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BANCO BPI: Equity Valuation and CaixaBank's Takeover Bid of April 2016

Ana Teresa Lopes Pires Bettencourt de Noronha

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Supervisor:
Prof. Luis Miguel da Silva Laureano, Assistant Professor, ISCTE Business School, Department of Finance

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Abstract

Banco BPI is one of the biggest Portuguese commercial banks and, on April 2016, was targeted by a voluntary takeover bid for all of its share capital by one of its shareholders, CaixaBank, a bank that is part of the Spanish financial group "la Caixa" Banking Foundation. The bidder offered €1.113 per share for the aim of becoming BPI's majority shareholder.

Therefore, BPI's board of directors issued a report in which they analyze the conditions proposed by CaixaBank and present a bank valuation based on multiples of comparable companies.

The main purpose of this thesis is to perform an equity valuation of Banco BPI based on other methodologies such as: (i) free cash flow to the equity, (ii) dividend discount model and also (iii) relative valuation based on multiples of comparable companies, in order to achieve a final price per share that can be compared to the one offered by the CaixaBank and bring another perspective to this matter.

Keywords: Free cash flow to the equity (FCFE), Dividend discount model (DDM), Relative valuation, Takeover

Resumo

O Banco BPI é um dos maiores bancos comerciais portugueses e, em abril de 2016, foi alvo de uma oferta pública de aquisição (OPA), por parte de um dos seus acionistas, o CaixaBank, um banco que integra o grupo financeiro espanhol "la Caixa" Banking Foundation. O oferente propôs um preço de €1.113 por ação com o intuito de se tornar o acionista maioritário do BPI.

Consequentemente, o Conselho de Administração do BPI emitiu um relatório no qual analisa as condições propostas pelo CaixaBank e apresenta uma avaliação do banco baseada em múltiplos de empresas comparáveis.

O principal objetivo desta tese é realizar uma avaliação dos capitais próprios do Banco BPI tendo por base outras metodologias: (i) o *free cash flow to the equity*, (ii) o *dividend discount model* e (iii) múltiplos de mercado de forma a obter um preço por ação final que possa ser comparado ao que foi oferecido pelo CaixaBank e desta maneira trazer uma nova perspetiva a este assunto.

Keywords: Free cash flow to the equity (FCFE), Dividend discount model (DDM), Avaliação por múltiplos, Oferta Pública de Aquisição (OPA)

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Abbreviations/ Glossary

APV – Adjusted Present Value

BCBS – Basel Committee on Banking Supervision

BCI – Banco Comercial e de Investimentos

BES – Banco Espírito Santo

BFA – Banco de Fomento Angola

BPI – Banco Português de Investimento

BS – Balance Sheet

CAGR – Compounded Average Growth Rate

CAPM – Capital Asset Pricing Model

CET1 – Common Equity Tier 1

CRD IV – Capital Requirement Directive IV

CRP – Country Risk Premium

CRR – Capital Requirements Regulation

DCF – Discounted Cash Flow

DDM – Dividend Discount Model

DPS – Dividend per share

DTA – Deferred Tax Assets

EBITDA – Earnings Before Interests, Taxes, Depreciation and Amortization

ECB – European Central Bank

EIU – The Economist Intelligence Unit

EU – European Union

EURIBOR – Euro Interbank Offer Rate

EV – Enterprise Value

EVA – Economic Value Added

FCFE – Free Cash Flow to the Equity

FCFF – Free Cash Flow to the Firm

FY – Fiscal year

GDP – Gross Domestic Product

HML – High minus Low

IMF – International Monetary Fund

Ke – Cost of Equity

MDA – Maximum distributable amount

NIM – Net Interest Margin

NPV – Net Present Value

OPA – Oferta Pública de Aquisição

P&L – Profit and Losses

P/BV – Price to Book Value

PAEF – Programa de Assistência Económica e Financeira

PER – Price Earnings Ratio

PPR – Plano Poupança Reforma

R&D – Research and Development

ROA – Return on Assets

ROE – Return on Equity

ROIC – Return on Invested Capital

RWA – Risk Weighted Assets

SGPS – Sociedade Gestora de Participações Sociais

SMB – Small minus Big

SREP – Supervisory Review and Evaluation Process

TV – Terminal Value

WACC – Weighted Average Cost of Capital

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1. Introduction

Banco BPI, hereby referred to as BPI or the Bank, is the 5th largest commercial bank in Portugal. The group is composed by several subsidiaries and offers its services in the areas of retail banking, private banking, investment banking, project finance, private equity, asset management and insurance.

The Bank has a market share of 9% in Portugal, but around 20% of its share capital is allocated to the international activity, responsible for 60% of its net income (values of 2015). This activity is represented in its majority by a share of 50.1% in Banco Fomento de Angola (BFA) and a 30% share in Banco Comercial e de Investimentos (BCI) in Mozambique.

Besides bringing a high profit to the Bank, BFA has been an issue for the group since the European Central Bank (ECB) established limits to the exposure of European banks to the Angolan market. This measure will require BPI to take action on its high exposure to this market.

As it will be detailed further on, in April 2016 CaixaBank, one of BPI's shareholders, launched a voluntary takeover bid regarding all share capital of the Bank with an offering price of €1.113 per share.

Therefore, in May 2016, the board of directors of BPI issued a report, hereby referred to as BPI's board of directors' report, in which the offer is analyzed and some estimates are make in order to compute the fair price of the share. In that report, the Bank uses relative valuation to present a final price per share of €1.54, which is considerably higher than the one offered by CaixaBank. Although part of that difference comes from the international activity of the bank.

With the aim of bringing more worth to this thesis, the author intends to value the Bank as of 31st of December 2015 but also to compare its final price per share with the one offered by CaixaBank, in order to provide an additional analysis of this subject based in a different methodology to find the equity value of the Bank.

It is evident that BPI holds much more information than the one publicly available and, because of that, it is expected that they can value their bank in a more accurate way, as well as perform a lot of other analysis in order to respond to the offer of CaixaBank. Although, in its publicly available report issued by the board of directors, BPI chooses to value the bank using relative valuation. This thesis will use equity discount models and also relative valuation, in order to find the price per share and bring another perspective to this matter.

Due to all the issues that BPI is going through because of the exposure of its international activity and the fact that the offered price seems to exclude the value of the operations in Angola, this valuation will only consider the domestic activity of the group.

Summing up, for all the above mentioned reasons, the main goals of this master thesis are:

- Calculate the price per share of the domestic activity of Banco BPI using free cash flow to the equity, dividend discount model and relative valuation;
- Choose the most adequate model to define the final price per share;
- Compare the final price per share to the price offered by CaixaBank in the takeover bid of April 2016.

In order to complete the valuation described, the process will be divided in 6 chapters:

- The *Literature Review*, where the theoretical framework of the relevant topics regarding equity valuations methodology will be presented;
- The *Sector Analysis*, in which a top-down characterization of banking sector is made, starting by the global banking sector, then the Portuguese banking sector and, finally, approaching the regulatory framework subject that limits the banks operation, namely the Portuguese banks;
- The *Company's Presentation*, where it is described the Bank's operations, as well as the shareholder's structure and the details of the takeover. In this chapter, it is also made a financial analysis covering the major topics of the Bank;
- The *Valuation Methodology* describes the methodologies that will be used and the nature of the data considered;
- The *Assumptions* chapter describes the macroeconomic assumptions, details the assumptions made regarding the different lines of the balance sheet and the income statement, explains the assumptions made regarding the discount rate used and the assumptions made regarding the regulatory framework in which the bank is inserted;
- The *Valuation* chapter describes the models used and presents the outcome for each of them. Finally, it concludes about which model will be considered to assess the final price per share and describes the limitations found when performing this valuation;

- The *Conclusion* chapter sums up all the conclusions and comments the price offered by CaixaBank taking into consideration the synergies mentioned by the bidder and the influence of the international activity of BPI in the final price per share.

2. Literature Review

2.1. Foundations of Value

Value is the main driver in a market economy. When one invests in a certain asset is doing it in the expectation that the value of the investment will increase in order to pay off the risk taken in such operation. This holds for any kind of asset, although, when it comes to company shares, in a market economy, a company's capability of creating value will determine the judgment of its investors (Koller *et al.,* 2015).

Value creation must take into account the long term interests of all stakeholders of a company and not only the shareholders because when companies maximize value for their shareholders "*also create more employment, treat their current and former employees better, give their customers more satisfaction, and shoulder a greater burden of corporate responsibility than more shortsighted rivals*" (Koller *et al.,* 2015: 3).

For these reasons, knowing how to create value and how to valuing value is essential to make good decisions. Mastering this knowledge, it is possible to understand how best to increase a company's value by changing the investment, financing and dividend strategies (Damodaran, 2005).

The issue of valuation extends to all areas of finance and not only corporate. In the portfolio management, valuation is not very significant for a passive portfolio manager but it plays an essential role to active portfolio managers, particularly to security selectors that use fundamental analysis to identify and buy the company stocks that are being traded for less than its value expecting to make a profit as the price approaches its true value (Damodaran, 2012).

In merges and acquisitions situations valuation also plays a central role since the biding firm or individual has to value the target in order to establish its fair price and prepare a bid. On the other hand, the target firm has to be aware of its value when it is the time to decide whether to accept or reject an offer (Damodaran, 2012).

The Efficient Market Hypothesis (Fama, 1970) states that in an efficient market, prices "fully reflect" all the available information. This means that the market price of a security corresponds to its value. This premise makes it impossible to predict the returns and consequently impossible to beat the market in a sustained way. Valuation can be helpful to establish the security value in order to identify and quantify the possible deviations from the true value as well as the reasons of such deviation and how quickly the prices revert back (Fama, 1970; Damodaran, 2005).

In conclusion, valuation helps to better understand how to create value and how to measure the value creation. In this way, companies are able to improve their market performance and have a deeper understanding of the consequences of their operational and investment decisions in their firm value.

2.2. Valuation Methods

It seems to be consensual among the scientific community that there are hundreds of possible models to determine the current value of a company or an asset and none of them is mutually exclusive. Analysts face a real challenge when it comes to choose which of those models are more suitable to value a certain company.

Following the classification made by Damodaran (2012) in his book "Investment Valuation" there are three main approaches to valuation. The first is the discount cash flows valuation in which the value of an asset or company corresponds to the present value of expected cash flows discounted at a rate that reflects its risk. The second is the relative valuation that consists in valuing a company taking into account the valuation of certain variables (earnings, book value, cash flows and others) of comparable peers. The third is the contingent claim valuation that uses option pricing methods to value assets and opportunities.

2.2.1. Discounted Cash Flows

In the 1970's discounted cash flow methods appeared as a clear and formal way to value assets. Currently, in real world, the majority of valuations are made using relative methods, although the discount cash flows valuation is the substance on which all the others were built (Luehrman, 1997; Damodaran, 2012).

As already mentioned, the discount cash flow approach is based on the premise that the value of an asset equals the present value of the economic benefits (cash flows) that will generate, discounted to a rate that reflects their riskiness.

$$Value = \sum_{t=1}^{t=n} \frac{CF_t}{(1+r)^t} \quad (1)$$

Where,

- n is the life of the asset,
- CF_t is the cash flow in period t and
- r is the discount rate reflecting the riskiness of the estimated cash flows.

Continuing to follow the classification of Damodaran (2012), when discounting cash flows it is possible to discount the total cash flow or only the cash flow earned in excess of a required return (excess return models). Regarding total cash flow models it is possible to value only the equity stake of company (equity valuation) or value the whole firm including equity and others claimholders (firm valuation). The discount rate will be different in each of these approaches because it will reflect different levels of risk.

Exhibit 1 summarizes the models to be discussed in the following topics.

Exhibit 1: Discounted Cash Flows Models

Discounted Cash Flows	
Method	**Discount Factor**
Total Cash Flow	
Equity Valuation	
Dividend Discount Model	Cost of Equity (Ke)
Free Cash Flow to Equity	Cost of Equity (Ke)
Firm Valuation	
Free Cash Flow to the Firm	Weighted Average Cost of Capital (WACC)
APV Valuation	Unlevered Cost of Equity
Excess Cash Flow	
Excess Return Model	
EVA	Weighted Average Cost of Capital (WACC)

Source: Damodaran, 2012

2.2.1.1. Dividend Discount Model

"*The hypothesis that the investor buys the dividend when he acquires a share of stock seems intuitively plausible because the dividend is literally the payment stream that he expects to receive*" (Gordon, 1959: 101).

We could add to the previous sentence that besides the dividends the investor also expects to receive the price of the stock at the end of the holding period, however that price is determined by the future dividends that the stock will pay then, thus, we can say that the value of the stock is indeed the present value of these dividends through perpetuity and write that definition as it follows (Damodaran, 2012).

$$Value\ per\ share\ of\ stock = \sum_{t=1}^{t=\infty} \frac{E(DPS_t)}{(1+k_e)^t} \quad (2)$$

Where,

- DPS_t is the expected dividends per share and
- K_e is the cost of equity.

As it is observed, the expected dividends and the cost of equity are key inputs for this model. To estimate the future' dividends we make assumptions regarding future growth rates, earnings and payout ratios (Damodaran, 2012). To compute the cost of equity we proceed as explained in section 1.2.1.1.3.

2.2.1.1.1. Gordon Growth Model

Since it is not possible to estimate the amount of each dividend through perpetuity, Gordon and Shapiro (1956) created a model to value a stock as long as the respective company is growing at a stable growth rate, meaning a sustainable rate to infinity.

$$Value\ of\ stock = \frac{DPS_1}{K_e - g} \quad (3)$$

Where,

- DPS_1 is the expected dividends one year from now,
- K_e is the required rate of return for equity investors and
- g is the stable growth rate through perpetuity.

According to Damodaran (2012), to establish a sustained growth rate we must be aware that the others measures for a firm, like earnings, must grow at the same rate. If that is not the case, and earnings grow faster that dividends, then the payout ratio will converge to zero. If earnings grow slower than dividends, then the dividends will exceed earnings. None of those cases can be considered stable in infinity. Additionally, the growth rate must not be, in the majority of the cases, higher than the growth rate of the economy in which the firm operates.

When using a dividend discount model we also have to be aware that this is a model extremely sensible to the growth rate. "*Used incorrectly, it can yield misleading or even absurd results, since, as the growth rate converges on the discount rate, the value goes*

to infinity" (Damodaran, 2012: 452) and if the growth rate is higher than the cost of equity the value of the stock will be negative.

In conclusion, this model is more suitable to companies that are growing at a rate consistent with the market growth and that have dividends policies stable and with some perspectives of continuing stable in the future.

2.2.1.1.2. Two-stage Dividend Discount Model

The two-stage model allows to value a firm with two different growth rates in two different periods. The first characterized by an abnormal growth during n years, and the second characterized by a stable growth that is expected to last forever (Damodaran, 2012).

$$Value\ of\ stock = \sum_{t=1}^{t=n} \frac{DPS_t}{\left(1 + k_{e,ag}\right)^t} + \frac{P_n}{(1 + K_{e,ag})^n} \quad (4)$$

Where P_n is the price (terminal value) at the end of the year n defined by:

$$P_n = \frac{DPS_{n+1}}{(K_{e,st} - g_n)} \quad (5)$$

Where,

- DPS_t is the expected dividends per share in year t,
- K_e is the cost of equity (ag: abnormal growth period; st: stable growth period) and
- g_n is the steady state growth rate forever after year n.

The constrains regarding the stable growth rate of the Gordon model also apply to this kind of model and, additionally, the payout ratio has to be in accordance with the changes in the growth rate. Firms in the stage of stable growth pay higher dividends than a firm in an abnormal growth stage.

When using the two-stage model we have to be aware that, in this kind of method, the definition of the abnormal growth period is difficult and subjective and that these models assume that the abnormal growth change quickly to a normal growth which is not very realistic.

2.2.1.1.3. Cost to Equity

Cost of equity represents the required return that an investor expects to receive when doing an equity investment in a certain company. There are two main methods to estimate this rate of return: the Capital Asset Pricing Model (CAPM) developed by Sharp (1964) and Lintner (1965) and the Three-factor Model developed by Fama (1993). There is frequently a 2% difference between the cost of equity estimates made using the CAPM and the Three-factor Model (Fama and French, 1997).

In the Sharpe-Lintner CAPM model, the expected return of an asset is given by the following formula:

$$E(R_i) = R_f + \beta_i\left[E(R_M) - R_f\right] \quad (6)$$

Where,

- R_f, is the risk-free interest rate,
- β_i, is the CAPM risk of stock i and
- $E(R_M)$, is the expected return on the value-weight market portfolio.

The formula implies that the expected return of an asset is the risk-free interest rate added by the value of the risk exposure which is the market premium (market return minus the risk-free interest rate) times the market beta of the stock.

According to Fama and French (2004) the market beta of the stock i is the covariance risk between the stock i and the market measured relative to the variance of the market return, in this way the beta is expressed by the following formula. Observing the beta is possible to understand how sensible the stock return is to movements in the market returns.

$$\beta_{i,M} = \frac{cov(R_i, R_M)}{\sigma^2(R_M)} \quad (7)$$

Where,

- $\beta_{i,M}$ is the beta of the stock i,
- $cov(R_i,R_M)$ is the covariance between the stock i and the market and
- $\sigma^2(R_M)$ is the variance of the market return.

If the firm under analysis is publicly traded the beta can be found by regressing the stock return against the market return. The slope of the resultant regression will be the beta. Nonetheless, this beta presents a high standard error and reflects the company's past decisions, like financial leverage and mix of operations, and not the future.

There is still a third approach proposed by Damodaran (2002) that consists in computing an average beta among publicly traded firms' regression betas in the same business that the firm under analysis, then deleverage this beta using the average debt to equity ratios of the companies used to compute the beta using the following formula:

$$\beta_u = \frac{\beta_l}{1 + (1 - T)\frac{D}{E}} \tag{8}$$

Where,

- β_u is the unlevered beta for the business,
- β_l is the average beta across publicly traded companies,
- T is the company's marginal income tax rate and
- D/E is the average debt to equity ratio of across publicly traded companies.

If the firm under analysis operates in more than one business, a weighted average beta can be computed based on the unlevered betas of the several industries. Finally, it is possible to compute a levered beta that incorporates the debt to equity ratio of the firm being analyzed through the following formula:

$$\beta_l = \beta_u \left[1 + (1 - T)\frac{D}{E}\right] \tag{9}$$

Following this approach, the estimated beta has a lower standard error than the beta estimated using a regression and can be changed to reflect the firm financial leverage. Moreover, it is also very useful when the firm under analysis is not publicly traded.

Fama and French (1993) presented an alternative model to estimate the expected return of a security. The three-factor model uses as inputs the security's sensitivity to the market returns, similarly to the CAPM, and to the returns of the portfolio SMB (small minus big) and HML (high minus low). SMB is the portfolio that measures the additional risk of the size factor and consists in the difference between the returns of the small caps

and big caps stocks. HML portfolio measures the additional risk of the value factor and is composed by the difference between the returns of high and low book-to-market stocks.

$$E(R_i) = R_f + \beta_1\left[E(R_M) - R_f\right] + \beta_2 E(SMB) + \beta_3 E(HML) \quad (10)$$

Where,

- β_1 is the sensitivity of the stock i to the market return,
- β_2 is the sensitivity of the stock i to the size factor and
- β_3 is the sensitivity of the stock i to the value factor.

2.2.1.2.Free Cash Flow to Equity

The Free Cash Flow to Equity (FCFE) method allows to calculate the amount of money generated by a firm after meeting its financial obligations and its investment needs. In other words, the FCFE is the amount that a firm can return to its shareholders but not necessarily the amount paid in dividends, like in the Dividend Discount Model.

This is a useful method when the company in analysis does not pay dividends or to assess if a company is paying too much or too little in dividends (Damodaran, 2012).

To compute the FCFE we start with the net income, which corresponds to the stockholders' earnings, and subtract to this value all the cash outflows (like net capital expenditures and debt repayments) and add the cash inflows (like decreases in non-cash working capital and new debt issues) expressed in the following formula.

$$\begin{aligned} FCFE = {} & Net\ income \\ & - (Capital\ expenditures - Depreciations) \\ & - (Changes\ in\ non\text{-}cash\ working\ capital) \\ & + (New\ debt\ issued - Debt\ repayment) \end{aligned} \quad (11)$$

To value the equity stake in a firm we need to compute the present value of these FCFE discounted at a rate that reflects their riskiness (in this case would be the cost of equity). If the firm under analysis is expected to grow at a stable rate to perpetuity we can use The Constant Growth FCFE Model which is very similar to the Gordon Growth Model, used in DDM, since it relies on the same assumptions.

$$Value\ of\ stock = \frac{FCFE_1}{K_e - g} \quad (12)$$

Where,

- $FCFE_1$ is the free cash flow to equity one year from now,
- Ke is the required rate of returns for equity investors and
- g is the stable growth rate through perpetuity.

If the analyzed firm has an abnormal growth during a defined period of time and a stable growth that is expected to last for the infinity, we can use the Two-stage FCFE Model that is also an adaptation of the Two-stage Growth Model used with DDM.

$$Value\ of\ stock = \sum_{t=1}^{t=n} \frac{FCFE_t}{\left(1 + k_{e,ag}\right)^t} + \frac{P_n}{\left(1 + K_{e,ag}\right)^n} \quad (13)$$

Where P_n is the price (terminal value) at the end of the year n defined by:

$$P_n = \frac{FCFE_{n+1}}{(K_{e,st} - g_n)} \quad (14)$$

Where,

- $FCFE_t$ is the free cash flow to equity in year t,
- K_e is the cost of equity (ag: abnormal growth period; st: Stable growth period) and
- g_n is the steady state growth rate forever after year n.

Note that, we are dealing with FCFE that represents all the cash flow available to reward the stockholders which is equivalent to consider that the FCFE would be the dividend if the firm had a payout ratio of 100%. Having a payout ratio of 100% implies a retention ratio of 0 that would mean that the firm was not reinvesting any part of the earnings and consequently the stable growth rate would be 0%, as the following formula shows.

$$Expected\ growth\ rate = (1 - Payout\ ratio) \times Return\ on\ equity \quad (15)$$

In this way, according to Damodaran (2012), to be consistent with the definition of FCFE we should replace the retention ratio by the equity reinvestment rate which, in this case, is a more accurate measure of the percentage of net income that is reinvested.

In addition, the return on equity, as Damodaran (2012: 497) refers in his book, "includes interest income from cash and marketable securities in the numerator and the book value of equity also includes the value of the cash and marketable securities", for this reason should also be modified to measure only the return on non-cash investments, since in this model there is no excess cash in the company.

Therefore, we can express the stable growth rate for the FCFE in the following way.

$$Expected\ growth\ rate = Equity\ reinvestment\ rate \times Non\text{-}cash\ ROE \quad (16)$$

Where,

$$Equity\ reinvestment\ rate = 1 - \frac{Net\ Cap\ Ex + \Delta\ WC - Net\ debt\ issues}{Net\ income} \quad (17)$$

And,

$$Non\text{-}cash\ ROE = \frac{Net\ income - After\ tax\ income\ from\ cash\ \&\ marketable\ securities}{Book\ value\ of\ equity - Cash\ \&\ marketable\ securities} \quad (18)$$

2.2.1.3. Free Cash Flow to the Firm

In this type of model, it is made the valuation of the whole firm which involves the calculation of the present value of the cash flow available to all claim holders and not only the shareholders.

To discount the free cash flows to the firm (FCFF) we use the weighted average cost of capital (WACC) that includes the cost of equity and the after-tax cost of debt, since we are considering investors like debtholder and bondholders.

According to Damodaran (2012), there are two different ways to determine the FCFF. One consists in adding the cash flows that concern to the claim holders that are not included in the free cash flow to equity (FCFE). That would include principal payments, interest expenses, new debt issue and preferred dividends as it is shown on the following equation.

$$FCFF = FCFE + Int.Expense\,(1 - Tax\,rate) + Principal\,Repayments - New\,Debt\,Issues + Preferred\,Dividends \quad (19)$$

The alternative way to find the FCFF is to actually calculate the cash flow generated by the company's operations net of reinvestment needs that would be as it follows.

$$FCFF = EBIT\,(1 - Tax\,rate) + Depreciations - Capital\,Expenditures - \Delta\,Working\,Capital \quad (20)$$

Similar to the equity valuation, to find the enterprise value it is necessary to sum the cash flows along with the terminal value and discount them at the rate that reflects its risk, in this case it would be the WACC.

$$Enterprise\,Value = \frac{FCFF_1}{1 + WACC} + \frac{FCFF_2}{(1 + WACC)^2} + \cdots + \frac{FCFF_t + TV_{t+1}}{(1 + WACC)^t} \quad (21)$$

Where TV is the terminal value defined by:

$$TV_{t+1} = \frac{FCFF_t \times (1 + g)}{WACC - g} \quad (22)$$

The weighted average cost of capital (WACC) is the rate that reflects "*the opportunity cost that investors face for investing their funds in one particular business instead of others with similar risk*" (Koller *et al.*, 2015. 235). Therefore, WACC comprises the opportunity cost for both equity and debt holders, weighted by the two sources of capital, as well as the benefits and costs originated by financing activities that are not included in the cash flow computation such as tax shields (Koller *et al.*, 2015):

$$WACC = \frac{E}{E + D} K_e + \frac{D}{E + D} K_d (1 - T) \quad (23)$$

Where,

- E/(E+D) is the target level of equity to enterprise value using market-based (not book) values,

- D/(E+D) is the target level of debt to enterprise value using market-based (not book) values,
- K_e is the cost of equity,
- K_d is the cost of debt and
- T is the company's marginal income tax rate.

2.2.1.4. Adjusted Present Value (APV)

The Adjusted Present Value (APV) model is an alternative to the Free Cash Flow to Firm to value a company in a firm approach. Its use becomes even more significant when dealing with companies whose capital structures are expected to change in perpetuity and because of that, makes no sense to use a constant WACC to discount the future cash flows.

The APV model was presented by Myers (1974) and splits the value of a company in two main components: the operating value of a company fully financed by equity and the "side effects" of investment and financing decisions.

The greatest advantage of this model is the possibility to separate the financing effect from the actual profitability, and enables managers to make better financing decisions based on the real profit from operations (Myers, 1974 and Luehrman, 1997).

In this way, to value a company through the APV method, we begin with the value of the company financed exclusively by equity (unlevered firm) and add up the net effect of the financing and investing decisions. This last component consists in the benefits (present value of tax shields) and the costs of borrowing debt (higher risk of bankruptcy).

It is possible to calculate the value of the unlevered firm by discounting the FCFF at an unlevered cost of equity. To do that, we have to use an unlevered beta when computing the unlevered cost of equity (Damodaran, 2002).

Myers also proposes that the present value of the tax shields is equal to the present value of the tax savings, this is the tax benefit discounted at the cost of debt if the tax savings are expected to last for eternity.

There is no consensus among the financial community regarding the right method to calculate the present value of tax shields. For instance, Fernandez (2006) showed that Myers proposal for the calculation of the present value of tax shields yields inconsistent results when dealing with growing companies and many authors, like Miller (1977), Miles and Ezzell (1980), Harris and Pringle (1985) and others, presented different methods to compute the present value of the tax shields.

Finally, it is necessary to estimate the present value of the expected bankruptcy costs which will be the present value of the bankruptcy costs times the probability of bankruptcy (Damodaran, 2002). Estimating the probability of default is the most challenge task in this step, it can be done through bond rating or using a statistical methods based on the firm features at the different levels of debt.

2.2.1.5. Excess Return Models

As mentioned before, according to Damodaran (2006), a firm can also be valued using excess return models. In these models, the cash flows are divided into normal return cash flows (rewarded at the risk-adjusted required return rate) and the cash flows higher or lower than the normal which are considered excess return. Following this methodology, the value of the company can be expressed by the following formula:

$$\begin{aligned} &Value\ of\ the\ company \\ &= Capital\ invested\ in\ the\ firm\ today \\ &+ PV\ of\ excess\ return\ cash\ flows\ from\ both\ existing\ and\ future\ projects \end{aligned} \quad (24)$$

Economic value added (EVA) is one of the most used excess return models. Endorsed mostly by Stern Stewart and Co, on the 1990's, since it is property of Stern Value Management, it relies on the idea that an investment only adds value to a company if its net present value is positive.

The model measures the financial performance of a company through the product of the excess return earned by the investment against the capital invested in it as it follows.

$$\begin{aligned} EVA &= (ROIC - Cost\ of\ capital) \times (Invested\ capital) \\ &= After\text{-}tax\ income - (Cost\ of\ capital) \times (Invested\ Capital) \end{aligned} \quad (25)$$

Where,

- ROIC is the return on invested capital.

Positive net present value projects will create value and increase the value of the company whereas projects with negative present value will destroy value and consequently reduce the value of the firm.

$$NPV = \sum_{t=1}^{t=n} \frac{EVA_t}{(1+K_e)^t} \quad (26)$$

Where,

- NPV is the net present value.

2.2.2. Relative Valuation

Relative valuation or valuation using multiples is the most popular method on the market due to its simplicity. This kind of model values the company's assets "*based upon how similar assets are currently priced in the market*" (Damodaran, 2012: 637).

The valuation using multiples is composed by two major steps. The first consists in standardizing the prices by converting them into ratios, generally using earnings, book values or sales. The second step is to select the group of comparable companies. This last step is the most difficult and the one responsible for the high sensibility of this kind of valuation to the chosen peer group because even companies operating in the same business can have different levels of risk, growth potential and available cash flows (Damodaran, 2002).

According to UBS Warburg (2001), the multiples valuation presents several advantages. Its simplicity and easy calculation, that reduces the time and number of assumptions that have to be made, makes it more user friendly. When used properly this method provides a useful estimate for the relative value. For last, multiples rely on key drivers used by the investors, therefore they reflect better the market's frame of mind regarding a certain business.

UBS Warburg (2001) also presents three main disadvantages of this method, such as the "dark" side of simplicity, since being too simple can also have some problems related to interpretation of one unique number that aggregates many value drivers. Other problem is that valuation using multiples give us a value for one time frame thus, it fails to capture the evolution of the business and the competition. Finally, the multiples are difficult to compare because there are many drivers that can influence them and are not directly related with changes in value.

According to a study presented by Fernandez (2001), the most used multiples by Morgan Stanley Dean Witter's analyst are Price earnings ratio (PER) and Enterprise value to EBITDA (EV/EBITDA), however, to value financial services companies the most popular multiple is Price to book value (P/BV) and PER.

The Price to book value multiple divides the market capitalization by the book value of the shareholder's equity. The reason why PBV is so popular when valuing financial institutions is that book value is more likely to correspond to the equity invested in assets in a financial firm than in a non-financial firm, therefore PBV clearly shows if the market is paying too much or too little for the value of equity invested in the assets.

The Price earnings ratio measures the market price against the company earnings, therefore it is influenced by the expected growth of earnings, the payout ratio and the cost of equity.

Nonetheless, there are two issues to have in mind regarding PER to avoid misleading interpretations when valuing financial institutions. The first is that banks are obliged to use provisions for the expected expenses, like non-performing loans, and for this reason conservative banks will report lower earnings and consequently a higher PER than less conservative banks. The second is that banks operate in many types of business, therefore, it is not expected the same PER for all kinds of businesses.

2.2.3. Contingent Claim Valuation

This method values assets or firms taking into account the occurrence, or not, of a certain event.

According to Copeland and Keenan (1998) the Net Present Value and Economic Profit approaches do not take into account one important variant of valuation: business decisions. Ignoring the fact that companies are constantly facing new investment and operational opportunities may lead to an over or undervaluation.

The methodology behind this method consists in valuing an opportunity similarly to valuing a financial option. With an option we have the opportunity, but not the obligation, to buy or sell a certain underlying asset at a specific price (strike price) in, or until, a future and pre-determined date. It is possible to make an analogy to an investment decision since you have the opportunity, not the obligation, to invest in a certain project, by a certain pre-stablished price on a pre-determined date. An investor would exercise a financial option if the option was valuable, meaning that the share price arises above the strike price. Equivalently, in the case of a real option, the decision maker would exercise the option (take the opportunity) if, for example, R&D department proves that the concept of the project is valuable (Luehrman, 1997).

In this way, an opportunity is as valuable as a financial option and, like an option, its value depends also on the value of the underlying asset (the project), but owning the

option is not the same as owning the underlying object and they must be valued differently (Luehrman, 1997).

Using real options to value an actual choice or opportunity can help managers to measure the profitability of a certain project. It is a valuable tool for projects with a high level of uncertainty and the higher the uncertainty, the higher the real option value.

For dealing with simple contingencies better than the DCF models, since the 1970's that the option pricing theory has been considered a promising valuation approach, nevertheless business choices are usually more complex than a single option and due to a combination of aspects such as: "active competitors, uncertainties that do not fit neat probability distributions, and the sheer number of relevant variables" is not useful for companies to adopt this approach. "*As a result, option pricing has not yet been widely used as a tool for valuing opportunities*" (Luehrman, 1997).

For this reason and for not fitting in the financial services valuation subject I will not develop this topic any further.

2.3. Valuing a Bank

Financial services firms have the most difficult businesses to value especially after the 2008's financial crises that came to shake some "absolute truths".

The difficulty in valuing financial services firms is related with three main issues. The first problem is that, for a bank, it is impossible to separate the operating, investing and financing activities and, items like capital expenditures, working capital and debt, are unclear in a bank's balance sheet. The second problem is that banks are regulated by strict rules that impose the maintenance of the regulatory capital ratios (to protect their debtholders and depositors from a possible default), define where they can invest and regulate the new entries in the market and possible operations of merges and acquisitions. For this reason, banks are very exposed to changes in the regulatory environment. The third problem is related to the differences in the accounting rules, not only among financial services companies, but also with the rest of the market (Damodaran, 2012; Breaking into Wall Street, 2013; Koller *et al.*, 2015).

In the chapter "Valuing Financial Services" of his book, Damodaran (2012) explains that, since the financial institutions' assets are mostly securities that are publicly traded (therefore they have a market price), they are entitled to do the recording of these assets to its market price. In this way, the assets of financial institutions are registered to

their market price and the assets of non-financial institutions are not. This raises a problem when comparing ratios based on book value since the book value of a non-financial firm reflect the equity invested originally in assets and the book value of a financial firm reflects not what was invested originally but an updated market value. Damodaran also discuss the accounting differences among financial institutions regarding the loss provisioning. Since the banks are free to make their own loan loss assessment, a more conservative one will set aside more for loan losses than a more aggressive one and this will result in higher reported profits for the aggressive bank.

In addition to the three problems identified, banks are typically companies with several businesses requiring a different analysis for each type of activity. There are also very leveraged entities making the valuation much more sensible to the economic environment than valuations in other areas (Koller *et al.,* 2015).

Going a little deeper on the first problem related of bank's valuation, Capital Expenditures in a bank does not correspond to reinvestment, like it would in a regular company. For a bank, reinvesting can mean hiring more employees, lending more money or other types of operations that generate more business. Working capital concept also does not apply since in a bank balance sheet is not visible the classification into current assets and the current liabilities because of their unpredictable due date (e.g. is impossible to know when a deposit will be demanded by the client). As for the debt, in financial institutions, debt is the essential element to make business and not a source of capital.

For these reasons the concept of free cash flow also does not apply to a financial institution because it is impossible to compute it, but using potential dividends as a proxy of the free cash flow and rely on equity valuation instead of enterprise valuation is a possible solution. Taking this into account the two main drivers of value, in this case, would be the cost of equity and the return on equity (Damodaran, 2009 and Breaking into Wall Street, 2013).

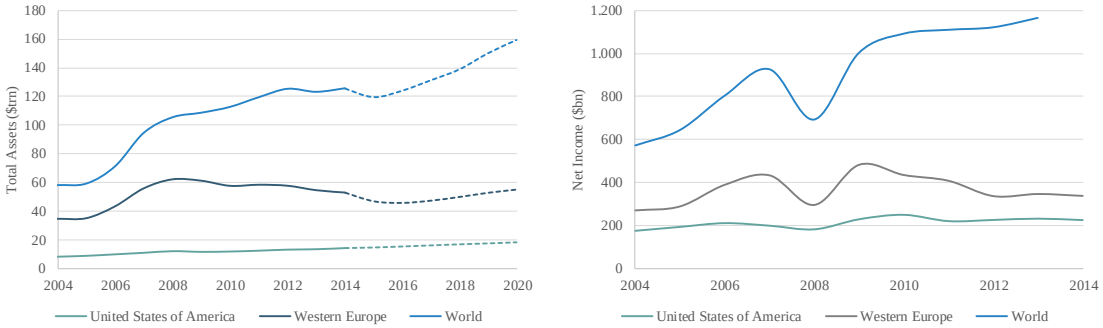
3. Sector Analysis

3.1. Global Banking Industry

The global banking industry performance was marked by the financial crisis that began in the summer of 2007 and that affected essentially European and North American banks, leading to a loss of credibility on the banking sector.

Comparing the post and pre-crises compounded average growth rate (CAGR) of total assets from banks worldwide, it is possible to understand the contrast between the 3.38% growth rate in the 2008-2010 period with the 21.76% observed between 2006 and 2008. Nonetheless, in terms of net income, there was a drop of 13.54% in the results of 2008 but the values quickly recovered to pre-crises levels.

Exhibit 2: Evolution of the total assets and net income of the banks from United States of America, Europe and Worldwide



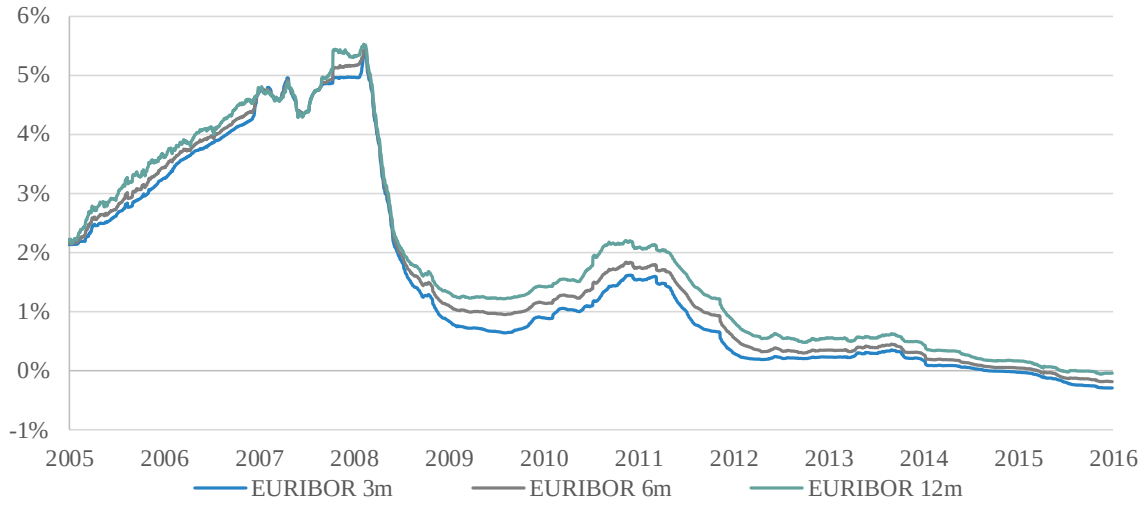
Source: The Economist Intelligence Unit (EIU)

During 2008, the several bankruptcies and financial distresses faced by some world reference companies lead investors to follow capital retention policies and to avoid new capital investments, which caused instability and increased the risk aversion among the capital market. With the counterparty risk escalating to very high values, the risk premiums also had to increase, which came to influence the interbank money market.

The capital losses of the financial institutions encouraged the capital strengthening through the issuing of new shares and forced the central banks to launch different processes of "quantitative easing" which consists, in a general way, in buying financial assets from financial institutions to low its yield and stimulate the money supply. In the Eurozone, ECB cut the main refinancing rate from 4.25% to 1%, making the EURIBOR drop abruptly from October 2008 to May 2009.

In the following years until now, the central banks had to use quantitative easing programs in an attempt to stimulate the economy and restore the normal functioning of the market. In early 2015, for the first time, the EURIBOR 3 months reached negative values, followed by the ones with longer terms until the 6 months, as a consequence of the quantitative easing started in 2015 by the European Central Bank.

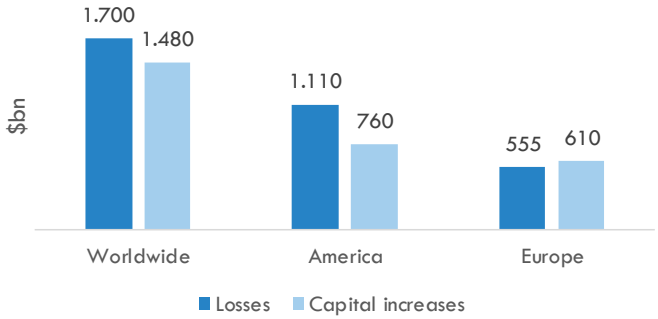
Exhibit 3: EURIBOR evolution.



Source. Bloomberg

Losses hurt mainly European and American banks because emerging markets' banks remained profitable the whole period, which intensified the existing gap between growth rate of emerging market banks and developed market banks.

Exhibit 4: Losses and capital increases of financial institutions from 2007 to 2009



Source: Bloomberg

In conclusion, due to the poor outlook for the banking industry in the coming years, the low interest rates and the large quantity of regulation imposed on banks, lenders in developed countries will face much more difficult conditions than banks in the emerging markets. Besides being covered by the Basel III legislation, emerging markets' banks benefit from better economic prospects, increasing population and more attractive interest rates.

3.2. Portugal

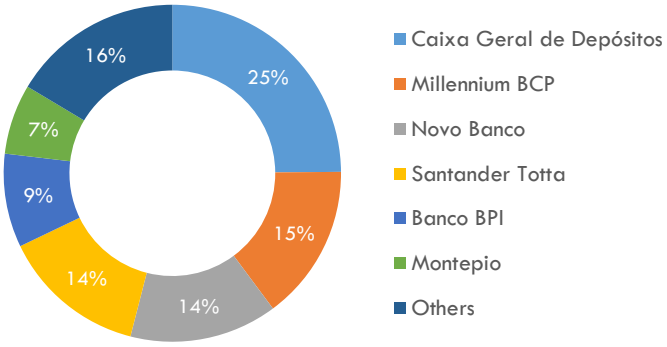
After implementing strict austerity and public expenditures control measures in 2011 and ensuring the exit from the European Union (EU) and International Monetary Fund (IMF) bail-out program in May 2014, Portuguese economy has started to recover. However, Portuguese banks remain very fragile and heavily reliant on the European Central Bank refinancing facilities.

As a consequence of the bad last years for the Portuguese economy for the last years, banks have been deleveraging their balance sheets. According to the IMF, the Portuguese banks' balance sheet repair was slow and a significant part of the banking assets still depend on distressed companies.

The restriction of lending and the stabilization of deposits caused a sharp fall of the loan/deposits ratio from 152%, in 2009, to 104%, in 2015. According to the Economist Intelligence Unit (EIU), for this reason the credit perspectives for the following year would remain low.

The Portuguese banking sector is concentrated in 27 banks, with five banks controlling roughly 80% of the total banking assets in 2015. Additionally, banks in Portugal also play important roles in insurance, asset management and investment banking sectors. Nevertheless, in the last years, some of the most important banks in Portugal went through financial difficulties and requested external help through capital injections or bail-outs.

Exhibit 5: Market share of the Portuguese banks by total assets (June 2015)



Source: Banks Annual Reports

The history of the Portuguese banking sector was marked in August 2014 by the collapse of its largest private bank, the Banco Espírito Santo (BES). The application of the resolution measures resulted in the bank's division into a "bad bank", where the troubled assets were kept, and a "good bank" called Novo Banco. The remaining assets were transferred to Novo Banco, which continued the bank's activity under the supervision of the Bank of Portugal and received a capital injection of €4.9bn from the Resolution Fund.

Later, in December 2015, Banco Internacional do Funchal (Banif) also required a bail-out of €2.26bn, €489m from the Resolution Fund and €1.76bn from the Portuguese State. Its business and most of its assets were sold by €150m to the Spanish bank Banco Santander Totta.

Recently, in 2016, Portuguese authorities disclosed the recapitalization plan for the state-owned bank, Caixa Geral de Depósitos by the amount of €1.65bn.

In a general view, Portuguese banks profitability is still constrained by the low growth of the Portuguese Gross Domestic Product (GDP) and the low inflation and interest rates and, due to that, tough times are expected for the Portuguese banks.

3.3. Regulatory Framework

As mentioned before, the financial crises of 2007 came to shake the trust in financial institutions, proving that the economy is highly dependent on bank's activity. With the crisis, it became obvious that the financial institutions were overly dependent on short term funding, which became scarce in the beginning of the crisis, were too vulnerable to

liquidity demand, since they did not have sufficient liquid assets to face the withdrawal of funds, and for these reasons they were obligated to sell assets in a haste (Bank of Portugal, 2017).

In response to the financial crisis and the losses incurred in the years that followed, as well as to ensure the resilience of the financial institutions, in 2010, the Basel III was established. It was approved by the Basel Committee on Banking Supervision (BCBS) to be introduced in a phase-in period from 2013 until 2019, where the measures must be fully implemented as shown in Exhibit 6.

Exhibit 6: Basel III phase-in arrangements

	Phases	2013	2014	2015	2016	2017	2018	2019
Capital	Leverage Ratio		Parallel run 1 Jan 2013 – 1 Jan 2017 Disclosure starts 1 Jan 2015				Migration to Pillar 1	
	Minimum Common Equity Capital Ratio	3.5%	4.0%	4.5%				**4.5%**
	Capital Conservation Buffer				0.625%	1.25%	1.875%	**2.5%**
	Minimum common equity plus capital conservation buffer	3.5%	4.0%	4.5%	5.125%	5.75%	6.375%	**7.0%**
	Phase-in of deductions from CET1*		20%	40%	60%	80%	100%	**100%**
	Minimum Tier 1 Capital	4.5%	5.5%	6.0%				**6.0%**
	Minimum Total Capital		8.0%					**8.0%**
	Minimum Total Capital plus conservation buffer		8.0%		8.625%	9.25%	9.875%	**10.5%**
	Capital instruments that no longer qualify as non-core Tier 1 capital or Tier 2 capital		Phased out over 10 year horizon beginning 2013					
Liquidity	Liquidity coverage ratio – minimum requirement			60%	70%	80%	90%	**100%**
	Net stable funding ratio						Introduce minimum standard	

* Including amounts exceeding the limit for deferred tax assets (DTAs), mortgage servicing rights (MSRs) and financials.
– – transition periods

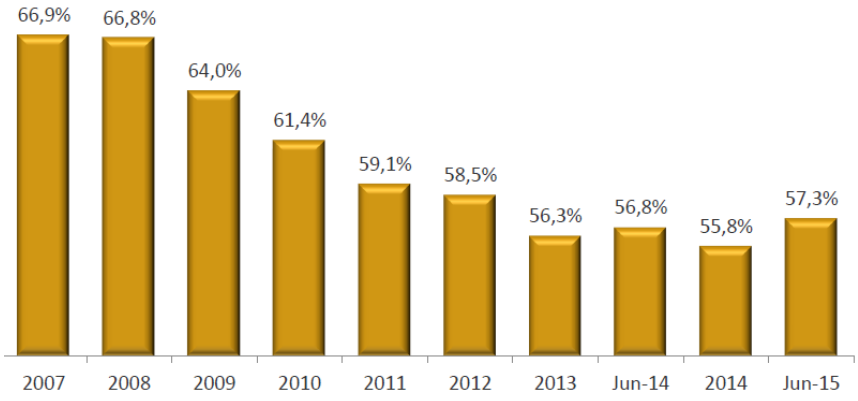
Source: Bank for International Settlements

The Basel accords were created by the BCBS and provide recommendations on banking regulation to manage risk and ensure that financial institutions have enough capital to face unforeseen losses. The purpose of Basel III is to strengthen the requirements established by the previous accords (Basel I and II) with especial emphasis in the increase of capital quantity and quality. On this third accord the capital requirements are more restrict, it is created the concept of capital buffer and leverage is discussed.

As a consequence of the financial crisis, the Portuguese Government, the European Union and IMF, known as the Troika, signed a surveillance program (PAEF – Programa de Asssistência Económica e Financeira) with the purpose of restoring the trust in the

Portuguese banking system, which caused a decrease on the Risk weighted assets (RWA) of the Portuguese banks, as it is observable in Exhibit 7. In 2014, there was a slight increase due to the changes in the calculation of RWA imposed by the Capital Requirement Directive IV and Capital Requirements Regulation (CRD IV/ CRR) for financial institutions that reflects the Basel III changes. It should be noted that the implementation of CRD IV/ CRR in 2014 differs from the full implementation of these requirements due to the phase-in arrangements.

Exhibit 7: Portuguese banks' RWA as percentage of total assets

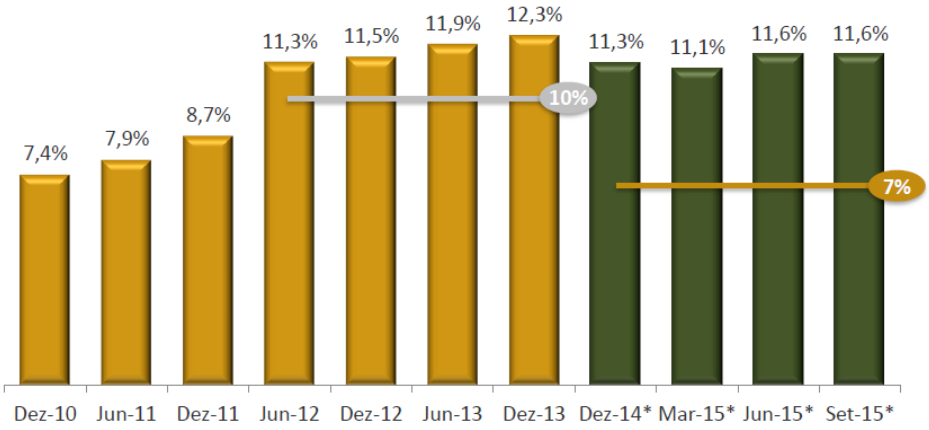


Source: Bank of Portugal

The Basel II (valid until 2013) stated that the Tier 1 ratio of the financial institutions could not be less than 4% but, besides that, until the end of 2013 the Portuguese banks were obliged by the Bank of Portugal to fulfill at least 10%. The Basel III accord focuses on the common equity tier 1 (CET1), and states that this ratio cannot be less than 4.5% (pillar 1) plus a capital conservation of 2.5% (pillar 2), that makes a total ratio of 7%.

As it is possible to observe in Exhibit 8, the Portuguese banks' ratios are securely above this minimum required.

Exhibit 8: Portuguese banks' Core Tier 1 ratio (2010-2013) and Common equity tier 1 ratio (2014-2015)



* CET1 computed in accordance with the transitional arrangements established by CRD IV/CRR

Source: Bank of Portugal

Besides the minimum ratio required by pillar 1 and pillar 2 of the Basel III, there is also de Supervisory Review and Evaluation Process (SREP), which consists in an individualized analysis to the banks in terms of capital requirements, carried out by the European Central Bank and the national supervisor. According to the results of that analysis, the Bank of Portugal can add capital requirements to the ones defined by Basel III and these would be different for each bank (European Central Bank, 2016).

4. BPI Group

4.1. Company Presentation

BPI is a Portuguese financial group that offers a wide range of services such as retail banking, private banking, investment banking, project finance, private equity, asset management and insurance. Its origin dates back to 1981, when it was founded with the name of Sociedade Portuguesa de Investimentos and with the purpose of financing private sector investment projects, contributing for the capital market activity and assisting with the modernization of the Portuguese corporations.

A few years later, in 1985, with the creation of Banco Português de Investimento (BPI), it was allowed to capture deposits and to provide short-term loans as well as to have access to the interbank money market and participate in currency operations. On the following year, the bank started to be listed on Lisbon and Oporto Stock Exchanges.

In 1995, the bank went through a reorganization and it was transformed in a holding company (BPI SGPS) in order to control the other companies in the group, including Banco Português de Investimento, that was created during the process to receive the assets and liabilities concerning the banking activity and to continue BPI's activity. The holding company would be the only company listed in the group. Furthermore, this year was also marked by the entrance of two new strategic shareholders, the Spanish financial group "La Caixa" and the German insurance group "Allianz".

In 1998, Banco BPI was created through the merger of four banks that the group had previously acquired. In this way, the group had only the holding and two banks: the already existing Banco Português de Investimento, that was an investment bank, and the new commercial bank named Banco BPI.

In 2002, the group went through a new reorganization in which the BPI SGPS incorporated Banco BPI and its business. Therefore, Banco BPI is now the head of BPI Group and commercial banking is its main activity. In the same occasion, the branch in Luanda was converted into a fully-fledged Angolan bank.

Nowadays, Banco BPI is one of the largest financial groups in Portugal which also operates in Angola, through a majority shareholding (50.1%) in Banco de Fomento Angola (BFA), and in Mozambique, through a minority shareholding (30%) in Banco Comercial e de Investimentos (BCI).

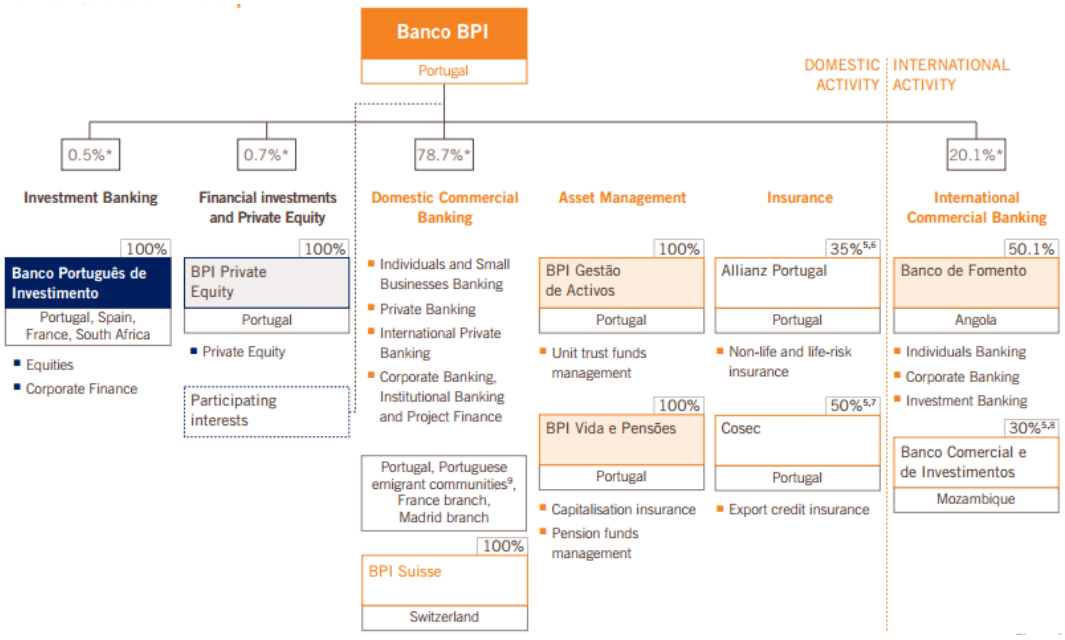
BPI is the 5th largest commercial bank in Portugal, with a market share of 9% in total assets. In Angola, BFA has a market share of 17%, being the 3rd largest bank in terms

of total assets. BPI's accounts are organized into domestic activity and international activity.

The domestic activity corresponds to the commercial operations in Portugal, investment banking, private equity, asset management, insurance and banking services provided to Portuguese emigrants in other European countries. The domestic activity has a distribution network composed by 495 traditional branches and 39 investment centers that employ over 5,500 individuals. Nonetheless, during the first half of 2016 BPI closed 27 branches and, in September of the same year, according to Agência Lusa, it announced the plan to close 25 more branches, along with the dismissal of some workers.

The international activity includes the operations of commercial banking in Angola and Mozambique (BFA and BCI), investment banking activities in Mozambique through BPI Moçambique and security brokerage in South Africa through BPI Capital Africa. The last two have a very small weight in the structure of the bank. In Africa, BPI has a distribution network of 166 traditional branches in Angola and 164 in Mozambique, with a workforce of 2,630 in the end of 2015.

Exhibit 9: Main entities of BPI Group (2015)



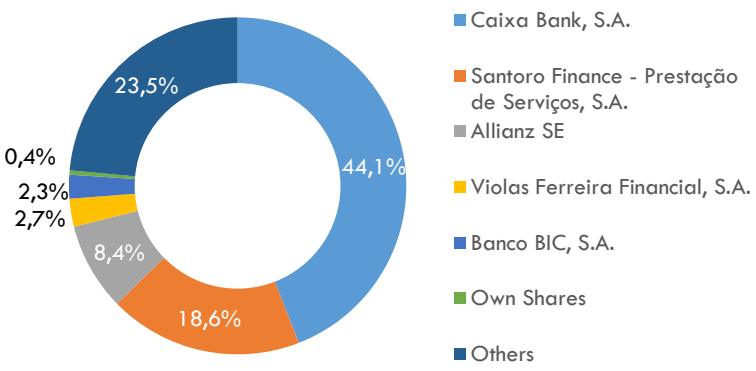
Source: BPI's annual report (2015)

4.2. Shareholders Structure

On December 2015, Banco BPI's capital was composed by 1,456,924,237 outstanding shares, all publicly quoted on NYSE Euronext Lisbon. 11% of its equity was

held by individual investors and 89% by institutional investors being the major stakes organized as in Exhibit 10.

Exhibit 10: Banco BPI's shareholders structure (2015)



Source: BPI's annual report (2015)

Besides this shareholders structure, according to the number 4 of the article 12 of the bank's statutes, "the votes cast by a single shareholder or entities related to him/her in the terms laid down by this provision which exceed 20% of the total votes corresponding to the share capital, shall not be counted.".

This condition to the number of votes has been a "hot subject" in the recent history of the bank since, in April 2016, the major shareholder launched a public offer to acquire the total capital of the bank at the price of 1.113 Euros per share. Although, this public offer will only take place if this condition on the number of votes is eliminated.

Although being shareholders, Allianz and La Caixa also have a strategic partnership with the Bank. Regarding the German insurance group, BPI has a stake of 35% in Allianz Portugal as well as a distribution agreement to use its commercial network to sell Allianz insurance services. BPI also has a partnership with La Caixa to offer support to Iberian companies. This partnership allows them to make international operations under conditions similar to the domestic market.

4.3. CaixaBank full takeover bid

As mentioned in the previous item, the subject of the full takeover bid launched by CaixaBank on April 2016 has been a very discussed subject and a critical issue for this thesis, since the third main goal of this project is to compare the price per share obtained in the valuation of the domestic activity of Banco BPI to the price offered by CaixaBank.

The "La Caixa" financial group, the ultimate shareholder of CaixaBank, has been BPI's shareholder since 1995. This shareholder had already launched a voluntary takeover bid for all the share capital of the Bank in February 2015, for the amount of €1.329 per share. The first proposal had two main conditions: the Bank had to eliminate the number 4 of the article 12 of the statutes that limit the votes to 20% (see the previous chapter) and, to insure that CaixaBank would became the majority shareholder, the minimum to acquire would be 5.9% of the share capital, since CaixaBank already owned 44.1%.

On March 2015, Banco BPI declines the CaixaBank offer arguing that the offered price did not reflect the fair price of the Bank.

In 2014, the BCE considered that the regulation over the Angolan market could not be compared to the European one, and obliged the European banks to reduce the exposure to that market. In BPI's case, ECB stated that the Bank had to reduce its exposition in BFA until April 2016 or it would have to account that exposure at a 100% rate for the calculation of RWA which would mean an amount of €5,000 million extra on this kind of assets and a considerable decrease on the capital ratios (around 100 basis points less in the CET1).

One possible solution to solve this problem would be to sell part of its stake in order to cease to be the majority shareholder of BFA, in this way BFA would be outside the consolidation perimeter and its exposure would not affect the capital ratios.

On January 2016, BPI's received a proposal to sell 10% of its stake in BFA to Unitel, the other BFA's shareholder with a 49.9% share, but decided to decline it.

On April 2016, CaixaBank launches a new voluntary takeover bid for all BPI's share capital, with the price of €1.113 per share that represents the weighted average price of the share in the last 12 months. The offer had the same conditions that the previous one which were the elimination of the limit of votes and that the shares to be bought summing up to those already held totalized in a minimum of 50% of the Bank's share capital.

On May 2016, BPI's board of directors presented a report in which it comments the offer and make some estimations on the value proposed to be presented to all shareholders. In that report, as shown in Exhibit 11, BPI reaches a price per share of €1.54 and argues that the price offered by CaixaBank only reflects the domestic activity.

Exhibit 11: Price per share calculated by BPI

Euro per share	Based on market P/BV ratios	
	BFA @ 1 600€M	BFA € zero
Domestic business value	0.97	0.97
Synergies (50%)	0.20	0.20
Domestic business value after synergies	**1.18**	**1.18**
International business value	**0.64**	**0.09**
BFA's 50.1% value	0.55	0.00
BCI's 30% value	0.09	0.09
Total SoP	**1.82**	**1.27**
Average SoP	**1.54**	

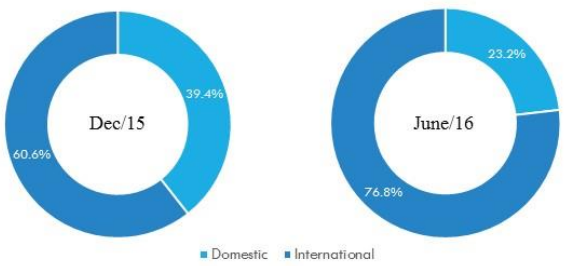
Source: Report of Banco BPI, S.A's Board of Directors, prepared under the terms of Article 181, paragraph 1, of the Securities Code, on the opportuneness and conditions for the Tender Offer (TO) for Banco BPI, S.A.' shares, announced by CaixaBank, S.A.
Note: Author's translation

That is the main reason why this thesis only focus on domestic activity, moreover ECB is obliging the BPI to sell its stake in BFA because of the reasons mention above. That is why the author choose to not consider the international activity of the Bank in this valuation (represented in its majority by the participation in BFA).

4.4. Financial Analysis

According to BPI annual report, at the end of 2015, 79.9% of the equity was allocated to the domestic activity and 20.1% to the international activity, although only 49.4% of the net income comes from the domestic activity and 60.6% comes from the international activity, as it is shown in Exhibit 12. On the first half of 2016, the weight of the international activity on the total profits is even higher since BFA continues to generate higher profits.

Exhibit 12: Weight of the Domestic and International activity on Net Income



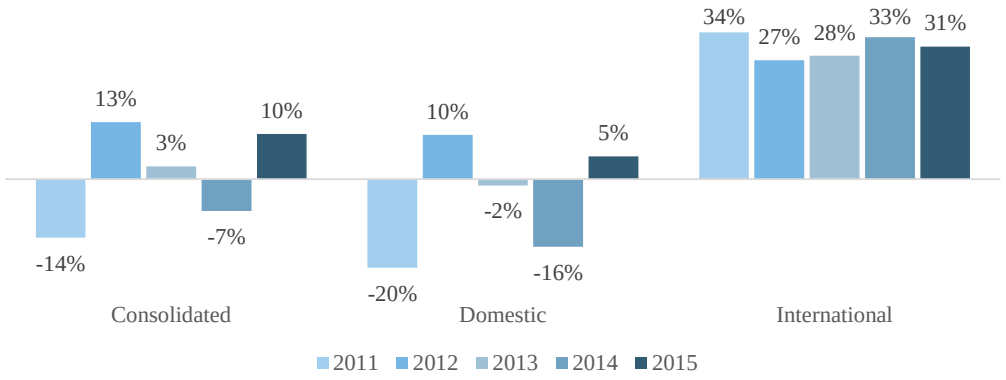
Source: BPI's annual report (2015)

After the negative results of 2014, BPI ended 2015 with a positive profit of €93.1m. On the last years the domestic activity has contributed negatively for the consolidated result of the bank with two consecutive years of negative results, mostly explained by its exposure to sovereign debt. Nevertheless, in 2015 BPI achieved the 5th highest level of net income of its history with the domestic activity showing a considerable recovery explained by the non-recurring impacts on 2014's result.

As it is shown in Exhibit 13, the domestic return on equity (ROE) was obviously influenced by the negative results of 2013 and 2014. In 2015 this value presented a slight recovery to positive levels although is still low.

The most relevant factor for the recovery of the domestic activity in 2015 is related with the decline of the cost of the time deposits, the lower cost of credit risk, and the implementation of cost rationalization and optimization measures (BPI's annual report, 2015).

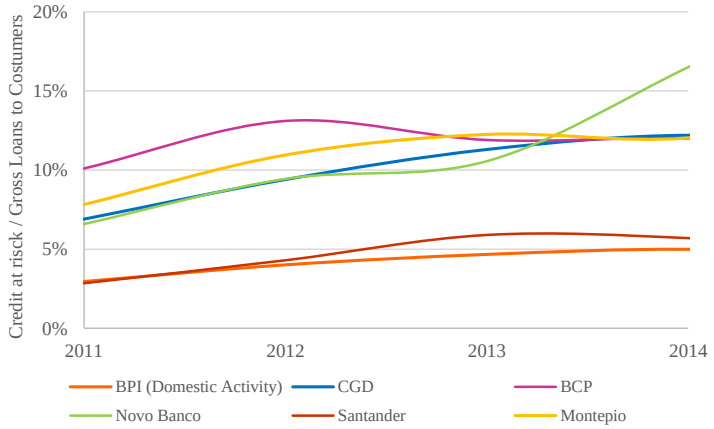
Exhibit 13: Return on equity (ROE) of the consolidated, domestic and international activity of Banco BPI



Source: BPI's annual report (2015)

In terms of assets quality, as it is shown in Exhibit 14, BPI, along with Santander Totta, is one of the most conservative banks of the Portuguese banking sector. The Bank's domestic activity weight of credit at risk on the total gross loans is 4.5% compared to its competitor's median of 11.5%.

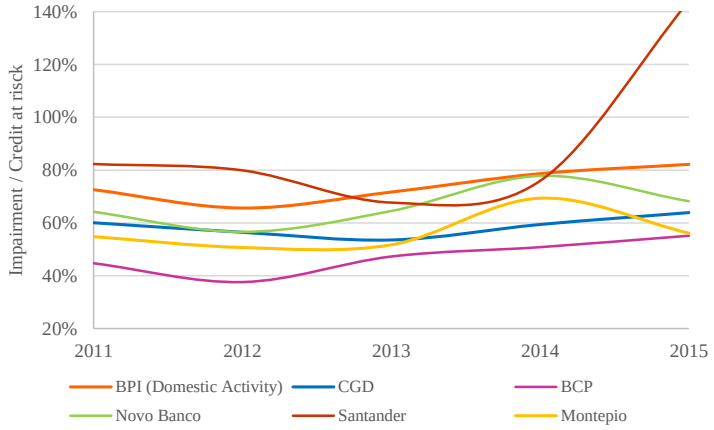
Exhibit 14: Credit at risk / Gross loans to customers



Source: Bank's annual reports

If one observes also the credit at risk coverage ratio, on Exhibit 15, it can be remarked that although BPI has the lowest credit risk ratio, it is the second bank, after Santander Totta, with a higher ratio. In this way, BPI has 82.2% of its credit at risk covered by impairment that compares to a competitors median of 63.9%.

Exhibit 15: Credit at risk coverage ratio



Source: Bank's annual reports

In conclusion, BPI is one of the Portuguese banks with a more restrict risk policy that reflects itself in the Bank's ratios.

Concerning the credit rating for the long term, the rating agencies have been rated Banco BPI in line with the ration given to the sovereign risk of Portugal. As it is presented in Exhibit 16, since 2011 that this rating has remained stable. Regarding the rating for the

Portuguese sovereign risk's outlook, the rating changed from 2013, when it was considered "negative" to "stable" in 2015.

Exhibit 16: BPI's and Portuguese Republic rating

	2011	2012	2013	2014	2015
Banco BPI rating (long term)					
Fitch	BB+	BB+	BB+	BB+	BB
Moody's	Ba2	Ba3	Ba3	Ba3	Ba3
Standard & Poors	BB-	BB-	BB-	BB-	BB-
Portuguese Republic sovereign risk (long term)					
Fitch	BB+	BB+	BB+	BB+	BB+
Moody's	Ba3	Ba3	Ba3	Ba1	Ba1
Standard & Poors	BB	BB	BB	Bbu	BB+u

Source: BPI's annual reports

5. Valuation methodology

The valuation of the domestic activity of Banco BPI, for the financial year of 2015, was based on the strategic goals of the bank and in its recent activity. For that purpose, it was considered the available historical information between 2011 and 2015.

The historical data allows to understand the trend of the business and the obligations of the bank. It corresponds to a sufficiently long period (five years) to eliminate any non-recurring results.

Since it is expected of a bank to have, in general, stable cash flows, it was considered that five years as an explicit period would be enough to avoid bias. In this way, the estimation corresponds to that period plus a steady growth in the perpetuity.

As referred before, BPI is a financial institution and, for that reason, it is difficult to apply the discount cash flow approaches since the working capital and capital expenditures are very low and difficult to isolate from the bank activity. Besides, financial institutions such as banks operate under a regulatory framework that dictates their decisions regarding capital allocation, growth and operations.

In this way, the best way to value a bank is using equity valuation models and the chosen models were the free cash flow to the equity to estimate the potential dividends, the dividend discount model to estimate the actual dividends and the relative valuation using market multiples to serve as guideline to the values obtained.

For the major goal of this thesis is only relevant to value the domestic operations, so this valuation does not concern the international activity of BPI represented by BFA in Angola and BCI in Mozambique.

It is important to mention that some information is not publicly available and therefore some projections and estimations were made based on other relevant parameters.

6. Assumptions

6.1. General assumptions

To make estimations and projections of the balance sheet and income statement of the bank, estimators based on future macroeconomic indicators were used such as the growth of the Portuguese gross domestic product (GDP) and inflation.

As it will be explained on the next topic, the loans and advances to customers' estimation will use some other macroeconomic indicators related to the GDP such as total investment, gross national savings, private consumption, real personal disposable income and unemployment rate.

All the data mentioned before was collected from the IMF's country reports and form the market tool of The Economist Intelligence Unit showed in Exhibit 17.

Exhibit 17: Macroeconomic indicators

Macroeconmic Indicators

Units: Thousands of Euros	Source	Units	2015	2016E	2017E	2018E	2019E	2020E	2021E
Portugal									
Gross domestic product, constant prices	**IMF**	**Billion EUR**	**171,120**	**172,844**	**174,719**	**176,746**	**178,796**	**180,854**	**182,986**
Growth rate			1,45%	1,01%	1,08%	1,16%	1,16%	1,15%	1,18%
Total investment	IMF	Percentage of the GDP	15,22%	14,97%	15,41%	15,68%	16,04%	16,59%	17,17%
Total investment		Billion EUR	26,038	25,880	26,922	27,721	28,682	29,995	31,426
Growth rate			1,93%	-0,61%	4,03%	2,97%	3,47%	4,57%	4,77%
Gross national savings	IMF	Percent of GDP	15,67%	14,99%	14,81%	14,90%	15,05%	15,22%	15,46%
Gross national savings		Billion EUR	26,813	25,913	25,874	26,340	26,916	27,524	28,280
Growth rate			4,13%	-3,36%	-0,15%	1,80%	2,18%	2,26%	2,75%
Private consumption	EUI	Percent of GDP	65,62%	65,90%	66,30%	66,50%	66,60%	66,80%	67,00%
Private consumption		Billion EUR	112,296	113,904	115,839	117,536	119,078	120,810	122,601
Growth rate			1,03%	1,43%	1,70%	1,47%	1,31%	1,45%	1,48%
Inflation, average consumer prices	**IMF**	**Percent change**	**0,51%**	**0,73%**	**1,13%**	**1,43%**	**1,53%**	**1,64%**	**1,81%**
Real personal disposable income	**EUI**	**Percent change**	**0,89%**	**2,30%**	**1,70%**	**1,60%**	**1,60%**	**1,70%**	**1,50%**
Consumer expenditure: Housing & household fuels	**EUI**	**Million USD**	**23.884**	**24.096**	**24.580**	**26.333**	**27.646**	**28.974**	**n.a.**
Unemployment rate	**IMF**	**Percent of T labor force**	**12,44%**	**11,16%**	**10,70%**	**10,26%**	**9,81%**	**9,36%**	**8,90%**

Source: Author

The calculation of the tax rate was made taking into consideration the applicable legislation (Orçamento de Estado 2016) that determines the following for financial institutions:

- A corporate tax of 21% is increased by:
  - A municipal surcharge of up to 1.5% of the taxable profit;
  - A State surcharge:
    - 3% on taxable profit between €1.5m and €7.5m;
    - 5% on taxable profit between €7.5m and €35m;
    - 7% on the part exceeding €35m.

6.2. Balance Sheet assumptions

6.2.1. Loans and advances to customers

Considering the fact that there is no publicly available information about new clients' acquisition by BPI and, consequently, capture of new deposits, it was chosen to begin the valuation by estimating the several credit lines offered by the Bank.

With the purpose of obtaining the net value of loans and advances to customers, it was first necessary to estimate de gross value of these loans for each credit segment under different assumptions and, secondly, to estimate the impairment level, as it is shown by the following formula.

$$Net\ loans = \text{Gross loans} - \text{Impairment} \tag{27}$$

In order to project the gross value of loans to customers, the relationship between the historical growth of each segment of credit and a macroeconomic indicator that could be a suitable driver for the future growth of that segment were analyzed. To accomplish that, the following formula to assess the correlation between the two variables was used:

$$Correlation\ (X,Y) = \frac{\sum(x-\bar{x})(y-\bar{y})}{\sqrt{\sum(x-\bar{x})^2\ \sum(y-\bar{y})^2}} \tag{28}$$

Where,

$\bar{x}$ and $\bar{y}$ are the simple average of the range of values.

Exhibit 18 shows the results for the correlations between the yearly changes, from 2013 until 2015, of the sample of suitable indicators and the different credit segments, in which the ones that presented higher values of linear dependence were selected.

Exhibit 18: Correlation between the segment of credit and the chosen macroeconomic indicators

	Portugal						
Segment	Gross domestic product, constant prices	Total investment	Gross national savings	Private consumption	Inflation, average consumer prices	Real personal disposable income	Unemployment rate
DOMESTIC ACTIVITY	**38,01%**	**-0,37%**	**13,92%**	**1,05%**	**81,41%**	**49,39%**	**-55,09%**
Corporate banking	**94,43%**	**74,59%**	**-64,87%**	**75,53%**	**10,54%**	**n.a.**	**n.a.**
Large Companies	92,39%	70,66%	-60,41%	71,66%	16,21%	n.a.	n.a.
Medium-sized Companies	95,30%	76,39%	-66,93%	77,30%	7,81%	n.a.	n.a.
Project Finance - Portugal	**87,31%**	**61,94%**	**n.a.**	**n.a.**	**27,59%**	**n.a.**	**n.a.**
Madrid	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**
Project Finance	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Corporate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Public Sector	**-9,26%**	**-46,74%**	**58,29%**	**-45,48%**	**99,06%**	**3,39%**	**-10,06%**
Individuals and Small Businesses Banking	**88,96%**	**64,64%**	**-53,70%**	**65,72%**	**24,21%**	**94,02%**	**-96,08%**
Mortgage loans to individuals	39,06%	0,76%	12,80%	2,19%	80,75%	50,37%	-56,03%
Total Consumer Credit	85,51%	59,08%	-47,60%	60,22%	31,02%	91,37%	n.a.
Small businesses	97,09%	80,47%	-71,68%	81,31%	1,22%	n.a.	n.a.
Others	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**

Source: Author

In a general way, the indicators used as assumption to project the credit segments are indicated in Exhibit 19.

Exhibit 19: Methods of projection for the different segments of credit

Segment	Method of projection
DOMESTIC ACTIVITY	-
Corporate banking	-
Large Companies	Real GDP
Medium-sized Companies	Real GDP
Project Finance - Portugal	**Real GDP**
Madrid	-
Project Finance	Historical evolution
Corporate	Historical evolution
Public Sector	**Inflation**
Individuals and Small Businesses Banking	-
Mortgage loans to individuals	Inflation
Total Consumer Credit	Real personal disposale income
Small businesses	Real GDP
Others	**Real GDP**

Source: Author

In detail, in the last years, the variation of the real GDP are correlated by 92.39% and 95.30% with the historical variations observed in large and medium-sized companies, respectively. For that reason, it is expected that the corporate banking segment follows the future perspectives for this indicator.

The same applies to the project finance – Portugal segment in which the real GDP evolution correlated by 87.3% with the historical changes in this segment.

Regarding the Madrid segment, this balance will suffer a reduction in line with the growth rate observed in 2014 and 2015, once in 2014 the bank took the decision not to enter the new syndicated loans in Spain.

The public sector segment is expected to grow at inflation's growth rate, since it has a correlation of 99.06% with this indicator.

According to the survey made by Bank of Portugal to retail banks, in the second semester of 2016, banks will impose less lending restrictions and it is expected a slight recovery in mortgages demand for the future years, thus the mortgages loans to individuals are expected to grow in line with the inflation rate.

The total consumer credit, that includes consumer loans, motor car finance and credit cards, has shown a correlation of 91.37% with the year-on-year growth of the real personal disposable income, thus the projection of this balance is in line with the future perspectives for this macroeconomic indicator.

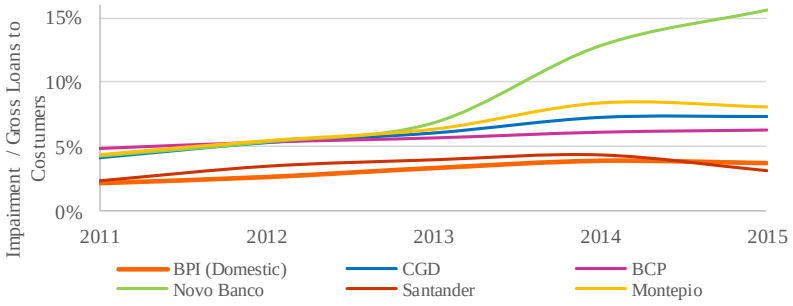
Loans to small businesses have a correlation of 97.09% with the real GDP growth rate and, because of that, it is expected to grow in line with this macroeconomic indicator, similarly to the corporate banking segment.

The others include € 2,006 million of securitized loans held by BPI Vida e Pensões (more than 90% of the total value). These loans correspond essentially to bonds and commercial paper issued by large Portuguese companies, for that reason it is expected to grow at the same rate as the large companies' segment.

Loans in arrears net of impairments are expected to stabilize around the average historical value.

As it can be observed in Exhibit 20, the total impairment of BPI (3.72% in 2015) is continuously lower than the market average, being only comparable to Banco Santander's levels (3.11% in 2015).

Exhibit 20: Total impairment of the main Portuguese banks



Source: Bank's annual reports

However, in Exhibit 21, we can also observe that the credit at risk coverage ratio of BPI (82.17%) is higher than the market median (63.90%) and, in Exhibit 22, that the percentage of credit at risk of BPI (4.52%) is lower than the market median (11.5%). So, it is possible to conclude that BPI assumes a more conservative risk policy than its competitors.

For this reason, the total impairment was projected under the assumption that the total impairment to gross loans and advances to customers' ratio remains equals to 3.7% that correspond to the historical value of 2015.

Exhibit 21: Credit at risk coverage:

Impairment / Credit at risk	2011	2012	2013	2014	2015
BPI (Domestic Activity)	**72,57%**	**65,63%**	**71,68%**	**78,65%**	**82,17%**
Competitors Median	**60,06%**	**56,45%**	**53,53%**	**69,35%**	**63,90%**
CGD	60,06%	56,45%	53,53%	59,40%	63,90%
BCP	44,72%	37,60%	47,27%	50,82%	55,14%
Novo Banco	64,20%	56,60%	64,50%	77,80%	68,20%
Santander	82,30%	79,90%	67,70%	75,90%	144,00%
Montepio	54,79%	50,68%	51,70%	69,35%	56,12%

Source: Bank's annual reports

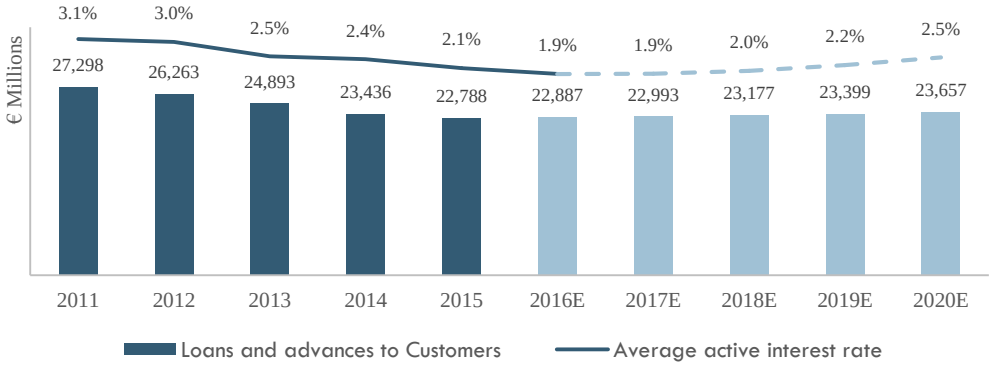
Exhibit 22: Credit at risk:

Credit at risk / Loans to costumers (Gross)	2011	2012	2013	2014	2015
BPI (Domestic Activity)	**2.96%**	**4.01%**	**4.67%**	**5.00%**	**4.52%**
Competitors Median	**6.90%**	**9.44%**	**11.30%**	**12.03%**	**11.50%**
CGD	6.90%	9.40%	11.30%	12.20%	11.50%
BCP	10.10%	13.10%	11.90%	12.00%	11.30%
Novo Banco	6.59%	9.44%	10.56%	16.50%	22.80%
Santander	2.85%	4.30%	5.90%	5.70%	4.80%
Montepio	7.82%	10.95%	12.25%	12.03%	14.32%

Source: Bank's annual reports

In conclusion, net loans and advances to customers (Exhibit 23) are computed taking the difference between the gross loans and advances to customers and the impairment losses, as it is shown in Exhibit 24. This balance is expected to grow at the CAGR of 0.83% in the projection period.

Exhibit 23: Loans and advances to customers and Average active interest rate



Source: BPI's annual reports and author's projections

Exhibit 24: Loans and advances to customers' projection:

Units: Thousands of Euros	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Domestic Activity										
Loans and advances to Customers	**27.297.653**	**26.263.164**	**24.893.496**	**23.436.001**	**22.788.062**	**22.886.523**	**22.993.431**	**23.176.668**	**23.399.335**	**23.656.718**
Gross Loans and advances to Customers	27.896.800	26.973.400	25.756.000	24.394.796	23.668.050	23.770.311	23.881.348	24.071.661	24.302.927	24.570.249
Impairment losses	(599.147)	(710.236)	(862.504)	(958.795)	(879.988)	(883.789)	(887.917)	(894.993)	(903.592)	(913.531)

Source: BPI's annual reports and author's projections

6.2.2. Financial assets

For the values of the financial assets held for trading at fair value through profit or loss, financial assets available for sale, held to maturity investments, hedging derivatives were considered the values of 2015 under the assumption that the re-investment in the portfolio covers the matured securities.

6.2.3. Tangible and intangible assets

For these balances, it was made an analysis based on the strategic plan of the bank presented in the annual report, since BPI intends to close 52 physical agencies in the next years and aims to invest in new technologies in order to improve the services offered by the bank. In this way, it was considered that the investment in tangible assets will decrease year over year at the historical decrease plus 20% and the investment in intangible assets will increase by the historical growth with a surplus of 5%.

For further details on tangible and intangible assets see Appendix 4: Tangible and intangible assets

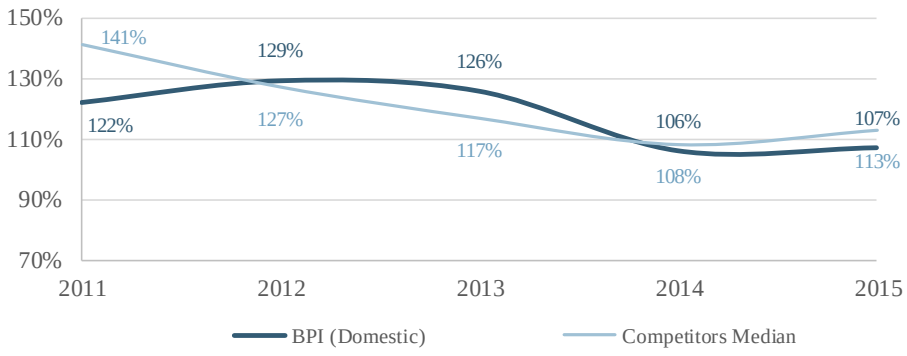
6.2.4. Resources of customers and other debts

During 2015, the bank registered a net growth of 24,000 customers, which resulted in an increase in the market share of 7 basis points (to 9.0%) in the individuals' resources and 9 basis points (to 11.5%) in companies' deposits. There was a reduction in the volume of time deposits, since the average passive interest rate has been decreasing over the previous years (see Exhibit 26), however this reduction was compensated by an increase on the Capitalization Insurance Funds and Retirement Saving Plans (PPR) causing an increase in the Total resources of customers and other debts.

The projection of Resources of customers and other debts was made in order to maintain stable the historical loans to deposits ratio, in part because this balance's historical values did not show a significant correlation with one of the macroeconomic indicators presented before.

This ratio has been decreasing in the past years, as shown in Exhibit 25, and for that reason the value considered to make the projection was the value observed in 2015 (107%).

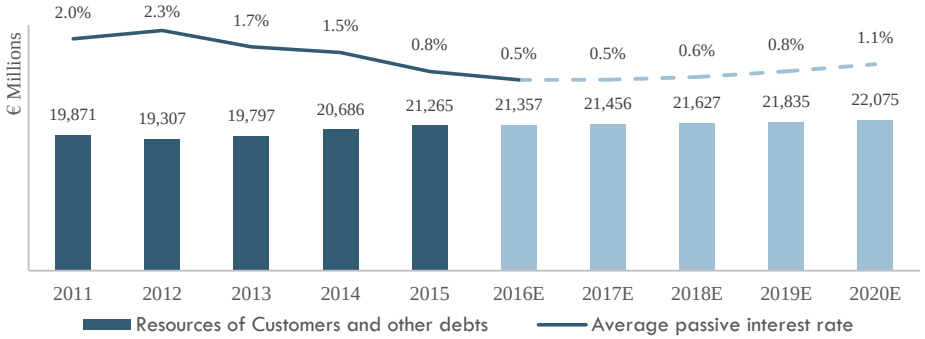
Exhibit 25 – Loans to deposits ratio



Source: Bank's annual reports

In this way the estimation of the Resources of customers and other debts, shown in Exhibit 26, is expected to growth at the same CAGR of the Net loans on the projection period.

Exhibit 26 – Resources of customers and Average passive interest rate



Source: BPI's annual report and author's projections

6.2.5. Financial liabilities

Similarly to financial assets, to estimate the financial liabilities held for trading, financial liabilities relating to transferred assets and hedging derivatives were considered the values of 2015 under the assumption that the re-investment in the portfolio cover mature titles.

6.2.6. Shareholder's equity

In order to estimate the BPI shareholder's equity, it was necessary to estimate the historical values for each balance of the domestic activity since I only had the values for the consolidated accounts. That estimation was made using the weight of the domestic operations on the total equity observed in 2015.

In terms of Share capital, other equities instruments (shares available for the employees) and treasury shares it was considered that there will be neither issuance of new shares nor repurchase of shares.

As legal reserves (that is part of other reserves and retains earnings) was considered a retention of 10% of the net income from the previous year considering a maximum equal to the amount of share capital or the sum of the free reserves and the retained earnings, as states the Article 97 of the General regime for credit institutions and financial companies, approved by Decree-Law 298 /91 of 31 December and amended by Decree-Law 201 / 2002 of 25 September.

For further details on shareholders' equity see Apendix10: Shareholder's capital support.

6.3. Income Statement assumptions

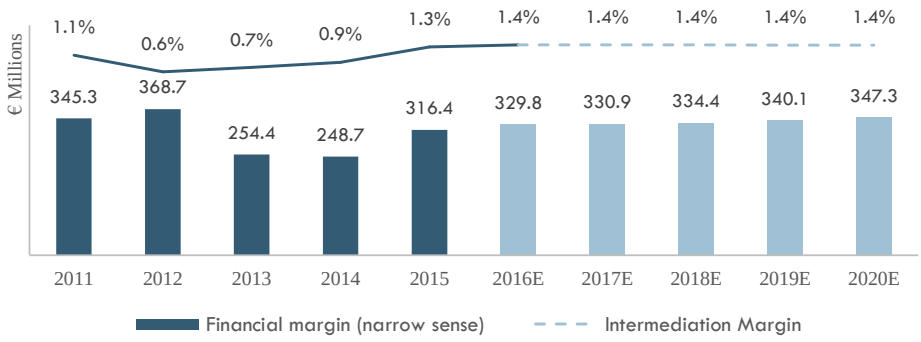
6.3.1. Net interest margin

In order to estimate the financial interest (narrow sense) it was considered as interest income the interest received on each credit segment. The active interest rate was calculated taking the spread of 2015 used by the bank for each segment added by the forward estimates for the EURIBOR 3 months, downloaded from the Bloomberg platform. As the EURIBOR 3 months estimates for 2016 and 2017 are negative and very low, it was added 5 basis points to the spread used in 2015 under the assumption that BPI would slightly increase the spread to face possible revenue decreases due to the EURIBOR fall.

To calculate the Interest expense it was considered the passive interest rate multiplied by the customers' deposits. The estimated passive interest rate was also computed taking the spread used in 2015 by the bank plus the EURIBOR 3 months estimate.

In this way, it is possible to observe in Exhibit 27 that the financial margin in narrow sense grows at a CAGR of 1.30% on the estimation period.

Exhibit 27: Financial margin (narrow sense) and intermediate margin

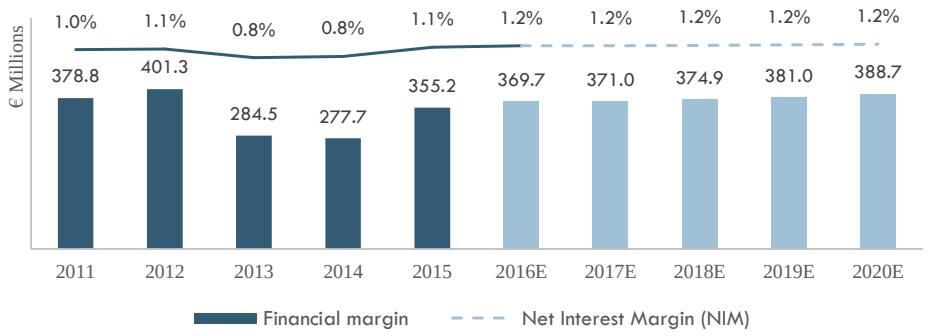


Source: BPI's annual reports and author's projections

The other elements of the financial margin such as the gross margin on unit links and Income from equity instruments were considered to growth in accordance with real GDP growth. The net commission related to amortized cost grow according with the historical weight on total assets.

As shown in Exhibit 28 the net interest margin grows on average 0.98% per year during the projection period.

Exhibit 28: Financial margin and net interest margin (NIM)



Source: BPI's annual reports and author's projections

6.3.2. Net commissions

Net commissions derive from the difference between commissions received and commissions paid. Much of this item corresponds to commissions on banking services rendered and on insurance brokerage services.

Due to this it is possible to infer that these commissions are related with the bank activity as well as the fact that BPI is a multiline bank that uses synergies of the group to do cross selling among the various business areas such as investment banking, asset management, insurance and others.

Taking this into consideration, as shown in Exhibit 29, net commissions were projected as a percentage of the financial margin that in some way represents the banking activity of the group.

Exhibit 29: Net commissions

Units: Thousands of Euros	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Net commission income	253,569	281,872	256,453	246,250	255,935	286,914	287,974	290,958	295,730	301,707
% of Financial margin	*66.94%*	*70.24%*	*90.16%*	*88.66%*	*72.05%*	*77.61%*	*77.61%*	*77.61%*	*77.61%*	*77.61%*

Source: BPI's annual report and author's projections

6.3.3. Operating Costs

Given the volatility of the historical values of operating income and operating expenses added by the fact that this balance include items like revenues from investment properties, gains on tangible assets, contributions for the Resolution Fund, subscriptions and donations and others it was chosen to use the average value of the two previous years plus the variation on GDP to estimate this rubrics.

With the aim of considering increases in employees' salaries in line with the rising cost of living and in administrative costs in line with the rising prices, the overhead costs, such as personnel costs and general administrative expenses, were estimated according to the future prospective for the inflation rate. However, since BPI intends to reduce personnel it was considered a reduction of employees cost of 5% each year.

6.3.4. Depreciations and amortizations

As mentioned before the investment in tangible assets and intangible assets was estimated taking into account the strategic goals of the bank. The period depreciation and amortization rate was computed using the average rate used to depreciate this assets on the previous years.

For further details on depreciations and amortizations see Appendix 4: Tangible and intangible assets.

6.3.5. Impairment losses

To estimate the impairment losses it was considered the historical weight of Impairment on the rubrics in which this applies, such as deposits at other credit institutions, loans and advances on credit institutions, loans and advances to customers, financial assets available for sale, non-current assets held for sale and other assets.

6.4. Discount rate

As mentioned in the literature review chapter the adequate discount rate to use in equity discount models is the cost of equity that represents the required return that an investor expects to receive by doing an investment in, in this case, Banco BPI.

To compute the cost of equity it was used the CAPM, also mentioned in the literature review and expressed by the formula number 6, with an adjustment in the end by adding a country risk premium (Koller *et al*., 2015). In this way it is possible to capture the additional risk of Portugal when compared to the European risk free rate and obtain a more accurate estimation.

$$E(R_i) = R_f + \beta_i\left[E(R_M) - R_f\right] + CRP \tag{29}$$

Where,

- R_{f}, is the risk-free interest rate,
- β_i, is the CAPM risk of stock i,
- $E(R_M)$, is the expected return on the value-weight market portfolio and
- CRP is the country risk premium.

In Exhibit 30 are shown the inputs used in the formula mentioned above, the respective sources and the nature of the data.

Exhibit 30: Cost of equity

	CoE	Source	Definition	Nature of the data
Risk free rate	**0,54%**	Bloomberg	10 year German Zero coupon bond	Average of 2015, daily data
Levered Beta	**1,39**	Bloomberg	Beta levered of Banco BPI	2 years Beta, weakly data
Equity risk premium	**5,57%**	Damodaran Website + Bloomberg	Equity Risk Premium for mature markets at minus the risk free rate	ERP at 31st of December of 2015
Country risk premium	**3,92%**	Damodaran Website	Country risk premium for Portugal	1st of January of 2016
CoE	**12,22%**			

Source: Bloomberg and Professor Damodaran website (http://pages.stern.nyu.edu/~adamodar/)

As risk free rate it was used the 10 year German bonds, since it is the most trustworthy risk free rate in the market at the moment. As already explained, it was also used a country risk premium for Portugal, obtained on the Professor Damodaran website, in order to adjust for the additional risk.

As measure of the relationship of the BPI stock and the market it was used the historical beta of the company. It was used a sample of two years to incorporate a wide period of data as well as possible changes in the risk behavior of the company. As periodicity it was chosen weekly data instead of daily data in order to exclude possible outliers and excess of volatility in the stock.

It will be considered that the cost of equity remains stable over the projection period and the perpetuity.

6.5. Solvency

In order to fulfill the Basel III requirements for solvency it was first computed the BPI own funds allocated to the domestic activity. For that, it was followed the rules stated by the BCBS on the third installment of the Basel Accords (2011). Therefore, to compute the Common Equity Tier I it was considered BPI (domestic) subscribed share capital,

equity instruments and reserves (excluding reserves created by revaluation of assets), own shares and minority interests deducted by the book value of intangible assets, deferred revenue expenditure (tax losses) and equity adjustments.

To calculate the risk weighted assets (RWA) it was used the historical percentage of the RWA on the Total assets, namely the average weight of the two last years, as assumption and applied to the Total assets estimation.

As mentioned on the regulatory framework chapter, the Basel III states that the Financial Institutions are obliged to meet a CET1 of at least 4.5% (pillar 1) plus a capital buffer of 2.5% (pillar 2) which totalizes 7%. It is also mentioned that after an individualized analysis to each bank, the Bank of Portugal and the European Central Bank can add capital requirements to the Basel III obligations. As it can be seen in Exhibit 31 below, according to SREP, in 2017, Banco BPI in a consolidated basis has to fulfill 9.25% of CET1. That ratio corresponds to the pillar 1 and 2 of the Basel III plus the buffer of capital conservation determined by the Bank of Portugal and the Guidance pillar 2 which is only applicable to the consolidated capital.

Exhibit 31: Minimum requirement for BPI, in 2017, according to SREP

Phasing-in	Consolidado					Individual
	Total	Dos quais:				Total
		Pilar 1	Pilar 2	Buffers [1]	Guidance Pilar 2	
CET1	9.25%	4.50%	2.50%	1.25%	1.0%	8.25% [2]
T1	9.75%	6.00%	2.50%	1.25%	-	9.75%
Rácio total	11.75%	8.00%	2.50%	1.25%	-	11.75%

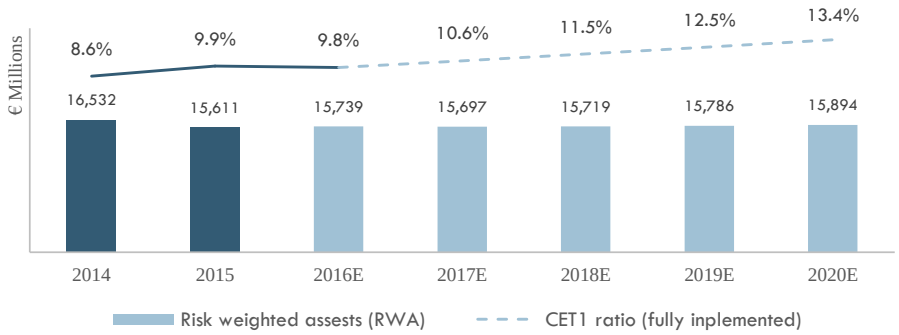
1) *As determined by the Bank of Portugal, the capital preservation buffer for 2017 is 1.25%, the counter-cyclical buffer is currently set at 0% and the O-SII buffer is null in 2017.*

2) *The difference between the requirement of individual CET1 and consolidated CET1 results from the guidance in Pillar 2 only applicable to consolidated CET1. The Pillar 2 is not relevant to determine the maximum distributable amount (MDA).*

Source: BPI Consolidated Results of 2016 (unaudited)

As presented in Exhibit 32, the fully implemented CET1 of 2015 of BPI for the domestic activity is 9.9%, which meets the minimum requirement of Bank of Portugal, nonetheless the CET1 ratio calculated according to the CRD IV/ CRR phasing in rules for 2015 is 11.0% which is comfortably above the required by the Bank of Portugal. In the estimations presented was only considered the fully implemented values for the ratios, CET1 capital and RWA. The fully implemented ratio of 9.9% already incorporate the adherence of BPI to the special deferred tax assets (DTA) regime and the estimations are in accordance with the maintenance of this assumption.

Exhibit 32: Risk weighed assets and Common equity tier 1 ratio (fully implemented)



Source: BPI's annual reports and author's projections

7. Valuation of BPI

7.1. Free cash flow to the equity

As previously discussed, the main issue in valuing financial institutions is related with the difficulty in estimating capital expenditures and working capital. In this way, reinvestment can be defined differently, since reinvestment in a bank is made in regulatory capital (defined by the regulatory authorities) instead of equipment or tangible assets.

As Professor Damodaran (2012) defines in his book the free cash flow to the equity in a financial services firm is expressed by the following formula.

$$FCFE_{Financial\ Services\ Firm} = Net\ Income - Reinvestment\ in\ Regulatory\ Capital \quad (30)$$

Due to the motives mentioned in the previous chapter, for the calculation of regulatory capital needs, it was considered a target CET1 ratio of 9.25% since it is the required by the Bank of Portugal for the specific case of Banco BPI, in 2017. The value suggested will be applied for the consolidated accounts since the whole domestic activity of BPI group is being valued. The minimum required for 2017 will be the base assumption for the target CET1 ratio in the projection period. After that, it is possible to calculate the equity movement as well as the value of the potential dividend (see Appendix 6: Calculation of the free cash flow to the equity (Scenario 1)). After discounting the potential dividends to the cost of equity, the final price per share is indicated in Exhibit 33.

Exhibit 33: Free cash flow to the equity (Scenario 1)

Free cash flow to the equity (Scenario 1)	
NPV	641.120
Terminal Value	966.912
Growth in prepetuity	1,8%
Equity Value (€ Thousands)	**1.608.031**
Number of shares (Thousands) (2015)	1.456.924
Value per share (€)	**1,10**

Source: Author

In Scenario 1, as the current CET1 ratio of BPI is higher than the target considered, it is being generated cash that does not come from the net income but from the excess of own funds that the bank has when compared to the minimum required.

In a more conservative approach (Scenario 2), shown in Exhibit 34, the current CET1 of the bank can be maintained, eliminating the excess of capitalization being released as cash flow, and considering an increase in this ratio of 0.5% per year for purpose of growth. The free cash flow will be lower but more consistent with the reality of the bank, since it is unlikely that BPI wishes to lower its CET1 ratio to the minimum required (see Appendix 7: Calculation of the free cash flow to the equity (Scenario 2)). After discounting that cash flow to the cost of equity the results shown in Exhibit 34 were obtained.

Exhibit 34: Free cash flow to the equity (Scenario 2)

Free cash flow to the equity (Scenario 2)	
NPV	521.656
Terminal Value	918.227
Growth in prepetuity	1,8%
Equity Value (€ Thousands)	**1.439.883**
Number of shares (Thousands) (2015)	1.456.924
Value per share (€)	**0,99**

Source: Author

Aiming to a better understanding on how the variations on cost of equity and in the growth rate in perpetuity influence the BPI equity value, it was performed a sensitivity analysis for the two scenarios presented in Exhibit 35 for the Scenario 1 and Exhibit 36 for the Scenario 2.

Exhibit 35: Sensitivity analysis for scenario 1

Growth	Cost of Equity				
	10.2%	11.2%	12.2%	13.2%	14.2%
0.8%	1.26	1.14	1.04	0.96	0.89
1.3%	1.31	1.18	1.07	0.98	0.91
1.8%	1.36	1.22	**1.10**	1.01	0.93
2.3%	1.42	1.27	1.14	1.04	0.95
2.8%	1.49	1.32	1.18	1.07	0.98

Source: Author

Exhibit 36: Sensitivity analysis for scenario 2

Growth	Cost of Equity				
	10.2%	11.2%	12.2%	13.2%	14.2%
0.8%	1.13	1.02	0.93	0.85	0.78
1.3%	1.18	1.06	0.96	0.87	0.80
1.8%	1.23	1.10	**0.99**	0.90	0.83
2.3%	1.29	1.14	1.02	0.93	0.85
2.8%	1.36	1.19	1.06	0.96	0.87

Source: Author

7.2. Dividend discount model

After a "potential dividend" approach, one can now focus on an "actual dividend" approach. By computing the FCFE, it was possible to observe the maximum payout ratio that can be applied in order to maintain the minimum required regulatory capital. In the FCFE approach this value is only informative but in the dividend discount model it can be very useful, once BPI does not distribute dividends since 2009, when it distributed 40%.

If one considers the most conservative approach (Exhibit 34), it can be defined a maximum payout ratio to incorporate in the DDM approach that does not compromise the reinvestment in regulatory capital. In addition, to find a reasonable payout ratio, it was observed the median of the payout ratio adopted by comparable banks in 2015 (See Appendix 8: Calculation of the dividend discount model) and concluded that a 50% payout would be a reasonable value.

In conclusion, after computing the dividends to be paid in the projection period and discounting them to the proper cost of equity, the following price per share is obtained (Exhibit 37), which is considerably lower than the price obtained from the free cash flow to the equity.

Exhibit 37: Dividend discount model

Dividend Discount Model	
NPV	281.432
Terminal Value	510.877
Growth in prepetuity	1,8%
Equity Value (€ Thousands)	**792.309**
Number of shares (Thousands) (2015)	1.456.924
Value per share (€)	**0,54**

Source: Author

To better understand how the variations on cost of equity and in the growth rate in perpetuity influence the BPI equity value, it was performed a sensitivity analysis, presented in Exhibit 38 below.

Exhibit 38: Sensitivity analysis for the dividend discount model

Growth	Cost of Equity				
	10.2%	11.2%	12.2%	13.2%	14.2%
0.8%	0.62	0.56	0.51	0.47	0.43
1.3%	0.65	0.58	0.53	0.48	0.44
1.8%	0.68	0.60	**0.54**	0.49	0.45
2.3%	0.71	0.63	0.56	0.51	0.47
2.8%	0.75	0.66	0.58	0.53	0.48

Source: Author

7.3. Relative valuation

Other valuation method, also discussed in the literature review chapter, is the valuation based on multiples of comparable companies. With this kind of valuation, it is easy and simple to observe the sector behavior as well as our company's behavior when compared to its industry.

Following the two major steps in relative valuation described in the literature review, firstly the multiples in which the valuation will be based on will be chosen. As it was mentioned before, the most used multiples to value financial services firms are PBV and PER.

The first is a reliable ratio, since it becomes easy to assess if the market is paying too much or too little by the equity invested in the firm's assets. This happens because a significant part of a financial institution's assets are tradable thus are market to market

value, making the book value reflect the market value of the assets more likely than their acquisition cost.

PER, also as discussed in the literature review, is influenced by the expectation of earnings growth, payout ratio and cost of equity. This multiple measures the amount that investors are willing to pay for a unit of earnings produced by the company.

The second step consists in choosing a reliable peer group that can be compared to BPI. This is a delicate task since the chosen peer group will dictate the accuracy of this kind of valuation. With the increasing globalization of banks' business, they became more exposed to several types of risk, such as macroeconomic, political and other. This limits the choice of a good comparable company, which is why the indicators selected to choose the peers are so important. However, if one restricts the choice too much, it is almost impossible to find a bank that is sufficiently similar to the one being valued. Thus, the indicators chosen to drive the selection of the peer group were: countries of operation, business nature, return on equity and CET1. Historical values were used, under the assumption that the historical performance can be assumed as a proxy of the future.

Exhibit 39: Peer group

Banks	PER	PBV
Banco Santander SA	11.5	0.9
Banco de Sabadell SA	12.9	0.7
Banco Bilbao Vizcaya Argentaria SA	12.5	1.0
CaixaBank SA	19.9	1.0
Bankia SA	13.4	0.9
Bankinter SA	15.6	1.6
Median	**13.1**	**0.9**

Source: Author

As it is possible to observe in Exhibit 39, the selected banks are all Spanish with mostly domestic operations. This happened due to many of the Portuguese banks no longer being listed in the stock exchange, making it difficult and inaccurate to estimate their multiples, as well as to avoid constructing the analysis based on banks in financial distress, which is not the case of BPI. The Spanish market is relatively similar to the Portuguese, and Spanish banks are currently the best comparison to Portuguese ones. Note that, if the takeover succeeds, BPI will become a Spanish bank as well.

Valuing BPI based on the PBV and PER multiples, one can achieve the results shown in Exhibit 40. The equity value obtained through PER is considerably lower than

the one obtained by the PBV due to the BPI net income from 2015 still being in recover from the negative values obtained in 2014 and 2013.

The value to consider in this valuation will be the average of the two valuations and used as a complement to the valuation using the free cash flow to the equity and the dividend discount model.

Exhibit 40: Relative valuation

Price to Book Value

Units: Thousands of Euros	2015
BPI Book Value	1,927,820
Peer group P/BV	0.94 x
BPI Equity Value	1,816,106
Number of Shares	1,456,924
Price per share	1.25

Price to Earnings Ratio

Units: Thousands of Euros	2015
BPI Earnings	93,106
Peer group P/E	13.13 x
BPI Equity Value	1,222,104
Number of Shares	1,456,924
Price per share	0.84

Average price per share	1.04

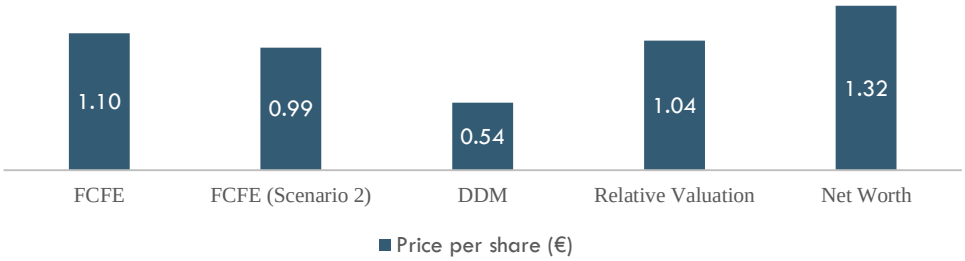
Source: Author

For further details on the peer group see Appendix 9: Peer group.

7.4. Valuation final results and limitations

After using the methods described in the previous chapters to estimate the price per share for the domestic activity of BPI, five possible values were obtained (also taking into consideration the Net worth of the company that consists in dividing the firm's shareholders' equity by the number of outstanding shares). As shown in Exhibit 41 below, the lowest value corresponds to the DDM model, once it is limited by the payout ratio, and the higher value corresponds to the first scenario of the FCFE since it only considers the minimum CET1 ratio to calculate the potential dividend.

Exhibit 41: Final price per share



Source: Author

The choice of the most appropriate model is always subjective and entails many considerations since all models have pros and cons. To make his choice, the author took into consideration that BPI does not distribute dividends since 2009, as well as the other Portuguese banks, and it does not seem to be part of the strategic plan of the bank to start doing it. For that reason, it does not seem accurate to use a DDM approach that implies the dividend distribution.

The multiples approach and the net worth of the firm were only used as guidelines for the prices obtained. The purpose of this thesis is to use other methodologies to value BPI as an alternative to relative valuation.

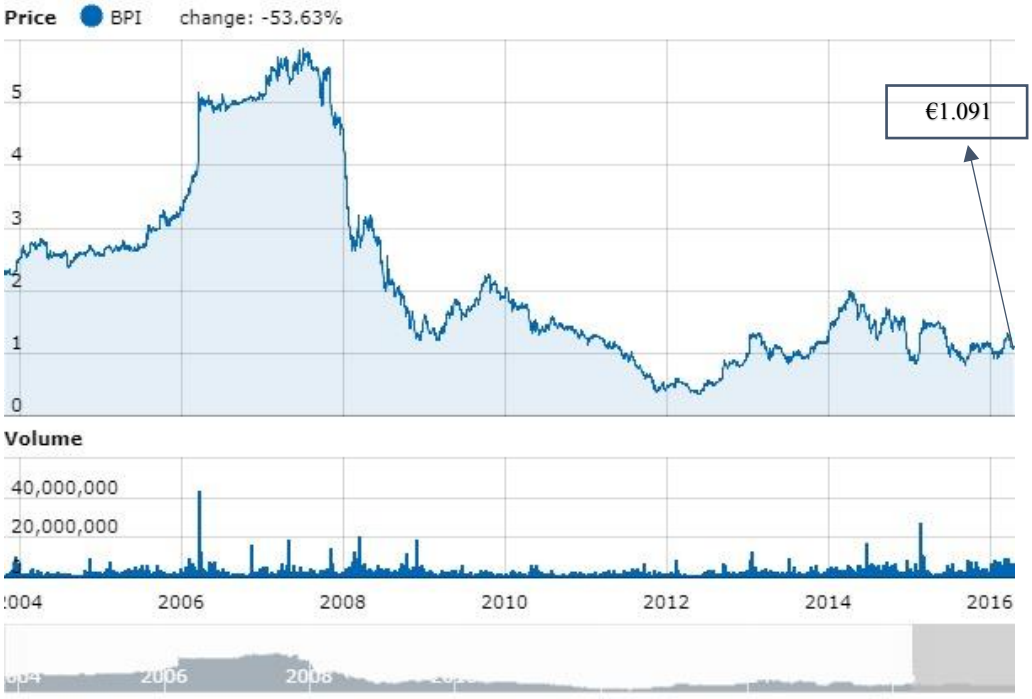
During the financial crises and the installment of Basel III, the regulatory framework was very uncertain so the FCFE model, which relies on capital ratios, may not have been a suitable option either. However, the regulatory framework is now much more stable thus, at this point, it seems reasonable to use this method to estimate the potential dividends.

Nonetheless, this thesis presents two different scenarios for this kind of valuation. A first in which it is considered the minimum CET1 ratio required by the Bank of Portugal, and a second where it is assumed that the current CET1 ratio of the Bank is maintained and increases 0.5% per year over the projection period. This second scenario seems more realistic than the first since it is not likely that BPI would want to lower its capital ratio for the minimum required, the trend is to maintain this ratio slightly above the minimum expected.

For these reasons, the author decided to consider as the final price the €0.99 per share resulting from the free cash flow to the equity (Scenario 2).

When looking at the historical share price of Banco BPI, shown below in Exhibit 42, it is possible to observe that the price on 31st of December 2015 was €1.091. Note that this price reflects the entire bank's activity (domestic and international), thus it was expected to be slightly higher.

Exhibit 42: BPI's share price evolution



Source: NYSE Euronext Lisbon

Therefore, considering that the final price is 0.99€, one cannot forget that there are some issues that were not yet discussed. The purpose of this thesis is to make a critical comment on the price offered by the CaixaBank to BPI in a takeover context.

On the takeover proposal, CaixaBank referred that if they acquire BPI, the Bank would benefit from positive synergies with a value of €600.0m (NPV value). In the report issued by BPI to comment on the CaixaBank offering, they estimated the value of this synergies of being €0.41 per share (validating the CaixaBank estimate), however, they also considered that, since CaixaBank is acquiring the majority of the Bank's shares, 50% of this synergies would be diluted for the BPI shareholders. In this way, only €0.20 per share could be considered as synergies, as shown in Exhibit 43 below, and the final price would be €1.19 per share.

Exhibit 43: Synergies

	M.€
Total synergies per year (year 3) – gross amount	**119**
Costs	84
Income	35
Restructuring costs (gross value)	250
Current estimated net present value of synergies	595
Total number of Banco BPI Shares	1 457
100% value of synergies per share (in euro)	0.408
50% value of synergies per share (in euro)	**0.20**

Source: Report of Banco BPI, S.A's Board of Directors, prepared under the terms of Article 181, paragraph 1, of the Securities Code, on the opportuneness and conditions for the Tender Offer (TO) for Banco BPI, S.A.' shares, announced by CaixaBank, S.A.

Another point not to be forgotten, is that the BPI group is also composed by an international part represented by a 50.1% share on BFA and 30% share on BCI that were not considered in the domestic activity valuation.

According to BPI's valuation, the international activity would add to the final price €0.64 per share, if BFA is valued at €1.600m (Santoro's statement, 2016), or €0.09 per share under the assumption that BFA is valued at €0. In this case, the international activity will not be taken into consideration for the reasons mentioned before.

This thesis faced several limitations, one of them being the lack of data to make a deeper and more complete analysis.

First, in order to achieve the correct price to be compared to the one offered by CaixaBank, BPI should have been valued at the date of the takeover announcement. However, and besides the existence of quarterly accounts, the analysis would be very poor in terms of detail of the lines of the balance sheet and income statement, especially for the domestic activity accounts. For that reason, the author chose to value the Bank at 31st of December 2015.

The absence of information regarding the weights of Basel III, used historically by the Bank in each line of the balance sheet for the calculation of the RWA, limited the possibility of calculating this assets in more detail. Thus, the methodology chosen consisted in considering the RWA an historical percentage of total assets.

The other limitation regarding the possibility to compare the final price with the one offered by CaixaBank is related to the above mentioned synergies estimation, since the author did not have the means to assess that value.

8. Conclusion

Portugal lived a severe financial crisis in the latest years that reached its peak in 2011 with the intervention of Troika in the country's economy and financial system. During that period, the Portuguese banks were highly dependent on the ECB funding and severely pressured by the government and the regulatory authorities, in order to reduce their exposure to risk (through the reduction of RWA) and to meet higher capital requirements to cover unexpected losses.

Over the last years, there has been a considerable recovery, which led to the end of the bail-out program in 2014, and the country is currently facing positive, although still moderate, expectations. The Portuguese banking sector, being clearly linked in all aspects to the economy, benefits from these expectations.

The purpose of this thesis is to value one of the biggest Portuguese banks in this economic context and compare the final price with the one offered by the CaixaBank in the takeover bid, previously contextualized.

Given the new and stable perspectives for the Portuguese economy, the author considers that it is possible, at this point, to rely on discount equity models which take into account the regulatory capital imposed by the third Basel accord and the Bank of Portugal, since the regulatory framework is much more stable now that during the crisis period. That was one of the reasons why the author chose to use a free cash flow to the equity model to determine a final price per share of €0.99. Although, instead of considering the minimum CET1 ratio imposed by the Bank of Portugal, it was assumed that the Bank would maintain its current CET1 ratio and would increase it by 0.5% each year during the projection period in order to invest in regulatory capital and to be able to grow.

As mentioned before, another goal of this thesis is to compare this final price with the one offered by CaixaBank in the takeover bid. In its takeover proposal, CaixaBank referred that it would be possible to obtain synergies from the transaction that totalizes €0.41 per share. Subsequently, BPI argues that that synergies would be diluted by 50% for its shareholders due to the control transfer. This way, considering the value of €0.20 per share of synergies, the final price would be, as it is shown in Exhibit 44 below, €1.19 per share, which is €0.08 higher (6.7%) than the one offered by the bidder. Summing up, one can conclude that the price offered by CaixaBank, according to the calculations made in this thesis, is in line with the value of the domestic activity of BPI plus synergies obtained from the transaction.

Exhibit 44: Final price with synergies

Domestic activity	Prices per share
Price per share (FCFE)	0.9883
Synergies	0.2040
Total Price per share	**1.1923**
Price CaixaBank	1.1130
Difference	**0.0793**
Difference %	*6.65%*

Source: Author

The price offered by the bidder does not seem to include the international activity, or at least not all the value of the international activity (even if the synergies effect is excluded).

Similarly to what was done in BPI's board of directors' report, one can create two scenarios. One in which BFA is valued at zero and one where it is valued at €1.600m by 100% of its share capital (according to the Santoro statement).

Using the valuation of BFA and BCI made by BPI, one can observe in Exhibit 45 bellow that, even excluding the synergies, the price offered would only cover the BCI Mozambique valuation (the CaixaBank offered price would be 3.22% higher) and not the BFA (the CaixaBank offered price would be 31.65% lower). This is quite reasonable, given all the problematic concerning the obligations imposed by the ECB to Banco BPI regarding its exposure to the Angolan market.

Exhibit 45: Final price considering also international activity

BPI Consolidated	Prices per share
Domestic Activity	
Price per share (FCFE)	0.99
International Activity	
BFA @€0 [1]	-
BCI[1]	0.09
Total Price per share	**1.08**
Price CaixaBank	1.11
Difference	**(0.03)**
Difference %	*-3.22%*

BPI Consolidated	Prices per share
Domestic Activity	
Price per share (FCFE)	0.99
International Activity	
BFA @€1.600m[1]	0.55
BCI[1]	0.09
Total Price per share	**1.63**
Price CaixaBank	1.11
Difference	**0.52**
Difference %	*31.65%*

[1] Report of the Board of directors of Banco BPI, May 2016

Source: Author

Summing up, based on the estimations and calculations presented in this thesis, it is possible to conclude that the price offered by CaixaBank in the takeover seems to be in line with the value of the domestic activity plus synergies, or the value of the consolidated BPI activity excluding synergies and considering that BFA's value in the context of this transaction would be null due to the uncertainty that surrounds it. Nonetheless, to assess the quality of the offered price will always depend on the strategic goals of each shareholder of the Bank.

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Press release of Banco de Portugal on the sale of Banif - Banco Internacional do Funchal, S.A. – published on December 2015.

Press release of Bank of Portugal on the Identification of other systemically important institutions (O-SIIs) and imposition of capital buffers – published on December 2015.

Press release of Bank of Portugal on the results of the euro area credit market survey in October 2016 – published on October 2016.

Press Releases related to BPI:

Press release of Banco BPI on "Report of Banco BPI, S.A's Board of Directors, prepared under the terms of Article 181, paragraph 1, of the Securities Code, on the opportuneness and conditions for the Tender Offer (TO) for Banco BPI, S.A.' shares, announced by CaixaBank, S.A." – published on May 2016.

Press release of Banco BPI on Consolidated results of Banco BPI in 2016 – published on January 2017.

Press release of Santoro Finance on the valuation of BFA – published on April 2016

Websites:

Banco BPI Website: http://www.bancobpi.pt

Banco BPI Investor Relations Website: https://bpi.bancobpi.pt/

Bank for International Settlements: http://www.bis.org/

Bank of Portugal Website: https://www.bportugal.pt/

Basel III Accord Website: http://www.basel-iii-accord.com/

European Central Bank Website: https://www.bankingsupervision.europa.eu/home/html/index.en.html

European Commission Website: http://europa.eu/rapid/press-release_MEMO-16-3840_en.htm

NYSE Euronext Lisbon Website: https://www.euronext.com/en

Professor Damodaran Website: http://pages.stern.nyu.edu/~adamodar/

Other:

Bloomberg terminal

10. Appendices

Appendix 1: Banco BPI's Domestic activity's balance sheet

Domestic Balance Sheet

Units: Thousands of Euros	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Cash and deposits at central banks	223,904	233,218	314,760	439,861	997,650	894,698	803,411	739,693	702,154	690,121
Growth Rate	*n.a.*	*4.16%*	*34.96%*	*39.74%*	*126.81%*	*-10.32%*	*-10.20%*	*-7.93%*	*-5.07%*	*-1.71%*
Deposits at other credit institutions	340,673	378,376	457,786	364,530	434,438	545,314	489,674	450,838	427,959	420,625
Growth Rate	*n.a.*	*11.07%*	*20.99%*	*-20.37%*	*19.18%*	*25.52%*	*-10.20%*	*-7.93%*	*-5.07%*	*-1.71%*
Financial assets held for trading and at fair value through profit or loss	925,985	957,832	1,155,425	2,803,584	3,147,063	3,147,063	3,147,063	3,147,063	3,147,063	3,147,063
Financial assets available for sale	4,586,481	8,393,222	7,408,312	4,862,063	3,722,996	3,722,996	3,722,996	3,722,996	3,722,996	3,722,996
Loans and advances to credit institutions	2,081,202	1,191,479	1,284,168	1,208,884	732,545	727,835	691,942	668,302	656,058	654,888
Loans and advances to Customers	27,297,653	26,263,164	24,893,496	23,436,001	22,788,062	22,886,523	22,993,431	23,176,668	23,399,335	23,656,718
Growth Rate	*n.a.*	*-3.79%*	*-5.22%*	*-5.85%*	*-2.76%*	*0.43%*	*0.47%*	*0.80%*	*0.96%*	*1.10%*
Gross Loans	27,896,800	26,973,400	25,756,000	24,394,796	23,668,050	23,770,311	23,881,348	24,071,661	24,302,927	24,570,249
Impairment losses	(599,147)	(710,236)	(862,504)	(958,795)	(879,988)	(883,789)	(887,917)	(894,993)	(903,592)	(913,531)
Held to maturity investments	766,190	445,298	136,877	88,382	22,417	22,417	22,417	22,417	22,417	22,417
Hedging derivates	279,843	280,737	194,043	148,693	91,286	91,286	91,286	91,286	91,286	91,286
Non-current assets held for sale	-	-	-	11,604	-	-	-	-	-	-
Investment properties	-	-	-	154,777	-	-	-	-	-	-
Other tangible assets	97,391	80,496	69,323	62,421	66,010	58,165	51,889	46,868	42,851	39,637
Growth Rate	*n.a.*	*-17.35%*	*-13.88%*	*-9.96%*	*5.75%*	*-11.88%*	*-10.79%*	*-9.68%*	*-8.57%*	*-7.50%*
Intangible assets	7,821	11,885	16,871	22,072	25,477	28,882	32,457	36,390	40,716	45,042
Growth Rate	*n.a.*	*51.96%*	*41.95%*	*30.83%*	*15.43%*	*13.36%*	*12.38%*	*12.12%*	*11.89%*	*10.62%*
Investments in associated companies and jointly controlled entities	144,290	163,364	177,025	158,204	146,127	146,127	146,127	146,127	146,127	146,127
Growth Rate	*n.a.*	*13.22%*	*8.36%*	*-10.63%*	*-7.63%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Tax assets	903,441	617,593	536,489	413,810	411,019	408,247	405,493	402,758	400,042	397,344
Growth Rate	*n.a.*	*-31.64%*	*-13.13%*	*-22.87%*	*-0.67%*	*-0.67%*	*-0.67%*	*-0.67%*	*-0.67%*	*-0.67%*
Other assets	670,384	642,462	700,588	671,378	685,890	679,004	672,188	665,439	658,759	652,146
Growth Rate	*n.a.*	*-4.17%*	*9.05%*	*-4.17%*	*2.16%*	*-1.00%*	*-1.00%*	*-1.00%*	*-1.00%*	*-1.00%*
Total assets	**38,325,258**	**39,659,126**	**37,345,163**	**34,846,264**	**33,270,980**	**33,358,557**	**33,270,374**	**33,316,846**	**33,457,762**	**33,686,411**

Units: Thousands of Euros	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Resources of central banks	2,499,197	4,270,918	4,140,068	1,561,185	1,520,735	1,520,735	1,520,735	1,520,735	1,520,735	1,520,735
Growth Rate	*n.a.*	*70.89%*	*-3.06%*	*-62.29%*	*-2.59%*	*0.74%*	*0.74%*	*0.74%*	*0.74%*	*0.74%*
Financial liabilities held for trading	454,238	340,164	254,012	324,515	268,621	268,621	268,621	268,621	268,621	268,621
Resources of other credit institutions	2,913,655	3,690,870	2,535,442	2,007,249	1,895,735	1,914,834	1,935,606	1,958,062	1,980,773	2,003,572
Resources of Customers and other debts	19,871,347	19,306,990	19,796,500	20,685,680	21,264,795	21,356,674	21,456,436	21,627,425	21,835,207	22,075,386
Debt securities	6,691,953	3,787,627	2,598,455	2,238,074	1,077,381	1,088,235	1,100,041	1,112,803	1,125,710	1,138,667
Growth Rate	*n.a.*	*-43.40%*	*-31.40%*	*-13.87%*	*-51.86%*	*1.01%*	*1.08%*	*1.16%*	*1.16%*	*1.15%*
Financial liabilities relating to transferred assets	1,414,597	1,590,984	1,387,296	1,047,731	689,522	689,522	689,522	689,522	689,522	689,522
Growth Rate	*n.a.*	*12.47%*	*-12.80%*	*-24.48%*	*-34.19%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Hedging derivatives	661,904	814,983	548,458	327,219	161,556	161,556	161,556	161,556	161,556	161,556
Growth Rate	*n.a.*	*23.13%*	*-32.70%*	*-40.34%*	*-50.63%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Provisions	92,928	104,670	102,062	76,029	73,504	75,520	76,339	77,225	78,120	79,020
Growth Rate	*n.a.*	*12.64%*	*-2.49%*	*-25.51%*	*-3.32%*	*2.74%*	*1.08%*	*1.16%*	*1.16%*	*1.15%*
Technical provisions	2,625,181	2,255,364	2,689,768	4,151,830	3,663,094	3,447,492	3,041,668	2,683,615	2,367,711	2,088,994
Growth Rate	*n.a.*	*-14.09%*	*19.26%*	*54.36%*	*-11.77%*	*-11.77%*	*-11.77%*	*-11.77%*	*-11.77%*	*-11.77%*
Tax liabilities	24,518	112,080	39,140	25,486	51,295	57,575	58,199	58,874	59,557	60,243
Growth Rate	*n.a.*	*357.13%*	*-65.08%*	*-34.89%*	*101.27%*	*12.24%*	*1.08%*	*1.16%*	*1.16%*	*1.15%*
Contingent convertible subordinated bonds	-	1,200,279	920,433	-	-	-	-	-	-	-
Other subordinated debt and participating bonds	214,491	156,331	136,931	69,521	69,512	69,503	69,494	69,485	69,476	69,467
Growth Rate	*n.a.*	*-27.12%*	*-12.41%*	*-49.23%*	*-0.01%*	*-0.01%*	*-0.01%*	*-0.01%*	*-0.01%*	*-0.01%*
Other liabilities	623,631	585,095	554,728	678,818	605,608	640,687	677,797	717,057	758,591	802,531
Growth Rate	*n.a.*	*-6.18%*	*-5.19%*	*22.37%*	*-10.78%*	*5.79%*	*5.79%*	*5.79%*	*5.79%*	*5.79%*
Total Liabilities	38,087,640	38,216,355	35,703,293	33,193,337	31,341,358	31,290,954	31,056,014	30,944,980	30,915,580	30,958,314
Subscribed share capital	706,149	996,086	1,026,421	1,103,456	1,093,029	1,093,029	1,093,029	1,093,029	1,093,029	1,093,029
	91,608	-	-	-	-	-	-	-	-	-
Other equity instruments	5,728	7,163	2,945	4,497	4,390	4,390	4,390	4,390	4,390	4,390
Revaluation reserves	(892,696)	(424,897)	(312,481)	(43,644)	(74,018)	(74,018)	(74,018)	(74,018)	(74,018)	(74,018)
Other reserves and retained earnings	642,176	658,066	897,907	889,281	822,130	915,236	1,053,217	1,199,974	1,357,480	1,527,796
(Treasury shares)	(14,993)	(15,295)	(14,741)	(11,800)	(10,817)	(10,817)	(10,817)	(10,817)	(10,817)	(10,817)
Consolidated net income of the BPI Group	(374,868)	162,624	(28,338)	(290,668)	93,106	137,981	146,757	157,506	170,316	185,915
Shareholders' equity attributable to the shareholders of BPI	163,104	1,383,748	1,571,714	1,651,122	1,927,820	2,065,801	2,212,558	2,370,064	2,540,380	2,726,295
Non-controlling interest	74,514	59,023	70,156	1,805	1,802	1,802	1,802	1,802	1,802	1,802
Total shareholders' equity	237,618	1,442,771	1,641,870	1,652,927	1,929,622	2,067,603	2,214,360	2,371,866	2,542,182	2,728,097
Total liabilities and shareholders' equity	**38,325,258**	**39,659,126**	**37,345,163**	**34,846,264**	**33,270,980**	**33,358,557**	**33,270,374**	**33,316,846**	**33,457,762**	**33,686,411**

Appendix 2: Banco BPI's Domestic activity's income statement

Units: Thousands of Euros	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Interest and similar income				1,002,961	689,791	434,514	437,810	463,619	515,214	582,286
Interest and similar expenses				(754,261)	(373,410)	(104,688)	(106,915)	(129,264)	(175,137)	(234,968)
Financial margin (narrow sense)	345,348	368,656	254,404	248,700	316,381	329,826	330,896	334,354	340,077	347,318
Gross margin on unit links	3,800	2,671	3,010	5,029	12,967	13,098	13,240	13,393	13,549	13,705
Income from equity instruments	1,644	3,481	3,657	3,612	4,739	4,787	4,839	4,895	4,952	5,009
Net commission relating to amortised cost	28,003	26,474	23,379	20,402	21,114	21,971	22,073	22,249	22,463	22,710
Financial margin	**378,795**	**401,282**	**284,450**	**277,743**	**355,201**	**369,681**	**371,047**	**374,892**	**381,040**	**388,741**
Technical result of insurance contracts	(30,122)	23,012	24,756	34,393	31,804	32,124	32,473	32,850	33,231	33,613
Commissions received	274,653	300,454	273,278	270,306	261,446	-	-	-	-	-
Commissions paid	(43,094)	(38,642)	(35,452)	(41,012)	(32,569)	-	-	-	-	-
Other income, net	22,010	20,060	18,627	16,956	27,058	-	-	-	-	-
Net commission income	253,569	281,872	256,453	246,250	255,935	286,914	287,974	290,958	295,730	301,707
Gain and loss on operations at fair value	133,955	153,634	35,135	40,313	53,618	54,158	54,746	55,381	56,023	56,668
Gain and loss on assets available for sale	310	169,004	132,281	(135,005)	(6,113)	(6,175)	(6,242)	(6,314)	(6,387)	(6,461)
Interest and financial gain and loss with pensions	8,547	3,067	4,193	1,991	413	417	422	427	432	436
Net income on financial operations	142,812	325,705	171,609	(92,701)	47,918	48,401	48,926	49,493	50,067	50,644
Operating income	107,019	10,717	11,791	31,791	22,858	27,600	27,899	28,223	28,550	28,879
Operating expenses	(130,509)	(19,727)	(28,414)	(43,233)	(40,861)	(42,471)	(42,931)	(43,429)	(43,933)	(44,439)
Other taxes	(6,181)	(4,646)	(4,941)	(5,480)	(6,678)	(6,079)	(6,678)	(6,678)	(6,678)	(6,678)
Net operating loss	(29,671)	(13,656)	(21,564)	(16,922)	(24,681)	(20,950)	(21,710)	(21,885)	(22,061)	(22,238)
Operating income from banking activity	**715,383**	**1,018,215**	**715,704**	**448,763**	**666,177**	**716,170**	**718,710**	**726,308**	**738,007**	**752,466**
Personnel costs	(365,103)	(309,987)	(322,467)	(334,522)	(300,243)	(287,319)	(276,040)	(265,996)	(256,572)	(247,731)
General administrative costs	(182,596)	(179,913)	(177,930)	(178,485)	(177,324)	(178,622)	(180,642)	(183,231)	(186,042)	(189,085)
Depreciation and amortisation	(25,647)	(20,398)	(18,088)	(16,682)	(19,766)	(15,030)	(15,003)	(15,238)	(15,707)	(16,288)
Overhead costs	(573,346)	(510,298)	(518,485)	(529,689)	(497,333)	(480,971)	(471,686)	(464,464)	(458,320)	(453,104)
Recovery of loans, interest and expenses	17,474	12,829	15,313	13,969	16,248	16,860	17,496	18,155	18,839	19,550
Growth rate		*-26.58%*	*19.36%*	*-8.78%*	*16.31%*	*3.77%*	*3.77%*	*3.77%*	*3.77%*	*3.77%*
Impairment losses and provisions	(695,817)	(288,123)	(250,080)	(210,320)	(119,270)	(84,523)	(84,824)	(85,366)	(86,034)	(86,811)
Growth rate		*-58.59%*	*-13.20%*	*-15.90%*	*-43.29%*	*-29.13%*	*0.36%*	*0.64%*	*0.78%*	*0.90%*
Net income before income tax	**(536,306)**	**232,623**	**(37,548)**	**(277,277)**	**65,822**	**167,536**	**179,696**	**194,633**	**212,492**	**232,100**
Income tax	147,601	(81,888)	(4,983)	(27,266)	4,186	(48,528)	(52,115)	(56,522)	(61,790)	(66,020)
Earnings of associated companies (equity method)	21,505	13,554	16,301	14,554	23,141	19,037	19,244	19,467	19,693	19,920
Global consolidated net income	**(367,200)**	**164,289**	**(26,230)**	**(289,989)**	**93,149**	**138,045**	**146,825**	**157,578**	**170,395**	**186,000**
Income attributable to non-controlling interests	(7,668)	(1,665)	(2,108)	(679)	(43)	(64)	(68)	(73)	(79)	(86)
Consolidated net income of the BPI Group	**(374,868)**	**162,624**	**(28,338)**	**(290,668)**	**93,106**	**137,981**	**146,757**	**157,506**	**170,316**	**185,915**

Appendix 3: Financial margin calculation

Units: Thousands of Euros	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Financial margin and comissions										
(+) Loans to Costumers	**843,301**	**758,003**	**601,155**	**556,612**	**488,364**	**434,514**	**437,810**	**463,619**	**515,214**	**582,286**
Companies, institutionals and project Finance	**393,455**	**387,083**	**288,503**	**241,270**	**196,968**	**179,709**	**178,558**	**184,995**	**199,658**	**219,076**
Ative interest rate	3.40%	3.70%	3.30%	3.20%	2.70%	2.44%	2.45%	2.55%	2.75%	3.01%
Net loans	11,572,200	10,461,700	8,742,500	7,539,700	7,295,100	7,364,541	7,293,162	7,261,297	7,254,792	7,267,672
Growth Rate		*-1.62%*	*-25.47%*	*-16.37%*	*-18.36%*	*-8.76%*	*-0.64%*	*3.61%*	*7.93%*	*9.73%*
Mortgage loans	**249,790**	**223,041**	**148,022**	**154,337**	**129,767**	**100,710**	**102,727**	**115,121**	**139,691**	**171,719**
Ative interest rate	2.20%	1.90%	1.30%	1.40%	1.20%	0.94%	0.95%	1.05%	1.25%	1.51%
Net loans	11,354,100	11,739,000	11,386,300	11,024,100	10,813,900	10,711,708	10,832,858	10,988,092	11,156,650	11,339,173
Growth Rate		*-10.71%*	*-33.63%*	*4.27%*	*-15.92%*	*-22.39%*	*2.00%*	*12.07%*	*21.34%*	*22.93%*
Other loans to individuals	**84,123**	**75,991**	**66,989**	**61,603**	**61,397**	**60,915**	**62,025**	**63,946**	**66,908**	**70,576**
Ative interest rate	6.80%	7.10%	7.20%	7.20%	7.00%	6.74%	6.75%	6.85%	7.05%	7.31%
Net loans	1,237,100	1,070,300	930,400	855,600	877,100	903,757	919,121	933,827	948,768	964,897
Growth Rate		*-9.67%*	*-11.85%*	*-8.04%*	*-0.33%*	*-0.79%*	*1.82%*	*3.10%*	*4.63%*	*5.48%*
Loans to small businesses	**78,212**	**66,226**	**56,452**	**60,908**	**61,920**	**59,773**	**60,564**	**63,032**	**67,437**	**72,982**
Ative interest rate	4.00%	4.20%	4.00%	4.20%	3.70%	3.44%	3.45%	3.55%	3.75%	4.01%
Net loans	1,955,300	1,576,800	1,411,300	1,450,200	1,673,500	1,737,490	1,756,339	1,776,715	1,797,322	1,818,010
Growth Rate		*-15.33%*	*-14.76%*	*7.89%*	*1.66%*	*-3.47%*	*1.32%*	*4.08%*	*6.99%*	*8.22%*
Other	**37,722**	**5,662**	**41,189**	**38,493**	**38,313**	**33,407**	**33,938**	**36,525**	**41,520**	**47,932**
Ative interest rate	3.20%	0.40%	1.70%	1.50%	1.80%	1.54%	1.55%	1.65%	1.85%	2.11%
Net loans	1,178,800	1,415,500	2,422,900	2,566,200	2,128,500	2,169,026	2,191,952	2,216,737	2,241,803	2,266,967
Growth Rate		*-84.99%*	*627.47%*	*-6.55%*	*-0.47%*	*-12.80%*	*1.59%*	*7.62%*	*13.68%*	*15.44%*
(-) Customer resources	**397,427**	**444,061**	**336,541**	**310,285**	**170,118**	**104,688**	**106,915**	**129,264**	**175,137**	**234,968**
Passive interest rate	2.00%	2.30%	1.70%	1.50%	0.80%	0.49%	0.50%	0.60%	0.80%	1.06%
Deposits	19,871,347	19,306,990	19,796,500	20,685,680	21,264,795	21,356,674	21,456,436	21,627,425	21,835,207	22,075,386
Growth Rate		*11.73%*	*-24.21%*	*-7.80%*	*-45.17%*	*-38.46%*	*2.13%*	*20.90%*	*35.49%*	*34.16%*
Financial margin (narrow sense)	345,348	368,656	254,404	248,700	316,381	329,826	330,896	334,354	340,077	347,318
Average Active interest rate	3.09%	2.89%	2.41%	2.38%	2.14%	1.90%	1.90%	2.00%	2.20%	2.46%
Average Passive interest rate	2.00%	2.30%	1.70%	1.50%	0.80%	0.49%	0.50%	0.60%	0.80%	1.06%
Intermediation Margin	**1.09%**	**0.59%**	**0.71%**	**0.88%**	**1.34%**	**1.41%**	**1.41%**	**1.40%**	**1.40%**	**1.40%**
Gross margin on unit links	3,800	2,671	3,010	5,029	12,967	13,098	13,240	13,393	13,549	13,705
Income from equity instruments	1,644	3,481	3,657	3,612	4,739	4,787	4,839	4,895	4,952	5,009
Net commission relating to amortised cost	28,003	26,474	23,379	20,402	21,114	21,971	22,073	22,249	22,463	22,710
Weight on Gross Loans	*0.10%*	*0.10%*	*0.09%*	*0.08%*	*0.09%*	*0.09%*	*0.09%*	*0.09%*	*0.09%*	*0.09%*
Financial margin	**378,795**	**401,282**	**284,450**	**277,743**	**355,201**	**369,681**	**371,047**	**374,892**	**381,040**	**388,741**

Appendix 4: Tangible and intangible assets

Units: Thousands of Euros	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Domestic Operations										
Net										
Tangible assets	97,391	80,496	69,323	62,421	66,010	58,165	51,889	46,868	42,851	39,637
Intangible assets	7,821	11,885	16,871	22,072	25,477	28,882	32,457	36,390	40,716	45,042
Total	105,212	92,381	86,194	84,493	91,487	87,047	84,346	83,258	83,567	84,680
Cumulative depreciation										
Tangible assets	(216,032)	(197,026)	(183,149)	(157,597)	(168,786)	(176,932)	(184,198)	(190,762)	(196,762)	(202,313)
Intangible assets	(69,236)	(73,385)	(78,099)	(81,750)	(82,884)	(89,768)	(97,505)	(106,180)	(115,886)	(126,622)
Total	(285,268)	(270,411)	(261,248)	(239,347)	(251,670)	(266,700)	(281,704)	(296,941)	(312,648)	(328,936)
Period depreciation										
Tangible assets	(14,716)	(11,684)	(9,709)	(7,703)	(9,274)	(8,145)	(7,267)	(6,563)	(6,001)	(5,551)
% of the net	*-15.1%*	*-14.5%*	*-14.0%*	*-12.3%*	*-14.0%*	*-14.0%*	*-14.0%*	*-14.0%*	*-14.0%*	*-14.0%*
Intangible assets	(2,318)	(2,113)	(3,294)	(4,936)	(7,614)	(6,885)	(7,737)	(8,674)	(9,706)	(10,737)
% of the net	*-29.6%*	*-17.8%*	*-19.5%*	*-22.4%*	*-29.9%*	*-23.8%*	*-23.8%*	*-23.8%*	*-23.8%*	*-23.8%*
Total	(17,033)	(13,797)	(13,003)	(12,640)	(16,888)	(15,030)	(15,003)	(15,238)	(15,707)	(16,288)
Investment										
Tangible assets		(16,895)	(11,173)	(6,902)	3,589	(7,845)	(6,276)	(5,021)	(4,017)	(3,213)
Intangible assets		4,064	4,986	5,201	3,405	3,405	3,575	3,933	4,326	4,326

Appendix 5: Calculation of own funds and RWA

Regulatory Capital

Units: Thousands of Euros	2011	2012	2013	2014	2015	jun-16	2016E	2017E	2018E	2019E	2020E
Calculation of Own funds											
Share capital, premiuns and reserves											
Subscribed share capital	706,149	996,086	1,026,421	1,103,456	1,093,029		1,093,029	1,093,029	1,093,029	1,093,029	1,093,029
Other equity instruments	5,728	7,163	2,945	4,497	4,390		4,390	4,390	4,390	4,390	4,390
Other reserves and retained earnings	642,176	658,066	897,907	889,281	822,130		915,236	1,053,217	1,199,974	1,357,480	1,527,796
(Treasury shares)	(14,993)	(15,295)	(14,741)	(11,800)	(10,817)		(10,817)	(10,817)	(10,817)	(10,817)	(10,817)
Non-controlling interest	74,514	59,023	70,156	1,805	1,802		1,802	1,802	1,802	1,802	1,802
Intagible assets	(7,821)	(11,885)	(16,871)	(22,072)	(25,477)		(28,882)	(32,457)	(36,390)	(40,716)	(45,042)
Tax losses	-	-	-	(100,710)	(101,347)	-	(100,663)	(99,335)	(98,665)	(97,999)	(97,338)
Adjustments				(444,928)	(231,210)		(338,069)	(338,069)	(338,069)	(338,069)	(338,069)
Common Equity Tier 1 (fully implemented)	**n.a.**	**n.a.**	**n.a.**	**1,419,529**	**1,552,500**		**1,536,026**	**1,671,760**	**1,815,254**	**1,969,099**	**2,135,751**
Addicional Tier 1											
Tier II							(69,503)	(69,494)	(69,485)	(69,476)	(69,467)
Sudornidated debt							(69,503)	(69,494)	(69,485)	(69,476)	(69,467)
Total own funds	**n.a.**	**n.a.**	**n.a.**	**1,419,529**	**1,552,500**		**1,466,523**	**1,602,266**	**1,745,769**	**1,899,623**	**2,066,284**
Calculation of the RWA											
Total Assets	38,325,258	39,659,126	37,345,163	34,846,264	33,270,980		33,358,557	33,270,374	33,316,846	33,457,762	33,686,411
% of RWA in Total Assets				47.4%	46.9%		47.2%	47.2%	47.2%	47.2%	47.2%
Risk weighted assests (RWA)				**16,532,049**	**15,610,700**		**15,739,015**	**15,697,409**	**15,719,335**	**15,785,821**	**15,893,701**

Appendix 6: Calculation of the free cash flow to the equity (scenario 1)

Units: Thousands of Euros	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Calculation of the Free cash flow to equity (Scenario 1)										
CET1 ratio (fully inplemented)				**8.59%**	**9.95%**	**9.76%**	**10.65%**	**11.55%**	**12.47%**	**13.44%**
Target Ratio						**9.25%**	**9.25%**	**9.25%**	**9.25%**	**9.25%**
Minimum CET1 (Bank of Portugal)						9.25%	9.25%	9.25%	9.25%	9.25%
Additional Buffer for growth porposes										
Regulatory capital (RWA * Target CET1)						**1,455,859**	**1,452,010**	**1,454,038**	**1,460,188**	**1,470,167**
Equity movement										
Required Capital (beginning of the year)					1,419,529	1,552,500	1,455,859	1,452,010	1,454,038	1,460,188
(+) Share capital increase					-	-	-	-	-	-
(+) Consolidated net income of the BPI Group					93,106	137,981	146,757	157,506	170,316	185,915
(-) Dividends to pay					(39,865)	234,623	150,605	155,477	164,166	175,936
Required Capital (end of the year)					**1,552,500**	**1,455,859**	**1,452,010**	**1,454,038**	**1,460,188**	**1,470,167**
Implied Payout Ratio						*170.04%*	*102.62%*	*98.71%*	*96.39%*	*94.63%*
Calculation of the free cash flow to the equity										
(+) Dividend and potential dividends						234,623	150,605	155,477	164,166	175,936
(-) Share capital issue (repurchase)						-	-	-	-	-
Potential dividend (FCFE)						**234,623**	**150,605**	**155,477**	**164,166**	**175,936**
Discounted Cash Flows					**-**	**209,082**	**119,601**	**110,029**	**103,532**	**98,876**

Free cash flow to the equity (Scenario 1)	Units: Thousands of Euros
NPV	641,120
Terminal Value	966,912
Growth in prepetuity	1.8%
Equity Value	**1,608,031**
Number of shares (Thousands) (2015)	1,456,924
Value per share (€)	**1.10**

Appendix 7: Calculation of the free cash flow to the equity (scenario 2)

Units: Thousands of Euros	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Calculation of the Free cash flow to equity (Scenario 2)										
Target Ratio						**9.95%**	**10.00%**	**10.05%**	**10.10%**	**10.15%**
Historical CET1 (2015)						9.95%	9.95%	9.95%	9.95%	9.95%
Additional Buffer for growth porposes							0.05%	0.10%	0.15%	0.20%
Regulatory capital (RWA * Target CET1)					-	**1,565,261**	**1,568,972**	**1,579,023**	**1,593,595**	**1,612,432**
Equity movement										
Required Capital (beginning of the year)					1,419,529	1,552,500	1,565,261	1,568,972	1,579,023	1,593,595
(+) Share capital increase						-	-	-	-	-
(+) Consolidated net income of the BPI Group					93,106	137,981	146,757	157,506	170,316	185,915
(-) Dividends to pay					(39,865)	125,220	143,046	147,454	155,745	167,077
Required Capital (end of the year)					**1,552,500**	**1,565,261**	**1,568,972**	**1,579,023**	**1,593,595**	**1,612,432**
Implied Payout Ratio						*90.75%*	*97.47%*	*93.62%*	*91.44%*	*89.87%*
Calculation of the free cash flow to the equity										
(+) Dividend and potential dividends						125,220	143,046	147,454	155,745	167,077
(-) Share capital issue (repurchase)						-	-	-	-	-
Potential dividend (FCFE)						**125,220**	**143,046**	**147,454**	**155,745**	**167,077**
Discounted Cash Flows					-	**111,589**	**113,598**	**104,352**	**98,221**	**93,897**

Free cash flow to the equity (Scenario 2)	Units: Thousands of Euros
NPV	521,656
Terminal Value	918,227
Growth in prepetuity	1.8%
Equity Value	**1,439,883**
Number of shares (Thousands) (2015)	1,456,924
Value per share (€)	**0.99**

Appendix 8: Calculation of the dividend discount model

Units: Thousands of Euros	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Dividend discount model										
Net Income	**(374,868)**	**162,624**	**(28,338)**	**(290,668)**	**93,106**	**137,981**	**146,757**	**157,506**	**170,316**	**185,915**
Payout ratio						50.0%	50.0%	50.0%	50.0%	50.0%
Dividends					**-**	**68,991**	**73,378**	**78,753**	**85,158**	**92,957**
Discounted Cash Flows					-	61,481	58,272	55,732	53,705	52,242

Dividend Discount Model	Units: Thousands of Euros
NPV	281,432
Terminal Value	510,877
Growth in prepetuity	1.8%
Equity Value (thausands)	**792,309**
Number of shares (Thousands) (2015)	1,456,924
Value per share (€)	**0.54**

Appendix 9: Peer Group

General information							Market multiples			Cost of Equity					Dividends			
Company	Country	ROE	CET1	Financial Margin	Operating Income	Market Cap	PER	P/BV	P/TBV	Raw Beta	Adjusted Beta	D/E	Taxa efetiva	Unlevered Beta	Payout Ratio			
		%	%	EUR M	EUR M	EUR M	FY 2015			FY 2015					FY 2012	FY 2013	FY 2014	FY 2015
Banco Santander SA	SPAIN	6.28%	10.05%	31,502.0	48,511.0	86,186.0	11.5	0.9	1.3	1.27	1.18	410.0	30.48	0.4	275.4	162.3	129.2	48.4
Banco Bilbao Vizcaya Argentaria SA	SPAIN	6.29%	10.30%	17,527.0	28,843.0	47,895.4	12.5	1.0	1.2	1.14	1.09	383.9	26.58	0.4	84.9	126.3	14.9	71.8
CaixaBank SA	SPAIN	4.15%	11.55%	4,355.5	8,484.4	24,948.6	19.9	1.0	1.2	1.13	1.09	292.8	31.35	0.4	n.a.	n.a.	n.a.	n.a.
Bankia SA	SPAIN	6.33%	12.50%	2,152.3	3,205.3	11,192.0	13.4	0.9	n.a.	0.98	0.98	476.3	19.07	0.4	n.a.	n.a.	n.a.	n.a.
Banco de Sabadell SA	SPAIN	5.56%	11.40%	3,847.8	5,623.9	9,525.0	12.9	0.7	0.9	1.42	1.28	440.7	29.78	0.3	275.4	162.3	129.2	48.4
Bankinter SA	SPAIN	12.90%	11.60%	989.3	1,787.0	6,925.8	15.6	1.6	1.7	1.06	1.04	431.7	27.57	0.2	n.a.	n.a.	n.a.	55.0
Median		**6.3%**	**11.5%**				**13.1**	**0.9**	**1.2**	**1.1**	**1.1**	**420.8**	**28.7**	**0.4**	**275.4**	**162.3**	**129.2**	**51.7**

Appendix 10: Shareholder's capital support

Shareholder's equity

Units: Thousands of Euros	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
% of domestic operations in shareholder's equity	**71.3%**	**83.7%**	**86.3%**	**85.3%**	**84.5%**	**84.5%**	**84.5%**	**84.5%**	**84.5%**	**84.5%**
Subscribed share capital										
Opening balance	900,000	990,000	1,190,000	1,190,000	1,293,063	1,293,063	1,293,063	1,293,063	1,293,063	1,293,063
Increases	90,000	200,000	-	103,063	-	-	-	-	-	-
Reductions		-	-	-	-	-	-	-	-	-
Final balance	990,000	1,190,000	1,190,000	1,293,063	1,293,063	1,293,063	1,293,063	1,293,063	1,293,063	1,293,063
Domestic operations	**706,149**	**996,086**	**1,026,421**	**1,103,456**	**1,093,029**	**1,093,029**	**1,093,029**	**1,093,029**	**1,093,029**	**1,093,029**
Other equity instruments										
Opening balance	9,894	8,030	8,558	3,414	5,270	5,194	5,194	5,194	5,194	5,194
Increases	-	528	-	1,856	-	-	-	-	-	-
Reductions	1,864	-	5,144	-	76	-	-	-	-	-
Final balance	8,030	8,558	3,414	5,270	5,194	5,194	5,194	5,194	5,194	5,194
Domestic operations	**5,728**	**7,163**	**2,945**	**4,497**	**4,390**	**4,390**	**4,390**	**4,390**	**4,390**	**4,390**
Reserves (Domestic Operations)										
Revaluation reserves	**(892,696)**	**(424,897)**	**(312,481)**	**(43,644)**	**(74,018)**	**(74,018)**	**(74,018)**	**(74,018)**	**(74,018)**	**(74,018)**
Legal reserves				**73,495**	**72,801**	**82,111**	**95,910**	**110,585**	**126,336**	**143,367**
Other reserves and retained earnings	**642,176**	**658,066**	**897,907**	**815,786**	**749,329**	**833,125**	**957,308**	**1,089,389**	**1,231,144**	**1,384,429**
Consolidated net income of the BPI Group	**(374,868)**	**162,624**	**(28,338)**	**(290,668)**	**93,106**	**137,981**	**146,757**	**157,506**	**170,316**	**185,915**
Treasury shares										
Opening balance	(21,699)	(21,020)	(18,272)	(17,090)	(13,828)	(12,797)	(12,797)	(12,797)	(12,797)	(12,797)
Increases	679	2,748	1,182	3,262	1,031	-	-	-	-	-
Reductions	-	-	-	-	-	-	-	-	-	-
Final balance	(21,020)	(18,272)	(17,090)	(13,828)	(12,797)	(12,797)	(12,797)	(12,797)	(12,797)	(12,797)
Domestic operations	**(14,993)**	**(15,295)**	**(14,741)**	**(11,800)**	**(10,817)**	**(10,817)**	**(10,817)**	**(10,817)**	**(10,817)**	**(10,817)**

Appendix 11: Gross loans and advances to customers' projection

Gross Loans and advances to Customers projection

Segment	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
DOMESTIC ACTIVITY	**27,896,647**	**26,973,536**	**25,755,904**	**24,394,595**	**23,668,088**	**23,770,311**	**23,881,348**	**24,071,661**	**24,302,927**	**24,570,249**
Growth rate	n.a.	-3.31%	-4.51%	-5.29%	-2.98%	0.43%	0.47%	0.80%	0.96%	1.10%
Corporate banking	**6,098,314**	**5,528,138**	**4,324,055**	**3,941,948**	**4,127,233**	**4,168,814**	**4,214,037**	**4,262,926**	**4,312,370**	**4,362,007**
Growth rate	n.a.	-9.35%	-21.78%	-8.84%	4.70%	1.01%	1.08%	1.16%	1.16%	1.15%
Large Companies	2,833,041	2,563,256	1,775,125	1,489,635	1,529,078	1,544,483	1,561,238	1,579,350	1,597,668	1,616,058
Growth rate	n.a.	-9.52%	-30.75%	-16.08%	2.65%	1.01%	1.08%	1.16%	1.16%	1.15%
Medium-sized Companies	3,265,273	2,964,882	2,548,931	2,452,313	2,598,155	2,624,331	2,652,799	2,683,576	2,714,702	2,745,949
Growth rate	n.a.	-9.20%	-14.03%	-3.79%	5.95%	1.01%	1.08%	1.16%	1.16%	1.15%
Project Finance - Portugal	**1,272,790**	**1,257,595**	**1,226,764**	**1,216,230**	**1,244,027**	**1,256,560**	**1,270,191**	**1,284,928**	**1,299,831**	**1,314,792**
Growth rate	n.a.	-1.19%	-2.45%	-0.86%	2.29%	1.01%	1.08%	1.16%	1.16%	1.15%
Madrid	**2,062,031**	**1,856,112**	**1,683,840**	**1,482,967**	**1,043,970**	**852,533**	**704,037**	**587,447**	**494,770**	**420,187**
Growth rate	n.a.	-9.99%	-9.28%	-11.93%	-29.60%	-18.34%	-17.42%	-16.56%	-15.78%	-15.07%
Project Finance	841,994	800,447	801,249	692,470	629,820	558,576	495,392	439,354	389,656	345,579
Growth rate	n.a.	-4.93%	0.10%	-13.58%	-9.05%	-11.31%	-11.31%	-11.31%	-11.31%	-11.31%
Corporate	1,220,036	1,055,665	882,592	790,497	414,150	293,956	208,645	148,093	105,114	74,608
Growth rate	n.a.	-13.47%	-16.39%	-10.43%	-47.61%	-29.02%	-29.02%	-29.02%	-29.02%	-29.02%
Public Sector	**2,469,038**	**2,211,009**	**1,982,854**	**1,430,361**	**1,361,061**	**1,371,024**	**1,386,530**	**1,406,399**	**1,427,973**	**1,451,335**
Growth rate	n.a.	-10.45%	-10.32%	-27.86%	-4.84%	0.73%	1.13%	1.43%	1.53%	1.64%
Individuals and Small Businesses Banking	**14,806,960**	**14,694,852**	**14,102,946**	**13,744,963**	**13,748,646**	**13,868,595**	**14,029,956**	**14,227,622**	**14,439,610**	**14,667,420**
Growth rate	n.a.	-0.76%	-4.03%	-2.54%	0.03%	0.87%	1.16%	1.41%	1.49%	1.58%
Mortgage loans to individuals	11,509,416	11,923,113	11,609,886	11,269,935	11,044,507	11,125,353	11,251,181	11,412,410	11,587,476	11,777,047
Growth rate	n.a.	3.59%	-2.63%	-2.93%	-2.00%	0.73%	1.13%	1.43%	1.53%	1.64%
Total Consumer Credit	1,262,739	1,100,693	967,309	893,584	917,553	938,657	954,614	969,888	985,406	1,002,158
Growth rate	n.a.	-12.83%	-12.12%	-7.62%	2.68%	2.30%	1.70%	1.60%	1.60%	1.70%
Small businesses	2,034,805	1,671,046	1,525,751	1,581,444	1,786,586	1,804,585	1,824,162	1,845,325	1,866,728	1,888,214
Growth rate	n.a.	-17.88%	-8.69%	3.65%	12.97%	1.01%	1.08%	1.16%	1.16%	1.15%
Others	**1,124,614**	**1,273,930**	**2,352,644**	**2,557,026**	**2,173,151**	**2,195,045**	**2,218,857**	**2,244,599**	**2,270,633**	**2,296,769**
Growth rate	n.a.	13.28%	84.68%	8.69%	-15.01%	1.01%	1.08%	1.16%	1.16%	1.15%
Loans in Arrears net of impairments	**62,900**	**151,900**	**82,800**	**21,100**	**(30,000)**	**57,740**	**57,740**	**57,740**	**57,740**	**57,740**
Growth rate	n.a.	141.49%	-45.49%	-74.52%	-242.18%	-292.47%	0.00%	0.00%	0.00%	0.00%

Appendix 12: Impairment and net loans' projection

Impairment projection

Segment	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
DOMESTIC ACTIVITY	**(599,147)**	**(710,236)**	**(862,504)**	**(958,795)**	**(879,988)**	**(883,789)**	**(887,917)**	**(894,993)**	**(903,592)**	**(913,531)**
Benchmark Imparment / Gross Loans	2.15%	2.63%	3.35%	3.93%	3.72%	3.72%	3.72%	3.72%	3.72%	3.72%

Net Loans to customers projection

Segment	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
DOMESTIC ACTIVITY	**27,297,500**	**26,263,300**	**24,893,400**	**23,435,800**	**22,788,100**	**22,886,523**	**22,993,431**	**23,176,668**	**23,399,335**	**23,656,718**
Growth rate	n.a.	-3.79%	-5.22%	-5.86%	-2.76%	0.43%	0.47%	0.80%	0.96%	1.10%