

Universidade Católica Portuguesa

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Banco Português do Investimento



Equity Research

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Abstract

In the recent years, many valuation models have been developed, and the debate on how best to estimate a company's value, which assumptions should be made and what are the most adequate approaches to apply is still ongoing. The purpose of this dissertation is to bring some clarity upon Equity Research, by combining a review of considerable academic literature with the valuation of Banco Português de Investimento. In the end, I will also do a comparison for both methodologies followed and results obtained by Caixa Banco de Investimento in their report published on the 12th December 2011.

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I. Preface

It is my objective on this dissertation to value Banco Português de Investimento, hereon referred as BPI, considered as the 4th major Portuguese private financial group, listed on the PSI-20 stock exchange. Through matching theory with practice and consequently by applying some valuation models, I will provide a recommendation on the FY12 stock price.

The important and particular role banks have in the allocation of capital in the economic system, and the fact that a banks' business model display some peculiarities, imply a special treatment in the approach to its valuation, being therefore more challenging, what had influenced me on my decision of what company to choose.

The structure of the thesis is as follows:

I start with a brief executive summary (Ch.1), which is followed by the literature review (Ch. 2), where, according to academic literature, I explain the role of valuation in economy, how to choose a valuation model and enumerate some of the most common approaches used as well as briefly explain how to apply them. Moreover, guidance for valuating financial services and cross border valuations is also presented in this chapter. Afterwards, on Ch.3, a company presentation is done, in which I cover some topics as the history of BPI, its major operations, shareholder structure, and present a number of performance indicators. An industry analysis and an overview over the regulatory framework in which financial services operate is also included in this chapter, in order to identify the key factors that drive this business as well as understanding the economic environment in which BPI is operating and the impacts it may have on BPI's strategy. In Ch.4, the valuation methodology followed is described. The macroeconomic assumptions and the valuation drivers related with BPI's accounts are on Ch. 5 and Ch. 6, respectively. On Ch. 7, some performance indicators are analyzed, such as the asset quality, and solvency to understand if, according to my estimates the bank would improve its position in the market and comply with the regulation or not. Finally, on Ch.8 the valuation results are disclosed, where I present the final price target recommendation, and on Ch.9 a comparison with Caixa BI methodology and results is done. To finish, on Ch. 10 the main conclusions of this dissertation are summarized.

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III. List of abbreviations

1H11 – 1st half of 2011

9M11 – 9 months of 2011

1Q11 – 1st quarter of 2011

ATA – Average total Assets

BCI – Banco Comercial e de Investimentos

BdP – Bank of Portugal

BFA – Banco Fomento Angola

BNA – Banco Nacional Angola

BIS – Bank for International Settlements

BPI – Banco Português de Investimento

BS – Balance Sheet

CAGR – Compounded Annual Growth Rate

CAPM – Capital Asset Pricing Model

CAR – Capital Adequacy Ratio

CCF – Capital Cash Flow

CF – Cash Flow

CRP – Country Risk Premium

DCF – Discounted Cash Flow

DPR – Dividend Payout Ratio

EBA – European Banking Authority

ECB – European Central Bank

ERP – Equity Risk Premium

FCFE – Free Cash Flow to Equity

FCFF – Free Cash Flow to the Firm

FY11 – Final year of 2011

GDP – Growth Domestic Product

IAS – International Accounting Standards

IB – Investment bank

IMF – International Monetary Fund

NAV – Net Assets Value

NI – Net Income

NII – Net Interest Income

NIM – Net Interest Margin

NPL – Nonperforming Loans

PER – Price Earnings Ratio

PV_{ts} – Present Value of Tax Shields

P/B – Price to Book Value

P/E – Price Earnings Ratio

RIV – Residual Income Valuation

ROE – Return on Equity

ROA – Return on Assets

TV – Terminal Value

US – United States of America

V_u – Unlevered Value

WACC – Weighted Average Cost of Capital

YoY – Year-on-year growth rate

January 2012

 **BPI Banco BPI**
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COMPANY REPORT

“Extreme uncertainty and volatility related to further development of the euro zone crisis should remain”

(André Rodrigues, Caixa BI)

Taking into consideration both the macroeconomic scenario, as also, the set of requirements defined in the Memorandum agreed with Troika, the main challenge in the following years to the sector is related with banks' ability to adapt to the new regulatory framework, maintaining an adequate flow of funding to the real economy and consequently promote economic growth.

Main drivers:

- Recession environment until 2013 at best
- Higher level of regulation
 - Higher capital needs
 - Higher liquidity levels
 - Higher transparency
- Acceleration in the deleveraging process
- Marked competition on the deposits side
- High levels of funding through ECB - The uncertainty and volatility that characterize the current market, have lead Portuguese banks to be incapable of fund their activity in the international wholesale markets
- Expansion for other markets

BUY

Recommendation

Share Price: EUR 0.48

Closing price as 04/01/12

Target Price: EUR 0.83

FY 2012

BPI and PSI-20

BPI

PSI-20

Market Cap (EURm) 471.24

Current n of shares (m) 990

52 Wk high Price: EUR 1.34

09/02/2011

52 Wk low Price: EUR 0.381

11/11/2011

1 Yr total return -62,52%**Beta vs PSI-20 1.16**

Bloomberg. BPI PL Equity

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Solvency

Over the last months BPI (as well as its peers), has been opting for the reinforcement of its balance sheet, what has been leading to lower levels of profitability (in example, ROE of 8,8% in 2009 and 2010, and 6.1% in the 9M11). This is done namely via less credit amounts granted, more restrictive conditions, via the increase of the deposits amounts (which has lead to an intensification of the competitive environment in the domestic market – increase of the spreads offered and higher pressure on NIM), or by the sale of non-core assets.

These measures are also expected to be maintained in the near future so that the confidence on the financial system is recovered and banks liquidity is improved as well as its profitability by starting to have access to the wholesale funding markets again, which are associated with higher returns, instead of resourcing so much on the ECB funds.

Moreover, I expect the negative outlook in the medium term to strongly be affected by the sovereign debt crisis which is spread all over Europe. BPI's exposure on the FY2010 ascended to €4,5 bn ~ 11% of the total assets, with a potential loss of €1,39 bn during the first half of 2012.

Profitability

Like any other bank, BPI will take a hit in profitability terms, on almost all possible fronts.

The incapacity of BPI and other Portuguese banks to access international wholesale, and the higher funding costs demanded on it have made deposit-capturing a top priority in commercial terms, due to both liquidity and profitability concerns. Credit-concession has been re-priced in order to pass these higher costs of funding to customers, and to account for the deterioration of customers' credit profile (less trustful economy, higher nonperforming loans, and drop in collateral value, among other factors).

Looking at BPI's presence internationally, the credit granting activity is expected to remain value-creating, despite the fact that competition in the Angolan banking industry is likely going to increase over time.

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Besides the negative impact the closure of the international wholesale market has on BPI's margins, it has been increasing the reliance on ECB, creating an unsustainable environment in the long term.

Assets Quality

Besides the difficulties that the bank will have associated with its solvency and profitability, the evolution of assets quality will also be a relevant topic, namely due to the increasing trend of the nonperforming loans verified in the last months. Economic factors such as slower growth, higher unemployment rates, the increase in interest rates, will likely reduce the disposable income of Portuguese households, and thus, are reflected into rising NPLs, which weakens corporate sector and the all economy.

Therefore, I expected the assets quality to continue with a negative trend in 2012 as the nonperforming loans increasing tendency should continue, which would be translated into higher credit risks, higher provisioning efforts, and lower short/ midterm profitability for BPI.

International operations

While the pressure increases in profitability terms for BPI's domestic operation, the future prospects of its international businesses are growing in importance, in which BFA seems to be the way out for the bank, given the contrasts between the Portuguese and the Angolan banking sector, and the European sluggish outlook. BPI's Angolan operation represents the bulk of its exposure to international markets, and its most important growth prospect.

As a consequence, it is foreseen that BPI will be really focused on the development of its Angolan operation (physically extending its business), which will certainly negatively affect its operational efficiency, but may very well create a competitive advantage if other banks do not follow up on their plans too.

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Valuation

BPI: Valuation Summary – Msc Thesis				
	Value p/ share		@ Target Price	
Residual Income	0,86		P/E	P/BV
DuPont	0,78	2010	5,1x	0,4x
		2011e	6,7x	0,5x
		2012e	6,2x	0,4x
Fair Value	0,83 €/ share	2013e	5,9x	0,4x
		2014e	5,2x	0,4x
		2015e	4,9x	0,4x

Main ratios

Ratios as a % of ATA	E-Dec.11	E-Dec.12	E-Dec.13	E-Dec.14	E-Dec.15	E-Dec.16
Net Interest Income (NII)	1,31%	1,35%	1,37%	1,42%	1,43%	1,48%
Non Interest Income	1,07%	0,93%	0,94%	0,98%	0,98%	0,99%
Net Operating Income	2,38%	2,27%	2,31%	2,40%	2,41%	2,48%
Costs	1,39%	1,28%	1,29%	1,33%	1,33%	1,37%
Loan Impairment Charges	0,37%	0,34%	0,35%	0,36%	0,37%	0,37%
Profit Before Taxes	0,53%	0,56%	0,58%	0,62%	0,63%	0,65%
Other B/S data (EUR m)						
Risk Weighted Assets (RWA)	25.359	25.006	24.973	25.303	25.742	26.166
Average Total Assets (ATA)	45.283	44.654	44.595	45.183	45.968	46.725
Core Capital	2.477	2.509	2.550	2.599	2.604	2.613
Loans-to-customers resources ratio	122,8%	118,3%	116,1%	113,9%	111,8%	109,7%
Commercial Gap	-1.417	-977	-391	-387	-422	-454
Other Key ratios (%)						
ROE	6,6%	7,0%	6,8%	7,4%	7,5%	7,9%
ROA	0,27%	0,29%	0,31%	0,35%	0,36%	0,38%
Efficiency (Cost-to-income)	62,1%	60,4%	59,8%	59,1%	58,7%	58,6%
Efficiency (excluding D&A)	58,4%	56,6%	56,0%	55,5%	55,2%	55,2%
Core TIER I ratio	9,8%	10,0%	10,2%	10,3%	10,1%	10,0%

Figure 1 and 2. Msc Thesis Valuation summary and BPI main ratios

2. Literature Review

2.1. The importance of valuation

The importance of valuation is reflected on many areas in finance, such as corporate finance, mergers and acquisitions and portfolio management.

In every business, the corporate finance objective is long-term shareholder value creation. If as *Damodaran (2002)* once stated, “Every asset, financial as well as real, has a value”, and we know how best to increase it by changing a firm’s investment, financing decisions and dividends policy, we will have the key to maximize a firm’s profits and reach its’ goals. Therefore, “understanding what determines a firm’s value, where does it come from, and knowing how to estimate it, is the prerequisite for making good decisions”, *Damodaran (2006)*.

Valuation also plays an important role when doing a merger or acquisition analysis, helping the bidding firm to decide which will be its bid, taking into account the target firm’s value, the synergy gains and also the restructuring and changing management costs.

Regarding portfolio management, valuation’s importance depends on an investor’s profile. If he or she is a passive investor, its role is meaningless, whereas if we talk about an active investor, valuation has a key role by providing information of what securities to select and how to build the optimal portfolio.

On this perspective, valuing companies and predicting stock prices and returns, can be considered as the holy grail of finance for investors. Market efficiency theory states that financial markets are efficient about prices, reflecting all the information available on the market, following this way a random walk. According to this theory, returns are unpredictable and therefore, “valuation methods appear as a support to help investors to analyze whether and why market prices deviate from value, and how quickly they revert back”, *Damodaran (2006)*.

Summing up, company’s valuation is useful for firms to better understand what is the impact of their operational/ financing decisions, as well as macroeconomic factors on its’ value and consequently enable them to improve their performance in the market. Besides, it is also valuable for investors, helping them to improve their management decisions, maximizing their portfolio.

With this purpose, several empirical studies and valuation methods were developed, being the choice of which one to use dependent on the company’s operations and in which sector it operates in, among other factors. It is important to note that different approaches will

require different assumptions, and thus, the same values are not always achieved. However, if consistent assumptions are made these are expected to be similar.

2.2. Choosing a valuation model

Analysts facing the task of valuing a firm's enterprise value or equity value, have to choose among several approaches, being each one, as mentioned on *Goldman Sachs investment research paper, All Roads Lead to Rome (1999)*, "no more than a particular way of expressing the same underlying model, by making different aspects of valuation problem clearer in detriment of obscuring other aspects".

The decision whether to choose a simple model or a more complex and sophisticated one, depends not only on the precision of the valuation that is required, as also, on the information level analysts have about the firm.

According to *Damodaran (2002)* there are three main categories. The first one, Discounted Cash Flow Valuation, discounts the present value of the expected cash flows at a rate that reflects its riskiness. The second, Relative Valuation, computes the value of a firm based on performance and accounting indicators of comparable firms. The last method, Contingent Claim Valuation is based on option pricing models and is used to value firms which have assets with options characteristics. Below there are the main valuation approaches which can be used within these three categories.

Discounted Cash Flow Valuation	Relative Valuation	Contingent Claim
Free Cash Flow	Price earnings ratio – PER	Black and Scholes
Equity Cash Flow	Price to book ratio – P/B	Binomial
Capital Cash Flow	Price sales ratio – P/S	
Dividend Discount Model	Enterprise value to EBITDA –	
Adjusted Present Value	EV/EBITDA	
Economic Profit	EV/EBIT	
Dynamic ROE – DuPont approach	(others)	

Figure 3. Main Valuation Approaches

From the ones mentioned above, I will just cover the ones I believe that are most important and most used by practitioners.

2.3. Main Valuation Models

2.3.1. Discounted Cash Flow Valuation

As mentioned above, the discounted cash flow method relies on the premise that the value of a business depends on its future economic benefits, and therefore consists on attempting to estimate the intrinsic value of an asset based upon its expected cash flows, by considering that a firm is a function of three variables – capacity to generate CF, its expected growth rate and the risk/ uncertainty associated with them.

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

Where,

n = Life of the Asset

CF_t = Cash Flow in Period t

r = Discount rate reflecting the riskiness of the estimated Cash Flows

Under this formula and depending on the path we follow to value a company, based on equity, enterprise value, or on the value of the firm in pieces (APV approach), the expected cash flows and discount rate will change. It is expected to have higher discount rates to discount CF when dealing with riskier assets and lower discount rates for safer assets. (Damodaran 2002 and 2006)

	Cash Flows	Discount Rate	Value
Firm Value	Cash Flows from assets, prior to any debt payments, and firm reinvestments - FCFF	Reflects the cost of raising both debt and equity financing in proportion to their use – WACC	$\sum_{t=1}^{t=n} \frac{CF \text{ to firm}_t}{(1+WACC)^t}$
Equity Value	Cash Flows from assets, and debt payments after making reinvestments needed for future growth - FCFE	Reflects only the cost of raising equity financing - Ke	$\sum_{t=1}^{t=n} \frac{CF \text{ to equity}_t}{(1+ke)^t}$
Valuing the firm in pieces – APV approach			Vu + PVts + E (Bankruptcy Costs)

Figure 4. Discounted Cash Flow Approaches

2.3.1.1. Discounted Free Cash Flow Model

The focus on this approach is on cash generation. It is based on the present value of a firm's expected earnings in the future, which reflects the value that is going to be left for all investors.

Consider the FCFF computed as below:

NOPAT

+ Depreciation and Amortization

= **Cash Flow from Operations**

- Δ NWC

- CAPEX

= **Free Cash Flow to the Firm**

Where,

NOPAT is the net operating profit after taxes, which is equal to EBIT (1-T)

Δ NWC are the changes in net working capital

CAPEX are the capital expenditures

To compute the enterprise value, we have to sum up the free cash flows and the continuing value, using the following formula to discount them:

$$\text{Enterprise Value} = \frac{FCFF_1}{1 + WACC} + \frac{FCFF_2}{(1 + WACC)^2} + \frac{FCFF_3}{(1 + WACC)^3} + \dots + \frac{FCFF_n + TV_{n+1}}{(1 + WACC)^n}$$

$$TV_{n+1} = \text{Terminal Value}_{n+1} = \frac{FCFF_n \times (1 + g)}{WACC - g}$$

Where,

FCFF, is the free cash flow to the firm

WACC, the weighted average cost of capital

TV, the terminal or continuing value

g, the growth rate the CF are expected to grow during the TV

2.3.1.2. Equity Cash Flow Valuation

We can achieve the value of the equity computing it directly, by discounting the FCFE at the cost of equity or indirectly, by computing the value of the firm firstly and then deducting the non-equity claims.

Cash flows to equity are considered as the cash flows left over after meeting all financial obligations and after covering reinvestment needs, which can be capital expenditures and working capital needs (formula 1), or for example, for the banking sector, reinvestment on regulatory capital (formula 2).

Formula 1 (used for companies in general):

Net income

- Capital Expenditures
- Δ Non cash Working Capital
- + Depreciations and amortizations
- + (New debt issued – Debt repayment)

= **Free Cash Flow to Equity**

or

Formula 2 (used for financial services companies):

Net income

- Reinvestment in regulatory capital

= **Free Cash Flow to Equity**

After computing the equity cash flow it is discounted at K_e , the cost of equity, as showed below:

$$Equity\ Value = \frac{FCFE_1}{1 + Ke} + \frac{FCFE_2}{(1 + Ke)^2} + \frac{FCFE_3}{(1 + Ke)^3} + \dots + \frac{FCFE_n + TV_{n+1}}{(1 + Ke)^n}$$

$$TV_{n+1} = \text{Terminal Value}_{n+1} = \frac{FCFE_n \times (1 + g)}{Ke - g}$$

Where,

FCFE, is the free cash flow to equity

K_e , the cost of equity

TV, the terminal or continuing value

g, the growth rate the CF are expected to grow during the TV

2.3.1.3. Dividend Discount Model

Damodaran (2002) states that, “when buying stocks from a publicly traded firm, the only cash flow investors receive directly from the investment are expected dividends”. Consequently, DDM appears as a specialized Equity Cash Flow Valuation, where the equity value is considered as the present value of future dividend stream in perpetuity.

Dividend discount models can go from simple growing perpetuity models, as the Gordon Growth model:

$$\text{Equity Value} = \frac{E(\text{Dividend Per Share})}{Ke - g}$$

Where a stock's value is a function of its expected dividends next year, the correspondent cost of equity and a stable growth rate in the perpetuity, to complex three stage models, where payout ratios and growth rates change over time.

$$\text{Equity Value} = \frac{E(DPS_1)}{1 + Ke} + \frac{E(DPS_2)}{(1 + Ke)^2} + \frac{E(DPS_3)}{(1 + Ke)^3} + \dots + \frac{E(DPS_n) + TV_{n+1}}{(1 + Ke)^n}$$

$$TV_{n+1} = \text{Terminal Value}_{n+1} = \frac{E(DPS_n) \times (1 + g)}{Ke - g}$$

Where,

$E(DPS_t)$ are the expected dividends per share computed by multiplying Net income by the Dividend Payout Ratio

K_e , the cost of equity

g, the growth rate

The simplified dividend discount model is appropriate for companies that are characterized by being stable, generally as banks, and insurance companies, where (assuming normal economic conditions) earnings patterns as well as retention rates and returns on investments are expected to be constant over time.

Following this logic, and according to *James L. Farrel, Jr (1985)*, firms with cyclical earnings pattern, rapidly growing firms, or firms that are operating under adverse economic scenarios, like in a crisis period as Portuguese companies are, require a more complex dividend capitalization model framework that is able to accommodate changes.

A drawback, which can lead to estimate errors, is that dividends distribution is not always tied to value creation. *Damodaran (2006)* argues that, firms can hold back more earnings for investment purposes, or, on the other way round, there are also firms that pay more in dividends than they are able to, ending up funding the difference with new debt or equity issues. On the first case, this model leads to an undervaluation, as in the second case, the estimates may be too optimistic (assuming that firms can continue depending on external funding to meet the dividend deficits in the long-run). Therefore, it is important to bear in mind that dividends distribution is linked to each company's policy, meaning that although this method can be reliable, if there are alternatives, they should be used to complete and compare with this approach.

Despite of the limitations, DDM can be useful whenever these issues are taken into account, and adjustments on the valuation are made. Besides, whenever free cash flows to the firm are difficult to forecast due to some sector characteristics and, dividends are the only cash flows that can be easily estimated with any degree of precision, for example, in the financial services sector, this approach is also helpful.

2.3.1.4. Residual Income Model (Excess Return Models)

As *Damodaran (2006)* argues, cash flows are separated into normal return cash flows, and in excess return cash flows (considered the returns in excess of the normal CF), that can be either positive or negative.

Equity Value

$$= \text{Capital invested}_{t=0} + \text{PV excess return CF from both existing and future project}$$

Where, the PV excess returns are also known as residual income

It is derived from the dividend discount model and it is equivalent to the discounted cash flows model. Though, we can argue that it is more accurate because most of the value comes from the BS (Capital Invested assumed equal to the book equity value) as opposed to forecasted numbers on the DCF approach.

The residual income is computed as follows, and discounted at the cost of equity.

$$RI_t = NI_t - K_{e,t} \times Book_{t-1}$$

Where,

RI_t is the residual income in time t

K_e the cost of equity

And the $Book_{t-1}$ is the book value of a company on time t-1

According to *Bojan Milicevic (2009)*, the “RI value is based on book values by deriving the intrinsic value of a firm as its book value of equity plus a premium for expected growth in the book value of equity”. This emphasis on book values is only justified if it is assumed that the accounting measure of capital invested, book value of equity, is a good measure of capital invested in assets today.

This approach implies that “firms that earn positive excess return CF will trade at market values higher than their book values and that the reverse will be true for firms that earn negative excess returns CF”, *Damodaran (2006)*.

2.3.1.4.1. EVA

Economic Value Added is other excess return model, which is based upon the *net present value* rule, and according to *Damodaran (2002)*, reflects the present value of a project future cash flow netted against its investment needs, being the investment only worth if its NPV is positive, and thus, its return on equity, exceed its cost of capital.

Hence, *Damodaran (2006)* explains this measure as “the dollar surplus value created by an investment or a portfolio of investments”, and it is expressed by:

$$\begin{aligned} EVA &= (\text{Return on Invested Capital} - WACC) \times (\text{Capital Invested}) \\ &= \text{After-tax operating income} - (WACC \times \text{Capital Invested}) \end{aligned}$$

Investing in projects with positive net present value will increase the value of the firm, meaning that it is creating value, while projects with negative net present value will reduce value.

$$\text{Enterprise Value} = \text{Invested Capital} + \sum_{t=1}^{t=\infty} \frac{EVA_t}{(1 + WACC)^t}$$

2.3.1.5. Adjusted Present Value

As *Damodaran (2002)*, and *Fernández (2002)* stated the adjusted present value approach indicates that the firm's value is equal to the unlevered company's shareholder's equity, assuming it is all financed with equity, V_u , plus the present value tax benefits from debt and the expected bankruptcy costs. It is expressed by:

$$\text{Value} = V_u + PV_{TS} + \text{Expected bankruptcy costs}$$

2.3.1.5.1. Present Value of Tax Shields

The value of the tax shield arises from the tax deductibility of interest payments at the corporate level. According to *Myers (1974)* and *Luehrman (1997)*, the $PV_{\text{tax shields}}$ can be achieved by discounting the tax savings, $(\text{Debt} \times \text{Taxes} \times K_d)$, at the cost of debt, K_d , arguing that tax savings derive from debt and therefore, the cost associated should be K_d .

$$PV_{ts} = \frac{D \times T \times K_d}{K_d} = D \times T$$

However, in *Fernández (2004, 2006)* it was showed that this theory yields inconsistent results for growing companies and thus it should be used only when debt levels are fixed in perpetuity.

Other researches, as *Miller (1977)*, assume that there are no advantages of debt financing, and consequently the PV_{ts} equals zero, by arguing that the value of the firm in equilibrium should be indifferent to its capital structure.

On the other hand, *Miles and Ezzel (1980)*, state that a firm that wishes to maintain a certain debt ratio should be valued differently than a firm that uses a present level of debt.

Therefore, the correct rate for discounting tax savings during the first year should be K_d , and for the followings K_u , which is the cost of capital for the unlevered firm. *Arzac and Glosten (2005)*, *Cooper and Nyborg (2006)* and *Lewellen and Emery (1986)*, also agree that the most consistent way to compute PV_{ts} is through M&E method, having the first two derived the correspondent equation for a perpetuity growing at rate g :

$$PV_{ts} = \frac{D \times T \times K_d \times (1 + Ku)}{(1 + K_d)(K_u - g)}$$

Harris and Pringle (1985), proposed that tax shields should be discounted at the required rate of assets, saying that a firm's interest tax shields should be linked to the same systematic risk of its' cash flows.

$$PV_{ts} = \frac{D \times T \times K_d}{K_u - g}$$

As it is observable, in finance world there is no clear consensus about what is the right, or the most correct method to use. When the debt level is fixed, *M&M* approach or *Myers* applies, and therefore tax shields should be discounted at the cost of debt. Though, when the leverage ratio is fixed at market value, *Miles & Ezzel* should be used. If, the leverage ratio is fixed at book value, and the appropriate discount value for the expected increases of debt is K_u then *Fernández (2004)* should apply.

2.3.1.5.2. Expected bankruptcy costs

According to *Damodaran (2002)*, "expected bankruptcy costs measure the effect of the given level of debt on the default risk of the firm", and can be compute as expressed below:

Expected Bankruptcy costs

$$= \text{Probability of bankruptcy} \times \text{Present Value of Bankruptcy Costs}$$

To estimate the probability of bankruptcy two paths can be followed: estimate a bond rating for the company at each level of debt and use empirical data of default probabilities associated with each rating, or estimate the probability of bankruptcy through evaluating the firm's characteristics at each level of debt.

It is expected that, the higher the debt ratio, the higher the probability of default would be and consequently the higher the expected bankruptcy costs too.

These costs can be classified into direct and indirect. *Jerold B. Warner (1977)*, states that “direct costs include lawyers’ and accountant’s fees, and the value of the managerial time spent in administering the bankruptcy, being sufficient for them to arise, costs associated with negotiation disputes between claimholders”. In the other hand, the indirect costs include lost sales and profits, due to a less confidence level from buyers towards the company, and the possible inability of the company to obtain credit or issue securities except under especial terms.

The last ones are mainly lost opportunities, being therefore very difficult to measure. Also, although quantitative information is available for measuring direct costs, possible estimate errors could occur and analysts should be aware of them.

2.3.1.6. DuPont Method

The DuPont method is used to analyze the profitability of a company through performance ratios that integrate elements of the income statement with those of the balance sheet. It decomposed the Return on Equity in three, so that analysts can infer the operating efficiency of the firm (measured by the profit margin), the asset use efficiency (measured by the total asset turnover), and the financial leverage the company is sustaining, through the equity multiplier, which measures the way a company uses debt to finance its assets.

ROE Forecasted

$$\begin{aligned}
 &= \textit{Profit Margin} \times \textit{Total Assets Turnover} \times \textit{Equity Multiplier} \\
 &= \frac{\textit{Net Income}}{\textit{Net Operating Revenue}} \times \frac{\textit{Net Operating Revenue}}{\textit{Average total assets}} \times \frac{\textit{Average total assets}}{\textit{Average Equity}}
 \end{aligned}$$

The profit margin reflects the after-tax profit generated by each unit revenue, enabling analysts to understand the company’s strategy, as also to compare it with competitors. In example, the firm can opt for a lower price strategy, which attracts more customers and increase the revenues, being reflected in a lower profit margin investment, or for a higher price strategy, having a higher profit margin.

The assets turnover, measures how effectively a company converts its assets in sales, and usually it is inversely related with profit margin, meaning that companies and investors are able to understand and compare different business models and determine which is more

attractive: low-profit plus high volume or the opposite. By multiplying these two indicators, the firm's Return on total assets (ROA) is computed.

The equity multiplier is linked with the level of debt a company is exposed to and can be artificially used to boost ROE, being therefore important to understand where the return on equity does come from to correctly compare companies. In example, if two comparable firms with the same valuation are found in the market, the one that would be more attractive, would be the one from which a higher percentage of ROE comes from internally generated sales and not from debt exposure.

After having the value of the ROE Forecasted (Profit margin x Total assets turnover x Equity multiplier) and the ROE Demanded, being the last one assumed as the implicit cost of equity, Net Assets Value should be computed, and afterwards the Equity Value.

$$\text{Equity Value} = \text{NAV} * \frac{\text{ROE Demanded}}{\text{ROE Forecasted}}$$

Where,

NAV is the net asset value as is computed as:

$$\text{NAV} = \text{Equity Book Value}_{t-1} + \text{Pension Fund Shortfall} \\ + \text{Lack of provisions for default} + \text{Unrealized capital gains / losses}$$

As all the other approaches, this one has also some advantages and disadvantages of being used, having been some of them already disclosed above. Beside those, one can expect this method to be good due to its simplicity, to the fact that can be easily linked to compensation schemes, and due to the fact that helps companies to understand what impacts does their strategy have on its results and what can be changed to consequently improve their value creation: their expenses control, assets management or debt management. However, we should have into account, that it is based on accounting values, which sometimes are not reliable.

Although analysts bear its limitations in mind, it's a dynamic method, which approximates the measured firm value to the real firm value, being therefore widely used, and for that reason I would also follow it to achieve BPI's price target.

2.3.2. The key inputs of DCF Valuation

2.3.2.1. The WACC

WACC, is the weighted average cost of capital, and it “is the rate which measures the opportunity cost investors face for investing their funds in a particular business instead of others with similar risk” (*McKinsey & Company, Measuring and managing the value of companies*).

The traditional formula is from Modigliani Miller, and is expressed as:

$$WACC = \frac{E}{E + D} \times Re + \frac{D}{E + D} \times Rd \times (1 - T)$$

Where,

E and D, is the target value of equity and debt, respectively

R_E and R_D , the cost of equity and debt, respectively

T, the company’s marginal income tax rate

The most important rule under WACC is to be consistent between its components, like the cost of equity and debt, and the free cash flows. To estimate the cost of equity, capital asset pricing model is used, CAPM, and assumptions have to be made about the risk free, market risk premium and beta.

2.3.2.2. The Capital Asset Pricing Theory

The Capital Asset Pricing model is widely used and enables analysts to determine the required rates of return from investment in risky assets, in other words, to estimate the cost of capital for firms. It measures the relationship between a stock’s risk and its correspondent return, and is expressed by:

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

The general idea behind this model is that investors need to be compensated by the value of money and the risk they are exposed to. Therefore, the first part of the formula relies on accounting the money value in an investment over a period of time, through a risk-free interest rate, and the second part of the equation relies on valuing the risk exposure, by a risk premium. It is achieved through beta, which accounts for the risk of an asset relative to

the market, and through the compensation an investor needs for bearing the extra risk, the premium per unit of beta risk, $E(R_m) - r_f$.

2.3.2.2.1. The cost of equity

The cost of equity reflects the expected return for equity investors and implies a premium for the equity risk in the investment. Usually CAPM is used to estimate its value as expressed below:

$$K_e \text{ assumed equal to } E(R_i) = r_f + \beta_i \times [E(R_m) - r_f]$$

Where,

K_e , is the cost of equity

$E(R_i)$ is the expected return of the security

r_f , is the risk free rate

β_i , the stock's sensitivity to the market, which represents a stock's incremental risk to a diversified investor, where risk is defined by how much the stock covaries with the market

$E(R_m) - r_f$, which corresponds to the expected return of the market over risk free bonds.

After having the risk free rate, the risk premium and beta, the expected return from investing in equity is possible to estimate.

One exception can be made, when there is a macroeconomic adverse scenario as Portugal is facing nowadays, or we are dealing with emerging markets. It can be added an additional country risk premium, so that the extra risks are also reflected in the cost of equity.

$$E(R_i) = r_f + \beta_i \times [E(R_m) - r_f] + CRP$$

Where,

CRP, is the country risk premium

It makes sense to include it on crisis periods, or whenever the diversifiable risk cannot be eliminated, thus, if country risk matters, it should lead to higher costs. Although, there are

some approaches to measure CRP, which take into account default spreads on country bonds issued by each country, and the equity market volatility, I will not do a deeper analysis on its estimation, assuming that we can achieve it through investors' surveys, as *Damodaran* does.

2.3.2.2.2. The risk-free and equity premium

Risk-Free

According to *Damodaran (2008)*, to estimate the risk free interest rate, we can compare the expected returns to either the short-term government securities, using treasury bills, or long-term government securities, through the usage of treasury bonds.

The difference remains on the time period used for the valuation, being more usual to use treasury bonds when the time horizon is shorter (5 to 10 years), more specifically, a ten-year zero coupon bond, which will generate a guaranteed return over those years, against the treasury bill, which will generate a guaranteed return only over the next 6 months, and imply reinvestment risk which cannot occur so that the investment is considered risk-free. Nevertheless that when using CAPM, the risk-free used should be consistent with the risk free used to compute the expected returns and the market risk premium.

Equity Premium

Damodaran (2011) explains three ways of how to estimate the equity premium. The first one to do it is to survey investors, and analysts on what equity premium they usually require for investing in equity in each country relative to the risk free rate. The second is to look at the premiums used historically, and the third way is to back out an equity risk premium from market prices today, getting a forward looking premium (estimate the implied premium in assets today).

When choosing which approach to use to determine its value, it is important to understand what the factors that influence it, such as investors risk aversion, once they reflect the premium investors' demand for the average risk investment. Thus, it is expected that as investors become more risk averse, the equity premium will increase and the reverse case, being the collective risk aversion that determines the equity risk premium. Also, the perceptions of macroeconomic risk have impact on its estimation, being ERP lower when the economy is under stable conditions, with predictable inflation, interest rates and growth. Moreover, the information uncertainty and its quality about the underlying economy should also be highlighted, being likely than more precise and accurate information should lead to lower equity premiums. Nonetheless, it is important to note that not always the theory matches with practice.

According to *McKinsey & Company, Measuring and managing the value of companies*, the risk-free rate used in developed countries is usually long-term government securities, like 10-year zero-coupon strip, and the market premium is generally between 4,5% and 5,5% based on historical averages and forward-looking estimates.

Fernández (April, 2011), has also developed a study to understand what are the sources to which analysts resort and what are the equity premiums applied to 56 countries. The number of answers for Portugal was 33, and the average market risk premium used is 6,5%.

2.3.2.2.3. The beta

According to *Fama & French (2004)*, “the market beta for an asset i , is the covariance of its return with the market return divided by the variance of market return”, as expressed below:

$$\beta_{i,m} = \frac{Cov(R_i, R_m)}{\sigma^2(R_m)}$$

It enables us to understand how sensitive an asset's return is to movements in the economy as a whole, reflecting the systematic risk, a firm is exposed to. Although each firm has its own risk, known as unsystematic risk, it is not taken into consideration in this model once it is diversifiable and thus can be eliminated.

Besides this method, other paths can be followed to compute beta. For publicly traded firms, a regression between market's returns and a company's past returns can be made, being the slope equal to the historical beta, which can be assumed as the future beta. When using this last method, analysts have to be cautious with possible estimation errors, due to the fact that historical betas may have been influenced by chance events, which caused the stock to move with the market, or betas' value may change overtime.

By definition, the market portfolio has a beta equal to 1, meaning that if a stock's beta is higher than 1, it is more volatile than the market and thus riskier, if it has a beta lower than 1, the reverse is considered.

Lastly, to estimate a firm's beta, there is also the possibility to measure a business risk, by computing a weighted average beta of the industry, and then introduce the leverage effect of the specific company, *Damodaran (2002)*.

Being the degree of financial leverage one of the issues that has impact in the risks of the company, it is important to note that some adjustments have to be made to the unlevered

beta, so that the riskiness of the business, and the amount of financial leverage risk are reflected on the model. According to *Damodaran (2002)*, if the beta of debt is zero and if there are tax advantages which derive from leverage, the beta would be:

$$\beta_L = \beta_u \left(1 + (1 - T) \left(\frac{D}{E} \right) \right)$$

Where,

β_L , is the levered beta for equity in the firm

β_u , is the unlevered beta

T, is the corporate tax rate

D/E, is the debt-to-equity ratio

If beta isn't equal to zero, the following formula should be used:

$$\beta_L = \beta_u \left(1 + (1 - T) \left(\frac{D}{E} \right) \right) - \beta_D (1 - T) \times \left(\frac{D}{E} \right)$$

Having these in mind, it is expected that when leverage increases, equity investors would bear more risks and beta would be higher.

2.3.2.2.4. The cost of debt

The effective rate a company pays on its current debt, which can be in the form of bonds, loans or other forms of debt, is named as the cost of debt. It is considered as the expected return lenders hope to make on their investments, plus a premium for default risk. Therefore, it also gives investors an idea about the riskiness of the company, once riskier companies will yield a higher default risk and consequently higher cost of debt.

As *Damodaran (2002)* stated, it is determined by three variables: "the riskless rate (risk free interest rate), the default risk and default spread of the company, and tax advantage associated with debt, which makes the after-tax cost of debt lower than the pre-tax cost".

One approach that can be used is adding a default spread to the risk-free rate, with the magnitude of the spread depending upon the credit risk in the company, (*Damodaran (2008)*):

$$K_D = r_f + \text{Default Spread}$$

Where,

r_f , is the risk-free interest rate

Default spread

A way to estimate the default spread, is to compute the interest coverage ratio of the company by dividing the EBIT by the Interest Expenses, and then through *Damodaran* data look at the default spread associated.

2.3.2.3. Fama and French Three Factor Model

Although CAPM is the most widely approach used by practitioners, it is important to have in mind that there are alternative methods to compute the cost of equity, which indeed have been somehow considered better than it, leading to a more precise and less erroneous value.

As it is stated by *Fama and French (June 1992, March 1996)*, “previous work had showed that average returns are not only dependent on markets evolution, as also on dependent on the firm’s characteristics such as its size, earnings, cash flow, book to market equity, past sales growth, and long-term/ short-term past return”. However, these patterns in average returns are not explained by CAPM, which only contemplates a single factor, the market’s excess return, and therefore is considered to be incomplete and have some anomalies.

Fama French Three Factor model, appears has the second main method used, and one of the possible solutions to improve estimations, and considers that “the expected return on a portfolio in excess of the risk-free rate [$E(R_i) - R_f$] is explained by the sensitivity of its return to three factors:

$$E(R_i) - R_f = \beta_m [E(R_m) - R_f] + \beta_{SMB} * E(SMB) + \beta_{HML} * E(HML)$$

- Excess return on a broad market portfolio ($R_m - R_f$)
- Difference between the return on a portfolio of small stocks and the return on a portfolio of large stocks (Small Minus Big – SMB)
- Difference between the return on a portfolio of high-book-to-market stocks and a portfolio of low-boo-to-market stocks (High Minus Low – HML)”

By adding these two independent variables (SMB and HML), the anomalies presented in CAPM are captured, and stock's return will be more reliable, which was proved not only theoretically because of the rationale behind it, but also statistically, having a higher R^2 , which provides a measure of how well future outcomes are likely to be predicted by the model, and the better the linear regression fits the data in comparison to the simple average, the closer the value of R^2 is to one.

Despite of these issues, in most of the cases as mentioned, CAPM is used because of its simplicity and credibility in the market. Due to this reasons, in my valuation I will further use it, assuming it will lead me to a trustworthy cost of equity.

2.3.3. Relative Valuation

In relative valuation, as *Damodaran (2002)* explains, a firm's valuation is based upon comparable firms, assuming that "the value of most assets is similar to assets that are priced in the market place, and that although the market individually may be wrong, on average, it gets it right pricing stocks". Other implicit assumptions are that a comparable firm operates within the same industry, has a similar expected cash flow, growth rate and risk.

Bojan Milicevic (2009) lists the four steps that must be followed for relative valuations: selection of relevant measures, identification of comparables, estimation of peer group multiples, and actual application of the peer group multiple to the corresponding value driver of the target firm.

2.3.3.1. Categorizing relative valuation models

When we categorize relative valuation models, *Damodaran (2006)*, states that there are different ways to accost multiples valuation.

The first choice when applying this approach, is related with using comparable firms within the industry, and thus doing a cross sectional comparison, or using past information, by comparing the multiple that is used today with the multiple the company used to trade in the past, doing a comparison across time. However, the last option can be difficult to apply once when comparing multiples across time, changes in interest rates and on the overall market should be included on the analysis.

The second choice is related with the way to categorize multiples, which relies on whether to use fundamentals or comparables for the valuation. Using fundamentals is similar to discounted cash flow analysis, once we are using data about the firm which is being

valued, like growth rates in earnings cash flows, payouts and risk, allowing us to evaluate the company when these characteristics change. Comparables approach relies on using common variables, such as price earnings, price to book ratio, being the most common way to categorize multiples, as well as doing a cross sectional comparison.

Besides, there is also important to note that there are two kinds of multiples, market multiples and transactional multiples (for takeover analysis). Below there are some examples of the most used:

Equity Value Multiples	Enterprise Value Multiples
P/E	EV/ EBIT
P/B	EV/EBITDA
P/S	EV/ SALES
P/OFC	

Figure 5. Main Relative Valuation Multiples

Equity multiples, have an advantage over value multiples because market capitalization does not require a further adjustment for net debt as in the last ones, being therefore the preferred ones (*Bojan Milicevic, 2009*). The most common equity multiples are the ones above, once they take into account the most important numbers in financial statements, such as net income, book value of common equity, sales or revenues and cash flows from operating activities.

If we focus on financial services valuation, according to *Breaking Into – Wall Street, Bank Valuation*, book values are more reliable than price earnings due to two main reasons: non-recurring and non-cash charges can affect earnings, and book values are linked to ROE, which is the key operating metric for a bank. Even though, I will consider both multiples to achieve BPI's target value.

2.3.3.2. Advantages and Disadvantages

Multiples approach is simple and easy to work, which is an advantage for analysts, namely in what regards the time and effort needed on a valuation, being therefore a quick method and particularly useful when there are a large number of peers being traded, and the market is pricing them correctly. Moreover, it requires less assumptions and information than the DCF method, for example, what can lead to lower estimation errors.

However, it has also some drawbacks, such as dealing with the concept of comparable firms, and the way to measure multiples:

- having to account for differences across firms, like accounting (IFRS vs US-GAAP) and regulatory standards, market capitalization, growth rates
- having to choose between three hypothesis for measurement, a simple average of the multiples, a weighted average or even a multivariate regression if we want to be more accurate

Also, other disadvantage that should be taken into consideration is the fact of being a static valuation and thus just reflects the mood of the market on a specific moment, which can lead to errors of over or under valuations, once economic environment in which companies operate is dynamic and thus is always changing.

Focusing on the banking sector, according to *Fernández (2001), Valuating using multiples*, other of multiple's problems, is that the dispersion between multiples as PER, P/B and ROE of Portuguese/ Spanish banks is quite high. This is shown in a sample of 10 banks, from November 2010, in which the range of PER goes from 10,4 to 30,9, P/B from 1,5 to 4,7, and finally ROE from 12,9 % to 28,2 %. (Exhibit 1) As a result, to avoid the dispersion of multiples, *McKinsey on Finance "The right role for multiples in valuation" (2005)*, recommends the use of forward looking multiples, once these help doing a more accurate prediction of value, having an error of 18% for a one-year forecasted earnings against an error of 23% when using historical multiples.

Due to the issues mentioned above, multiples' valuation is widely debated, and consequently should be supplemented by other valuation approaches, what I will further do.

2.3.4. Contingency Valuation

The basic principle behind this approach is that in some cases, the value of an asset is contingent on the occurrence or not of an event. Discounted cash flow models don't recognize such options and don't incorporate them into the market place, tending to understate the value of its assets, and as a consequence contingency valuation methods should be used to a more precise valuation. Therefore, assets like as patents or undeveloped reserves, which behave like really options, should be valued as such, and option pricing models should be applied.

According to *Damodaran (2002)*, an option value is dependent on its maturity, value of the underlying asset, the strike or exercise price (which is the predetermined price), and the riskless of the interest rate.

“Option pricing models, underlie on an agreement of two parties: the option seller and the option buyer, who is granted with a right, secured by the option seller, to exercise the option at some moment in the future, maturity date”, *Victor Podlozhnyuk (April 2007)*. It can be valued as a call option or as put option. The first one, grants the right to buy the underlying asset at a strike price at its maturity, therefore, the payoff is contingent on the value of the asset exceeding the pre-specified level. A put option, grants the right to sell the underlying asset at a strike price, thus the payoff increases as the value of the underlying assets drops below a pre-specified level.

Also, it is important to distinguish between European options, which can only be exercised at the maturity date, and American options, the option buyer can choose whether to exercise it earlier or at the expiration date, being therefore more flexible and enabling them to commonly be priced at a higher value than the corresponding European options.

Several approaches were developed such as the binomial model, that consists in an iterative solution that models the price evolution over the whole option validity period, assuming it increases and decreases by fixed probabilities at a predictable schedule (*Victor Podlozhnyuk, April 2007*), or the black scholes approach in example.

I will opt to not further develop this topic, once it does not fit with financial services valuation.

2.3.5. Valuing Financial Services

Financial service firms, such as Banks, bring some challenges in what regards valuation, due to its specific characteristics. Firstly, as opposed to the majority of the companies, in which revenues came from sales and minimization of the costs implied to produce the goods, banks' revenues came from borrowing and lending money, which means that they operate in two markets as opposed to non-financial firms. Therefore, its' value creation relies on the spread between the interest it pays from whom it raises funds, depositors, and the interest it receives from who borrows from it. Besides its' activity, according to *Damodaran (2009)* other issues should be taken into account when valuing banks, such as the fact that they operate under a regulatory framework, they have different accounting rules and their debt, and reinvestment needs are not clearly defined.

The regulatory overlay, such as BASEL III, which comprises a set of measures to supervise the banking sector, restricts somehow banks' operations, by governing how much and where they can invest, and how fast they can grow. It exists to ensure that they do not expand beyond their means and put their debt holders at risk (by not being able to cover their claims) and thus reducing the probability of future crisis. Other implication of the

regulation is that when valuing financial service firms analysts know less about the company than they wanted to and if regulatory requirements are expected to change or are changing, uncertainty is higher and therefore, that implicit risk must be included on valuation.

Moreover, financial services, have different accounting rules, namely for measuring earnings and recording book value. Firstly, they operate with financial instruments, which have an active market, being consequently their assets marked to market. Since their value is observable, accounting rules direct these to be recorded at fair value. Secondly, because the nature of banks' operations leads to long periods of profitability to be interspersed with short periods of large losses, accounting rules also have standards to smooth their earnings. As one of the risks a bank is subject to is the risk of default of their lenders, which varies over time, an account of provisions is build up, being it higher for banks which are more conservative and more risk averse.

The third characteristic which is also important to note is that, as mentioned above, due to the specificity of its operations, capital expenditures, net working capital, and debt are not clearly defined and therefore free cash flows to the firm cannot be easily estimated. For any company, reinvestment is a necessary condition to grow. However, when talking about a bank, such as BPI, which I am going to further analyze, its investments are essentially on intangible assets, which are difficult to measure and usually are accounted as operational expenses. Thus, the level of CAPEX is meaningless, as also depreciations expenses. In what regards working capital, which consists mainly in the difference between current assets and current liabilities, we face the fact that they may be large and volatile and possibly not related with reinvestment for future growth. Regarding debt, for the banking sector, it works as a raw material, which makes it difficult to distinguish between a deposit and debt issued by the bank and leads financial service firms to be much levered.

As a result, equity valuation models are the ones most used, rather than enterprise value, and actual or potential dividends rather than free cash flows to equity, once dividends are the only tangible asset towards the estimation. Three options are presented on *Damodaran (2009)*: use a dividend discount model assuming firms overtime pay their cash flows to equity as dividends; adopt the measure of FCFE, considering it is equal to the cash flows left over for equity after debt repayments and reinvestment on regulatory needs are met; or valuing based on excess return models, considering that the value of equity equals the book value of equity invested plus the present value of excess returns over the forecasted years plus the present value of the terminal value. As well as these methods, there are others which enable us to do some equity research on banks, such as the asset base valuation, in which the value of equity is the enterprise value subtracted of deposits, debt

and other claims, or such as relative valuation, where analysts should use equity multiples for the reasons already mentioned.

2.3.6. Cross-Border Valuation

When valuing a company which operates in more than one country, and most important than that, which operates in countries which have different development levels, the firm's cross-border presence must be taken into account on valuation once it will have impact on the company's strategy and investment policy, or in example, in its risk profile, increasing the risk when we are dealing with emerging markets, influencing therefore the firm's value.

Like the *Cross-Border Valuation paper from Harvard Business School (Revised August 1997)* states, "the major implications for valuation, that rise from having an international presence can be summarized as: the choice of which currency and tax rates to use on the analysis (home or foreign), whether to discount the foreign FCFF at the time they are earned or at the time they are remitted home, and the proper computation of WACC, in which foreign exchange and political risks should be included, as also the different macroeconomic scenarios the company is exposed to and therefore, the different growth rates at which it will grow".

Considering these issues, there are two alternative methods which can be applied and produce accurate valuations being thus important to mention them when measuring emerging-markets risk: the cash-flow-scenario approach and the country-risk-premium approach, *Mimi James and Timothy M. Koller, (McKinsey Quarterly 2000)* and *Marc H. Goedhart and Peter Haden (McKinsey Quarterly 2003)*.

The first approach, cash-flow-scenario, is based on the belief that there are two possible alternatives for how cash-flows might develop in the future, depending on the economic conditions of the country. Therefore, the approach should take them into consideration, assuming that with a certain probability, $x\%$, cash flows would develop according to the business, and that with a probability of $(1-x)\%$, cash-flows would reflect adverse economic conditions. This way, European cash flows would be expected to be higher than those developed on an emerging country, once the risk would be represented in the expected value of the future cash flows and not on the cost of capital implied for each market as it happens in the country-risk-premium approach.

In this last method, as explained, the risk is incorporated in the cost of capital by adding it a country risk premium for the emerging market. Following this method, the resulting discount rate would apply for the cash flows forecasted on a scenario of no local economic distress.

The discussion between what is the best option is still ongoing, having been stated by *Mimi James and Timothy M. Koller, (McKinsey Quarterly 2000)*, that accounting for the risks through the “probability scenarios would be a more solid foundation and a more robust understanding of how value might be created”, which it is supported by some arguments, like the fact that the discount rate should reflect only the non diversifiable risk, or in other words, the market risk, and the firm’s risk or diversifiable one is better handled in the cash-flows, or on the belief that risks don’t apply equally for all the sectors and industries within the same country and by including it through the use of a risk premium, an error is incurred. According to this author, by using the cash-flows scenarios approach, we would achieve much closer market value and a more accurate view of the company, once specific risks will be decomposed and evaluated and it also would be helpful to managers to understand what are the right decisions and how they would impact the firm’s value.

A problem that comes from these approaches, which analysts should be aware of when developing a model or analyzing someone’s model, is that sometimes practitioners tend to make the mistake of adding the country risk premium and discount the expected cash-flows, which already account for distress scenarios.

Facing the fact that there are two major markets in which BPI operates, Portugal and Angola, I found it a requisite to decompose the profit and loss statement and balance sheet in two and forecast the accounts separately, which will enable me to take into account the different risks they are exposed to, and forecast the correspondent cash flows assuming normal economic conditions. To evaluate the company through discounted cash flows methods, I will have to resort to the sum of parts approach, in which I will forecast BPI’s value in Portugal and sum it to its international value, by discounting each operation’s value at different costs of equity, incorporating the associated risks in them. In this case, I will add, in example, a country risk premium for Portugal in the period I expect it to remain in crisis, and a constant country risk premium for the emerging market over the years.

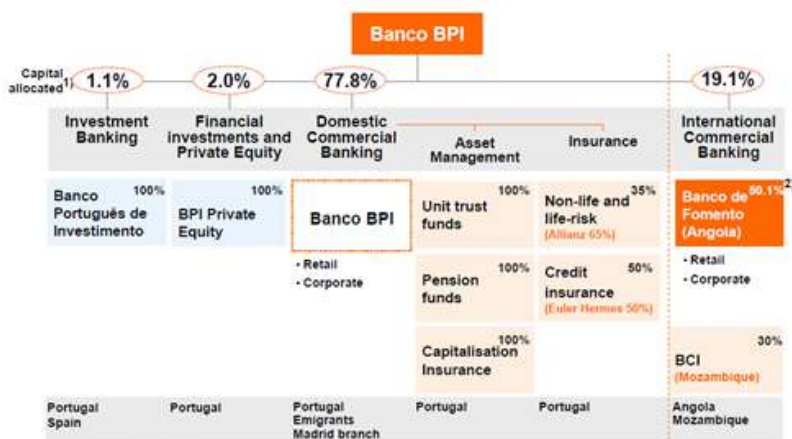
3. Banco Português de Investimento

3.1. Company Presentation

BPI - Banco Português de Investimento, is a Portuguese financial group, which was conceived in 1981 as Sociedade Portuguesa de Investimentos, with the aim of financing investment projects launched by the private sector, to participate in capital markets and contribute to the country's industrial modernization. On 1985, it was transformed into a commercial banking, which allowed it to attract deposits and grant short-term loans. On 1986, it started to be listed on the Lisbon and Oporto Stock Exchanges. Afterwards (1995), the original BPI was transformed into an SGPS (holding), becoming the only Group company listed on the stock exchange. On July 1998, BPI SGPS comprised two bank institutions: BPI Investimentos and Banco BPI, responsible for the investment banking area and commercial area, respectively. From there on, it has been growing and expanding its operations having as a driver the value creation for shareholders, employees and customers.

Nowadays, it is a financial group with a strong competitive position, being on June 2011, according to the company's website, the 4th major Portuguese private financial group and market leader in Angola, in what regards total customer resources and loans. In Portugal, it has a market share of nearly 11% in deposits and loans, and above 17% in asset management, and in Angola, of 12.5% in loans and 19.2% in deposits, which places the bank in the 5th and 2nd largest financial group within these categories.

BPI offers a wide variety of services and products in all main business areas of the banking sector, such as investment banking, financial investments, private equity, domestic commercial banking, asset management, insurance and international commercial banking. In asset management, it holds very important positions in the management of investment funds, pension funds, and life insurance-capitalization, through BPI Gestão de Activos, BPI Vida, BPI Pensões and BPI Private Equity. See below its actual business / financial profile:



1) Capital allocation at 31 March 2011

2) BPI sold 49.9% of BFA share capital in December 2005.

Figure 6. Actual Business and financial profile

Source: BPI's Website (<http://bpi.bancobpi.pt/>)

Its international presence (see exhibit 2), pretends to offer to its clients a wide range of diversified services, either on international businesses, as also on the support of Portuguese people abroad. Its major activity abroad is focused on the Angolan market, through Banco de Fomento – BFA, 50.1% owned, where it holds leadership positions, with market shares of 12,5% and 19,2%, in loans and deposits, respectively (30th June 2011 data). Besides Angola, BPI also has operations in Mozambique, through its 30% interest held in Banco Comercial e de Investimentos (BCI), a retail bank mainly focused on the gathering of resources and loan concession activities in which the bank holds market shares of 27% and 32%, respectively. (*BPI's website*)

3.1.1. Shareholders Structure

“The banks share capital, on June 2011, was made up of 990 million ordinary shares with a nominal value of one euro each, being all of them listed on the Euronext market, as mentioned above. It was held by 21 659 shareholders, of whom 21 146 were individuals owning 14.8% of the capital, while 513 were institutional and corporate investors holding 85.2% of the share capital”, according to *BPI's website (updated on June 2011)*. The detailed shareholder's capital structure is as follows:

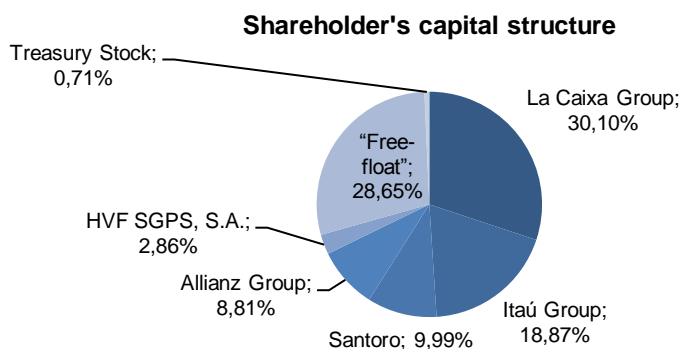
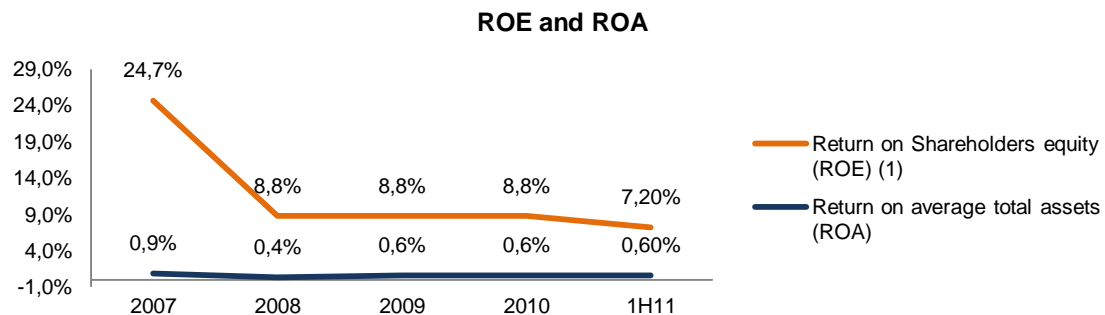


Figure 7. Shareholder's Capital Structure

Source: Company Data, CMVM, CaixaBI Equity Research (December 2011)

3.1.2. Financial Indicators

The economic scenery of the last three years, from 2007 until nowadays, had a huge impact on financial institutions, and it is very clear to notice that by looking at BPI's financial indicators, which have been showing a lower economic performance year over year.



(1) For the purpose of the calculation of the ROE since 2007 the revaluation reserves were excluded from the allocated capital.

Figure 8. Consolidated ROE and ROA

Source. BPI's Annual Reports

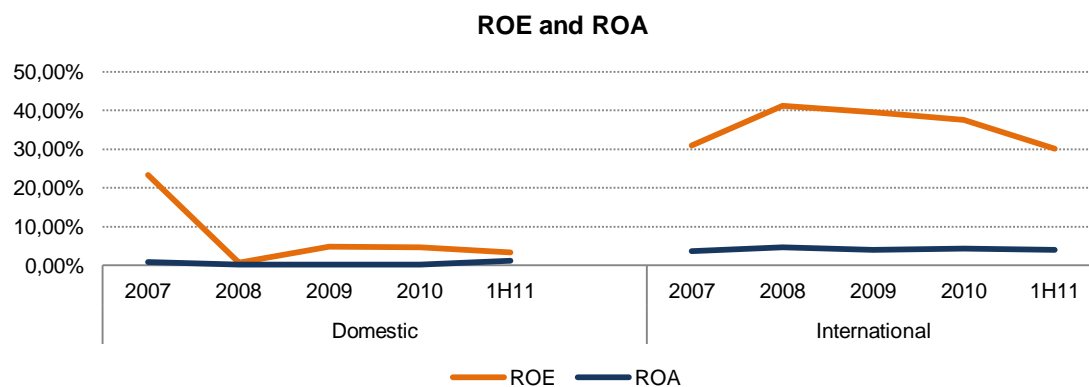


Figure 9. ROE and ROA

Source. BPI's Annual Reports

Its return on shareholder's equity has had a significant decrease from 2007 to 2008, consequence of the contraction on the net income, around 58%. A lower level of net income was being registered from there on, and thus, lower returns were achieved by the bank. When comparing BPI's domestic operations with international, it is clearly observable that international operations are the ones which are contributing with higher returns, namely in the last years, where Portugal's ROE is close to 5% versus an International's ROE close to 40%, which is expected to continue in the near future, having higher investment rates and growth rates outside Portugal.

Looking at the return on assets, a negative trend has also been verified, having the consolidated percentage decreased by 0,3 points from 2007 until 1H11, where the

correspondent returns were around 0,9% and 0,6%, respectively. This means that, in the recent years the company has been less efficient, generating fewer earnings in relation to all of the resources it had at its disposal, and once again, that is more evident in the domestic operations rather than on the international ones.

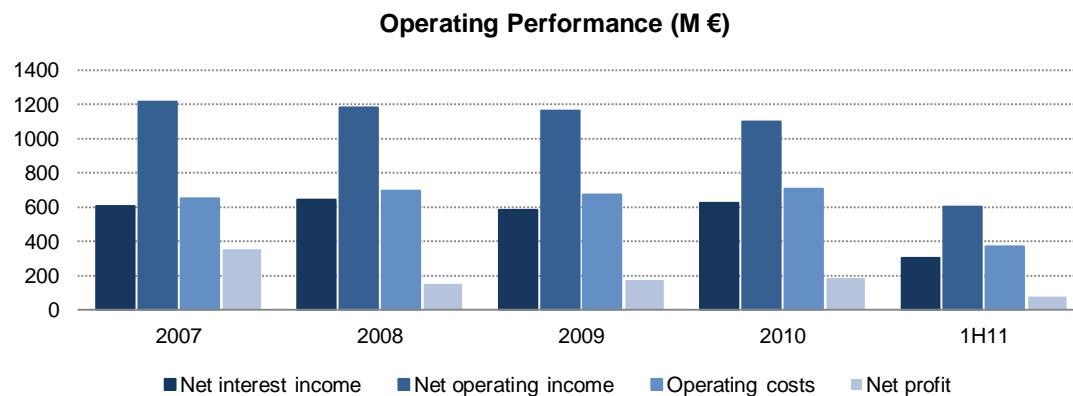


Figure 10. Consolidated Operating Performance

Source: BPI's Annual Reports

If a deeper analysis is done to net income, one can conclude that the bank has been having a sustained net interest income, contrarily to what could be expected once it has been pressured by the combination of the higher average costs of resources and by the deceleration in lending growth, with also a slower adjustment of spreads. Regarding the operating income, which reflects the banking revenues, a downward trend has been verified, which has a negative impact on BPI's return. Combining this, with the maintenance or slightly increase of operating costs, a contraction on net income has been being registered on the past years.

Therefore, and to counteract this drop, *according to BPI's annual report (2010)*, it is "adopting structural measures in order to reduce its operating costs and boost its efficiency through the reorganization of processes, the optimization of the central services and commercial networks and the cutback in headcount, by means of early retirements".

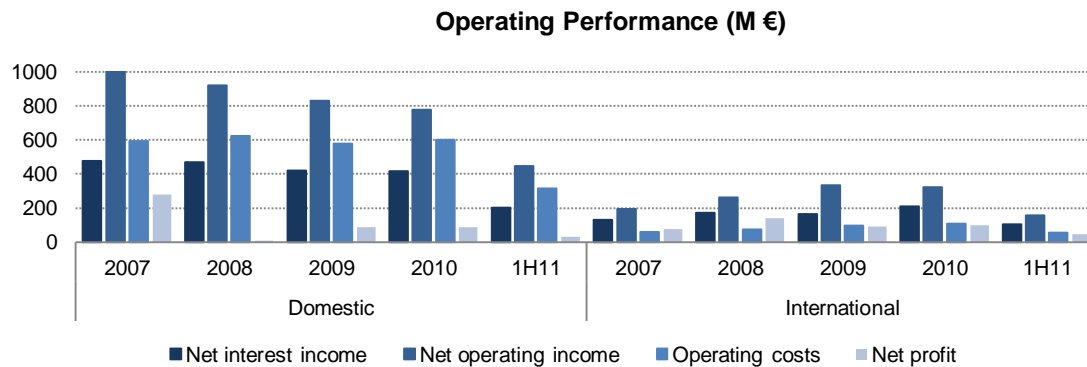


Figure 11. Operating Performance

Source. BPI's Annual Reports

If we look at the operating performance and distinguish between the domestic and international activities, it is visible that the domestic net interest income and net operating income are clearly decreasing on a year by year basis, suffering essentially with the decreasing trend on the credit lines offered, and that contrarily to that, internationally they have been growing.

Regarding the operational costs, although theoretically BPI has been making an effort to decrease them, domestically, they have been having a behavior quite stable, and in international's case, they have been increasing which is due to the expansion strategy BPI is pursuing outside Portugal.

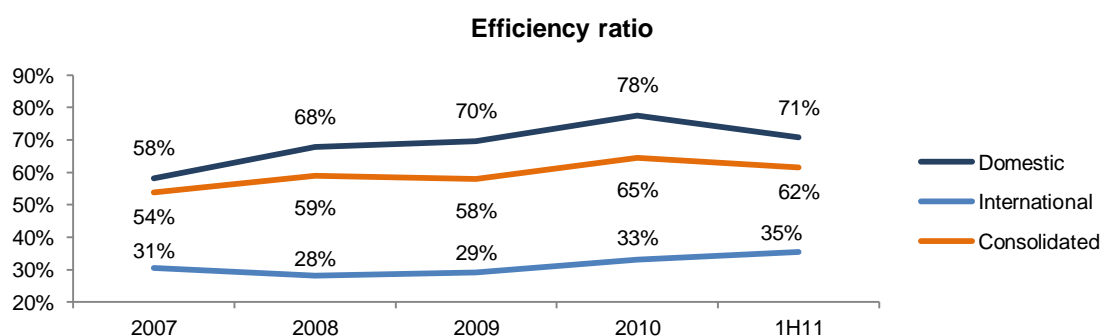


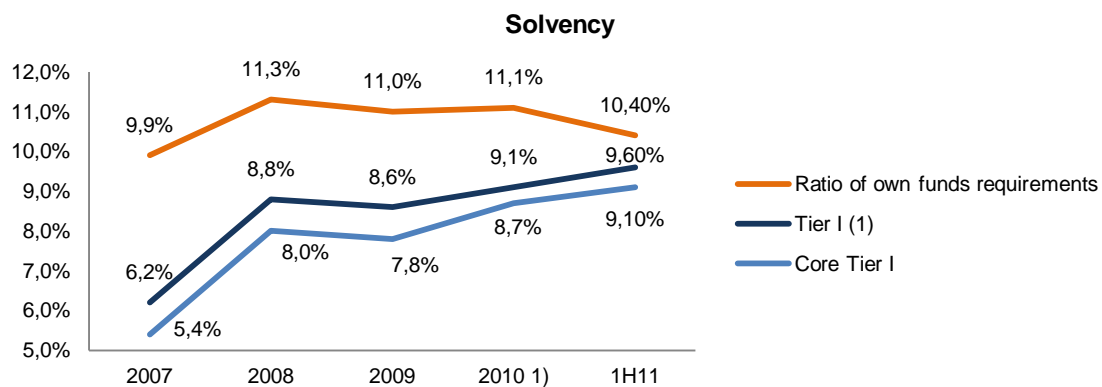
Figure 12. Efficiency ratio

Source. BPI's Annual Reports

By computing the efficiency ratio or cost to income ratio, dividing the operating costs for the net operating income, it is possible to conclude that domestically BPI is not being as efficient as internationally, requiring more than 60% of the income as a cost to be able to generated it, while internationally it is requiring on average 31%. However, if we look at the

consolidated level, although the ratio has increased in 2010, BPI has been having a stable level around 57%. These cost levels have been having a notable impact on the net profit, having been the domestic net profit of the last years lower than the internationals, which it is expected to happen in the followings.

It is also important to point out the reasons behind the abnormal net profits achieved on 2008, which were from one side, as stated in BPI's report, "negatively affected by impairments and realized capital losses on BCP investment (-184.4 M€) and by early-retirement costs (-27.7 M€), and from other side, positively affected by the capital gain realized on the sale of 49.9% of BFA capital (+130.6 M €)", which was in line with the Angolan government's strategy of limiting foreign participation to stimulate internal economic growth and promote economic stabilization.



(1) Starting in Jun. 07 (included), in accordance to Bank of Portugal instructions, 50% of the deductions from own funds related to the investments in credit

Figure 13. Solvency Ratios

Source. BPI's Annual Reports

Concerning the solvency of the bank an improvement as been evidenced over the last years, resultant of the reinforcement of its capital ratios year over year, in which BPI has been highlighted by having the highest ratios within the Portuguese financial system.

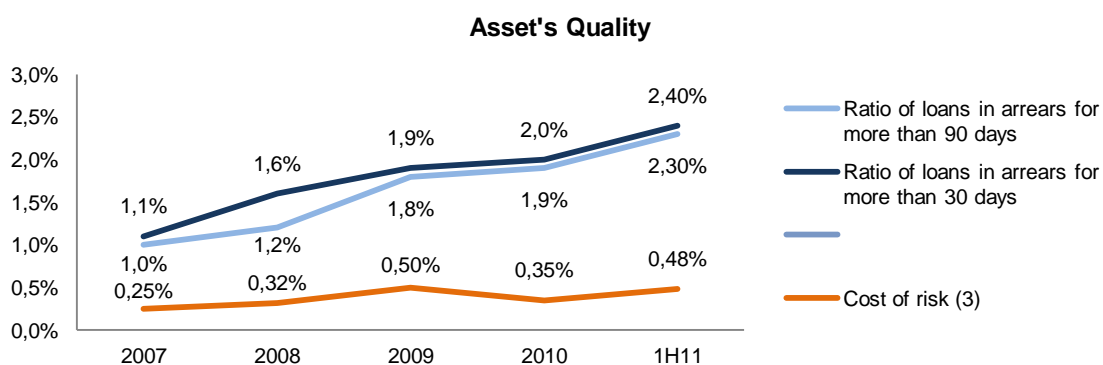
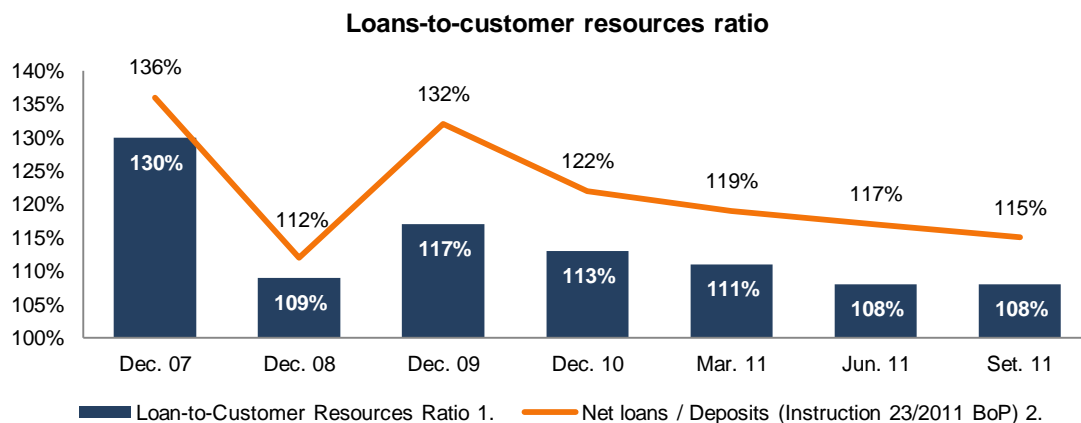


Figure 14. Asset's Quality

Source. BPI's Annual Reports

However, and looking at its asset's quality, a deterioration has been observed by the increase in the ratio of loans in arrears for more than 30 and 90 days, as well by the increase in the cost of risk. This trend is also visible in the other Portuguese financial institutions and is derived from the increase of the nonperforming loans, which in the future, is expectable to continue deteriorating as a consequence of the austerity measures implementation, and the weak economy prospects the country is facing, which reduce the propensity of customers and corporate to repay loans. The cost of risk, which increased from 0.25% to 0.48% in almost 4 years, measures the loan impairments in the year, deducted of recoveries of loans in arrears written-off (in the income statement) as percentage of customer loans portfolio. Following the same rationale of the previous ratios, it is also expected to continue increasing, once banks will have to be more conservative, provisioning more in proportion to the loans they grant and the ones that they already have in their balance sheet.



1. Deposits and bonds placed with Customers

2. "The transformation ratio calculated in accordance with Bank of Portugal Instruction 23/2011 differs from the ratio *Loans-to Customer resources* as the former does not include in the denominator the bonds placed with customers by the commercial network and considers the Group's perimeter subject to the supervision of Bank of Portugal"; Includes deposits of BPI Vida and BPI Pensões

Figure 15. Loan-to-Customer Resources Ratio

Source. BPI's 3Q11 report

In order to promote financial stability and bank's liquidity, BPI is striving to reduce its credit lines and increase the levels of deposits, which consequently decreases its loan-to-customers ratio, having enhanced it by 22 percentage points, from 2007 until the first nine

months of 2011. It is foreseen that during the next months all the major banks will continue the deleveraging process so that they reach a ratios under 120% until 2014, and comply with Troika's memorandum.

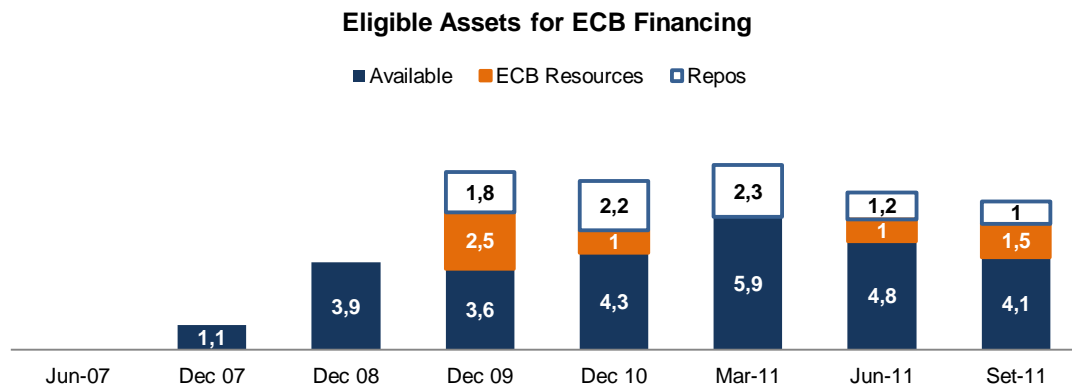


Figure 16. Eligible Assets for ECB financing

Source. BPI's 3Q11 report

In what regards to external funding, and BPI's dependence on debt, the firm has been making an effort to decrease it, namely the dependence on central banks. However, as observable, the recourse to ECB funding stood at EUR 1,5bn as of September 2011 versus a zero net exposure by the end of the 1Q11, reflecting the difficulty that has been present among the institutions to finance themselves through the wholesale market, and therefore, the appearance of the central bank as a solution.

Due to this dependence, capital ratios, key financial indicators that BPI presents, its exposure to peripheral countries which are most affected by the sovereign debt crisis, as also, due to the Portuguese republic lower ratings, BPI's rating is as follows:

		Dec. 2010	April 2011	July 2011	7 Out. 2011
Moody's	Banco BPI	A2	Baa2	Baa3	Ba2
	Portuguese Republic	A1	Baa1	Ba2	Ba2
Fitch Ratings	Banco BPI	A -	BBB -	BBB -	BBB -
	Portuguese Republic	A +	BBB -	BBB -	BBB -
Standard & Poor's	Banco BPI	A -	BBB -	BBB -	BBB -
	Portuguese Republic	A -	BBB -	BBB -	BBB -

Figure 17. BPI's Rating

"Fitch ratings – Good credit quality. "BBB-" ratings indicate that expectations of default risk are currently low (the modifier "-" indicates a lower position within the rating category)

Moody's ratings – Obligations rated "Ba" are judged to have speculative elements and are subject to substantial credit risk (the modifier "2" indicates a middle-range in the rating category)

Standard & Poors' ratings – "BBB-" rating: the obligor has adequate capacity to meet its financial commitments (the modifier "-" indicates a lower position within the rating category. Considered the lowest investment grade by market participants)

Source. BPI's website and BPI's 1H11 report

Although the present economic scenario the bank is facing, and although it has had a better performance in the past, according to its annual reports and to the sector news/researches, BPI has been ranked in the first place amongst the four largest Portuguese banks during this period (2007-present), showing:

- The highest capital ratios
- The lowest amount of capital increases
- The best credit-risk indicators
- The lowest volume of central-bank funding (ECB funding)
- The highest ROE
- One of the best credit ratings
- One of the highest levels of new customers captures
- The 2nd best result on 2011 stress tests published on July 2011

It is the banks' objective to sustain this position, which is only possible due to the strong strategy BPI pursues.

3.1.3. Strategy

BPI's focus is to consolidate its position on the Portuguese financial sector, as well as in international markets, namely in Angola, in the coming years. To do it, the bank developed a more stringent adjustment program designed to respond to the challenges posed by the persistent deterioration of the financial crisis, and to recoup its credibility on the markets, which is based in the 5 pillars described below.

- Defense and reinforcement of capital
- Ensuring comfortable liquidity levels
- Reducing and controlling risks
- Strengthening the relationship with customers
- Improvement in profitability
- Boosting the presence of BFA in every area of financial activity

Taking these issues into account, “the bank will follow in the next years with its deleveraging process, determined to preserve through liquidity, credit and capital management, the levels of freedom which enable a sustainable adaptation in tandem with maximum flexibility and independence”, *BPI’s annual report (2010)*. It is BPI’s belief that these general principles enable it to adapt itself to the unstable and volatile economic climate and to return to more attractive performance indicators.

Also, by following these guidelines, BPI’s objective is to contribute to the development of the Portuguese and Angolan economy, by increasing the competitiveness of companies and promoting the stability of the financial sector.

3.2. Sector Analysis

3.2.1. Portugal

Since 2007, the crisis is spread all over Europe and internationally, which lead to loss of credibility in financial institutions and system, and has been threatened by the economies’ low growth prospects and the unsustainable leverage levels. These, have historically showed to be higher for banks comparing to non-banks companies, due to the benefits associated with debt (see Exhibit 3).

Portugal, in the wake of the sovereign debt crisis, has a highly leveraged economy, having high dependence on debt and low growth prospects, which, having into account the macroeconomic scenario, implies highly challenging funding prospects, such as, higher borrowing costs, as also a virtual closure of capital markets and accelerated dependence on European Central Banks. See the ECB usage as % of assets on July 2010, where Portugal clearly stands and the Portuguese banks – total funding via ECB scheme. These two figures demonstrate that although banks are trying to reduce its exposure to ECB, for now it hasn’t been possible yet, being expectable this dependence to remain in the short term as there aren’t seen conditions to foreseen that Portuguese banks will return to wholesale markets soon.

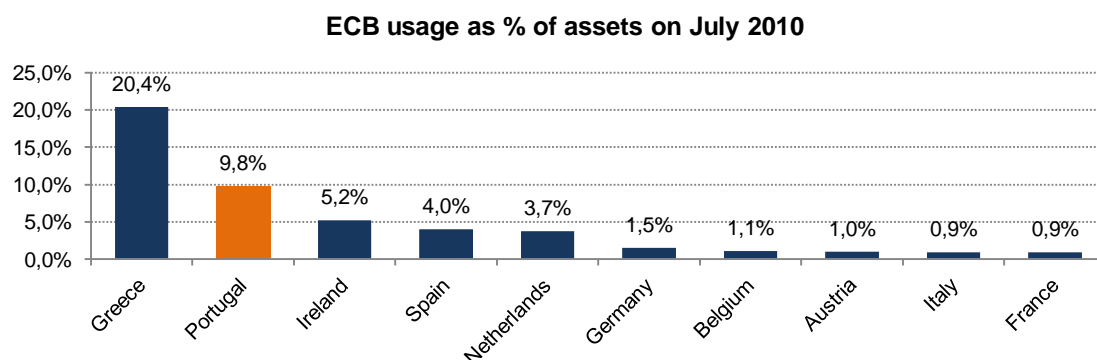


Figure 18. ECB usage as % of assets on July 2010

Source. J.P.Morgan Cazenove: Portuguese Banks

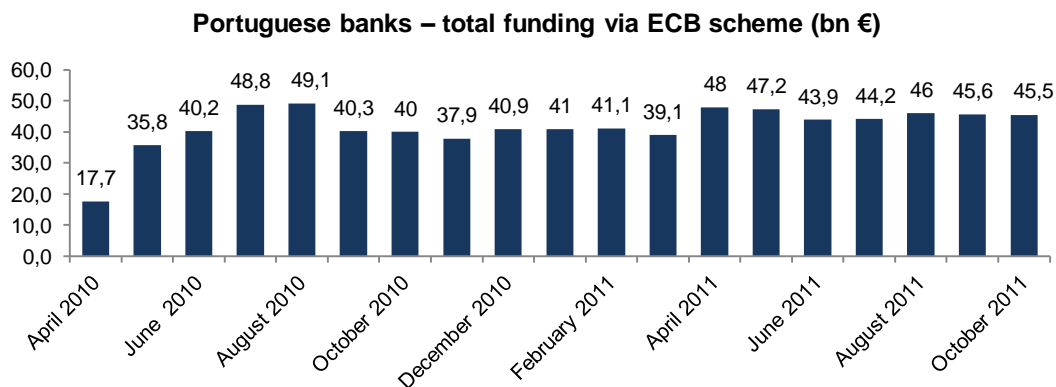


Figure 19. Portuguese banks – total funding via ECB scheme (EUR bn)

Source. Bank of Portugal; Caixa BI Equity Research; European Central Bank

In other words, the increasing skepticism and uncertainty on the magnitude of the country's sovereign concerns, has derived into limited or no access to the term debt market and have been contributing to the dependence on government programs, namely on ECB, forcing the deterioration in the quality of Portuguese bank's funding structure.

According to *Fitch Ratings (January 2011), The credit Outlook: Navigating a Risk-Laden Recovery*, "to face these extremely adverse macroeconomic and financial environment, the implementation of resolution schemes is a necessary condition" and they should move in parallel with regulatory pressure, most notably from BASEL III, with the aim of strengthening capital ratios and liquidity buffers to ensure the likely need for state support reduces.

In this sense, on the 6th May, 2011, Portugal signed an agreement with the European Commission, European Central Bank and the International Monetary fund, having the purpose of receiving a €78bn bailout, to help the country surpassing the crisis. In this memorandum with Troika, the government proposed to implement a package of austerity measures which will have to be carried out for three years and pretend to improve the country's economy by aiming the preservation of financial sector stability (capital buffers), the maintenance of its liquidity, and by implementing a deleveraging process.

A review over the credit policy was made, what is being reflected into an increase in spreads, namely on riskier loans, into a tightening of other conditions on loan contracts, implying in example, shorter-maturities, lower loan amounts, as well as higher non-interest rate charges, higher commission rates, and higher collateral requirements. This review, is

leading to a stabilization or even a decrease on loans to customers levels, namely in the recent months as showed on the graph below.

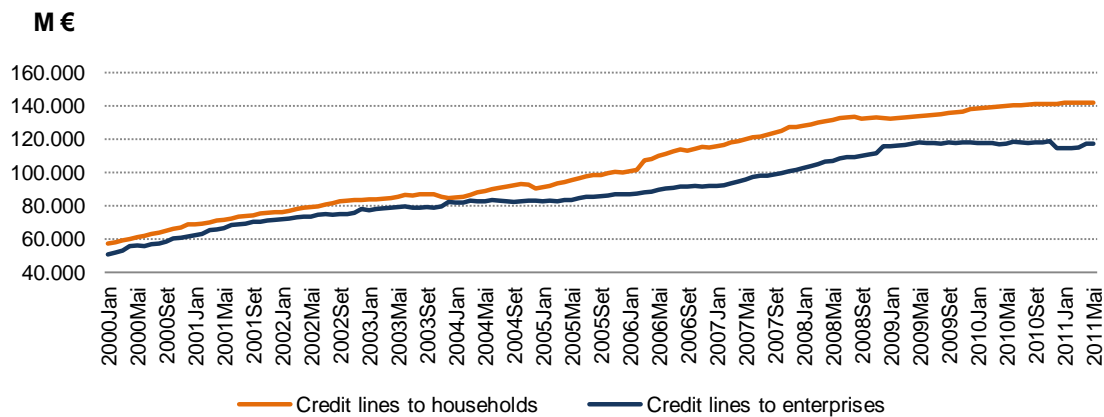


Figure 20. Evolution of the credit lines

Source. Bank of Portugal – Credit lines Evolution (2000 – May 2011)

It is important to take into account that this deleveraging process should be gradual, in order to reconcile the tension between the need to reduce the levels of leverage of the banking sector and the importance of maintaining an adequate flow of credit to finance the economy and enable its recovery.

Other solutions rely on the improvement of market's confidence, the need for diversification, namely in what regards looking for other sources of funding, like focusing on customer resources by increasing the interest rates offered, or investing on other available saving funds, such as insurance products or conservative investment funds, like government bonds or treasury bills. The reduction of costs like staff reductions, IT improvement, reduction in consultancy and advisory expenses, and decrease on outsourcing resources, also come out as other options to promote efficiency.

Moreover, the expansion to other markets also appears as a solution to improve a bank's performance. It is likely that the majority of financial institutions have activities in foreign markets and BPI is not an exception, operating internationally, namely in Angola.

3.2.2. Angola

It is considered an emerging economy, which has been facing robust and sustained growth over the last years, as it is observable below through the positive evolution of GDP, and from which it is expected a strong economic development, as also a more stable and less

volatile behavior during the following years, which can be observed by the inflation's evolution graph below.

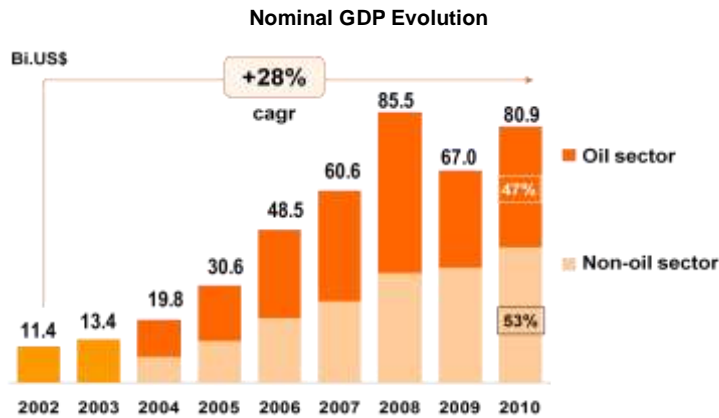


Figure 21. Angolans Evolution of Nominal GDP

Source. Angola Finance Ministry; BFA's Presentation – Angola, Macroeconomic Outlook

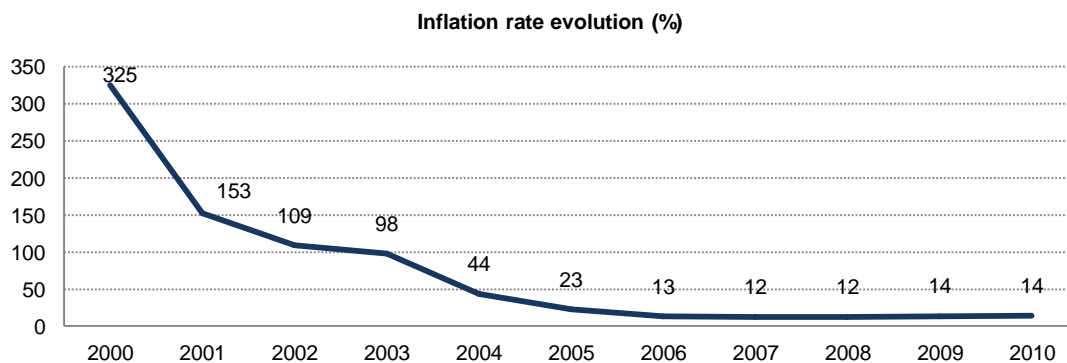


Figure 22. Angolans Inflation's Evolution

Source. World Bank data base; BFA's Presentation – Angola, Macroeconomic Outlook

From one side and according to BPI's Economic and Financial Studies – Angolan report, the crisis in Europe and EUA, is negatively affecting Angolan's economy. This is explained by the fact that developed economies are in recession, show signals of deceleration and consequently their investment rates are decreasing, namely in commodities like oil, which by being the main driver for Angolan's economy appears as the first channel or a critical point for the contagion.

However, at the same time, Angola's economic growth is supported by the fact that the propensity to invest from foreign investors has been increasing as a consequence of the crisis. Besides, the relations Angola has been developing with other emerging markets with which it realizes one third of its commercial trades, are also facing a strong expansion, with

featured to BRIC (Brazil, Russia, India and China), particularly with Brazil and China, and have been boosting their economy and thus, Angola's economy.

Focusing on its banking sector, during the year of 2009, several legal acts were issued, in the form of directives or warnings from Banco Nacional de Angola, with the aim of promoting economic and financial stabilization, having therefore a direct impact on Angola's banking system. The most relevant measures passed through:

- The strengthen of the exchange rate and monetary policy, by increasing the percentage of legal reserves, reducing the amount of foreign currency outstanding, and thus decreasing the liquidity of the system;
- The creation of an information center of credit risks (CiRC), improving the transparency among financial institutions;
- The implementation of an accounting plan for financial institutions (Contif), with the aim of reducing the differences between the structures of bank's accounts and accounting methodologies.

Under this macroeconomic adjustment program and the financial support given by FMI, as a result of oil economic boom, and due to the major improvements in macroeconomic stability and increasing competition, the banking sector, has also been increasingly growing over the last years. Considering the financial institutions that are currently operating in Angola, *KPMG (October 2011) – Angolan banking sector analysis's report*, present some numerical analysis that support the economic and financial system growth above mentioned, such as, the total assets increase of 21%, the number of branches increase of 22.1%, and 18.2% increase in the number of employees. Besides, in terms of profitability, there was verified an operating profit increase and net income increase of 24.2%, and 24.3%, respectively.

Moreover, this is clearly observable through the increasing number of banks in Angola over the last decade (Exhibit 4 – Angolan banks in 2010), as also, through the increasing number of outstanding cards, withdrawals, automated teller machines and automated payment terminals and correspondent transactions, as shown below.

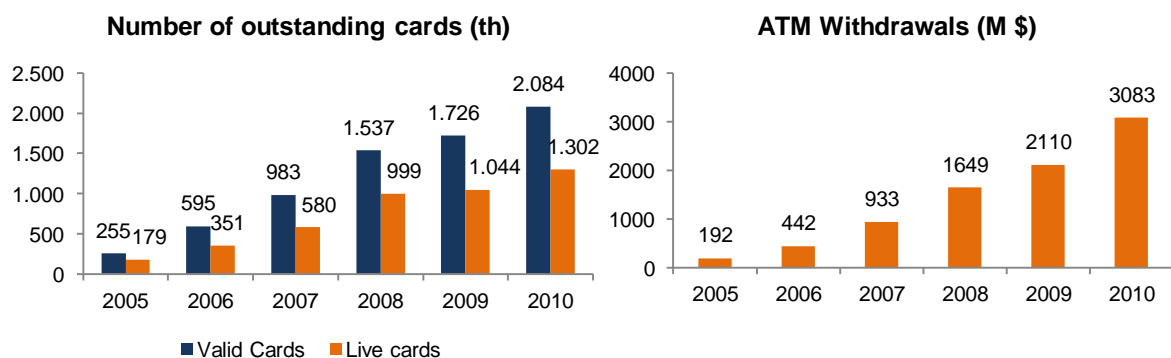




Figure 23 and 24. Number of Outstanding cards in Angola; ATM Withdrawals in Angola (M \$)

Live cards – Cards which account with at least one transaction

Source. Empresa Interbancária de Serviços

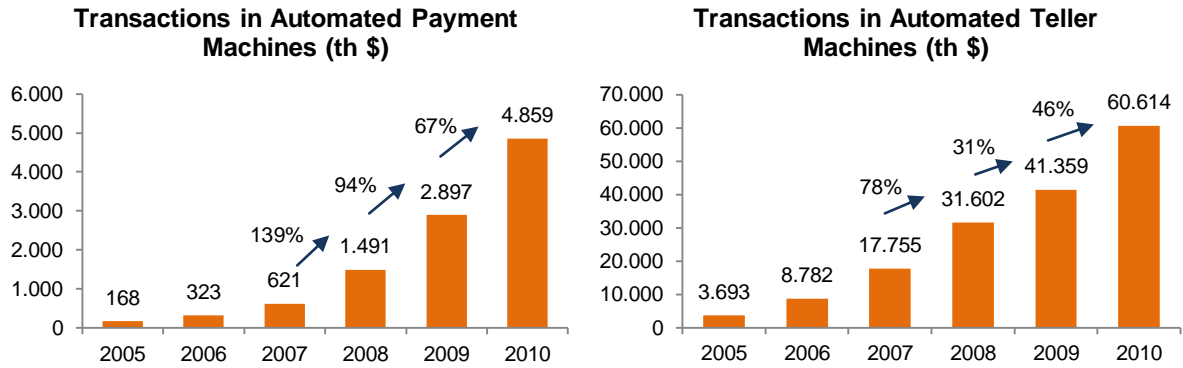


Figure 25 and 26. Transactions in Automated Payment Machines, in Angola (Thousands of dollars); Transactions in Automated Teller Machines, in Angola (Thousands of dollars)

Source. Empresa Interbancária de Serviços

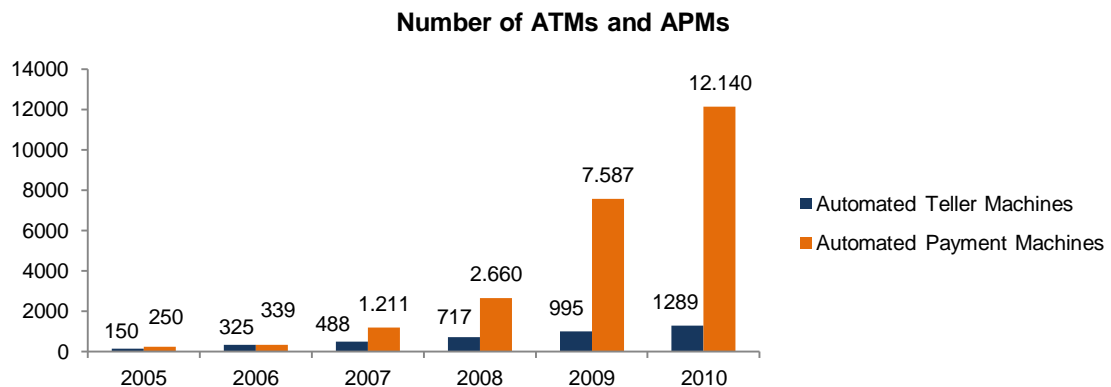


Figure 27. Number of outstanding machines in Angola: Automated Teller Machines and Automated Payment Machines

Source. Empresa Interbancária de Serviços

Besides these, credits and deposits evolution have also been showing positive signals of recovery, and future steadily growth.

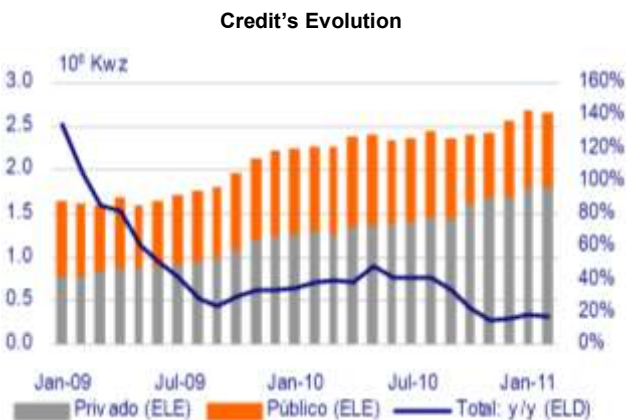


Figure 28. Angolan Banking System – Credits Evolution

Grey – Private Sector; Orange – Public Sector

Source: Banco Nacional de Angola; BPI's September 2011 report

As it is possible to see, the loans conceded have been growing in a sustained way over the last 2 years, as in the private sector as in the public sector, which reflects a reanimation of the economic activity, resultant of an increase in the private investment, as also in the better conditions offered by the banking sector.

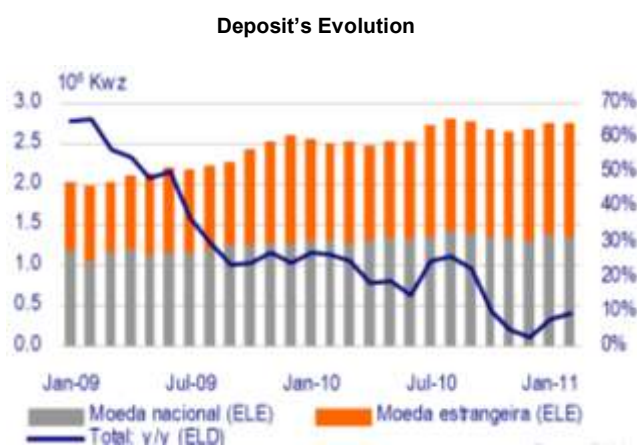


Figure 29. Angolan Banking System – Deposits Evolution

Grey – National Currency; Orange – Foreign Currency

Source: Banco Nacional de Angola; BPI's September 2011 report

Regarding the deposits evolution, a stabilized behavior is observed throughout the last months, being the proportion of deposits in national currency – kwanzas – lower than in foreign currency – dollars. This is explained by the fact that, despite the higher nominal interest rates of kwanza deposits, the local inflation, is much higher than in US, which leads the real kwanza's' returns to become lower than the dollars' deposit alternatives and therefore to be less attractive for investors, decreasing the savings level in local currency.

While local banks face credit demand in local currency, they also face an increased preference for foreign currency deposits, in search of more attractive earnings for savings. In general, these low yields on investments in local currency are being a detractor of the accumulation of savings, which is an important element in all processes of growth. However, Angola, for structural reasons, will naturally have to look for higher spreads due to the higher levels of credit risk the country is exposed to, compared with those practiced in developed economies.

3.2.3. Future prospects

Summing up, when companies operate on more than one market, and on emerging markets like Angolan markets, risks increase, and analysts have to incorporate a series of factors on firm's valuation, like the accelerated inflation, exchange rate fluctuations, macroeconomic volatility, regulatory/ fiscal measures, and political changes these countries face.

Nevertheless that from other point of view, operating in more than one country enables the company to diversify its risk, which helps to sustain the business, namely during the current crisis. Having a good policy support and emerging market dynamism are proving to be important drivers of growth.

In the near future, it is expected a maintenance of more restrictive credit standards applied on loans to enterprises and to households, and a slight decrease in the volume demanded. Regarding the impact of the new capital regulation (BASEL III), the risk weighted assets are expected to slight decrease, for which the decrease on riskier loans should contribute.

Moreover, an increase in deposits is also believed to happen, consequence of the policy banks are adopting to deleverage their balance sheets, namely by increasing the spreads offered, and to the macroeconomic scenario, which leads consumers to increase their savings, as it is possible to see on the graph below for Portugal.

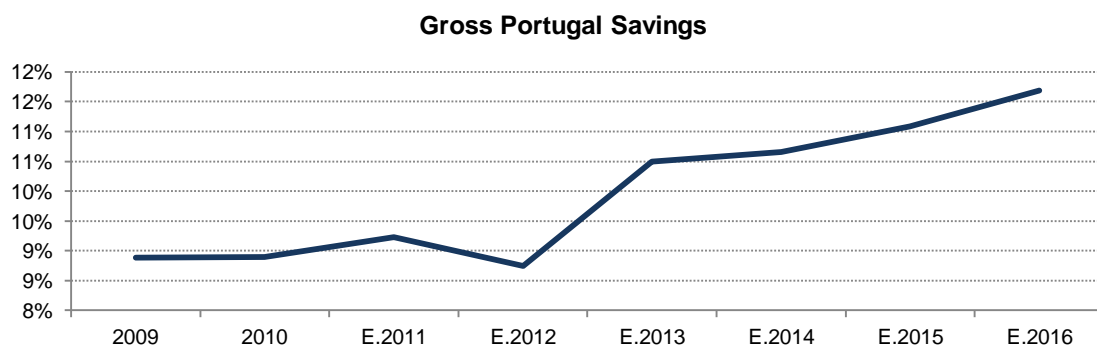


Figure 30. Gross Portugal Saving expected evolution

Source. International Monetary Fund, World Economic Outlook Database, April 2011

This trend was also verified in the last years, where the deposits of households to credit institutions have been increasing year-over-year, specifically since 2007 until nowadays.

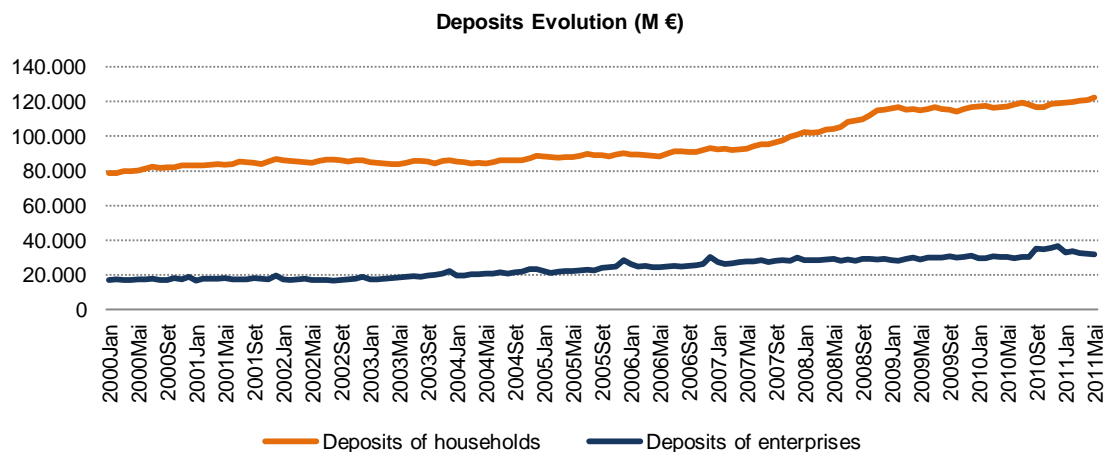


Figure 31. Deposits Evolution

Source: Bank of Portugal, June 2011

3.3. Regulatory Framework

Economy is highly dependent on banks' operations, and therefore, banking crisis result in significant losses in economic output. To prevent them, ensuring longer-term banking sector and economic stability, financial services have to work under some regulation, such as BASEL III, with which they have to comply.

The *Financial Stability Institute, Conference on Basel III (April 2011)*, states that there are a common set of figures, as excess of liquidity, leverage, and excess of credit that showed to be common to banking crisis. Furthermore, and more recently, a lower level of transparency by companies, weak bank governance practices and supervision focused on institutions instead of being focused at the system level also contributed to worsen economic health. Thus, based on these, and in response to credit crisis, regulatory framework has been enhanced and a set of procedures were imposed to improve financial institutions ability to absorb unpredicted losses and meet their obligations, to strengthen their transparency and to improve risk management within banking sector. BASEL III, which comprises the calibration of new capital and liquidity requirements, was published in 2009 and gives banks three years, approximately, to meet the terms established.

It is expected that the reforms resulting from it will bring together micro and macro benefits for the crisis period we are leaving. The increase in risk coverage, a tighten definition of capital, with a higher focus on common equity (Tier 1 Vs Core Tier 1), the introduction of a target leverage ratio to provide a backstop (which will prevent the excessive use of debt on the banking system), the introduction of global liquidity standards, are some of the reforms implied behind the *Financial Stability Institute, Conference on Basel III (April 2011)*.

To take advantage from these reforms, a minimum capital amount is required, and in accordance with *Avisos do Banco de Portugal, Aviso do Banco de Portugal nº 3/2011*, European Commission, European Central Bank and International Monetary Fund, “that was established the necessity of reinforcing the resilience of the Portuguese banking system to unpredictable shocks and to go along with the levels that are being demanded on an international landscape”. Therefore, institutions as BPI, must reinforce their core tier 1 ratios, which do a comparison between a banking firm’s core equity and its total risk-weighted assets, to a value equal or higher than 9% until December 2011 and up to 10% until December 2012, requiring an extra effort to the Portuguese banking system. The higher the ratio, the higher the adequacy a bank has to support its activity.

Also, in the 26th of October 2011, there were approved extraordinary measures in the European Council by the European Banking Authority, with the aim of creating a temporary capital buffer, and consequently restore the confidence both in the sovereign European Union’s countries, as also in the stability of the correspondent financial systems. Among the approved measures, one that is important to highlight, is the reinforcement of the minimum core tier 1 capital up to 9% until the 30th of June 2012, having been reflected on it the accountancy of the bank’s exposure to the sovereign debt at its market value held in the 30th September 2011.

The afore-mentioned capital buffer should be temporary and will increase investors and depositors confidence over the European Union’s financial system and institutions. From this decision, and in BPI’s case, the capital increment needed to comply with the regulations estimated by the EBA are around € 1 389 M, of which € 1 359 M result from the evaluation of the sovereign debt exposures at market prices, more specifically € 989 M relate to Portuguese sovereign debt (see the estimates in exhibit 5- Recapitalization of BPI). The bank, as the other Portuguese financial institutions, will analyze all the alternatives to finance this amount, being the private solutions the most desirable recourses. However, as they seem difficult to find due to the macroeconomic context, the use of state funds such as the € 12 Bn recapitalization facility made available to the Portuguese banks within the scope of the adjustment program agreed with Troika, will also be accounted as a possible solution, being in my opinion the most likely to happen.

Although there are benefits coming out from BASEL III, there are also some risks associated with it. To be precise, some banks will try to fulfill the requirements ahead of the timeframe planned, which will increase competition consequently increase pressure on peers. There is also the risk of markets trying to incorporate these standards as an “implicit requirement” from now on, which there is no sense to do, once there is a wider period allowed of adjustment.

Consequently, and due to the fact that banks already started their deleverage process, and thus, started to take measures to increase their deposits in an accelerated rhythm, such as increasing the spreads offered, which ultimately can have a negative impact on the financial system as also in the economy, the Bank of Portugal, has also announced a preventive measure through its “*Manual de Instruções do Banco de Portugal – Instrução nº 28/2011*”. It consists in a deduction on core tier 1 of 0,5% of the deposits amount with a remuneration rate that exceeds euribor by 300 basis points during the investment period of the application, and is applied for all the financial institutions headquartered in Portugal that are authorized to collect deposits, as well for the branches that are placed in the country from banks, whose headquarters are outside European Union, for the deposit applications realized or renewed after the 1st of November of the current year.

The amount to deduct to the core capital would be computed as follows:

Deduction amount

$$= \text{Deposit amount} \times \text{Term} \times (\text{Remuneration rate} - \text{Reference rate}) \times 0.5\%$$

The reference rate equals the 6 months euribor plus 300 basis points.

The increasing trend of the spreads offered was increasing considerably banks' funding costs, as well as, pressuring the spreads asked for granting loans to their customers, decreasing the interest margin. Thus, this measure appears as a solution to prevent financial institutions from bringing additional risks into their businesses, as well as for the financial system.

4. Valuation Methodology

From now on, and based on the approaches mentioned on the literature review, I will apply some of the concepts learned to follow on with BPI's Valuation for the FY2012.

It is important to remind that DCF approaches are somehow hard to apply because for financial services working capital needs are meaningless, capital expenditures are low, and debt is difficult to estimate. Furthermore, banks operate under a regulatory framework that governs how they are capitalized, how fast they can grow, influencing their operations and decisions.

Having these issues into consideration, one can conclude that BPI will be better valued using equity valuation models, such as Dividend discount model approach, Equity discount model, Residual income, DuPont which I will use, and to finish, Relative valuation method. Again, these will enable me to better estimate its future value, as well as, by using different methods, will allow me to compare the results achieved and consequently to conclude my research with a more reliable value.

Once BPI has a strong position internationally with its stake on BFA, I considered that it was important to estimate its accounts separately and consolidate them in the end to apply the valuation approaches, or even use the Sum-Of-Parts methodology. Therefore, different economic, as well as fiscal or finance assumptions were taken for the domestic versus international accounts to reflect the different risk and environment the firm is exposed to.

As banks have in general stable cash flows, I considered that an explicit period of six years would be sufficient and not biased, meaning that my estimation range is from 2011 (incorporating already the year developments and the three quarters accounts evolution) until 2016, and from there on I would consider that the company would grow on steady state.

The uncertainty of the macro environment, the funding difficulties, and the new capital requirements, or on the positive side, the deleveraging process, and contribution from the international business influence the wealth of the financial system and it is my expectation that BPI will make an effort to surpass its difficulties.

In accordance with *Franco Fiordelisi & Phil Molyneux (2007)*, besides the above mentioned issues, factors such the banking market structure, cost and profit efficiency, staff costs, deposit and loans growth, financial structure and operational and credit risk are believed to impact value creation on banks, and thus, are going to be the key of my valuation.

5. Assumptions

5.1. General Assumptions

Domestic Assumptions	2011e	2012e	2013e	2014e	2015e	2016e
Economic						
Domestic GDP	-1,9%*	-2,2%*	1,2%	2,5%	2,2%	2,0%
Domestic Inflation	3,5%*	2,4%*	1,3%	1,7%	1,6%	1,6%
Fiscal						
Domestic Effective Tax rate	According to "Orçamento de Estado 2012"					
Currency						
All data is in euro currency						
Financial						
Payout Ratio	0%	0%	0%	40%	40%	40%
Shareholders' equity and minority interests weight	80%	79%	78%	77%	76%	75%

* Bank of Portugal on the 1st, December 2011

Figure 32. General Domestic Assumptions

Source. International Monetary Fund, World Economic Outlook Database, September 2011

International Assumptions	2011e	2012e	2013e	2014e	2015e	2016e
Economic						
International GDP	3,7%	10,8%	6,7%	6,6%	6,6%	6,0%
International Inflation	15,0%	13,9%	8,9%	6,5%	6,0%	5,2%
Fiscal						
International Effective Tax rate	14,4%	14,4%	14,4%	14,4%	14,4%	14,4%
Currency						
All data is in euro currency						
Financial						
Payout Ratio	0%	0%	0%	40%	40%	40%
Shareholders' equity and minority interests weight	20%	21%	22%	23%	24%	25%

Figure 33. General International Assumptions

Source. International Monetary Fund, World Economic Outlook Database, September 2011

The effective tax rate for domestic operations was assumed to comply with the "Orçamento de Estado" for 2012, in which the following levels are defined:

- For a net profit under M 1,5 €, it should be applied a tax of 25%
- For a net profit between M 1,5 € and M 10 €, it should be applied a tax of 28% (25% from the IRC and 3% from the "derrama estadual")
- For a net profit higher than M 10 €, it should be applied a tax of 30% (25% from the IRC and 5% from the "derrama estadual")



Internationally, I assumed a tax of 14.4%, which was computed as an average of tax rate practiced on the most common years of international activity, and expected it to remain stable over time.

The payout ratio was assumed to be 0% during the first years, leading the bank to retain its earnings and thus increasing its capital ratios and comply with the regulations. From 2014 on, I expect a stable level around 40%, to comply with BPI's policy throughout the past years (see Exhibit 6. BPI's dividend policy).

Regarding the weight of the domestic operations on the account Shareholder's equity and Minority Interests, I assumed it would be 80% on the FY2011, and would have a decreasing trend of 1% per year, and therefore, international's weight would increase in the same proportion. This assumption was done due to the fact that I just had the consolidated amount of the account and I had to forecast it on a first moment individually and then separate it on domestic and international operations.

The trend assumed, derived from the fact that international activities over the years have been growing at a faster rate and have been even more profitable than the domestic ones, as happened in 2010 where domestic net income corresponded to 47% of the consolidated value, whereas the international weight was 53%. Thus, I considered, that year over year a higher percentage of the value of shareholder's equity and minority interests would come from outside. Below there is the detailed forecast of the account:

Shareholder's equity	"2011e	"2012e	"2013e	"2014e	"2015e	"2016e
Share capital	990	990	990	990	990	990
Subscribed share capital	441,3	441,3	441,3	441,3	441,3	441,3
Other equity instruments	9,9	9,9	9,9	9,9	9,9	9,9
Revaluation Reserves	(1045,5)	(827,7)	(786,3)	(747,0)	(709,6)	(674,2)
Other reserves and retained earnings	744,0	775,9	817,2	866,0	870,6	880,0
Treasury shares	(22,5)	(22,5)	(22,5)	(22,5)	(22,5)	(22,5)
Shareholders' equity	1 117,2	1 366,9	1 449,6	1 537,7	1 579,7	1 624,6
Domestic account	893,7	1079,9	1130,7	1184,1	1200,6	1218,4
International account	223,4	287,1	318,9	353,7	379,1	406,1

Share capital = Share capital_{t-1} + 90M

Other equity instruments; Subscribed share capital – Assumed constant and equal to the 9M11 results, once the historical results also reveal stable values over the years

Other reserves and retained earnings = Other reserves and retained earnings_{t-1} + Net Profit_{t-1} – Dividends distributed_{t-1}

Treasury shares – Average of the last 4 years (Historically the values were also almost the same)

Figure 34. Shareholder's equity and minority interests forecast

In 2011, there was included, the capital increase of € 90 M through an incorporation of reserves disclosed by the bank on the 13th of May 2011: “increase of its share capital from 900.000.000 euro to 990.000.000 euro, by incorporation of reserves, through the issuance of 90.000.000 new, ordinary, book entry shares, with a par value of 1€”. Moreover, I have also accounted for the Greek debt 50% haircut that was announced in October 2011, as also for other variations that occurred throughout the year considering a deduction of around € 330M in BPI's revaluation reserves accounts. Once this amount most depends on the available for sale portfolio, I forecasted it as a percentage of the portfolio BPI is expected to own. However, it is important to have into account that this assumption may mislead my price target, due to the lack of information it is considering about the bank and the about the impacts some recent issues have been having on its accounts (Greek haircut, transference of the pension funds, devaluation of some assets), and therefore it may not be too accurate.

5.2. Related with the discount rate

The appropriate discount rate for the methods I would apply on BPI's valuation is the cost of equity (K_e). To estimate it, CAPM method was used with an adjustment in the end, by adding to the K_e , the country risk premium, which would account for the extra risk Portugal is going to face over the next three years resultant from the sovereign crisis, and for the extra risk Angola, by being an emerging market, brings to the company.

Below there are the values assumed and the reasons behind them:

Domestic K_e	2011e	2012e	2013e	2014e	2015e	2016e	TV
β_L ¹	1,20	1,20	1,20	1,20	1,20	1,20	1,20
Risk Free ²	2,15%	2,15%	2,15%	2,15%	2,15%	2,15%	2,15%
Market Risk Premium ³	6,98%	6,98%	6,98%	6,98%	6,98%	6,98%	6,98%
$K_e = r_f + \beta * (E_{(rm)} - r_f)$	10,51%	10,51%	10,51%	10,51%	10,51%	10,51%	10,51%
Country Risk Premium ⁴	4,13%	4,13%	4,13%	0%	0%	0%	0%
Adjusted $K_e = K_e + CRP$	14,64%	14,64%	14,64%	10,51%	10,51%	10,51%	10,51%

1. Bloomberg: BPI; 2 years beta; weekly data



2. Explicit Value: ESN Group recommendation; TV: Bloomberg: 10 year German zero-coupon bond
3. Portugal's Total Risk Premium from Damodaran website minus the risk-free; data updated July 2011
4. Portugal's Country Risk Premium from Damodaran website; data updated July 2011

Figure 35. Domestic Cost of Equity

International K_e	2011e	2012e	2013e	2014e	2015e	2016e	TV
β_L ¹	1,20	1,20	1,20	1,20	1,20	1,20	1,20
Risk Free ²	6,75%	6,75%	6,75%	6,75%	6,75%	6,75%	6,75%
Market Risk Premium ³	6,90%	6,90%	6,90%	6,90%	6,90%	6,90%	6,90%
$K_e = r_f + \beta^* (E_{(m)} - r_f)$	15,02%	15,02%	15,02%	15,02%	15,02%	15,02%	15,02%
Country Risk Premium ⁴	4,88%	4,88%	4,88%	4,88%	4,88%	4,88%	4,88%
Adjusted $K_e = K_e + CRP$	19,90%	19,90%	19,90%	19,90%	19,90%	19,90%	19,90%

1. Bloomberg: BPI; 2 years beta; weekly data
2. Bloomberg: Nigeria's 10 year government bond
3. Angola's Market risk premium from Fernández (2011)
4. Angola's Country Risk Premium from Damodaran website; data updated July 2011

Figure 36. International Cost of Equity

The beta, which reflects the relationship between the market and the firm, was assumed equal for domestic and international operations, assuming that BPI's international risk of equity was going to be accounted on the risk free used and country risk premium, and was taken from Bloomberg. It is a two years beta, estimated with weekly data, to guarantee more data is incorporated on the estimation and at the same, as the firm itself might have changes in its risk characteristics over the time-period, make sure that by being weekly data and not daily, that no outliers are included.

The risk-free for domestic operations was assumed as the ten-year German zero coupon bond. Internationally, as no data was available on Bloomberg for Angola's government bonds, I looked for a country with an equivalent profile, Nigeria, namely in what regards the dependence on oil, and established it as my guideline. As a result, the international risk-free was assumed to be 6,75%, Nigeria's 10 year government bond, assuming that Angolan operations carry the same risks than Nigerians. To infer the market risk premium, the same approach was followed, and it was assumed the Nigeria's market risk premium—

6,9%. This value was taken from a *Fernández (2011)* research paper in which analysts, companies and professors, stated the values they use in valuations.

For the further use of valuation approaches through consolidated values, I have also computed a cost of equity for BPI as a whole by multiplying the domestic and international costs of equities by the correspondent weight of domestic and international operations in the equity value. As a result, the company K_e assumed is:

BPI K_e	2011e	2012e	2013e	2014e	2015e	2016e	TV
K_e	15,69%	15,75%	15,80%	12,67%	12,76%	12,86%	11,73%

Figure 37. BPI Cost of Equity

6. Valuation of BPI

6.1. Total credits and loans and Total resources

Economic stabilization is one of the objectives for Portugal during the next years and it passes through the creation of conditions to stabilize the financial system, which is with an unsustainable structure on the long-run.

Equilibrium, on the market, has to be found between the savings and investment levels. From one side, savings have to increase, leading to an increase on the deposits which will give more liquidity to banks and will enable them to diversify their risk by having a higher number of consumers. From other side, investment has to be encouraged, once it leads to growth and development of the country. However, higher investment levels require higher levels of credit, and banks have to be more restrictive when granting loans since financial stability varies inversely to the leverage ratio, that measures the value of deposits versus the value of credit, and if it is too high, it will reflect the inefficiency of the internal savings.

Therefore, as mentioned, the financial sector will have to follow a deleveraging process, which translates into a gradual adjustment of the banking stocks, by correcting the financial imbalances, meaning that there will be more predisposition to accumulate deposits, and lesser to granting loans. The sale of non-core assets will also appear as a possibility to achieve a sustainable structure and growth.

Regarding the caption of resources and taking into account the macroeconomic scenario, one should expect the dependence on ECB to be relevant, and although BPI has already started to reduce it, having stood at EUR 1.5 bn on the first 9M11, it is important to consider that it may stay constant in the first years of the forecast, once it doesn't seem likely that banks would issue debt, in the short-term, on the wholesale market. Also, I believe that the potential to attract deposits would be limited, and pressured by the adverse dynamism, which would result in the adoption of additional austerity measures. The recently external developments, namely the exasperation of the sovereign crisis and the credit rating agencies like Moody's, Fitch, and S&P, downgrades of Portuguese debt, as well as of BPI, in the recent months reinforce the ideas above.

On the other hand, the deleverage process of banks, which is already in progress as it was seen on the 9M11 report, having the loans-to-customer resources ratio decreased to 108%, consequence of a decrease on domestic and international loans to customers, comparing with the homologous period, of 3.9%, and 12.8%, respectively, and to an increase on domestic customer deposits of 4.9%, and internationally of 8.7%. This trend is expected to continue, targeting maximum Loans-to-Customer Resources of 120%, until 2014, which would lead to some flexibility on the medium-term.

Having these issues into consideration, BPI will have a more focused approach in loan reduction and in deposits (resources of customers and other loans) increase.

Therefore, I considered the Resources of Customers and other loans to grow at the Portuguese GDP plus Inflation rate for the domestic activity, assuming that they would grow at a faster rate than the total credits and loans, and for the international activity of the bank, it was assumed that they would grow at Angolan's GDP rate. The output from these assumptions was:

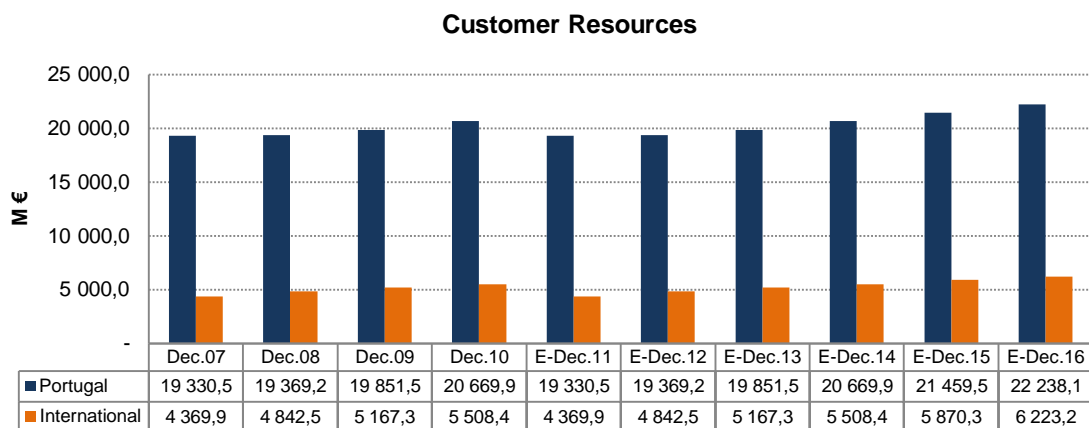


Figure 38. Customer Resources 2007-E.2016

Concerning the Loans and Advances to Customers/ Other institutions, I assumed that for domestic activities they will grow with GDP growth forecast, which is expected to be negative on 2011 and 2012 and from there on starts to grow slowly. However, in 2011, according to a communication of BPI, the bank envisages a reduction of the loan portfolio of around 1 000 M €, and it remained as my preview for the FY11. International operations will also grow according to the correspondent GDP evolution.

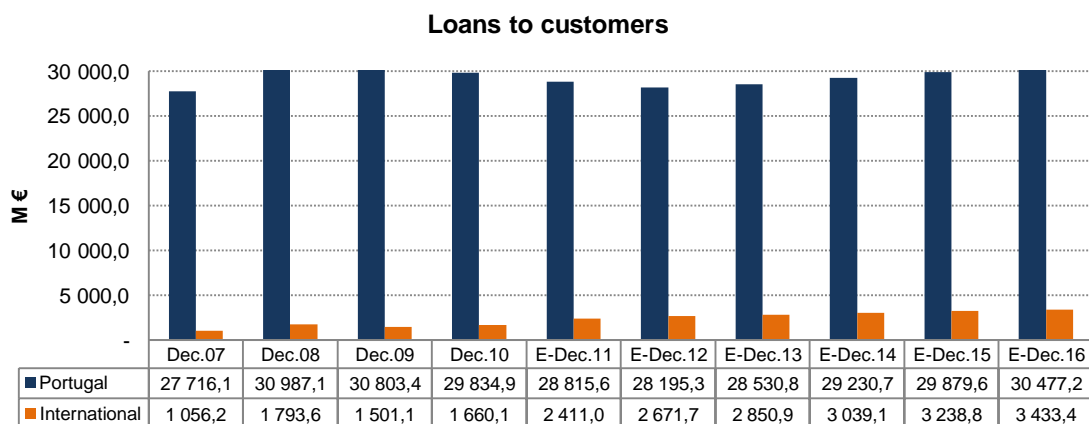
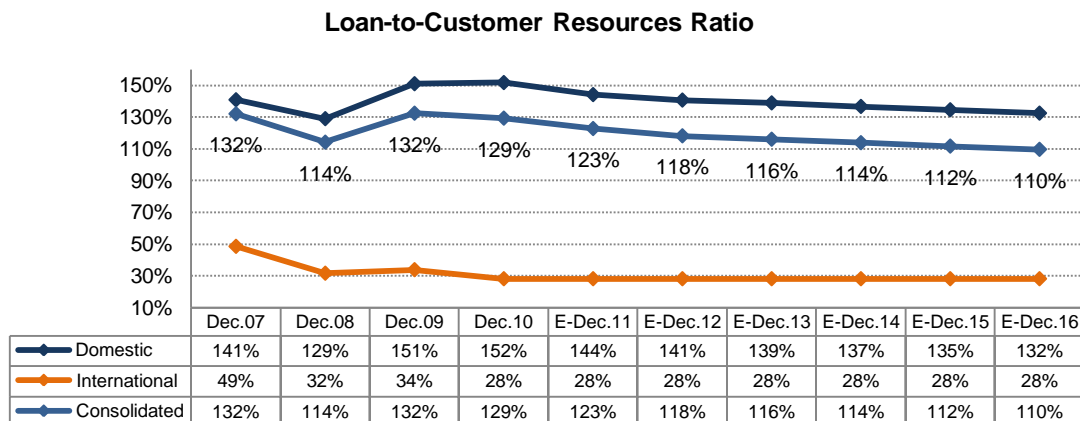


Figure 39. Loans to customers 2007-E.2016

With these results my estimate for Loans-to-Customers ratio would be as follows:



The values between 2007 and 2010 are slightly higher than the ones presented previously on BPI overview, once I do not have sufficient information to compute the ratio as the company does, having simplified it.

It was assumed that the transformation ratio would be equal to loans and advances to customers divided by resources of customers and other loans.

Figure 40. Loans to customer-resources ratio 2007-E.2016

Looking at the picture, BPI will comply with the 120% loans to customer resources ratio limit imposed by Troika, which banks have to have until 2014.

6.2. Net Operating Income

6.2.1. Commissions

Commission-based income has been a major source of banking income growth during the past decade, as Portuguese banks moved from their traditional business models, to more complex and new business models primarily focused on balance-sheet-based financial intermediation. Banks started to increase their financial products and services range, going from the retail sector to the corporate one beginning to have not only their primarily retail banking activities as also investment banking. Some commission-based income sources that were developed were: asset management, bancassurance, corporate finance and advisory, broker-dealer services and Placement. For the reason that most of the commissions come from the assets side, I will measure them by assuming they will evolve as a percentage of total assets.

To go accordingly with the economic developments, domestically I expect commission's percentage of total assets to smoothly decrease in the following years, starting to have a recovery from 2013 on. In the last year, they represented 0,66% of total assets, thus, in my



estimations, I assumed that they would have a decrease of 0,06% in 2011, and would increase by 0,03% in 2013.

In terms of percentage, these assumptions can be summarized as:

	Dec.07	Dec. 08	Dec.09	Dec.10	E Dec.11	E Dec.12	E Dec.13	E Dec.14	E Dec.15	E Dec.16
Commissions as % of total assets	0,78%	0,66%	0,61%	0,66%	0,60%	0,60%	0,60%	0,63%	0,63%	0,63%

Figure 41. Domestic commission's evolution as percentage of total assets

Internationally, for 2011 I assumed that commissions percentage of the total assets would be equal to 2010, 0,95%, and that it would remain stable. From one side, it would be pressured by the increasing competition in the sector, as for the other side, an economic growth is expected for Angola, and the bank is pursuing an expansion strategy (resulting in a higher number of services provided and consequent more diversified offer), which ultimately, could increase the fees they demand. Facing these two fronts, I consider that BFA to be able to compete with its peers would be conservative in its pricing strategy.

The estimates are as follows:

	Dec.07	Dec. 08	Dec.09	Dec.10	E Dec.11	E Dec.12	E Dec.13	E Dec.14	E Dec.15	E Dec.16
Commissions as % of total assets	1,9%	1,1%	1,2%	0,95%	0,95%	0,95%	0,95%	0,95%	0,95%	0,95%

Figure 42. International commission's evolution as percentage of total assets

In absolute terms:

	Dec.07	Dec. 08	Dec.09	Dec.10	E Dec.11	E Dec.12	E Dec.13	E Dec.14	E Dec.15	E Dec.16
Commissions as % of total assets	0,84%	0,71%	0,66%	0,69%	0,64%	0,65%	0,65%	0,67%	0,68%	0,68%

Figure 43. Consolidated commission's evolution as percentage of total assets

6.2.2. Net Interest Income

The net interest income represents the difference between the interest earnings assets and the interest earning liabilities, and has been pressured by the combination of several factors with opposite effects: by the deleveraging process and then deceleration in lending growth (negative due to lower volumes), the higher average costs of resources/ deposits (negative), by the repricing policy in the assets side and slower adjustment of spreads



(positive), and by the increasing dependence on ECB funding which is associated with lower costs of funding (positive).

In the domestic operations of BPI, the assets correspond to commercial, and mortgage loans and other loans to individuals and small businesses, and the liabilities are linked with the customer deposits. Despite the repricing in assets side, I expect NIM in the domestic market to slightly fall to 0,85% in the first years, as a consequence of the increasing prices on the liabilities side and lower interest-earning assets volumes, and then to increase to 0,95% and remain stable from 2014 until 2015, having other increase in 2016 to 1% accompanying economic recovery and stabilization.

	Dec.07	Dec. 08	Dec.09	Dec.10	E Dec.11	E Dec.12	E Dec.13	E Dec.14	E Dec.15	E Dec.16
NIM	1,24%	1,15%	1,00%	1,02%	0,90%	0,90%	0,90%	0,95%	0,95%	1,00%

Figure 44. Domestic net interest margin

It is my belief that spreads will be increased on the coming years, in both loans and deposits. The first ones can be explained as a response of the higher funding costs that are being demanded for banks. They are trying to pass them on to customers via the pricing of their credit concession, and re-pricing of credit which has already been granted. The weakened competitive forces on credit-concession, alongside the deterioration of customers' credit profile (less trustful economy, higher nonperforming loans, drop in collateral value, among other factors) also provide rationale for such an event. The deposits spreads are also expected to increase in the way that higher interests offered will attract more deposits, and once again this strategy will contribute to decrease the loans-to-customers ratio.

If we look at its international operations, the assets are composed of placements with credit institutions, loans to customers and also financial assets, as the liabilities are also associated with customer deposits and securities sold with repurchase agreements. For them, I expect that credit granting activity in Angola will remain value-creating, despite the fact that I will assume a spread reduction due to increased competition in the Angolan banking industry over time. To reduce the uncertainty of my assumptions, and once I am not able to measure the impact of this issue, for my valuation period it was assumed that the NIM would remain stable at 3,86%, which corresponds to an average of the NIM from 2007 until 2009.



	Dec.07	Dec. 08	Dec.09	Dec.10	E Dec.11	E Dec.12	E Dec.13	E Dec.14	E Dec.15	E Dec.16
NIM	3,88%	4,06%	3,65%	8,57%	3,86%	3,86%	3,86%	3,86%	3,86%	3,86%

Figure 45. International net interest margin

All in all, I believe that a relevant effort as already taken place and as I do not foreseen a growth in terms of volume, a positive evolution can only come from BPI's international activities or from any change in the central scenario of interest rates and current market tensions. Having said this, I expect the consolidated interest margin to remain flat in the forward years, with a good support coming from Angola, as it is possible to see below.

	Dec.07	Dec. 08	Dec.09	Dec.10	E Dec.11	E Dec.12	E Dec.13	E Dec.14	E Dec.15	E Dec.16
NIM	1,50%	1,54%	1,29%	1,35%	1,24%	1,27%	1,29%	1,35%	1,36%	1,41%

Figure 46. Consolidated net interest margin

Aggregating the commissions received, plus the net interest income and the profit that comes from financial operations, the net operating income is achieved. See the decomposition of the consolidated accounts below:

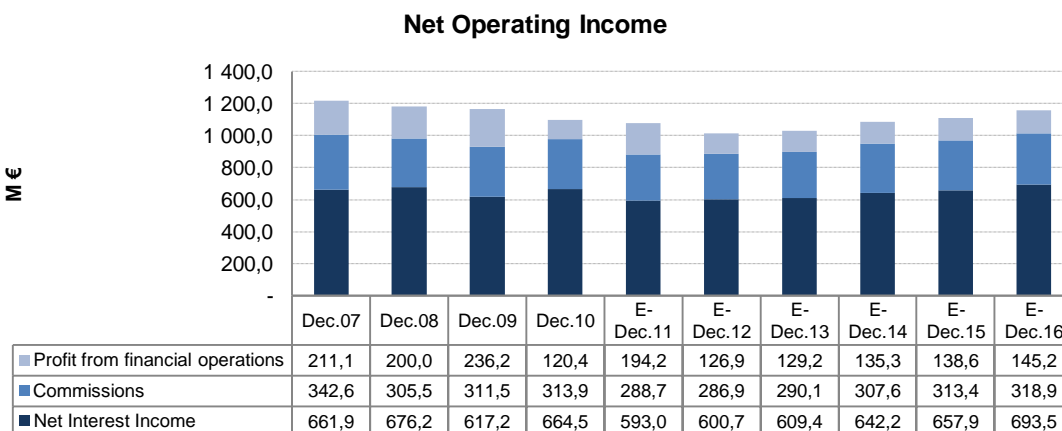


Figure 47. Consolidated net operating income

The profit from financial operations includes the technical results from insurance contracts, operating income and charges, and gains and losses in financial operations, being higher in 2011 comparing with the past and future years, due to the gains BPI has registered from a own Tier II bonds repurchase operation carried out in June 2011 with a total value of € 72M.

As mentioned during the dissertation it is expected that the operating income will evolve in line with the crisis and therefore, have a slightly decrease during the first years and recover from 2014 on.

6.3. Operating Costs

Operating costs include personnel costs, early retirement costs, outside supplies and services and depreciation of fixed assets. As it is mentioned on BPI's annual report, and as it is almost a prerequisite when looking at the external environment, the bank is adopting structural measures, in order to reduce operating costs and improve its efficiency. The "reorganization of processes, optimization of central services and commercial networks, and the cutback in headcount, by means of early retirements", are some of them, which are highlighted by the bank.

Regarding its domestic accounts, a decrease of 2% of the total costs was already observed on 2010, having its effort also been reflected on its 9M11 report in which a decrease in what regards the number of employees, as well in the distribution network and in investment levels, contributed to reduce the operational costs by 4.5% YoY (excluding early-retirement costs).

Thus, to comply with the objectives of the company, I assumed the costs would be a proportion of net operating income for personnel costs and outside supplies and services and a proportion of tangible assets for depreciation, and that it would be less than in the previous year. For personnel costs, assumed it would be around 49% until 2013 because it would be difficult to reduce them instantaneously (considering that the bank won't fire their employees as a measure to improve its efficiency) and than 48%, and for the other two, assumed it would be constant and would be an average percentage of the last years.

	Dec.07	Dec. 08	Dec.09	Dec.10	E Dec.11	E Dec.12	E Dec.13	E Dec.14	E Dec.15	E Dec.16
Personnel costs ¹	35%	42%	43%	49%	49%	49%	49%	48%	48%	48%
Outside supplies and services ²	20%	21%	22%	24%	22%	22%	22%	22%	22%	22%
Depreciation of fixed assets ³	15%	17%	26%	25%	21%	21%	21%	21%	21%	21%

1. As % of total operating income

2. As % of total operating income

3. As % of tangible assets

Figure 48. Assumptions for domestic operating costs

Other issue that was important to incorporate was the extra 40M€ charge in personnel costs, which were already accounted on the first semester results of 2011, relating to an early retirement program that is foreseen to be completed by the end of the year. This covered 260 employees and is expected to allow an annual saving in personnel costs around 12M€.

Derived from the economic environment, with the objective of increasing state revenues and decrease Portugal's deficit, an extraordinary levy is being demanded to financial institutions. It was published on the 30th of May 2011, through the order number 121/ 2011 (please see exhibit 7 for detailed information). According to the law, "The assessment must be done by the tax payer, by means of filing form no. 26, before 30th June, and payment must be done on the same date.", thus I assumed the amount BPI disclosed in the 1st half report as the final levy the bank would have to support during the year, € 11,4 M. For next years, I won't be able to consider any cost due to lack of data.

If we move towards its international operations, the company's strategy is to strengthen its presence in the Angolan market through the expansion of its commercial network. As a result, the costs rose 9.4% in 2010, due to a larger workforce. Considering the increase of the staff and retail branches, investment and corporate centers, the launching of innovative products on the market, as a necessary condition to the reinforcement of its activity, it is expected an increase of operational costs over the next years. However, I assumed that its percentage of operational income would remain stable (as an average of the last years), and therefore, the increase of the absolute values as for the personnel costs as for outside supplies and services would come directly from the increase in volume of the operational income. The percentage of depreciation costs over tangible and intangible assets was assumed to remain stable over time.

	Dec.07	Dec. 08	Dec.09	Dec.10	E Dec.11	E Dec.12	E Dec.13	E Dec.14	E Dec.15	E Dec.16
Personnel costs ¹	13%	12%	13%	15%	13%	13%	13%	13%	13%	13%
Outside supplies and services ²	13%	11%	12%	14%	13%	13%	13%	13%	13%	13%
Depreciation of fixed assets ³	11%	13%	13%	10%	10%	10%	10%	10%	10%	10%

1. As % of total operating income

2. As % of total operating income

3. As % of tangible assets

Figure 49. Assumptions for International operating costs

In fact, this trend was also already verified on the first nine months of the year, when it was disclosed an increase of the personnel costs by 9.6% YoY, due to a 6% increase in the number of employees, an increase on outside supplies and services costs of 9.5%, and of 0.5% in what concerns depreciation and amortization costs.

In absolute terms, the consolidated estimation of costs would be as follows:

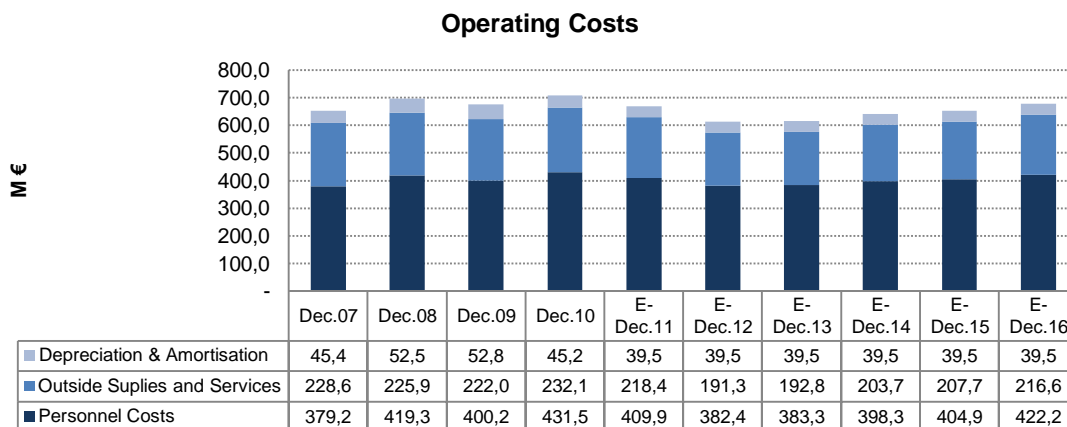


Figure 50. Decomposition of the consolidated operating costs

For a more detailed analysis see:

- Exhibit 8. Domestic Balance Sheet
- Exhibit 9. International Balance Sheet
- Exhibit 10. Consolidated Balance Sheet
- Exhibit 11. Domestic Income Statement
- Exhibit 12. International Income Statement
- Exhibit 13. Consolidated Income Statement

7. Performance Evaluation

7.1. Solvency

The new regulations, which would account for capital risk, market and operational risk, and the need to comply with the new core tier I ratios, contributing to the protection of banks depositors, by ensuring that financial services have enough capital to sustain operating losses, and that they don't hold investments that would increase its risk of default, would lead the majority of the banks to resort to instruments like capital increases, sale of non-core assets, conversions of debt securities into shares, and retained earnings.

For that reason, it is important to understand if BPI, with the reforms it is already implementing and according to my estimates, will be able to comply or not with capital requirements, or if it will have to revise its strategy. As mentioned, in accordance with the memorandum signed between Portugal and Troika, banks will have to have a core tier I ratio equal or higher than 9% until December 2011, up to 9% in June 2012 accounting their sovereign debt at market values, and up to 10% until December 2012.

Below there are my estimates, in which it is possible to observe that BPI will comply with the agreement, having a core tier I ratio of 9,8% and 10,0% in 2011 and 2012, respectively. As mentioned previously, it is being demanded also the reinforcement of the minimum core tier 1 capital up to 9% until the 30th of June 2012, having been reflected on it the accountancy of the bank's exposure to the sovereign debt at its market value held in the 30th September 2011. Although I do not have accounted for this ratio, I am assuming that the bank will comply with the regulations, even if it has to resource to the state to increase capital and meet the regulations.

Other important ratio that helps to measure the capital adequacy is CAR (capital adequacy ratio) also known as BIS (Bank for International Settlements) ratio, which is computed by summing up the tier I and tier II capital and divide them by the risk weighted assets exposure. The higher it is, the better, since it will also measure the bank's ability to surpass unexpected events without prejudicing debt holders and it helps to promote stability and efficiency of financial systems by being a ratio which financial services will use to compare its solvency among the peers.

Through my estimates, BPI will be able to meet capital requirements, as also would improve its capital adequacy ratio which are necessary conditions for the near future.



	Dec.07	Dec. 08	Dec.09	Dec.10	E Dec.11	E Dec.12	E Dec.13	E Dec.14	E Dec.15	E Dec.16
Core Tier I ¹	5%	8%	8%	9%	9,8%	10,0%	10,2%	10,3%	10,1%	10,0%
Capital Adequacy ²	9%	11%	10%	11%	12,3%	12,6%	12,8%	12,8%	12,6%	12,5%
Excess capital ³	245,6	754,9	608,4	824,6	1094,6	1154,8	1198,7	1221,2	1190,6	1166,1

1. (Core Capital/ RWA)
2. (Tier 1 Capital + Tier 2 Capital)/ RWA
3. (Total Capital - Own funds requirement)

Figure 51. Solvency ratios

For further detail of the calculations see Exhibit 14 – Capital Requirements.

7.2. Assets Quality

Assets quality has been having a great importance recently due to its recent deterioration, measured by the nonperforming loans, which have been following an increasing trend in the last years as showed on the graph below.

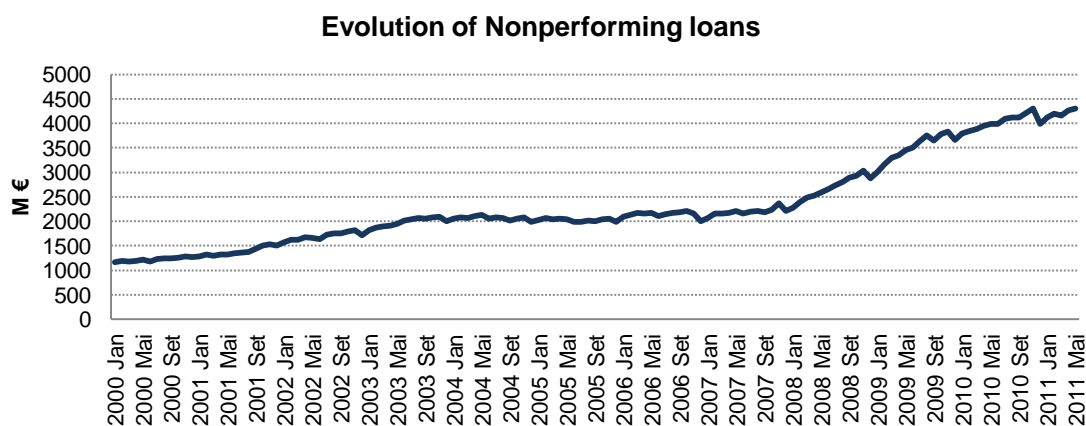


Figure 52. Evolution of non-performing loans since 2000 until May 2011

Source. Bank of Portugal, August 2011

According to *Yixin Hou*, nonperforming loans can be described as those loans whose interest or principal payments are longer than 30 days or 90 days in arrears of lending conditions, whose the full liquidation appears as doubtful and a loss should be accounted, or whose the maturity date is already passed and payment in full has not been made, being the value unrecoverable.

Economic factors such as slower growth, higher unemployment rates, the increase in interest rates, will likely reduce the disposable income of Portuguese households, and thus, are reflected into rising NPLs, which weakens corporate sector and makes banks more reluctant to provide additional credits, as also to raise provision for loan loss, and consequently decreases the banks' revenue and reduces the funds for new lending.

Again, this trend has been verified in the last years and the deterioration in the quality on bank's loan portfolio has showed to have a notable importance of economic crisis in both developing and advanced economies.

It is my belief that banks will have more conservative strategies, being more reluctant to take up new risks and commit new loans and at the same time, trying to increase deposits. This has also impact on impairments levels, which are expected to be higher so that bank's capability to withstand adverse shocks and to continue lending after such is improved. Besides, higher capital levels are demanded by Basel III, with the extent of maintaining bank's confidence and therefore, to decrease the constraints to extend loans.

Taking this into consideration, I expect asset quality to continue to deteriorate as follows:

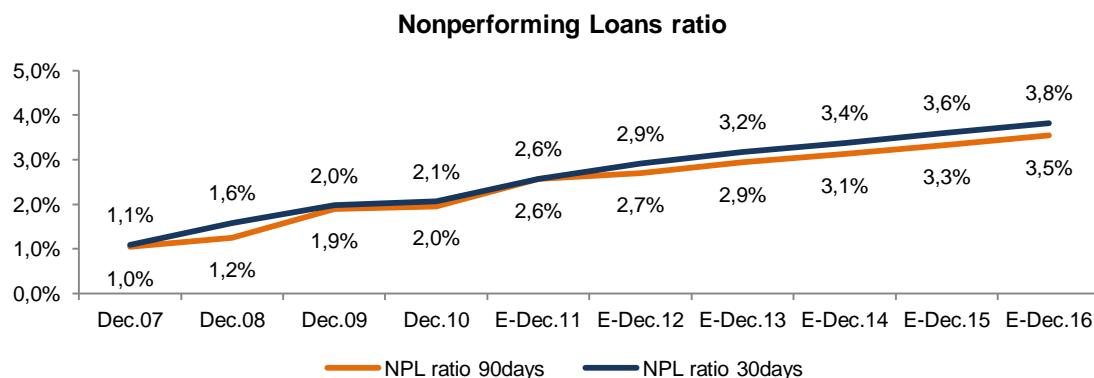


Figure 53. BPI's Nonperforming loans ratio

These volumes of NPLs would be reflected in a higher credit risk, which makes banks to retain more capital rather than investing in other earnings assets to guarantee a safety position, besides the fact that it reduces banks credit rankings on the financial markets, and consequently reduce their ability to engage in various investments.

According to my estimates, in which I computed impairment charges in the year (net of loan recoveries) as percentage of the average loan portfolio, credit risk will perform as follows:

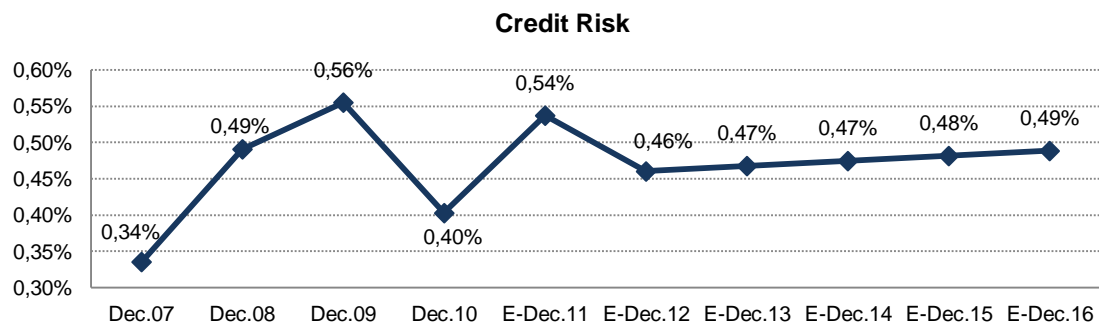


Figure 54. BPI's credit risk

For a more detailed analysis see Exhibit 15 – Nonperforming loans.

7.3. Pension Funds

In the recent months, other issue that is being actively discussed by the authorities and banks is the transference of bank's pension funds to the state, more specifically to "Segurança Social" (Social Security). This measure also derives from the state effort to comply with Troika's Memorandum and present in the FY11, a deficit of 5.9% of the GDP.

On the 2nd of December, the Government approved the note that defined under what conditions the transference of the pension funds of bank employees to "Segurança Social" would be done:

- half would be in cash, and the other half in public debt, which would be marked at market values with a discount rate of 4%
- 55% would have to be transferred until the end of 2011, and 45%, until the end of the first semester of 2012, being that the moment when banks will have to reflect this operation in its core capital ratios

With this operation, the state will automatically account for extra revenue around € 6 bn, from which 50% will be used to repay public debt to the banking sector, and the remainder will be applied for meeting the deficit targets of 5.9% of GDP, imposed by the troika as mentioned above.

For banks, the main implication is that, the transference is at market values (average value of the securities portfolio) and as the nominal value is higher than the market value, banks will have to cover the financial losses by injecting money into the funds before the transference is made. One should expect it to negatively influence banks solvency in the short term. However, banks are negotiation with the government in order to minimize the impact in its equity and therefore to account the financial losses as a cost in the income

statement. One positive impact that this operation will bring, is that banks will be less risky, by being less exposed to financial securities and to its respective volatility.

The methodology to account this transfer is not yet clear, as also the correspondent amount, being impossible to measure the final impact of this operation and thus no analytical conclusions can be made.

8. Valuation Results

8.1. Dividend Discount Model

Like it was mentioned previously, despite of the limitations, DDM can be useful whenever they are taken into account in valuation, and adjustments are made, as also, whenever FCFF are hard to and dividends are the only cash flows that can be easily estimated with any degree of precision. In the banking sector, analysts usually use it, once estimating capital expenditures and working capital is very difficult, and thus FCFF, whereas dividends are easy to compute.

In my valuation, I have computed the dividend discount model through the sum of parts approach, by measuring the domestic value and summing it to the international equity value, discounting each CF at the correspondent cost of equity rate (domestic operation with the domestic K_e , and international operations with the international k_e), as also, have computed the equity value through a consolidated DDM.

For both valuations, I assumed that no dividend would be distributed until 2014, since it is the year I expect an economic recovery, and therefore, expect BPI to start distribute dividends, with a payout ratio of 40% to go accordingly with its policy throughout the past years (Exhibit 6).

For the terminal value, I assumed a 2% growth rate, in which I am relying on the BPI's expansion strategy in Africa and its economic growth, as well as for other markets, and also on an economic retrieval for Portugal, and European countries which ultimately also affect the bank's performance and strategy.

My price target through this approach would be:

Dividend discount model (Sum of parts)

Equity Value (M)	540,8
# shares (M)	990
Price/share	0,55 €

Dividend discount model (Consolidated)

Equity Value (M)	554,1
# shares (M)	990
Price/share	0,56 €

Figure 55. Dividend discount model_Price target

It is expected this value to be lower in relation to the price targets that would be determined by other approaches once during the first years I assumed that no dividend would be distributed and therefore no value was being added to the final equity value.

In the end, and to a broader perspective of the bank's value, and how the cost of equity and growth in the terminal value influence the target price, I have computed a table in which I do a sensitivity analysis of my valuation by changing those two variables.

Dividend discount model (Sum of parts)

Ke perpetuity/ g	1,0%	1,5%	2,0%	2,5%	3,0%
7,7%	0,86 €	0,92 €	1,00 €	1,09 €	1,19 €
9,7%	0,64 €	0,67 €	0,71 €	0,75 €	0,81 €
11,7%	0,50 €	0,52 €	0,55 €	0,57 €	0,60 €
13,7%	0,41 €	0,43 €	0,44 €	0,46 €	0,48 €
15,7%	0,35 €	0,36 €	0,37 €	0,38 €	0,39 €

Dividend discount model (Consolidated)

Ke perpetuity/ g	1,0%	1,5%	2,0%	2,5%	3,0%
7,7%	0,87 €	0,94 €	1,01 €	1,10 €	1,21 €
9,7%	0,65 €	0,68 €	0,72 €	0,77 €	0,82 €
11,7%	0,52 €	0,54 €	0,56 €	0,59 €	0,61 €
13,7%	0,43 €	0,44 €	0,45 €	0,47 €	0,49 €
15,7%	0,36 €	0,37 €	0,38 €	0,39 €	0,41 €

Figure 56. Dividend discount model_Sensitivity analysis

To establish BPI price target I won't have into consideration this method, because it is subject to BPI's policy, which is highly dependent on the future macroeconomic events (high level of uncertainty). As it is stated in the annual report of 2010, "Banco BPI's policy regarding the distribution of results is to distribute an annual dividend, by proposal of the Board of Directors to the Shareholders' General Meeting, usually of not less than 40% of

net profit reflected in the consolidated accounts for the year to which it relates, unless exceptional circumstances justify the distribution of a smaller dividend".

Therefore, I do not have sufficient information to do an accurate valuation through this approach because market's evolution is uncertain, and even if it starts to recover from 2014 on, I am not able to predict what would be BPI's management decisions - if the bank will not distribute their earnings at all, if it will continue to distribute their usual dividends, maintaining their typical payout ratio (around 40%) or if they would start with a lower amount.

For further details on the price target determination see Exhibit 16 – Dividend Discount Model.

8.2. Residual Income

Through this method, I have also computed the equity value from the consolidated and from the sum of parts approach (domestic plus international) point of view, discounting each account and values at the correspondent cost of equity. The growth rate expected for the terminal value, as in the previous method was 2%.

Residual Income model (Sum of parts)

Equity Value (M)	854,8
# shares (M)	990
Price/share	0,86 €

Residual Income model (Consolidated)

Equity Value (M)	902,351
# shares (M)	990
Price/share	0,91 €

Figure 57. Residual Income Model_Price target

The equity value is the sum of the beginning capital (2011), explicit value, and terminal value, in which the last two correspond to the residual income I expect BPI to generate in the future. This is computed by subtracting to the net income of the year, the equity book value times its cost, meaning that in the end, I am valuing the income generated by a firm after accounting for the true cost of capital.

Looking at the values above, it is possible to observe that by using the sum of parts method the firm's value is to some extent lower, which is explained by the fact that I am using a more detailed valuation approach, and by including more information I am discounting a higher percentage of value (correspondent to international operations) by a higher discount rate resulting on a lower price target.

After having computed the share price, a sensitivity analysis was also done to understand the sensitivity of the company's value to cost of equity, and growth rate changes.

Residual Income model (Sum of parts)

Ke perpetuity/ g	1,0%	1,5%	2,0%	2,5%	3,0%
7,7%	1,42 €	1,43 €	1,45 €	1,47 €	1,49 €
9,7%	1,07 €	1,06 €	1,05 €	1,03 €	1,02 €
11,7%	0,90 €	0,88 €	0,86 €	0,84 €	0,82 €
13,7%	0,82 €	0,80 €	0,78 €	0,76 €	0,73 €
15,7%	0,78 €	0,76 €	0,75 €	0,72 €	0,70 €

Residual Income model (Consolidated)

Ke perpetuity/ g	1,0%	1,5%	2,0%	2,5%	3,0%
7,7%	1,46 €	1,48 €	1,49 €	1,51 €	1,54 €
9,7%	1,12 €	1,11 €	1,09 €	1,08 €	1,06 €
11,7%	0,95 €	0,93 €	0,91 €	0,89 €	0,87 €
13,7%	0,87 €	0,85 €	0,83 €	0,81 €	0,78 €
15,7%	0,83 €	0,81 €	0,79 €	0,77 €	0,75 €

Figure 58. Residual Income model_Sensitivity analysis

From this valuation, the one I consider more reliable is the one coming from the sum of parts approach, 0,86 €/ share, which I will take into consideration to determine the final equity value.

In contrast with the dividend discount model, from where this approach derives from, it uses information readily available from a firm's financial statements. By assuming that these were estimated with reliable and strong assumptions, residual income approach would give

me a less uncertain valuation once analysts do not have to further speculate, for example, if the bank is going to distribute dividends or not.

As it was already stated, “firms that earn positive excess return CF will trade at market values higher than their book values and that the reverse will be true for firms that earn negative excess returns CF”, which happens in BPI’s case. If I define my price target through this method, BPI will trade at a market value lower than its book value, once it is earning negative excess returns CF.

For further details on the price target determination see Exhibit 17 – Residual Income Model.

8.3. Equity Discount Model

To use the equity discount model analysts have to firstly compute the FCE, which in BPI’s case derives from the net income of each year minus the capital requirements, and then discount them by the corresponding cost of equity. Therefore, this method strongly depends on the banks own capital, and on the regulatory framework it is subject to.

Equity Discount Model

Equity Value (M)	1.223,7
# shares (M)	990
Price/share	1,24 €

Figure 59. Equity discount model_Target price

Taking this dependence into consideration is the main reasons for me for don’t considering this method to define my final price target. Economic development is highly uncertain to predict at this moment, and all the issues that come with it like banks capital strengthening efforts, and the regulatory framework too. There is no single pattern that could be foreseen, but a variety of them. Economies can stabilize and therefore capital requirements would be lower and stable, or the crisis can still get worse and thus capital requirements would be higher, which would highly influence BPI’s equity value.

Besides, the value determined under this approach is higher than it was foreseen having into consideration all the circumstances that surround BPI, not reflecting what I believe it would be the true valuation of the company.

For further details on the price target determination see Exhibit 18 – Equity Discount Model.

8.4. DuPont

The DuPont method is used to analyze the profitability of a company through performance ratios that measure operating efficiency of the firm (profit margin), the asset use efficiency (total asset turnover), and the financial leverage the company is sustaining (equity multiplier), and by multiplying them all, it is possible to measure the expected ROE.

According to the economic scenario and with the new regulations banks have to face and deal with, I expect BPI's ROE to evolve as follows:

	Dec.07	Dec. 08	Dec.09	Dec.10	E Dec.11	E Dec.12	E Dec.13	E Dec.14	E Dec.15	E Dec.16
BPI's ROE	24,7%	8,8%	8,8%	8,8%	6,6%	7,0%	6,8%	7,4%	7,5%	7,9%

Figure 60. BPI's ROE evolution

The net assets value in my valuation is equal to the equity value, once the values from pension fund shortfalls, tax credits report, lack of provisions for defaults and unrealized capital gain/ losses were assumed equal to zero, considering that I have already accounted for most of these issues on the financial statements forecasts, and that I have lack of data to report them with precision.

The other assumptions under this method are summarized on the table below:

	For the FY2012
ROA	0,29%
x Equity Multiplier	23,89x
ROE Forecasted	7,03%
ROE Demanded 2012	15,75%
Equity_{t-1}	1.739

Figure 61. DuPont model main assumptions

Having established these, my valuation results were:

ROE Forecasted	Equity Value	Price/ share
6,03%	665,88 €	0,67 €
7,03%	776,34 €	0,78 €
8,03%	886,80 €	0,90 €

Figure 62. DuPont model_Price target and sensitivity analysis

The price target of BPI through this method is 0,78€/ share. However, if the 2012 return on equity is around 1% less or more than what I have estimated, the price would be in a range from 0,67€/ share to 0,90€/share.

By doing this sensitivity analysis, which is a function of having a higher expected ROE or lower, I am assuming that ROA and the equity multiplier are varying, and therefore, the value of the net income, assets and equity are changing.

To remind: $ROE = ROA \times \text{Equity Multiplier}$

$$= (\text{Net income} / \text{Average total assets}) \times (\text{Average total assets} / \text{Equity})$$

For further details on the price target determination see Exhibit 19 – DuPont Model.

8.5. Relative Valuation

As discussed above in the Literature Review chapter, the relative valuation approach is one of the methods to value a company, which is widely used due to its simplicity, quickness to apply, and because it enables analysts to better understand the sector behavior. It is based on comparable firms, and assumes that the market on average prices the stocks correctly.

The first thing to do when applying multiples valuation is to do a selection of what are the most relevant measures for the sector. Afterwards, and based on the multiples considered relevant, the challenge is to find comparable firms.

The fact that nowadays people live in a globalized world, and thus companies often operate in more than one country, which implies different risks, different macroeconomic scenarios, brings a difficult to this choice, by being difficult to distinguish whether a firm is considered comparable or not. Therefore, in order to build the peer group, the requirements shouldn't be too much, or no equivalent firms will be found in the market to compare with.

Based on these aspects, the measures I considered most important to evaluate banks, compare them and select the peers group were: the country, the return of the last twelve months, the return on equity, the core tier 1 ratio, nonperforming loans ratio, coverage ratio, and payout ratio (Exhibit 20 – Peer Group Presentation). Although, comparable companies should have similar future prospects, in the absence of future estimates, historical performance should be assumed as a proxy for future. Therefore, the presented data on the exhibit refers to the most recent records (2010), which I used for the choice of comparables firms, but data from 2008 and 2009 was also took into consideration.



A first conclusion that can be made about BPI's peer group is that it is mostly composed of Portuguese and Spanish financial institutions, having also a French bank included for the valuation. The reasons behind considering the country as a relevant measure are related with the recent macroeconomic scenario, and with the fact that banks are a driver for economy, and thus, political issues, as regulatory and geographic ones, are important to define financial institutions' policies and strategy, which I believe to be similar within these countries.

Furthermore, measures as the Core Tier 1 and Payout ratio also enable me to characterize banks, helping me to understand if they are risky or more conservative, if they comply with regulations, and infer their growth prospects through their DPR policy. Concerning these, one can conclude that BPI has a similar behavior to its peers.

The other measure I used, ROE, enable me to compare the performance of BPI's comparables, concluding that on average it has a higher ROE, which is the key operating metric for a bank, and enables analysts to understand if the bank is creating value or not.

Finally, by taking the peer group's multiples, P/E and P/B, and applying them to BPI corresponding items, through an average and weighted average, the following share prices were achieved:

	P/E (adj) 10	P/B 10
Banco Pastor	15,8	0,62x
Banco Popular	10,2	0,64x
Banco Sabadell	12,3	0,82x
Bankinter	12,9	0,87x
BBVA	7,5	0,84x
BCP	8,4	0,08x
BES	6,6	0,19x
BNP Paribas	7,5	0,54x
Average	10,1	0,57x
Weighted Average	8,1	0,68x

BPI	6,1	0,27x
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Valuation (average)	
P/B	1147,5
PER	1332,1
P/B per share	1,16 €
PER per share	1,35 €

Valuation (weighted average)	
P/B	1353,9
PER	1069,3

P/B per share	1,37 €
PER per share	1,08 €

Figure 63. Relative Valuation model_Price target

Source. Multiples data from ESN Group

Only equity valuation multiples were used to comply with what I have learned on the literature review regarding bank's valuation. From this output, I considered the most reliable values were the ones computed through the weighted average once they take into consideration the discrepancy between the companies and its weight on the valuation, more specifically, I considered the BPI's target price coming from the price earnings multiple of 1,08 €/share.

However, I used this value simply as an indicative once it was based on P/E and P/B of FY2010, and from that moment until now (almost one year later) lots of things changed and probably they would be lower reflecting the adverse economic conditions European countries faced on 2011.

8.6. Final price target

According to the methods used, the values I consider most reliable to define my final price target are summarized below:

Valuation Approaches	Price target
Residual Income (sum of parts)	0,86 €/ share
DuPont	0,78 €/ share

Figure 64. BPI's Price target

Based on the values above, and to achieve one single value as being BPI's price target for the year 2012, I opted by computing and average of the previous values, defining BPI's share price as **0,83 €/share**.

Multiples	E.Dec 2011	E. Dec 2012	E.Dec 2013	E.Dec 2014	E.Dec 2015	E. Dec 2016
Price/ Earnings	6,69x	6,21x	5,88x	5,17x	4,92x	4,56x
Price/ Book	0,47x	0,41x	0,39x	0,37x	0,36x	0,35x

Figure 65. BPI's Expected Price Earnings and Price to Book Multiples

Besides the sensitivity analysis I have done, I could also have measured how the bank would behave if a more aggressive strategy than the one I expect is pursued, which means, test what would be the impact on my price target, if there were assumed higher growth rates for BPI's deposits caption activity, and decreasing more their credit granting activity level.

This scenario would negatively affect the price target determined by all approaches, once it would decrease the net interest margin (by having lower amounts of interest earnings assets, and higher of interest earning liabilities), consequently decreasing BPI's net income, or by other perspectives, it would decrease ROE, have impact on the equity multiplier, and ultimately would decrease the price of the share. Furthermore, it would also influence customers and investors perspective towards the bank, increasing their reputational risk, what could have negative consequences too.

For BPI, and these are the main reasons why I didn't analyze this hypothesis, I do not foreseen the necessity of having a stronger deleveraging process once the bank has already disclosed safe transformation ratios throughout the year, having the last one stood at 108% (which is very comfortable for the company), as also disclosed strong capital ratios, namely when comparing with its peers.

8.7. Scenarios

It is important to clarify that the values computed below are only possible scenarios, which are subject to changes depending on economic evolution and recovery, as also, on more accurate data provided by BPI, namely in what regards BPI's exposure to sovereign debt.

8.7.1. Greek debt 100% haircut

According to the 9M11 report of BPI, the nominal value of Greek debt the company was holding corresponded to € 480 M. From this, a haircut of 21% was already registered on the first half, € 100,8 M, and more 29% during the last months of the year 2011, accounting for an haircut of 50% throughout this period, which amounts € 240 M.

If in 2012, another haircut is done for the Greek debt, BPI will strongly be affected, once it is still highly exposed. The final price target considering this scenario would be **0,58 €/share**.

This value was determined by deducting to the equity value expected for 2012 the correspondent amount of the Greek haircut, assuming that it would be € 240 M (half of the

nominal value disclosed by BPI, which would correspond to the remaining value they would hold).

8.7.2. Recapitalization

After it was disclosed that a core tier 1 ratio up to 9% would be demanded until June 2012, marking the public debt at market values, EBA and BPI estimated the added capital that the company would need to comply with the regulations. According to them, the bank would need a recapitalization of around € 1,389 M.

To analytically measure this operation, I first had to measure the impact on BPI's equity of marking their debt exposure of Portugal, Greece, Italy, and Ireland at market values. This was computed by looking at the average price these debts were being traded on the market in comparison to their correspondent nominal values. By doing this, I was able to establish a discount rate, which I further used to discount the nominal value of its debt exposure (data taken from BPI's 9M11 report).

Discount rates applied		
	10 year government bonds	Discount factors considered
Portuguese	13,25%	88,3%
Greek	34,93%	74,1%
Italian	7,13%	93,3%
Irish	<i>n.a.</i>	<i>n.a.</i>

Discount factors = $1 / (1 + 10 \text{ year government bond})$

Source. Bloomberg (data from 07.01.2011)

Figure 66. Discount rates assumed for BPI's public debt exposure

According to this discount factors, the market value of BPI's exposure as in the 9M11 report would be:

Sovereign exposure			
amounts in millions of euros	Nominal Value	Market Value	Loss to register
Portugal	2.730 €	2.411 €	319 €
Italy	975 €	910 €	65 €
Ireland	355 €	<i>n.a.</i>	56 €
Greece	240 €	178 €	62 €
Total Loss to account for			502,4 €

The Greek debt nominal value was already accounted as half of the one disclosed on the 9M11, considering the 50% haircut that was already done on the last months of the year 2011.

To account for Ireland losses it was assumed the value disclosed on the EBA communication due to lack of data to account for ir.

Figure 67. Market Value of BPI's exposure and consequent value loss

Assuming that BPI isn't able to find private sources, and uses state funds to finance that amount stipulated by EBA, by increasing the amount of capital by € 1,39 bn, the price target would be **1,73€/ share**.

This value was determined by deducting to the expected equity value for 2012, the Portuguese, Greek, Irish and Italian debt the bank was holding at a discount, assumed to be € 502,4 M, and by adding the impact of the recapitalization of € 1,39 bn.

Although BPI's value increases, there are several implications that should be considered and may influence the firm's value in the long run, such as the fact that if the bank asks capital to the state, the last one will become the major shareholder. Political issues, such as the period within which the state will have to eliminate its stake, or under what conditions the state can exercise its voting rights are still being discussed.

In my opinion, the discount rates applied are a little optimistic facing the recent macroeconomic environment and would not exactly correspond to the ones applied in the market by the time banks would have to account for debt at market values. The ones I expect would be higher, which would further increase the losses BPI would have to incur and consequently decrease the value per share determined by this scenario, as also by the following one.

8.7.3. 100% Greek haircut and recapitalization

If it is considered both the 100% greek haircut, and the recapitalization of the bank by the amount stated by EBA, price target would stay at **1,54 €/ share**.

To the initial equity value (2012), I deducted the € 240M correspondent to the 100% greek amount, as also the sum of the losses to account for Portuguese, Italian and Irish public debt at market values, € 440M, and summed up the recapitalization amount expected by the European Banking authorities as in the previous scenario €1,39bn.

8.7.4. Merger/ Acquisition

The hypothesis of having a merger/ acquisition in the banking sector in the near future is also a possibility, where BPI can be a possible target.

By having it, several synergies, either operational or strategic, can be pointed out (some of them were disclosed on the *Deutsche Bank report about European banks (April 2008)*):

- *Economies of scope*, which results from selling different products/ services, and enable financial institutions to do cross sale, improving their service quality and therefore customer base
- Achieving *economies of scale* in areas where fixed costs have a significant impact, such as in regulatory compliance, IT expenditures, or other back office activities where the dependence on technology is high as also the associated costs.
- *Improve efficiency* by allowing the banks to exchange their best practices and leverage successful products, and processes.
- Gain market share and consequently offer more competitive prices, which leads to the deterioration of smaller players
- *Reputational effect* – By being a large institution it transmits the idea of being stable, once a higher degree of diversification reduces the exposure to adverse economic scenarios. In the end, *ratings would strengthen, and it would be subject to lower refinancing costs*
- Looking at the M&A division of the bank, it is also important to highlight that it would be able to support “*bigger ticket*” transactions, which require a strong capital base and experienced personnel
- Finally, high stock market capitalization reduce management’s decisions on a single stakeholder and thus, *increase its degree of freedom*

Only by accounting for these synergies and correspondent impact on the banks performance I could take some accurate conclusions about this scenario, if it would be a good option or not for BPI, as well as the impact on its price target.

In my opinion, there may be a hint of a good rational for industry concentration, in order to attain efficiency gains or decreased competition. Either way, I believe that this will surely be overdue to a moment in time when capital ratios and liquidity positions are comfortable enough.

9. Valuation Comparison with Caixa BI

At this stage, after having estimated BPI's share price, through the development of my own equity research model, I will do a comparison with a valuation from Caixa Banco de Investimento (Caixa BI), trying to understand what are the differences underlying the models that validate different share prices. The benchmark report is from 12th December 2011, whose price target is 1,05 €, which is 27,3% above my valuation for YE12 of 0,83€.

Several factors explain this divergence, being the ones below the ones I considered most relevant:

One of the first things that I would like to highlight and that clearly can lead to a mismatch of the price target reached by me and the IB, is the fact that for BPI's estimation, in Caixa BI, it are only forecasted the consolidated accounts and after that international operations account for 30% and the domestic ones for the remaining. Therefore, specific issues related with only domestic or international operations are estimated as a whole, which consequently implies less detail and accuracy than in my valuation.

Besides, whereas I have computed a cost of equity for each year I have foreseen, Caixa BI assumes a fixed cost of equity, also computed through CAPM, which means that the volatility of the markets related with the crisis and its recovery, as also BPI's exposure to international markets, namely Angola from where the majority of its profits are currently coming from (which should influence the firm's exposure to higher or less risks and should be reflected on K_e) are not being taken into consideration on the IB valuation.

Below there are the different assumptions made:

Msc Thesis K_e , and g	2011e	2012e	2013e	2014e	2015e	2016e	TV
BPI K_e	15,04%	15,08%	15,12%	11,98%	12,07%	12,15%	11,55%
Domestic K_e	14,18%	14,18%	14,18%	10,05%	10,05%	10,05%	10,51%
International K_e	18,47%	18,47%	18,47%	18,47%	18,47%	18,47%	18,47%
Perpetual growth rate	2%						

Figure 68. Msc Thesis K_e , and g

Caixa BI K_e , and g
Rf
4.5%

Country Risk Premium	-
Market Risk Premium	5.5%
Beta	1.337
Cost of Equity	11.19%
<hr/>	
Domestic β	1,34
International β	1,3
<hr/>	
Domestic Market risk premium	4%
International Market risk Premium	9%
Perpetual growth rate	2,8%

Figure 69. Caixa BI K_e , and perpetual g

In the end, I am discount my CF at higher rates, which (assuming equal cash flows) implicitly make my target value to be lower, and once again, in the period Portugal is facing, consequence not only of national issues, as also, from the fact that the sovereign debt crisis spread all of Europe, it makes sense for me to demand higher equity costs in the forward years.

Following a deep analysis, I found that some of the model's key drivers had slightly different values.

	E.Dec 2011		E. Dec 2012		E.Dec 2013	
	Msc	Caixa BI	Msc	Caixa BI	Msc	Caixa BI
Customer Loans	29099	28320	28633	27204	29049	27204
Customer Deposits	23700	24148	24212	25129	25019	26149
Total Assets	44906	43720	44402	45315	44789	47606
Total Equity	1739	1621	1998	1872	2089	2138

	E.Dec 2011		E. Dec 2012		E.Dec 2013	
	Msc	Caixa BI	Msc	Caixa BI	Msc	Caixa BI
Net interest income	593	584	601	592	609	605
Net operating revenue	1076	1082	1014	1037	1029	1060
Operating costs	668	701	613	670	616	685
Net income	122	138	131	155	139	160

Figure 70. Balance sheet and Profit and Loss accounts comparison

Looking at the tables above, it is possible to conclude that through Caixa BI estimations, BPI would follow on a more aggressive deleveraging process once the forecasted customer loans are lower than mine, and customer deposits higher, which gives the bank higher liquidity, and implies fewer risks. Moreover, it will imply less interest earning assets and more interest earning liabilities which reduce the net interest income, comparing with my values. Caixa BI estimates higher operating revenues consequence of higher commission gains throughout the years, and higher costs. Even though, it results on higher net income values in the end of the years than the ones estimated on my dissertation.

Furthermore, other variation between my thesis and Caixa BI valuation is the approaches used to reach the price target. Below there are the tables that summarize which approaches were used by me to determine my final price target, as well as, the methods used by the IB.

Msc thesis valuation:

BPI: Valuation Summary – Msc Thesis				
	Value p/ share	@ Target Price		
Residual Income	0,86		P/E	P/BV
DuPont	0,78	2010	5,1x	0,4x
		2011e	6,7x	0,5x
		2012e	6,2x	0,4x
Fair Value	0,83	2013e	5,9x	0,4x
		2014e	5,2x	0,4x
		2015e	4,9x	0,4x

Figure 71. Msc Thesis_BPI Valuation

Caixa BI uses a combination of three different models, each worth 1/3 of attributed fair value: Discounted cash flow; “Bond Pricing” Model (Adjusted with dividends); Residual Income. The price target determined by these was 1,03 €/share, 0,84 €/share and 1,23€/share, respectively.

BPI: Summary Valuation models – CAIXA BI				
	Value p/ share	@ Target Price		
Discounted CF	1,03		P/E	P/BV
BPM & DDM	0,84	2010	5,1x	0,7x



Residual Income	1,23	2011e	6,9x	0,9x
		2012e	6,1x	0,8x
Fair Value	1,05	2013e	5,9x	0,7x
		2014e	5,2x	0,7x

Figure 72. Caixa BI_BPI Valuation

Although some of these methods apparently seem the same because of the name given, the computations behind them are not totally equal (see exhibit 21. Valuation methods_Caixa BI). This is the first reason why the values determined under the same approaches are different.

Other reason that supports the discrepancy between my valuation and the one from the investment banking, is the fact that it assumes a lower discount rate, and predicts higher cash flows than mines (explained above), resulting in a higher price target for the FY2012 comparing with the one I preview.

	Msc Thesis	Caixa BI
Price Target	0,83	1,05
Current Stock Price	0,48	0,48
Potential Upside/Downside	71,6 %	118,8 %

Figure 73. Price Target – Msc Thesis Vs Caixa BI

According to the results of the analysis performed, both valuations provide **Buy** recommendations.

10. Conclusion

Taking into consideration both the macroeconomic scenario, as also, the set of requirements defined in the Memorandum agreed with Troika (the core tier 1 capital up to % until the end of 2011, up to 9% until 30th June 2012 considering the sovereign debt at market values, and up to 10% until the end of 2012, as also a transformation ratio lower than 120% until 2014), the main challenge in the following years to the sector is related with banks' ability to adapt to the new regulatory framework, maintaining an adequate flow of funding to the real economy and consequently promote economic growth.

In this sense, besides the difficulties that the bank will have associated with its solvency, the evolution of assets quality will also be a relevant topic, namely due to the increasing trend of the nonperforming loans verified lately. Therefore, I consider that BPI will continue to have a conservative policy comparing to its peers, which is reflected in their provision levels and correspondent cost of credit risk (provisioning cost), around 0,42% on the 9M11.

Over the last months BPI (as well as its peers), has been opting for the reinforcement of its balance sheet, what has been leading to lower levels of profitability (in example, ROE of 8,8% in 2009 and 2010, and 6.1% in the 9M11). This is done namely via less credit amounts granted, more restrictive conditions, via the increase of the deposits amounts (which has lead to an intensification of the competitive environment in the domestic market – increase of the spreads offered and higher pressure on NIM), or by the sale of non-core assets. These measures are also expected to be maintained in the near future so that the confidence on financial system is recovered and banks liquidity is improved as well as its profitability by starting to have access to the wholesale funding markets again, which are associated with higher returns, instead of resourcing so much on the ECB funds.

Moreover, I expect the negative outlook in the medium term to strongly be affected by the sovereign debt crisis which is spread all over Europe. BPI's exposure on the FY10 ascended to €4,5 bn ~ 11% total assets, with a potential loss of €1,39bn during the 1H12.

One advantage for the bank that must be highlighted is its exposition to Angola, which is one of the fastest growing countries lately, and where Banco Fomento de Angola is one of the market leaders, which shows that there is room for BPI's improvement and growth.

Having these issues into account, as others that were previously mentioned in this dissertation, I established the company's price target for the year 2012 as **0,83 €/share**. It is important to note that this value is subject to changes depending on economic evolution and recovery during the next years, which have a high level of uncertainty, and that in the case of the appearance of new regulations or relevant issues that would have impact on BPI accounts, a revision of the valuation should be done.

11. Appendixes

Exhibit 1. Multiples of Spanish and Portuguese banks. November 2000

	PER			P/BV		P/NAV	Dividend yield		ROE		ROE/P/BV	
	2000	2001	2002	2000	2001	2000	2000	2001	2000	2001	2000	2001
BBVA	21.5	17.3	13.9	3.9	3.5	3.4	2.2%	2.6%	20.2%	21.4%	5.2	6.1
BSCH	19.6	15.8	12.9	3.2	2.9	4.2	2.6%	3.4%	19.6%	19.2%	6.2	6.6
Banco Popular	16.5	14.2	12.5	4.7	4.1	4.1	3.3%	3.9%	28.2%	30.7%	6.0	7.5
Bankinter	30.9	29.9	27.0	4.0	3.8	3.2	2.2%	2.3%	12.9%	12.8%	3.2	3.3
Banco Pastor	10.4	9.5	9.2	1.5	1.4	1.5	2.8%	3.1%	14.7%	14.2%	9.5	10.3
Banco Zaragozano	17.8	16.6	16.6	1.7	1.6	n.a.	2.4%	2.9%	15.0%	16.0%	8.8	10.0
Banco Valencia	13.7	12.4	11.5	2.2	2.0	2.2	3.5%	5.7%	16.4%	17.0%	7.4	8.5
<i>Spain</i>	<i>18.6</i>	<i>16.5</i>	<i>14.8</i>	<i>3.0</i>	<i>2.9</i>	<i>3.1</i>	<i>2.7%</i>	<i>3.4%</i>	<i>18.1%</i>	<i>18.8%</i>	<i>6.3</i>	<i>6.8</i>
BCP	17.7	16.2	14.4	3.0	2.8	3	2.4%	2.6%	18.6%	19.8%	6.3	7.0
BES	13.7	12.2	11.6	2.6	2.4	2.6	3.5%	4.0%	18.6%	14.4%	7.3	6.0
BPI	14.0	12.8	11.4	2.6	2.4	2.6	2.9%	3.1%	18.6%	21.4%	7.0	8.9
<i>Portugal</i>	<i>15.1</i>	<i>13.7</i>	<i>12.5</i>	<i>2.7</i>	<i>2.5</i>	<i>2.7</i>	<i>2.9%</i>	<i>3.3%</i>	<i>18.6%</i>	<i>18.5%</i>	<i>6.9</i>	<i>7.3</i>

Source. Fernández (2001), Valuating using multiples

Exhibit 2. BPI's International Presence – Distribution Network

Overseas distribution network		
Commercial Banking		Investment Banking
Banks	Overseas branches	
Banco de Fomento Angola (134 branches)	Paris (11 branches)	BPI Suisse (Private Banking)
Banco Comercial e de Investimento ³ Mozambique	Madrid	Madrid
Banco BPI Cayman	S. ^{ra} Maria – Azores (SFE ⁴)	
	Funchal – Madeira (SFE ⁴)	
	Cayman (SFE ⁴)	
	Macau (SFE ⁴)	
	Representative offices	Distribution agreements⁵
	Caracas	Belgium*
	Geneva	Geneva*
	Hamburg	Hamburg (Hamburger Bank)
	Johannesburg	Netherlands Antilles
	Newark	Canada (Montreal Bank)*
	London	United Kingdom*
	Luxembourg	Luxembourg (DEXIA/BILL Bank)*
	Lyon	Australia
	Rhode Island	Brazil
	Toronto	

Exhibit 3. Benefits associated with debt

Reimo Juks (2010), as described some of them:

- Debt is cheaper than equity, once the interest rates on debt are usually lower than the return on equity required, due to the fact that the last claim is riskier than that of debt holders.

- Other argument is that debt helps to increase ROE, once it is computed by multiplying ROA by the leverage ratio, and therefore increase shareholder value.
- Besides, interest rate expenses can be deducted from taxable income enabling companies to take advantage from the tax shields.
- Moreover, financial distress costs on banks are lower than the non-banks costs, due to government guarantees, which provide guarantees for bank's creditors who will require lower rates on return.

Although these factors benefit banks, when choosing a firm's capital structure, some controversial issues have to be taken into consideration.

Exhibit 4. Angolan Banks in 2010

Acronym	Name	Year
BPC	Banco de Poupança e Crédito	1976
BCI	Banco de Comércio de Indústria	1991
BCGTA	Banco Caixa Geral Totta Angola	1993
BFA	Banco de Fomento Angola	1993
BMA	Banco Millenium Angola	1993
BAI	Banco Africano de Investimentos	1997
BCA	Banco Comercial Angolano	1993
SOL	Banco Sol	1999
BESA	Banco Espírito Santo Angola	2001
BRK	Banco Regional do Keve	2002
BMF	Banco BAI Mikro Finanças	2003
BIC	Banco BIC	2004
BNI	Banco de Negócios Internacional	2005
BPA	Banco Privado Atlântico	2006
BDA	Banco de Desenvolvimento de Angola	2006
BANC	Banco Angolano de Negócios e Comércio	2007
VTB	VTB África	2007

FNB	Finibanco Angola	2008
BOC	Banco Quantum Capital ¹	2008
BCH	Banco Comercial do Huambo	2010
SBA	Standard Bank	2010
BVB	Banco Valor	2010

¹ Em 2011 passou a designar-se Banco Kwanza Invest

Exhibit 5. Recapitalization of BPI

Name of the bank: PT056 Banco BPI, SA			
Capital position CRD3 rules	September 2011		References to COREP reporting
	Million EUR	% RWA	
A) Common equity before deductions (Original own funds <u>without hybrid instruments and government support measures other than ordinary shares</u>) (+)	2,349		COREP CA 1.1 - hybrid instruments and government support measures other than ordinary shares
Of which: (+) eligible capital and reserves	2,412		COREP CA 1.1.1 + COREP line 1.1.2.1
Of which: (-) intangibles assets (including goodwill)	-9		Net amount included in T1 own funds (COREP line 1.1.5.1)
Of which: (-/+) adjustment to valuation differences in other AFS assets ⁽¹⁾	1,271		Prudential filters for regulatory capital (COREP line 1.1.2.6.06)
B) Deductions from common equity (Elements deducted from original own funds) (-)	-99		COREP CA 1.3.T1* (negative amount)
Of which: (-) deductions of participations and subordinated claims	-99		Total of items as defined by Article 57 (l), (m), (n) (o) and (p) of Directive 2006/48/EC and deducted from original own funds (COREP lines from 1.3.1 to 1.3.5 included in line 1.3.T1*)
Of which: (-) securitisation exposures not included in RWA according with CRD3 (2)	0		COREP line 1.3.7 included in line 1.3.T1* (50% securitisation exposures in the banking and trading book subject to 1250% risk weight; Art. 57 (r) of Directive 2006/48/EC)
Of which: (-) IRB provision shortfall and IRB equity expected loss amounts (before tax)	0		As defined by Article 57 (q) of Directive 2006/48/EC (COREP line 1.3.8 included in 1.3.T1*)
C) Common equity (A+B)	2,251	8.88%	
Of which: ordinary shares subscribed by government	0		Paid up ordinary shares subscribed by government
D) Other Existing government support measures (+)	0		
E) Core Tier 1 including existing government support measures (C+D)	2,251	8.88%	Common equity + Existing government support measures included in T1 other than ordinary shares
Shortfall to 9% before application sovereign capital buffer	30	0.12%	9%RWA-Core Tier 1 including existing government support measures; if >0.
F) Hybrid instruments not subscribed by government	238		Net amount included in T1 own funds (COREP line 1.1.4.1a + COREP lines from 1.1.2.2**01 to 1.1.2.2**05 + COREP line 1.1.5.2a (negative amount)) not subscribed by government
Tier 1 Capital (E+F) (Total original own funds for general solvency purposes)	2,488	9.82%	COREP CA 1.4 = COREP CA 1.1 + COREP CA 1.3.T1* (negative amount)
RWA as of end September 2011 including add-on for CRD3 ⁽²⁾	25,344		
Of which: RWA add-on for CRD III as of end September 2011 ⁽⁴⁾	54		
Sovereign Capital buffer			
G) Prudential filter (AFS sovereign assets in EEA as of 30th September 2011) (-/+)	1,078		Please report the prudential filter as a positive number if the AFS revaluation reserve for sovereign assets is negative. Please report the prudential filter as a negative number if the AFS revaluation reserve is positive. If the bank does not apply a prudential filter on AFS sovereign assets, please fill in zero.
H) Difference between the book value and the fair value of sovereign assets (Bonds and Loans and advances) in the HTM and Loans & Receivables portfolios (3).	281		Difference between the book value and the fair value at the reference date. Please provide a positive number if the book value is larger than the fair value of sovereign assets. Please provide a negative number if the book value is smaller than the fair value of the sovereign assets.
Sovereign capital buffer for exposures in EEA (G+H)	1,359	5.36%	Sum of Prudential filter and valuation. If negative it is set to 0
Overall Shortfall after including sovereign capital buffer	1,389	5.48%	9%RWA-(Core Tier 1 including existing government support measures-Sovereign capital buffer for exposures in EEA); if >0.

Notes and definitions

(1) The amount is already included in the computation of the eligible capital and reserves and it is provided separately for information purposes.

(2) According with CRD3 it can include also 50% securitisation exposures in the trading book subject to 1250% risk weight and not included in RWA.

(3) It includes also possible differences between the book value and the fair value of: i) direct sovereign exposures in derivatives; ii) indirect sovereign exposures in the banking and trading book

Source. European Banking Authority and BPI's website

Exhibit 6. BPI's dividend Policy

“Distribution of an annual dividend, by way of a proposal to be submitted by the Board of Directors to the General Meeting, which is tendentiously not less than 40% of the net profit reported in the consolidated accounts of the financial year to which it refers, save where exceptional circumstances warrant, in the Board of Directors' considered judgement, the distribution of a lesser dividend to be submitted for the Shareholders' deliberation.”

Amounts in millions of euro, except when indicated otherwise

Main figures	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Net profit ¹	133.3	140.1	163.8	192.7	250.8	308.8	355.1	150.3	175.0	184.8
Pay-out ratio	43.6%	43.4%	41.7%	39.4%	36.4%	39.4%	40.0%	40.0%	40.1%	- ²
Total dividend paid	58.1	60.8	68.4	76.0	91.2	121.6	142.1	60.1	70.2	- ²
Adjusted dividend per share ¹ (in cents of euro)	7.5	7.3	7.9	8.7	10.5	14.0	16.3	6.4	7.1	- ²
Dividend yield	2.7%	3.9%	4.1%	3.4%	4.0%	4.1%	3.2%	1.4%	4.5%	- ²

¹ Total dividend paid divided by the weighted average number of shares

² Banco BPI's Shareholders' Meeting held at 27 April 2011 passed a resolution put forward by the Board of Directors for the non-distribution of dividends relating to results from 2010, incorporating them into reserves in their entirety.

Source. BPI's website

Exhibit 7. Extraordinary Levy – Order number 121/2011, 30th March of 2011

The entities that are subject to this extraordinary levy are Portuguese headquartered credit institutions, Portuguese subsidiaries of foreign credit institutions, as well as branches of foreign credit institutions except EU residents. According to PwC (31 March 2011) - Tax flash announcement, it is composed by two taxable bases:

- Base I (0,05%) – Liabilities, which are defined as the set of elements accounted for in the balance sheet which represent liabilities towards third parties, irrespective of their form of nature. Excluded from the taxable base are items that are accounted for as equity, liabilities for defined benefit retirement plans, provisions, liabilities concerning the revaluation of financial derivatives. Only part of the bank deposit actually covered by the Deposits Guarantee Fund is excluded from the taxable base.

- Base II (0,00015%) – The notional amount of off-balance sheet financial derivatives, excluding hedging derivatives and back to back derivatives.

The taxable base is calculated by reference to annual average of the monthly balances of the qualifying items, as reflected in the accounts approved regarding the year to which the bank levy relates to.

The assessment must be done by the tax payer, by means of filing form no. 26, before 30th June, and payment must be done on the same date.

Exhibit 8. Domestic Balance Sheet

Amounts expressed in millions of euro	Dec.07	Dec.08	Dec.09	Dec.10	E-Dec.11	E-Dec.12	E-Dec.13	E-Dec.14	E-Dec.15	E-Dec.16
Assets										
Total credits and loans	27 716,1	30 987,1	30 803,4	29 834,9	28 815,6	28 195,3	28 530,8	29 230,7	29 879,6	30 477,2
Loans and advances to credit institutions	1 445,8	2 945,3	2 062,4	968,2	949,8	928,9	940,0	963,0	984,4	1 004,1
Loans and advances to Customers	26 270,3	28 041,8	28 741,0	28 866,7	27865,8	27266,4	27590,9	28267,7	28895,2	29473,1
Interbanking	1 110,5	825,1	840,7	715,6	702,0	686,6	694,7	711,8	727,6	742,1
Cash and deposits at central banks	845,4	649,0	601,1	475,8	466,8	456,5	461,9	473,3	483,8	493,4
Amounts owed by credit institutions repayable on demand	265,1	176,1	239,6	239,8	235,2	230,1	232,8	238,5	243,8	248,7
Financial Assets	7 614,6	4 522,0	9 952,8	8 326,3	8 216,0	7 980,4	7 762,0	7 560,3	7 374,8	7 204,8
Financial assets held for dealing	4 114,6	1 379,1	1 388,0	1 168,7	1 311,9	1 311,9	1 311,9	1 311,9	1 311,9	1 311,9
Financial assets available for sale	3 500,0	2 735,2	7 761,7	6 114,0	5 808,3	5 517,9	5 242,0	4 979,9	4 730,9	4 494,4
Financial assets held to maturity	-	407,7	803,1	1 043,6	1 095,8	1 150,6	1 208,1	1 268,5	1 331,9	1 398,5
Hedging derivatives	412,2	484,4	316,5	250,3	250,3	250,3	250,3	250,3	250,3	250,3
Investments in associated companies and jointly controlled entities	137,9	121,9	140,9	171,7	171,7	171,7	171,7	171,7	171,7	171,7
Tangible and Intangible Assets	252,7	251,2	162,6	141,9	142,1	142,3	142,2	142,4	142,3	142,4
Other tangible assets	238,1	237,1	153,4	136,1	136,1	136,1	136,1	136,1	136,1	136,1
Intangible assets	14,6	14,1	9,2	5,8	6,0	6,2	6,1	6,3	6,2	6,3
Tax assets	141,4	250,4	213,5	430,6	259,0	259,0	259,0	259,0	259,0	259,0
Other assets	800,2	1 160,5	916,0	908,5	899,4	899,4	908,4	917,5	935,8	954,6
Total assets	38185,6	38602,6	43346,4	40779,8	39456,1	38584,9	38719,2	39243,6	39741,0	40202,1
Liabilities and shareholders' equity										
Total Resources	22 326,4	23 709,4	26 465,0	24 924,2	24 852,8	23 794,9	23 880,9	24 341,6	24 823,6	25 263,0



Resources of central banks	-	-	2 773,4	1 245,5	1 500,0	1500,0	1.000,0	500		
Resources of other credit institutions	3 681,7	1 970,8	4 659,0	4 652,6	4 022,2	2 925,7	3 029,4	3 171,7	3 364,0	3 024,9
Resources of Customers and other loans	18 644,7	21 738,6	19 032,6	19 026,1	19 330,5	19 369,2	19 851,5	20 669,9	21 459,5	22 238,1
Debt securities	5 341,9	6 417,8	9 083,6	7 782,3	7 156,4	7 156,4	7 156,4	7 156,4	7 156,4	7 156,4
Technical provisions	2 774,6	2 246,4	2 139,4	2 991,9	2 534,3	2 534,3	2 534,3	2 534,3	2 534,3	2 534,3
Financial liabilities associated to transferred assets	3 008,2	2 070,8	1 764,6	1 570,4	1 667,5	1 667,5	1 667,5	1 667,5	1 667,5	1 667,5
Hedging derivatives	544,6	596,5	423,8	499,4	499,4	499,4	499,4	499,4	499,4	499,4
Provisions	57,5	58,8	63,6	79,1	64,8	64,8	64,8	64,8	64,8	64,8
Tax liabilities	95,3	37,4	36,2	29,7	34,4	34,4	34,4	34,4	34,4	34,4
Participating bonds	27,3	28,7	11,8	7,2	7,2	7,2	7,2	7,2	7,2	7,2
Subordinated debt	930,8	767,6	652,4	640,4	646,4	646,4	646,4	646,4	646,4	646,4
Other liabilities	1 443,6	1 111,0	795,1	794,4	794,4	794,4	794,4	794,4	794,4	794,4
Total Liabilities	36.550,2	37.044,4	41.435,5	39.319,0	38.257,5	37.199,7	37.285,7	37.746,4	38.228,4	38.667,8
Shareholders' equity	1086,1	1282,6	1561,6	1102,7	893,7	1079,9	1130,7	1184,1	1200,6	1218,4
Net Profit	278	9,7	85,5	86,5	51,7	52,2	49,7	60,1	59,0	62,8
Minority interests	270,3	264,5	262,6	270,4	253,1	253,1	253,1	253,1	253,1	253,1
Total Equity	1 634,4	1 556,8	1 909,7	1 459,6	1 198,6	1 385,2	1 433,5	1 497,2	1 512,7	1 534,3
Total liabilities and shareholders' equity	38 184,6	38 601,2	43 345,2	40 778,6	39 456,1	38 584,9	38 719,2	39 243,6	39 741,0	40 202,1
ATA	38 185,6	38 394,1	40 974,5	42 063,1	40 117,9	39 020,5	38 652,0	38 981,4	39 492,3	39 971,6
AE	1 634,4	1 595,6	1 733,3	1 684,7	1 329,1	1 291,9	1 409,4	1 465,4	1 505,0	1 523,5
Dividend Payout	40,0%	40,0%	41,0%					40,0%	40,0%	40,0%
Dividends paid	111,2	3,9	35,1	-	-	-	-	24,0	23,6	25,1

Main assumptions:

Assets

- Interbanking – Grow with GDP growth rate
- Financial assets available for sale – Decrease 5% per year to reduce the exposure of the bank to sovereign debt crisis
- Financial assets held to maturity – Increase 5% per year, once their exposure to volatility is lower being a safer asset at the moment
- Tangible and Intangible Assets – The intangible assets were assumed to increase with a higher proportion in the first years than in the last ones of my estimates, due to development costs, namely on the improvement IT systems

Liabilities and shareholder's equity

- Resources of central banks (ECB) – On 2011 assumed that the amount would stand as it was on the 9M11, and then decrease to comply with BPI's objective to decrease the dependence on external funds
- Resources of other credit institutions – Assumed to fulfill the remaining financing needs of the bank
- Technical provisions – linked with the bank insurance activities and therefore, were assumed to be 50,57% of the insurance assets (BPI Vida, Cosec, Allianz), being this percentage an average of the previous year's "Technical provisions as % Insurance Assets"

Exhibit 9. International Balance Sheet

Amounts expressed in millions of euro	Dec.07	Dec.08	Dec.09	Dec.10	E-Dec.11	E-Dec.12	E-Dec.13	E-Dec.14	E-Dec.15	E-Dec.16
Assets										
Total credits and loans	1 056,2	1 793,6	1 501,1	1 660,1	2 411,0	2 671,7	2 850,9	3 039,1	3 238,8	3 433,4
Loans and advances to credit institutions	95,1	558,9	285,4	470,9	1 178,0	1 305,4	1 393,0	1 484,9	1 582,5	1 677,6
Loans and advances to Customers	961,1	1 234,7	1 215,7	1 189,2	1 233,0	1 366,3	1 457,9	1 554,2	1 656,3	1 755,9



Interbanking	297,4	490,3	899,3	951,2	986,2	1 092,9	1 166,2	1 243,2	1 324,8	1 404,4
Cash and deposits at central banks	281,0	439,3	842,2	852,4	883,8	979,3	1 045,0	1 114,0	1 187,2	1 258,6
Amounts owed by credit institutions repayable on demand	16,4	51,0	57,1	98,8	102,4	113,5	121,1	129,1	137,6	145,9
Financial Assets	902,2	2 001,9	1 576,3	2 115,4	1 897,9	1 897,9	1 897,9	1 897,9	1 897,9	1 897,9
Financial assets held for dealing	476,8	1 474,5	403,1	73,0	-	-	-	-	-	-
Financial assets available for sale	425,4	527,4	1 173,2	2 042,4	-	-	-	-	-	-
Financial assets held to maturity	-	-	-	-	-	-	-	-	-	-
Hedging derivatives	-	-	-	-	-	-	-	-	-	-
Investments in associated companies and jointly controlled entities	13,1	15,9	18,1	22,6	22,6	22,6	22,6	22,6	22,6	22,6
Tangible and Intangible Assets	79,7	95,9	100,8	116,6	116,6	116,6	116,6	116,6	116,6	116,6
Other tangible assets	78,8	94,6	100,2	116,0	116,0	116,0	116,0	116,0	116,0	116,0
Intangible assets	0,9	1,3	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6
Tax assets	-	-	-	-	-	-	-	-	-	-
Other assets	12,8	4,6	8,3	15,3	15,3	15,3	15,3	15,3	15,3	15,3
Total assets	2.361,4	4.402,2	4.103,9	4.881,2	5.449,5	5.816,9	6.069,4	6.334,6	6.615,9	6.890,3
Liabilities and shareholders' equity										
Total Resources	2 027,4	3 931,7	3 629,0	4 288,3	4 839,6	5 134,5	5 345,1	5 567,1	5 813,9	6 051,9
Resources of central banks	-	-	-	-	-	-	-	-	-	-
Resources of other credit institutions	50,2	36,6	43,7	73,5	469,7	292,0	177,8	58,6	-56,4	-171,2
Resources of Customers and other loans	1 977,2	3 895,1	3 585,3	4 214,8	4 369,9	4 842,5	5 167,3	5 508,4	5 870,3	6 223,2
Debt securities	-	-	-	-	-	-	-	-	-	-
Technical provisions	-	-	-	-	-	-	-	-	-	-
Financial liabilities associated to transferred assets	-	-	-	-	-	-	-	-	-	-



Hedging derivatives	-	-	-	-	-	-	-	-	-	-
Provisions	15,4	18,7	26,1	31,5	31,5	31,5	31,5	31,5	31,5	31,5
Tax liabilities	30,0	25,4	25,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0
Participating bonds	-	-	-	-	-	-	-	-	-	-
Subordinated debt	-	-	-	-	-	-	-	-	-	-
Other liabilities	17,6	21,6	30,9	49,0	29,8	29,8	29,8	29,8	29,8	29,8
Total Liabilities	2.090,4	3.997,4	3.711,0	4.376,8	4.908,9	5.203,8	5.414,4	5.636,3	5.883,2	6.121,2
Shareholders' equity	193,9	65,2	110,3	159,1	223,4	287,1	318,9	353,7	379,1	406,1
Net Profit	77,1	140,6	89,6	98,3	70,2	79,1	89,1	97,6	106,6	115,9
Minority interests	-	199,0	193,0	247,0	247,0	247,0	247,0	247,0	247,0	247,0
Total Equity	271,0	404,8	392,9	504,4	540,6	613,2	655,0	698,3	732,8	769,1
Total liabilities and shareholders' equity	2 361,4	4 402,2	4 103,9	4 881,2	5 449,5	5 816,9	6 069,4	6 334,6	6 615,9	6 890,3
ATA	2 361,4	3 381,8	4 253,1	4 492,6	5 165,4	5 633,2	5 943,2	6 202,0	6 475,3	6 753,1
AE	271,0	337,9	398,9	448,7	522,5	576,9	634,1	676,7	715,5	750,9
Dividend Payout	40,0%	40,0%	41,0%					40,0%	40,0%	40,0%
Dividends paid	30,8	56,2	36,7	-	-	-	-	39,0	42,7	46,4

Main assumptions:

Assets

- Interbanking – 2011 amount was assumed equal to the 9M11 value, and then it was expected to grow at GDP growth rate

Liabilities and shareholder's equity

- Resources of other credit institutions – Assumed to fulfill the remaining financing needs of the bank

Exhibit 10. Consolidated Balance Sheet

Amounts expressed in millions of euro	Dec.07	Dec.08	Dec.09	Dec.10	E-Dec.11	E-Dec.12	E-Dec.13	E-Dec.14	E-Dec.15	E-Dec.16
Assets										
Total credits and loans	28 772,3	32 780,7	32 304,5	31 495,0	31 226,6	30 867,0	31 381,7	32 269,8	33 118,4	33 910,7
Loans and advances to credit institutions	1 540,9	3 504,2	2 347,8	1 439,1	2127,8	2234,3	2332,9	2447,9	2566,9	2681,7
Loans and advances to Customers	27 231,4	29 276,5	29 956,7	30 055,9	29 098,8	28 632,7	29 048,8	29 821,9	30 551,5	31 229,0
Interbanking	1 407,9	1 315,4	1 740,0	1 666,8	1 688,2	1 779,4	1 860,9	1 954,9	2 052,4	2 146,6
Cash and deposits at central banks	1 126,4	1 088,3	1 443,3	1 328,2	1 350,5	1 435,8	1 507,0	1 587,3	1 671,0	1 752,0
Amounts owed by credit institutions repayable on demand	281,5	227,1	296,7	338,6	337,7	343,6	353,9	367,6	381,4	394,6
Financial Assets	8 516,8	6 523,9	11 529,1	10 441,7	10 113,9	9 878,3	9 659,9	9 458,2	9 272,6	9 102,7
Financial assets held for dealing	4 591,4	2 853,6	1 791,1	1 241,7	1 311,9	1 311,9	1 311,9	1 311,9	1 311,9	1 311,9
Financial assets available for sale	3 925,4	3 262,6	8 934,9	8 156,4	5 808,3	5 517,9	5 242,0	4 979,9	4 730,9	4 494,4
Financial assets held to maturity	-	407,7	803,1	1 043,6	1 095,8	1 150,6	1 208,1	1 268,5	1 331,9	1 398,5
Hedging derivatives	412,2	484,4	316,5	250,3	250,3	250,3	250,3	250,3	250,3	250,3
Investments in associated companies and jointly controlled entities	151,0	137,8	159,0	194,3	194,3	194,3	194,3	194,3	194,3	194,3
Tangible and Intangible Assets	332,4	347,1	263,4	258,5	258,7	258,9	258,8	259,0	258,9	259,0
Other tangible assets	316,9	331,7	253,6	252,1	252,1	252,1	252,1	252,1	252,1	252,1
Intangible assets	15,5	15,4	9,8	6,4	6,6	6,8	6,7	6,9	6,8	6,9



Tax assets	141,4	250,4	213,5	430,6	259,0	259,0	259,0	259,0	259,0	259,0
Other assets	813,0	1 165,1	924,3	923,8	914,7	914,7	923,7	932,8	951,1	969,9
Total assets	40.547,0	43.004,8	47.450,3	45.661,0	44.905,6	44.401,8	44.788,6	45.578,3	46.357,0	47.092,4
Liabilities and shareholders' equity										
Total Resources	24 353,8	27 641,1	30 094,0	29 212,5	29 692,4	28 929,4	29 226,0	29 908,7	30 637,5	31 314,9
Resources of central banks	-	-	2 773,4	1 245,5	1 500,0	1 500,0	1 000,0	500,0	-	-
Resources of other credit institutions	3 731,9	2 007,4	4 702,7	4 726,1	4 491,9	3 217,7	3 207,2	3 230,3	3 307,6	2 853,7
Resources of Customers and other loans	20 621,9	25 633,7	22 617,9	23 240,9	23 700,4	24 211,7	25 018,8	26 178,4	27 329,8	28 461,2
Debt securities	5 341,9	6 417,8	9 083,6	7 782,3	7 156,4	7 156,4	7 156,4	7 156,4	7 156,4	7 156,4
Technical provisions	2 774,6	2 246,4	2 139,4	2 991,9	2 534,3	2 534,3	2 534,3	2 534,3	2 534,3	2 534,3
Financial liabilities associated to transferred assets	3 008,2	2 070,8	1 764,6	1 570,4	1 667,5	1 667,5	1 667,5	1 667,5	1 667,5	1 667,5
Hedging derivatives	544,6	596,5	423,8	499,4	499,4	499,4	499,4	499,4	499,4	499,4
Provisions	72,9	77,5	89,7	110,6	96,3	96,3	96,3	96,3	96,3	96,3
Tax liabilities	125,3	62,8	61,2	37,7	42,4	42,4	42,4	42,4	42,4	42,4
Participating bonds	27,3	28,7	11,8	7,2	7,2	7,2	7,2	7,2	7,2	7,2
Subordinated debt	930,8	767,6	652,4	640,4	646,4	646,4	646,4	646,4	646,4	646,4
Other liabilities	1 461,2	1 132,6	826,0	843,4	824,2	824,2	824,2	824,2	824,2	824,2
Total Liabilities	38.640,6	41.041,8	45.146,5	43.695,8	43.166,4	42.403,5	42.700,1	43.382,8	44.111,5	44.789,0
Shareholders' equity	1 280,0	1 347,8	1 671,9	1 261,8	1 117,2	1 366,9	1 449,6	1 537,7	1 579,7	1 624,6
Net Profit	355,1	150,3	175,1	184,8	121,9	131,3	138,8	157,7	165,6	178,7
Minority interests	270,3	463,5	455,6	517,4	500,1	500,1	500,1	500,1	500,1	500,1
Total Equity	1 905,4	1 961,6	2 302,6	1 964,0	1 739,2	1 998,4	2 088,5	2 195,5	2 245,4	2 303,4
Total liabilities and shareholders' equity	40 546,0	43 003,4	47 449,1	45 659,8	44 905,6	44 401,8	44 788,6	45 578,3	46 357,0	47 092,4



ATA	40 547,0	41 775,9	45 227,5	46 555,6	45.283,3	44.653,7	44.595,2	45.183,4	45.967,6	46.724,7
AE	1 905,4	1 933,5	2 132,1	2 133,3	1 851,6	1 868,8	2 043,4	2 142,0	2 220,5	2 274,4
Dividend Payout	40,0%	40,0%	41,0%					40,0%	40,0%	40,0%
Dividends paid	142,0	60,1	71,8	-	-	-	-	63,1	66,3	71,5

Exhibit 11. Domestic Income Statement

Amounts expressed in millions of euro	Dec.07	Dec.08	Dec.09	Dec.10	E-Dec.11	E-Dec.12	E-Dec.13	E-Dec.14	E-Dec.15	E-Dec.16
Net interest income (narrow sense)	476,8	470,4	420,3	417,2	361,1	351,2	347,9	370,3	375,2	399,7
Unit Link products gross margin	10,7	6,5	3,3	4,1	3,7	3,7	3,7	3,7	3,7	3,7
Income from securities (variable yield)	22,3	5,6	4,9	3,7	4,3	4,3	4,3	4,3	4,3	4,3
Commissions related to deferred cost (net)	20,9	21,2	24,7	30,3	24,5	23,9	24,0	24,4	24,7	25,0
Net interest income	530,7	503,7	453,1	455,4	393,6	383,1	379,9	402,7	407,8	432,7
Technical result from insurance contracts	13,1	(12,2)	11,8	16,1	15,0	15,0	15,0	15,0	15,0	15,0
Commissions and other similar income (net)	298,5	255,8	262,5	267,4	236,7	231,5	232,3	247,2	250,4	253,3
Gains and losses in financial operations	176,1	(20,2)	92,7	50,9	134,3	60,6	60,1	63,7	64,5	68,4
Operating income and charges	0,9	191,5	9,6	(13,8)	(3,7)	(1,8)	(1,8)	(1,8)	(1,8)	(1,8)
Net operating income	1 019,3	918,6	829,7	776,0	775,8	688,5	685,5	726,9	736,0	767,6
Personnel costs	353,8	387,0	356,7	381,8	369,7	338,7	337,3	350,4	354,7	370,0
Of which: Early retirements costs	1,0	37,7	-	36,1	40,0	-	-	-	-	-
Outside supplies and services	203,0	196,0	181,3	186,3	180,4	149,9	149,3	158,3	160,3	167,2
Depreciation of fixed assets	36,4	40,5	39,5	34,0	28,3	28,3	28,3	28,3	28,3	28,3
Operating costs	593,2	623,5	577,5	602,2	578,4	517,0	514,9	536,9	543,3	565,4
Operating profit before provisions	426,1	295,1	252,2	173,8	197,5	171,5	170,7	189,9	192,7	202,2



Recovery of loans written-off	20,8	25,7	18,2	13,8	15,5	15,1	15,3	15,7	16,0	16,4
Loan provisions and impairments	84,0	133,9	135,3	99,9	137,8	111,3	114,0	118,2	122,3	126,2
Other impairments and provisions	14,8	139,4	34,6	22,4	23,6	23,1	23,4	24,0	24,5	25,0
Profits before taxes	348,1	47,5	100,5	65,3	51,5	52,3	48,6	63,5	61,9	67,4
Corporate income tax	77,6	24,6	18,9	(5,3)	15,2	15,4	14,3	18,8	18,3	20,0
Equity-accounted results of subsidiaries	24,4	5,2	12,7	23,0	23,0	23,0	23,0	23,0	23,0	23,0
Minority shareholders' share of profit	16,8	18,4	8,8	7,0	7,6	7,6	7,6	7,6	7,6	7,6
Net Profit	278,0	9,7	85,5	86,5	51,7	52,2	49,7	60,1	59,0	62,8
Cash-flow after taxation	413,2	323,5	294,9	242,8	241,4	214,9	215,3	230,5	234,1	242,3

Ratios

	Dec.07	Dec.08	Dec.09	Dec.10	E-Dec.11	E-Dec.12	E-Dec.13	E-Dec.14	E-Dec.15	E-Dec.16
NIM	1,24%	1,15%	1,00%	1,02%	0,90%	0,90%	0,90%	0,95%	0,95%	1,00%
NII (as % of net operating revenue)	52%	55%	55%	59%	50,7%	55,6%	55,4%	55,4%	55,4%	56,4%
Commissions (as % of net operating revenue)	29%	28%	32%	34%	30,5%	33,6%	33,9%	34,0%	34,0%	33,0%

Main assumptions

- Commissions related to deferred cost (net) – % Total assets (assumed the average % of the previous years)
- Technical result from insurance contracts – % Insurance assets (assumed equal to the % of 2010)
- Gains and losses in financial operations – Account for the gains from the repurchase bonds, € 72 M, in the end of the first half of the year



- Personnel costs 2011 – Personnel costs estimation, plus the 40M€ charge in personnel costs relating to an early retirement program to be completed by the end of 2011; This program covers 260 employees and will allow for an estimated annual saving in personnel costs about 12M
- Operating costs 2011 – Extraordinary levy € 11,4 M
- Recovery of loans written-off; Loan provisions and impairments; Other impairments and provisions - % Loans to customers (assumed equal to an average of the last years %); On 2011, to the loans provisions and impairments account it was added extra € 24 M impairment charges disclosed on the 1H11 report

Exhibit 12. International Income Statement

Amounts expressed in millions of euro	Dec.07	Dec.08	Dec.09	Dec.10	E-Dec.11	E-Dec.12	E-Dec.13	E-Dec.14	E-Dec.15	E-Dec.16
Net interest income (narrow sense)	131,2	172,5	164,0	209,2	199,5	217,6	229,5	239,5	250,1	260,8
Unit Link products gross margin	-	-	-	-	-	-	-	-	-	-
Income from securities (variable yield)	-	-	-	-	-	-	-	-	-	-
Commissions related to deferred cost (net)	-	-	-	-	-	-	-	-	-	-
Net interest income	131,2	172,5	164,0	209,2	199,5	217,6	229,5	239,5	250,1	260,8
Technical result from insurance contracts	-	-	-	-	-	-	-	-	-	-
Commissions and other similar income (net)	44,1	49,7	49,0	46,5	51,9	55,4	57,8	60,3	63,0	65,6
Gains and losses in financial operations	21,5	40,8	122,3	68,3	48,3	52,7	55,6	58,0	60,6	63,2
Operating income and charges	(0,5)	0,1	(0,2)	(1,1)	0,3	0,3	0,3	0,3	0,3	0,3
Net operating income	196,2	263,2	335,1	322,8	300,0	326,0	343,3	358,2	374,0	389,9
Personnel costs	25,4	32,3	43,5	49,7	40,2	43,7	46,0	48,0	50,1	52,2
Of which: Early retirements costs	-	-	-	-	-	-	-	-	-	-
Outside supplies and services	25,6	29,9	40,7	45,8	38,1	41,4	43,5	45,4	47,4	49,5
Depreciation of fixed assets	9,0	12,0	13,3	11,2	11,2	11,2	11,2	11,2	11,2	11,2



Operating costs	60,0	74,2	97,5	106,7	89,5	96,2	100,7	104,6	108,8	112,9
Operating profit before provisions	136,2	189,0	237,6	216,1	210,6	229,8	242,5	253,6	265,2	277,0
Recovery of loans written-off	0,1	0,1	3,0	2,1	4,3	4,7	5,0	5,4	5,7	6,1
Loan provisions and impairments	28,3	9,8	31,0	21,2	18,5	20,5	21,9	23,3	24,8	26,3
Other impairments and provisions	3,5	7,2	9,0	6,7	6,9	15,0	16,0	17,1	18,2	19,3
Profits before taxes	104,5	172,1	200,6	190,3	189,4	198,9	209,6	218,5	227,9	237,4
Corporate income tax	31,0	26,8	26,5	(0,5)	27,3	28,6	30,2	31,4	32,8	34,2
Equity-accounted results of subsidiaries	3,6	4,5	5,5	6,1	6,8	7,5	8,3	9,2	10,2	11,4
Minority shareholders' share of profit	-	9,3	90,0	98,7	98,7	98,7	98,7	98,7	98,7	98,7
Net Profit	77,1	140,6	89,6	98,3	70,2	79,1	89,1	97,6	106,6	115,9
Cash-flow after taxation	117,9	169,6	142,9	137,4	106,8	125,8	138,2	149,2	160,9	172,8

Ratios

	Dec.07	Dec.08	Dec.09	Dec.10	E-Dec.11	E-Dec.12	E-Dec.13	E-Dec.14	E-Dec.15	E-Dec.16
NIM	3,88%	4,06%	3,65%	8,57%	3,86%	3,86%	3,86%	3,86%	3,86%	3,86%
NII (as % of net operating revenue)	67%	66%	49%	65%	66,5%	66,7%	66,9%	66,9%	66,9%	66,9%
Commissions (as % of net operating revenue)	22%	19%	15%	14%	17,3%	17,0%	16,8%	16,8%	16,9%	16,8%

Main assumptions

- General assumptions equal to the domestic income statement assumptions

Exhibit 13. Consolidated Income Statement

Amounts expressed in millions of euro	Dec.07	Dec.08	Dec.09	Dec.10	E-Dec.11	E-Dec.12	E-Dec.13	E-Dec.14	E-Dec.15	E-Dec.16
Net interest income (narrow sense)	608,0	642,9	584,3	626,4	560,5	568,7	577,4	609,8	625,3	660,5
Unit Link products gross margin	10,7	6,5	3,3	4,1	3,7	3,7	3,7	3,7	3,7	3,7
Income from securities (variable yield)	22,3	5,6	4,9	3,7	4,3	4,3	4,3	4,3	4,3	4,3
Commissions related to deferred cost (net)	20,9	21,2	24,7	30,3	24,5	23,9	24,0	24,4	24,7	25,0
Net interest income	661,9	676,2	617,2	664,5	593,0	600,7	609,4	642,2	657,9	693,5
Technical result from insurance contracts	13,1	(12,2)	11,8	16,1	15,0	15,0	15,0	15,0	15,0	15,0
Commissions and other similar income (net)	342,6	305,5	311,5	313,9	288,7	286,9	290,1	307,6	313,4	318,9
Gains and losses in financial operations	197,6	20,6	215,0	119,2	182,6	113,3	115,7	121,7	125,1	131,6
Operating income and charges	0,4	191,6	9,4	(14,9)	(3,4)	(1,5)	(1,5)	(1,5)	(1,5)	(1,5)
Net operating income	1 215,6	1 181,7	1 164,9	1 098,8	1 075,9	1 014,5	1 028,8	1 085,1	1 110,0	1 157,6
Personnel costs	379,2	419,3	400,2	431,5	409,9	382,4	383,3	398,3	404,9	422,2
Of which: Early retirements costs	1,0	37,7	-	36,1	40,0	-	-	-	-	-
Outside supplies and services	228,6	225,9	222,0	232,1	218,4	191,3	192,8	203,7	207,7	216,6
Depreciation of fixed assets	45,4	52,5	52,8	45,2	39,5	39,5	39,5	39,5	39,5	39,5
Operating costs	653,2	697,7	675,0	708,8	667,8	613,2	615,6	641,6	652,1	678,4
Operating profit before provisions	562,4	484,0	489,9	390,0	408,1	401,3	413,2	443,5	457,9	479,2
Recovery of loans written-off	20,9	25,8	21,2	15,9	19,7	19,9	20,4	21,1	21,8	22,4
Loan provisions and impairments	112,3	143,7	166,3	121,1	156,3	131,8	135,9	141,5	147,1	152,5
Other impairments and provisions	18,3	146,6	43,6	29,1	30,6	38,1	39,4	41,1	42,7	44,3
Profits before taxes	452,7	219,5	301,2	255,7	240,9	251,2	258,3	282,0	289,8	304,8
Corporate income tax	108,6	51,4	45,4	(5,8)	42,5	44,1	44,5	50,2	51,1	54,1
Equity-accounted results of subsidiaries	28,0	9,7	18,2	29,1	29,8	30,5	31,3	32,2	33,2	34,4
Minority shareholders' share of profit	16,8	27,7	98,8	105,7	106,3	106,3	106,3	106,3	106,3	106,3



Net Profit	355,3	150,1	175,2	184,9	121,9	131,3	138,8	157,7	165,6	178,7
Cash-flow after taxation	531,3	492,9	437,9	380,3	348,3	340,8	353,5	379,7	395,0	415,0

Ratios

	Dec.07	Dec.08	Dec.09	Dec.10	E-Dec.11	E-Dec.12	E-Dec.13	E-Dec.14	E-Dec.15	E-Dec.16
NIM	1,50%	1,54%	1,29%	1,35%	1,24%	1,27%	1,29%	1,35%	1,36%	1,41%
NII (as % of net operating revenue)	54,5%	57,2%	53,0%	60,5%	55,1%	59,2%	59,2%	59,2%	59,3%	59,9%
Commissions (as % of net operating revenue)	28,2%	25,9%	26,7%	28,6%	26,8%	28,3%	28,2%	28,3%	28,2%	27,6%

Exhibit 14. Capital Requirements

	Dec.07	Dec.08	Dec.09	Dec.10	E-Dec.11	E-Dec.12	E-Dec.13	E-Dec.14	E-Dec.15	E-Dec.16
Share Capital	760	900	900	900	990	990	990	990	990	990
Share issue premiums	231,3	441,3	441,3	441,3	441,3	441,3	441,3	441,3	441,3	441,3
Reserves and retained earnings	253,1	452,5	553,9	649,2	744,0	775,9	817,2	866,0	870,6	880,0
Minority Interests	270	464	456	517	500	500	500	500	500	500
Preference Shares	32	32	-7	1	0	0	0	0	0	0
Others	94	143	316	240	198	198	198	198	198	198
Core capital	1.389	2.083	2.041	2.267	2.477	2.509	2.550	2.599	2.604	2.613
Subordinated term debt	930,8	767,6	652,4	640,4	646,4	646,4	646,4	646,4	646,4	646,4



Undisclosed reserves	0	0	0	0	0	0	0	0	0	0	0
General loss reserves	0	0	0	0	0	0	0	0	0	0	0
Tier II Capital	930,8	767,6	652,4	640,4	646,4	646,4	646,4	646,4	646,4	646,4	646,4
Total Capital	2319,6	2850,3	2693,2	2907,5	3123,3	3155,3	3196,6	3245,4	3250,0	3259,4	
RWA	25 924,7	26 191,7	26 059,9	26 035,8	25 358,7	25 006,1	24 973,3	25 302,7	25 741,9	26 165,8	
RWA/ Total Assets	63,94%	60,90%	54,92%	57,02%	56,00%	56,00%	56,00%	56,00%	56,00%	56,00%	56,00%
Own funds requirements (RWAx8%)	2 074,0	2 095,3	2 084,8	2 082,9	2 028,7	2 000,5	1 997,9	2 024,2	2 059,3	2 093,3	
Core Tier I (Core Capital/ RWA)	5%	8%	8%	9%	9,8%	10,0%	10,2%	10,3%	10,1%	10,0%	
CAR (Tier 1 Capital + Tier 2 Capital)/ RWA	9%	11%	10%	11%	12,3%	12,6%	12,8%	12,8%	12,6%	12,5%	
Excess (Total Capital - Own funds requirement)	245,62	754,96	608,41	824,64	1094,6	1154,8	1198,7	1221,2	1190,6	1166,1	

Main assumptions

- Core capital – According to BPI’s 2010 report, “Core capital corresponds to basis own funds, before deductions relating to equity interests in credit institutions and insurance undertakings, and excludes preference shares. It mainly includes share capital and share-issue premiums, reserves, retained earnings and minority interests, excluding preference shares”
- Tier II capital – According to BPI measurement
- Risk Weighted Assets – % Total assets; I assumed it to remain constant over the following years as an average of the last two years. However, it is important to take into consideration that it is possible to change: or to increase due to high regulatory requirements that may



oblige banks to account their risky assets in a different and more accurate way, or it may decrease once BPI can pursue a strategy of decreasing the risky assets it has on its balance sheet

As mentioned on the dissertation “Regarding the impact of the new capital regulation (BASEL III), the risk weighted assets are expected to slight decrease, for which the decrease on riskier loans should contribute”

- Own funds requirements – Calculated in accordance with Bank of Portugal rules governing minimum own funds requirements; RWA x 8%

Exhibit 15. Nonperforming Loans

	Dec.07	Dec.08	Dec.09	Dec.10	E-Dec.11	E-Dec.12	E-Dec.13	E-Dec.14	E-Dec.15	E-Dec.16
Customer Loan Portfolio	27 231,4	29 276,5	29 956,7	30 055,9	29 098,8	28 632,7	29 048,8	29 821,9	30 551,5	31 229,0
Loans in arrears	580,1	824,5	1 159,6	1 207,3	1 495,6	1 608,7	1 772,8	1 942,3	2 119,1	2 300,2
Loans in arrears for more than 90 days	276,9	357,1	559,9	577,0	724,0	765,0	843,4	924,4	1008,8	1095,3
% 90 days on loans in arrears for more than 30 days	93%	77%	95%	93%	97%	92%	92%	92%	92%	92%
Loans in arrears for more than 30 days	296,5	460,8	591,4	620,3	748,7	834,2	919,8	1008,0	1100,1	1194,5
New entries of loan in default > 30 days (Year-beg. - Year-end. + write-offs)	35,4	179,4	162,5	106,6	85,5	85,6	88,3	92,1	94,4	96,4
Doubtful loans	6,7	6,6	8,3	10,0	22,90	9,53	9,66	9,92	10,16	10,39
% total loans	0,02%	0,02%	0,03%	0,03%	0,03%	0,03%	0,03%	0,03%	0,03%	0,03%
Loan impairments (in the BS)	385,7	464,5	552,7	582,2	652	689	728	769	812	858
Ratio of loans in arrears and doubtful loans										
Loans in arrears for more than 90 days as % of total loans	1,0%	1,2%	1,9%	1,9%	2,5%	2,7%	2,9%	3,1%	3,3%	3,5%

Loans in arrears for more than 90 days and doubtful loans as % of total loans	1,0%	1,2%	1,9%	2,0%	2,6%	2,7%	2,9%	3,1%	3,3%	3,5%
Loans in arrears for more than 90 days and doubtful loans, net of specific loans provisions, as % of total loans										
Loans in arrears for more than 30 days as % of total loans	1,1%	1,6%	2,0%	2,1%	2,6%	2,9%	3,2%	3,4%	3,6%	3,8%
Loan impairments (accumulated in the balance sheet)										
Loan impairments, as % of total loans	1,4%	1,6%	1,8%	1,9%	2,2%	2,4%	2,5%	2,6%	2,7%	2,7%
Loan impairments, as % of loans in arrears for more than 90 days	139,3%	130,1%	98,7%	100,9%	90,0%	90,0%	86,3%	83,2%	80,5%	78,4%
Loan impairments, as % of loans in arrears for more than 30 days	130,1%	100,8%	93,5%	93,9%	87,1%	82,6%	79,1%	76,3%	73,8%	71,9%
Write-offs	37,4	41	53,1	93,6	48,4	48,4	48,4	48,4	48,4	48,4
Recovery of loans and interests in arrears written-off	20,9	25,9	21,2	15,9	19,7	19,9	20,4	21,1	21,8	22,4

Main assumptions

- Customer Loan Portfolio – Assumed equal to my loans and advances to customers estimates
- Loans in arrears for more than 90 days – % Loans in arrears for more than 30 days; For 2011, assumed that they would be 97% of loans in arrears for more than 30 days to comply with what was disclosed on the 9M11 report; For the following years, computed the amount by assuming an average percentage
- Loans in arrears for more than 30 days_t – Loans in arrears for more than 30 days_{t-1} + New entries for loans in default > 30 days_{t-1}
- New entries of loan in default > 30 days – (Year-beg. - Year-end. + Write-offs) for 2011; From 2012 until 2016, it was computed by multiplying the customer loans portfolio by the cost of new entries of loan in default (30 days)
- Percentage cost of new entries of loan in default (30 days) – (New entries of loan in default/ Customer loans portfolio) for historical years; On 2011 the % was assumed to be equal to the one of the 9M11; From there on, it was assumed to increase by 0,005% per year and then stabilize



- Doubtful loans – % Customer loan portfolio (Assumed the percentage to remain equal to last years)
- Write offs – Recovery of loans written off \checkmark (Recovery \checkmark / Write-off \checkmark_{t-1})
- Recovery of loans written off – Taken from the consolidated income statement estimates
- (Recovery \checkmark / Write-off \checkmark_{t-1}) – For 2011, the percentage was assumed to be equal to the average of the last years

When I have computed historical values as also forecasted values, some of the historical do not exactly correspond to the ones disclosed on BPI's reports. It is important to take it into consideration when analyzing my estimates. The lack of information I have about some of the accounts, as also, their measurement policies are the main reasons for that to happen.

Exhibit 16. Dividend Discount Model

Sum of parts Dividend Discount Model

	E.Dec 2011	E. Dec 2012	E.Dec 2013	E.Dec 2014	E.Dec 2015	E. Dec 2016	Perpetuity
Dividend Payout Ratio	0%	0%	0%	40%	40%	40%	40%
Net Income Domestic	51,7	52,2	49,7	60,1	59,0	62,8	182
Net Income International	70,2	79,1	89,1	97,6	106,6	115,9	
Dividend Domestic	0,0	0,0	0,0	24,0	23,6	25,1	73
Dividend International	0,0	0,0	0,0	39,0	42,7	46,4	
Discount factor Domestic	1,00	0,87	0,76	0,74	0,67	0,61	5,91
Discount factor International	1,00	0,84	0,70	0,58	0,49	0,40	
Present Value Sum of Parts	0	0	0	41	37	34	431

**Assumptions**

Domestic Ke		14,64%	14,64%	14,64%	10,51%	10,51%	10,51%
International Ke		19,90%	19,90%	19,90%	19,90%	19,90%	19,90%
Valuation Date	04-01-2012						

Explicit Period Valuation (2012 – 2016)	111,1
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Terminal Value	430,9
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g	2%
Ke	11,73%
EV	542,1
# shares	990
Price/share	0,55 €

	1,0%	1,5%	2,0%	2,5%	3,0%
7,7%	0,86 €	0,92 €	1,00 €	1,09 €	1,20 €
9,7%	0,64 €	0,67 €	0,71 €	0,76 €	0,81 €
11,7%	0,50 €	0,52 €	0,55 €	0,57 €	0,60 €
13,7%	0,41 €	0,43 €	0,44 €	0,46 €	0,48 €
15,7%	0,35 €	0,36 €	0,37 €	0,38 €	0,39 €

Multiples	Growth TV	E.Dec 2011	E. Dec 2012	E.Dec 2013	E.Dec 2014	E.Dec 2015	E. Dec 2016
Price/ Earnings	2%	4,45x	4,13x	3,91x	3,44x	3,27x	3,03x



EV	555,3
# shares	990
Price/share	0,56 €

1	1,0%	1,5%	2,0%	2,5%	3,0%
7,7%	0,87 €	0,94 €	1,01 €	1,10 €	1,21 €
9,7%	0,65 €	0,69 €	0,73 €	0,77 €	0,82 €
11,7%	0,52 €	0,54 €	0,56 €	0,59 €	0,62 €
13,7%	0,43 €	0,44 €	0,46 €	0,47 €	0,49 €
15,7%	0,36 €	0,37 €	0,38 €	0,40 €	0,41 €

Multiples	Growth TV	E.Dec 2011	E. Dec 2012	E.Dec 2013	E.Dec 2014	E.Dec 2015	E. Dec 2016
Price/ Earnings	2%	4,55x	4,23x	4,00x	3,52x	3,35x	3,11x
Price/ Book	2%	0,32x	0,28x	0,27x	0,25x	0,25x	0,24x

Exhibit 17. Residual Income Model

Sum of parts Residual Income Model

	E.Dec 2011	E. Dec 2012	E.Dec 2013	E.Dec 2014	E.Dec 2015	E. Dec 2016	Perpetuity
Domestic Net income	52	52	50	60	59	63	182
Domestic Ke	14,6%	14,6%	14,6%	10,5%	10,5%	10,5%	11,7%



Domestic B/V	1329	1292	1409	1465	1505	1523	
Domestic Residual Income	-143	-142	-139	-88	-95	-95	-85
International Net income	70	79	89	98	107	116	
International Ke	19,9%	19,9%	19,9%	19,9%	19,9%	19,9%	
International B/V t-1	523	577	634	677	716	751	
International Residual Income	-33,8	-24,8	-25,7	-28,6	-28,0	-26,4	
Domestic Discount factor	1,00	0,87	0,76	0,74	0,67	0,61	5,91
International Discount factor	1,00	0,84	0,70	0,58	0,49	0,40	
Present Value	-177	-145	-124	-82	-77	-69	-500

Assumptions

Domestic Ke	14,64%	14,64%	14,64%	10,51%	10,51%	10,51%
International Ke	19,90%	19,90%	19,90%	19,90%	19,90%	19,90%
Valuation Date	04-01-2012					

Explicit Period Valuation	2012 - 2016	-497,6
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Terminal Value	-499,6
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g	2%
Ke	11,73%
B/V 2011	1851,60
EV	854,4
# shares	990
Price/share	0,86 €

		1,0%	1,5%	2,0%	2,5%	3,0%
7,7%	1,42 €	1,43 €	1,45 €	1,47 €	1,49 €	
9,7%	1,07 €	1,06 €	1,05 €	1,03 €	1,02 €	
11,7%	0,90 €	0,88 €	0,86 €	0,84 €	0,82 €	
13,7%	0,82 €	0,80 €	0,78 €	0,76 €	0,73 €	
15,7%	0,78 €	0,76 €	0,74 €	0,72 €	0,70 €	

Multiples	Growth	E.Dec 2011	E. Dec 2012	E.Dec 2013	E.Dec 2014	E.Dec 2015	E. Dec 2016
Price/ Earnings	2%	7,01x	6,51x	6,16x	5,42x	5,16x	4,78x
Price/ Book	2%	0,49x	0,43x	0,41x	0,39x	0,38x	0,37x

Consolidated Residual Income Model

	E.Dec 2011	E. Dec 2012	E.Dec 2013	E.Dec 2014	E.Dec 2015	E. Dec 2016	Perpetuity
Consolidated NI	122	131	139	158	166	179	182,3



Ke	15,7%	15,7%	15,8%	12,7%	12,8%	12,9%	11,73%
B/V	1852	1869	2043	2142	2220	2274	
Domestic Residual Income	-169	-160	-156	-101	-108	-107	-85
Discount factor	1,00	0,87	0,75	0,70	0,62	0,55	5,91
Present Value	-169	-139	-117	-71	-67	-58	-500

Assumptions

Ke	15,69%	15,75%	15,80%	12,67%	12,76%	12,86%
Valuation Date	04-01-2012					

Explicit Period Valuation	2012 - 2016	-451,8
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Terminal Value	-499,6
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g	2%
Ke perpetuity	11,73%
B/V 2011	1851,60
EV	900,121
# shares	990

Price/share 0,91 €

	1,0%	1,5%	2,0%	2,5%	3,0%
7,7%	1,46 €	1,48 €	1,49 €	1,51 €	1,53 €
9,7%	1,12 €	1,11 €	1,09 €	1,08 €	1,06 €
11,7%	0,95 €	0,93 €	0,91 €	0,89 €	0,86 €
13,7%	0,86 €	0,84 €	0,82 €	0,80 €	0,78 €
15,7%	0,83 €	0,81 €	0,79 €	0,77 €	0,75 €

Multiples	Growth	E.Dec 2011	E. Dec 2012	E.Dec 2013	E.Dec 2014	E.Dec 2015	E. Dec 2016
Price/ Earnings	2%	7,38x	6,85x	6,49x	5,71x	5,43x	5,04x
Price/ Book	2%	0,52x	0,45x	0,43x	0,41x	0,40x	0,39x

Exhibit 18. Equity Discount Model Model

	E.Dec 2011	E. Dec 2012	E.Dec 2013	E.Dec 2014	E.Dec 2015	E. Dec 2016	Perpetuity
Net income	122	131	139	158	166	179	182,3
Own funds requirement	2029	2000	1998	2024	2059	2093	2.152
Required Capital Needs	-54	-28	-3	26	35	34	59
Free Cash Flow to Equity	176	160	141	131	131	145	124



Discount factor	1,00	0,87	0,75	0,70	0,62	0,55	5,91
Present Value	177	138	106	92	81	79	731

Assumptions

BPI's Ke	15,69%	15,75%	15,80%	12,67%	12,76%	12,86%
Valuation Date	04-01-2012					

Explicit Period Valuation (2012 – 2016)	496,0
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Terminal Value	730,6
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g	2%
Ke	11,73%
EV	1.226,5
# shares	990
Price/share	1,24 €

	1,0%	1,5%	2,0%	2,5%	3,0%
7,7%	1,98 €	1,99 €	2,00 €	2,02 €	2,04 €
9,7%	1,54 €	1,53 €	1,52 €	1,50 €	1,49 €
11,7%	1,27 €	1,26 €	1,24 €	1,22 €	1,19 €
13,7%	1,10 €	1,08 €	1,06 €	1,04 €	1,02 €
15,7%	0,97 €	0,96 €	0,94 €	0,92 €	0,90 €

Multiples	Growth	E.Dec 2011	E. Dec 2012	E.Dec 2013	E.Dec 2014	E.Dec 2015	E. Dec 2016
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Price/ Earnings	2%	10,06x	9,34x	8,84x	7,78x	7,40x	6,86x
Price/ Book	2%	0,71x	0,61x	0,59x	0,56x	0,55x	0,53x

Exhibit 19. DuPont Model

	E.Dec 2011	E. Dec 2012	E.Dec 2013	E.Dec 2014	E.Dec 2015	E. Dec 2016
Net Profit	121,9	131,3	138,8	157,7	165,6	178,7
Average Equity	1 851,6	1 868,8	2 043,4	2 142,0	2 220,5	2 274,4
ATA	45 283,3	44 653,7	44 595,2	45 183,4	45 967,6	46 724,7
ROA (Net Profit/ ATA)	0,27%	0,29%	0,31%	0,35%	0,36%	0,38%
Equity Multiplier (ATA / Avg. Equity)	24,5x	23,9x	21,8x	21,1x	20,7x	20,5x
ROE Forecasted (ROA x Equity Multiplier)	6,6%	7,0%	6,8%	7,4%	7,5%	7,9%
Profit Margin (Net income/ Net operating revenue)	11,3%	12,9%	13,5%	14,5%	14,9%	15,4%
Total Asset Turnover (Net operating revenue/ ATA)	2,38%	2,27%	2,31%	2,40%	2,41%	2,48%
Equity Multiplier (ATA / Avg. Equity)	24,5x	23,9x	21,8x	21,1x	20,7x	20,5x
ROE Forecasted	6,58%	7,03%	6,79%	7,36%	7,46%	7,86%

	2012
ROA	0,29%
Equity Multiplier	23,89x



ROE Forecasted	7,03%
ROE Demanded 2012	15,75%
Equity t-1	1.739

ROE Forecasted	Equity Value	Price/ share
6,03%	665,88 €	0,67 €
7,03%	776,34 €	0,78 €
8,03%	886,80 €	0,90 €

Multiples	E.Dec 2011	E. Dec 2012	E.Dec 2013	E.Dec 2014	E.Dec 2015	E. Dec 2016
Price/ Earnings	6,37x	5,91x	5,59x	4,92x	4,69x	4,34x
Price/ Book	0,45x	0,39x	0,37x	0,35x	0,35x	0,34x

Exhibit 20. Peer Group Presentation

	Country	Return 12M	ROE 08	ROE 09	ROE 10	Core Tier 1 08	Core Tier 1 09	Core Tier 1 Ratio 10	NPL ratio 08	NPL ratio 09	NPL ratio 10	NPL coverage 08	NPL coverage 09	NPL coverage 10	Payout ratio 08	Payout ratio 09	Payout ratio 10
BANCO PASTOR	Spain	-29,2	12,4%	7,2%	4,3%	6,3%	8,3%	8,5%	4,3%	4,9%	5,1%	47,4%	52,5%	48,5%	35,7%	58,0%	35,7%
BANCO POPULAR	Spain	-38,9	13,2%	10,1%	6,9%	7,2%	8,6%	9,4%	2,8%	4,8%	5,3%	72,9%	50,2%	40,4%	52,8%	57,6%	50,0%



BANCO SABADELL	Spain	-48,0	14,8%	10,6%	6,8%	6,7%	7,7%	8,2%	2,3%	3,7%	5,0%	106,9%	69,0%	56,6%	49,9%	54,8%	61,0%
BANKINTER	Spain	-37,7	11,3%	5,8%	6,5%	6,3%	6,5%	6,8%	1,3%	2,5%	2,9%	120,2%	74,4%	69,1%	47,5%	50,0%	50,0%
BBVA	Spain	-42,7	20,5%	19,2%	14,1%	6,2%	8,0%	8,6%	2,7%	4,8%	4,7%	91,2%	57,3%	61,6%	45,8%	37,5%	42,3%
BCP	Portugal	-56,9	4,0%	4,5%	6,0%	5,8%	6,4%	6,7%	0,9%	2,3%	3,0%	211,6%	119,0%	109,4%	145,6%	35,7%	29,9%
BES	Portugal	-39,9	10,4%	9,6%	9,3%	5,7%	8,0%	7,9%	1,1%	1,6%	2,0%	219,0%	191,5%	173,0%	75,0%	56,2%	32,7%
BNP PARIBAS	France	-36,4	6,1%	9,8%	12,0%	5,4%	8,0%	9,2%	3,3%	4,6%	5,2%	91,0%	88,5%	82,0%	29,4%	27,2%	29,4%
BPI	Portugal	-46,6	9,6%	10,5%	11,2%	8,0%	7,8%	8,7%	1,2%	1,8%	1,9%	130,1%	98,7%	100,9%	111,8%	34,4%	37,8%

Source. ESN database (Updated on 22/12/2011)

Exhibit 21. Valuation methods_Caixa BI

“Valuation Methods

Our valuation of the Portuguese banks remains based on a combination of three different methods each worth 1/3 of attributed fair value.

1) – Discounted Cash Flow (DCF) Model

We use the Discounted Cash flow model with the abovementioned assumptions for risk free rate, beta, market risk premium and perpetual growth rate. Although we consider the valuation of financial institutions to be significantly different from that of industrial companies, the underlying methodology is the same for financials and non-financials.

We define “cash flow” as the difference between the required retained capital, measured by the annual increase in risk-weighted assets (**RWA**) x **10%**, new “**standard**” **solvency ratio**) and net profit of the year. We also define normalized capital employed as 10% of 2011 RWA.

□ **Cash Flow** = [Net profit of the year – (Annual increase in RWA * 10%)]

□ **“Normalized capital employed”** = (2011 RWA * 10%)

Hence, the value of the bank is the sum of: i) its initial excess of capital (2011 capital minus “normalized capital employed”), ii) net present value of cash flows, iii) net present value of terminal value and iv) 2011 dividends to be paid in 2012.

2) – “Bond Pricing” Model (Adjusted with Dividends)

We determine the Long term ROE as the average of the 2011-2015e ROE (Return on total equity) and then extract the implicit premium on book value (dividing long term ROE by the cost of equity). Then we apply this “premium” to 2015e Shareholder’s Equity in order to achieve the 2015 implicit equity value. After this, we adjust our 2015 value to current prices, add the present value of the 2011-2015e dividends and subtract the amount of actuarial differences of the pension fund (net of taxes).

3) – Residual Income Model

The “Residual Income” model is theoretically derived from the Dividend Discount Model (DDM) and is equivalent to the present value of discounted cash flows from a DCF analysis.

Our residual income valuation model measures an entity's value as the sum of its invested capital and discounted expected residual income. Through this approach we make an explicit link between the accounting measures of Net Asset Value (Equity) and earnings. The value of the bank is the sum of its 2012e Equity, the present value of the expected "excess" profitability (residual income) and its terminal value.

□ **Residual Value** = [Net profit of the year – (Average Equity* Cost of Equity)]”

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