlino(1991) and Timothy (1991).

concentration linkage may persist in markets with substantial barriers to entry. In general, such studies do not entirely rule out structure as a contributing factor to monopoly power, but they do establish that its influence is at most very limited.

The traditionalist view has also been criticized by the proponents of the EM hypothesis, who have instead suggested that the positive relationship between concentration and profitability found in previous studies is not necessarily attributable to collusion, and does not necessarily indicate unidirectional causation running from structure to performance. Instead, they maintain that high profit is the consequence of superior production efficiency and argue that differences in efficiencies across firms may be due to differences in technological or managerial skills or reputation. In other words, firms with comparative advantage in production obtain high market shares and the markets possessing those high market shares become more concentrated[13]. Yet other researchers, while accepting the view regarding the profitability-concentration relationship, criticized the previous research for its failure to take risk into account when investigating the profitability-concentration relationship[14].

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[13] See Demsetz (1973), Pelt (1977), Smirlock (1985), Smirlock and Brown (1986), Berger and Humphrey (1991), Molyneux and Forbes (1995), Berger (1995), and Goldberg and Rai (1996).

[14] This issue was first raised by Caves (1970) and has been tested by Edward and Heggestad (1973), Rhoades and Rutz (1982), Clark (1986), and Molyneux and Thornton (1992).

Thus, the SCP hypothesis and the EM hypothesis imply an observationally equivalent relationship between concentration and profits, but differ as to the structural model creating it. Essentially, the SCP hypothesis takes concentration as exogenous and maintains that high concentration allows for non-competitive behavior that results in less favorable prices to consumers and high profits to firms. The EM hypothesis, on the other hand, takes firm-specific efficiencies as exogenous and maintains that these efficiencies result in both concentrated markets and higher profits.

5. Methodology

Following Weiss (1974) and Smirlock (1985), the traditional and efficient structure hypotheses can be tested by estimating the profit equation shown below[15]:

$$\Pi = a_0 + a_1 CR + a_2 MS + a_3 MSCR + a_4 \sum X_i \qquad (1)$$

where Π is a profit measure; CR is a measure of market structure (usually a concentration measure); MS a measure of market share; MSCR is the interaction of market share and concentration; and X is a vector of control variables that are included to account for bank-specific characteristics such as risks, sizes and costs.

[15] Weiss (1974) asserted that the correct test for the competing hypotheses is one that takes both market share and concentration into account at the same time.

A coefficient combination of $a_1=0$, $a_2>1$ implies that firms with high market share are more efficient than their rivals and earn rents because of this efficiency, and also indicates that increased market concentration does not result in banks earning any monopoly rents[16]. Conversely, a coefficient combination of $a_1>1$, $a_2=0$ implies that market share does not affect firm rents, and that rents reflected in higher profitability are monopoly rents that result from market concentration. Thus, the traditional SCP hypothesis can be verified by finding $a_1>0$ and $a_2=0$, and the efficiency hypothesis by finding that $a_1=0$ and $a_2>1$.

We use the following three equations to test the two competing hypotheses for each of the three countries in our sample:

$$ROAE_i = a_0+a_1(HHI_i)+a_2(RISK_i)+a_3(SETA_i)+a_4(DEPGRTH_i) \quad (2)$$

$$ROAE_i = a_0+a_1(MS_i)+a_2(RISK_i)+a_3(SETA_i)+a_4(DEPGRTH_i) \quad (3)$$

$$ROAE_i = a_0+a_1(HHI_i)+a_2(MS_i)+a_3(RISK_i)+a_4(SETA_i)+a_5(DEPGRTH_i) +a_6(MSHHI_i) \quad (4)$$

Where $ROAE_i$ is bank *i*'s rate of return on average equity (bank *i*'s net income after taxes divided by its average equity capital over the last two years); HHI_i is bank *i*'s HHI of market concentration which is calculated as $(TD_i/TD)^2$, where TD_i is bank *i*'s total deposits and TD is total bank

[16] See Smirlock (1985).

deposits in the banking system (we use the HHI as a measure of market structure since it accounts for all firms in the market, while the CR*k* ratio does not); $RISK_i$ is the ratio of bank *i*'s loans to its total assets; $SETA_i$ is the ratio of bank *i*'s staff expenses to total assets; $DEPGRTH_i$ is rate of growth of deposits, and is measured by the change in bank *i*'s deposits over the last year; MS_i is the market share variable and is measured by bank *i*'s total assets divided by total banks assets in the market; and $MSHHI_i$ is the interaction between market share (MS_i) and concentration (HHI_i) and is the product of those two variables for bank *i*.

In light of the existing studies, the following statistical relationships are hypothesized to hold between the return on equity and each of the independent variables:

1. There is a positive relationship between return on equity and market concentration on the basis of the SCP views concerning the structure-performance relationship.

2. The relationship between the return on equity and the market share variable is positive on the grounds that a large market size enables a bank to differentiate its products and consequently, to generate higher profits[17].

[17] See *ibid*.

3. Since return on equity is not risk-adjusted, we employ the loan to assets ratio to account for firm-specific risk, as loans are considered to be the riskiest of banks' activities. Thus, one would expect a positive relationship between this variable and return on equity on the basis that the higher the risk the higher the return. It could be the case, however, that banks with higher loan ratios face high loan defaults thereby incurring higher losses. Moreover, high-risk banks usually have a high cost of raising funds. Thus we treat the sign of the loan to assets variable as being indeterminate prior to estimation.

4. Staff expenses are included in the model in order to account for cost differences between banks, with the staff to assets ratio expected to have a negative impact on profitability. However, it could be the case that banks in a concentrated market might engage in the so-called "expense-preference" behavior[18].

5. The deposits growth variable is included in the model to account for the major source of funds to the banks. It is expected that a positive relationship exists between this variable and return on equity in the sense that banks with high growth rates of deposits will be in a position to extend more loans thus earning higher profits.

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[18] Some studies found a positive relationship and it was justified on the ground that banks distribute high profit earned as a remuneration to their employees; see Edward (1977).

In light of these hypotheses, Table (3) provides a summary of the anticipated signs for each of the variables employed in the study.

6. Descriptive Statistics and Empirical Results

Table (4) provides a summary of the descriptive statistics of the variables used in our study, and allows us to break down the macro-picture presented in Sections 2 and 3 down to the micro bank-level[19]. The average size of banks, in terms of total assets, in Kuwait, Saudi and the UAE was $6 billion, $12 billion and $2 billion, respectively. The statistics for the Kuwaiti banking market reveal that the market share (MS) variable averaged around 15%, and fluctuated between 8% and 36%. For Saudi, the same variable fluctuated between 1% and 24%, while in the UAE it varied from 0.08% to 16%. As for market concentration (HHI), it averaged 0.03, 0.01 and 0.001 in Kuwait, Saudi Arabia and the UAE, respectively.

Prior to the estimation stage, we conducted a preliminary exercise to determine the impact of bank size on performance by using the *t*-test and Mann-Whitney test to assess differences in means and medians of ROAE[20]. In particular, we examined the differences between means

[19] For details pertaining to the market share and profitability of banks in our sample, refer to Appendices (1) to (6).

[20] The Mann-Whitney test is the non-parametric counterpart to the t-test for independent samples. It does not require the assumption that the differences between two samples be normally distributed.

(medians) for the following pairs of banks: small vs. medium, small vs. large, and medium vs. large, under the null hypothesis (alternative hypothesis) $M_1 = M_2$ ($M_1 \neq M_2$)[21].

The results for the Kuwaiti banking market are reported in Table (5). They reveal that the null hypotheses are rejected in all cases. That is, the mean (median) of the small banks is different from that of the medium and large banks, and the same applies to the comparison between medium and large banks. Put simply, large banks perform better than medium and small banks. We performed the same tests on the Saudi and UAE banking systems, and the results are reported in Tables (6) and (7), respectively. The results were qualitatively similar to those shown by the Kuwaiti banks, i.e. the larger the banks, the better their performance in terms of ROAE; however, in the case of medium vs. large banks this difference was not always significant at the 10% level. Further tests were warranted in order to investigate this finding; therefore, we proceeded next by carrying out OLS regressions, the results of which are reported in Tables (8) to (10). The presence of heteroscedasticity was tested for using the White Test (1980) and the results indicated the absence of such a problem in the data set. In general the explanatory power of each regression is good, given the cross-sectional nature of the sample.

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[21] Small, medium and large banks were classified according to whether they fell in the 33rd percentile, between the 33rd and 66th percentile, or in the 66th percentile in terms of their total assets, respectively.

The first equation is performed by estimating ROAE's hypothesized relation with market structure measure HHI. In Table (8), the coefficient of this market structure variable is positive and statistically significant at the 1% level, which means that market structure is an important factor in explaining bank profitability as far as the Kuwaiti banking market is concerned. The effect of market share on bank profitability was tested in the second equation by including MS, but excluding HHI. The results show that the coefficient of the market share variable is positive and significant, which implies that market share as a reflection of efficiency has a significant impact on bank profitability. We then move onto the third and final regression for Kuwait. When both the concentration and market share variables are inserted on the right hand of the equation, the concentration variable becomes insignificant while the market share variable is found to be statistically significant at 5% level. These results are similar to those reached in Evanoff and Fortier (1988) and Smirlock (1985)[22]. The impact of the control variables on profitability are mixed. The risk variable measured by loan to assets has a positive significant impact on profitability suggesting that the more loans the banks extend the more profit is earned. The cost ratio variable, measured by SETA, has a positive insignificant impact on profitability. The deposits' growth variable surprisingly showed insignificant impact, suggesting that this variable does not impact profit significantly. The cross product of both

[22] The inclusion of both market share and market structure variables in their model changed the overall relationship such that market share entered with a strong positive influence and market concentration became insignificant.

market share and concentration appeared to have insignificant impact on profitability, which strongly supports our finding regarding the impact of both market share and concentration variables on profitability.

The results for the UAE banking market in Table (9) reveal that the market share variable is always significant while the concentration variable never is. More specifically, the coefficients of market share variables appeared to have a statistically significant impact on profitability when both variables were included individually on the right hand of the estimated equations. Again, this result lends support to the efficient market view regarding the structure-return relationship. The control variables results show that the cost ratio measured by staff expenses to total assets had a statistically significant negative impact on profitability. Meanwhile, the deposits' growth and the risk variables appeared to have a statistically insignificant positive impact on profitability.

When the same regressions were executed for the Saudi banking market, the estimated results reported in Table (10) show that the Saudi market behaves differently from that of Kuwait and UAE. That is, when we included both variables – MS and HHI – in the same equation, it is HHI and not MS that has statistically significant impact on profitability. Surprisingly the interaction variable appeared to have a significant negative impact on profitability. The theory suggests that if this variable is to have any impact on profitability it should be a positive one. However,

given the small magnitude of the market share variable in the second estimated equation and the large magnitude of the concentration variable in the first estimated equation one can argue that this finding lends support to the view of the traditionalists regarding the structure-return relationship more than to the efficient market hypothesis.

7. Conclusions and Suggestions for Future Research

The purpose of this study was to examine the impact of market structure on banks' performance in Saudi Arabia, Kuwait and UAE. The traditional Structure-Conduct-Performance and the Efficiency Market hypotheses were tested using pooled data for the three countries' banking markets, separately over the period 1999-2002. The results obtained for three countries are mixed.

To begin with, we used parametric and non-parametric tests to examine the differences among all the banks in the sample in terms of their performances to ascertain whether large banks perform better than the medium and small size banks. The results obtained showed that large banks generally perform better than the small and medium banks in all the three countries. To validate these findings we then used the OLS regressions to examine the relationship between the market structure and banks performance.

We found that it is the traditionalists view regarding the structure-profit relationships holds in the Saudi banking market, while the efficient market hypothesis views holds in both the Kuwaiti and UAE banking markets. More specifically, the market structure variable measured by HHI and the market share variable measured by MS appeared to have a statistically significant positive impact on profit when we tested them individually within the context of the Saudi banking industry. However, the impact of the market share variable becomes insignificant when both variables are included in the right hand of the equation. This result supports the view that mergers would lead to more concentration and thus less competitive behavior.

As far as the banking markets in Kuwait and UAE, the results obtained support the efficient market hypothesis. That is, we found that the market share variable has a statistically significant positive impact on profit in all the three estimated equations. This implies that banks with larger market share enjoy higher profit than their rivals. Therefore, the policy implications of our findings suggest that promoting merger and allowing new entrants to the banking market is more likely to lead to more competition and hence higher efficiency.

As a final note, since our study was constrained by the unavailability of data for all the GCC countries, we suggest that future research including data from all GCC countries is warranted.

Tables

Table (1): Size and Profitability of the Banking Sector

	Assets[+]	Loans[+]	Deposits[+]	ROAE	ROAA
Panel A: Kuwait (6 Banks)					
1999	36,337	14,399	29,563	10.9	1.3
2000	38,017	15,976	30,787	14.0	1.8
2001	41,881	17,825	33,765	14.7	1.9
2002	48,841	22,049	38,766	13.9	1.7
Average	**41,269**	**17,562**	**33,220**	**13.4**	**1.7**
Panel B: Saudi Arabia (10 Banks)					
1999	110,779	39,439	77,401	15.6	1.7
2000	120,811	41,289	85,262	21.2	2.0
2001	123,170	34,348	90,611	21.3	2.1
2002	132,754	39,009	98,425	20.7	2.1
Average	**121,878**	**38,521**	**87,925**	**19.7**	**1.9**
Panel C: UAE (41 Banks)[*]					
1999	63,149	34,227	43,517	6.2	1.2
2000	70,711	36,273	48,722	12.8	1.8
2001	76,315	38,788	52,179	8.8	1.1
2002	84,854	43,949	59,775	10.8	1.5
Average	**73,757**	**38,309**	**51,048**	**9.6**	**1.4**

\+ In millions of US$.

* Due to the unavailability of data, our sample included only 41 of the 46 commercial banks operating in the UAE.

ROAE : Return on average equity.

ROAA : Return on average assets.

Table (2): Indicators of Market Concentration

	HHI	Deposits		Loans	
		CR3	CR5	CR3	CR5
Panel A: Kuwait (6 Banks)					
1999	2,029	65.3	84.4	58.7	78.0
2000	2,059	64.7	85.2	62.7	83.2
2001	2,078	65.2	86.7	62.6	83.0
2002	2,165	63.0	85.2	63.1	82.9
Average	**2,083**	**64.5**	**85.3**	**61.8**	**81.8**
Panel B: Saudi Arabia (10 Banks)					
1999	1,411	54.4	73.6	57.9	69.1
2000	1,409	53.4	73.8	57.1	67.9
2001	1,389	52.5	73.0	46.6	59.7
2002	1,364	50.7	72.6	44.0	58.6
Average	**1,393**	**52.8**	**73.2**	**51.4**	**63.8**
Panel C: UAE (41 Banks)*					
1999	768	37.4	54.9	30.6	51.3
2000	727	36.1	51.8	32.7	49.3
2001	679	33.6	49.3	30.8	48.4
2002	697	34.2	49.3	31.9	51.4
Average	**718**	**35.7**	**51.3**	**31.5**	**50.1**

+ In millions of US$.

* Due to the unavailability of data, our sample included only 41 of the 46 commercial banks operating in the UAE.

HHI : Herfindahl-Hershamn Index for the banking sector.

CR3: Concentration ratio for the top 3 banks.

CR5 : Concentration ratio for the top 5 banks.

Table (3): Variables' Anticipated Signs

Variables	Anticipated signs
Concentration	Positive
Market Share	Positive
Loan to deposits	Indeterminate
Staff expenses to assets	Negative
Deposits growth	Indeterminate
MSCR	Indeterminate

Table (4): Descriptive Statistics of Banks in the Sample

	Mean	Median	Maximum	Minimum	Std. Dev.
Panel A: Kuwait (30 Observations)					
ROAA*	1.57	1.57	2.54	0.29	0.64
ROAE*	12.72	12.14	20.62	2.15	5.46
ASSETS**	6,198.98	4,788.80	17,607.16	2,949.60	3,830.00
HHI	0.0341	0.0143	0.1503	0.0068	0.0463
MS*	15.34	12.11	36.05	8.12	9.20
SETA*	0.59	0.58	0.76	0.47	0.08
RISK*	42.21	41.13	56.66	34.01	6.13
DEPGRTH*	5.47	2.97	40.92	-8.73	11.39
Panel B: Saudi Arabia (48 Observations)					
ROAA*	1.93	1.89	4.05	0.58	0.76
ROAE*	19.28	18.60	42.13	4.76	7.69
ASSETS**	11,670.57	10,539.21	28,480.22	1,315.51	7,160.84
HHI	0.0145	0.0090	0.0627	0.0001	0.0165
MS*	10.20	9.09	24.39	1.11	6.18
SETA*	1.26	1.00	7.32	0.48	1.29
RISK*	35.15	39.85	53.73	1.65	14.52
DEPGRTH*	8.87	8.02	33.93	-2.50	6.88
Panel C: UAE (164 Observations)					
ROAA*	1.48	1.62	5.82	-15.99	1.90
ROAE*	10.13	12.85	27.68	-76.46	12.84
ASSETS**	1,716.54	643.44	10,632.03	52.01	2,353.27
HHI	0.0018	0.0001	0.0336	0.0000	0.0046
MS*	2.42	0.91	15.85	0.08	3.29
SETA*	2.02	1.87	7.03	0.58	1.00
RISK*	51.17	53.93	87.77	1.38	18.00
DEPGRTH*	6.08	8.02	77.50	-196.97	24.23

* As a %, ** In Millions of US$.
ROAE : Return on average equity.
ROAA : Return on average assets.
ASSETS: Total assets
HHI : Square of the ratio of the bank's deposits to total deposits of the banking system.
MS : Ratio of the bank's assets to total assets of total assets of the banking system.
SETA : Ratio of staff expenses to total assets
RISK : Ratio of loans to assets
DEPGRTH : Growth rate of deposits

Table (5): Differences in Means and Medians of ROAE According to Bank Size: Kuwait

	Number of Observations	Mean	*t*-statistic for Difference in Means (P-Value)	Median	Mann-Whitney Test for Difference in Medians Average Rank (P-Value)
Small	10	0.08	-2.86 (0.01)	0.08	8.7 - 22.3 (0.00)
v.s. Medium	10	0.12		0.12	
Small	10	0.08	-6.06 (0.00)	0.08	6.1 - 14.9 (0.00)
v.s. Large	10	0.18		0.19	
Medium	10	0.12	-3.26 (0.00)	0.12	6.7 - 14.3 (0.00)
v.s. Large	10	0.18		0.19	

Table (6): Differences in Means and Medians of ROAE According to Bank Size: Saudi Arabia

	Number of Observations	Mean	*t*-statistic for Difference in Means (P-Value)	Median	Mann-Whitney Test for Difference in Medians Average Rank (P-Value)
Small	16	0.15	-1.95 (0.06)	0.16	13.5 - 19.5 (0.07)
v.s. Medium	16	0.19		0.20	
Small	16	0.15	-2.94 (0.01)	0.16	12.6 - 20.4 (0.02)
v.s. Large	16	0.23		0.22	
Medium	16	0.19	-1.58 (0.12)	0.20	14.4 - 18.6 (0.21)
v.s. Large	16	0.23		0.22	

Table (7): Differences in Means and Medians of ROAE According to Bank Size: UAE

	Number of Observations	Mean	*t*-statistic for Difference in Means (P-Value)	Median	Mann-Whitney Test for Difference in Medians Average Rank (P-Value)
Small	68	0.031	-4.00 (0.00)	0.05	50.25 - 86.01 0.00
v.s. Medium	68	0.125		0.14	
Small	68	0.031	-5.20 (0.00)	0.05	47.62 - 90.76 (0.00)
v.s. Large	69	0.15		0.16	
Medium	68	0.125	-1.50 (0.14)	0.14	63.10 - 74.64 (0.09)
v.s. Large	69	0.15		0.16	

Table (8): Regression Results: Kuwait

Dependent Variable: ROAE			
	Model 1	**Model 2**	**Model 3**
Constant	-0.14 (-1.37)	-0.22 (-2.21)**	-0.39 (-2.54)**
SETA	4.94 (0.49)	9.41 (1.01)	22.27 (1.72)
DEPGRTH	-0.01 (-0.01)	0.02 (0.41)	0.05 (0.82)
RISK	0.49 (3.60)*	0.49 (3.96)*	0.47 (2.95)*
HHI	1.06 (6.95)*		-3.25 (1.30)
MS		0.55 (7.92)*	1.76 (2.66)**
MSHHI			2.39 (0.48)
N	24	24	24
Adjusted R^2 (%)	61.06	67.43	70.23
F - Ratio	12.37*	16.01*	10.04*

* and ** refer to 1% and 5% significance levels, respectively.
Figures between parentheses are *t*-statistics.

Table (9): Regression Results: UAE

Dependent Variable: ROAE			
	Model 1	**Model 2**	**Model 3**
Constant	0.15 (4.02)*	0.14 (3.51)*	0.12 (2.79)*
SETA	-4.02 (-3.42)*	-3.56 (-2.98)*	-3.31 (-2.78)*
DEPGRTH	0.06 (1.46)	0.06 (1.40)	0.05 (1.18)
RISK	0.03 (0.54)	0.02 (0.43)	0.02 (0.39)
HHI	1.87 (0.72)		-30.27 (-1.03)
MS		0.56 (1.64)***	2.78 (2.00)**
MSHHI			107.40 (0.61)
N	164	164	164
Adjusted R^2 (%)	8.27	9.50	10.79
F - Ratio	4.67*	5.28*	4.29*

*, **, *** refer to 1%, 5% and 10% significance levels, respectively. Figures between parentheses are *t*-statistics.

Table (10): Regression Results: Saudi Arabia

Dependent Variable: ROAE			
	Model 1	**Model 2**	**Model 3**
Constant	0.17 (5.57)*	0.12 (3.09)*	0.14 (2.84)*
SETA	0.79 (1.16)	0.84 (1.17)	0.96 (1.43)
DEPGRTH	0.04 (0.27)	0.16 (1.19)	0.14 (0.92)
RISK	-0.09 (-1.39)	-0.08 (-1.17)	-0.04 (-0.53)
HHI	2.95 (4.91)*		17.92 (2.72)*
MS		0.73 (4.34)*	-0.84 (-1.54)
MSHHI			-52.89 (-2.64)**
N	48	48	48
Adjusted R^2 (%)	38.70	33.45	43.10
F - Ratio	8.42*	6.91*	6.94*

* and ** refer to 1% and 5% significance levels, respectively.
Figures between parentheses are *t*-statistics.

Appendix

Appendix (1): Market Share of Kuwaiti Banks

	1999	2000	2001	2002	Average
National Bank of Kuwait	34.4	35.3	34.7	36.0	35.1
Gulf Bank	16.1	14.2	14.6	13.6	14.6
Commercial Bank of Kuwait	12.5	13.3	13.1	12.6	12.9
Burgan Bank	10.4	9.8	11.6	12.0	10.9
Al-Ahli Bank Of Kuwait	10.5	9.9	9.2	9.0	9.7
Bank of Kuwait & Middle East	8.1	8.9	8.4	9.7	8.8

Appendix (2): Profitability of Kuwaiti Banks

	1999	2000	2001	2002	Average
National Bank of Kuwait	20.2	20.6	20.5	20.3	20.4
Gulf Bank	14.4	17.2	18.9	18.7	17.3
Commercial Bank of Kuwait	11.8	15.6	16.2	18.0	15.4
Bank of Kuwait & Middle East	9.3	10.4	10.8	7.5	9.5
Al-Ahli Bank of Kuwait	7.3	7.0	9.2	11.8	8.8
Burgan Bank	2.1	13.1	12.4	7.1	8.7

Appendix (3): Market Share of Saudi Banks

	1999	2000	2001	2002	Average
National Commercial Bank	21.0	21.4	21.3	21.5	21.3
SAMBA Financial Group	18.5	17.8	16.7	15.4	17.1
Riyad Bank	15.5	14.5	14.6	13.5	14.5
Al Rajhi	10.3	10.8	11.2	11.9	11.1
Saudi British Bank	9.0	9.6	9.1	9.3	9.2
Arab National Bank	8.6	8.4	8.6	8.9	8.6
Al Bank Al Saudi Al Fransi	7.8	8.4	8.7	9.0	8.5
Saudi Hollandi Bank	4.7	4.9	5.5	5.4	5.1
Saudi Investment Bank	3.2	3.1	3.3	4.0	3.4
Bank Al Jazira	1.2	1.2	1.1	1.2	1.2

Appendix (4): Profitability of Saudi Banks

	1999	2000	2001	2002	Average
Al Rajhi	27.0	30.4	23.4	20.8	25.4
Saudi Hollandi Bank	19.5	23.2	25.4	25.5	23.4
Saudi British Bank	20.7	21.5	22.0	23.6	21.9
SAMBA Financial Group	11.1	23.8	26.5	21.5	20.7
Al Bank Al Saudi Al Fransi	16.2	19.1	22.3	23.1	20.2
Saudi Investment Bank	15.0	15.5	15.6	18.1	16.0
Riyad Bank	14.0	15.2	16.6	17.0	15.7
Arab National Bank	10.9	13.0	14.9	16.9	13.9
Bank Al Jazira	6.3	8.3	8.5	8.2	7.8
National Commercial Bank	-212.3	42.1	37.6	32.0	-25.2

Appendix (5): Market Share of UAE Banks

	1999	2000	2001	2002	Average
National Bank of Abu Dhabi	13.5	14.0	11.5	12.5	12.9
National Bank of Dubai	10.7	10.8	11.7	11.3	11.1
Abu Dhabi Commercial Bank	9.9	9.7	9.5	8.9	9.5
Emirates Bank International	8.9	7.5	8.4	8.7	8.4
Mashreqbank	8.6	8.5	8.1	7.6	8.2
HSBC Bank Middle East	6.1	6.1	5.8	6.1	6.0
Dubai Islamic Bank	4.0	4.5	5.5	6.3	5.1
Union National Bank	4.2	4.7	4.7	4.7	4.6
Standard Chartered Group	4.1	4.3	4.6	5.4	4.6
Citibank	3.2	2.7	3.0	1.8	2.7
Commercial Bank of Dubai	2.7	2.8	2.6	2.5	2.6
Bank Saderat Iran	2.1	1.9	2.5	2.3	2.2
Arab Bank for Inv. & For. Trade	2.3	2.1	2.1	1.9	2.1
Abu Dhabi Islamic Bank	1.1	1.7	2.2	2.5	1.9
Arab Bank	1.5	1.6	1.7	1.5	1.6
ABN Amro	1.6	1.6	1.5	1.3	1.5
Habib Bank AG Zurich	1.4	1.4	1.3	1.2	1.3
First Gulf Bank	0.9	0.9	1.2	1.6	1.2
Bank Melli Iran	1.0	1.0	1.0	1.0	1.0
National Bank of Fujairah	1.1	1.1	0.9	0.9	1.0
InvestBank	1.0	1.1	0.9	0.9	1.0
Barclays Bank	1.0	1.1	0.8	0.6	0.9
Rakbank	0.8	0.7	0.9	0.9	0.8
Lloyds Bank	0.9	0.9	0.6	0.5	0.7
National Bank of Sharjah	0.7	0.7	0.7	0.8	0.7
Bank of Sharjah	0.7	0.7	0.7	0.7	0.7
United Arab Bank	0.7	0.7	0.6	0.7	0.7
National Bank of Umm Al Quwain	0.8	0.7	0.6	0.5	0.6
United Bank Ltd.	0.6	0.5	0.5	0.4	0.5
Bank of Baroda	0.5	0.5	0.5	0.5	0.5
Banque Du Caire	0.6	0.4	0.4	0.3	0.4
Habib Bank Ltd.	0.4	0.4	0.3	0.3	0.4
Credit Agricole Indosuez	0.3	0.4	0.3	0.4	0.4
Banque Paribas	0.4	0.3	0.3	0.3	0.3
National Bank of Oman	0.2	0.2	0.2	0.2	0.2
Banque Banorabe	0.2	0.2	0.2	0.2	0.2
Arab African International Bank	0.3	0.2	0.2	0.2	0.2
Al Ahli Bank of Kuwait	0.2	0.2	0.1	0.1	0.1
Banque Libanaise Pour Commerce	0.2	0.2	0.1	0.1	0.1
Janata Bank	0.1	0.1	0.1	0.1	0.1
National Bank of Bahrain	0.1	0.1	0.1	0.1	0.1

Appendix (6): Profitability of UAE Banks

	1999	2000	2001	2002	Average
Habib Bank AG Zurich	24.3	27.7	25.0	24.7	25.4
HSBC Bank Middle East	22.7	22.5	23.2	20.7	22.3
Bank Saderat Iran	24.5	26.7	12.9	21.8	21.5
Arab Bank	16.2	20.6	17.5	15.5	17.5
United Arab Bank	17.1	18.2	18.4	15.9	17.4
Commercial Bank of Dubai	17.5	17.8	17.5	15.8	17.2
Bank Melli Iran	14.9	16.7	14.6	19.9	16.5
Abu Dhabi Commercial Bank	17.4	17.6	16.2	14.5	16.4
National Bank of Abu Dhabi	11.8	17.6	18.8	17.0	16.3
Standard Chartered Group	-3.3	24.0	19.5	24.0	16.1
InvestBank	15.0	16.9	16.7	15.3	16.0
Credit Agricole Indosuez	15.9	18.4	17.3	10.6	15.6
Bank of Baroda	16.7	16.6	12.9	15.3	15.4
Union National Bank	9.3	15.9	17.4	17.7	15.1
National Bank of Sharjah	20.5	18.6	12.3	8.4	15.0
National Bank of Umm Al Quwain	14.7	14.8	14.1	13.7	14.3
Mashreqbank	13.8	13.7	14.4	14.9	14.2
Emirates Bank International	15.7	15.1	13.4	12.5	14.2
Bank of Sharjah	13.2	14.1	13.8	14.1	13.8
Banque Banorabe	12.2	13.1	13.1	12.4	12.7
Rakbank	10.6	10.4	12.0	13.0	11.5
Citibank	-20.9	23.1	22.2	21.4	11.5
Dubai Islamic Bank	9.6	10.9	13.4	10.2	11.0
National Bank of Fujairah	6.6	9.8	12.6	13.0	10.5
National Bank of Dubai	10.0	10.0	10.6	10.4	10.2
First Gulf Bank	2.8	10.6	11.1	12.1	9.1
Arab Bank for Inv. & For. Trade	9.6	8.6	3.3	2.3	6.0
Lloyds Bank	9.6	6.9	3.7	3.3	5.9
ABN Amro	10.2	10.8	-19.3	20.5	5.5
Banque Libanaise Pour Commerce	3.0	8.1	1.8	7.0	5.0
Abu Dhabi Islamic Bank	1.6	5.1	6.5	5.8	4.8
United Bank Ltd.	1.0	-0.3	0.2	11.3	3.1
National Bank of Bahrain	3.8	4.8	1.2	0.7	2.7
Arab African International Bank	2.4	5.1	2.9	0.1	2.7
Janata Bank	1.9	2.0	0.4	1.5	1.5
Barclays Bank	-36.0	9.4	10.3	7.7	-2.1
Habib Bank Ltd.	-11.8	-5.1	1.6	6.5	-2.2
Banque Du Caire	-12.2	0.0	1.5	1.4	-2.3
Banque Paribas	-72.6	15.7	15.5	7.9	-8.3
National Bank of Oman	4.7	9.4	-4.8	-46.8	-9.4
Al Ahli Bank of Kuwait	11.0	4.3	-76.5	7.4	-13.5

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