

## Mergers and Acquisitions. An Evaluating Method before and after the Event in the Banking System

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### Abstract

*The banking industry is a dynamic and important sector of the world economy and plays a key role in financial markets worldwide. Mergers and Acquisitions are an important strategy for corporate firms and banks to achieve growth, efficiency, profitability, create synergies, reduce costs, acquire assets and expand into new markets. Banks, through Mergers and Acquisitions, also aim to increase their capacity and competitiveness.*

*Mergers and Acquisitions are a common phenomenon of the financial sector and especially in the banking system.*

*The purpose of this specific work is the study of Mergers and Acquisitions of Systemic Greek Banks providing a basis for their evaluation methods before and after the event using financial analysis and financial ratios. The literature is reviewed and the case of the acquisition of the Agricultural Bank by Piraeus Bank in 2012 is studied as a significant example for the theoretical framework that we present in this paper.*

*This paper is an attempt to present and evaluate the financial performance of the two systemic Greek banks that involved in the takeover, that is, the bidder bank and the target bank three years before year zero when the takeover took place. So we calculate the financial ratios of the two banks and compare with them. Then we study whether and if there is an improvement of the financial performance of the acquiring bank three years after the completion of the acquisition and we compare the value of financial ratios before and after the acquisition.*

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**Jel Classifications:** G21, G33, G34,

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### Introduction

The financial system affects economic growth in two ways, through capital accumulation, affecting the rate of its creation, and through technological innovations, discovering new methods of production and introducing new products.

The services provided by financial institutions facilitate economic activity in various ways. Financial intermediation allows the transfer of savings from surplus firms and households to deficit firms for investment purposes. Also, the banking system contributes to the significant reduction of transaction costs through a mechanism for pooling individual funds from heterogeneous savers and channeling them to investors. In addition, it facilitates risk management, as it allows the smoothing of flows over time and the exploitation of economies of scale, while at the same time helping to reduce operational and credit risk.

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Therefore, a developed and well-organized financial system contributes both to the development of the economy and to the improvement of the productivity and efficiency of the banking sector. Thus the banks are able to offer financial services at a lower cost, which better approach the needs of corporate firms and households.

Financial markets are highly interdependent. The recent financial crisis of 2009 showed that no EU country it is not in a position to manage the financial sector and supervise alone the risks that threaten the financial stability of state economies, banks and corporate firms. The day after the crisis, the E.U. undertook to implement an ambitious program of financial reforms, with the ultimate aim of restoring financial stability, creating a robust and resilient financial system that will work for the benefit of the economy and strengthening the EU's ability to face financial and economic crises in the future. The E.U. drew up a "single rulebook" which provides for a single regulatory framework for the financial sector and its uniform application throughout the EU. For the implementation of this reform program, the European Commission has submitted over the last five years more than 40 legislative proposals aimed at restoring confidence in the markets, financial stability, as well as the integrity and efficiency of the European financial system. The most important of these reform proposals was the creation of the "Banking Union". The classic method of strengthening banks is their timely recapitalization in order to face any looming financial crisis and avoid aggressive takeovers. Another important alternative way of strengthening banks to deal with the financial crisis, but also aggressive acquisitions, is to proceed with horizontal and vertical but friendly acquisitions and mergers.

The increase in mergers and acquisitions occurs when there is a general economic activity that causes an imbalance in the financial markets and several investors acquire much more positive expectations about the future financial soundness, valuing higher some banks or companies, which thus become the takeover target. When some banks or companies acquirer others, then other competitors follow for fear of being left behind. Thus, the dynamics of the increase in the activity of mergers and acquisitions is obtained.

Acquisitions and Mergers are for businesses and banks a means of growth and development. According to Martynova & Rennenborg, (2006) and Altunbas & Ibanez, (2004), they are an important and critical strategy to achieve growth, efficiency, create synergies, reduce costs, acquire assets and expand into new markets. Overall M&As lead to increased profitability (Gugler et al., 2003) for both industrial and service sectors.

### **Literature Review**

Mergers and acquisitions of banking organizations is a fairly old phenomenon for which there has always been a special interest due to the great importance of the banking system in the economy.

The concept of acquisition refers to the acquisition of control of the acquired company by the acquiring company. The target company may cease to exist as a separate legal entity after the acquisition or may continue to exist as a subsidiary of the company that acquired a majority stake in it by submitting a bid. In the case of the acquisition by payment of assets (e.g. cash), the transferred assets of the target are now assets of the acquirer. The expectation is therefore that the value of these assets will soon exceed the price paid by the acquirer's shareholders to acquire them. In the case of share acquisition, the shares of the target do not necessarily change hands in any pre-agreed exchange relationship (Sherman & Hart, 2006). In some cases, even the acquisition of a minority percentage of shares can ensure the acquiring company substantial control, since with the acquisition of the shares it has a dominant role in the process of forming the Board of Directors and making decisions. This case exists in cases where the shares are fragmented.

Hussain Muhammad, Muhammad Waqas, Stefania Migliori (2019) found in their research that the liquidity, profitability, and investment of the banks are positively and significantly impacted by the experience of M&A and after facing such experiences the impact of aforesaid factors on profitability increased considerably.

The term merger is usually used without distinction for all relevant cases of corporate transformations. It mainly refers to the consolidation of two or more companies after which the assets of the absorbed companies are transferred to the absorbing company. When the transaction is carried out based on a defined exchange relationship of shares of the absorbed company with shares of the absorbing company, which are usually issued for the purpose of completing the transaction, and after its completion there is a new single legal entity, this is the other case of consolidation. The new company now operates under a single business structure, usually retaining the original corporate identity of the absorbing company. In cases of mergers of more than two companies, the following steps are essentially carried out:

- Liquidation of the companies to be merged
- Realization of the exchange of shares of the existing companies with shares of the new merged corporate structure.

Hampton (1989) claimed that “a merger is a combination of two or more firms in which only one of the firms survives”.

According to et al. (1999), four concepts of mergers and acquisitions are recognized.

- Acquisition of share capital (Acquisition of Assets): The buyer acquires all the assets of the acquired company, however this does not necessarily mean that the latter ceases to exist.
- Acquisition of stock (Acquisition of stock): The buyer makes an offer for the acquisition of a majority package of the target company's shares which will give it majority power in the Board of Directors. the company's. Such an acquisition is mainly effected by an exchange of shares or by cash or some combination of the two or even by the surrender of other securities.
- Merger by absorption (Merge): Refers to the combination of two or more companies where the acquiring company absorbs the assets and liabilities of the target company. The buyer usually retains its name, while the acquired business ceases to exist after the official announcement.
- Merger (Consolidation): In this case the two companies merge and a new entity is created. The shareholders, of the acquiring and target companies, receive shares of the new company proportionately.

According to Corporate Financial Institution the general differences between mergers and acquisitions are referred at table below.

**Table 1: Differences between Mergers and Acquisitions**

Methodology	Mergers	Acquisitions
Decryptions		
Procedure	Two or more individual companies join to form a new business entity.	One company completely takes over the operations of another.
Mutual Decision	A merger is agreed upon by mutual consent of the involved parties.	The decision of acquisition might not be mutual; in case the acquiring company takes over another enterprise without the latter's consent, it is termed as a hostile takeover.
Name of Company	The merged entity operates under a new name.	The acquired company mostly operates under the name of the parent company. In some cases, however, the former can

		retain its original name if the parent company allows it.
Comparative Stature	The parties involved in a merger are of similar stature, size, and scale of operations.	The acquiring company is larger and financially stronger than the target company.
Power	There is dilution of power between the involved companies.	The acquiring company exerts absolute power over the acquired one.
Shares	The merged company issues new shares.	New shares are not issued.

Source: <https://corporatefinanceinstitute.com/resources/valuation/merger-vs-acquisition/>

So the main difference between mergers and acquisitions is: A merger occurs when two separate entities combine forces to create a new, joint organization. Meanwhile, an acquisition refers to the takeover of one entity by another. Mergers and acquisitions may be completed to expand a company's reach or gain market share in an attempt to create shareholder value.<sup>2</sup>

- The most common and widespread methods of evaluating mergers and acquisitions are as follows<sup>3</sup>:
- The method of abnormal returns
- The evaluation method based on accounting standards
- The method of future returns on Equity
- The cash flow discounting method
- The business event method
- The evaluation method based on executives' opinions
- The method of efficient frontier approximations

### Methodology

In this paper we try to define a new more user friendly and hopefully with satisfactory results method of evaluating mergers and acquisitions with a long-term duration of at least three years both before the acquisition and after the acquisition or merger has taken place. This method presents the financial soundness of the banks and is mainly based on the financial analysis of the banks using accounting and finance elements such as DuPont Analysis and specific financial bank ratios which present, among others, the profitability, efficiency and liquidity of the examined banks in the long term before and after the acquisition or merger. So the main financial bank ratios that we use in our method are described below.

#### a) Profitability Ratios

$$i) \text{ Return on Equity (ROE)} = \text{Profits before Taxes} / \text{Total Equity} \quad (1)$$

It measures the efficiency with which the funds of the bank's owners are used, as it shows the profits that have been obtained from the funds that have been invested by the shareholders in the bank.

Profitability financial ratios measure a bank's profitability. They have to do with the profit potential and the policies followed by a bank (Gibson, Ch., 2013).

$$ii) \text{ Return on Assets (ROA)} = \text{Profit before tax} / \text{Total assets} \quad (2)$$

<sup>2</sup> <https://www.investopedia.com/ask/answers/021815/what-difference-between-merger-and-acquisition.asp>

<sup>3</sup> Xiangxiang Hu, Yue Shao, Yunwen Xu (2022). "Valuation Methods in Case of Mergers and Acquisitions: A Review". Advances in Economics, Business and Management Research, volume 211 Proceedings of the 2022 7th International Conference on Financial Innovation and Economic Development (ICFIED 2022)

It measures both the profitability of the bank in relation to its total assets and the efficiency of management in terms of the utilization of its assets. The higher the ROA, the better the profitability of the bank (Gibson, Ch., 2013). Its value shows how much net profit a monetary unit of assets generates.

$$\text{iii) Equity Multiplier (EM) = Total Assets / Equity} \quad (3)$$

$$\text{Or else Equity Multiplier (EM) = ROE / ROA} \quad (4)$$

An equity multiplier is a financial ratio that measures how much of a bank's assets are financed through bank stockholders' equity. A low equity multiplier indicates that a bank is using more equity and less debt to finance the purchase of assets. It also measures the ability of equity capital to increase assets. An increase in equity leads to a fall in the ratio and is interpreted as an increase in the bank's ability to face a loss using its own capital. At the same time, falling equity means lower operating leverage. Low operating leverage is a positive element for investors as well as for creditors. Long-term and comparative control of the specific indicator is required. The ratio between the financial assets of the banking sector and their equity, also known as the equity multiplier ratio, can be used alongside other measurements of the financial leverage of this sector to ascertain its overall financial stability and to analyse its financial health<sup>4</sup>. Conversely, if the ratio is low, it implies that management is either avoiding the use of debt or the company is unable to obtain debt from prospective lenders. A high equity multiplier, especially in comparison to the results for other companies in the same industry, implies that a business may have incurred more debt than is the norm, which could be difficult to support if there is a downward trend in the business cycle<sup>5</sup>.

$$\text{iv) DuPont Analysis: ROE = ROA x EM} \quad (5)$$

The DuPont Analysis used in the financial analysis for corporate firms and also for banks and shows the relation among profitability and financial leverage using the financial ratios of ROE, ROA and EM.

DuPont multiplication components in specific industries have a more generous assessment than regular ratios, suggesting increased validity to particular industries. Banks are a particular area of study due to their work and performance (Abeer al-Khoury , Hossam Haddad, Atef al-Bawab, Mohammed Othman , Ayman Khazaleh 2022).

$$\text{v) Net Interest Margin (NIM) = Net Interest Income / Total Assets} \quad (6)$$

$$\text{Net Interest Income = Interest Income - Interest Expense}^6$$

The Net Interest Margin Ratio is one of the main key indicators of bank profitability. The net interest margin is positively and significantly related to the level of short-term interest rates.<sup>7</sup> This ratio measures a bank's ability to generate interest earnings based on its total assets. Net interest income is directly affected by the interest rates at which a bank lends and borrows. They arise if interest expenses are deducted from loan interest income. When the cost of borrowing increases, as a result of the increase in interest rates on deposits, then the Net interest income decreases and consequently the NIM ratio also decreases. When the indicator takes a negative value, it means that the company did not make an optimal decision, because the interest expenses were greater than the amount of returns generated by the investments.

$$\text{vi) Asset Utilization Rate = Operating Income / Total assets} \quad (7)$$

Asset utilization is a measure of the companies and also banks ability to produce operating income (Ellis, 1998). The ratio of asset utilization rate shows whether a bank is using its assets optimally to generate income. When the ratio increases we conclude that the ability to generate

<sup>4</sup> [https://www.oecd-ilibrary.org/docserver/na\\_glance-2014-36-en.pdf?expires=1691340173&id=id&accname=guest&checksum=B6A7ABD2D9A08C941A74760DF89A5540](https://www.oecd-ilibrary.org/docserver/na_glance-2014-36-en.pdf?expires=1691340173&id=id&accname=guest&checksum=B6A7ABD2D9A08C941A74760DF89A5540)

<sup>5</sup> <https://www.accountingtools.com/articles/equity-multiplier-definition-and-usage.html>

<sup>6</sup> Kumar Rajesh. (2014). "Strategies of Banks and other Financial Institutions. Theories and Cases". Academic Press Elsevier Inc.

<sup>7</sup> [https://www.ecb.europa.eu/pub/financial-stability/fsr/focus/2015/pdf/ecb-0a06f14a5a.fsrbox201511\\_05.pdf](https://www.ecb.europa.eu/pub/financial-stability/fsr/focus/2015/pdf/ecb-0a06f14a5a.fsrbox201511_05.pdf)

profits has increased. An increase in the bank's income, a decrease in its assets, or even a greater increase in income instead of assets, are reasons that can lead to an increase in the index.

#### b) Liquidity Ratios

Traditional bank liquidity indicators measure how liquid a bank is. They are usually simple ratios that use only a few of the bank's assets and/or liabilities. In contrast, bank liquidity creation measures how much liquidity the bank creates for its customers, making the bank illiquid in the process. Thus, liquidity creation divided by assets (i.e., normalized liquidity creation) is a direct measure of a bank's illiquidity and an inverse measure of its liquidity.<sup>8</sup>

Liquidity ratios are used by supervisory authorities as a measure of comparison and control of banks. The most important of these indicators are:

i) 1st Liquidity Ratio = Loans / Deposits (8)

One useful metric for evaluating the current state of bank health and credit markets is the loan-to-deposit ratio, which measures the proportion of a bank's total loans to its total deposits. The Total Loans to Total Deposits Ratio is often used as an indicator of a bank's risk level, with a high ratio suggesting that the bank is taking on more risk because it has less cash reserves on hand to cover unexpected losses. This can also indicate that the bank is relying heavily on borrowing from other institutions to fund its lending activities, which can be risky during periods of economic instability.<sup>9</sup> By measuring this ratio, banks check that there is no liquidity risk. When the ratio is high, it indicates the bank's support for short-term money markets and there is a possibility of future liquidity problems if there a lot of red loans in their portfolio.

ii) 2nd Liquidity Ratio = Loans / Assets (9)

Total Loans to Total Assets measures the percentage of assets that is tied up in loans. The higher the ratio, the less liquid the bank is.<sup>10</sup> So this ratio is a basic measure of asset composition of a bank quickly showing what percentage of asset are the total loans. When the ratio is high, it indicates the bank's big financial leverage and probably a credit risk in the horizon.

iii) 3rd Liquidity Ratio = Claims from banks / Liabilities to banks (10)

This ratio measures the bank's average yield on all of its assets. It shows how the merger affected its liquidity. The more the index increases, the more the bank's liquidity, i.e. its ability to pay off its obligations, through its demands on other banks.

#### c) Solvency and Capital Adequacy Ratios

Both the capital adequacy ratio and the solvency ratio provide ways to evaluate a company's or bank's debt versus its revenues situation. However, the capital adequacy ratio is usually applied specifically to evaluating banks, while the solvency ratio metric can be used for evaluating any type of company.<sup>11</sup>

i) Solvency Ratio = Total Equity / Total Assets (11)

The solvency ratio is checked to determine whether the bank can maintain its long-term solvency. measures cash flow capacity against all liabilities. It shows how much of a company is financed by equity as opposed to debt. Solvency ratios below 20% maybe indicate an increased likelihood of bank default. Solvency ratios are a check for the need for external financing. Usually when the amount of capital of the bank is large, the bank is solvent. However, even if the bank is insolvent, it can continue to operate if it has access to sources of liquidity, as public banks usually do.

ii) Capital Adequacy Ratios are also known as the capital to risk assets ratio. The capital adequacy ratio (CAR) essentially measures the financial risk that examines the available capital of a bank in relation to extended credit. It expresses a percentage of the bank's credit

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<sup>8</sup> Onyiriuba Leonard (2017). "Bank Risk Management in Developing Economies". Book published by Academic Press Elsevier.

<sup>9</sup> Stephen Buschbom (2023) in <https://www.trepp.com/trepp-talk/assessing-bank-risk-using-loan-deposit-ratio>

<sup>10</sup> Mabwe Kumbirai and Robert Webb (2010). "A financial Ratio Analysis of Commercial Bank Performance in South Africa". African Review of Economics and Finance, Vol. 2, No. 1, pp.30-53

<sup>11</sup> <https://www.investopedia.com/ask/answers/040115/what-difference-between-capital-adequacy-ratio-vs-solvency-ratio.asp>

exposures weighted by risk. Regulators track the progress of a bank's CAR to ensure that the bank can withstand significant—but not unreasonable—losses or fluctuation in revenues. The ratio's primary function is to effectuate efficient and stable financial systems.<sup>12</sup> The percent of CAR ratio varies from bank to bank according to the Basel III requirements and is set by the national banking regulator of different countries<sup>13</sup>. Usually a high capital adequacy ratio indicates that capital is sufficient to cover any loan losses, indicates low levels of risk and the absence of funding problems. On the contrary, the low values of the index mean that if non-performing loans reach even relatively low levels, the bank shows high levels of insolvency. It shows the bank's solvency levels. A high value indicates high efficiency, while a low percentage emphasizes the need for external funding.

Capital adequacy ratios (CARs) are a measure of the amount of a bank's core capital expressed as a percentage of its risk-weighted asset. Capital adequacy ratio is defined as:

$$\text{CAR} = \frac{\text{Tier 1 capital} + \text{Tier 2 capital}}{\text{Risk weighted assets}} \quad (12)$$

TIER 1 CAPITAL = (paid up capital + statutory reserves + disclosed free reserves) - (equity investments in subsidiary + intangible assets + current & brought-forward losses).

TIER 2 CAPITAL = A) Undisclosed Reserves + B) General Loss reserves + C) hybrid debt capital instruments and subordinated debts.

Where Risk can either be weighted assets or the respective national regulator's minimum total capital requirement. If using risk weighted assets.

$$\text{CAR} = \frac{T_1 + T_2}{a} \geq 10\% \quad (13)$$

Two types of capital are measured: tier one capital (above), which can absorb losses without a bank being required to cease trading, and tier two capital (Tabove), which can absorb losses in the event of a winding-up and so provides a lesser degree of protection to depositors<sup>14</sup>.

Other significant capital adequacy ratios are referred below.

- 1st Total Equity / Deposits (14)

- 2nd Total Equity / Loans (15)

- Basic Capital Adequacy Ratio (Tier1) (16)

- Total Equity / Grants (17)

So the CAR measures two types of capital differentiated by tiers. The first tier involves capital that can be used to absorb loss without requiring a bank to stop trading. The second tier involves capital that can absorb the loss in the event that the bank is forced to liquidate. The calculation for the capital adequacy ratio adds the total of both tiers, and that figure is then divided by the company's risk-weighted assets.<sup>15</sup>

## Results and Discussion

According to the above described methodology we present the results of our case study extract from Greek Banking Sector. The example we are considering concerns the case of the acquisition of the Agricultural Bank of Greece by Piraeus Bank. After analyzing the indicators of efficiency, profitability, liquidity, insolvency, capital adequacy and the DuPont Analysis for Piraeus Bank and Agrotiki Bank we have a global picture of the values of the indicators before and after the takeover. The following is a comparative analysis between the banks involved in

<sup>12</sup> <https://www.investopedia.com/ask/answers/040115/what-difference-between-capital-adequacy-ratio-vs-solvency-ratio.asp>

<sup>13</sup> Moorad Choudhry, (2022). "The Principles of Banking". published by Wiley Finance Series

<sup>14</sup> [https://en.wikipedia.org/wiki/Capital\\_adequacy\\_ratio](https://en.wikipedia.org/wiki/Capital_adequacy_ratio)

<sup>15</sup> [https://www.bis.org/fsi/fsisummaries/defcap\\_b3.htm](https://www.bis.org/fsi/fsisummaries/defcap_b3.htm)

the acquisition for the period of three years from 2010-2012, i.e. for the years before the acquisition of the Agricultural Bank by Piraeus which was completed at the end of 2012. Immediately after the completion of the acquisition are presented the results of the same selected indicators of Piraeus Bank again for a three-year period, specifically for the three-year period 2013-2015. Thus we have financial analysis in the short term, but also in the long term, both before the acquisition and after the completion of the acquisition. Comparing the values of the indicators as well as the DuPont Analysis makes it easier to draw a conclusion about the benefit or not of the acquisition. In the tables 1-8 below we present the course of all examined ratios that concern the time period 2010-2012 three years before the acquisition between Agricultural Bank of Greece as the target and Piraeus Bank as the bidder. Then for the next time period 2013-2015 we present the course of all examined ratios only for Piraeus Bank that concerns three years after the acquisition took place.

**Table 1: Comparative Analysis of ROE**

Banks & Years for ROE	2010	2011	2012	2013	2014	2015
Agricultural Bank of Greece	- 6.06%	- 488.08%	- 53.82%			
Piraeus Bank	0.37%	- 385.46%	- 50.91%	20.46%	- 41.17%	- 29.24%

Source: Calculations from published financial statements of the Bank of Piraeus and the Agricultural Bank.

From the above table 1, we can see the negative values of the ROE ratio in the year 2010 for Agricultural Bank of Greece and low positive value for ROE ratio of Piraeus Bank. We also observe a excessively high negative values of the ROE ratios in the years 2011 and 2012 for both banks involved in the acquisition due to the global financial crisis. In the first year 2013 after the acquisition ROE ratio of Piraeus Bank had positive value. Thus it shows that only the first year Piraeus Bank had increase the wealth of the stockholders through the contribution of the acquisition of Agricultural Bank of Greece, as one of the other undiscovered in this paper factors that produce profit. The recapitalization of the Piraeus Bank from the Greek Government maybe had played a significant role. This negative value of ROE ratio stroke again for the bidder Piraeus Bank in the second and the third year after the acquisition.

**Table 2: Comparative Analysis of ROA**

Banks & Years for ROA	2010	2011	2012	2013	2014	2015
Agricultural Bank of Greece	-1.45%	-4.04%	-0.47%			
Piraeus Bank	0.019%	-15.15%	-1.68%	1.90%	-3.38%	-3.35%

Source: Calculations from published financial statements of the Bank of Piraeus and the Agricultural Bank.

From the above table 2, we can see the negative values of the ROA ratio in the year 2010 for Agricultural Bank of Greece and low positive value for ROA ratio of Piraeus Bank. We also observe negative values of the ROA ratio in the year 2011 and 2012 for both banks involved in the acquisition. In the first year after the acquisition ROA ratio of Piraeus Bank had a low positive value. This negative value of ROA ratio continues for the bidder Piraeus Bank in the second and the third year after the acquisition.



**Table 3: Comparative Analysis of EM**

Banks & Years for EM = ROE / ROA	2010	2011	2012	2013	2014	2015
Agricultural Bank of Greece	4.18	120.81	114.51			
Piraeus Bank	19,47	25.44	30.30	10.77	12.189	8.73

Source: Calculations from published financial statements of the Bank of Piraeus and the Agricultural Bank.

From the above table 3, we can see the significant high value of financial leverage of Agricultural bank of Greece in the years 2011 and 2012. We also observe the high value of financial leverage of Piraeus Bank the three years before the acquisition took place. Three years after the acquisition the financial leverage of Piraeus Bank improved.

**Table 4: Comparative Analysis of NIM**

Banks & Years for NIM	2010	2011	2012	2013	2014	2015
Agricultural Bank of Greece	8.91%	1.99%	3.19%			
Piraeus Bank	2.39%	2.41%	2.16%	2.19%	2.53%	2.56%

Source: Calculations from published financial statements of the Bank of Piraeus and the Agricultural Bank.

From the above table 4, we can see that the NIM ratio for Agricultural Bank of Greece had volatility during the three years 2010-2012 with the highest value in the year 2010. We also see that the NIM ratio for Piraeus Bank did not have significant volatility and it seems that it was not affected by the acquisition.

Results for Liquidity Ratios

**Table 5: Comparative Analysis of 1st Liquidity Ratio**

Banks & Years for Loans / Deposits	2010	2011	2012	2013	2014	2015
Agricultural Bank of Greece	1.16	1.17	0.43			
Piraeus Bank	1.28	1.56	1.21	1.15	1.04	1.29

Source: Calculations from published financial statements of the Bank of Piraeus and the Agricultural Bank.

From the above table 5, we can see that the 1st liquidity ratio for Agricultural Bank of Greece had value over 1 during two years 2010-2011 but in the year 2012 the value of the ratio felt under 1. The 1st liquidity ratio of Piraeus Bank did not have significant volatility and it seems that it was not affected by the acquisition.

**Table 6: Comparative Analysis of 2st Liquidity Ratio**

Banks & Years for Loans / Assets	2010	2011	2012	2013	2014	2015
Agricultural Bank of Greece	73.86%	75.80%	36.91%			
Piraeus Bank	65.39%	68.90%	63.36%	67.78%	63.99%	57.80%

Source: Calculations from published financial statements of the Bank of Piraeus and the Agricultural Bank.

From the above table 6, we can see that the 2nd liquidity ratio for Agricultural Bank of Greece had a high value during two years 2010-2011 but in the year 2012 the value of the ratio felt a lot. The 2nd liquidity ratio of Piraeus Bank did not have significant volatility and it seems that it was not affected by the acquisition like the 1st liquidity ratio.

**Table 7: Comparative Analysis of 3st Liquidity Ratio**

Banks & Years for Claims from Banks / Liabilities from Banks	2010	2011	2012	2013	2014	2015
Agricultural Bank of Greece	0.11	0.13	1.02			
Piraeus Bank	0.07	0.01	0.01	0.01	0.01	0.01

Source: Calculations from published financial statements of the Bank of Piraeus and the Agricultural Bank.

From the above table 7, we can see that the 3rd liquidity ratio for Agricultural Bank of Greece had irrational value during two years 2010-2011 but in the year 2012 had reasonable value. The 3rd liquidity ratio of Piraeus Bank did not have significant volatility and it seems that it was not affected by the acquisition like the 1st and 2nd liquidity ratio.

Results for Solvency Ratio

**Table 8: Comparative Analysis of Solvency Ratio**

Banks & Years for Equity / Assets	2010	2011	2012	2013	2014	2015
Agricultural Bank of Greece	0.24	0.01	0.01			
Piraeus Bank	0.06	-0.04	-0.03	0.09	0.08	0.11

Source: Calculations from published financial statements of the Bank of Piraeus and the Agricultural Bank.

From the above table 8, we can see the solvency ratio for Agricultural Bank of Greece had irrational value during two years 2011-2012 but in the year 2010 had more reasonable value. The solvency ratio of Piraeus Bank had irrational value both before and after the acquisition and it seems that it was also not affected by the acquisition.

Results for Capital Adequacy Ratio

**Table 9: Comparative Analysis of 1st Capital Adequacy Ratio**

Banks & Years for Equity / Deposits	2010	2011	2012	2013	2014	2015
Agricultural Bank of Greece	0.03	0.01	0.01			
Piraeus Bank	0.11	-0.09	-0.06	0.16	0.13	0.26

Source: Calculations from published financial statements of the Bank of Piraeus and the Agricultural Bank.

From the above table 9, we can see the 1st capital adequacy ratio for Agricultural Bank of Greece had very low value in the years 2010-2012. The 1st capital adequacy ratio of Piraeus Bank had irrational value both before and after the acquisition and it seems that it was also not affected by the acquisition even though an increase is apparent in the year 2015.

**Table 10: Comparative Analysis of 2nd Capital Adequacy Ratio**

Banks & Years for Equity / Loans	2010	2011	2012	2013	2014	2015
Agricultural Bank of Greece	0.03	0.01	0.02			
Piraeus Bank	0.09	-0.06	-0.05	0.14	0.13	0.2

Source: Calculations from published financial statements of the Bank of Piraeus and the Agricultural Bank.

From the above table 10, we can see the 2nd capital adequacy ratio for Agricultural Bank of Greece had very low value in the years 2010-2012. The 2nd capital adequacy ratio of Piraeus Bank had irrational value both before and after the acquisition and it seems that it was also not affected by the acquisition.

### Conclusion

Acquisitions and mergers in banking institutions is a subject that is extensively analyzed in the international literature. The decision of acquisition or merger between banks is a strategic and at the same time investment move of the utmost importance for the future with effects both on the financial position and on the general image of the new banking organization that is created after the acquisition or merger. The completion or not of an acquisition or merger has an impact on the financial figures of the two banks involved, but also on the shareholders, competitors, customers as well as employees. Using the evaluation method based on accounting data from the annual published financial statements, with an analysis of the indicators, the financial position of Piraeus Bank was evaluated before and after the acquisition of the Agricultural Bank in 2013.

Comparing in the above tables 1-10 the indicators of the two banks from 2010 to 2012, as well as with the results of Piraeus Bank after the merger, we see that there was no substantial improvement in the financial position of the acquiring bank. Thus maybe happened because the examined financial ratios of the bidder bank had irrational values. We also observe that the financial ratios of the target bank had more irrational values than the bidder's. It is obvious that a bidder bank with low financial ratios rates cannot easily gain financial benefits from an acquisition of an insolvency target bank and also the bidder bank is not able to absorb the losses from such an acquisition. In such acquisitions the bidder banks worldwide needs to be prepared for a direct recapitalization if it wants to continue its uninterrupted operation with profitability, efficiency, solvency and to radiate confidence to shareholders and future investors due to the instructions and rules of Basel Committee III. One could also consider the application of Berger's (1995) view on financial efficiency, where he states that banks with superior management and/or production technologies enjoy higher profits and lower costs, while banks operating at a more efficient scale than others of the industry, also lead to higher profitability and reduced costs.

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