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"MERGERS AND ACQUISITIONS IN GREEK BANKING: THE ROLE OF STRATEGIC SIMILARITIES IN ACHIEVING POST MERGER ENHANCED PERFORMANCE"

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1. INTRODUCTION

Over the last two decades, an extensive process of financial consolidation has been occurring at an unprecedented rate in the European Union, following the paradigm of the United States, and facilitated by the introduction of the euro and the creation of a single market for financial services. Considering the central role of banks in the economy, this process has attracted the attention of several interested parties, like managers, shareholders, policy-makers and analysts. Empirical evidence on bank Mergers and Acquisitions (M&As) is already extensive in the United States and there has been an increasing interest to analyze this field in the European Union as well. Analysts examine either bank M&As across several European countries (Vennet, 1996, Cybo-Ottone and Murgia, 2000, Fritsch, 2007), or within the specific economic environment of each country (Ashton and Pham 2007 for the UK, Petreski 2007 for FYROM, Focarelli *et al.*, 2002 for Italy, Koetter 2005 for Germany, Athanasoglou P. and Brisimis, 2004 for Greece).

In this paper, we analyze the effect of bank consolidation on the performance of the Greek banks, bearing in mind the fact that Greek banks have evolved into key players in the broader financial environment of the Balkans. We believe that the process of financial consolidation in Greece has resulted in shaping strong and large financial institutions, setting the foundations for their expansion in the Balkans.

The paper is organized as follows: In the next section, we present a brief literature review on the driving forces for bank mergers. In section 3, we provide a background description of the Greek banking sector over the last two decades. The following section presents the data and explains the methodology followed. In section 5 we present our empirical results. Section 6 concludes the paper.

2. MOTIVES BEHIND BANK MERGERS AND ACQUISITIONS: A LITERATURE REVIEW

Motives for financial consolidation can be generally classified in two broad categories: a. synergy, or economic motives and b. agency, or managerial motives. The first category includes all motives that serve the main neoclassical objective of value maximization, whereas the second category includes non-value maximization motives.

Synergy reflects the idea that the combined entity will have a value greater than the sum of its parts. According to the motives linked with the concept of synergy, the main goal to be met when entering a merging activity, viewed by the scope of the general value-maximizing objective, is to improve performance. The main motives included in the value-maximizing category are:

(a) economies of scale,

(b) economies of scope,

(c) increased market power,

(d) inefficient management replacement,

(e) risk diversification and

(f) capital strength.

According to the economies of scale motivation, the merger of two firms is an opportunity to produce lower average costs by spreading fixed costs across a larger volume of output. Achieving economies of scale has been suggested to be the main objective of horizontal mergers. Early research in the United States indicated that scale economies appeared mainly in small banks (Clark 1988, Miller and Noulas 1996). Most recent studies in the US (Berger and Ìester 1997) and Europe (Vennet 2002) find unexploited economies of scale even for relatively large banks, due to economic development and market liberalization. Pasiouras and Kosmidou (2007) however found a negative relationship between size and bank's performance for both domestic and foreign banks operating in the EU over the period 1995 to 2001. Hughes et al. (1996) argue that scale economies depend critically upon bank's capital structure and risk taking features.

Economies of scope can be cost based or revenue based. Cost based economies of scope can be achieved by offering a broad range of products or services to a larger customer base and originate from fixed costs incurred in gathering an information database or customer equipment. Revenue based economies of scope are related to the ability of the firm to utilize one set of inputs to offer a broader range of products and services through cross-selling to an existing customer base. Within this context, achieving economies of scope through bank M&As is easy to comprehend.

Market power is defined as the ability of the firm to set and maintain prices above competitive levels. Increased market power is usually achieved by product differentiation, barriers to entry and market share (Gaughan 1996). It has been argued

by several studies that increasing market power has been an unquestionable motivation beneath financial consolidation.

The inefficient management hypothesis argues that if the managers of the firm fail to maximize its market value, then, the firm will be undervalued and thus a potential target, and inefficient managers have to be replaced. Therefore, if the management of the acquirer is more efficient than the management of the target firm, a merger could result in an efficiency gain if the management of the target is replaced. This is another value-maximizing motive.

The main argument regarding risk diversification is that the integration of two firms can lower bank risk and reduce the probability of bank failure, if the firms' cash flow streams are not perfectly correlated. The two most common forms of diversification is product and geographic diversification. According to the former, risk may be reduced because the returns across different financial services industries may have low correlation coefficients. According to the latter, loans and financial instruments issued in different locations may be low correlated and thus lead to risk reduction. Rhoades (1993) found that in a sample of horizontal (within-market) mergers, a more efficient firm acquiring a less efficient firm, concluded the average deal. This means that mergers may be motivated to eliminate duplicated activities and that could be more likely when there is considerable overlap between markets.

The importance of capital strength as an M&A motive, is linked to the fact that financial regulators require commercial banks to sustain a minimum capital adequacy ratio. Wheelock and Wilson (2000) found that the less well capitalized a bank is, the higher the probability it will be acquired. On the other hand, banks with insufficient amount of capital may acquire banks with high capital to assets ratios to reduce potential capital insolvency. This motive is gaining in importance during periods of financial turmoil and crisis, such as the current one that has shaken the foundations of the global financial sector, leading to the first global recession in decades. Extreme bank losses during the last year have seriously undermined the capital strength of some of the largest financial institutions, leading to a number of capital adequacy or rather "survival" motivated mergers. During this period, large financial institutions were merged as the only solution to avoid bankruptcy. These mergers were encouraged and in some cases "mandated" by regulatory authorities in their efforts to avoid "domino effects" and serious systemic risk[1].

Agency motives for bank M&As track their infancy in the pioneer work of Jensen and Meckling (1976), who formulated the main implications of agency problems. These problems typically arise when management owns a small proportion of share capital. Typical agency motives that may drive bank M&As are:

(a) wage,

(b) status and power and

(c) job security.

The wage explanation is considered to be one of the main managerial motives. Usually compensation schemes are linked with firm size. Murhpy (1999) provides a review of the compensation literature and finds that there is indeed a strong link between firm size and higher rewards. Thus, the larger the bank, the higher the managerial compensation. Bliss and Rosen (2001) examined the relationship between bank mergers and CEO compensation during 1986 and 1995 and observed that acquisitions significantly increased CEO compensation.

Being in charge of a larger firm and receiving a higher compensation is also correlated with a higher status and power (Ravenscraft and Scherer 1987). Thus, M&As constitute a quick means of gaining power and a higher status for bank managers.

Finally, job security is also positively correlated with firm size. The probability that a large firm will be acquired is lower than that of a smaller firm; thus management may worry less for the risk of being removed by a consolidation procedure.

Several analysts combine the above mentioned motives in their studies. For example, Vennet (1996) argues that there are three value maximizing explanations. The market-for-bank-control approach lies within the broader sphere of the managerial efficiency theory. It states that bank management teams compete for the control over bank assets, as the ultimate disciplinary tool to align the interests of managers and shareholders. The second explanation is what he describes as the operational synergy hypothesis, according to which mergers are considered to be an important means to achieve operational synergies. The realization of synergy depends on the potential for economies of scale and scope. If these economies do exist, a merger activity will lead to an expansion of the bank size, accompanied by a less than proportional cost increase. The third explanation is market power. As already explained, according to this value-enhancing rationale, banks want to strengthen their competitive position through consolidation.

According to Cybo-Ottone and Murgia (2000), bank M&As are thought to be accompanied by a positive impact value. They also mention four M&A determinants: scope, geography, scale and legal. According to Stewart (1991), the actual motivating forces behind mergers are the following three: a. increase financial performance, b. take advantage of specific financial benefits, and c. take advantage of tax benefits. Stewart's merger motivation theory of increasing financial performance (net operating profits) is largely accepted as being a merger motivator within the banking industry. An increase in net operating profits may either be derived from cost savings or increase in revenue. Many of those involved in the bank mergers agree that cost savings are a significant reason for the activity. Downsizing and global consolidation are largely responsible for the cost savings of cross border mergers. Second, regarding the financial benefits that M&As offer, an example is the following: as the banks merge and their capital base grows, their combined lending ability increases and they

are able to offer larger loans without soliciting additional participation from another bank partner. Thus, the bank is able to possibly increase market share and revenue while decreasing competition. Third, tax benefits are derived from expensing the stepped-up basis of assets acquired or from the use of otherwise forfeited tax deductions or credits.

Another strong motive, especially in the case of relatively small markets, like that of Greece, is the so-called "Too Big to Fail" (TBTF) motivator. According to this approach, if banks reach a large size, the regulatory bodies would deem them to be too big to liquidate and thus bank M&As is the quickest means of reaching the TBTF size. Several studies have actually shown that the "TBTF" was an important motivator in the larger mergers of the 1990's in the US (Benston *et al.*, 1995; Boyd and Graham, 1991).

Studies that examine the bank M&As outcome are usually categorized into two broad categories. Studies in the first category typically examine changes in accounting data before and after the mergers to test whether there have been any significant changes in the merged financial institutions' operating performance, as measured mainly by either return on equity (ROE) or return on assets (ROA). Studies in the second category examine the impact of merger announcements on stock prices of the acquiring and the target banks as well as the combined entities around the announcement period.

An overall assessment of the first set of studies leads us to the conclusion that there is mixed evidence regarding the effect of bank M&As in banks' performance. Houston *et al.* (2001) mention that the mixed empirical evidence is not surprising given the numerous empirical difficulties associated with these studies. Regarding the studies that follow the stock-price methodology, Houston *et al.* (2001), indicate that bank mergers do not create a statistically significant net increase in stock market value. They find that the shareholders of target do earn positive cumulative abnormal returns, whereas the shareholders of the acquirers earn zero or negative cumulative abnormal returns, concluding that wealth is transferred from the acquirer to the target shareholders in bank mergers.

3. THE POST-DEREGULATION EVOLUTION OF THE GREEK BANKING SECTOR

Until the early 1980s, Greek banks were subject to strict controls and regulations, aiming basically to direct credit to specific economic sectors as well as to finance government deficits through obligatory reserve requirements placed in government obligations. A complicated system of credit controls along with a wide range of administratively determined bank interest rates were used in order to achieve these goals. That environment proved to be relatively stable but largely ineffective and resulted in a closed, protected and inefficient banking sector, dominated by large but inefficient state owned banks and a few profitable private institutions. Moreover, the large state owned banks were burdened by non performing loan portfolios.

Developments in the international financial markets as well as Greece's goal to participate in the single European Market for Financial services motivated a series of liberalization measures that transformed the market. The goal was the creation of a modern, market-oriented system that could survive and even compete in a more open, competitive environment. As a result, the Second Banking Directive was implemented in 1992 while capital movement restrictions were lifted in 1994. The developments analyzed in this section refer to the period following deregulation.

Moreover, during the decade of 1990, a series of legal, regulatory and institutional measures enabled the introduction of new financial products, such as leasing, factoring, forfaiting and venture capital. Another important development was the abolition of the existing regulatory differentiations between commercial Banks and special credit institutions such as mortgage banks, industrial development banks or the Agricultural Bank of Greece. The idea was to create a level playing field for all credit institutions operating in the country following the European model of universal banks.[2] Domestic banks and foreign banks operating in Greece enjoyed a host of new opportunities but were also faced by greater competition and new risks.

During the same period, important measures were taken to modernize the operation of the capital market while in 1999 the Athens Derivatives Exchange started operations.[3] As a result, the capital market became an important source of capital for the funding of enterprises, introducing a degree of disintermediation in the Greek market. At the same time, the banks themselves took advantage of the new opportunities by establishing investment banking operations or acquiring small investment banks and also by raising capital or placing public bids for the acquisition of suitable targets.

The deregulation wave prompted the establishment and operation of new banks, either domestic institutions or branches of foreign banks. Between 1980 and 2005 seventeen new banks were incorporated. Regarding foreign banks, the picture is mixed. At the onset of deregulation, seven foreign banks established their presence in Greece, but toward the late-1990s an equal number among them have withdrawn from the Greek market, selling their branch networks and loan portfolios to domestic institutions in the context of their broader strategies.

The timely and gradual introduction of liberalization measures by the Bank of Greece allowed Greek banks the time to modernize and adapt, so that they were rather well prepared to face the next big challenge, the introduction of the Euro in 2001. The end of the 1990's found Greek banks with cleaned portfolios, restructured operations and modernized technological infrastructure. New strategies were devised and implemented, focusing on new activities, expanding operations in new market segments and implementing risk management systems. Most Greek banks' management teams responded successfully to the new challenges, maintaining and even expanding their profitability and market reach, as shown by Gibson, (2005) and Thanou E.and Mansolas K. (2007).

Increased competition and deregulation were the driving forces behind the focus in retail banking, with the new private banks exploiting the large, underserviced retail client base of the large state banks. In their efforts to improve service and attract retail deposits, banks embarked in expanding and modernizing their branch networks and established alternative distribution channels such as ATM's, phone banking and internet banking. During the 1990s, the number of bank branches operating in Greece almost doubled, from 1,529 in 1990 to 3,004 in 2000, mainly reflecting the relatively low level of branching in the past.[4] The onset of the euro and the sharp decrease of interest rates prompted an even stronger emphasis in consumer credit, and intensified competition, as the 'former' state banks rebounded with new products and marketing techniques (Kamberoglou *et al*, 2004).

Throughout the period, Greek banks engaged in restructuring activities in order to become more cost efficient, customer oriented and, in the end, more competitive, both domestically, as well as by international standards. An important strategic goal was growth, in order to reach the critical size that would enable them to increase or, at least maintain their domestic market shares, facilitate their access to international financial markets and exploit any possible economies of scale. This was one of the main motivating forces behind several of the mergers during the period under review.

Table 1 lists all the bank M&A's that took place among banks operating in Greece. The expansion phase of the early nineties was followed by a consolidation phase that peaked in the years 2002-2003, as shown in graph 1. The first acquisition between Greek banks took place in 1997, when Eurobank acquired Interbank, both relatively new institutions, neither of them listed in the Athens Stock Exchange at the time. Cases no 2,5,7 and 17 involve the acquisition of the operations of foreign banks from domestic institutions, a move motivated basically by a desire to quickly expand branch network and market share, but also with a view of obtaining well qualified personnel and know-how. Cases 3, 4, 16 and 20 are in effect intra-group mergers, among parents and their special purpose financial subsidiaries, motivated mainly by cost reductions.

In order to highlight the magnitude of the expansion- consolidation process in the Greek banking sector, we point out that only 9 of the 17 "new" banks established after 1980 still exist as independent entities. On the other hand, only 7 of the 18 domestic commercial banks operating in 1980, still survive to this day as independent financial institutions, while the other 11 have been merged with the "survivors". Two of the most dynamic private banking groups today, EFG Eurobank and Pireaus Bank were either established after 1980 or were very small (0,3% market share) in 1980. It should be clarified that there were no bank failures or closures, the banks that no longer exist have been acquired and merged with others. Lastly, it should be mentioned that the largest Greek banks have started, already from the mid 1990's, a careful and gradual expansion into the newly opened markets of the Balkan countries, both by establishing

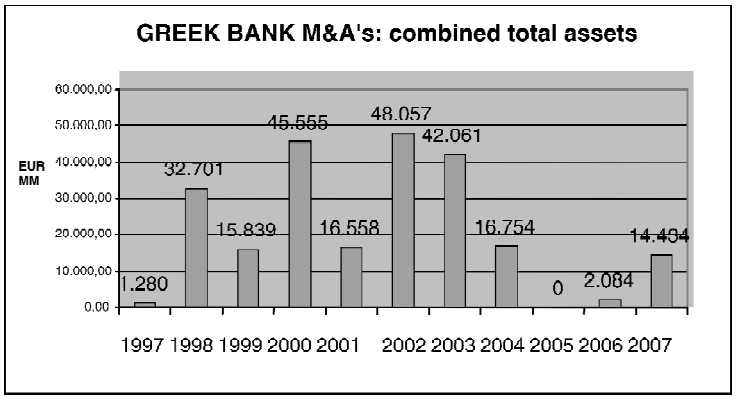
Table 1
Mergers and Acquisitions in the Greek Banking Sector

Year		*Acquirer Bank*	*T. Assets in €MM*	*Target Bank*	*T. Assets in € MM*
1997	1	EFG Eurobank	895,08	Interbank	578,14
	2	Piraeus Bank	551,72	Chase Manhattan (branches)	211,30
	3	National Mortgage Bank.	6432,87	National Housing Bank	363,90
1998	4	National Bank	28768,89	National Mortgage Bank	7383,71
	5	Piraeus Bank	936,17	Credit Lyonnais Grece	223,04
1999	6	EFG Eurobank (1)	2773,29	Bank of Athens	343,36
	7	Bank of Piraeus	1966,25	Nat. Westminster (branches)	1132,80
	8	Telesis Securities	46,96	Dorian Bank	249,45
	9	Egnatia Bank (2)	771,83	Bank of Central Greece	522,38
	10	EFG Eurobank	3785,77	Bank of Crete	1176,82
2000	11	Alpha Bank	17326,49	Ionian and Popular Bank	5842,99
	12	Bank of Pireaus	4475,42	Macedonia-Thrace Bank	2435,80
	13	Bank of Pireaus	4475,42	Xios Bank	1983,86
	14	EFG Eurobank	7556,86	Ergasias Bank	6415,26
2001	15	EFG Eurobank-Ergasias	15392,52	Telesis Investment Bank	886,28
2002	16	National Bank	47847,40	ETEBA (Industrial Credit Bank)	1165,08
2003	17	Aspis Bank	1612,00	Standard Chartered (branches)	210,00
	18	EFG Eurobank-Ergasias	23336,00	Unit Bank	167,00
	19	Bank of Pireaus	14074,00	ETBA	2737,00
2004	20	Emporiki Bank	16644,00	Investment Bank	135,00
2006	21	Proton Investment Bank	290,00	Omega Bank	110,00
2007	22	Egnatia Bank (3)	3696,00	Marfin Bank	1794,00
	23	Egnatia Bank (3)	3696,00	Popular Bank (Hellas)	3346,00

Source: Bank of Greece, news sources.

Notes: (1) and (2). In some papers, the acquirer-target pairs of those two mergers are shown reversed, in line with the legal structure of these deals. In fact, in (1) BoAthens, a listed company, was acquired by the parent of EFG Bank and subsequently the two banks were merged, resulting in the listing of EFG without an IPO. Similarly, Egnatia Bank, a privately held bank, acquired the BoCG but legally the opposite case was shown, so that the merged bank maintained the listing status of the target. (3). The three banks, acquired by Marfin Popular Bank ltd, were merged by absorption from Egnatia Bank

Graph 1
Volume of Domestic M&A's in Greek Banking, in € million



branches or subsidiaries, but also by acquisitions, a strategy that paid off richly during the last few years. While it was our intention to include these cross border acquisitions in our analysis, it was decided to postpone this task for a future work, not only due to difficulties in obtaining the necessary data but also for methodological reasons.

The wave of acquisitions and mergers has resulted, predictably, in higher concentration in the Greek banking industry: the market share of the top-5 banks as a percentage of total assets rose from 57% in 1995 to 65% in 2000 and to 70% in 2006. This, however, has not reduced competition, as shown in a study by Gibson and Demenagas (2002) and as evidenced more recently by the reduction in interest rate spreads, especially in the segments of consumer and housing loans where competition is strongest. In addition, this level of concentration, although higher than the European average, is lower when compared against countries with similar size to Greece and is not considered excessive. (Gortsos, 2006).

Another important development that took place after the second half of the past decade was the privatization of several banks controlled by the Greek State. In the period 1995-2000, the market share of the State-controlled banks fell by almost 20 percentage points, from 72.3% in 1995 to 52.9% in 2000. Cases no 9,10,11, 12 and 19 in Table 1 involve acquisitions of partially or fully state owned banks by private ones. The most pronounced privatizations were the sale of General Bank, a medium size bank, to Societe Generale, in 2004 and the acquisition of Emporiki Bank by Credit Agricole in 2006. These acquisitions, however, involving foreign banks, are considered cross border M&A's and do not form part of the present analysis. A more subtle form of privatization was the gradual reduction of the stake controlled by the government in National Bank of Greece, by far the largest Greek bank, through the Athens Stock Exchange, which resulted in a definitive change of strategy of this market leader institution, especially after 2004.

4. DATA AND METHODOLOGY

We examine the impact of strategic characteristics on post-merger financial performance for 14 of the 23 M&As[5] among Greek banks, during 1997-2007. The data are derived from the ICAP database, which contains information from published balance sheet and income statements of Greek companies.

As already mentioned, in terms of methodology, analysts usually choose to follow between two main styles of empirical methods. In the first set of studies, analysts compare pre- and post-merger performance based on either accounting or productive efficiency indicators. In the second set of studies, they follow an event-study type methodology based on changes in the prices of specific financial market assets, around the time of the announcement of the merger.

We follow the former approach by comparing pre- and post-merger financial performance. Within this methodological context, we focus our analysis in testing

whether certain strategic similarities among merging banks result in an improvement or deterioration on the performance of the merged institution. Empirical evidence has shown that the existence of common bank characteristics among merging partners could be conductive to improved performance. However, to the authors' knowledge, only Altunbas and Ibanez (2004) have so far thoroughly analyzed how common strategic characteristics affect the bank M&A result. This issue is very important because it offers explanations on the contradictive evidence regarding the success of M&As in the banking sector. We also follow this specific approach of reasoning linking specific characteristics of the merging institutions with their performance.

In our analysis, we mainly follow the modeling proposed by Altunbas and Ibanez in their 2004 paper. Their model relates changes in performance before and after the merger to a set of strategic indicators and a set of control variables that are expected by the theory to influence performance. Following their rationale, we also define the dependent variable as the merger related change in performance, calculated as the difference between the merged bank's two year average return on equity (ROE) after the acquisition and the weighted average ROE of the merging banks two years before the merger.

Regarding the explanatory variables we first identify the financial features of targets and bidders considering the main characteristics that practitioners use to analyze the financial performance of banks (i.e. various ratios like the cost-income ratio, the capital-assets ratio and the liquidity ratio). Second, we calculate a similarity index for this set of variables for the banks that are involved in M&A activity, which measures the strategic similarity of the banks in each M&A pair, for each variable. Specifically, the similarity index is calculated as follows:

$$SI_{ni} = \sqrt{\left(X_{Bni} - X_{Tni}\right)^2}$$

where

SI_{ni} = the similarity index for the n_{th} variable for the i_{th} merger,

XB_{ni} = the scores of the bidder (Bn) for the n_{th} variable,

XT_{ni} = the scores of the target (Tn) for the n_{th} variable.

The main rationale of the strategic similarity index is that if the *SI* for a specific variable is low, the two firms (bidder and target) can be considered to follow a similar strategy, as implied by the specific variable used. To capture the strategic orientation of the merged firms, we consider financial information over the two years prior to the merger. Note that among the strategic variables we also use three control variables which are expected to be important determinants of bank performance.

The set of explanatory variables (strategic and control) are presented in Table 2. Each variable refers to a financial indicator and measures specific features of financial performance.

We separate the strategic variables in five distinct groups of strategic orientations, namely:

1. The earnings diversification strategy
2. The asset quality strategy
3. The cost controlling strategy
4. The capital adequacy strategy
5. The liquidity strategy.

Regarding the earnings diversification strategy, the financial indicator used shows the ability of the bank to generate earnings apart from the traditional net interest revenues. The ratio used to measure this ability is: "Other operational revenue/Total assets", which we call "Diversity earnings". According to Gande *et al.* (1997) dissimilarities in non-interest income sources of revenues are expected to enhance post-merger performance, as they could help spreading access to financial innovation and new sources of revenues. Thus, we expect a positive relationship between the SI-Diversity earnings and performance change.

Table 2
The Dependent and Explanatory Variables

Dependent variable		
Performance change	*ΔROE*	*ROE (post-merger) – Weighted ROE (pre-merger)*
Strategic variables		
Diversity earnings ratio	*DIVEARN*	Other operational revenues/Total assets
Credit risk ratio	*CRISK*	Loan loss provision/Net interest revenues
Loans-total assets ratio	*LOANTA*	Net loans/Total assets
Loans-deposits ratio	*LOANDEP*	Net loans/Deposits and repos
Cost-income ratio	*CINC*	Total cost/Total revenues
Capital-assets ratio	*CATA*	Capital/Total assets
Liquidity ratio	*LIQ*	Liquid assets/Total deposits
Control variables		
Relative size	*RSIZE*	Total assets of target/Total assets of bidder
Bidder performance	*BPER*	ROE of bidder (pre-merger)
State-private dummies	*O_DUM*	Ownership dummies

The asset quality strategy refers to the asset structure of the financial institution. There are three main variables that are used to capture asset quality information. First, the "credit risk" variable, which measures the level of loan loss provisions divided by net interest revenues. Second, the "loans to total assets" ratio, which considers the prominence of traditional and normally un-hedged loan lending in terms of its weight on the overall portfolio. Third, the "loans-deposits" ratio, which is a proxy for the relative use of deposits in relation to the amount of loans.

Dissimilarities in asset quality features may prove either beneficial or harmful for the merging institutions. In case the overall portfolio strategy is substantially affected, then dissimilarities may create obstacles in positive outcomes in post-merger performance. On the other hand, some types of dissimilarities in this set of variables may improve revenues due to the possibility to diversify the asset portfolio or from including new portfolio strategies. The final result depends on the flexibility of the merged institution to either absorb the differences and adapt to the new situation, or its inability to respond to potentially large changes.

The cost controlling strategy mainly refers to what it actually describes: control costs. The variable used to capture this strategy is the "cost-income" ratio which measures the ability of the banks to minimize cost by relating expenditure to returns. Firms characterized by different cost controlling strategies (which in turn results in a relatively high SI), may show a drop in performance if they decide to merge (Altunbas *et al.*, 1997), hence a negative relationship is expected.

The capital adequacy strategy refers to the bank's capital structure, measuring the bank's equity to total assets ratio. As Vives (2000) notes, bank capital has become a central point in bank regulation in an attempt to introduce competition in banking and to check risk-taking. Altunbas and Ibanez (2004) approach this issue by referring to the signaling hypothesis of the asymmetric information theory. According to this approach, banks can signal favorable information by merging with banks with larger capital ratio, as this indicates a positive relationship between capital and earnings. Thus, capital structure dissimilarities and performance are positively related.

Finally, the liquidity strategy refers to the bank's strategy to manage liquidity risk. We measure liquidity as the ratio of liquid assets (cash + liquid securities + claims from other financial institutions) divided by total deposits (deposits plus repos). Bearing in mind that it is expensive to maintain a generous liquidity ratio, different strategies according to which the merging banks can acquire better liquidity management would imply a better performance.

Apart from the strategic variables described above, we also use three control variables. The first is the relative difference in size between the target and the bidder, the second is the pre-merger bidder performance and the third is the type of ownership. More specifically, the relationship between the "relative size" variable and performance change is an ambiguous one in the literature. Altunbas and Ibanez (2004) mention that for domestic mergers a negative relationship should be expected, as the smaller the size of the targets compared to the bidders, the easier the integration to realize cost savings opportunities. On the other hand, in the case of cross-border mergers, the larger the "relative size" ratio, the higher the expected performance, as these types of mergers are expected to generate other kinds of benefits. Bearing in mind that our sample comprises solely of domestic mergers, we expect a negative relationship.

Regarding the second control variable, the level of the bidder's pre-merger performance is expected to influence the post-merger performance of the combined entity. The relationship is expected to be negative for the two following reasons: First, it is more likely for an already highly profitable bank to reduce its high profitability in the short-run after the merger, due to the process itself. Second, bidders with low performance ex-ante will most likely manage to increase their profitability after merging; this is the main goal after all.

The third control variable refers to the bank's ownership status. As already discussed in section 3, during our study period there were still some state-controlled banks with different strategic characteristics when compared with private banks. Previous studies (Gibson, 2005) have shown that at least until 2003 state banks had different profitability and cost characteristics compared to private ones. Thus, it would also be interesting to analyze this feature. Bearing in mind that the main objectives and strategies of the state-controlled banks are different from those of the private banks, we decided to introduce an ownership dummy separating our sample in state-controlled and private bidders, to control for any differences in the results between these two distinct groups of banks. In fact, this is our main innovation, compared to the methodology and variables proposed by Altunbas and Ibanez (2004). Moreover, we decided to omit two of the independent variables used in the above study, namely a proxy aiming to measure off balance sheet activities and another proxy attempting to account for technology innovations strategy, mostly for data quality and sample size considerations. As the paper by Altunbas & Ibanez includes both cross-border and domestic mergers, our results are compared to the domestic merger group.

The application of the above modeling to our set of data results in a sample of, as already mentioned, just 14 mergers.[6] This is because in some of the cases and especially where the target was the branch network of a foreign institution, some important data, namely capital and earnings data, are missing. Branches do not possess their own capital, relying on the capitalization of the parent, while by law they have reduced disclosure requirements.

The results are presented in section 5 below.

5. RESULTS

Due to the small size of our sample, and the fact that we limit the analysis to domestic mergers only, we do not rely only on the regression results but also attempt to extract additional information from our data using descriptive statistics.

Before analyzing in detail the results of our empirical work, we present and analyze some interesting descriptive statistics of target and bidder banks (Table 3) The following observations stand out: The average and median size of the bidders is significantly larger than that of the targets, as expected, but rather low compared to European standards.[7] The highest discrepancy between bidder and target ratios is

found in the credit risk measure and the loans to deposits ratio, both significantly higher for bidders. The unusually high loans to deposits average of the targets and the high standard deviation are due to the fact that among the targets were three investment banks, with very low deposit base. We also notice that bidders are more cost efficient compared to targets, slightly better capitalized with better credit risk and slightly higher diversity earnings. Interestingly, the loans to Total Assets ratio does not seem significantly different at first sight. Finally, standard deviations are rather high in most variables, with the exception of the cost-income ratio.

Table 3
Greek Bank Mergers: Descriptive Statistics of Target and Bidder Banks

	TOTAL ASSETS	*LIQUIDITY*	*COST-INCOME RATIO*	*CAPITAL-ASSETS RATIO*	*LOANS-TOTAL ASSETS*	*CREDIT RISK*	*DIVERSITY EARNINGS*	*LOANS TO DEPOSITS*
TARGETS								
MEAN	1.865	0,7347	0,9378	0,1438	0,4690	0,3395	0,0228	2,3057
MEDIAN	1.164	0,6372	0,9331	0,1004	0,4400	0,2108	0,0205	0,6521
ST. DEV.	1.943	0,7241	0,2209	0,1444	0,1957	0,4072	0,0230	4,9554
BIDDERS PRE-MERGER								
MEAN	9.304	0,6971	0,8245	0,1565	0,4448	0,1866	0,0240	0,6849
MEDIAN	7.416	0,5780	0,8777	0,1130	0,4524	0,1589	0,0219	0,6572
ST. DEV.	9.618	0,7202	0,1606	0,1908	0,1482	0,1510	0,0169	0,2816
BIDDER POST MERGER								
MEAN	13.244	0,4857	0,8432	0,1045	0,4866	0,1560	0,0183	0,6491
MEDIAN	13.814	0,5295	0,8357	0,1014	0,4524	0,1848	0,0201	0,6244
ST. DEV.	11.406	0,1537	0,1372	0,0580	0,1321	0,0841	0,0083	0,1953

Source: Our data.

Regarding the post-merger performance, only five of the 14 mergers examined have resulted in a performance improvement, as measured by our model. We present the similarity indicators for these five mergers in Table 4:

By examining those "successful" mergers and comparing with the market average (calculated from Table 3), we observe some interesting information regarding the similarities or differences in the various variables that represent pre-merger strategies: First, the SI Liquidity index is relatively high, meaning significant differences between bidder and target in this particular variable. In the cost efficiency strategy indicator, we observe relatively small differences, signaling similarities regarding the respective strategies. The picture is mixed and there is absence of a clear trend in the cases of the capitalization indicator, the Loans to Assets, the Credit risk measure and the loans to deposits indicator. Finally, the values of the Diversity Earning variable are relatively small, indicating similar strategies. Lastly, we can't help noticing that all of the successful merger cases are related to bidder banks that

have been already involved in mergers before the particular ones identified as positive, therefore we can infer the existence of a learning curve in realizing synergies. This hypothesis is an interesting one and would be worth testing in the context of a larger, pan-European sample.

Table 4
Greek Mergers with Positive Performance Change

Mergers with positive performance change	*Perfor mance change*	*SI-Liquidity*	*SI-Cost Income*	*SI-Capital-Assets*	*SI- Loans / T. Assets*	*SI-Credit Risk*	*SI-Diversity Earnings*	*SI-Loans/ Deposits*
Merger 1	0,0836	0,3991	0,1336	0,0277	0,3961	0,0292	0,0001	8,3939
Merger 2	0,0818	0,1973	0,0875	0,0057	0,1537	0,2057	0,0153	0,2002
Merger 3	0,0752	0,2026	0,0639	0,0574	0,1989	0,0051	0,0096	0,1919
Merger 4	0,0513	0,3083	0,0310	0,2373	0,0940	0,1144	0,0050	0,0167
Merger 5	0,0188	0,3273	0,0275	0,2884	0,1012	0,4021	0,0029	3,8546
Avg target-avg bidder	0,0376	0,1134	0,0127	0,0242	0,1529	0,0011	1,6208	

Note: The names of the banks can be found in Appendix 1.

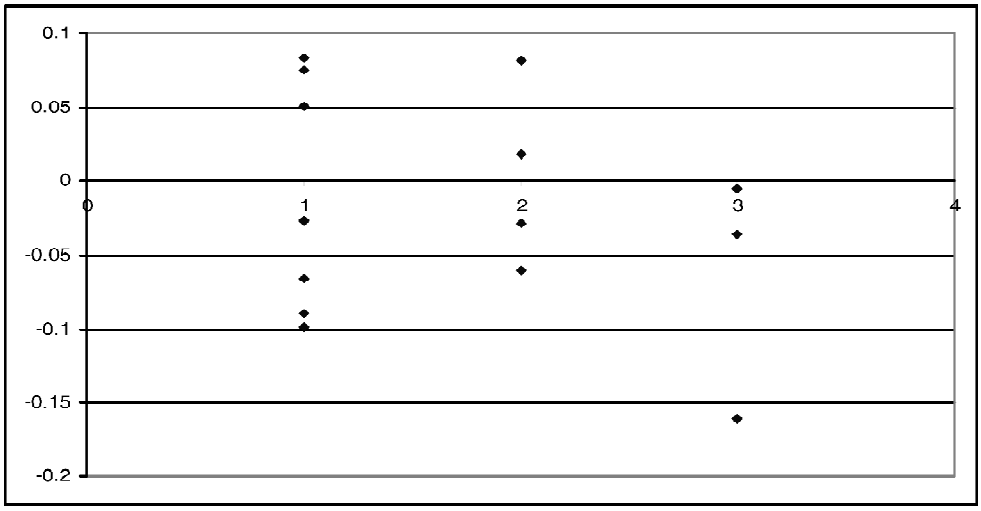
Another very important issue in our analysis is the distinction between state-controlled and private banks. As already mentioned in the third section of the paper, an important development that took place after the second half of the past decade was the privatization of several banks controlled by the Greek State. Thus, we can identify four possible combinations in an M&A activity:

1. Private bidder – private target
2. Private bidder – state controlled target
3. State controlled bidder - state controlled target
4. State controlled bidder - private target.

In our sample we observe the first three situations, which we analyze by presenting them in Graph 2 that follows. Looking at the graph, the first two combinations where the bidder is a private bank do not seem to present any trend towards positive or negative performance change. An interesting conclusion though is that all three M&As where a state controlled bank acquired another state controlled bank were followed by negative post-merger performance. Perhaps the main objective in the acquisition of a state-controlled bank by another state-controlled bank is not to maximize performance.

In our attempt to further analyze our data, we ran a series of regressions first with the full set of explanatory variables presented in section 4 above, and then with smaller subsets of the explanatory variables. However, the small size of our sample proved a seriously limiting factor in obtaining statistically significant results, leaving few degrees of freedom. Thus, to improve our results in terms of statistical significance we had to reduce the number of explanatory variables.[8] In Table 5 below,

Graph 2
Ownership and Performance Scatter



we present the regression with the best fit, in the sense of the overall explanatory power but also where all of the included variables are statistically significant:

Table 5
Regression Results

Dependent Variable: ΔROE
Method: Least Squares
Included observations: 14

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
LIQ	0.2452	0.1040	2.3574	0.0380
CINC	-0.1867	0.0760	-2.4539	0.0320
RSIZE	-0.0648	0.0276	-2.3410	0.0391
R-squared	0.3355	Mean dependent var		-0.0185
Adjusted R-squared	0.2147	S.D. dependent var		0.0743
S.E. of regression	0.0658	Akaike info criterion		-2.4152
Sum squared resid	0.0477	Schwarz criterion		-2.2782
Log likelihood	19.906	Durbin-Watson stat		1.7500

Three of the variables approximating strategic similarities and calculated as differences in the appropriate financial ratios are statistically significant at the 5% level. These results confirm the observations of Table 4, above and are interpreted as follows: Among the possible strategic similarities, liquidity, measured as the ratio of liquid assets to total deposits, had a positive impact on the performance of the merger. Recalling that the variable actually measures the difference of this ratio between the

two banks, the positive relationship implies that different liquidity strategies and or positions between the bidder and target led to synergies that are associated with positive performance. By a closer examination of our descriptive statistics (Table 3) we note that this ratio is higher for the targets compared to the bidders, therefore an alternative interpretation is that targets were generally more conservative in managing liquidity risk, or did not have the capacity to profitably employ their assets. It is plausible that following the merger, in the context of a bigger bank with more efficient risk management, the excess liquidity allowed loan expansion and increased profitability.

The second variable that measures similarities in efficiency (total cost/total revenues) has the sign predicted by theory, in other words similarities in the cost structure of the merging institutions contribute to the success of the merger. This result is in line with the findings of Altunbas *et al.* (2004).

Last, the relative size criterion is found to be significant in several other studies and is in line with the results of Altunbas *et al.* (2004) for pan European domestic mergers. The negative relationship means that the larger the size of the target in relation to the bidder, the lower the post merger performance, indicating the practical difficulties and costs involved in merging two institutions of similar size. This particular result has been also noted in studies with different methodology, such as Athanasoglou & Brisimis (2004).

In order to check whether the lack of statistical significance in several of the explanatory variables was due to the small size of our sample and to be able to include more mergers and increase the degrees of freedom in the regressions, we also tried a more simplistic approach in measuring the post merger performance, namely we consider the change in the performance of the bidder only, ignoring the pre-merger performance of the target, so that mergers where the target was the branch network of foreign banks could be included. This increased the number of observations to 18 and also increased the number of "profitable" mergers from 5 to 8, but the results regarding the statistical significance of the explanatory variables were not significantly different from those presented above, nor was the overall explanatory power of the regression improved, therefore we do not present them.

6. CONCLUSIONS

The Greek banking market is a relatively small but dynamic sector with regional importance. In this paper we examine whether strategic similarities between bidders and targets in bank mergers affect the merged institutions' post-merger performance. We analyze the domestic M&As of Greek banks, which resulted in large and healthy financial institutions shaping the necessary preconditions for their expansion in the Balkans.

In terms of methodology, we use a number of financial indicators to capture each bank's strategy in distinct strategic orientations and we then test whether differences in strategies between bidders and targets affect post-merger performance. Our

sample consists of just 14 domestic M&As in the Greek banking sector. We start our analysis by presenting some interesting descriptive statistics. We then analyze the financial characteristics of the successful versus unsuccessful mergers, in terms of performance change, both descriptively and by using regression analysis.

Our results show that different liquidity strategies between the bidder and the target led to synergies that are associated with positive performance. Another important finding is that similarities in the cost structure of the merging institutions contribute to the success of the merger. Last, there is also evidence that the larger the size of the target in relation to the bidder, the lower the post-merger performance, implying that the practical difficulties and costs involved in merging two institutions of similar size cannot be easily overcome.

An interesting subject for a future study would be the analysis of the cross-border acquisitions of the Greek banks in the Balkan area. This future study will provide valuable information in the broader sphere of the expanding power of a relatively small financial sector, into newly deregulated financial markets.

NOTES

1. Merrill Lynch was "saved" via its acquisition by Bank of America as opposed to Lehman Brothers which was left to go under, with serious repercussions in market confidence.
2. This particular development was, among others, a key motivating force behind some of the M&A activity in Greece during the period.
3. Pavlou,N Blanas,G Golemis, P (2007).
4. It is worth noting that in terms of inhabitants per branch the Greek credit system is still underbranched as compared to other EU countries. This is not, however, the case when GDP per branch is taken into account.
5. Due mostly to shortages and omissions in the data required for our analysis.
6. The cases included in our sample along with the values of the variables are shown in Appendix 1.
7. The average size of domestic bidders in terms of T. Assets is around euro 210 billion while that of targets is about 60 billion (Altunbas and Ibanez , 2004).
8. The results of the regressions can be made available upon request.

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APPENDIX 1

Greek Domestic Mergers and the Respective Strategic Indicators Associated with them

Mergers	*Performance Change*	*SI– Liquidity*	*SI–Cost Income Ratio*	*SI–Capital Assets Ratio*	*SI–Loans Total Assets*	*SI– Credit Risk*	*SI–Diversity Earnings*	*SI– Loans to Deposits*	*2-Y AV Pre Merger Roe Bidder*	*Relative Size*
EFG Eurobank - Unit bank	0,0836	0,3991	0,1336	0,0277	0,3961	0,0292	0,0001	8,3939	0,2298	0,0062
EFG EUROBANK - Bank of Crete	0,0818	0,1973	0,0875	0,0057	0,1537	0,2057	0,0153	0,2002	0,1551	0,4091
EFG EUROBANK - Bank of Athens	0,0752	0,2026	0,0639	0,0574	0,1989	0,0051	0,0096	0,1919	0,1551	0,1210
EFG Eurobank - Telesis Investment Bank	0,0513	0,3083	0,0310	0,2373	0,0940	0,1144	0,0050	0,0167	0,2328	0,0478
Piraues Bank - ETBA	0,0188	0,3273	0,0275	0,2884	0,1012	0,4021	0,0029	3,8546	0,1652	0,2065
NATIONAL BANK - NATIONAL MORTGAGE BANK	-0,0047	0,0907	0,1405	0,0107	0,2117	0,5300	0,0103	0,3588	0,3864	0,1207
Proton Investment - Omega Bank	-0,0271	1,6017	0,7112	0,5067	0,4073	0,3817	0,0429	0,2568	0,0643	4,6440
Piraues Bank - Macedonia - Thrace Bank	-0,0286	0,1067	0,1680	0,0165	0,0318	0,1433	0,0068	0,0619	0,2273	0,4607
Emporiki Bank - Investment Bank	-0,0359	2,2116	3,1102	0,6309	0,3236	1,3736	0,0771	1,2026	0,1711	0,0073
Alpha Bank - Ionian and Popular Bank	-0,0602	0,1375	0,3536	0,0582	0,1184	0,6230	0,0063	0,2120	0,3277	0,3694
EFG Eurobank - Ergasias Bank	-0,0658	0,0209	0,2139	0,0409	0,0479	0,0281	0,0090	0,0391	0,1537	0,6529
Piraues Bank - Xios Bank	-0,0892	0,1551	0,0366	0,0445	0,0685	0,0735	0,0115	0,1040	0,2273	0,3706
EFG EUROBANK - INTERBANK	-0,0983	0,2148	0,0545	0,0618	0,1707	0,0803	0,0033	0,0362	0,1631	0,6284
National Bank - ETEBA (Industrial Credit Bank)	-0,1609	0,0259	0,1698	0,0835	0,0633	0,3607	0,0295	0,6449	0,3599	0,0268