Analysing the Motives and the Outcomes of Bank Mergers

Awdeh, Ali and EL-Moussawi, Chawki

Lebanese University

2011

Motives and Outcomes of Bank Mergers

Ali Awdeh*

Faculty of Economics and Business Administration, Department of Finance
The Lebanese University, Hadath, Lebanon
Email: ali.awdeh@ul.edu.lb

Chawki EL-Moussawi

Faculty of Economics and Business Administration, Department of Economics
The Lebanese University, Hadath, Lebanon
Email: chawmoussawi@ul.edu.lb

Abstract

We have examined in this study the bank mergers experience in Lebanon. Between 1994 and 2002, 25 bank merger operations took place. Firstly, we have compared the characteristics of acquiring and acquired banks, in order to identify the differences between the two groups of banks. Secondly, we have detected the changes in performance associated with these mergers. Our empirical results show a significant differences between the two categories in terms of profitability (ROE and NIM), in traditional cost measures (cost-to-income and staff expenses), in favour of acquiring banks. Besides, acquiring banks have been larger (in terms of assets), with better risk profile. However, no significant difference in productive efficiency was observed. The comparison of the performance measures of banks before and after the takeover, show a slight improvement in profitability, efficiency, with some deterioration in productive efficiency and considerable increase in credit risk.

Keywords: Mergers; Acquisitions; Bank performance; Industry consolidation.

1. Introduction

The globalisation of international markets and the mounting of cross border activities have made business ever more global. Additionally, the implementation of financial liberalisation and deregulation all over the world has led to an increase in the number of institutions merging domestically or across borders.

Mergers and acquisitions are indeed important corporate decisions with considerable long-term effects on companies involved. These effects are related to capital, organisational structures, ownership structures, product mix, and the nature of the business's activities. They result in removing identical and duplicate costs – such as personnel, offices and machinery – whilst increasing the overall market share. Consequently, M&As could achieve growth of company's size and value, revenues and profits. The reduction of expenditures, the increase in market power, the decrease of earnings volatility, and scale and scope economies could realise these targets.

In developed economies, market forces trigger M&A operations, whereas in emerging markets the financial and/or monetary authorities play a major role in bank consolidations. Bank M&As in emerging markets are one way of dealing with problems resulting from systemic banking crises or individual bank run. During or following banking crises, the authorities encourage (and sometimes enforce) banks to consolidate in order to reduce the risk of bank failures and minimise the financial and

---

* Corresponding author.

social cost of banking crises. In this context, Baer and Nazmi (2000), Gelos and Roldos (2002) and Shih (2003) state that bank M&As in emerging markets are guided and directed by the authorities and market forces are absent in these processes. Additionally, the intervention of government doesn't have always a positive effect. For instance, Chong et al. (2006) examined the impact of forced bank merger on the shareholders' wealth of Malaysian banks and found that forced mergers destroy economic value, and acquiring banks tend to gain at the expense of target banks.

The decline of the regulatory control and supervision on the Lebanese banking sector during the 1980s has provoked a large number of undercapitalised and inefficient banks. For instance, in 1990, 1991 and 1992 the banking sector average equity-to-asset ratios were 1.38%, 1.66% and 1.94% successively; the provisions for doubtful loans-to-gross loan ratios were 33.41%, 27.46% and 24% successively; the average cost-to-income ratios were 82.53%, 80.74% and 71.61% successively; and the average ROA were 0.34%, 0.43% and 0.61% successively. Consequently, the central bank (Banque du Liban) decided to reform and restructure the banking system in order to avoid a potential banking crisis. One of the most important decisions was encouraging banks to consolidate by the law 192, dated January, 4, 1993. This law aimed at facilitating bank mergers and offered several incentives for merged banks.[1] The central bank exploited this law repeatedly to encourage the consolidation of banks in order to gradually stabilise the banking system by eliminating the unstable banks.

Vis-à-vis the law of facilitating bank mergers, the central bank has issued directives to "push" banks to merger, such as tougher capital requirements to encourage small- and medium-sized banks unable to meet the new capital standards (the risk-based capital as per Basel Accord) to merge with larger ones. On the other hand, the restriction of new branch opening to only two per year influenced large banks willing to expand fast and forced them to look for external growth choice. Consequently, many large banks targeted medium and small banks to expand their branch networks. On the other hand, smaller banks facing tough requirements, and the increasingly competitive environment, accepted takeover bids from larger banks. Twenty five merger operations occurred under the Law of Bank Mergers between 1994 and 2002.

This study will analyse the bank mergers experience in Lebanon, and will be divided into two parts. In the first part, we will analysis the differences between acquiring and acquired banks in terms of operational performance to understand the discriminating characteristics of both groups. The second part will gauge the effect of mergers on the operational performance of merged banks and how the corporate performance changes following the merger.

The remaining of the paper is as follows: in sections 2 and 3, we shed light on the literature regarding the motives and the consequences of bank M&As. The methodology of the paper is explained in section 4. Section 5 illustrates the data exploited. Finally, we present the empirical results of the study in section 6.

---

[1] The incentives are as follows: (1) within a six-month period from Banque du Liban's Central Council's final approval, contracts of some employees in the merged bank may be terminated. The rights of laid-off employees are limited to the compensation stipulated in the Article, and the additional compensation is exempted from any income tax, (2) if needed, the Banque du Liban's Central Council may grant the merged bank "soft loans", to be agreed upon by contract between Banque du Liban and the merging bank, (3) during the following year of the Central Council approval of the merger, the Central Council may exempt the merged bank from income tax for an amount equivalent to taxes due on a portion of its profits, provided this portion does not exceed the cost of the merger operation and a ceiling of two billion Lebanese pounds ($1 = LBP 1507), and (4) all formalities and procedures required by the merger operation, including the issuance of new shares, shall be exempted from stamp, transfer and notary public fees, and from all registration fees with the public administrations. This Law was reinstated by Article 1 of Law No. 675 of February 14, 2005.

2. Motives for Bank M&As

There are many motives for bank M&A decisions, which could also be overlapped. These decisions aim to achieve the firm's objectives and targets that form the its strategy. M&A decisions are based on the theory that managers serve the interest of shareholders and maximise their wealth. This could be achieved by aggregating the values of the merged firms, which implies cost reduction, efficiency enhancement, and better management of the target's assets. But, sometimes, the firm management might decide to execute a merger and/or acquisition to achieve goals for their own benefit and sometimes at the expense of shareholders. In the following we cite some of the main motives for bank M&As.

2.1 Synergy

Synergy is the concept that when two or more firms combine, they increase their value. The new formed entity is assumed to be more efficient, profitable and stable than the separate individual firms before the combination, through the fusion of their skills and capabilities. The synergy from a merger is defined as the difference in the market value of the post-merger firm relative to the pre-merger value of the two firms as separate entities. The synergy has two subdivisions: financial and operating. Financial synergy is the impact of a corporate merger or acquisition on the cost of capital of the acquiring firm or the merging entities. In financial markets, larger companies have advantages that may lower their cost of capital because they are considered less risky than smaller ones (Penas and Unal, 2004). On the other hand, operating synergy is the real value gains from combining two (or more) individual companies. The main source of operating synergy is the relative cost reductions with the increased production, which are a result of economies of scale and scope.

2.1.1 Scale Economies

In banking, production requires the utilisation of costly resources such as branches, data processing systems, tellers, etc. In a high level of production, these costs could be spread over an expanded product mix. Economies of scale occur when there is ability to reduce costs per unit of output, and the average cost of a product in the long run decreases as more units are produced. Berger et al. (1999) found that large institutions have the ability to produce more services due to the use of technological innovations, such as phone centres, ATMs, and e-banking, and at lower costs than traditional branching networks. Kolari and Zardkoohi (1987) show that small banks are not able to implement automated services as cost-effectively as larger banks. Cebenoyan and Strahan (2004) argue that large U.S. banks hold fewer liquid assets (which provide low or no returns) than smaller banks. They observed a negative correlation between bank size and liquid assets held, and the larger the bank, the less proportion of liquid assets to total assets is held. Similarly, Miller and Noulas (1996) investigated technical efficiency of large-sized banks and found that bank size is positively related to the measure of technical efficiency.

2.1.2 Scope Economies

Economies of scope represent the ability of reducing the average per unit cost by producing more than one product concurrently. Economies of scope can be realised through joint production and marketing. On the production side, scope economies may be achieved where facilities applied to one objective or to serving a single market are capable of being deployed simultaneously to serve other targets and other markets. Gilligan and Smirlock (1984) explain that economies of scope over the production of goods A and B exist if the cost of producing the two goods A and B jointly is less than their production costs separately. They add that this interdependence is especially common in banking, when outputs (deposits) need similar technology and use the same personnel, such as tellers and supervisors.

2.2 Elimination of Inefficient Management

Inefficient management can exist for a limited period of time, but over the long run, the market mechanism ensures that they are replaced. In other words, more efficient firms tend to takeover less efficient ones. Thus, banks with significant lower performance might have a higher probability of being targeted and acquired than well-managed banks. Mueller (1977) argues that mergers are seen as an economical way to eliminat bad management. It occurs by replacing inefficient management and the transfer of assets from failing to rising firm. Rose (1987) found that US acquired banks reported significantly lower ROE, ROA, and equity ratios than comparable non-acquired banks. Peristiani (1997) showed that acquiring banks realised higher gains in profitability, scale efficiency, and operating costs when they absorb under-performing targets, which suggests that mergers are more beneficial to acquiring banks when the performance gap between targets and acquirers is wide.

Berger et al. (1999) claim that troubled or under-performing banks are often taken over as a better alternative to bankruptcy. Campa and Hernando (2006) analysed the performance of European financial industry M&As between 1998 and 2002 and found that M&As usually involved targets with lower operating performance than sector average. Besides, acquirers had lower cost-to-income ratios than targets and demonstrated a better cost efficiency ratio than the sector average. They finally found that target banks show a higher risk profile in their lending activity. Knapp et al. (2006) claimed that the average return for the acquirers in the year before the merger was significantly above the industry average, and tend to outperform the industry. Finally, Koetter and al. (2007) found that merged banks have worse CAMEL profiles than non-merged banks. They state that this is consistent with the efficient management hypothesis, which states that acquiring banks seek to replace the poorly performing target bank management with more skilled executives.

2.3 To Achieve (or Increase) Growth

Mergers and acquisitions are external alternatives, and sometimes cheaper, then internal organic growth. Firms seeking to expand have a choice between internal growth and growth through M&As. Internal growth may be a slow and long process, while growth through mergers may be faster. Empirically, Cornett and Tehranian (1992) found that banks experience significant asset growth after the merger.[2]

2.4 Increasing Market Share/Market Power

Mergers could increase the market share of consolidated banks, which may increase their market power. Market power is referred to as monopoly power, and it is the ability to set and maintain price above competitive levels. Mergers tend to reduce competition, which may open the way for improve profit from higher prices. Davis (2000) claims that from the point of view of executives, the gain of market share could be achieved only through acquisitions; besides being a market leader brings advantages of pricing power and cost economies.

2.5 Entry to New Markets

The easiest and fastest way to enter a new market could be through the acquisition of an existing "player". Hadlock et al. (1999) state that entering new markets is an understandable motive for M&As, particularly for banks that have reached the practical limits of expansion in their home markets. Ely and Song (2000) found that this option was most attractive to institutions located in markets with little potential for growth, especially if they needed to grow larger to remain competitive. Focarelli and

---

[2] Conversely, Focarelli et al. (2002) found that the growth rate of total assets decreases in the year of the merger and keep decreasing in the long run.

Pozzolo (2001) argue that banks extend their activities in order to provide services to their home-country clients in international transactions. Eun et al. (1996) state that sometimes foreign acquisitions are better than domestic acquisitions, since earnings are less correlated across countries, and overseas investment may be the preferred option to achieve growth and diversification.

2.6 Managerial Motives

Sometimes, the management may pursue their own aims rather than those of shareholders and acquire other firms to increase the size of the firm under their control in order to enjoy higher compensation and benefits. Hubris might represent another reason for takeovers where managers see great reputational benefits in doing so. Allen and Cebenoyan (1991) compared banks with different managerial stake ownership and found that the most active acquirers were firms with the most powerful managers, and "manager controlled" firms are more likely to engage in risk reducing mergers and pursue acquisitions to increase size, than "shareholder controlled" firms. Berger et al. (1999) propose that a managerial objective may be empire building, where management rewards tend to increase with the firm size. Finally, Harford (1999) finds that the behaviour of cash-rich firms is consistent with the free cash flow hypothesis: cash-richness predicts that a firm will become a bidder, and the cash-rich firms engage in value-decreasing behaviour.

2.7 Bank M&As to Avoid Banking Crises

When the banking sector is relatively healthy, there is no urgency for policy makers to take actions to strengthen the banking sector, but they are likely to take interventionist measures, such as encouraging or even forcing banks to merge, when the banking sector and the individual banks come under severe pressures.

Acquisitions seem to be the most efficient technique for banks to exist from business, whereas bankruptcy and liquidation are very costly for individual banks and for the entire banking system. In the U.S., the wave of bank failures in early 1980s triggered a wave of bank M&As to avoid the liquidation of large number of failed banks. Thus the trend of bank M&As in the U.S. was driven by market forces that have found that consolidations represent a way to stop the collapse of more banks. Besides, it was driven at the same by regulators who aimed at avoiding bank failures (Mishkin, 2000 and Boyd and Graham, 2000).

In emerging markets, the authorities interfere directly in bank M&As. They tend to encourage and support efficient and healthy banks to acquire underperforming and unstable banks. Sometimes, they even go further and enforce bank consolidations. Gelos and Roldos (2004) state that the consolidation trend in Central Europe since 2000 was driven by strong banks being forced to absorb weaker ones to ensure the stability of national banking systems. In Argentina and Brazil, the authorities also carried a process of guided consolidation that has dramatically reduced the number of banks. Shih (2003) found that some governments of the Asian crisis countries (e.g. Philippines and Thailand) have even forced failing banks to merge in order to avoid the forthcoming collapse of the banking sector. Policy makers in those countries believed that merging weak banks creates healthier ones, and merging weak banks with healthier ones reduces the risk of bank failures. Moreover, in crisis environment, authorities may force many failing banks to merge to create a "super bank" in an attempt to save all the failing banks at the same time.[3]

---

[3] Shih (2003) shows that when policy makers merge a failing bank into a less distressed bank in attempt to save it, there is no guarantee that the bank created by the merger will be safer than the failing bank. He also shows that it is probable that the more failing banks are merged to form a super bank, the greater the bankruptcy risk that the super bank faces would be. But the result is different when merging a group of healthy banks in a non-crisis environment. In case of banking crises, bank mergers are likely to create even weaker banks and worsen the banking sector problems.

3. The (Operational) Consequences of Bank M&As

A large body of literature examined the consequences of bank M&As. In analysing the effects of bank mergers and acquisitions, studies typically try to observe the outcomes through examining two phenomena: (1) the reaction of stock price to the announcement of M&As (event studies), and (2) the changes in operational performance.

The intention of event studies is to detect any abnormalities in stock returns to the acquiring and/or the acquired banks resulted from the merger announcement. The rationale behind this is that the market "predicts" the success (failure) of the merger and reacts positively (negatively). On the other hand, operational performance studies analyse the accounting data of merged banks before and after the merger to identify any significant changes in the performance of merged banks.

Operational performance studies found variety of results according to the markets, samples or period studied. For instance, Cornett and Tehranian (1992) found that merged banks in the U.S. experience greater improvements in their corporate performance than the banking sector as a whole. That was due to, at least partly, to a greater ability to attract loans and deposits and to improve employees' productivity and asset growth. McAllister and McManus (1993) found that consolidation among small banks would likely lead to improved cost efficiency.[4] Craig and Dos Santos (1997) found that merged banks had a higher performance than the industry after the merger, moreover, the risk of acquirers decreased after the merger. Chamberlain (1998) found significant gains realised by reduction of premises and salary expenses. Hart and Apilado (2002) find a significant improvement in profitability for merging banks post-merger. Diaz Diaz et al. (2004) studied the effect of acquisitions on European Union credit entities performance and found that these acquisitions had a positive influence on bidders' performance two to three years after the acquisitions.

Conversely, Rhoades (1993) finds no indication of efficiency gains from horizontal bank mergers, which indicates that horizontal mergers with a relatively large degree of overlap do not result in efficiency gains. Vennet (1996) finds that European domestic acquisitions did not realise any efficiency gains. He argues that managerialist motives provide an explanation for these mergers. For a sample of US bank mergers, Peristiani (1997) also found that in-market mergers do not yield any significant performance improvements post-merger. Focarelli et al. (2002) find no evidence of an improvement in profits. They stated that the post-merger increase in revenues was offset by an increase in labour costs. They also find that mergers are followed by an increase in ROE caused by a reduction in capital.[5] Finally, Rezitis (2008) found negative effects of M&As on technical efficiency and total factor productivity growth of Greek banks.

4. Analysing Bank Mergers: Methodology

4.1 Comparing the operational Performance of Acquiring and Acquired Banks

This analysis is based on comparing the pre-merger operational performance of merged banks. The comparison of the relative performance allows testing if better-managed banks takeover underperforming ones. Understanding the merging banks characteristics allows recognising the factors that distinguish bidders from targets. In addition, the difference in (pre-merger) performance may help detecting the relationship between the success of a merger and the characteristics of merged banks, which may also predict the merger outcome. The comparison of the performance measure (*X*) of acquiring and acquired banks pre-merger is as follows:

---

[4] However, they did not find gains resulted from mergers between large banks.
[5] They detected a post-acquisition long-run increase in profitability for acquired banks, due to a permanent decrease in bad loans accompanied by a long-term reduction in lending.

$$\Delta X^{pre}(i, j) = X^{pre}(i) - X^{pre}(j) \tag{1}$$

where,

$\Delta X^{pre}(i, j)$ is the difference of pre-merger performance measures of acquiring bank i and acquired bank j.

$X^{pre}(i)$ is the performance measure of acquiring bank i pre-merger.

$X^{pre}(j)$ is the performance measure of acquired bank j pre-merger.

The performance measures of merged banks could be affected by both firm-specific influences and industry trends. Therefore, following Cornett and Tahranian (1992), Vennet (1996), and Pilloff (1996), sector-adjusted measures will be implemented. These measures are calculated by subtracting the sector means from the sample data.

4.2 Detecting the Post-merger Changes in Operational Performance

To detect the *financial* effect of mergers on acquirers, the (pre-merger) consolidated figures will be compared with those of the merged entity (post-merger), in a period surrounding the consolidation. The changes in operational performance will be calculated as follow:[6]

$$\Delta X_{cons}(i, j) = X_{cons}^{post}(i + j) - X_{cons}^{pre}(i + j) \tag{2}$$

where,

$\Delta X_{cons}(i, j)$ is the difference of the post-merger performance measure of the consolidated entity and the weighted-average performance measures of acquiring bank i and acquired bank j, pre-merger.

$X_{cons}^{post}(i + j)$ is the performance measure of the consolidated entity post-merger.

$X_{cons}^{pre}(i + j)$ is the weighted-average performance measures of the acquiring and acquired banks pre-merger.

The pre-merger performance measures are calculated by aggregating the indicators for merged banks during three years prior to the merger.[7] The indicators of combined firms are weighted-average, using relative sizes (total assets) as weights. In fact, a hypothetical combined bank is created as a proxy for the performance of banks pre-merger. This value is calculated as follows:

$$X_{cons}^{pre}(i + j) = \frac{A^{pre}(j)}{A^{pre}(j) + A^{pre}(i)} \times X^{pre}(j) + \frac{A^{pre}(i)}{A^{pre}(j) + A^{pre}(i)} \times X^{pre}(i) \tag{3}$$

where,

---

[6] The sector-adjusted figures will be implemented also.

[7] Rhoades (1998) summarised nine (in-market) mergers and found that roughly one-half of savings from mergers occurs during the first year, and all savings were fully achieved and all gains were realised within three years after the merger. Davis (2000) analysed the sources of savings resulting from bank mergers and the time necessary to captures these savings. He found that the time necessary to capture all cost savings ranges from 1 to 3 years. Several empirical studies have employed the same time window. For instance, Cornett and Tahranian (1992), Healy et al. (1992) and Vennet (1996) implemented a period of three years before and three years after the merger. Therefore, we study a period of three years prior to the merger and a consistent post-merger period. The year of the merger is left out of analysis as it is a transition period. For each year of the years that surround the consolidation, the mean values of the implemented performance measures for merged banks are calculated.

$X^{pre}_{cons}(i+j)$ is the weighted-average performance measures of the acquiring and acquired banks pre-merger.

$A^{pre}(i)$ is the acquiring bank i assets pre-merger.

$X^{pre}(i)$ is the performance measure of acquiring bank i pre-merger.

$A^{pre}(j)$ is the target bank j assets pre-merger.

$X^{pre}(j)$ is the performance measure of acquired bank j pre-merger.

4.3 Performance Measures

Most of the empirical studies on bank mergers analyse sets of financial ratios to detect the effect of acquisition on operational performance. Those ratios (the performance measures) consist of variables that aim at capturing bank profitability, operational efficiency, and growth, and indicate whether the observed benefits are related to revenue or to cost effects. Nevertheless, cost reduction can be accompanied by a reduction of outputs, leaving overall efficiency unchanged. Therefore, in addition to testing the traditional financial ratios, we will test the overall level of productive efficiency of merged banks. This will be done by constructing a nonparametric frontier using the DEA method to calculate the various components of the productive efficiency.[8]

Firstly, regarding the financial ratios, the following will be exploited.[9] To examine the profitability, we will use the traditional profitability measures, i.e. ROE and ROA. Asset utilisation (AU) will also investigate the asset productivity. The net interest margin (NIM) will be used to test the effect of the core intermediation business.

The increase in efficiency could be a potential benefit of mergers, and reduced expenses should translate into higher profit. An analysis of the expense behaviour could provide a clearer image of the *operating effects* of mergers. Therefore, two cost ratios are implemented: the cost-to-income ratio (COST) and the staff-expenses-to-average assets ratio (STAFF) with particular focus to the latter because it consists a key component of overall expenses. To test the overall productive efficiency, we will compute three measures: technical efficiency (TE), allocative efficiency (AE), and cost efficiency (CE).

Changes in profitability following the acquisition may not only be the result of an increase in revenues and/or decrease in costs, but may simply the result of a change in lending policies that may worsen the overall quality of loan portfolio. To control for this, we implement indicators for two types of risks: capital risk (EQUITY) and credit risk (CREDIT).

Another motive for the takeover could be the aim to achieve *external* growth as an alternative for the internal growth therefore, three growth measures will be implemented: the growth rates of assets, deposits, and loans.

Finally, to detect the difference in the size of acquiring and acquired banks, and to analyse its effect on the merger outcome, we use assets and deposits market shares of merged banks.

5. Data and Descriptive Statistics

The period under study covers 14 years, during which the 25 merger operations occurred. The first merger occurred in 1994 and the last in 2002.

Table 1 presents the number of mergers per year. The total number of observations is 75 for both acquiring and acquired banks pre-merger, and 75 observations for the merged entities post-merge.

---

[8] For more details on the methodology used here, see Awdeh and El Moussawi (2009).
[9] The definition of the variables is presented in Appendix A.

The main source of data is BilanBanques, which provides annual financial statements for banks operating in Lebanon. Other data were obtained from some of the acquiring banks. Table 2 presents the annual averages of acquiring and acquired banks measures for years t-3, t-2, and t-1.

Table 1:   the Number of Mergers in every Year

Year	Number of Merger Operations
1994	2
1995	1
1997	5
1998	3
1999	3
2000	3
2001	2
2002	5
Total	**25**

Table 2 presents the bank-mean measures of acquiring and acquired banks, during each of the three years before the acquisition. The figures show a clear difference in the performance of banks in the two categories. Besides, the dispersion of these measures is much lower for acquiring banks, shown by the standard deviation of these measures. This shows that acquired banks are unstable and have volatile earnings, profit, and overall performance.

The difference in performance between acquiring and acquired banks is observed particularly in the year preceding the takeover (t-1). For instance, the average ROE of acquiring banks is 14.31%, and 0.77% for acquired banks. Additionally, the former's ROA, AU and NIM were 1.00%, 3.91%, and 2.85% successively, compared to -0.58%, 3.74% and 2.23% for the latter.

Regarding efficiency indicators, acquiring banks cost-to-income ratio and staff cost-to-average asset ratio were 68.7% and 1.06% successively, compare to 106.77% and 1.48% for acquired banks. This difference in cost is not clearly translated into differences in the productive efficiency of the two groups. We notice that the scores are very close and sometimes higher for the acquired banks (specifically at t-1).

Concerning credit risk, the difference is clearly observed, particularly at t-1, where acquiring banks provisions for doubtful loans-to-loan ratio is 14.89%, compared to 33.25% for acquired banks.

The growth rates of acquires are much higher than those of targets. At t-1, the growth rates of bidders were 36.48% for assets, 22.64% for deposits, and 19.38% for loans. On the other hand, targets growth ratios were -3.08% for assets, 0.34% for deposits, and -7.41% for loans. The average market share for acquires was 3.71% for assets and 3.77% for deposits at t-1, whereas for target banks they were 0.54% for both assets and deposits.

Finally, regarding the average size of the two categories of banks particularly at t-1, acquires reported an average size of $ 1,395 million, compared to $ 219 million for acquired banks.

Table 2: The Development of Acquiring and Acquired Banks Performance Measures Pre-merger (Bank Means)

	Acquiring			Acquired		
	T-3	**T-2**	**T-1**	**T-3**	**T-2**	**T-1**
ROE	18.40	15.98	14.31	-6.75	2.21	0.77
	(15.10)	(11.33)	(13.05)	(57.04)	(58.41)	(23.11)
ROA	0.96	0.97	1.00	1.15	-0.34	-0.58
	(0.77)	(0.69)	(0.74)	(6.23)	(3.45)	(2.33)
AU	4.34	4.34	3.91	5.35	4.61	3.74
	(1.23)	(1.34)	(1.08)	(5.38)	(2.88)	(2.80)
NIM	3.34	3.36	2.85	2.60	2.74	2.23
	(0.96)	(0.98)	(0.98)	(2.18)	(2.60)	(1.61)
COST	72.91	71.15	68.71	111.73	96.91	106.77
	(22.84)	(20.40)	(20.71)	(70.96)	(22.11)	(69.25)
STAFF	1.29	1.20	1.06	1.94	2.28	1.48
	(1.00)	(0.94)	(0.80)	(1.98)	(2.53)	(1.94)
TE	0.88	0.90	0.95	0.96	0.94	1.00
	(0.11)	(0.10)	(0.08)	(0.10)	(0.14)	(0.00)
AE	0.79	0.84	0.86	0.68	0.80	0.91
	(0.25)	(0.16)	(0.19)	(0.27)	(0.25)	(0.22)
CE	0.70	0.77	0.83	0.66	0.77	0.91
	(0.25)	(0.19)	(0.20)	(0.28)	(0.29)	(0.22)
EQUITY	6.37	7.31	7.42	3.75	1.58	8.17
	(3.92)	(3.37)	(3.76)	(34.17)	(39.03)	(6.28)
CREDIT	14.27	15.53	14.89	45.25	29.09	33.25
	(13.37)	(15.16)	(15.84)	(93.63)	(53.81)	(59.82)
Asset growth	30.31	34.11	36.48	22.65	14.82	-3.08
	(26.16)	(35.37)	(42.82)	(49.61)	(27.62)	(30.76)
Deposit growth	33.84	20.98	22.64	19.21	32.57	0.34
	(40.52)	(23.21)	(19.45)	(34.79)	(84.10)	(30.08)
Loan growth	24.66	25.01	19.38	27.37	15.56	-7.41
	(39.51)	(43.97)	(36.14)	(51.93)	(23.34)	(34.19)
Market Share – Assets	3.49	3.61	3.71	0.49	0.50	0.54
	(2.70)	(2.71)	(2.77)	(0.55)	(0.57)	(0.58)
Market Share – Deposits	3.88	3.69	3.77	0.48	0.50	0.54
	(2.99)	(2.75)	(2.77)	(0.57)	(0.59)	(0.59)
Assets ($ millions)	968.94	1,162.16	1,394.77	146.91	175.79	218.67
	(1,028.60)	(1,139.08)	(1,274.67)	(201.60)	(225.47)	(237.04)

Notes: Standard deviation in parentheses.

6. Empirical Results

6.1 Comparing the Performance of Merged Banks

We compare the performance of acquiring and acquired banks in Table 3. Columns 2 and 3 contain the "raw" figures (bank means), whereas columns 4 and 6 contain the sector-adjusted figures. Columns 5 and 7 show the percentage of banks with measures above the sector mean. This was done to find out the proportion of banks that outperformed the sector in each of the two categories. The presented figures show the following.

The acquiring banks' (average) sector-adjusted ROE is -3.93%, with 44% outperformed the market, compared to an ROE of -20.45% for acquired banks, among them only 14% reported ROE above the sector mean. Besides, the standard deviation of acquires' ROE is 14.41% and 50.01% for acquired banks, which show that the latter are much dispersed in terms of profitability. The difference in ROE between the two groups of banks is 16.52%, and is significant at the 5% level.

Table 3: Comparison of the mean performance measures and the sector-adjusted performance measures for acquiring and acquired banks

	Bank Means		Sector-adjusted Means				Diff.
	Acquiring	Acquired	Acquiring	% positive	Acquired	% positive	
ROE	16.23	-1.47	-3.93	44	-20.45	14	16.52**
	(13.18)	(49.47)	(14.41)		(50.01)		
ROA	0.98	0.12	-0.12	36	-1.00	14	0.88
	(0.73)	(4.41)	(0.64)		(4.40)		
AU	4.20	4.61	0.33	56	0.80	59	-0.47
	(1.22)	(3.93)	(1.09)		(3.66)		
NIM	3.18	2.53	0.25	52	-0.36	41	0.62**
	(0.99)	(2.15)	(0.90)		(2.11)		
COST	70.93	104.27	7.73	68	41.65	90	-33.92***
	(21.12)	(58.84)	(19.43)		(59.47)		
STAFF	1.18	1.92	0.20	63	0.92	82	-0.72***
	(0.91)	(2.16)	(0.69)		(1.97)		
TE	0.91	0.97	0.03	77	0.08	74	-0.05
	(0.10)	(0.10)	(0.10)		(0.10)		
AE	0.83	0.79	0.12	85	0.08	80	0.04
	(0.20)	(0.26)	(0.19)		(0.24)		
CE	0.77	0.78	0.12	85	0.13	80	-0.01
	(0.22)	(0.28)	(0.21)		(0.26)		
EQUITY	7.02	4.38	0.78	64	-2.15	50	2.94
	(3.67)	(30.27)	(3.34)		(31.06)		
CREDIT	14.58	35.41	0.83	32	23.47	63	-22.64**
	(14.70)	(71.78)	(12.87)		(70.73)		
Asset growth	33.63	12.32	9.14	76	-12.19	21	21.32*
	(35.05)	(38.69)	(27.93)		(38.09)		
Deposit growth	25.82	18.18	1.40	48	-6.02	21	7.42
	(29.37)	(56.92)	(28.48)		(58.76)		
Loan growth	23.01	12.76	-4.04	56	-13.95	29	9.91
	(39.54)	(40.50)	(33.49)		(39.18)		
Market Share – Assets	3.60	0.51					3.10***
	(2.69)	(0.56)					
Market Share – Deposits	3.78	0.50					3.23***
	(2.80)	(0.57)					

Notes:
Standard deviation in parentheses.
% positive is the proportion of banks with measures above sector mean.
*** Significantly different from zero at the 1% level.
** Significantly different from zero at the 5% level.
* Significantly different from zero at the 10% level.

The average sector-adjusted ROA of acquires is-0.12% (36% above sector mean), compared to -1% for targets, (14% above sector mean). This difference between the two groups (0.88) is not statistically significant though. The difference in AU (-0.47) is also not statistically significant. The negative sign could be due to that fact that target banks are much smaller in size (i.e. in assets), rather

than to higher revenues. Acquiring banks (sector-adjusted) NIM is 0.25%, with a standard deviation of 0.90% compared to -0.36% for acquired banks with a standard deviation of 2.11%. The difference is significant at 5%, which proves that acquires have a much higher pricing power than their targets, due to large difference in size (as shown in the last raw of Table 2). Overall, the four previous ratios show that bidder have higher profitability that their targets.

Turning to COST ratio, we observe that the average sector-adjusted cost-to-income ratio for acquires is 7.73% and 41.65% for target banks. Similarly, STAFF is lower for acquires (0.2%) than for targets (0.92%). The differences in the two ratios are significant at the 1% level, which proves the significant difference in efficiency between the two categories of banks. As stated in the previous section, this difference in cost was not translated into significant difference in productive efficiency, despite the fact that the proportion of acquiring banks that outperformed the entire banking sector is higher than that of acquired banks. This shows that not all banks engaged in takeovers were with superior performance. In fact, it has been observed that some of them had a poorer performance than their targets. This may suggest that some banks acquired smaller (but more efficient ones) only to benefit from their skills and/or market share.

Acquiring banks reported a sector-adjusted EQUITY of 0.78%, whereas acquired banks reported -2.15%. The difference is statistically insignificant. The acquired banks show a very high credit risk profile; with doubtful loan provisions equal to 23.47% of total loans, with the majority of those banks (63%) had a ratio worse than the sector mean. On the other hand, bidders reported a sector-adjusted CREDIT of 0.83%, with only 32% of them above sector mean. The difference between the two groups is significant at the 5% level.

The three growth measures (assets, deposits, and loans) show that acquiring banks grew at faster rate than their targets before the takeover. All growth measures show a difference between the two groups, nevertheless, the difference is significant (at 10%) only for assets. We also notice that the majority of acquiring banks (76%) grew at a faster rate than the entire sector, in terms of assets. Finally, the difference in market share measures (assets and deposits) is significant at 1%, which shows that bidders are much larger than their targets. We also note that bidders are more dispersed in terms of size, which is shown by their higher standard deviations.

Overall, the results reported in Table 2 show clear differences between acquiring and acquired banks in terms of profitability, pricing power, efficiency, credit risk, growth, and market share. This gives supported to the concept that (in general) more efficient banks target banks with poor performance, assuming that they have better ability to run their assets.

6.2 The Changes in Performance Associated with Mergers

The effect of takeovers on bank operational performance is presented in Table 4. Columns 2 and 3 contain the pre- and post-merger raw figures (bank means). Columns 4 and 6 present the sector-adjusted measures, before and following the merger. Columns 5 and 7 show the percentage of banks with measures above the sector means. Looking at the change in performance measures, we observe the following.

ROE has witnessed a significant improvement (at 1%) from -6.43% (sector-adjusted) before the acquisition to 6.59% following the merger. Moreover, 63% of merged entities outperformed the sector post-merger, compared to 50% only pre-merger. In contrast, ROA has witnessed a (insignificant) decrease, maybe because the increase in the size of merged banks was not accompanied with the same increase in revenues and profits. AU and NIM have slightly increased. The last three profitability measures (ROA, AU and NIM) show that the majority of merged entities slightly outperformed the entire banking sector.

The cost efficiency of merged entities has not improved considerably post-merger. We do observe a decrease by 19.54% in the sector-adjusted COST and a decrease in STAFF by 0.12%, but

both are statistically insignificant. Also in this context, we observe that while 55% of merged entities had STAFF above sector mean, 65% of them had this measure above sector mean following the merger. On the other hand, AE and CE measures show some decline, which imply deterioration in productive efficiency. Therefore, the post-merger formed entity witnesses an overall fall in efficiency. This was also accompanied with a increase in credit risk by 10.41% (significant at the 5% level), which reflects a worsening in the risk profile of merged entities. This may suggest that the observed increase in profitability was the result of a more risky behaviour adopted by the merged entities.

Table 4:　　　Changes of the (consolidated) performance measures post-merger

	Bank Means		Sector-adjusted Means				
	Pre-merger	Post-merger	Pre-merger	% positive	Post-merger	% positive	Diff.
ROE	14.14	18.86	-6.43	50	6.59	63	13.02*
	(16.86)	(53.96)	(19.84)		(54.65)		
ROA	0.71	0.32	-0.43	30	-0.52	50	-0.09
	(1.06)	(1.98)	(1.05)		(1.96)		
AU	3.94	3.12	-0.10	65	0.05	75	0.15
	(0.86)	(1.00)	(1.33)		(0.74)		
NIM	2.94	2.33	-0.11	50	0.02	63	0.13
	(0.71)	(0.92)	(0.98)		(0.74)		
COST	69.14	48.00	3.11	55	-16.43	54	-19.54
	(29.21)	(130.90)	(31.13)		(130.98)		
STAFF	1.23	0.85	0.17	55	0.05	65	-0.12
	(0.98)	(0.58)	(0.82)		(0.38)		
TE	0.94	0.96	0.05	71	0.05	93	0.00
	(0.07)	(0.06)	(0.08)		(0.05)		
AE	0.86	0.92	0.14	76	0.09	67	-0.05
	(0.17)	(0.09)	(0.14)		(0.16)		
CE	0.81	0.89	0.16	81	0.12	73	-0.04
	(0.16)	(0.11)	(0.15		(0.17)		
EQUITY	5.05	6.61	-1.23	57	-0.35	46	1.20
	(8.40)	(3.02)	(8.42)		(3.12)		
CREDIT	15.45	29.28	2.97	41	14.10	63	10.41**
	(18.12)	(36.26)	(17.33)		(36.27)		
Asset growth	29.60	16.80	1.01	61	4.53	71	3.5
	(26.65)	(18.13)	(21.28)		(17.33)		
Deposit growth	29.04	26.33	-0.24	65	13.96	75	14.19
	(23.82)	(26.33)	(34.18)		(78.61)		
Loan growth	28.88	12.10	-2.77	52	5.16	58	7.93*
	(28.53)	(19.13)	(29.57)		(15.70)		
Market Share – Assets	3.61	4.54					0.93**
	(2.47)	(2.85)					
Market Share – Deposits	3.81	4.53					0.72*
	(2.57)	(2.82)					

Notes:
Standard deviation in parentheses.
% positive is the proportion of banks with measures above sector mean.
** Significantly different from zero at the 5% level.
* Significantly different from zero at the 10% level.

　　　The capitalizations of acquiring banks slightly improve post-merger. The sector-adjusted equity-to-asset ratio increased from -1.23% to -0.35%. Nevertheless, the percentage of banks above sector mean decreased from 57% to 46%. All growth measures report an increase post-merger, but only the growth rate of loans is significant (at the 10% level) with the majority of those banks grew faster

than the entire sector. Finally, we observe a significant increase in the market share of entity formed after the merger.

7. Conclusion

We have examined the bank mergers experience in Lebanon, where 25 bank merger operations occurred between 1994 and 2002. The study was divided into two parts. In the first part, we have compared the characteristics of acquiring and acquired banks, using the operational performance method, in order to detect the differences between merged banks. In the second part, we have detected the changes in operational performance associated with bank mergers.

Our empirical results show significant differences between the two groups of banks. In general, the acquirers have been larger in terms of assets (and market share), more profitable, more efficient, and have better capability in managing their credit risk. This suggests that larger and efficient banks target small and underperforming banks. This adds some support to the efficient management hypothesis, which states that underperforming firms are usually taken-over by more efficient ones.

Secondly, by comparing the performance measures of merged banks, before and following the acquisition, we have found that – on average – the merger operations do not add significant value to the acquiring banks. We do observe some improvement, but this improvement is not significant in most of the used measures. For instance, the improvement in profitability, efficiency, and capitalisation is insignificant. On the other hand, we observed some deterioration in productive efficiency (Allocative and cost), and considerable worsen in credit risk. We finally noticed an increase in growth and market share.

Appendix A: Calculation of Performance Measures

Ratio	Description
Profitability	
ROE	After tax net income divided by average common equity
ROA	After tax net income divided by average assets
AU	Total revenue divided by average assets
NIM	Net interest margin divided by average assets
Efficiency	
COST	Cost-to-income ratio
STAFF	Staff expenses-to-average assets ratio
Productive efficiency	
TE	Technical efficiency
AE	Allocative efficiency
CE	Cost efficiency
Capitalisation	
EQUITY	Common equity divided by total assets
Credit risk indicators	
CREDIT	Provisions for doubtful loans-to gross loans
Growth	
Assets	Year-to-year percentage growth
Deposits	Year-to-year percentage growth
Loans	Year-to-year percentage growth
Market share	
Assets	Bank assets divided by sector total assets
Deposits	Bank deposits divided by sector total deposits

References

[1]   Allen, Linda and Cebenoyan, Sinan, 1991, "Bank acquisitions and ownership structure, theory and evidence", *Journal of Banking and Finance*, 15, pp. 425-448.

[2]   Awdeh, Ali and El Moussawi, Chawki, 2009, "Bank efficiency and foreign ownership in the Lebanese banking sector", Review of Middle East Econmics and Finance, Vol. 5, No. 2.

[3]   Baer, Werner and Nazmi, Nader, 2000, "Privatization and restructuring of banks in Brazil", *The Quarterly Review of Economics and Finance*, 40, pp. 3-24.

[4]   Berger, Allen, Demsetz, Rebecca and Starhan, Philip, 1999, "The consolidation of the financial services industry: Causes, consequences, and implications for the future", *Journal of Banking and Finance*, 23, pp. 135-194.

[5]   BilanBanques, Bank Data Financial Services, Lebanon.

[6]   Boyd, John and Graham, Stanley, 2000, "Consolidation in US banking: Implications for efficiency and risk", in Bank Mergers and Acquisitions, Kluwer academic publishers, Dordrecht, The Netherlands, vol. 3, third printing, pp. 113-135.

[7]   Campa, Jose Manuel and Hernando, Ignacio, 2006, "M&As performance in the European financial industry", *Journal of Banking and Finance*, 30, pp. 3367-3392.

[8]   Cebenoyan, Sinan and Strahan, Philip, 2004, Risk management, capital structure and lending at banks", *Journal of Banking and Finance*, 28, pp. 19-43.

[9]   Chamberlain, Sandra, 1998, "The effect of bank ownership changes on subsidiary-level earnings", in Bank Mergers and Acquisitions, Kluwer academic publishers, Dordrecht, The Netherlands, Vol. 3, third printing, pp. 137-172.

[10]   Cornett, Marcia and Tehranian, Hassan, 1992, "Changes in corporate performance associated with bank acquisitions", *Journal of Financial Economics*, 31, pp. 211-234.

[11]   Craig, Ben and Cabral dos Santos, 1997, "The risk effects of bank acquisitions", Federal Reserve Bank of Cleveland – Economic Review, Vol.33 (2, Qtr-2), pp. 25-35.

[12]   Davis, Steven, 2000, Bank mergers; lessons for the future. Macmillan press LTD. London.

[13]   Diaz Diaz, Belen, Garcia Olalla, Myriam and Sanfilippo Azofra, Sergio, 2004, "Bank acquisitions and performance: Evidence from a panel of European credit entities", *Journal of Economics and Business*, 56, pp. 377-404.

[14]   Ely, David and Song, Moon, 2000, "Acquisition activity of large depository institutions in the 1990s: An empirical analysis of motives", *The Quarterly Review of Economics and Finance*, 40, pp. 467-484.

[15]   Eun, Cheol, Kolondy, Richard and Sceraga, Carl, 1996, "Cross-border acquisitions and shareholder wealth: Tests of the synergy and internalization hypotheses", *Journal of Banking and Finance*, 20, pp. 1559-1582.

[16]   Focarelli, Dario and Pozzolo, Alberto Franco, 2001, "The patterns of cross-border bank mergers and shareholdings in OECD countries", *Journal of Banking and Finance*, 25, pp. 2305-2337.

[17]   Focarelli, Dario, Panetta, Fabio, and Salleo, Carmelo, 2002, "Why do banks merge?", *Journal of Money, Credit, and Banking*, 34, pp. 1047-1066.

[18]   Gelos, Gasten and Roldos, Jorge, 2004, "Consolidation and market structure in emerging market banking systems", *Emerging Markets Review*, 5, pp. 39-59.

[19]   Gilligan, Thomas and Smirlock, Michael, 1984, "An empirical study of joint production and scale economies in commercial banking", *Journal of Banking and Finance*, 8, pp. 67-77.

[20]   Hadlock, Charles, Houston, Joel and Ryngaert, Michael, 1999, "The role of managerial incentives in bank acquisitions", *Journal of Banking and Finance*, 23, pp. 221-249.

[21]   Harford, Jarrad, 1999, "Corporate cash reserves and acquisitions", *Journal of Finance*, 54, pp. 1969-1997.

[22] Hart, Jeffrey and Apilado, Vince, 2002, "Inexperienced banks and interstate mergers", *Journal of Economics and Business*, 54, pp. 313-330.

[23] Healy, Paul, Palepu, Krishna, and Ruback, Richard, 1992, "Does corporate performance improve after merger?", *Journal of Financial Economics*, 31, pp. 135-175.

[24] Knapp, Morris, Gart, Alan and Chaudhry, Mukesh, 2006, "The impact of mean reversion of bank profitability on post-merger performance in the banking industry", *Journal of Banking and Finance*, 30, pp. 3503-3517.

[25] Koetter, M, Bos, J.W.B, Heid, F, Kolari, J.W, Kool, C.J.M, and Porath, D, 2007, "Accounting for distress in bank mergers", *Journal of Banking and Finance*, 31, pp. 3200-3217.

[26] Kolari, James and Zardkoohi, Asghar, 1987, Bank costs, structure and performance. D.C. Heath and company, Massachusetts, USA.

[27] McAllister, Patrick and McManus, Douglas, 1993, "Resolving the scale efficiency puzzle in banking", *Journal of Banking and Finance*, 17, pp. 389-405.

[28] Miller, Stephen and Noulas, Athanasios, 1996, "The technical efficiency of large bank production", *Journal of Banking and Finance*, 20, pp. 495-509.

[29] Mishkin, Frederic, 2000, "Bank consolidation: a central banker's perspective", in Bank Mergers and Acquisitions, Kluwer academic publishers, Dordrecht, The Netherlands, Vol. 3, third printing, pp. 3-19.

[30] Mueller, Dennis, 1977, "The effects of conglomerate mergers", *Journal of Banking and Finance*, 1, pp. 315-347.

[31] Penas, Maria Fabiana and Unal, Haluk, 2004, "Gains in bank mergers: Evidence from the bond markets", *Journal of Financial Economics*, 74, pp. 149-179.

[32] Peristiani, Stavros, 1997, "Do mergers improve the X-efficiency and scale efficiency of U.S. banks?", *Journal of Money, Credit and Banking*, 29, 3, pp. 326-337.

[33] Pilloff, Steven, 1996, "Performance Changes and Shareholder Wealth Creation Associated with Mergers of Publicly Traded Banking Institutions, *Journal of Money, Credit and Banking*, 28, 3, pp. 294-310.

[34] Rezitis, Anthony, 2008, "Efficiency and productivity effects of bank mergers: Evidence from the Greek banking industry", *Economic Modelling*, 2008, pp. 236-254.

[35] Rhoades, Stephen, 1993, "Efficiency effects of horizontal (in-market) bank mergers", *Journal of Banking and Finance*, 17, pp. 411-422.

[36] Rhoades, Stephen, 1998, "The efficiency effects of bank mergers: an overview of case studies of nine mergers", *Journal of Banking and Finance*, 22, pp. 273-291.

[37] Rose, Peter, 1987, "The impact of mergers in banking, evidence from a nationwide sample of Federal Chartered Banks", *Journal of Economic and Business*, 39, pp. 289-312.

[38] Shih, Michael, 2003, "An investigation into the use of mergers as a solution for the Asian banking sector crisis", *The Quarterly Review of Economics and Finance*, 43, pp. 31-49.

[39] Vennet, Rudi, 1996, "The effect of mergers and acquisitions on the efficiency and profitability of EC credit institutions", *Journal of Banking and Finance*, 20, pp. 1531-1558.