Mergers and Acquisitions: The case of Montepio and Finibanco

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Abstract

In August of 2010 Montepio announced its intention to purchase Finibanco. Although the purchase value and estimated synergies are known from the beginning, the process to arrive at these values is not.

The purpose of this work is to simulate the valuation process done by Montepio and, therefore, the data used is from end-year 2009. Valuation methods such as discounted cash-flows and market multiples will be used to value the two banks and it will be concluded that there are potential synergistic gains in this operation.

Given the new financial and economic data since the conclusion of the operation, the assumptions made for the future behavior of the banks' accounts will be revised but the main conclusion will not change: even if all the parts involved in this process had been able to know that the economic crisis was going to develop into what it is today, the operation would still be considered to be profitable.

We will not arrive at a value that is close to that paid by Montepio, since we are only studying the banks of each financial group. It should be expected, however, that we arrive at smaller values than the real one, since we are considering only a part of the real operation. This is, indeed, what we will see in this work.

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Contents

1 Introduction

The purpose of this thesis is to study a potential or actual M&A operation between two companies. The two companies studied in this work are Montepio Geral and Finibanco – two Portuguese banks that were involved in an acquisition process in 2010, when Associação Mutualista – the head of Montepio Geral group – acquired Finibanco Holding, S.A. – the head of Finibanco group. In buying the entire Finibanco group, Montepio acquired all the businesses in this group, such as the bank and the insurance companies, to name a few. In this work, only the banking businesses (operating in Portugal) from each group will be studied.

I chose to do this work about an operation involving two banks because this subject would allow me to combine two areas that I am very interested in – Finance and Banking. Also, having done an internship at Montepio before the operation was finalized, I was always curious to know how such process would be developed from an inside perspective.

Although having an inside perspective will not be possible (or, if it were possible, it would not be relevant in the context of this work), a simulation of the work done at the time of the announcement of the public offer can be made. This will be the object of this work – the simulation of the valuation process of Finibanco and of its added value to Montepio. This means that most of this work will consider the present time to be December 31st of 2009, so that the data used will concern the end of the year previous to the operation. For reasons of consistency, the predictions made for future values of the banks' accounts are based on predictions made by the International Monetary Fund (IMF) for the Portuguese economy at the end of 2009.

Obviously, being now the year of 2012, we are in a position where we are more informed about the economic conditions for approximately half of the period of our predictions, which will be 2010-14. This means that we are now aware of the sovereign debt crisis affecting Europe, and particularly Portugal, and of the new challenges faced by governments and financial institutions in the area. These new conditions and the updated predictions for the Portuguese economy made by the IMF make the predictions made for the two banks seem unrealistic and probably too optimistic.

At the face of the more recent data, the predictions made originally and the valuation model built in this work will be recalibrated in order to incorporate the new information and yield more informed and more realistic results.

In both models, besides running calculations for each bank individually, calculations of potential synergies will also be run in order to assess the potential gains generated from this operation and to calculate the price (and implied premium) Montepio would be willing to pay Finibanco to acquire its operations.

2 Literature Review

2.1 The Banking Sector

2.1.1 Main Drivers

The main drivers of performance in the banking sector can be divided into three main groups: strategy, execution of strategy and the environment (Harker and Zenios, 1998).

The authors highlight the main strategic decisions that have to be made by banks: product mix, which products to offer to a bank's clients; client mix, what client profile fits a bank the best; geographical location, where the bank should operate (both internally and externally); distribution channels, which means the bank will use to sell its products.

What the bank does to achieve its strategic goals is also a set of performance drivers: x-efficiency, all technical and allocative strategies that are not scale or scope dependent; human resource management, a number of factors that influence the employee satisfaction; use of technology, amount spent on information technology; process design, the mechanism that transforms inputs into outputs.

The authors discuss three environmental factors that can influence the performance of a bank: technology, the improvements made to products in technological industries and the access customers have to information technology; consumer tastes, the change in typically preferred products.

2.1.2 Main Difficulties

Contrarily to most firms, debt is not merely a means of financing a bank, it is also its "raw material" – the money it uses to lend to clients and make a profit from the gap in interest rates. Therefore, defining debt and capital in a financial service company is a less straightforward process than for other types of businesses. Also, it is very hard to calculate the reinvestment needs: in the calculation of net capital expenditures, the main difficulty is that investment for growth is often categorized as operating expenses and capital expenses tend to be close to zero and, consequently, so does depreciation; in the calculation of working capital, defined as the difference between current assets and current liabilities, the main problem is that these numbers may change a lot and these changes may be unrelated to reinvestment for growth (Damodaran, 2009).

The fact that it is extremely hard to measure reinvestment for banks has two important consequences: we cannot estimate cash flows without estimating reinvestment; and it is harder to estimate an expected growth rate for the future without a reinvestment rate. Damodaran (2009) suggests two alternative

calculations for bank cash flows: earnings as cash flows, discount earnings to the present to calculate the value of a bank; pseudo cash flows, use an alternative/adaptation to the standard definition of cash flows.

2.2 Valuation Methods

As was discussed above, it is extremely hard to measure the level of debt of a bank. Consequently, it is equally hard to calculate the value of a bank using valuation methods that have the level of debt as an input.

2.2.1 Discounted Cash Flows (DCF) Models

It is generally accepted that the DCF is the method to use when valuing a firm. The inherent mindset is fairly easy to understand and the necessary calculations are quite simple, once the estimations for the cash flows and discount rate have been done. The DCF method considers that the value of a company is the present value of the sum of all its (expected) future cash flows. The present value is obtained by discounting each cash flow at a rate that accounts both for the risk implied in these cash flows and for the time value of money.

$$\text{Present Value} = \sum_{t=1}^{n} \frac{E[CF]_t}{(1+i)^t}$$

Where: n = Life of the firm

$E[CF_t]$ = Expected cash flow in period t

i = Discount rate that reflects the uncertainty of the expected cash flows

As stated by Holt et al. (1999), the inputs needed for a DCF analysis are the cost of capital, the levels of free cash flows and investment and free cash flow growth.

The most common procedure is to discount cash flows to the cost of capital, which is usually computed with the weighted average cost of capital (WACC) formula:

$$\text{WACC} = \frac{D}{D+E} \times \text{cost of debt} \times (1\text{-corporate tax rate}) + \frac{E}{D+E} \times \text{cost of equity}$$

Where: D is the value of debt

E is the value of equity

As can be seen in the formula, in order to use this method one needs to know the amount of debt of a firm, which can be quite hard in the case of a bank, as discussed previously. In this work, the valuation methods used are meant to value only the equity of banks.

2.2.1.1 Discounted Cash Flows to Equity

In this case, the cash flows that are discounted are the expected cash flows to equity, i.e., "the residual cashflows after meeting all expenses, reinvestment needs, tax obligations and net debt payments (interest, principal payments and new debt issuance)" (Damodaran, 2002). These cash flows are discounted at the appropriate discount rate – the cost of equity, "i.e., the rate of return required by equity investors in the firm" (Damodaran, 2002).

$$\text{Present Value of Equity} = \sum_{t=1}^{n} \frac{E[\text{CF to Equity}]_t}{(1+k_e)^t}$$

Where: n = Life of the firm

$E[CF_t]$ = Expected cash flow to equity in period t

k_e = Cost of equity

If, instead of discounting the cash flows calculated as discussed above, we decide to discount future dividends we are in the presence of the special case of the DCF model applied to equity valuation – Dividend Discount Model (DDM), which "requires estimates of dividend growth and the level of dividends and earnings" (Holt et al., 1999). Damodaran (2009) ends up concluding that this is the best adaptation of the DCF method to calculate the value of a bank and discusses some ways of increasing the quality of the obtained estimation.

The first is the cost of equity used to discount the dividends. Damodaran (2009) advises the use of bottom-up betas, both due to the noise implicit in regression betas and to the fact that there are many public firms in the financial sector, which should make the estimation of bottom-up betas easier.

The second piece of advice is that one should not adjust for financial leverage (unlever and then relever betas) for financial service firms for two reasons: the capital structure of these firms is usually quite similar and, as discussed before, debt is very hard to measure for this firms. This will mean that the average levered beta for comparable firms will be used to value the firm as the bottom-up beta.

This conclusion about the bottom-up beta leads us to the next suggestion given by the author: we should define narrower sectors when calculating the average levered beta, inside the financial service sector, so that we do not end up using the same levered beta for every firm in the sector.

The fourth recommendation is that betas are adjusted according to the stage of life in which the firm is. This means that high growth firms (usually younger) should have higher betas, and therefore higher costs of equity, than more mature firms.

Copeland et al. (2000) recommend an alternative way to value a bank. The authors recommend that one should forecast free cash flow to equity (FCFE) and discount it at the cost of equity. The cash flow to equity is the cash flow left over for equity investors after debt payments have been made and reinvestment needs met[1] (Damodaran, 2009).

The difficult task is, now, to measure reinvestment. For banks, this reinvestment is made in regulatory capital, i.e., banks invest in capital to meet the limits imposed by the regulatory authorities.

2.2.1.1.1 Cost of Equity

The Capital Asset Pricing Model (CAPM) was first introduced in the mid-1960s by John Lintner, William Sharpe and Jack Treynor as an answer to the question of what the expected return on an asset whose beta is neither 0 nor 1 should be (Allen et al., 2008).

The CAPM lies on some assumptions that are important to mention: there are no transaction costs, all assets are traded, investments are infinitely divisible, everyone has access to the same information and, consequently, it is impossible to find under or overvalued assets in the market (Damodaran, 2002).

Risk-free Rate

An important idea of the CAPM is the existence of a risk-free asset, which has a risk-free return. This asset will be used by investors to make combinations of the market portfolio with the risk-free asset in a way that it will reflect their degree of risk aversion, since it is assumed that they can borrow and lend at the same rate of interest (Allen et al., 2008). This means that investors will borrow at the risk-free rate to invest more in the market portfolio if they are risk lovers or hold a big proportion of the risk-free asset if they are risk averse.

[1] $\text{FCFE}_{\text{Financial Service Firm}} = \text{Net Income} - \text{Reinvestment in Regulatory Capital}$

The importance of the risk-free rate for the CAPM justifies that we are very careful when choosing which asset to consider as risk-free. Damodaran (2002) defines three conditions that are needed to make such a choice: the returns on this asset must be known with certainty; the asset must not carry any default risk (usually, this condition should exclude all securities issued by private firms and leave only those issued by the government); there can be no reinvestment risk (there cannot be the risk of not knowing at which rate to reinvest, once the investment matures).

Allen et al. (2008) highlight that, since the CAPM works period by period then the risk-free should be short-term. However, the rationale behind the CAPM was built with the basic idea that investors demand a premium on the risk-free rate for holding some asset that is risky. Therefore, the authors end up concluding that one can use a long-term risk-free rate as long as the market returns used to calculate the market premium are long-term as well. Damodaran (2002) adds to this and stresses that, when calculating the market premium, one must use the return from the asset that has been considered as risk-free when the risk-free rate was chosen, i.e., the two risk-free rates must be the same.

In this work, the arithmetic average of the daily returns of the index of Generic German bonds, with maturity of 10 years[2], for the period 24/02/1997-31/12/2009 will be used, since this is the period for which there is data on the index of Generic Portuguese bonds[3], with maturity of 10 years (which will be used to calculate the country risk premium).

Beta

The discussion around the investors choosing a combination of the market portfolio and the risk-free asset leads to the discussion of the level of risk of an individual asset. "The risk to an investor of an individual asset will be the risk that this asset adds on to the market portfolio" (Damodaran, 2002), i.e., if the returns of an asset are somehow correlated with the returns of the market portfolio, that asset has more market risk than firm-specific risk, which is harder to diversify away. One good measure of risk is the beta of an asset:

$$\text{Beta of an asset i} = \frac{\text{Covariance of asset i with market portfolio}}{\text{Variance of the market portfolio}}$$

From this formula, it can be seen that the beta of the market portfolio will be 1 (covariance of the market with itself is the variance, which then cancels out). Furthermore, assets that are riskier than the market

[2] Bloomberg Ticker: GDBR10 Index.
[3] Bloomberg Ticker: GSPT10YR Index
[4] $\text{Cost of Equity} = \text{Risk} - \text{free Rate} + \text{Beta} \times \text{US Risk Premium} + \text{Default Spread}$

portfolio will have betas greater than 1 and assets that are less risky will have betas lower than 1 (particularly, the beta of the risk-free asset is 0) (Damodaran, 2002).

In order to obtain an expected rate of return from this model, one must first estimate a value for the beta. Damodaran (2002) suggests three different methods: historical data; accounting data; and fundamental characteristics.

The method of using historical data consists of running an ordinary least squares (OLS) regression of past individual returns on past market returns. The beta will then be the estimated value obtained for the slope.

This method, however simple and practical it may seem, has some weaknesses that are worth mentioning: the standard errors, i.e., the fact that no regressions are perfect and all come with errors and that, in order to obtain "true" estimates, one has to compute interval estimates, which at a good confidence level can become quite wide; the possible failures of the local indices; and the incapacity of the regressions to reflect changes in the financing mix of a firm.

The method of accounting data estimates the betas by relating the accounting earnings of a firm with those of the market. Although this method seems rather intuitive, it has three important drawbacks: accounting betas will be biased down relatively to market betas, due to the smoothed expenses and revenues; accounting earnings are influenced by non-operating factors; and accounting earnings are measured less frequently, which may result in a sample that is smaller than desirable (Damodaran, 2002).

The method of using fundamental characteristics of the firm is extremely useful for companies for which historical prices cannot be obtained, and therefore betas based on historical data cannot be estimated. Both Damodaran (2002) and Allen et al. (2008) discuss on factors that are relevant to estimate the beta with this method: cyclicality, i.e., whether or not the outcome of a firm depends on the state of the business cycle (the more it does, the highest the beta should be); the operating leverage of the firm (measured as the ratio of fixed costs over total costs or as the ratio of fixed costs over variable costs), which, in the case of being high, suggests higher variability in the net income, thus higher risk and, therefore, a higher beta; the type of product sold by the firm (luxury goods should indicate a higher beta than necessary goods); the financial leverage of the firm (a higher level of financial leverage means that, due to the increased interest payments, the variability of the net income will also be higher, increasing the level of risk and, therefore, the beta).We can see this in the formula that relates the unlevered beta, i.e., the beta the company would have if it were all-equity and the levered beta:

$$\beta_L = \beta_U \times \left(1 + (1 - t) \times \frac{D}{E}\right)$$

Where: β_L = Levered beta for equity in the firm

β_u = Unlevered beta of the firm

t = corporate tax rate

$\frac{D}{E}$ = Debt/Equity Ratio

In this work, historical betas will be used. The simple average market beta for the Portuguese banking industry (excluding Finibanco) for the period 24/02/1997-21/12/2009 was computed. This beta is used for both banks for the following reasons: for Finibanco, there was not enough data on share's prices to compute a reliable beta and for Montepio there is no data at all, since it is not a public bank.

Market Risk Premium

While the beta of an asset measures how much risk that asset adds on to a market portfolio, the risk premium is the extra return demanded by an investor to invest in that asset instead of investing in the risk-free asset. Although this is quite simple to describe, measuring the market risk premium is not an easy task. Below, some methods used for this calculation are discussed. Damodaran (2002) and Copeland, Koller and Murrin (2000) divide the most common methods into two groups: historical data and ex ante estimations.

Damodaran (2002) highlights the three decisions that have to be made before using historical data to estimate a market risk premium: the time period used; the risk-free security; and the averaging method (arithmetic or geometric averages). Copeland et al. (2000) make recommendations on each of these decisions: it is better to use longer time frames, so that there are both cycles and counter cycles in the sample; the risk-free security that carries the least amount of problems (however technical they may be) is the 10-year Treasury bond; the geometric average is the most correct method to measure historical performance but the arithmetic average is more forward looking and this is the one that should be used; also, it is recommended that a survivorship bias of 1,5% to 2% is subtracted from the historical arithmetic average.

Damodaran (2002) stresses that measuring the market risk premium for a country other than the US can be difficult and yield useless results. Thus, the author presents three methods to calculate the country risk premium that will then be added to the base premium for equity risk. The first method measures country risk premium with a default spread on bonds issued by the country and introduces it additively in the

calculation of the cost of equity[4]. The second method measures the equity risk premium in a country by comparing the standard deviations of stock prices in that country and in the US[5]. Finally, the last method measures a country risk premium using both the country default spread and the relative standard deviation of the equity market of that country in relation to that of the bond market of that same country[6].

In what concerns the other group of methods – ex ante estimates – both Damodaran (2002) and Copeland et al. (2000) discuss a few alternatives. The first alternative is what Damodaran (2002) calls the implied equity premium, which is obtained from the current value of a company and from the expectations for future dividends and growth rate[7]. The second one computes the equity discount rate as an internal rate of return, using the current book value of the firm and stock price and expectations for future ROE and book value[8]. Copeland et al. (2000) conclude that they prefer not to use ex ante estimations.

In this work, a risk premium computed as the difference between the arithmetic averages of the daily returns of the PSI20 index (annualized) and the GDBR10 index, for the period 24/02/1997-31/12/2009 will be used. Also, a survivorship bias of 1.5% is subtracted to the value obtained and a country risk premium (measured with the third method discussed by Damodaran (2002) described above) is added.

Following the discussion on the fact that investors hold the market portfolio and the risk-free asset, one arrives at the conclusion that the expected return on an asset is linearly related with its beta (Damodaran, 2002):

$$E[R_i] = R_f + \beta_i(E[R_m] - R_f)$$

Where: $E[R_i]$ = Expected Return on asset i

R_f = Return on the risk-free asset (risk-free rate)

β_i = Beta of asset i

$E[R_m]$ = Return on the market portfolio

[4] $\text{Cost of Equity} = \text{Risk} - \text{free Rate} + \text{Beta} \times \text{US Risk Premium} + \text{Default Spread}$

[5] $\text{Equity Risk Premium}_{\text{Country X}} = \text{Risk Premium}_{\text{US}} \times \frac{\text{Standard Deviation}_{\text{Country X}}}{\text{Standard Deviation}_{\text{US}}}$

[6] $\text{Country Risk Premium} = \text{Country Default Spread} \times \frac{\text{Standard Deviation}_{\text{Equity Index}}}{\text{Standard Deviation}_{\text{Country Bond}}}$

[7] $\text{Implied Equity Risk Premium}_t = \frac{E[\text{Dividends}_{t+1}]}{\text{Value}_t} + E[\text{growth}] - \text{Risk} - \text{free Rate}$

[8] $S_t = B_t + \sum_{i=1}^{\infty} \frac{E_t[(ROE_{t+i} - r_e) \times B_{t+i-1}]}{(1+r_e)^i}$

2.2.1.1.2 Cash Flows

Damodaran (1994) describes three approaches to estimate future cash flows: expected value, which represents the single best estimate of the cash flow in a single period, since it incorporates all possible good and bad outcomes; scenario analysis, in which cash flows are estimated under different scenarios and conclusions are presented in the form of a range of values instead of a single value; and simulations, in which distributions of values are estimated for each parameter in the valuation and simulations are made by drawing outcomes for each distribution to derive a distribution for the value of the business. As stated by Holt et al. (1999), it is usual to make annual forecasts for the first three to ten years and consider that profits, returns and discount rates will remain constant after that (or grow at a constant growth rate).

It is also important to discuss the notion of terminal value, since it will usually represent a significant proportion of the total present value of a firm (Froot, Kester and Molley, 1997). Damodaran (1994) describes three ways to estimate the terminal value of a firm: to assume a liquidation of the firm's assets and estimate how much would be paid for them; to assume that the firm is not liquidated and apply a market multiple to estimate the value of the firm; to assume that the firm is not liquidated and that it will continue to grow at a constant growth rate.

2.2.1.1.3 Growth Rate

Damodaran (1994 and 2000) presents three basic ways to estimate growth: historical growth rate; outside estimates of growth; and fundamental determinants of growth.

In order to use historical data to estimate a growth rate, two important decisions have to be made: whether to use arithmetic or geometric averages and whether to use revenues or earnings growth. The author gives an insight for each decision: "the geometric average is a much more accurate measure of true growth in past earnings" (Damodaran, 2000) and "historical growth in revenues is a far more useful number when it comes to forecasting than historical growth in earnings" (Damodaran, 2000), since "revenue growth tends to be more persistent and predictable than earnings growth" (Damodaran, 1994).

When it comes to outside estimates of growth, the author discusses two sources of estimates: management estimates and analyst estimates. Management estimates have the advantage of being simple to obtain since the numbers are provided by the managers; and the possible dangers of obtaining biased prospects for the future and of using a combination of inconsistent assumptions. Analysts, on the other hand, have access to more information besides historical data, which can potentially increase the quality of their predictions: firm-specific information that has been made public since the last earnings report; macro-

economic information that may impact future growth; information revealed by competitors on future prospects; private information about the firm; and public information other than earnings (Damodaran, 1994 and 2000). The author concludes that analysts provide better short-term forecasts of earnings than models that depend purely upon historical data but this superiority is surprisingly small for long-term forecasts.

The fundamental determinants of growth depend on which variable is being used. If the goal is to estimate growth in earnings per share then the fundamentals are the return on equity and the retention ratios. If the goal is to estimate growth in net income, the fundamentals are return on equity and the equity reinvestment rate. Finally, if the goal is to estimate the growth in operating income, three different scenarios have to be considered: the scenario of stable return on capital, where the expected growth of the EBIT is simply the product of the reinvestment rate by the return on capital[9]; the scenario of positive and changing return on capital, where the computation of the expected growth rate is very similar to the one of the first scenario but adds the variation of the return on capital[10]; the scenario of negative return on capital, in which case following steps must be followed: project growth in revenues, estimate the operating income and estimate reinvestment needs that allow for generating revenue growth.

2.2.1.2 The Adjusted Present Value (APV)

The Adjusted Present Value (APV) Model is also a DCF model. Contrarily to what was previously described about the WACC, the APV intends to be a versatile and reliable managerial tool (Luehrman, 1997a) and does not attempt to catch the effects of financing in an adjusted discount rate (Allen et al., 2008). The APV is able to provide a breakdown of all value-creating components, value them separately and discount each one at the rate that best represents its level of risk. The present value of a company will then be the sum of all these present values.

$$\text{APV} = \text{base} - \text{case NPV} + \text{sum of PVs of financing side effects}$$

Where: base-case NPV = the value of the firm without any investment project or debt financing

Possible financing side effects: interest tax shields (positive); issue costs of debt (negative); subsidies from the government or a supplier (positive)

[9] $\text{Expected Growth}_{\text{EBIT}} = \text{Reinvestment Rate} \times \text{Return on Capital}$

Where: $\text{Reinvestment Rate} = \frac{\text{CapEx} - \text{Depreciation} + \Delta\text{Non} - \text{Cash WC}}{\text{EBIT} \times (1 - \text{tax})}$

$\text{Return on Capital} = \frac{\text{EBIT} \times (1 - \text{tax})}{\text{Capital Invested}}$

[10] $\text{Expected Growth Rate} = \text{ROC}_t \times \text{Reinvestment Rate} + \frac{\text{ROC}_t - \text{ROC}_{t-1}}{\text{ROC}_{t-1}}$

2.2.2 Returns-based Valuation

This type of valuation methods focuses on the returns of a firm, rather than on its earnings, dividends or growth rates. With this type of models, the value of a firm is the sum of capital invested currently in the firm and the present value of excess returns that the firm expects to make in the future (Damodaran, 2009).

According to Damodaran (2009), the two fundamental inputs of this approach are: equity capital invested currently in the firm and expected excess returns to equity investors in the future. Usually, the book value of equity is a good enough approximation of the value of equity capital invested in a firm, since most assets in financial service firms will be marked to market and the amounts of depreciation are negligible for these firms. The excess returns will be measured as:

$$\text{Excess Equity Return} = (\text{Return on Equity} - \text{Cost of Equity}) \times (\text{Equity Capital Invested})$$

The excess returns are then discounted back to the present at the cost of equity and added to the current capital equity invested in the bank to obtain the current value of the equity bank.

2.2.3 Asset-based Valuation

Typically, in asset-based valuation, the existing assets of a firm are valued net of debt and other outstanding claims to obtain the value of equity. However, due to what was discussed about the difficulty of defining and measuring the value of debt of a financial service firm, it works in a slightly different way to value banks.

For a bank, measuring the value of assets means mostly that we have to measure the value of its loan portfolio. Damodaran (2009) suggests that this valuation be based on expected cash flows. The discount rate should be obtained either through the rating given by a ratings agency or by measuring the default risk of the portfolio. Then, in order to obtain the value of equity, we need to subtract the value of deposits, debt and other claims on the bank to the value we obtained for assets.

2.2.4 The Method of Multiples

As Kaplan and Ruback (1996) explain: “in these methods, a ratio or multiple of value relative to a performance measure is calculated for a set of guideline or comparable firms”. Examples of performance measures are earnings before interest, tax, depreciation and amortization (EBITDA), earnings before

interest and tax (EBIT), net income or revenue. These performance measures can be used either with their current values or with expectations for the future, forming then the leading multiples. In fact, Goedhart, Koller and Wessels (2005) point out that "both the principles of valuation and the empirical evidence lead us to recommend that multiples be based on forecast rather than historical profits".

The market value of a company is obtained by multiplying the market multiple by the performance measure of that same company.

It is important to mention the two assumptions on which this method is built: it is assumed that the future cash flows of the company that is being valued and of the companies considered to calculate the market multiple grow at the same rate and have the same level of risk; also, it is assumed that the value of the company varies in direct proportion with the performance measure being used (Kaplan and Ruback, 1996).

In sum, what sets this method apart from the DCF methods discussed above is that, while valuations done by discounting cash flows are based upon expectations and estimates for that one company, those that are done with multiples reflect essentially market expectations for the future for that particular sector or industry.

Similarly to what happened with the DCF methods to value financial service firms, this work will focus mostly on multiples that allow for an estimation of the value of equity. For this purpose, Damodaran (2009) discusses the price earnings and the price to book value ratios.

Both ratios are used for financial service firms in the same way as for any other firm:

$$\text{Price Earnings Ratio} = \frac{\text{Price per Share}}{\text{Earnings per Share}}$$

$$\text{Price to Book Ratio} = \frac{\text{Price per Share}}{\text{Book Value of Equity per Share}}$$

2.2.5 The DuPont System

The DuPont system is a useful tool for ratio analysis of a firm, since it breaks down the return on assets (ROA) and the return on equity (ROE) (Allen et al., 2008). However, it is also used to value the equity of a bank, assuming that value is generated by the net asset value (NAV):

$$\text{Value of Equity} = \text{Net Asset Value} \times \frac{\text{ROE}_{\text{Forecasted}}}{\text{ROE}_{\text{Demanded}}}$$

Where: $\text{ROE}_{\text{Demanded}}$ is obtained from the CAPM

$ROE_{Forecasted}$ = ROA x Equity Multiplier

Equity Multiplier is the maximum leverage allowed (12.5 for Tier I 8%)

ROA = Asset Utilization (or Turnover) x Profit Margin = $\frac{\text{Net Income}}{\text{Total Assets}}$

$$NAV = \text{Book Value of Equity} - \text{Pension Fund Shortfalls} - \text{Ending Tax Credits} + \text{Unrealized Capital Gains/ Losses} - \text{Lack of Provisions} (+ \text{if Excess Provisions})$$

2.3 Mergers and Acquisitions

There are many reasons why companies acquire other companies and, although most of them are probably good, Roche (2002) and Ficery et al. (2007) give some advice that should be kept in mind by companies that are considering making an acquisition: companies should do what they know best and not try to learn a new business without the time, the energy and the money needed to make a few mistakes; the M&A strategy should be an integral part of the business plan of the company; synergy expectations that cannot be translated into dollar (or some other currency) amounts should not be included in synergy calculations.

2.3.1 Main Drivers of M&A

Much has been said and written about what drives M&A operations. The main drivers of M&A activity have changed over time: in the period 1894-1904, M&A activity was mainly driven by economic turbulence; in the period 1890-1930, M&A operations were related with the diffusion of electricity and the internal combustion engine; in the period 1971-2001, the main driver became the diffusion of information technology, with the additional drivers of advances in information technology and innovations in organizational design and fundamental economic shocks, such as deregulation, technological innovation, demographic shifts and input price shocks also having some relevance in operations occurring in the 1980s (Bruner, 2004).

The author stresses that the success of a deal depends largely on its context and, therefore, discusses the drivers of M&A profitability on a local basis. The author defines four different cross-sections (strategy, investment opportunity, deal design and governance) and discusses the drivers within each cross-section.

The main drivers within the strategy cross-section are: focus vs. diversification (the purpose of a specific M&A operation); strategic restructuring (selling or redeploying underperforming businesses); the initiation of M&A programs (an M&A operation is the first step towards a series of acquisitions); strategic synergies

(the main motivation for an acquisition is to take advantage of some kind of synergy); grabs for market power (market share and returns to shareholders are closely related).

When it comes to the cross-section of investment opportunity, the author highlights the following drivers: targets that can be restructured (i.e., whose profitability can be improved); privately owned assets (on average, private firms are cheaper than public firms); crossing borders (premiums paid are higher for foreign target firms).

In the case of the deal design cross-section, the author gives emphasis to the following drivers: form of payment: cash vs. stock (already discussed above); Leveraged Buyouts (shareholders of target firms involved in LBOs earn large abnormal returns); use of earnouts (bidder firms earn higher returns if the payment is contingent on future performance); use of collars (another risk management device that changes the payment in the case of pre-determined triggers in the buyer's price).

Finally, the main governance drivers are: activism by institutional investors (the ability that institutional investors have to block mergers); what managers have at stake (how much of the acquiring company is owned by its managers); friendly vs. hostile approach to the target (studies show that tender offers earn higher abnormal returns than friendly negotiated transactions); use of anti-takeover defenses (defenses enhance the bargaining power of the target firm).

Houston, James and Ryngaert (2001) discuss drivers of merger profitability in the banking sector. The authors find that the most relevant sources of gains are cost cuts resulting from the elimination of overlapping operations and the consolidation of backroom operations. The authors also find that market overlap transactions yield significantly higher returns than those of market expansion transactions. The authors measure market overlapping with the following formula:

$$\text{Overlap} = \frac{\sum_{i=1}^{n} \min(T_i, B_i)}{\sum_{i=1}^{n} T_i + B_i},$$

Where: n is the total number of cities in which either bank has an office

T_i and B_i are the total number of offices the target and the bidder (respectively) have in city *i*

This measure of overlap takes a maximum of 0.5 when there is complete overlap and a minimum of 0 when there is no overlap.

2.3.2 Synergies

2.3.2.1 Types of Synergies

Damodaran (2005) defines synergy as "the additional value that is generated by combining two firms, creating opportunities that would not [have] been available to these firms operating independently". The author categorizes synergies into two groups: operating synergies (those synergies that affect the operations of the combined firm; they can take the form of economies of scale, greater price power, combination of different functional strengths and higher growth in new or existing markets) and financial synergies (include tax benefits, diversification, a higher debt capacity and uses for excess cash).

2.3.2.2 Valuing Synergy

Valuing synergy can be a troublesome and uncertain process. However, it is still an important step in the valuation of a prospect acquisition/merger. In this section, we will present some methods that can be used to value synergy.

Damodaran (2005) presents the two fundamental questions for the valuation of an operating synergy: "What form is the synergy expected to take?" and "When will the synergy start affecting cash flows?". The author suggests that this valuation is done in three steps: firstly, we value each company separately; secondly, we value the combined company without taking synergies into account; finally, we value the combined company with the effect of the synergy and obtain the value of the synergy by taking the difference between the two values obtained for the combined firm.

In order to obtain an accurate valuation of financial synergies, Damodaran (2005) suggests that we divide them into three groups: a greater "tax benefit" (i.e., tax shields); an increased debt capacity; a better use for "excess" cash. In the case of greater "tax benefit", the value of the synergy is the present value of the savings in tax expenses that is due to the merger. In the case of increased debt capacity, the author mentions a few models that have been developed to analyze this type of financial synergy from different perspectives – reduced default risk; reduced debt to equity choices and limited liabilities; and option pricing applied to higher debt capacity. In the case of "excess" cash, one simple way to value the synergy is to compute the value of the projects that would have been rejected if it were not for the merger.

Using Earnings-Based Financial Information to Value Synergies

Sahni and Sirower (2006) present an alternative model to value synergies that yield combinations of cost reductions and revenue enhancements.

If we are in the case of cost reductions alone, we can measure the improvements that need to be made to compensate for the premium paid (measured as a percentage of the pre-acquisition addressable operating cost base of the target) with the formula:

$$\%\mathrm{SynC} = \%\mathrm{P} \times \frac{\Pi}{1 - \Pi}$$

Where: %P is the premium paid for the target company

Π is the pretax profit margin

If, on the other hand, we are in the case of both cost and revenue synergies, we can measure the required cost reductions after taking account of the benefits of the expected percentage revenue synergies (%SynR) with the formula:

$$\%\mathrm{SynC} = \frac{\%\mathrm{P} \times (\mathrm{R} \times \Pi) - (\mathrm{R} \times \%\mathrm{SynR} \times \Pi)}{\mathrm{R} \times (1 - \Pi)}$$

Where: %P is the premium paid for the target company

R is the revenue

Π is the pretax profit margin

After calculating the percentage required cost and revenue improvements necessary for a given premium, one has to assess whether the obtained values are plausible.

2.3.2.3 Sharing Synergy Gains

Assuming that synergies can create value in an acquisition, one should then discuss how to share these gains between the bidder and the target firms of the operation. The fairest way to share synergies seems to be to do it in a way that the firms get the synergy gains in proportion to their contribution to these same gains (Damodaran, 2005).

2.3.2.4 Evidence on Synergies

Damodaran (2005) discusses two methods to evaluate the true existence of synergies in a given operation.

The first one is to measure the individual market values of the firms involved in an operation (before the announcement of the deal), sum them up and compare the resulting value with the market value of the resulting firm, after the announcement of the deal. One can consider that there was a synergy if the value of the resulting firm is greater than the sum of the values of the two individual firms. Bradley, Desai and Kim (1988) show evidence that the value of the combined firm increases 7.48% on average. However, the authors stress that this can be due to many factors besides synergistic gains.

The other method is to evaluate whether the resulting firm is more profitable or grows at a faster rate than the firms operating separately. Lehn and Mitchell (1990) show that a surprising number of acquisitions (20.2% of the acquisitions made in the period 1982-1986) were sold off a few years later.

According to Damodaran (2005), evidence shows that the shareholders of target firms are the clear winners in takeovers. Actually, Jensen and Ruback (1983) concluded (from reviewing 13 studies) that target shareholders make an average return of 20%-30% around the time of the operation. Additionally, Sahni and Sirower (2006) conclude that, on average, acquirers underperform their industry peers. On the other hand, the authors stress that 35% to 40% of the deals studied benefit the acquiring firm. The authors also conclude that merger operations create value at the macroeconomic level, i.e., even though these operations tend to harm the acquiring firms and benefit the target firms, in the aggregate there is value creation of 1% at the announcement.

2.3.2.5 Most Common Errors

Damodaran (2005) discusses the most common sources of error in valuing synergies: subsidizing target firm stockholders, i.e., overpaying target firm stockholders for synergies that were not created by them; using a wrong discount rate, i.e., the right discount rate to use is the cost of equity of the combined firm; and mixing control and synergy, i.e., not distinguishing between value created by better control skills and value created by synergies, which may possibly lead to using the wrong discount rate.

Ficery, Herd and Pursche (2007) discuss common errors in capturing synergistic gains: defining synergies too narrowly or too broadly; missing the window of opportunity; incorrect or insufficient use of incentives; not having the correct people involved in synergy capture; mismatch between culture and systems; and using the wrong process.

2.3.3 Forms of Payment

The two most common forms of payment in an M&A operation are stock and cash (paying in cash often implies raising debt or issuing shares). Roche (2002) stresses that for a private firm it may not be a choice to buy another firm with shares, since they are not marketable. Zhang (2001) adds to this and highlights four other factors that the author proves to be relevant in segregating cash financing from share financing: stock market performance of the acquirer (the better the performance of the acquirer's share on the stock market, the more preferable is the choice of stock financing); return on equity of the acquirer (the higher the return on equity of the acquirer, the more preferable it is to choose cash financing); relative size of the target to the acquirer (the larger is the size of the target, the more stock financing will be chosen, since there will not be enough cash to finance the operation); and the ratio of the acquiring firm's dividend payout (the higher the dividend payout of the acquirer, the more preferable is the choice of cash financing).

Travlos (1987) studies the returns of the stocks of the bidding firm around the time of the announcement of the operation and concludes that acquiring firms suffer significant losses in pure stock exchange acquisitions but experience "normal" returns in cash offers. These results seem to be consistent with the signaling hypothesis, which says that financing a takeover operation with stock signals that the stock is overvalued. Sahni and Sirower (2006) draw the same conclusion that cash deals "markedly outperform stock deals". Additionally, the authors conclude that one year later, the gap of performances between the two types of financing doubled.

3 Industry Review

The two companies studied in this work are part of the Portuguese banking sector and this is the only geography in which they operate so this market shall be the focus of our analysis in this section.

The banking sector in Portugal is characterized by having many small players but only a few large players – in 2009, the five biggest banks (Caixa Geral de Depósitos, Banco Comercial Português, Banco Espírito Santo, Banco BPI and Santander Totta) represented almost 80% of the total assets of the sector[11]. In fact, we can use the total value of assets of each bank to divide them into four groups: the three biggest banks (CGD, BCP and BES), with individual total assets larger than €80 billion; two medium banks (Santander Totta and BPI), with individual total assets between €45 billion and €49 billion; five medium-small banks (Montepio, Barclays, Banif, Crédito Agrícola and Banco Popular) with individual total assets between €10 billion and €19 billion; and a group of smaller banks with individual total assets below €8 billion.

3.1 Macroeconomic and Financial Setting

Since the summer of 2007, the modern world has been experiencing adverse financial market conditions and a less favorable macroeconomic situation. 2009 was the first year (for which there is significant data) in which there was a reduction of the global economy. For instance, in Portugal, the Gross Domestic Product (GDP) decreased by 2.7%. Also, the Portuguese budget deficit was 9.3% of the GDP and the unemployment was greater than 10%.

Also, between 2007 and 2009, all modern countries experienced higher credit needs, which increased the volatility levels and led to the downgrading of the public debt ratings of some of these countries. These downgrades, in turn, led to the downgrading of the debt of many private firms in these countries, increasing both the cost of issuing debt and the difficulty of placing this debt in the market.

These economic and financial conditions have consequences for the activity of companies in Portugal, namely that of banks, which will be analyzed for each of the banks studied in this work.

3.2 Expected Future Trends

The main challenges for banks in the future years go from areas such as the commercial banking income growth to the deterioration of asset quality indicators to the already discussed solvency requirements.

[11] Data from Associação Portuguesa de Bancos.

BES (2010) presents three main reasons for why banks should be concerned with the growth in banking income: increased cost of funding; historically low interest rates; and increased deposit competition. Deloitte (2010a) believes that a good solution to this problem may be seeking growth in weak markets. Also, Deloitte (2010b) stresses that, in trying to find new sources of revenue, one big challenge will be trying not to copy what the other banks are doing. Gordon and Lacy (2011) highlight that bank switching almost doubled since the financial crisis, when compared to pre-crisis numbers. This means that bank clients are nowadays more willing to change banks and that banks will have to fight harder to maintain longer relationships with their customers. The authors believe this should be done by improving the quality, the transparency and the honesty of the service offered.

In terms of the deterioration of asset quality indicators, both BES (2010) and Deloitte (2010a) show concerns with the bad performance of loans, especially with commercial real estate loans. Another concern in this area, which can be seen as a possible consequence of the first one, is the deterioration of coverage ratios globally.

Finally, another source of concern, which has been briefly discussed above, is capital management. Not only are banks uncertain about future regulatory changes and how they may impact their spreadsheets (Deloitte, 2010a) but they are also afraid of less favorable scenarios (due, for instance, to the current crisis in the Euro are) and may feel the need to raise capital. In order to best meet the complex demands of future regulation, Culp and Markson (2012) believe that the framework for regulatory response should be closely tied to the bank's overall strategy.

3.3 Regulation

The following entities have major regulatory roles in Portugal: Banco de Portugal (the central bank of the Portuguese Republic); the Portuguese Securities Market Commission (also known by CMVM, the initials for its Portuguese name); and the Portuguese Competition Authority.

3.3.1 Banco de Portugal

The main objective of the Bank (since the establishment of the European Community) is to maintain price stability. However, it performs another task that is quite relevant for this work, included in the Prudential Supervision function: the Bank, similarly to the European Commission directives on financial activity, sets limits on the amounts of own funds an institution may hold: "own funds shall never be lower than

minimum equity capital, and at least 10% of net profits in each fiscal year shall be allocated to the building-up of legal reserves up to the amount of equity capital" (Banco de Portugal website). The details of these calculations are discussed under the subject "Basel".

Basel

In 1988, the Basel Committee on Banking Supervision (one of the standing committees located at the Bank for International Settlements (BIS)) introduced a measurement system, which intended to prepare for "the implementation of a credit risk measurement framework with a minimum capital standard of 8% by end-1992" (BIS website). This system is commonly referred to as the Basel Capital Accord and has been subject to some revisions since. The current prudential framework is known by "Basel II" and is the result of the revision that started in 1999.

Basel II is structured into three areas (pillars): calculation of minimum capital requirements, supervisory review process and market discipline.

The first pillar "sets out the rules for the calculation of the minimum capital requirements for credit, market, […] operational risk" (Banco de Portugal) and, in some cases, the counterparty credit risk. The second pillar "combines a set of principles essentially intended to reinforce the linkage between internal capital held by institutions and the risks arising from their businesses" (Banco de Portugal). It completes the first pillar by including not only those risks that were not totally captured in pillar 1 but also those not included in pillar 1 at all. The third pillar "aims to promote disclosure of information by institutions, in different markets in a sufficient, consistent and transparent manner in order to ensure effective market discipline" (Banco de Portugal).

As mentioned before, the current prudential framework is what is called the "Basel II". However, there have been efforts to improve it and to form what is already known as "Basel III". Although this does not impact the activity of the banking system yet, it surely plays a role in the forecasting of the future. Therefore, we shall also discuss this accord as something that the two players in this work (especially Montepio) had in mind during the acquisition (and merger) process.

The new reforms aim to "raise the resilience of individual banking institutions to periods of stress" and to diminish "risks that can build up across the banking sector as well as the procyclical amplification of these risks over time" (BIS website).

3.3.2 CMVM

The Portuguese Securities Market Commission has "the task of supervising and regulating securities and other financial instruments markets (traditionally known as "stock markets"), as well as the activity of all those who operate within said markets" (CMVM website).

3.3.3 The Portuguese Competition Authority

"The [Portuguese] Competition Authority's mission is to ensure compliance with the competition rules in Portugal" (website). In what concerns this work, the most important power that the Authority has is to "decide on mergers and acquisitions". According to the Regulation No 120/2009 of March 17th 2009 - Notification Form for Concentrations between Undertakings, the parties involved in a concentration between undertakings[12] must provide all the information necessary for the Authority to be able to decide on the operation in the most accurate way possible. This is done through a Notification Form that is presented to the Authority prior to the operation.

[12] This obligation is in order if "Their implementation creates or reinforces a share exceeding 30% of the national market for a particular good or service or for a substantial part of it" or "In the preceding financial year, the group of undertakings taking part in the concentration have recorded in Portugal a turnover exceeding EUR 150 million, net of directly related taxes, provided that the individual turnover in Portugal of at least two of these undertakings exceeds two million euros." (Law No 18/2003, June 11th, Article 9).

4 Companies Review

4.1 Montepio Geral

In the context of this work, it is relevant to discuss both Associação Mutualista (the head and owner of the group) and Montepio Geral (the bank).

Associação Mutualista (AM) is the head of the largest mutual and social economy group in Portugal. It was created in 1840 with the goal of acting as a complement to the Portuguese Social Security system in the protection of its associates. Caixa Económica (CEMG) was created a few years later as an additional provider of financial services, since AM is mainly characterized by its supply of savings products.

AM has no shareholders and its "owners" are the members. It is to these members that the earnings are distributed each year, in proportion to the amount held by the member in each subscription. CEMG, on the other hand, works pretty much as any other bank, paying dividends and/or receiving an endowment to increase its institutional capital at the end of each year.

4.1.1 Competitors

As mentioned in section 3, given its size, Montepio's most direct competitors are those of the above-called group of medium banks: Barclays, Banif, Crédito Agrícola and Banco Popular.

Barclays is an English financial group founded in 1690. The group started an expansion process in the beginning of the 20th century and it began operating in Portugal in 1985.

Banif (Banco Internacional do Funchal) was created in 1988 in Madeira, with the total assets and debt of the extinct Caixa Económica do Funchal.

Crédito Agrícola was founded in 1911, although the concept of co-operative financial groups already existed since the 15th century. The values and mission promoted by Crédito Agrícola are very similar to those of Montepio. However, it works in a slightly different way: each branch (Caixa) is autonomous but works under the orientation and supervision of Caixa Central, which, in turn, works as a Central Bank for the branches.

Banco Popular is the third largest Spanish bank and it has been operating in Portugal since 2003.

4.1.2 Main Geographies

Montepio was first established in Lisbon and that is where its headquarters have always been located. Also, the region with the highest concentration of Montepio's branches is the Lisbon area, with around 40% of the total number of branches. However, Montepio is well established in the rest of the country with branches in every region and the second most important region in this field being the North (with 26%), followed by the Center (with 18%).

4.1.3 Main Products

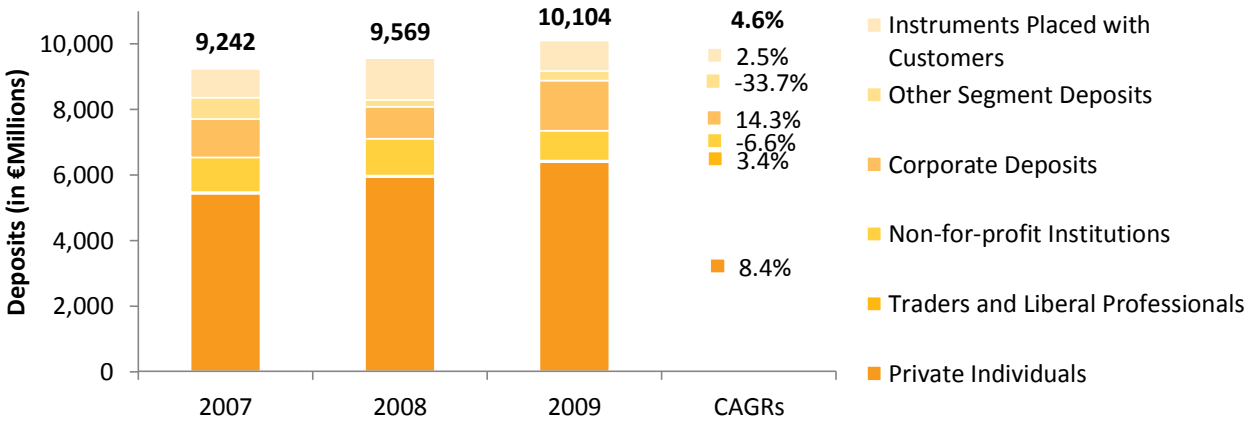

Figure 1 - Montepio - Deposits by customer type

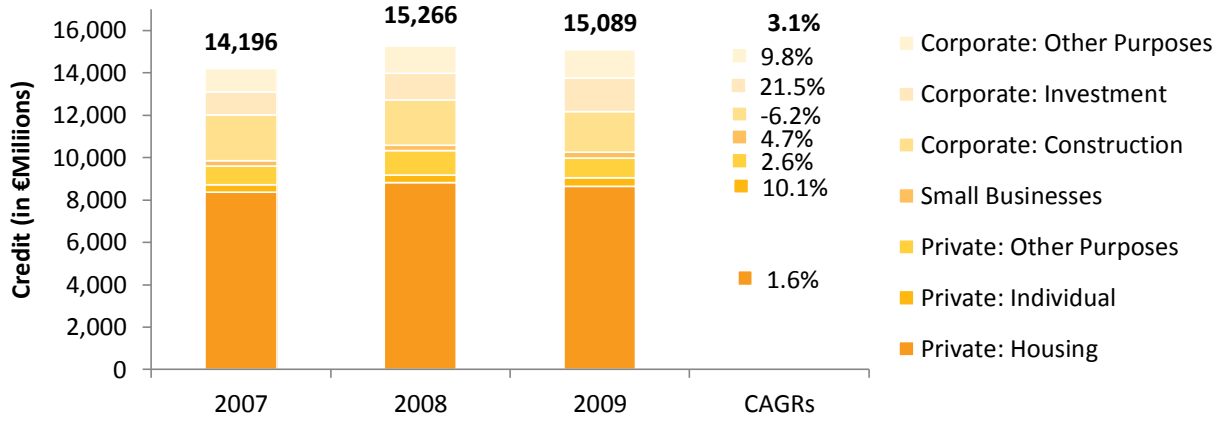

Figure 2 - Montepio - Credit by customer type

As can be seen from the graphs above, Montepio's major group of clients is private individuals, which accounts for more than 70% of the amount deposited in the three years of the analysis. Also, it is to this group of clients that Montepio lends typically around 66% of the total credit granted.

The total amount of deposits increased both in 2008 and 2009. However, there was a significant decrease in the amount of corporate deposits in 2008 (17%) that was completely recovered in 2009 and an even greater decrease in the amount of other segments deposits in 2008 (66%) that was followed by a small increase in 2009, which was not enough to recuperate from the loss suffered in 2008.

In terms of the amounts lent to customers, we can observe a different trend. Although the total amount increased in 2008, it decreased slightly in 2009 (1%). This decrease was mostly supported by the decreases in loans to individuals related to housing and other purposes and to corporate clients related to construction.

4.1.4 Cost-to-Income Ratio

Montepio has had a quite stable cost-to-income[13] ratio during the period 2007-2009, with values slightly above 60% for the first two years and a value around 55% for the third. This decrease reflects a higher increase in banking revenue (11.7%) than in operating costs (1.1%) and shows an improvement in the operational efficiency of the bank.

In this section, we will discuss the structures of cost and income that yield the ratios mentioned above.

4.1.4.1 Cost Structure

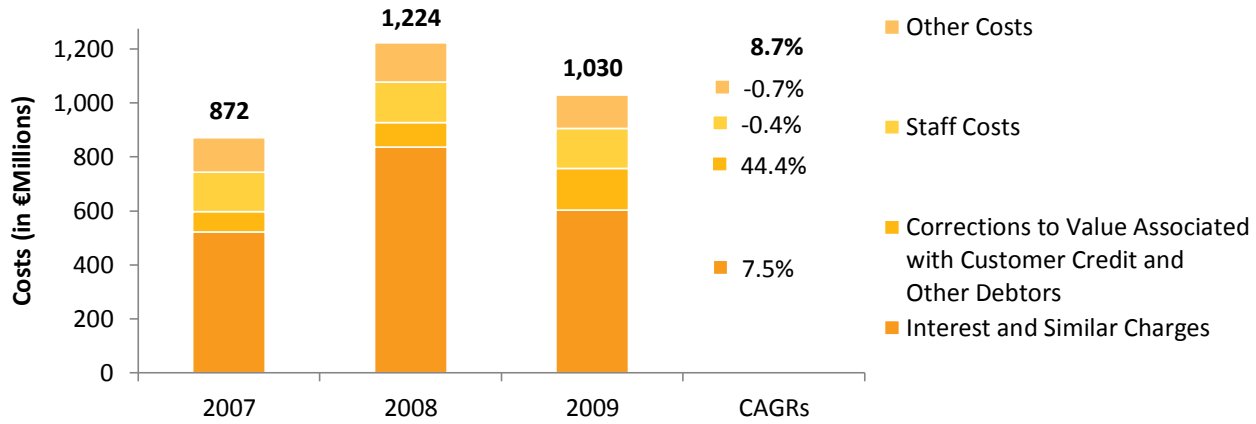

Figure 3 - Montepio - Cost Structure

[13] Here, I use the values obtained in Montepio Annual Reports, which were calculated with the following formula: $\text{Cost} - \text{to} - \text{income ratio} = \frac{\text{Operational Costs}}{\text{Banking Revenue}}$.

As would be expected from a bank, the most relevant costs are related with interest and similar costs, which, in the case of Montepio, account for more than 58% of total costs in any of the three years studied. These costs increased around 15% between 2007 and 2009, having however reached a maximum in 2008. This increase in interest costs is partly justified by a similar in magnitude increase in the total amount of liabilities, maintaining the interest and similar costs/total liabilities ratio fairly constant around 3.3% between the years of 2007 and 2009. However, in 2008, the increase in interest costs was greater than that of total liabilities and this ratio increased to 5%. This, in my view, is a consequence of the financial crisis that intensified with the default of Lehman Brothers in September of 2008 and reflects the greater difficulty in accessing the credit markets for the Portuguese government and banks and the consequent higher yields paid by the issuing institutions.

The second most important source of costs is costs related with impairment, which represent between 8% and 15% of the total costs in these three years. Out of the total impairment costs, more than 75% are loans impairment. It is also important to mention that this kind of impairment doubled between the years of 2007 and 2009, both in absolute and relative terms (in 2007, 1.43% of the total amount of loans was in impairment, whereas in 2009 the impaired loans represented 2.7% of the total amount). Once again, this increase is mostly due to the financial crisis that decreased the power of purchase and shrank the family budget of the Portuguese people.

Another important source of costs is costs with staff. This should also be expected from a firm that provides services, which is the case of banks. These costs decreased slightly between the years of 2007 and 2009, which is probably due to the small decrease in the number of employees, observed in this period[14].

Together, these costs account for more than 85% of the total.

[14] The number of employees decreased from 2,989 in 2007 to 2,972 in 2008 and increased to 2,986 in 2009. However, one can guess that the new employees hired in 2009 bear smaller costs for Montepio than those who left the bank in 2008.

4.1.4.2 Income Structure

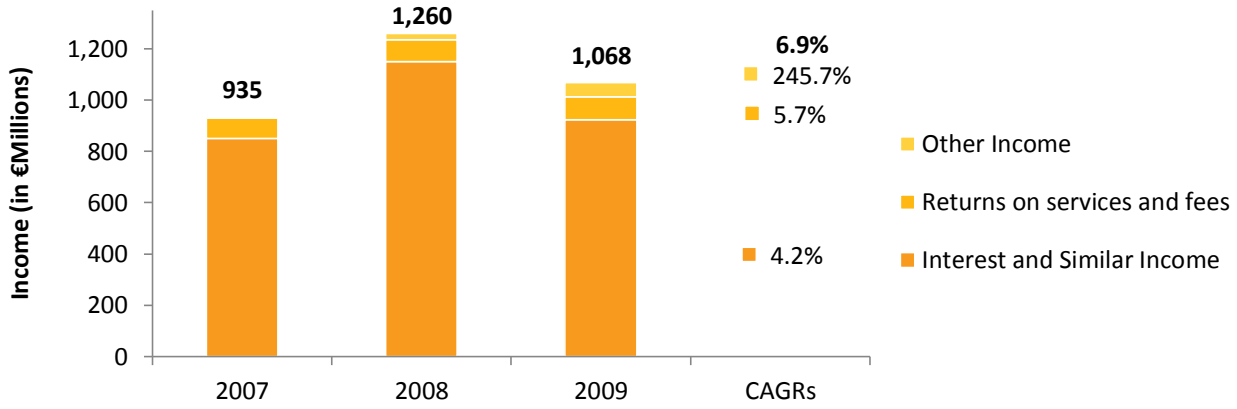

Figure 4 - Montepio - Income Structure

Similarly to what was said about the costs with interest and similar expenses, one can also expect from a bank that the main source of income is interest and similar income. One can especially say this about Montepio after running the analysis of amounts in credit and deposits in section 4.1.3, where it was possible to see that Montepio is quite balanced between its lender and borrower sides. Nonetheless, Montepio lends more than it borrows, which, together with the gap between the interest rates applied for each case, allows for a positive net interest income.

Montepio's income from interest and similar represents more than 85% of the total income for each of the three years and is followed by income from services and fees[15] which represent slightly more than 6.5%.

4.1.5 Profits

The profits generated by Montepio witnessed a behavior that would be expected in a crisis scenario: they suffered a big decrease from 2007 to 2008 (almost 45%) and recovered slightly in 2009. However, the value for 2009 is still less than 60% of that for 2007.

4.1.6 Funding

As in any firm, the two main methods of funding of a bank are debt and equity. However, since the business of a bank consists of borrowing at a given interest rate to lend at a higher one and make profits from the

[15] Income from services and fees comprises income from credit fees, means of payment management, insurance and cards, among others

difference, it is typical of a bank to have high levels of debt. Montepio is no exception and shows levels of debt around 95% of the total liabilities and equity.

The main sources of funding are resources from customers and other loans, debt securities issued and deposits from other credit institutions. Together, these types of liabilities account for more than 80% of the total liabilities and for more than 75% of the total liabilities and equity.

It is also relevant to mention the amounts that CEMG borrowed from Central Banks. The evolution of these loans contracted by Montepio clearly reflects the evolution of the liquidity crisis. In 2007, Montepio had no loans from Central Banks; in 2008, this amount was around €850 million with both maturities of up to 3 months and 3 to 6 months; and, in 2009, this amount was of €500 million with maturity of more than 6 months.

About the equity, the only relevant form of equity is share capital, which represents more than 72% of the total equity.

4.1.7 Capital Requirements

Montepio has shown, during the period 2007-2009, a positive trend when it comes to the values of the prudential ratios: the Core Tier 1 Ratio went from 6.4% in 2007 to 9.8% in 2009 and the Solvency Ratio went from 8.89% in 2007 to 13.56% in 2009.

4.1.8 Dividends

The amount of dividends paid by CEMG to AM changed considerably during the period 2007-09, both in absolute terms and in relation to the amount of profit generated in the respective year: the dividends paid were 26, 11 and 20 million euros in 2007-09, which corresponds to dividend payout ratios of 40%, 32% and 54%, respectively. This big variation makes it quite hard to predict both the amount and ratio of dividends paid in the future and justifies why the dividend discount model will not be used in the valuation section.

4.2 Finibanco

Finibanco was officially established as a credit institution in 1993 and was mainly focused on commercial banking. Later on, as Finibanco wanted to expand into other areas of the financial sector, other firms were created and Finibanco Holding was formed as the head of the group.

4.2.1 Competitors

As mentioned in section 3, Finibanco's most direct competitors are those of a quite smaller size (for the purpose of this discussion, I will only consider those banks with a value of total assets between €2 billion and €4 billion, since this value for Finibanco is around €3 billion): Deutsche Bank, Finantia and CaixaBI.

Deutsche Bank is one of the biggest financial groups in Germany. Founded in 1870 in Berlin, it has been operating in Portugal since 1978. Historically, this presence in Portugal has been related with financial consultancy and investment banking. Only later (in 2001) did this activity expand to more commercial banking.

Finantia is a Portuguese bank with more than 20 years of experience. However, it provides very specialized services: investment banking, private banking and specialized finance.

CaixaBI (Caixa-Banco de Investimento) is the investment bank of the Caixa Geral de Depósitos Group.

4.2.2 Main Geographies

Finibanco was created by a business man from Porto and the North region was, at the time of the operation, the one with the highest concentration of Finibanco branches, with 36% of the total number of branches of the bank. The Center follows with 29% of the branches and after that comes the Lisbon area with 26%.

4.2.3 Shareholder Structure

As was discussed above, Finibanco was created by a business man, who at the time of the foundation of the bank was already the owner of a successful wooden doors business – Vicaima.

At the end of 2009, Finibanco, S.A. was 100% owned by Finibanco Holding, the head of the Finibanco group. Finibanco Holding was in turn mostly held by investors related with the original founder, by members of the board or by Vicaima and related companies.

4.2.4 Main Products

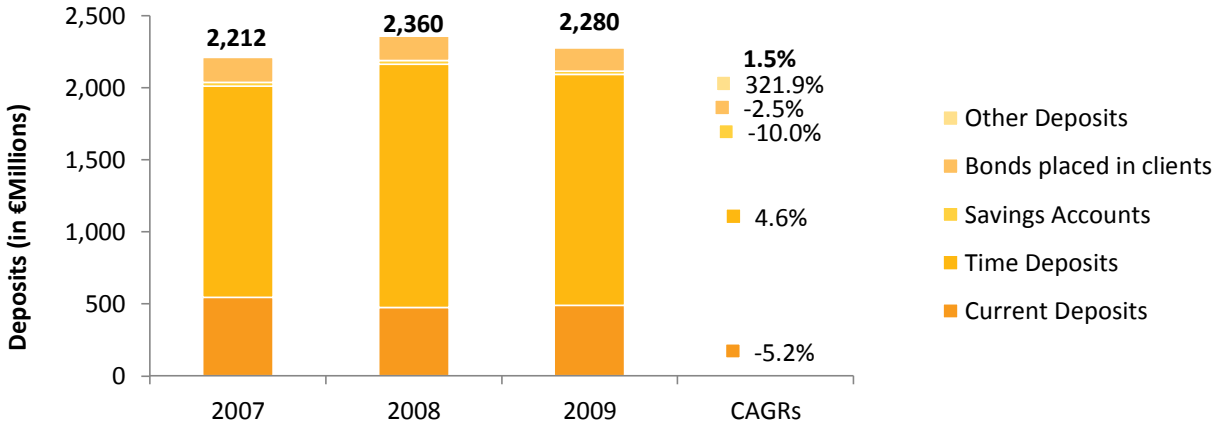

Figure 5 - Finibanco - Deposits by customer type

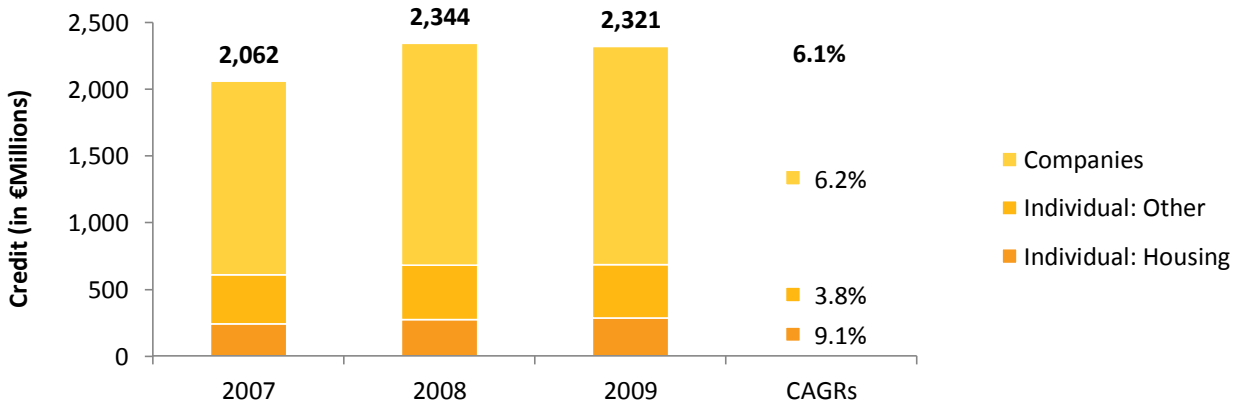

Figure 6 - Finibanco - Credit by customer type

When analyzing the amounts deposited in Finibanco, it is easy to see that the two most common forms of deposits are time deposits and current deposits, representing respectively more than 66% and more than 20% of the total amount in the three years analyzed. This is somewhat easy to expect both for Finibanco and for any other retail bank – these are the two most liquid types of deposits and also those that have the characteristics that best fit the day-to-day necessities of the common customer.

In terms of the evolution over these three years, we can see that the total amount increased in 2008 but decreased in 2009. Not surprisingly, this is exactly the movement observed for time deposits. On the other hand, the amount in current deposits decreased in 2008 but increased in 2009.

When it comes to the credit granted by Finibanco, we can make the analysis in terms of individual vs. corporate clients and, in the case of individual clients, in terms of the purpose of the loan: housing vs. other. As can be seen in the graph, loans to companies represent the biggest part of the total loans granted by Finibanco (around 70%) and this amount increased in 2008 and slightly decreased in 2009. This is also the behavior experienced by the total amount and by the credit to individuals with purposes other than housing. On the other hand, individual credit for housing increased in 2008 but slightly decreased in 2009.

4.2.5 Cost-to-Income Ratio

Finibanco showed a quite pessimistic behavior in terms of the cost-to-income ratio: it increased from 60.7% in 2007 to 83% in 2008 and to 85.2% in 2009. This can be justified by the fact that the operating costs never decreased in this period but the banking revenue decreased in both years, mostly due to the decrease in markets profit.

In this section we will discuss both the structure of the costs and income of Finibanco in the three years of our study.

4.2.5.1 Cost Structure

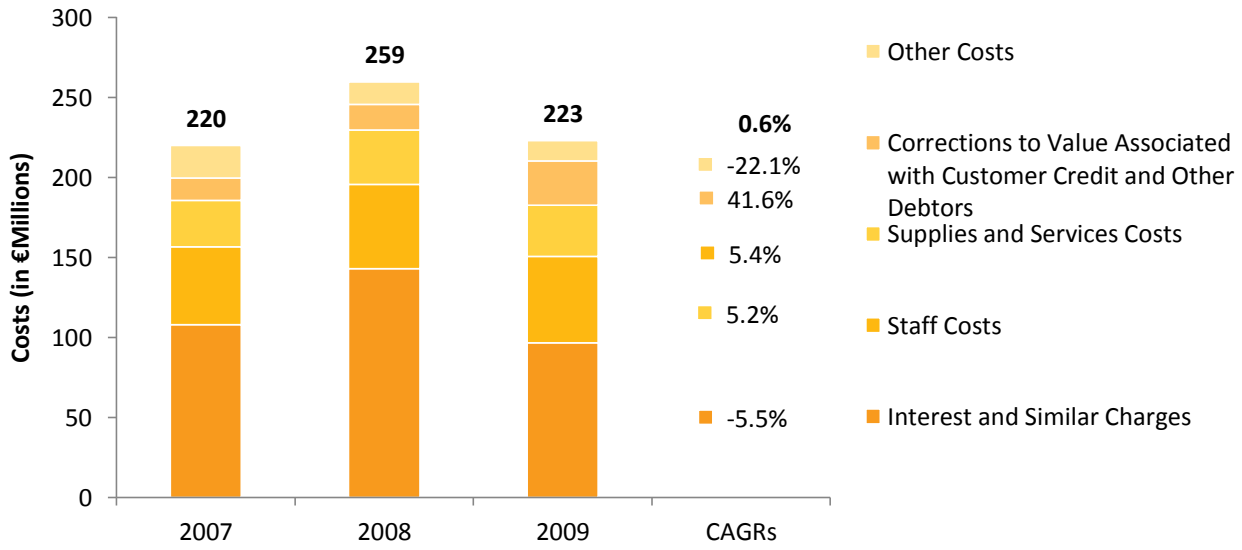

Figure 7 - Finibanco - Cost Structure

Similarly to what was previously commented for Montepio, it is expected that the most representative source of costs for Finibanco is costs related with interest and similar charges. In fact this is what we can observe – these costs account for more than 43% of the total amount of costs for any of the three years studied. However, this percentage reaches a maximum in the year of 2008, when these costs were more than 55% of the total. It is also important to analyze these costs in relation to the total amount of liabilities, so that we can have an idea of how costly the bank's liabilities are. Similarly to what we have seen for Montepio, this cost (measured as interest and similar charges/total liabilities) was highest in 2008, when the liquidity crisis was at its peak (5%, whereas in 2007 and 2009, this cost was 4% and 3.3%, respectively). Also, we can observe that, on average and as a percentage of total liabilities, Finibanco has higher interest costs than Montepio. This is probably due to the smaller size (and higher risk) of Finibanco.

The second most representative source of costs is costs with staff, although these costs represent almost less than half of the percentage of interest costs (around 20% of the total).

Also quite representative are the supplies and services costs, which represent around 13% of the total. These three sources of costs together represent more than 82% of the total costs.

At this point it is relevant to discuss briefly the costs related with impairment. Surprisingly, the amounts of impairment in Finibanco are quite small. For instance, the percentage of customer credit impairment (which is the largest type of impairments in Finibanco, representing more than 54% of the total) in 2009 was 1.98%. However, the fact that Finibanco does not have very high levels of impairment does not mean that these amounts did not suffer with the financial crisis. In fact, the amount of impaired loans went from 1.66% in 2007 to 1.98% in 2009.

4.2.5.2 Income Structure

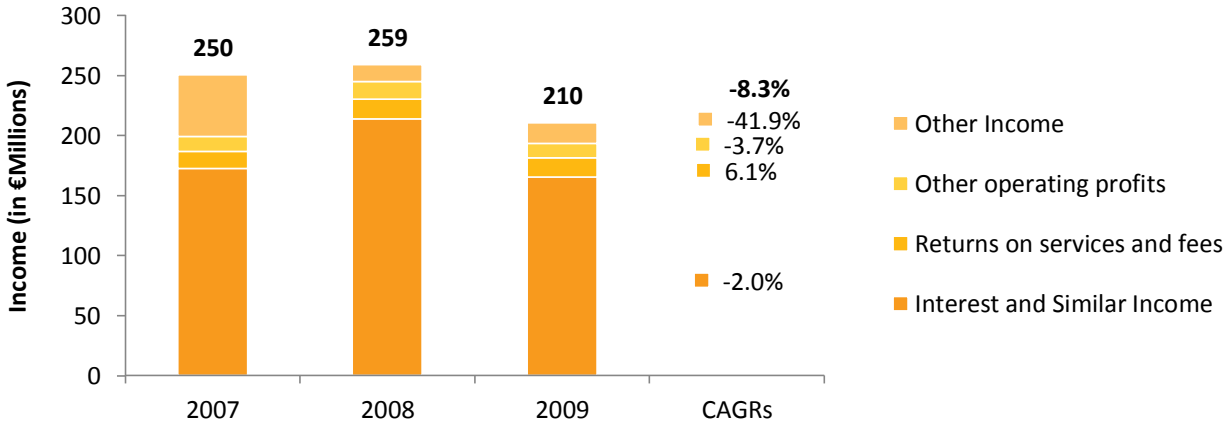

Figure 8 - Finibanco - Income Structure

The income structure of Finibanco shows the same pattern in terms of the representativeness of its sources as that of Montepio - in the income structure of Finibanco, interest and similar income represent more than 68% of the total income, reaching however the maximum of 82% in 2008. The following two most representative sources are the income from services and fees and other operating income, which together represent more than 10% of the total income.

In terms of the total income, we can see that it increased slightly in 2008 (around 3%) but decreased sharply in 2009 (almost 20%). This decrease is almost totally supported by the decrease of the income from interest and similar, which one can guess was due to the contraction of credit conceded in 2009.

4.2.6 Profits

The amount of profits generated by Finibanco show the behavior of a bank that suffered quite a lot with the financial crisis: the profit went from €21 million euros in 2007 to negative €9 million in 2009.

4.2.7 Funding

In terms of funding, Finibanco is quite similar to Montepio. More than 94% of the total liabilities and equity is liabilities. Out of these, the most relevant source of funding is resources from customers and other loans, which represents more than 70% of the total liabilities and equity.

It is also important to make a brief note about the amounts of resources from Central Banks. Similarly to Montepio, this amount was null for Finibanco in 2007. However, it increased to €60 million in 2008 and €190 million in 2009.

Furthermore, the composition of the equity is also similar to that of Montepio's: more than 73% (in 2007; this value increased to 93% in 2009) of the total value is share capital, which is totally held by Finibanco Holding, SA.

4.2.8 Capital Requirements

Similarly to what was observed for Montepio, Finibanco showed a positive trend in terms of its capital adequacy in the period 2007-2009: the Tier II Ratio went from 3% in 2007 to 3.5% in 2009; the Core Tier I

Ratio went from 5.1% in 2007 to 8.2% in 2009; and the Solvency Ratio went from 8.1% in 2007 to 11.7% in 2009.

4.2.9 Dividends

Similarly to what has been discussed for Montepio, Finibanco S.A.'s dividends were quite irregular, both in absolute and in relative terms: €5, €3 and €0 million in the period 2007-09, which corresponds to dividend payout ratios of 24%, 342% and 0%. Once again, this irregularity makes it very hard to predict future dividends/dividend payout ratio and justifies why the dividend discount model will not be used to value the equity of Finibanco.

5 Operation Review

5.1 Summary of the Operation

In 2010, Montepio Geral Associação Mutualista bought Finibanco Holding, SGPS, SA, which comprised: Finibanco, SA (the bank); Finicrédito, IFIC, SA (a specialized credit institution); Finivida, SA and Finiseguros, SA (two insurance companies); Finimóveis, SA (the firm that manages, buys and sells the properties taken from defaulting clients); Finivalor, SA (the firm that manages securities investment funds and real estate funds); and Finibanco Angola, SA (another bank, located in Angola).

In 2011, Caixa Económica Montepio Geral, which is fully owned by AM, bought Finibanco, SA, Finicrédito, SA, Finibanco Angola, SA and Finivalor, SA from AM and the process of merging CEMG with Finibanco, SA begun.

5.2 Motivations for the Operation

When the managers of Montepio announced their intention to buy Finibanco, they presented five reasons that justified their decision (Montepio Geral, 2010):

1. Increase their market share;
2. Gain/strengthen competencies in new business areas, namely in specialized credit and financial services for the segments of companies and individuals;
3. Obtain synergies by reducing costs in central services;
4. Bet on geographic and sectorial diversification/complementarity;
5. Develop mutualism through Finibanco's distribution channels and reaffirm the investment that had been made in the social economy.

The first argument appears to be in accordance with the opinion of experts like Harker and Zenios (1998): "As financial institutions – in agreement with all other retail services – realize that customer satisfaction and customer loyalty lead to long term growth, they aim at maximizing the share of customers' wallet that they are servicing." This effect can be multiplied if we think that Montepio, while gathering clients for the bank, is also able to gather members for its head – Associação Mutualista.

Recalling some of the information presented in section 4, we see that there was a potential for Montepio and Finibanco to work as complements, both in the biggest segment of clients reached by each bank and in the kind of product most sold by each bank. Montepio's main target was the segment of individuals, while Finibanco's was corporate. Also, in the three years of our analysis we can see that Montepio always had a

greater amount lent to clients than that deposited. Finibanco, on the other hand, although by a smaller difference and with the exception of 2009, shows the opposite tendency.

We will not develop the subject of synergies in this section. It has already been discussed in theory above and it will be further discussed later on, when we run calculations for the valuation of the operation.

We can, once again, recall the information in section 4 to understand the fourth argument. In terms of regional presence, Montepio and Finibanco also complement each other, since Montepio has its strongest presence in the Lisbon area, while Finibanco's is in the North region.

The last argument is, in my view, very connected to the first one and to the reasoning presented for this argument. By gathering more clients and potentially more members, Montepio will be able to take mutualism and its values to more people. Also, if the two banks are able to realize some synergies then the combined bank should be more profitable and therefore pay higher dividends to Associação Mutualista, which in turn will be able to distribute a higher amount of earnings to its members and also use higher amounts to fund its mutualistic actions.

Another important reason for Montepio to want to buy Finibanco was the already strong presence of the latter in Angola, which allowed Montepio to internationalize and expand into a growing market. However, since this internationalization was done through Finibanco Angola, SA (another company belonging to Finibanco Holding) it will not be studied in this work.

It is interesting to notice that implicit in the reasons presented by Montepio for the purchase of Finibanco are some of the drivers discussed above: strategic synergies; grabs for market power; targets that can be restructured (considering that Finibanco had negative profits and an extremely high cost-to-income ratio in 2009, one can think that there is some potential for Montepio to increase the profitability of Finibanco); privately owned assets (theoretically, Finibanco was a public bank but a great part of its ownership was concentrated with the family of the original founder and the remaining shares were not very liquid); the payment was made in cash; there was some degree of branches overlap (around 31%, according to the measure proposed by Houston et al. (2001)).

6 Valuation

In this section, the results of the different methods used to value the equity of Montepio and Finibanco before and after the operation are presented. Keeping in mind that the announcement of Montepio's intention to buy Finibanco was in July of 2010, all calculations will be done with data from the 2009 Annual Reports of both banks. Also, as a basis for the assumptions made for the future, the predictions made by the IMF for future GDP growth and inflation at the end of 2009 will be used. Obviously, being now in 2012, we know that the economy setting has changed quite a lot and we will consider these changes in section 7, where we will compare predictions made for 2010-11 with the actual values and will adjust the predictions for the following years.

6.1 Individual Banks

6.1.1 Betas and CAPM

Before discussing the chosen valuation methods, it is important to discuss what was done in terms of obtaining the discount rates for the banks. As was mentioned in the literature review, the risk-premium was computed as the difference between the arithmetic averages of the daily returns of the PSI20 index (annualized) and the GDBR10 index, for the period 24/02/1997-31/12/2009. Also, a survivorship bias of 1.5% is subtracted to the value obtained and a country risk premium (measured with the third method discussed by Damodaran (2002) also described in the literature review) is added[16]. For the calculation of the betas, I decided to use historical betas. Due to the fact that there is not much available data for the historical prices of Finibanco, I decided not to use Finibanco's historical data for the computation of the beta. In the case of Montepio, being a private company also prevented me to use historical data to compute the beta. It was decided, then, that the same beta would be used for the two banks. I computed the historical beta of the shares of all Portuguese public banks vs. PSI20, using daily returns for the period 24/02/1997-31/12/2009. The beta used for the two banks is the simple average of the betas of these banks, excluding Finibanco.

The values obtained for the market-risk premium, the betas and the costs of equity (calculated with the CAPM) are the following:

[16] Market risk premium = PSI20 average return – risk-free rate – survivorship bias + country risk premium
Where: Survivorship bias = 1.5%
Country risk premium = Portuguese bonds average return x standard deviation(PSI20 returns)/standard deviation(Portuguese bonds)

Risk-free Rate	4.4%
Market Risk Premium	6.3%
Beta	0.81
Cost of Equity	**9.5%**

Figure 9 - Cost of equity calculation

6.1.2 The Discounted FCFE Method

This method consists of discounting the expected free cash flows to the equity (defined, for banks, as net income – reinvestment in regulatory capital) to the present.

In order to use this method, one must, first, make some predictions about the behavior of the income, costs and reinvestment in regulatory capital. I used data for the period 2007-09 and made predictions for the period 2010-14, assuming perpetual growth from 2014 on. Also, since the goal here is to simulate the valuation process done by Montepio before the announcement of the deal, we will use predictions for the state of the economy made by the IMF at the end of 2009:

	2010	2011	2012	2013	2014
Real GDP	0.5%	0.9%	1.1%	1.3%	1.4%
Consumer Prices	0.8%	0.9%	1.1%	1.4%	1.6%

Figure 10 - IMF's predictions for 2010-14

In this section, we will discuss the assumptions made for future values of assets and liabilities and also for future values of income and costs that allowed for valuing the banks with the discounted FCFE method and the results obtained with this method.

Montepio

Montepio's biggest classes of **assets** represent more than 96% of the total assets. The assumptions on the future values of these four classes shall be discussed separately. The remaining classes of assets will be considered "Other Assets".

According to the European Banking Federation, at the end of 2009, lending was expected to weaken until mid-2010. Also, the volume of bank loans outstanding grows and shrinks with the business cycle: growth slows just before a recession and total volume shrinks after the recovery begins. We can verify this trend with financial data for Montepio, especially if we add the value of year 2006 to the analysis: in 2006-07, the

growth rate was 9.02%, followed by 4.37% in 2007-08 and -1.88% in 2008-09. Given this, my assumptions for the future growth rates of loans and advances to customers are: -0.75% in 2010, 2% in 2011, 3% in 2012, 3.5% in 2013 and 4% in 2014 (the first negative rate is related with the fact that volume shrinks after the recovery begins, which would be in 2010, since the IMF predicted a positive growth of the Portuguese GDP from 2010 on, being 2009 the only year of recession; the following and growing positive growth rates are related with the recovery of the economy).

Available-for-sale financial assets is one of the three most common ways of classifying financial assets. The other two are: held-for-trading and held-to-maturity. The first comprises the assets that the bank intends to sell in the short-run, while the second comprises the assets that the bank intends to hold to maturity. Available-for-sale assets includes all the other assets, i.e., those that the bank does not to intend to sell shortly after buying them but may not want to hold to maturity either. In the case of Montepio, this class of assets includes: securities (categorized into fixed income and variable income), investment fund units and commercial paper. This class of assets grew very quickly in the period 2007-09: 108.36% in 2007-08 and 67.78% in 2008-09. One can assume that these big increases resulted from Montepio taking advantage of the low security prices. One can guess that the prices will not recover as fast as the economy and that Montepio will continue to invest in these financial assets. Therefore, it is assumed that the value increases at 1.68% per year (the growth rate verified in the period 2006-07, before the turmoil of the crisis started).

When it comes to past behavior, other loans and advances to credit institutions was very irregular during the period 2007-09: big decrease in 2008 (-74.85%) followed by a huge increase in 2009 (122.38%). However, the value of 2009 is still approximately half of that of 2007. It seems reasonable to assume that the decrease in 2008 results from the liquidity crisis, which started to recover in 2009. Considering the possibility that the trust of financial institutions in one another will take longer to recover, we will assume that this value will stay constant in 2010 and increase in the period 2011-14 at a rate that is equal to the sum of the predicted growth in GDP and of predicted inflation.

The Bank of Portugal requires that banks hold 2% of deposits and debt certificates maturing in less than two years at the Bank. Since there is not enough information about the maturities of the loans, it is assumed that future values of cash and deposits at central banks will be equal to a fixed percentage (equal to the average of the period 2007-09: 2.96%) of the sum of resources from customers and other loans and deposits from other credit institutions.

The future amounts of the remaining classes of assets were calculated in a way as to maintain their percentages in the total assets.

Overall, these assumptions yield a CAGR of 2.77% for the value of total assets during the period of the predictions. This will also be the growth rate assumed for the growth of risk-weighted assets.

Similarly to what was done for the assets, the biggest five classes of **liabilities** will be discussed separately, since they represent more than 96% of the total. The remaining classes will be considered "other liabilities".

During the period 2007-09, resources from customers and other loans showed two different behaviors: slight decrease in 2008 (-0.95%) and big increase in 2009 (10.88%). One can guess that the decrease in 2008 might have been related with the lack of trust in banks following the default of Lehman Brothers; and that the increase in 2009 was a result of the regained trust in banks and the bad performance of stock exchanges. Therefore, it seems reasonable to assume that these values will continue to increase during the period 2010-11 (2% per year, a rate which is more than 2 times smaller than the historical CAGR, since it can be assumed that this recovery of trust will be rather slow). As stock exchanges start to recover, one can assume that investors will replace safer investments such as bank deposits with riskier assets such as stocks. Thus, the following growth rates are assumed for the period 2012-14: -0.5% in 2012 and 2013 and -1% in 2014.

There is no information about debt securities issued, only on debt securities reimbursed. Also, past values do not indicate a clear relation between debt issued and debt reimbursed. Assuming that Montepio will issue debt in the same amount as the debt it must repay, the amount of debt securities issued would remain constant. However, as will be discussed below, as Montepio pays its debt to central banks, it may choose to replace that debt with debt issued in the market. Therefore, it is assumed that the amount of debt securities issued will increase during the period 2010-14.

Financial liabilities associated with transferred assets relate to securitization transactions. It appears from the accounts of Montepio that these amounts are reimbursed little by little. However, without information about future issues and/or reimbursements, the assumption is that the amounts of these liabilities will remain constant in the future.

At the end of 2009, the amounts of deposits from central banks had a maturity longer than 6 months. The assumption is that these amounts will decrease as the economy recovers, reaching 0 in 2014. At the same time, with the recovery of the economy, one can assume that Montepio will choose to replace the amounts deposited in central banks with loans from other credit institutions or from debt issued in the market.

Deposits from other credit institutions appear to vary with the economic cycle: the value increases in expansions and decreases in recessions, probably due to the lack of confidence in the financial sector associated with recessions. On the one hand, since there is not enough information to predict future values, the assumption is that the amounts of this class of liabilities would remain constant in the future. On the other hand, as mentioned above, it is assumed that Montepio may want to replace the amounts deposited in central banks with loans from other credit institutions or from debt issued in the market. Therefore, it is assumed that these two classes of liabilities together increase in the same amount of the decrease in deposits from central banks.

Overall, it is assumed that the total amount of liabilities have a CAGR of -0.01% during the period of the prediction.

Similarly to what was done for assets and liabilities, only the biggest sources of **income** will be discussed separately.

Interest and similar income are calculated as a percentage of all income-paying assets[17]. During the period 2007-09, this percentage experienced some variation: 5.62% in 2007, 7.54% in 2008 and 6.05% in 2009. The big variation is justified by variations in interest from loans and advances[18] and one can assume that the outlier rate in 2008 is related with the liquidity crisis and higher risk profile of the customers. It is assumed, then, that this interest rate will slowly decrease to the level of 2007 by 2013 and remain constant in 2014.

Returns on services and fees are paid by customers for services such as banking services and granted guarantees. It is assumed that this source of income is a fixed percentage of the total liabilities. The percentage used is obtained by taking the average of the percentages for the period 2007-09: 0.5%.

Profits on assets and liabilities at fair value based on profits experienced a very irregular behavior, both in absolute and in relative (as a percentage of the relevant classes of assets) terms. Therefore, it is assumed that the values will stay constant.

Future values of the remaining sources of income are calculated as a fixed percentage of the total amount of assets, equal to the average percentage for the period 2007-09: 0.14%.

Total income is assumed to have a CAGR of 1.46% for the period of the prediction.

[17] I considered as income-paying assets: loans and advances to customer, other loans and advances to credit institutions, cash and deposits at central banks, financial assets held for trading, other financial assets at fair value based on return, held-to-maturity financial assets and hedging derivatives.
[18] Detail of sources of interest income in annual reports

Finally, we will discuss the biggest sources of **costs** for Montepio, and consider the remaining to be "other costs".

Interest and similar charges are calculated as a percentage of all interest-bearing liabilities[19]. Past percentages varied slightly (3.57% in 2007, 5.56% in 2008 and 3.94% in 2009) and the variation is justified by variations in interest from deposits and debt securities issued[20]. One can assume that this interest rate will slowly decrease to the level of 2007 by 2013 and remain constant.

Impairment on customer loans is calculated as a percentage of loans and advances to customers. During the period 2007-09, this percentage doubled due to the crisis (0.53% in 2007, 0.62% in 2008 and 1.07% in 2009). It is assumed, then, that the percentage of impaired loans starts at 1.2% (higher than that of 2009, since the effects of a recession in impairment levels should be more persistent than the recession itself). However, this percentage will decrease (10 basis points per year), reaching 0.8% in 2014 (higher than the levels of 2007 and 2008 for the reason of persistence).

Staff costs and supplies costs are assumed to grow at the inflation rate.

Depreciation costs are calculated as a fixed percentage of the sum of other tangible assets and intangible assets, equal to the average of the period 2007-09: 17.98%.

Services and fees charges are calculated as a fixed percentage of the total amount of assets, equal to the average of the period 2007-09 (0.07%).

The other sources of costs (together) have experienced a very erratic behavior both in absolute and in relative (as a percentage of assets) terms: 0.12% in 2007, 0.17% in 2008 and 0.06% in 2009. The assumption is that the values remain constant.

Montepio's total costs are assumed to have a CAGR of -1.73% for the period 2010-14.

Finibanco

The four biggest classes of **assets** of Finibanco represent more than 89% of the total assets. The assumptions on the future values of these four classes shall be discussed separately. The remaining classes of assets will be considered "Other Assets".

[19] I considered as interest-bearing liabilities: resources from customers and other loans, debt securities issued, deposits from other credit institutions, deposits from central banks, other subordinated liabilities, financial liabilities held for trading and hedging derivatives.
[20] Detail of sources of interest costs in annual reports

Similarly to what was discussed for Montepio, the assumptions made for the future values of Finibanco's loans and advances to customers are based on expectations for the future expressed by the European Banking Federation and Fed Cleveland at the end of 2009. Finibanco showed much higher growth rates than Montepio in years of positive growth (23.66% and 14.15% in 2007 and 2008, respectively) and a similar growth rate in the year of 2009, where there was negative growth (-1.92%). Therefore, the same growth rate will be assumed for the two banks for 2010 (the only year that we predict will show negative growth in this class of assets) and slightly higher growth rates in the years for which we predict positive growth. The following growth rates are assumed: -0.75% in 2010, 2% in 2011, 3.5% in 2012, 5% in 2013 and 6% in 2014.

Other loans and advances to credit institutions had an irregular behavior in the period 2007-09: these assets suffered a big decrease in 2008 (-18.23%) followed by a big increase in 2009 (27.43%). The big increase in 2009 was large enough to compensate for the decrease in 2008 (the value of 2009 is larger than that of 2007). I would say that the decrease in 2008 results from the liquidity crisis, which started to recover in 2009. Considering the possibility that the trust of financial institutions in one another will take longer to recover, we will assume that this value will stay constant in 2010 and increase in the period 2011-14 at a rate that is equal to the sum of the predicted growth in GDP and predicted inflation.

Other assets are assumed to stay constant in the future.

Similarly to what was discussed about Montepio's cash and deposits at central banks, Finibanco must also keep 2% of deposits and debt certificates maturing in less than two years deposited at Bank of Portugal. However, given that there is no information about the maturities of loans, the assumption is that this class of assets is a constant percentage of the sum of resources from customers and other loans and deposits from other credit institutions. The percentage used is obtained by taking the average of the period 2007-09: 4.73%.

The future values of the remaining classes of assets are calculated in a way that their percentages on the total amount of assets are constant.

Overall, the total amount of Finibanco's assets has a CAGR of 3.4%. This is also the growth rate assumed for the amount of risk-weighted assets.

The biggest five classes of Finibanco's **liabilities** represent more than 96% of the total. These classes of liabilities will be discussed individually and the remaining classes will be considered "other liabilities".

Similarly to what happened for Montepio, Finibanco's resources from customers and other loans increased in 2008 (7.35%) and decreased in 2009 (-3.73%). Once again, one can guess that the decrease in 2008 might have been related with the lack of trust in banks following the default of Lehman Brothers; and that the increase in 2009 was a result of the regained trust in the banks and the bad performance of stock exchanges. Therefore, it seems reasonable to assume that these values will continue to increase during the period 2010-12 (1% per year, a growth rate that is lower than the historical CAGR for the period 2007-09, since it is assumed that the recovery of trust will be slow); and decrease, once the stock exchanges start performing better and investors move to riskier investments (-0.2% in 2012 and 2013 and -0.5% in 2014).

The assumption about financial liabilities associated with transferred assets is that the value will be kept constant.

There is no information about the maturities of the deposits from central banks. However, one can assume that this value will decrease as the economy recovers, reaching 0 in 2014. At the same time, one can assume that as Finibanco asks for smaller amounts in loans from central banks, it will choose to get financed in other financial institutions or in the market.

Other liabilities at fair value based on returns are assumed to grow as Finibanco pays its debt to central banks.

The remaining liabilities are calculated in a way that their percentage on total liabilities is roughly constant.

It is assumed that the total amount of FInibanco's liabilities have a CAGR of 0.02% for the period 2010-14.

When it comes to Finibanco's sources of **income** and costs, only the biggest will be discussed separately.

Interest and similar income is calculated as a percentage of income-paying assets[21]. During the period 2007-09, these percentages were: 6.82%, 7.82% and 5.99%. It is assumed, then, that the value will increase slowly from 5.99% to 6.82% (the value of 2007).

Returns on services and fees are calculated as a fixed percentage of the total amount of liabilities. This percentage is obtained by taking the average of the percentages for the period 2007-09: 0.55%.

[21] I considered as income-paying assets: loans and advances to customer, other loans and advances to credit institutions, cash and deposits at central banks, financial assets held for trading, other financial assets at fair value based on return, held-to-maturity financial assets and hedging derivatives.

Profits on assets and liabilities at fair value based on profits has experienced a very irregular behavior during the period 2007-09, both in absolute and relative (as a percentage of the relevant classes of assets) terms. The assumption is, then, that these values will remain constant.

The remaining sources of income are calculated as a fixed percentage of the total amount of assets, equal to the average percentage for the period 2007-09: 1.17%.

Overall, Finibanco's total income is assumed to have a CAGR of 4.48% for the period of the prediction.

Finally, we will discuss the assumptions made about the future values of Finibanco's most relevant sources of **costs**.

Interest and similar charges are calculated as a percentage of the interest-bearing liabilities[22]. In the period 2007-09, these percentages varied slightly (4.57% in 2007, 5.59% in 2008 and 3.74% in 2009). It is assumed, then, that this percentage will increase from 3.74% to 4.57% (the value of 2007).

Similarly to what happened to Montepio, the percentage of impaired loans of Finibanco almost doubled during the period 2007-09 (increased from 0.68% in 2007 to 1.21% in 2009). It is assumed, then, that this percentage starts at 1.25% in 2010 (higher than the value for 2009, since the effects of a recession in impairment levels should be more persistent than the recession itself). However, this percentage will decrease with time (10 b.p. per year), reaching 0.85% in 2014 (higher than the levels of 2007 and 2008 for the reason of persistence).

Staff and supplies costs are assumed to grow at the inflation rate.

Depreciation costs are calculated as a fixed percentage of the sum of other tangible assets and intangible assets, equal to the average of the period 2007-09: 19.13%.

Services and fees charges are calculated as a fixed percentage of the total amount of assets, equal to the average of the period 2007-09: 0.09%.

The remaining sources of costs experienced a very erratic behavior in the period 2007-09 both in absolute terms and in relation to the total amount of assets. It is, then, assumed that their value will remain constant.

The total amount of costs is assumed to have a CAGR of 1.77% for the period 2010-14.

[22] I considered as interest-bearing liabilities: resources from customers and other loans, debt securities issued, deposits from other credit institutions, deposits from central banks, other subordinated liabilities, financial liabilities held for trading and hedging derivatives.

It is now relevant to discuss the additional assumptions necessary to compute the values of expected FCFE of both banks.

As mentioned before, FCFE are computed by taking the value of reinvestment in regulatory capital from the value of net income. Therefore, we shall discuss the computation of net income and reinvestment in regulatory capital.

At the time of this operation, Montepio was exempt of corporate taxes[23] and therefore its net income is simply the difference between income and costs. Finibanco, on the other hand, was not exempt of taxes and therefore, it paid a corporate tax of 26.5%. Its net income is, then, equal to profits net of taxes.

When it comes to the computation of the reinvestment in regulatory capital, similar assumptions were made for the two banks. The assumption is that tier I capital ratio grows linearly from the observed value in 2009 (9.8% in the case of Montepio and 8.2% in the case of Finibanco), reaching 10.5% in 2014[24]. The formula used to calculate the reinvestment in regulatory capital is:

$$\text{Reinvestment in Regulatory Capital} = \text{Tier I Capital Ratio}_t \times \text{Risk} - \text{Weighted Assets}_t - \text{Tier I Capital Ratio}_{t-1} \times \text{Risk} - \text{Weighted Assets}_{t-1}$$

Finally, it is also assumed, in the calculation of the discount factors, that the FCFE (of the two banks) grow perpetually at a growth rate equal to the sum of the predict GDP growth and inflation for 2014[25] (3%).

The results obtained were:

Montepio (in million Euros)	**2010**	**2011**	**2012**	**2013**	**2014**	**Terminal Value**
Income	1,048	1,051	1,061	1,074	1,111	
Costs	1,042	1,026	1,003	980	971	
Cost-to-Income Ratio	56%	56%	53%	51%	48%	
Net Income	6	25	58	94	139	
Reinvestment in Regulatory Capital	42	43	45	46	48	
FCFE	-35	-18	13	48	91	1,441
PV of Equity	**968**					

Figure 11 - Montepio - DCF result

[23] It was decided in 2011 that, starting in 2012, Montepio would not be exempt of paying taxes anymore. I will study the possible effects of introducing taxes in 2012 in the next section, where more information will be introduced.
[24] According to Basel III, every bank will be required to have a Tier I Capital Ratio of 10.5% in 2019. However, since my predictions end in 2013 assuming that nothing will change from then on, it seemed reasonable to assume this ratio at the last year of my prediction.
[25] IMF's predictions

Finibanco (in million Euros)	2010	2011	2012	2013	2014	Terminal Value
Income	241	251	261	274	288	
Costs	228	232	234	236	245	
Cost-to-Income Ratio	69%	67%	64%	61%	60%	
Profit	13	19	27	38	43	
Taxes	4	5	7	10	11	
Reinvestment in Regulatory Capital	15	16	17	18	19	
FCFE	-6	-2	3	10	13	199
PV of Equity	**136**					

Figure 12 - Finibanco - DCF result

6.1.3 The DuPont Method

The DuPont method was used for two different equity multipliers – 25 and 12.5 – for Tier I 4% and 8%, respectively. These values are used due to the amounts of capital required by Banco de Portugal: the equity multiplier is equal to 1/Equity Ratio (this formula is equivalent to Assets/Shareholders' equity), which yields 25 or 12.5 depending on which equity ratio one chooses to use. For purposes of sensitivity analysis, I choose to use both. The following results were obtained:

(in million Euros)	Montepio	Finibanco
Net Asset Value	967	171
ROA	0.3%	-0.3%
Equity Multiplier	25	25
ROE Forecasted	6.5%	-8.0%
ROE Demanded (CAPM)	9.5%	9.5%
Equity Value	**660**	**n.a.**

Figure 13 - DuPont results - Equity multiplier 25

(in million Euros)	Montepio	Finibanco
Net Asset Value	967	171
ROA	0.3%	-0.3%
Equity Multiplier	12.5	12.5
ROE Forecasted	3.3%	-4.0%
ROE Demanded (CAPM)	9.5%	9.5%
Equity Value	**330**	**n.a.**

Figure 14 - DuPont results - Equity multiplier 12.5

This method is entirely based on past individual values (meaning for only one year) and it seemed reasonable to use the most recent values, thus, the values for 2009. However, due to the negative earnings

in 2009, this method yields meaningless results for Finibanco. Using values for 2008 could be a good solution. However, having had profits of only €878 thousand, the obtained values are positive but not reasonable: €11 million or €6 million, for each of the equity multipliers respectively – these values are 10 times, or less, smaller than that obtained with the discounted FCFE method. The decision is then to consider that this method yields meaningless results for Finibanco.

6.1.4 The Method of Multiples

In this section, we will discuss the use of market multiples to obtain values for the equities of the two banks. This method will serve mainly to test the plausibility of the values obtained using the discounted FCFE and the DuPont methods.

In order to use market multiples to value the equity of the two banks being studied, I used data on the four public Portuguese banks: Millennium BCP, Banco Espírito Santo, Banco BPI and Banif. Data on earnings and book value of equity was taken from the Associação Portuguesa de Bancos website and data on market capitalization was taken from Bloomberg.

With the data, I computed both the price-to-earnings ratio and the price-to-book ratio for the Portuguese banking sector:

	Price/Earnings	Price/Book
Minimum Multiple	14.4	0.6
Average Multiple	19.3	0.9
Maximum Multiple	25.8	1.2

Figure 15 - Multiples - Portuguese banking industry

With these values, I computed the value of equity for Montepio and Finibanco:

	Based on P/E (in million Euros)		
	With Min Value	With Avg Value	With Max Value
Montepio	545	730	976
Finibanco	n.a.	n.a.	n.a.

Figure 16 - Multiples results - P/E

	Based on P/B (in million Euros)		
	With Min Value	With Avg Value	With Max Value
Montepio	593	921	1.190
Finibanco	103	159	206

Figure 17 - Multiples results - P/B

Due to the fact that Finibanco presented negative earnings in 2009, it does not make sense to use the price-to-earnings ratio, since it would yield negative values for the equity of Finibanco based only in the results of one year. Similarly to what was commented for the DuPont method, a good solution that would make it possible to use the P/E multiples to value the equity of Finibanco would be to use the value of earnings generated in 2008. However, and once again, since this value was so small, the values of equity obtained with the multiples are 4 times, or less, smaller than that obtained with the discounted FCFE method and with the P/B multiples. As was decided for the DuPont method, we will consider that using the P/E multiples yields meaningless results for Finibanco and we will focus our analysis in the values obtained with the discounted FCFE method and the P/B multiples.

We can now run a comparative analysis of the values obtained with all the methods chosen. In the case of Montepio, we obtain two intervals of values with the two multiples used: €545-€976 million (with P/E) and €593-€1,190 million (with P/B). The value obtained with the discounted FCFE method is €968 million, which fits into both intervals. On the other hand, with the DuPont method, only the value obtained for an equity ratio of 4% fits into the intervals. However, nowadays, with the Basel requirements, the most relevant value of the two is that obtained for an equity ratio of 8%, which does not fit into either interval. Therefore, for future calculations, the value obtained with the discounted FCFE method will be considered our best estimate of Montepio's equity.

The case of Finibanco is a simpler one. Given that we do not have values for the DuPont method or for the P/E multiples, our only "test" is to see whether the value obtained with the discounted FCFE method fits into the interval obtained with the P/B multiples. Recalling that the value obtained with the discounted FCFE was €136 million and the interval obtained with the P/B multiples was €103-€206 million, we can say that the value obtained passes our plausibility test. We can, from now on, consider this value to be our best estimate of the value of Finibanco's equity.

6.2 Montepio Post-Merger

In this section, I will present values for the equity of the resulting bank (Montepio) for two different assumptions when it comes to operational synergies: synergies of 30% and 40% of the noninterest costs of Finibanco. This interval of operational synergies obtained is the result of the study made by Rhoades (1998), which finds that the savings achieved were of the order of 30%-40% of the noninterest expenses of the target. Also, all predicted values take into account two additional types of synergies: financial synergies and tax synergies.

Financial synergies result from the higher cost of debt of Finibanco. Future values are obtained by considering that Montepio will replace maturing Finibanco's debt with debt that bears lower interest rates. Also, for future years for which an increase in the amount of Finibanco's interest-paying liabilities is predicted, it is assumed that the new amounts will also bear lower interest rates. The discount rate used to discount these values to the present is the same used previously for the two banks. Also, it is assumed that these synergies grow perpetually at a growth rate of 7.67% (the CAGR for the period 2010-14).

Tax synergies result from the fact that Montepio was exempt from paying income tax and that Finibanco was not. Therefore, the value of tax synergies is obtained by discounting the predicted tax payments of Finibanco to the present. Once again, the discount rate is the same that has been used throughout this work. Also, it is assumed that these synergies will grow perpetually at the growth rate of 3% (the sum of predicted growth for Portuguese GDP in 2014 and predicted inflation for Portugal in 2014).

6.2.1 The Discounted FCFE Method

The discounted FCFE method applied to the resulting bank consists of computing the present values of synergies and adding them to the sum of the two individual bank values.

As mentioned before, there were three types of synergies considered in this work: operational synergies, financial synergies and tax synergies.

The value of operational synergies is calculated for two different assumptions for the percentage of costs saved: 30% and 40% of the noninterest costs of Finibanco. These percentages are applied to the average of the period 2010-12. This is the period chosen for the realization of operational synergies because of the findings of Rhoades (1998): all savings will be achieved within three years. The author also finds that roughly one half of savings from mergers will occur during the first year. This is also what we shall assume: 50% of savings will be achieved in 2010, and 30% and 20% will be achieved in the two following years.

The following results for this type of synergies were obtained:

(in million euros)	2010	2011	2012
Synergy of 30%	19	11	8
Total Value of the Operational Synergy of 30%	**32**		
Synergy of 40%	25	15	10
Total Value of the Operational Synergy of 40%	**43**		

Figure 18 – Predicted operational synergies

The value of financial synergies was obtained by calculating the differences in interest expenses resulting from paying Montepio's interest rate instead of that of Finibanco, for new amounts of debt. Since it was not possible to analyze Finibanco's interest-paying liabilities, this analysis was run for Montepio and it was assumed that Finibanco has a similar term structure to that of Montepio. It was obtained that, in 2009, 57% of Montepio's interest-bearing liabilities would mature in less than a year and that 21% would mature in 1 to 5 years. Out of these, it was assumed that one fifth would mature each year. The following results were obtained:

(in million euros)	2010	2011	2012	2013	2014	Terminal Value
New Finibanco interest-paying liabilities	1.485	130	109	109	109	
Interest Rate Finibanco	3,9%	4,1%	4,2%	4,3%	4,6%	
Interest Rate Montepio	3,8%	3,8%	3,7%	3,6%	3,6%	
Synergy	1	0	1	1	1	63
Total Value of the Financial Synergy	**43**					

Figure 19 - Predicted financial synergies

The value of tax synergies is simply the sum of the discounted tax payments predicted for Finibanco. The following results were obtained:

(in million euros)	2010	2011	2012	2013	2014	Terminal Value
Taxes Paid by Finibanco	4	5	7	10	11	180
Tax Synergy Value	**141**					

Figure 20 - Predicted tax synergies

Once we know the value of each bank and the value of synergies generated by the merger, we have to calculate how much of each synergy belongs to each bank.

The value saved in operational costs results from a combination of the central services of the two banks and from the economies of scale generated by the combination of shared services and of distribution services. Therefore, it seems reasonable to share the synergy gains in proportion to the values of noninterest expense of each bank, when not considering the merger.

It is, then, obtained that 77.6% of operational savings belong to Montepio and that the remaining 22.4% belong to Finibanco. These percentages were obtained by taking the average of the period 2010-12 of the contribution of each bank for the total amount of operational costs. In absolute terms, the results obtained were:

(in million euros)	30% Synergy	40% Synergy
Finibanco	7	10
Montepio	25	34
Total	**32**	**43**

Figure 21 - Sharing operational synergies

When it comes to the value of financial synergies, the rationale would be that, since these are due to the better debt capacity of Montepio, these values belong totally to Montepio. However, since these synergies would never be realized without Finibanco's liabilities, it seems fair to share these synergies as well. Similarly to what was done for the operational synergies, financial synergies will be shared according to the proportion of interest-bearing liabilities of each bank in the total value (14.3% are Finibanco's and 85.7% are Montepio's). The following results were obtained:

(in million euros)	Financial Synergies
Finibanco	6
Montepio	37
Total	**43**

Figure 22 - Sharing financial synergies

Finally, tax synergies will not be shared between the two banks since they are due to Montepio's exemption of income tax payment and should all belong to this bank. One can also look at the value created from this synergy as an extra margin that Montepio can pay over the fair price of Finibanco, when compared to other banks in Portugal, as Montepio would be the only one (or one of the few) to benefit from such an exemption. Furthermore, this additional margin that Montepio can pay can also be seen as an extra negotiation margin on the side of Finibanco, as this bank would also be able to run calculations on the estimated tax synergies of such an operation. However, considering that this would really be relevant in the case where several banks are competing for the purchase of Finibanco, which is not the case in this work (and was not the case in reality). It is then decided that the value created by this type of synergies shall not be shared between the two banks.

The premium Montepio is willing to pay in order to buy Finibanco will then be the sum of Finibanco's shares of the predicted synergies. Since the operational synergies were calculated for two percentages of cost savings, we will obtain an interval of premiums and, consequently, an interval of prices paid. The following results were obtained:

(in million euros)	With Oper. Syn of 30%	With Oper. Syn of 40%
Finibanco's Operational Synergies	7	10
Finibanco's Financial Synergies	6	6
Premium Paid	**13**	**16**
Finibanco's Standalone Value	136	136
Price Paid	**149**	**152**

Figure 23 - Valuation results – Summary

We can conclude that Montepio would be willing to pay a premium of €13-€16 million (approximately 10%-12% of the estimated fair price), which, given the value obtained with the discounted FCFE for the value of Finibanco, means that Montepio would be willing to pay a price of €149-€152 million.

6.2.2 Methods of Payment

In any acquisition process, the three payments methods to be considered are: cash, debt and stock. Paying with stock is more commonly chosen for merger operations, where each company gives a certain amount of shares to the other, so that they are both the owners of both businesses.

In this work, paying with stock will not be discussed, given that the head of Montepio group – Associação Mutualista is not divided into shares and the purpose of the deal is to make an acquisition. Therefore, cash and debt are the methods left to discuss and to decide which one suits this operation best and yields the best result possible for Montepio. Considering that contracting new debt does not come without some costs, paying with cash, if possible, seems to be a good idea. Also, Montepio does not pay corporate income taxes and, therefore, debt does not create any tax shields.

We can thus conclude that the best option for Montepio is, indeed, to pay with cash. According to Montepio's annual report of 2009, Montepio had €99 million in cash and €280 million in short-term deposits. Considering that we obtained a price of €149-€152 million for Finibanco's equity and assuming that at least some part of the €280 million in short-term deposits will be maturing soon, it should not be a problem for Montepio to gather enough cash to pay for this acquisition.

6.2.3 Transaction Costs

Being Montepio the buyer and the great motivator of this operation, it is only fair that Montepio bears the full amount of transaction costs. For reasons of simplicity, it will be considered that the amount paid in transaction costs does not enter the calculation of the premium and price paid to Finibanco and, therefore,

does not influence such values. The contrary, on the other hand, is not true. The transaction costs of an operation depend, among other factors, on the total value of the transaction.

In this work, the transaction costs were calculated according to the Lehman Formula, which has the following structure: 5% fee on the first million involved in the transaction, 4% fee on the second million, 3% fee on the third million, 2% on the fourth million and 1% on the remaining millions of the transaction. With this formula, a value of €1.59-€1.62 million was obtained for this transaction.

7 Post-merger Discussion

As mentioned before, the operation that is studied in this work occurred in 2010. In order to simulate the valuation process ran by Montepio, I decided to use data from end-year 2009. However, there is already data for the end-years 2010 and 2011 and this is what we shall use in this section in order to assess if the predictions are still reasonable after having more data.

First, it is important to discuss what happened between the end of 2009 and the end of 2011, in terms of the development of the global financial crisis. This is important because most of the predictions made in this work were based on the IMF's predictions for the period 2010-2014. As mentioned before, Portugal had a negative GDP growth and negative inflation in 2009. According to predictions made by the IMF at the end of 2009, this would be the only year when Portugal would suffer a recession. However, in the beginning of 2010, investors started to demand higher interest rates from governments with high debt and deficit levels. This, in turn, made it harder for such countries to finance themselves.

Also, in the first months of 2010, the recently elected Greek government revealed that the country's national accounts had been deliberately misreported in the past and the revised Greek deficit was an estimated 12.7% of the GDP, instead of the 6% announced by the previous government. As a consequence, Greece asked the EU and the IMF for a loan, announced a series of austerity measures and saw its rating be cut down to "junk" by Standard & Poor's.

Another country that asked for a bailout package during this period was Ireland. Ireland, contrarily to Greece, who needed such a package due to its persistent overspending, asked for a loan so that it would be able to guarantee bank deposits and pay other liabilities to private individuals for the six main Irish banks. As a consequence, and similarly to what happened to Greece, Moody's downgraded Ireland's rating to "junk". Later on, in November 2011, a report by the Euro Plus Monitor stated that it was expected that Ireland would not need external help anymore from the second half of 2012 on.

Similar to the case of Greece seems to be that of Portugal. Ever since the revolution of 1974 that Portugal has been overspending. This trend saw its end in 2011, when the (former) Portuguese Prime Minister decided to ask for a bailout package in order to avoid the country's bankruptcy. Along with this package came the austerity measures intended to lower the country's budget deficit to 3% by 2013. Obviously and similarly to what had already happened to Greece and Ireland, Portugal's rating was downgraded to "junk" by Moody's.

It is also important to present data on observed value for GDP growth and inflation for this period and the 2011 IMF's predictions for the future:

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Observed Values										
Real GDP	1.9%	0.0%	-2.7%	1.3%	-2.2%					
Consumer Prices	2.4%	2.7%	-0.9%	1.4%	3.4%					
2009 Predictions										
Real GDP				0.5%	0.9%	1.1%	1.3%	1.4%	n.a.	n.a.
Consumer Prices				0.8%	0.9%	1.1%	1.4%	1.6%	n.a.	n.a.
2011 Predictions										
Real GDP						-3.0%	0.7%	2.4%	2.2%	2.0%
Consumer Prices						3.3%	1.3%	1.5%	1.5%	1.5%

Figure 24 - Observed values and IMF's predictions

As can be seen in the table, 2010 outperformed the IMF's 2009 predictions. However, with the intensification of the sovereign crisis in Europe and Portugal and as a consequence of the austerity measures intended to shrink the budget deficit, the Portuguese economy contracted in 2011 and is expected to contract again in 2012.

These events and the change in expectations for the future may justify differences between predictions made in this work for the accounts of the two banks in question and may ask for adjustments to the predictions made for the period 2012-14. We will analyze the differences in the main indicators between predicted and observed values and discuss differences obtained in the balance sheet and income statement in more detail.

7.1 Differences in Main Indicators

In this section, we will briefly analyze the differences observed for the predicted and observed values of main indicators: LTD ratio, cost-to-income ratio, Tier I capital ratio, ROE (measured as profit for the year divided by total equity at the end of the year) and ROA (measured as profit for the year divided by the total amount of assets at the end of the year).

These indicators were divided into three graphs according to their range of values. In all six graphs, the orange line depicts the observed values and the blue line represents the path estimated in this work.

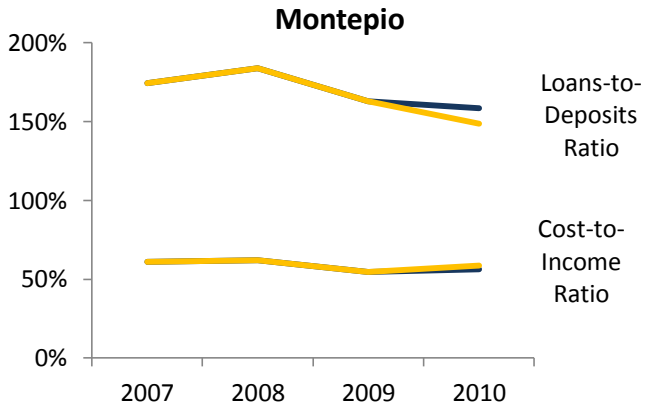

Figure 25 - Montepio - Main indicators I

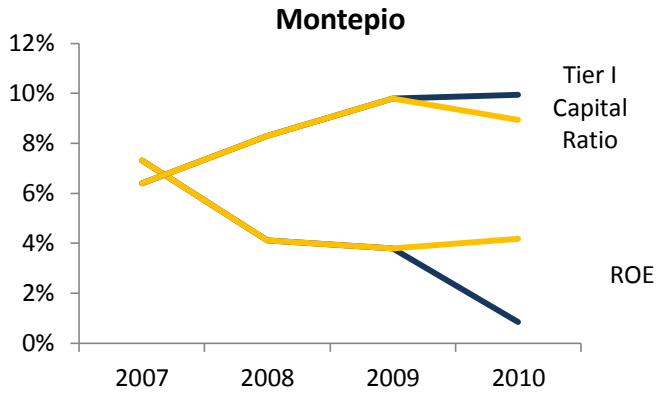

Figure 26 - Montepio - Main indicators II

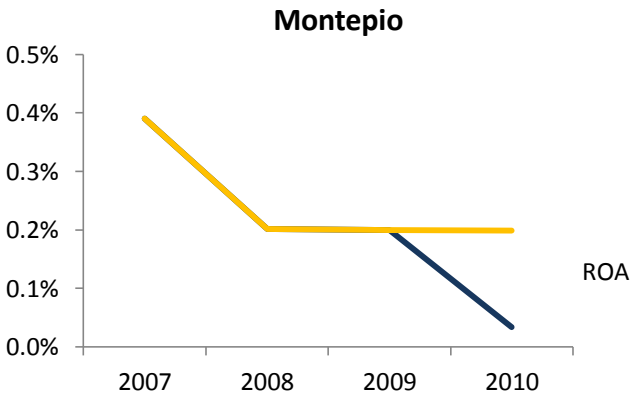

Figure 27 - Montepio - Main indicators III

In the case of Montepio, in absolute terms, the biggest difference between the two paths is observed for the LTD ratio, which was expected to be 158.3% in 2010 and turned out to be 148.7%. The differences obtained for the ROE and ROA were also quite significant and were due to overly optimistic expectations for earnings.

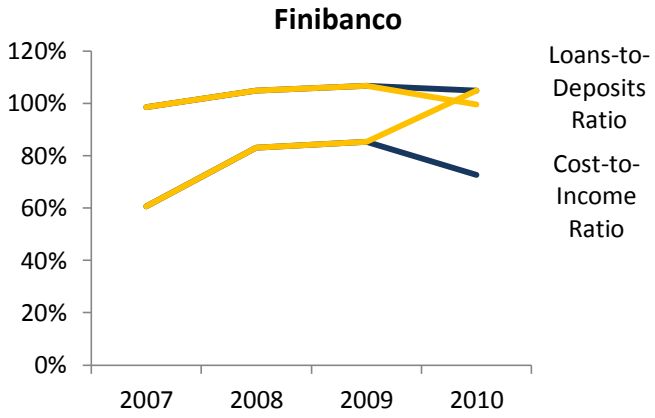

Figure 28 - Finibanco - Main indicators I

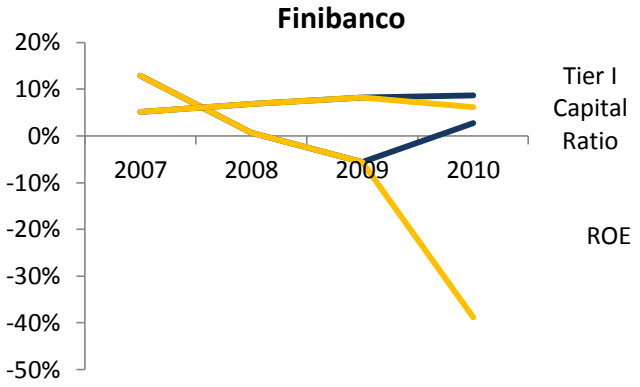

Figure 29 - Finibanco - Main indicators II

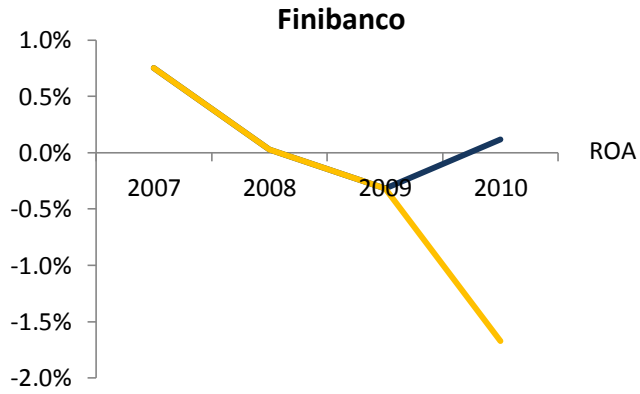

Figure 30 - Finibanco - Main indicators III

In the case of Finibanco, in absolute terms, the biggest difference between the two paths is observed for the cost-to-income ratio, which was expected to be 72.7% in 2010 and turned out to be 104.8%. The differences obtained for the ROE and ROA were also quite significant and were due to overly optimistic expectations for earnings. The differences obtained in these two indicators can be considered to be even

more severe for the case of Finibanco since they ended up being quite negative, contrarily to previous expectations.

7.2 Differences between Predictions and Observed Values

In order to discuss the main differences between the values predicted and observed for the accounts of the banks, we will focus on the aggregate values, since in 2011 Montepio stopped reporting separate accounts.

In terms of the predictions for future values of assets, the biggest differences were observed for available-for-sale assets, which in 2010 increased €2 billion instead of the predicted €53 million. Also, in 2011, the amount of loans and advances to customers decreased €532 million instead of the predicted increase of €332 million. Other loans and advances to credit institutions also decreased against previous expectations: decrease of €442 million instead of the predicted increase of €13 million. Overall, the total amount of assets increased €2 billion in 2010 (instead of the predicted decrease of €77 million) and decreased €125 million in 2011 (instead of the predicted increase of €416 million).

The biggest differences between predicted and observed amounts of liabilities were observed for resources from customers and loans (which in 2010 increased €828 million more than expected); debt securities issued (which in 2010 decreased €1 billion against the predicted increase of €83 million); deposits from central banks (which were predicted to decrease €139 million in 2010 and instead increased €1 billion). Overall, the total amount of liabilities increased €2 billion in 2010 (instead of the predicted €174 million) and decreased €229 million (instead of the predicted increase of €178 million).

Overall, the observed value of equity in 2011 is not very different from that that had been predicted (€1.24 and €1.15 billion, respectively).

In sum, it can be seen that the biggest differences were observed for the classes of assets and liabilities for which assumptions for the future were based mainly on predictions for the state of the economy. As was already mentioned above, the performance of the Portuguese economy was very different than what the IMF had predicted in 2009 and that should be the main explanation for the differences encountered.

In terms of the projected income and costs, the differences are less marked than those in the balance sheet. The income source that showed the biggest difference between predicted and observed values was interest and similar income. Although this difference was quite large in 2010 (€184 million), it reduced quite a lot in 2011. The same thing happened to the total amount of income: difference of €205 million in 2010 that reduced to €134 million in 2011. Similarly to what was discussed for income, the source of costs with the biggest differences was interest and similar charge (€149 million in 2010 and €163 million in 2011). The

total amount of costs showed similar differences to those of its biggest source (€166 million in 2010 and €157 million in 2011).

Overall, the differences in profits were not too large although it can be concluded that the predictions were slightly too optimistic (predicted values were €39 and €23 million higher than the observed values in 2010 and 2011, respectively).

It can be concluded from the discussions of the verified differences between predicted and observed values that the predictions made were very influenced by the IMF's predictions for the future of the Portuguese economy. Thus, it is relevant to adjust the assumptions made for the future and recalculate the values of the banks, still at the end of 2009 but assuming that we knew macroeconomic data for 2010 and 2011 (which we do now), the predictions made by the IMF at the end of 2011 and the financial statements of the two banks at the end of 2010 (we will not use the data of 2011 because it was not reported in individual terms). This is what shall be done in the next section.

7.3 Recalibration of the Predictions

In this section, we will briefly discuss the new assumptions that were made in order to value the two banks using the discounted FCFE method[26], when we consider that we have more data than was available at the end of 2009. Since we added one more year of financial data, the new projections will be made for the period 2011-15, considering still that 2010 is in the future.

Montepio

In the case of Montepio's **assets**, the main differences in terms of the assumptions for the future are verified for the following classes of assets: loans and advances to customers and available-for-sale financial assets.

In the original valuation, the assumption was that loans and advances to customers would grow at the following rates: -0.75% in 2010, 2% in 2011, 3% in 2012, 3.5% in 2013 and 4% in 2014. These values were mainly supported by the dependence of this type of assets on the state of the economy (growth slows just before a recession and total volume shrinks after the recovery begins). However, as we have discussed

[26] The other methods used (the DuPont method and relative valuation) are not based on expectations for the future. Therefore, no changes need to be made and the values obtained with these methods still hold.

before, the economic situation did not turn out as expected, so the new assumed growth rates are the following: -0.5% in 2011, -0.75% in 2012, -0.5% in 2013, 3% in 2014 and 6% in 2015.

Available-for-sale financial assets, on the other hand, were assumed to grow at 1.68% (the growth rate of the period 2006-07) for the entire period 2010-14. This was based on the assumption that the low securities' prices would not recover as fast as the economy and that Montepio would likely continue to take advantage of these low prices to continue investing in financial securities. In this new valuation process, given that we know that the economy will not recover as soon as was expected, the following growth rates were assumed: 10% in 2011 and 2012 (the two years of recession), -5% in 2013 and 2014 (the start of the recovery) and 1.68% in 2015 (the growth rate verified for a period of stable economic conditions, which we are expected to witness in 2015).

Overall, Montepio's assets are expected to have a CAGR of 1.39% for the period 2011-15.

In terms of Montepio's **liabilities**, the main differences were observed for: resources from customers and other loans, debt securities issued, deposits from other credit institutions and deposits from central banks.

Resources from customers and other loans were assumed to continue to grow in the first two years of the prediction, due to regained trust in the financial system at a modest rate (2% per year) and to start decreasing as the whole financial system recovers and investors are attracted to riskier assets. In the new valuation model, it is assumed that this class of liabilities grows 0.45% per year in the first two years (a smaller growth rate than before, assuming that there may be a loss of trust again but that customers would rather invest in relatively safe deposits than in stocks, for instance). With the recovery of the economy, one can assume that investors may want to move to riskier investments. The following growth rates were assumed for the period 2013-15: -0.5%, -1.5% and -6%.

Debt securities issued were assumed to remain constant, except for the effect of replacing the amounts deposited in central banks. The new assumption is that these amounts shall decrease in the first two years, due to the decreased rating levels and therefore the increased cost of financing. In the three following years, the assumptions are the following: the value remains constant in 2013 and increases 0.5% in 2014 and 2015. These assumptions are based on the assumption that, by the years of 2014 and 2015, it will not be as costly for Montepio to issue debt and the bank will choose to increase this value again.

Deposits from other credit institutions were also assumed to vary only with the decreased values of deposits from central banks. As mentioned above, this class of liabilities appeared to change alongside the state of the economy. This can be verified also for the year of 2010. It is assumed, then, that the value of

this class of liabilities increases in years for which the IMF predicts that the Portuguese economy will expand and decreases in the case of predicted recessions. The following growth rates are assumed: -3% in 2011 and 2012, 0.5% in 2013, 1% in 2014 and 2015.

Deposits from central banks were assumed to decrease a constant amount every year, reaching 0 in 2014. This was based on the predictions that the Portuguese economy would start its recovery in 2010 and would expand during every year of the period 2010-14. However, we know today that this is not what happened and the predictions for the future have changed quite a lot, especially for the first years considered in this work. Thus, the following growth rates are assumed: 2% in 2011-13, -25% in 2014 and -15% in 2015.

Overall, Montepio's liabilities are expected to have a CAGR of -1.62% for the period 2011-15.

The only source of **income**, for Montepio, that is worth discussing is interest and similar income. Interest and similar income was assumed to decrease to the level of 2007 and remain constant, as a percentage of interest-paying assets, since 2007 was considered as the year of stable economic conditions. In the new valuation model, this is still what will be considered although the path of interest rates is not the same. In the original model, the interest rate decreased the same amount of percentage points every year until 2013 and remained constant in 2014. Now, it is assumed that the interest rate increases in 2011 and 2012 (the two years of recession) and decreases in the period 2013-15, reaching the value observed for 2007 in 2015.

The other sources of income had been calculated as percentages of total liabilities or of total assets or assumed to be constant, in the case of very irregular past behavior. This is still the case in the new model, the difference being that one more year of data is included in the calculation of the average past percentages used for these calculations.

Overall, Montepio's income is assumed to have a CAGR of -0.1% for the period 2011-15.

In the case of Montepio's **costs**, the two sources to be discussed here are interest and similar charges and impairment on customer loans.

Similarly to what was mentioned for interest and similar income, the interest rate paid for Montepio's liabilities was assumed to decrease linearly to the level of 2007 by 2013 and remain constant in 2014. In this new model, this interest rate will still converge to the value of 2007 but its path will not be linear. Given the new predictions for the Portuguese economy, it is assumed that this interest rate increases in the years of 2011 and 2012 and decreases in the period 2013-15, reaching the value of 2007 in 2015.

Impairment on customer loans almost doubled in the period 2007-09, both in absolute terms and relatively to the amount of customer loans in Montepio's balance sheet. It was then assumed that, in 2010, the percentage of impaired loans would increase to 1.2% and start decreasing in 2011, reaching 0.8% in 2014, a value that is higher than that observed in the years of 2007 and 2008. Including the values of 2010 in the analysis, we can see that these predictions may have been quite pessimistic, since the observed percentage of impaired loans in 2010 was 0.84%, a value that is very close to that assumed for the year of 2014 (the last of the analysis). It is assumed, in the new model, that the percentage of impaired loans in 2011 is 1% in the period 2011-13, 0.9% in 2014 and 0.8% in 2015.

The remaining sources of costs were considered to grow at the inflation rate or calculated as a fixed percentage of the relevant classes of assets or considered to be constant due to their irregular behavior. These assumptions were not changed in the new valuation model. However, the new predicted values for the inflation rate were considered in the calculation of these sources of costs and the fixed percentages that were obtained by taking the average of the percentages observed in the period 2007-09 included the values of 2010 as well.

Montepio's total costs were assumed to have a CAGR of -2.6% for the period 2011-15.

Finibanco

In the case of Finibanco, we shall only briefly mention the main differences in the assumptions made in each of the valuation models, given that the reasons for such differences will be the same as for Montepio.

In the case of Finibanco's **assets**, the only class of assets for which there is a relevant difference in what was assumed for the future is loans and advances to customers. This class of assets was assumed to have the following growth rates: -0.75% in 2010, 2% in 2011, 3.5% in 2012, 5% in 2013 and 6% in 2014. In the new valuation model and for the reasons discussed in the case of Montepio, the following growth rates were assumed: -0.4% in 2011, -0.6% in 2012, -0.4% in 2013, 3% in 2014 and 6% in 2015.

Overall, Finibanco's total amount of assets is assumed to have a CAGR of 1.41% during the period of 2011-15.

In the case of Finibanco's **liabilities**, four classes should be discussed: resources from customers and other loans, deposits from central banks, other liabilities at fair value based on returns and deposits from other credit institutions.

Resources from customers and other loans were assumed to have the following growth rates: 1% in 2010 and 2011, -0.2% in 2012 and 2013 and -0.5% in 2014. In the new valuation model, the following growth rates were assumed: 0.45% in 2011 and 2012, -0.5% in 2013, -1.5% in 2014 and -5.2% in 2015.

Deposits from central banks were assumed to decrease a constant amount every year, reaching 0 in 2014. In the new model, the following growth rates were assumed: 5% in 2011 and 2012, 0% in 2013, -35% in 2014 and -25% in 2015.

Other liabilities at fair value based on profits were assumed to vary only with the decreased values of deposits from central banks. In this model, it is assumed that the value remains constant.

Deposits from other credit institutions were also assumed to vary only with the values of deposits from central banks. However, given its apparent cyclicality feature, the following growth rates were assumed: -3% in 2011 and 2012, 0.5% in 2013, 1% in 2014 and 2015.

Overall, Finibanco's liabilities are assumed to have a CAGR of -2.57% for the period 2011-15.

Similarly to the case of Montepio, the only source of **income** for which different assumptions were made in the two models is interest and similar income. In the original model, the interest received from income-paying assets increased from 5.99% in 2009 to 6.82% in 2014 (the same as in 2007). In the new model, this interest rate will also converge to the level of 2007 but it will experience a different path: it is assumed that the interest rate will increase in 2011 and 2012 and decrease in the period 2013-15, reaching the level of 2007 in 2015.

Overall, Finibanco's income is assumed to have a CAGR of 4.13% for the period 2011-15.

In the case of Finibanco's **costs**, the following sources shall be discussed: interest and similar charges and impairment on customer loans.

Similarly to interest and similar income, the interest rate Finibanco pays on its interest-bearing liabilities was assumed to grow from 3.74% (the level of 2009) to 4.57% (the level of 2007) in 2014. In this new model, it is assumed that this interest rate increases in the years of 2011 and 2012 and decreases in the period 2013-15, reaching, however, a level that is lower than that of 2007, in 2015, due to its very low value in 2010.

Contrarily to what was discussed for Montepio, the original predictions made for Finibanco's impairment on customer loans were quite optimistic. It had been assumed, in the original valuation model, that the percentage of impaired loans would increase to 1.25% in 2010 (after the value of 1.21% in 2009) and decrease 10 b.p. per year in the period 2011-14, reaching 0.85% in 2014. However, the percentage of impaired loans reached the value of 2.27%, in 2010. The assumption made for this source of costs was adjusted for this fact: the percentage of impaired loans would reach 2.3% in 2011 and decrease 25 b.p. per year in the period 2012-15, reaching 1.3% in 2015.

Finibanco's total costs were assumed to have a CAGR of 0.16% for the period 2011-15.

The following results were obtained:

Montepio (in million Euros)	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Terminal Value**
Income	916	1,089	1,151	1,080	1,096	1,085	
Costs	875	1,070	1,111	1,078	997	963	
Cost-to-Income Ratio	59%	60%	58%	63%	53%	52%	
Net Income	41	19	40	2	99	122	
Reinvestment in Regulatory Capital	-61	45	46	47	49	50	
FCFE	103	-26	-6	-46	51	72	1,331
PV of Equity	**881**						

Figure 31 - Montepio - DCF result

Finibanco (in million Euros)	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Terminal Value**
Income	169	230	274	268	265	271	
Costs	229	252	258	244	230	216	
Cost-to-Income Ratio	105%	74%	61%	61%	59%	55%	
Profit	-60	-21	16	24	35	54	
Taxes	-5	-6	4	6	9	14	
Reinvestment in Regulatory Capital	-24	22	23	23	24	25	
FCFE	-31	-38	-11	-6	2	15	287
PV of Equity	**104**						

Figure 32 - Finibanco - DCF result

Comparing these results with those obtained with the previous model, one can conclude that Montepio lost €88 million (approximately 9%) and Finibanco lost €32 million (24%) in their equity values. Both values still fall inside the respective intervals computed with the multiples and shall be considered our estimate of the true value of the banks' equities.

Now, we shall discuss the consequences of the new assumptions in the values of synergies and the premium and price paid to Finibanco.

Similarly to what was done before, we consider three types of synergies in this work: operational synergies, financial synergies and tax synergies. All three types of synergies are calculated in the same way as before. It is important to mention that, for the sake of simplicity and due to the lack of information on this, we will consider that the values projected for 2010 have, indeed, been realized.

The results obtained with the new model are the following:

(in million euros)	2010	2011	2012
Synergy of 30%	24	14	10
Total Value of the Operational Synergy of 30%	**41**		
Synergy of 40%	32	19	13
Total Value of the Operational Synergy of 40%	**55**		

Figure 33 - Predicted operational synergies

The values of operational synergies obtained with the new model are higher than those of the original model due to stricter assumptions that result in higher projected costs.

In this case, it does not make sense to discuss financial synergies, since Montepio is no longer expected to have lower debt costs (starting with the observed values of 2010).

In the case of tax synergies, the present total value of the synergy is similar to that of the original model, the small difference in the present value being justified by the higher estimated growth rate (3.9%).

(in million euros)	2010	2011	2012	2013	2014	2015	Terminal Value
Taxes Paid by Finibanco	-5	-6	4	6	9	14	267
Tax Synergy Value	**168**						

Figure 34 - Predicted tax synergies

When it comes to sharing synergies, the procedure is similar to that of the original model. Montepio should absorb the total amount of the tax synergies and share the value of the operational synergies with Finibanco.

Thus, we have that 72.2% of operational savings belong to Montepio and the remaining 27.8% belong to Finibanco:

(in million euros)	30% Synergy	40% Synergy
Finibanco	11	15
Montepio	30	40
Total	**41**	**55**

Figure 35 - Sharing operational synergies

Similarly to what was done before, the premium Montepio is willing to pay will be the sum of Finibanco's shares of synergies. Since there are no financial synergies in this case and tax synergies belong entirely to Montepio, the premium Montepio will be willing to pay is simply the amount of operational synergies that belongs to Finibanco:

(in million euros)	With Oper. Syn of 30%	With Oper. Syn of 40%
Finibanco's Operational Synergies	11	15
Premium Paid	**11**	**15**
Finibanco's Standalone Value	104	104
Price Paid	**115**	**119**

Figure 36 - Valuation results – Summary

According to the new model, Finibanco is entitled to receive a slightly lower premium (€11-€15 million, compared to €13-€16 million) for the purchase of its operations and a smaller total price (€115-€119 million, compared to €149-€152 million). However, the premium Montepio is willing to pay is slightly higher as a percentage of Finibanco's standalone value (11%-14% compared to 10%-12%).

The only analysis that is left to do in this context is to study the effects of introducing taxes in Montepio's operations[27] (and not consider them in the calculation of synergies). Considering that, in Portugal, corporate taxes are approximately 26.5% of profits, one can guess that this introduction will have a strong effect in the value of Montepio, both pre- and post-merger.

The new results obtained with the discounted FCFE method for Montepio pre-merger are:

[27] Recalling that, starting in 2012, Montepio is no longer exempt of corporate taxes.

Montepio (in million Euros)	2010	2011	2012	2013	2014	2015	Terminal Value
Income	916	1,089	1,151	1,080	1,096	1,085	
Costs	875	1,070	1,111	1,078	997	963	
Cost-to-Income Ratio	59%	60%	58%	63%	53%	52%	
Profit	41	19	40	2	99	122	
Taxes	0	0	11	0	26	32	
Reinvestment in Regulatory Capital	-61	45	46	47	49	50	
FCFE	103	-26	-17	-46	24	40	735
PV of Equity	**491**						

Figure 37 - Montepio - DCF result with taxes

It can be observed that the introduction of taxes, starting in 2010, produces a loss for Montepio of €389 million (44%).

In terms of the merger operation, the most direct consequence is the nonexistence of tax synergies. It will not have consequences in the premium and price paid to Finibanco, since it was assumed that Montepio was entirely entitled to the value of this type of synergies.

7.3.1 Methods of Payment

The discussion made for the original valuation model in terms of payment methods in still valid for the re-calibrated model. Montepio still owns €99 million in cash and €280 million in short-term deposits in credit institutions. In this second model, since the obtained prize range is lower than the original one, it should be even easier for Montepio to gather the cash needed for the operation.

7.3.2 Transaction Costs

Similarly to what was done for the original valuation model, transaction costs were calculated according to the Lehman Formula. The following interval was obtained: €1.25-€1.29 million.

8 Conclusion

In this work, some valuation methods were used in order to assess the value of the equities of the two banks studied. The most relevant methods are the discounted FCFE, which yields the values that are used in the rest of the analysis, and the multiples, which work as a test of plausibility of the results obtained with the discounted FCFE. It is concluded that these results are reasonable according to the multiple values of the Portuguese banking industry. On the other hand, a very popular valuation method for banks' equities – the DuPont method – is used but the results obtained do not pass the plausibility test mentioned above. Having these values, the predicted values of synergies were computed and it can be concluded that if these values are shared in a fair way, this is a good and lucrative deal for Montepio. Considering that, besides paying the estimated fair price for the equity of Finibanco, Montepio is also paying a share of the predicted operational and financial synergies this operation should also be lucrative for Finibanco's shareholders.

As was mentioned before, the original valuation model was mostly based on data and predictions made at the end of 2009. Adding the data of annual reports of 2010 (I chose not to include data from 2011 because for this year there was no longer separate data for the two banks), it was possible to conclude that reality turned out to be quite different from what had been predicted. Therefore, using this new data and the two complete years of new data on global economic and financial events, it seemed relevant to revise the assumptions made and recalibrate the model. The estimated values for the equities of the banks were quite smaller than the original ones but were still reasonable according to the market multiples. Furthermore, in this second model, not all types of synergies will be realized and Montepio will be willing to pay a smaller price for Finibanco. However, similarly to what was commented for the first model, if we consider that Montepio is paying a premium over the fair value of Finibanco, this deal should still be lucrative for Finibanco's shareholders. Also, even though the value of estimated synergies is much smaller than the original one, the deal is still lucrative for Montepio, as long as the synergies are shared fairly.

Additionally, another small variation was added to the recalibrated model – the end, in 2012, of corporate income tax exemption that Montepio had been granted in 1996. It was concluded that Montepio's equity would suffer a loss of €389 million (approximately 44%).

At this point, I would like to stress once again that this work focused only on the banks of the two groups. In both groups, the banking business is, by far, the largest one and the fact that this operation appears to be lucrative in this business is a good indicator that the total operation does as well. However, for a more detailed and precise result, I would suggest that the other businesses of the groups are studied as well.

Concluding that, *a priori*, this operation appears to be lucrative for both parts is a good first step but using post-merger data should give a clearer idea of the success of the operation. As further research, I would

like to suggest that the success of the operation is measured. I would like to suggest some measures studied by Kaplan (2000): assets growth, income growth, operational costs growth, net interest margin, loan-to-deposit ratio, loan-to-asset ratio, cost-to-income ratio, ROA, ROE, to name a few. In order for such analysis to yield significant results, I would suggest that the researcher waits a few more years, so that the data set comprises a longer time period of post-merger performance. In this work, this kind of analysis was not conducted due to the short period of time that has passed since the operation – two years.

Appendices:

(in million Euros)	Value of Assets	% in industry total
CGD	120,985	24%
Millennium BCP	95,550	19%
BES	82,297	17%
Santander Totta	48,590	10%
Banco BPI	47,449	10%
Montepio	17,245	3%
Barclays	16,978	3%
Banif	14,442	3%
CCCAM	12,948	3%
Popular	8,833	2%
BBVA	6,941	1%
Besi	5,874	1%
Itaú	5,055	1%
Deutsche Bank	3,397	1%
Finibanco	3,155	1%
Finantia	3,106	1%
CBI	1,931	0%
Santander Consumer	1,357	0%
Banif Inv	987	0%
BIG	703	0%
Invest	548	0%

Appendix 1 - Value of Assets - Portuguese banking industry

Montepio - Balance Sheet (in million euros)	2007	2008	2009
Net Assets			
Cash and Deposits at central banks	269	255	305
Available-for-sale financial assets	905	1,886	3,165
Other loans and advances to credit institutions	663	167	371
Loans and advances to customers	14,109	14,725	14,448
Other assets	489	527	607
Total Assets	**16,435**	**17,559**	**18,896**
Liabilities			
Deposits from central banks	0	853	502
Deposits from other credit institutions	952	1,073	945
Resources from customers and other loans	8,086	8,009	8,881
Debt securities issued	5,247	4,671	4,583
Financial liabilities associated with transferred assets	671	1,450	2,301
Other liabilities	601	646	687
Total Liabilities	**15,557**	**16,702**	**17,901**
Total Equity	**878**	**857**	**995**
Total Liabilities and Equity	**16,435**	**17,559**	**18,896**

Appendix 2 - Montepio - Balance sheet for the period 2007-09

Montepio - Income Statement (in million euros)	2007	2008	2009
Income			
Interest and similar income	851	1,150	924
Returns on services and fees	79	85	89
Profit on assets and liabilities at fair value based on profits	-18	-2	29
Other income	23	27	26
Total Income	**935**	**1,260**	**1,068**
Costs			
Interest and similar charges	523	836	604
Services and fees charges	11	14	14
Staff costs	74	92	155
Supplies and services costs	148	150	146
Depreciation	16	18	21
Corrections to value associated with customer credit and other debtors	81	86	79
Other costs	20	29	12
Total Costs	**872**	**1,224**	**1,030**
Profit	**63**	**35**	**38**

Appendix 3 - Montepio - Income statement for the period 2007-09

Montepio - Balance Sheet (in million euros)	2010e	2011e	2012e	2013e	2014e
Net Assets					
Cash and deposits at central banks	297	303	302	301	299
Available-for-sale financial assets	3,218	3,272	3,327	3,383	3,439
Other loans and advances to credit institutions	371	378	386	396	408
Loans and advances to customers	14,340	14,627	15,065	15,593	16,216
Other assets	616	625	634	643	652
Total Assets	**18,841**	**19,204**	**19,714**	**20,316**	**21,015**
Liabilities					
Deposits from central banks	402	301	201	100	0
Deposits from other credit institutions	963	980	997	1,014	1,031
Resources from customers and other loans	9,059	9,240	9,194	9,148	9,056
Debt securities issued	4,667	4,750	4,833	4,916	5,000
Financial liabilities associated with transferred assets	2,301	2,301	2,301	2,301	2,301
Other liabilities	686	685	683	682	681
Total Liabilities	**18,077**	**18,257**	**18,210**	**18,162**	**18,070**
Total Equity	**764**	**947**	**1,505**	**2,153**	**2,945**
Total Liabilities and Equity	**18,841**	**19,204**	**19,714**	**20,316**	**21,015**

Appendix 4 - Montepio - Estimated balance sheet for the period 2010-14

Montepio - Income Statement (in million euros)	2010e	2011e	2012e	2013e	2014e
Income					
Interest and similar income	901	902	911	924	960
Returns on services and fees	91	92	92	92	91
Profit on assets and liabilities at fair value based on profits	29	29	29	29	29
Other income	27	28	28	29	30
Total Income	**1,048**	**1,051**	**1,061**	**1,074**	**1,111**
Costs					
Interest and similar charges	596	589	573	556	553
Services and fees charges	14	14	14	15	15
Staff costs	172	161	151	140	130
Supplies and services costs	148	149	151	153	155
Depreciation	20	20	21	21	22
Corrections to value associated with customer credit and other debtors	80	80	81	83	84
Other costs	12	12	12	12	12
Total Costs	**1,042**	**1,026**	**1,003**	**980**	**971**
Profit	**6**	**25**	**58**	**94**	**139**

Appendix 5 - Montepio - Estimated income statement for the period 2010-14

Montepio - Balance Sheet (in million euros)	2010	2011e	2012e	2013e	2014e	2015e
Net Assets						
Cash and deposits at central banks	240	303	303	302	298	282
Available-for-sale financial assets	5,257	5,782	6,361	6,043	5,741	5,837
Other loans and advances to credit institutions	339	343	344	351	364	378
Loans and advances to customers	14,353	14,281	14,174	14,103	14,526	15,398
Other assets	696	703	710	717	724	732
Total Assets	**20,884**	**21,411**	**21,891**	**21,515**	**21,653**	**22,627**
Liabilities						
Deposits from central banks	1,540	1,571	1,602	1,635	1,226	1,042
Deposits from other credit institutions	1,263	1,225	1,188	1,194	1,206	1,218
Resources from customers and other loans	9,654	9,698	9,741	9,693	9,547	8,974
Debt securities issued	3,579	3,512	3,446	3,446	3,463	3,480
Financial liabilities associated with transferred assets	3,182	3,182	3,182	3,182	3,182	3,182
Other liabilities	672	679	686	694	701	709
Total Liabilities	**19,890**	**19,866**	**19,846**	**19,843**	**19,326**	**18,606**
Total Equity	**994**	**1,545**	**2,045**	**1,672**	**2,328**	**4,021**
Total Liabilities and Equity	**20,884**	**21,411**	**21,891**	**21,515**	**21,653**	**22,627**

Appendix 6 - Montepio - Estimated balance sheet for the period 2010-15

Montepio - Income Statement (in million euros)	2010	2011e	2012e	2013e	2014e	2015e
Income						
Interest and similar income	751	915	977	906	925	915
Returns on services and fees	89	97	97	97	95	91
Profit on assets and liabilities at fair value based on profits	46	46	46	46	46	46
Other income	30	31	32	31	31	33
Total Income	**916**	**1,089**	**1,151**	**1,080**	**1,096**	**1,085**
Costs						
Interest and similar charges	481	647	681	646	572	541
Services and fees charges	15	16	16	16	16	16
Staff costs	121	143	142	141	131	123
Supplies and services costs	143	148	153	155	157	159
Depreciation	21	20	20	20	20	20
Corrections to value associated with customer credit and other debtors	83	86	89	90	92	93
Other costs	11	11	11	11	11	11
Total Costs	**875**	**1,070**	**1,111**	**1,078**	**997**	**963**
Profit	**41**	**19**	**40**	**2**	**99**	**122**

Appendix 7 - Montepio - Estimated income statement for the period 2010-15

Finibanco - Balance Sheet (in million euros)	2007	2008	2009
Net Assets			
Cash and deposits at central banks	80	122	117
Other loans and advances to credit institutions	330	270	344
Loans and advances to customers	2,036	2,324	2,279
Other assets	389	281	310
Total Assets	**2,835**	**2,997**	**3,051**
Liabilities			
Deposits from central banks	0	60	191
Deposits from other credit institutions	111	102	80
Resources from customers and other loans	2,067	2,219	2,136
Financial liabilities associated with transferred assets	249	250	250
Other liabilities at fair value based on returns	152	138	137
Other liabilities	92	90	84
Total Liabilities	**2,671**	**2,859**	**2,879**
Total Equity	**164**	**138**	**172**
Total Liabilities and Equity	**2,835**	**2,997**	**3,051**

Appendix 8 - Finibanco - Balance sheet for the period 2007-09

Finibanco - Income Statement (in million euros)	2007	2008	2009
Income			
Interest and similar income	172	213	165
Returns on services and fees	14	16	16
Profit on assets and liabilities at fair value based on profits	29	-25	15
Other income	35	54	14
Total Income	**250**	**259**	**210**
Costs			
Interest and similar charges	108	143	96
Services and fees charges	3	2	3
Staff costs	29	34	32
Supplies and services costs	14	16	28
Depreciation	7	8	9
Corrections to value associated with customer credit and other debtors	49	52	54
Other costs	11	4	1
Total Costs	**220**	**259**	**223**
Profit	**30**	**-1**	**-12**

Appendix 9 - Finibanco - Income statement for the period 2007-09

Finibanco - Balance Sheet (in million euros)	2010e	2011e	2012e	2013e	2014e
Net Assets					
Cash and deposits at central banks	107	108	109	109	109
Other loans and advances to credit institutions	348	355	362	372	383
Loans and advances to customers	2,262	2,308	2,388	2,508	2,658
Other assets	310	310	310	310	310
Total Assets	**3,028**	**3,081**	**3,170**	**3,300**	**3,462**
Liabilities					
Deposits from central banks	152	114	76	38	0
Deposits from other credit institutions	95	109	123	137	151
Resources from customers and other loans	2,158	2,179	2,175	2,171	2,160
Financial liabilities associated with transferred assets	250	250	250	250	250
Other liabilities at fair value based on returns	161	185	209	233	257
Other liabilities	84	84	84	84	84
Total Liabilities	**2,900**	**2,922**	**2,917**	**2,913**	**2,902**
Total Equity	**128**	**159**	**253**	**387**	**560**
Total Liabilities and Equity	**3,028**	**3,081**	**3,170**	**3,300**	**3,462**

Appendix 10 - Finibanco - Estimated balance sheet for the period 2010-14

Finibanco - Income Statement (in million euros)	2010e	2011e	2012e	2013e	2014e
Income					
Interest and similar income	175	184	193	204	216
Returns on services and fees	16	16	16	16	16
Profit on assets and liabilities at fair value based on profits	15	15	15	15	15
Other income	35	36	37	39	40
Total Income	**241**	**251**	**261**	**274**	**288**
Costs					
Interest and similar charges	101	106	108	111	119
Services and fees charges	3	3	3	3	3
Staff costs	32	33	33	33	34
Supplies and services costs	28	27	25	24	23
Depreciation	8	8	8	8	8
Corrections to value associated with customer credit and other debtors	55	55	56	56	57
Other costs	1	1	1	1	1
Total Costs	**228**	**232**	**234**	**236**	**245**
Profit	**13**	**19**	**27**	**38**	**43**

Appendix 11 - Finibanco - Estimated income statement for the period 2010-14

Finibanco - Balance Sheet (in million euros)	2010	2011e	2012e	2013e	2014e	2015e
Net Assets						
Cash and deposits at central banks	120	119	120	119	118	112
Other loans and advances to credit institutions	473	479	480	490	509	528
Loans and advances to customers	2,379	2,370	2,356	2,346	2,417	2,562
Other assets	362	355	349	337	325	314
Total Assets	**3,334**	**3,324**	**3,305**	**3,292**	**3,368**	**3,515**
Liabilities						
Deposits from central banks	310	326	342	342	222	167
Deposits from other credit institutions	119	115	112	112	114	115
Resources from customers and other loans	2,390	2,401	2,412	2,400	2,364	2,241
Financial liabilities associated with transferred assets	141	141	141	141	141	141
Other liabilities at fair value based on returns	143	143	143	143	143	143
Other liabilities	87	87	87	88	88	89
Total Liabilities	**3,190**	**3,213**	**3,237**	**3,226**	**3,072**	**2,895**
Total Equity	**144**	**110**	**68**	**66**	**296**	**620**
Total Liabilities and Equity	**3,334**	**3,324**	**3,305**	**3,292**	**3,368**	**3,515**

Appendix 12 - Finibanco - Estimated balance sheet for the period 2010-15

Finibanco - Income Statement (in million euros)	2010	2011e	2012e	2013e	2014e	2015e
Income						
Interest and Similar Income	141	179	223	217	214	219
Returns on services and fees	25	20	20	20	19	18
Profit on assets and liabilities at fair value based on profits	3	3	3	3	3	3
Other Income	0	29	29	29	29	31
Total Income	**169**	**230**	**274**	**268**	**265**	**271**
Costs						
Interest and Similar Charges	68	90	100	91	80	69
Services and fees charges	5	3	3	3	3	4
Supplies and Services Costs	34	35	36	37	37	38
Corrections to Value Associated with Customer Credit and Other Debtors	54	55	48	42	37	33
Depreciation	8	7	7	7	7	7
Staff Costs	57	59	61	62	63	64
Other Costs	2	2	2	2	2	2
Total Costs	**229**	**252**	**258**	**244**	**230**	**216**
Profit	**-60**	**-21**	**16**	**24**	**35**	**54**

Appendix 13 - Finibanco - Estimated income statement for the period 2010-15

Montepio (in million euros)		Growth Rate in Perpetuity				
		2.80%	2.90%	3.00%	3.10%	3.20%
Cost of Equity	9.12%	1,014	1,031	1,048	1,065	1,083
	9.32%	976	991	1,007	1,023	1,040
	9.52%	939	954	968	984	999
	9.72%	905	919	932	947	961
	9.92%	873	886	899	912	925

Appendix 14 - Montepio - Sensitivity analysis - Discounted FCFE model I

Montepio (in million euros)		Growth Rate in Perpetuity				
		3,70%	3,80%	3,90%	4,00%	4,10%
Cost of Equity	9,12%	926	943	959	977	995
	9,32%	888	903	918	934	951
	9,52%	853	866	881	895	911
	9,72%	819	832	845	859	873
	9,92%	789	800	812	825	838

Appendix 15 - Montepio - Sensitivity analysis - Discounted FCFE model II

Finibanco (in million euros)		Growth Rate in Perpetuity				
		2.80%	2.90%	3.00%	3.10%	3.20%
Cost of Equity	9.12%	142	145	147	149	152
	9.32%	137	139	141	144	146
	9.52%	132	134	136	138	140
	9.72%	127	129	131	133	135
	9.92%	123	125	126	128	130

Appendix 16 - Finibanco - Sensitivity analysis - Discounted FCFE model I

Finibanco (in million euros)		Growth Rate in Perpetuity				
		3.70%	3.80%	3.90%	4.00%	4.10%
Cost of Equity	9.12%	113	117	120	124	128
	9.32%	105	109	112	115	119
	9.52%	98	101	104	107	110
	9.72%	91	94	97	100	103
	9.92%	85	87	90	93	95

Appendix 17 - Finibanco - Sensitivity analysis - Discounted FCFE model II

(in thousand Euros)	Earnings	Book Value of Equity
Montepio	37,778	995,234
Finibanco	-9,707	172,227

Appendix 18 - Data used in the valuation with multiples

List of Appendices

List of Abbreviations

AM – Associação Mutualista

APV – Adjusted Present Value

BIS – Bank for International Settlements

b.p. – Basis Points

CAGR – Compound Annual Growth Rate

CapEx – Capital Expenditures

CAPM – Capital Asset Pricing Model

CEMG – Caixa Económica Montepio Geral

CF – Cash Flow

CMVM – Comissão de Mercados e Valores Mobiliários

DCF – Discounted Cash Flows

DDM – Dividend Discount Model

EBIT – Earnings before Interest and Tax

EBITDA – Earnings before Interest, Tax, Depreciation and Amortization

FCFE – Free Cash Flow to Equity

GDP – Gross Domestic Product

LBO – Leveraged Buyout

LTD – Loans to Deposits Ratio

M&A – Mergers and Acquisitions

NAV – Net Asset Value

NPV – Net Present Value

ROA – Return on Assets

ROC – Return on Capital

ROE – Return on Equity

ROIC – Return on Invested Capital

WACC – Weighted Average Cost of Capital

WC – Working Capital

YTM – Yield to Maturity

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