



**CATÓLICA
LISBON**
BUSINESS & ECONOMICS

Equity Valuation:
Banco Português de Investimento

José Miguel Alves França

Coordinator: Professor José Carlos Tudela Martins

**Dissertation Submitted in partial fulfillment of requirements for the degree of
International MSC in Finance, at Universidade Católica Portuguesa, September
12th 2014**

Abstract

In this dissertation I will expose the process that lead me to give BPI a BUY recommendation for a price target of 1,75€ (against 1,466€ in August 2014). My work adds to the investment community (compared with the BCP report of May 2014) by giving a more detailed and forward-looking valuation. Detailed because I value domestic and international activities separately, accounting this way for a higher risk in the latter, but also greater profitability. Forward looking because I value BPI based on the excess return it is expected to generate. Using this approach I penalized BPI in the near future but I captured the long-term opportunities.

Acknowledgments

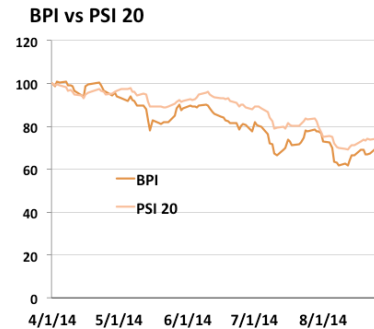
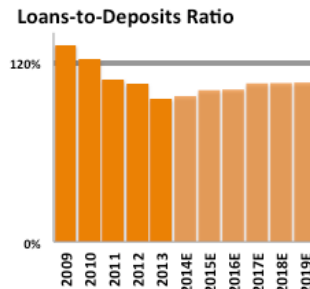
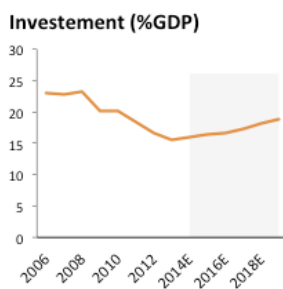
Being this dissertation the last step of my short journey in Católica-Lisbon, I want to express my gratitude to the people that made it possible: my parents. Second all my dear colleagues for making this journey a pleasant one, I will only name José, Rui and Rui. Also a thank you to Lisa for support.

Regarding this dissertation I need to acknowledge my coordinator, Professor José Tudela, for the guidance and feedback; without him this work could not be finished the way it did.

The return of the NII

Recommendation:	BUY	M€	2013	2014E	2015E
Price Target (YE14):	€ 1,75	Total Assets	43 795,10	41 602,60	43 922,63
Upside: Vs €1,46	19%	NII	475,10	513,96	614,21
BPI change (YTD)	63,53%	Dividends	0	0	0
PSI20 (YTD)	-0,22%	Cost credit Risk	1,05%	0,67%	0,76%
PT / Financials	-89,72%	Net profit	66,9	-12,04	212,69
Bloomberg:	BPI PL	CET1 (%)	9,98%	10,77%	10,74%

A new chapter has just started for BPI. In August 2014 the bank has already paid back all the borrowed capital to the Portuguese government, has strengthened its financial position, reduced its main risk exposures¹ and almost completed its cost-reduction plan.



- BPI is no longer dependent on the developments of the debt crisis. The bank has reduced significantly its exposure to Government debt, holding now €850M (only Portuguese Debt); one third of its exposure in 2012.
- The banks credit structure, based in mortgages loans, made it more resilient to the deterioration of credit quality felt in Portugal. Credit at Risk stands at 5,1%, the lowest in Portugal.
- NII is expected to pick up. On the cost side, the heavy weight of the CoCo's² has been eliminated, and aggressive cost-cutting policy is underway. On the revenue side a new credit structure is expected, with an increase on the corporate side, as investments start to pick up. At the same time we watch a decrease in the deposit yields, as banks are not competing so aggressively for fund

¹ The Government debt portfolio is now only one third of 2012 values

² Contingent convertible bonds subscribed 100% by the Portuguese government in 2012

Table of Contents

The return of the NII.....	iii
Part I. Literature Review.....	7
1. Introduction - “All roads lead to Rome”	7
1.1. Note on Financial Institutions	8
2. Valuation Models - Discount Cash flow	9
2.1. Dividend Discount Models.....	10
2.2. Free Cash-Flow to Equity	12
2.3. Excess Return Model	12
3. Valuation Models - Relative Valuation	13
4. Valuation Models - Option Models	14
5. Cross-border valuation	15
6. The Cost of Equity.....	16
7. Conclusions	18
Part II. Banking industry	19
1. Banking industry outlook.....	19
1.1. Portugal Case	20
1.2. International activity - Angola	22
2. Regulations in Portugal and Europe	24
2.1. Basel III - Financial Crisis aftermath.....	24
2.2. Transformation Ratios.....	25
2.3. Contingent Convertibles - The CoCo’s	26
2.4. Further stress tests.....	28
Part III. Banco Português de Investimento	29
1. Banco Português de Investimento.....	29
2. Activity Indicators	30
2.1. Funding	30
2.2. Customer deposits	31
2.3. Asset-Quality and Loan portfolio.....	33
2.4. Profitability and Performance	35
2.5. Operating costs	37
2.6. Return on Equity	38
Part IV. Valuation.....	39
1. Introduction.....	39
2. Loans, Deposits and NII.....	39
2.1. Loan volumes.....	39
2.2. Deposit volumes	41
2.3. Net interest income - the NII.....	42
2.4. International Activities	44
3. Financial operations and Commissions	45
3.1. Commissions.....	45
3.2. Income from financial Assets.....	45
4. Costs.....	46
5. Pension Liabilities.....	48
Part V. Inputs and Methodology	50
1. Introduction.....	50

2. Inputs to the model	50
2.1. Macroeconomic future	50
2.2. Discount rate and Beta	51
2.3. Return on Equity	53
2.4. Terminal Value – The valuation menace	55
Part VI. Valuation results	58
1. Free cash Flow to Equity	58
2. Dividend Discount model	58
3. Residual Income	59
4. Relative valuation	60
5. Results Conclusion	61
Part VII. Comparison - BCP Millennium Investment Bank	63
Part VIII. Annexes	66
Part IX. References	75

Part I. Literature Review

1. Introduction - “All roads lead to Rome”

The first myth of equity valuation (Damodaran 2002) is that valuation is objective, since models are quantitative. There are indeed a lot of quantitative models to value a company; they exist due to the importance in today's financial world of finding the 'value' of a company. *‘What is surprising, (...) is not the differences in valuation techniques across assets, but the degree of similarity in basic principles.’*^(Damodaran 2002). All valuation models are based on the underlying assumption that the value of a company needs to be backed up by something real, not just how others price it. Value is backed up by the cash flows that the company is expected to generate in the future; different models just get to these cash flows differently, depending on industry or capital structure or country. What makes valuations subjective are the inputs to the models, the assumptions the analyst makes regarding the future; because the future is uncertain. However, if the assumptions are consistent, the value obtained using different models should be quite similar if not the same; because “all roads lead to Rome” (Holt, W., Nokhasteh, A., Sullivan, P., Young, M. (1999))

Different paths

There are two main ways to get to the value of equity: the first is the direct one, valuing just the equity stake of the company. The second, the indirect, consists in valuing the whole company and later discount everything that is not equity (debt). There are also 3 main different valuation approaches that can be either direct or indirect:

1. Discounted Cash Flow
 - a. Free Cash Flow to the Firm
 - b. Free Cash Flow to the Equity

- c. Dividend Discount Model
 - a. Adjusted Present Value
 - b. Economic value added
 - c. Economic Profit
 - d. Cash Value Added
 - e. Dynamic ROE
2. Relative valuation
- a. EV/EBITDA
 - b. EV/Sales
 - c. P/E
 - d. P/BV
 - e. P/CF
 - f. P/Sales
3. Contingent Claim Valuation
- a. Option theory

This thesis has the objective of valuing a financial institution, Banco Português de Investimento (BPI) therefore, next will be discussed the possible valuation methods for financial institutions.

1.1. Note on Financial Institutions

There are four key particularities in financial institutions that make them a special regarding equity valuation. First Financial institutions operate under regulatory requirements that dictate how much capital they need to have and how to use it (how much can they grow). Second, accounting rules are quite particular, with most of the assets are mark-to market. Third, debt is difficult to define as it is used as a 'raw material' for the bank to produce loans. Enterprise value for a bank is practically meaningless as it is very difficult to distinguish between debt and raw materials. Also, the principal source of funding is deposits and interbank loans; both will have a very low interest rate that would make the Weighted Cost of Capital (WACC) unrealistically low. Forth, and lastly, is the definition of reinvestment. While a manufacturing

company invests in factories to increase production capacity, a financial institution invests in regulatory capital (increase capital to increase capacity to generate new loans). It will be argued further in this dissertation how a new definition of working capital needs to be made for financial institutions.

2. Valuation Models - Discount Cash flow

This is the group of models more used in practice, it fits perfectly the philosophical description of equity valuation: the value of the company is its expected cash flows it is expected to generate in the future, discounted to the present.

Because it is hard to accurately define debt for a bank, and the WACC would be undervalued, for financial institutions there is the need to use direct valuation methodologies: valuing equity rather than the assets. Damodaran (2009) defines the free cash flow to equity as:

$$\begin{aligned} \text{Free Cashflow to equity (FCFE)} \\ &= \text{Net income} - \text{Net Capital Expenditure} \\ &\quad - \text{Change in non cash Working Capital} - (\text{Debt repaid} \\ &\quad - \text{New debt issued}) \end{aligned} \tag{Equation 1}$$

Filling this equation is not a straightforward exercise when dealing with financial institutions. There is the need to redefine the reinvestment needs, both the capital expenditures (CAPEX) and working capital. In this regard the Damodaran (2009) presents three solutions:

Use dividends as cash flows, by assuming that the company over time pays their free cash flow to equity as dividends. Because they are observable, this approach adds the extra benefit of not facing the question of how much does a firm reinvest. The model is called Dividend Discount Model (DDM) and will

be discussed in the next section (Part I. 2.1.). The second solution is to assume all reinvestment is made in regulatory capital, since this is the one that enables banks to grow larger (make more loans). This is the Free Cash Flow to equity model (FCFE) and will be discussed in Part I. 2.2. In the last section, Part I 2.3. , the focus will be on excess returns, following the Residual Income Model.

2.1. Dividend Discount Models

Dividend Discount Model (DDM) is very simple in their background reasoning: the price of a stock should reflect all the future cash flows that the stock will generate. Those cash flows are the dividends. The analyst needs to assume that all the cash flows to equity investors are paid through dividends, this is not a very damaging assumption but in reality, companies have other instruments to remunerate investors, (like stock buybacks).

The basic model introduced by William (1938):

$$Value\ per\ Share = \sum_{t=1}^{t=\infty} \frac{DPS_t}{(1 + k_e)^t}$$

(Equation 2)

Where:

DPS_t is the dividend at time t

E(.) means the dividend is expected

k_e is the cost of equity

Because this model simplifies too much reality, making the dividend constant forever, Gordon (1962) upgraded it to allow dividends to grow in the future (at a constant rate).

$$Value\ per\ Share = \frac{DPS_1}{k_e - g}$$

(Equation 3)

Where:

g is the perpetual dividend growth rate

This model is more flexible, it can be modified to allow for an extraordinary growth period and only then apply the steady state dividend growth rate.

The DDM is a simple model needing only 3 inputs: Cost of equity (k_e), to discount the cash flow, (this input is also used in the FCFE approach and is obtained using the CAPM model discussed ahead). Payout ratio and expected dividend growth rate (g), they are connected according to the following equation:

$$g = (1 - \text{Payout Ratio}) * ROE_{\text{stable growth}}$$

(Equation 4)

The Return on Equity (ROE) is here critical for the valuation, together with the payout ratio will help determine growth, as two variables imply the third one. It is particularly important for banks as they are required by law to maintain certain capital ratios; the less they pay as dividends the more they can grow. In this sense the assumption on how much will be the steady state ROE is crucial³.

This valuation approach is widely used in financial institutions as their capital structure tends to be constant, (due to regulations), and the dividend yield tends to be fixed by the management. It is also very practical as no calculations need to be made to arrive at the cash flow value.

The main drawback of this method is that dividends may not be linked to value creation. Damodaran (2006) points that firms can holdback more earnings for future investments or the other way around; they can pay the dividend even when they are not able to do so, just for the sake of fulfilling its dividend policy, funding this dividend by issuing more debt or equity.

³ It will be discussed ahead in Part V. 2.4. – Terminal value

2.2. Free Cash-Flow to Equity

Banks do not invest like other firms, their reinvestments needs are not in plants nor in inventory, they invest in regulatory capital so they are allowed to grow their asset side according with the applicable law requirements. Thus we only need to change the Equation 1 to:⁴

$$\begin{aligned} \text{Free cash flow to equity}_{\text{Financial Industry Firm}} \\ = \text{Net Income} - \text{Reinvestment in Regulatory Capital} \end{aligned} \quad (\text{Equation 5})$$

To arrive at a good estimative for the Reinvestment in Regulatory Capital there are two important considerations. First is how conservative is the company? Does it desire to hold the imposed capital? Or in addition hold a buffer. Second is the profitability of the activity, as net profit has a direct impact on the company's equity.

2.3. Excess Return Model

Another way to value firms is to sum the capital currently invested and then add the present value of the excess returns, which the firm is expected to generate on its capital. Because a bank will be valued, instead of valuing the whole capital it is useful to value directly the equity following this equation:⁵

$$\begin{aligned} \text{Value of Equity} \\ = \text{Equity Capital Invested Currently} \\ + \text{Present value of expected Excess Returns to Equity Investors} \end{aligned} \quad (\text{Equation 6})$$

With this model the analyst will have not only to how the financial institution will invest in the future but also the returns it will make on those investments.

⁴ According with Damodaran (2009)

⁵ According with Damodaran (2009)

The model has two inputs: the equity already invested, and the expected excess returns to equity investors in the future. For the first the book value of equity can be used; bear in mind that this is only true for financial institutions, as the financial assets are marked up to market, (also the depreciation is negligible). The second is the Excess Equity Return, which can be obtained looking to the ROE and the cost of equity.⁶

Excess Equity Return

$$\begin{aligned} &= (\text{Return on Equity} - \text{Cost of Equity}) \\ &* (\text{Equity Capital Invested}) \end{aligned}$$

(Equation 7)

Note that the ROE needs to be forward looking for the model to make sense; a backward looking ROE will not reflect the future return on the equity.⁷

3. Valuation Models - Relative Valuation

In this kind of model, the company's value is "*based upon how similar assets are currently priced in the market*" Damodaran (2002). A multiple is a ratio of the stock price (Equity value multiple) or the Enterprise value (Firm value multiple) to some value driver (earnings, sales or book value are just three examples). Since in this dissertation a bank will be valued, an Equity value is more appropriate due to the debt-measurement problems that have been already discussed. Damodaran (2009) makes a particular focus on Price-earnings ratio (P/E) and Price to book value (P/BV), being the first dependent on expected growth rate in earnings, the payout ratio and the cost of equity. The second is mostly dependent on return on equity (ROE). Being ROE the most important value driver for financial institutions it is not a surprise that Fernandez (2013) said the P/BV is the most used multiple for banks. This is

⁶ According to Damodaran (2009)

⁷ This will be discussed ahead in section XXXXX

because a bank will only trade at a P/BV higher than one if it is expected to generate excess return in the future (Equation 7).

One of the biggest advantage of relative valuation is how easy it is to apply, Schreiner (2006) structures four stages: selection of the value driver, selection of the comparable group, building a synthetic multiple and finally applying the value driver of the company to the calculated synthetic multiple.

DCF valuation is the most used and trusted of all valuation techniques, however it has a very important pitfall, the valuation is based in subjective assumptions, “accurately estimating company’s cash-flows and choosing the appropriate discount rate are difficult” (Lie & Lie, 2002). Indeed relative valuation is much more straightforward as it does not rely on assumptions, which implies that valuation values should not differ a lot from different analysts. However it still has a subjective input into it, the choice of the peer (comparable) group. Adding the high number of multiples available to use, it is possible that multiple valuations can be easily manipulated; any analyst can get this way to any ‘desired’ value. Fernandez (2013) also points to the fact that multiples have broad dispersion, which implies that they provide a static valuation that is dependent of the market mood at the moment when the valuation is made; this can be seen as a relative value rather than the intrinsic value (which can be obtained using a DCF approach). In this regard Fernandez (2013) also points that multiples should be used as a “second stage of the valuation” so it enables the analyst to “gage the valuation performed and identify differences between the firm valued and the firms it is compared with”.

4. Valuation Models - Option Models

Assets that behave like options need to be priced in a different way than all the others. Option-like assets do not follow the basic rule that the value of the company equals the sum of its discounted cash flows. This is because their

value is dependent in other assets or dependent in the occurrence, or not, of a specific event in the future. Because banks do not behave like an option-like asset this topic will not be further discussed in this dissertation.

5. Cross-border valuation

BPI operates at the moment two in major markets, Portugal and Angola. Being Angola a developing country there are special considerations related to equity valuation that need to be addressed. It is clear that countries with different levels of development need different strategies and investment policies, and for the bank's valuation different underlying assumptions.

First there is a different currency and different tax rate, second the timing when to discount the cash flows: when they are earned or then they are sent back home. Third the calculation of the WACC, more risks need to be incorporated as political risk. Finally the macroeconomic scenario is different, different growth levels and different regulatory requirements that the bank will face (Kenneth A., and W. Carl Kester 1997).

In addition, for developing countries investors demand being rewarded by the extra risks that may arise due to macroeconomic volatility, political unrest, war or corruption. These risks are not considered in the CAPM, however there are two ways to add them to the valuation (Mimi James and Timothy M. Koller 2000): by incorporating them in the actual cash-flows (changing the numerator in the DCF calculation) or adding an extra risk premium to the discount rate (the denominator). The authors argue that the first option is the best since it enables analysts to diversify the risk, as it does not apply in the same way to all industries and most times not even to all companies within an industry. Also finance theory is clear, in the CAPM only non-diversifiable risk is considered (Sharpe (1964), Lintner (1965) and Black (1972)).

6. The Cost of Equity

The cost of equity is one of the most important inputs for most valuation models, (except relative valuation), so it is important to overview how it can be determined. The return on equity that the investor requires reflects the risk that cannot be diversified away, this is measured by a beta, using the Capital Asset Pricing Model (CAPM, Equation 9) or by a number of betas (multi factor model). Even though the CAPM cannot be tested (following Roll's critique that the market portfolio cannot be obtained) Fama & French (1996) argue that the existing evident is enough to infer that the CAPM provides bad approximations for beta. However, in the end of the day, practitioners use the CAPM, implying that all rely in its assumptions, and thus agreeing that it is valid.

Following 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", calculated using the following formula:

$$B_i = \frac{Cov(r_i, r_m)}{\sigma_m^2}$$

(Equation 8)

Where:

B_i is the beta of the asset i

$Cov(r_i, r_m)$ is the convaciance of the returns

σ_m^2 is the variance of the markets returns

CAPM:

$$k_i = r_f + B_i(r_m - r_f)$$

(Equation 9)

Where:

r_f is the risk-free rate

r_m is the expected market return

Damodaran (2002) argues there are 3 ways to estimate the Beta: Historical Betas (same approach as Fama French (2004) described above), estimated from Fundamental characteristic of the investment or use accounting betas.

To estimate Historical betas one need to regress the historical returns of the investment against a benchmark market portfolio and take the beta (Equation 8). There are however a multitude of ways to do that, first the choice of estimation period. Here one needs to evaluate the trade-off between quantity of data and noise; also the company in question may change its risk structure if the estimation period is too long. Second the return interval, which faces a similar problem as the estimation period. Third the choice of market index, this choice should not be only based on where the company is based, (choosing this way the national index), but where this company operates.

However, the cost of equity in a far too important input to discount cash flow models to used noisy and skewed estimations of betas. Damodaran argues that a better way to estimate betas is using firm fundamentals: the type of business they are in and their degree of leverage (operating and financial).

In the fundament approach business risk is separated from leverage risk by calculating first the Unleveraged Beta (also called Asset beta) that is determined by the kind of assets the company uses, and then the leveraged (or equity) beta that reflects both the Risk of the business and the firm-specific leverage risk; which will be the one eventually used for the CAPM model.

To get the unleveraged Beta first it the activity of the firm must be defined. If the company has more than one activity the beta will be the weighted, (by the importance of that segment to the company's value), averaged of the betas from each activity. To get the beta for each activity simply use the historical approach defined above for all the comparable companies in the industry. The final step for the beta then is to make a normal average, betas obtained this way are called 'Bottoms-up'. The error results in an average are far more precise than the individual errors; also this approach can be adapted for a

change is structure in the company's business mix, (by changing the weights on the final average).

Damodaran (2009) points that for financial institutions beta does not need to be adjusted for financial leverage. The average levered beta for comparable firms is used as a bottoms-up beta for the company to be valued.

7. Conclusions

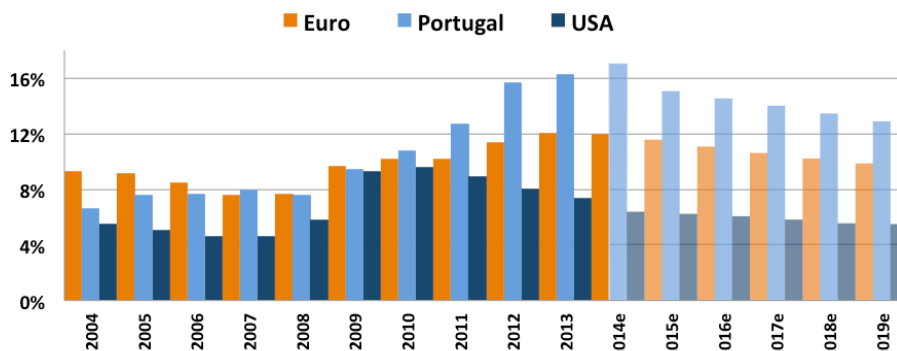
Financial institutions do not have one particular valuation method that fits them the best; normal methods just need to be molded to fit its requirements. Thus, for the valuation of BPI four methods will be used: FCFE, DDM, relative valuation and Excess Return. The final value will be chosen after analyzing how the models allow the assumptions about the future to be incorporated in the valuation.

Part II. Banking industry

1. Banking industry outlook

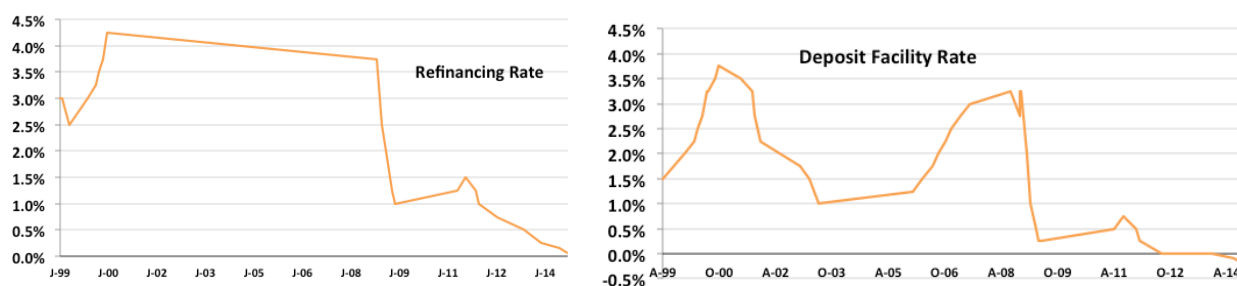
The global economy is just now showing signs of strengthening with advanced economies growing slowly still. In 2013 global output grew 3%, advanced economies 1,3%, while the Eurozone has contracted 0,5% (WEO IMF estimates). The growth in developing economies was hurt by the low demand from developed ones. This is expected to change in 2014 with the US in the center of the trend, as its private demand continues to grow driven by the recovery of the labor market (Graph 1).

Graph 1. Unemployment rates (IMF)



Only politics are still causing some degree of uncertainty, mainly due to the US as the debate over the shift in the financial policy by the Federal Reserve is intensifying. It is expected to generate volatility in the long rates, as the reduction of liquidity not only affects the US (which saw its 10-y treasuries yields increase from 1.758% to 3.029% in 2013) but also the rest of the world. Primarily the emerging markets but also Europe, even if in a lower extent as the ECB is keen on letting the markets know its principal refinancing rate and the deposit-placing facility rate will stay at historically lows.

Graph 2. ECB interest rates (EBC data)



By doing this, the ECB is trying to boost confidence levels, private demand, investment and ultimately inflation to normal values⁸.

A deleveraging effort of the peripheral countries, which has been caused by the financial crisis, is still underway, as does a risk aversion environment that blocks the banks from financing the private sector, and the private sector itself to invest. Southern countries are still struggling; their domestic demand is still depressed, with unemployment still to peak in 2014 (Graph 1).

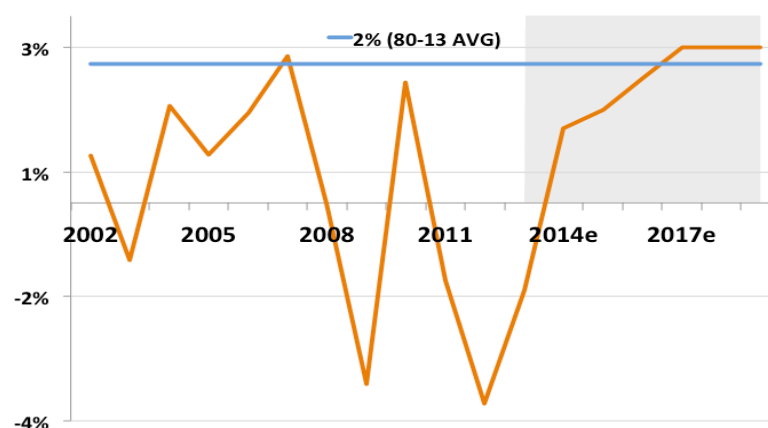
However signs of recovery can be noted, particularly in central countries, where a “change in mood” (IMF WEO of October 2013) can be noted as the private sector starts to increase demand.

1.1. Portugal Case

Portuguese discipline in implementing the measures agreed with Troika (IMF/ECB/EC) was the main constrain for the national economy. These measures were agreed back in 2011, following the 78B€ economic and financial assistance plan. All the austerity measures kept internal demand low, due to cuts in public spending and tax increases, joined with poor external demand, particularly by European countries (70% of the export markets), resulted in a contraction of GDP, (Graph 3.), and a degradation of the labor market, with unemployment still expected to peak at 17.7%^{1IMF} in the end of 2014 (Graph 1).

⁸ Close to, but not reaching 2%

Graph 3. Portuguese GDP evolution (IMF)



As a consequence, significant progress was made in stabilizing the budget, having for the first time a positive structural balance in several decades (note that in 2010 the deficit reached 6% of the GDP). This, aligned with looser financial credit restraints in the European market, (Graph 2.), made Portugal look less risky to the markets, and thus the Portuguese banking sector. Indeed, the Portuguese government and two⁹ domestic banks already used the international wholesale debt market for financing.

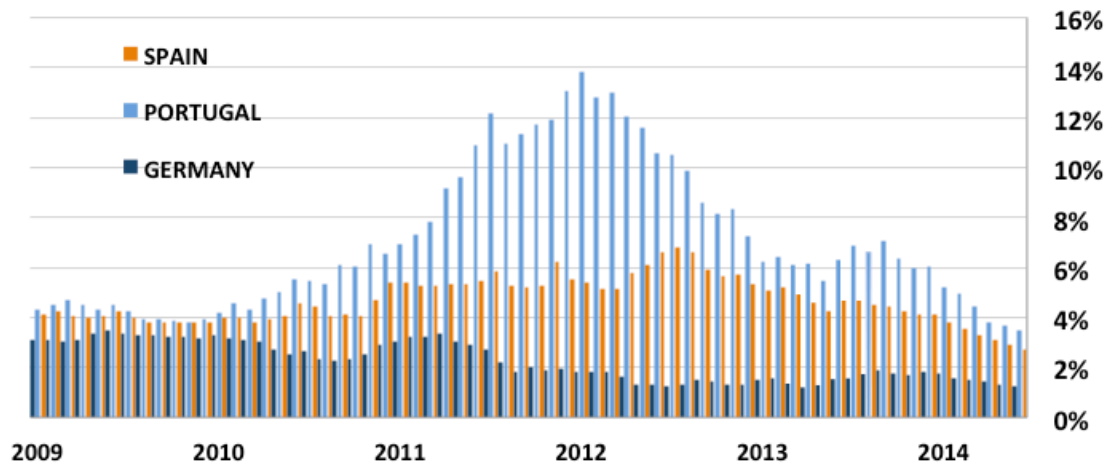
The Portuguese budgetary consolidation, aligned with the new ECB function of supervising European banks, gave a very positive signal to the markets, making Portuguese debt attractive to investors, which made 10-year yields fell below 4% (Graph 4.), the lowest since August 2010, in March 2014; closing this way the high spreads Portugal was paying over Germany.

Expectations are for the yields to continue to decrease, in a moment when the hunt for high yields is increasing due to ECB's negative interest rate policy.

This conditions enabled Portugal a 'clean exit' from its three-year rescue program; emulating this way Ireland. The Government debt evolution is very important for the Portuguese banks as they have a high exposure to it, which was fuelled by the ECB's decision to allow them to be used as collateral for refinancing purposes.

⁹ Caixa Geral de Depositos (CGD) and Banco Espirito Santo (BES) in the beginning of 2014

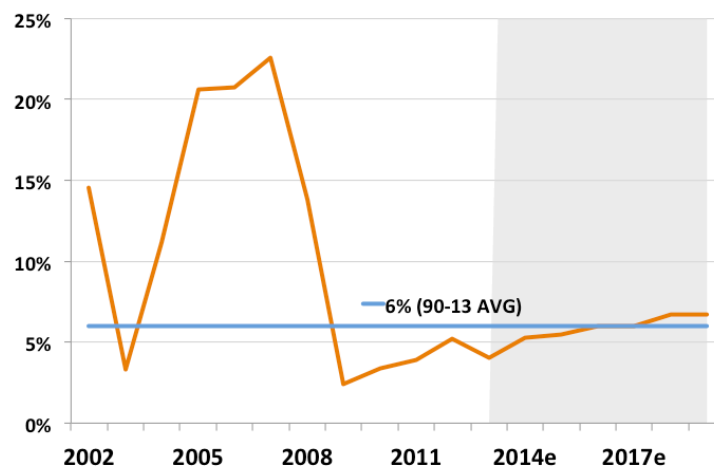
Graph 4. European 10y Government debt yields



1.2. International activity - Angola

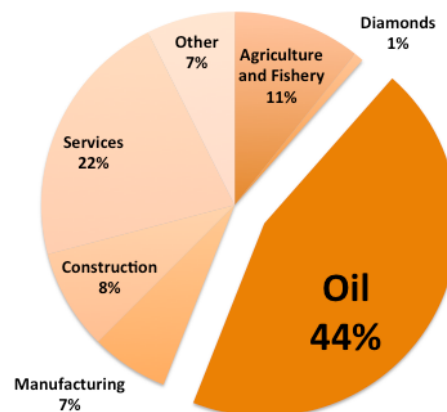
Angola enjoyed a period of very high economic growth after the civil war ended in 2002, with Real GDP growth levels above 20% between 2005 and 2007. This economic evolution ended in 2008 (Graph 5) when the global financial crisis made oil prices fall abruptly.

Graph 5. Angola GDP evolution (IMF)



Angolan economy is highly exposed to oil prices, indeed, 45% of the GDP comes from oil (down from 47% the year before), being it also responsible for 95% of the exports and 75% of the public income¹⁰.

Graph 6. Composition of Angola GDP¹⁰



There is however at the moment an effort to reduce this dependence, with government investments in the services sector. Indeed Angola dependence in the oil sector is quite worrying; the country has a stable oil production regarding volumes, making the country's GDP very correlated with oil prices. Still the IMF expects an average real GDP growth of 5,9% for this economy in the next years, which is the average growth since 1990 (Graph 6).

Regarding the Financial sector

Angola still has a low banking services penetration, around 23% in the beginning of 2013¹¹; indication that there is a lot of potential to grow. The structure of the sector is quite concentrated; the biggest 5 banks detain 78% of total assets, which may explain why the number of banks has remained unchanged in the last years. This highly competitive environment leads to banks to grow in size, indeed, the number of branches has been increasing year after year, so does the use of ATMs and electronic cards and Internet banking.

¹⁰ BPI report on Angola's Economy, December 2013

¹¹ Contrasting with an average penetration rate of 90% for developed countries

BPI operates in Angola through BFA, it is focused in customer deposits gathering, where 98% of the funding comes from (also 22% of all the BPI group customer resources). The loan portfolio however is quite shy, representing only 4% of the group's gross loan portfolio. The bank's transformation ratio is around 20% not only well below the Portuguese counterpart but also well below the Angolan average of 62,7% in the end of 2012.

Looking forward it is expected that loans continue to grow and thus the transformation ratios. The Banco Nacional de Angola, has been providing liquidity to the market by reducing the cost of lending and at the same time reducing the liquidity absorption interest rate, this is to motivate banks to lend to the private sector.

2. Regulations in Portugal and Europe

2.1. Basel III - Financial Crisis aftermath

The 2008 financial crisis exposed how insufficient banking regulation was at that point, both at European and global level. The excessive growth in credit, before the downturn in the markets, caused such a large quantity of losses that overwhelmed the capital financial institutions had reserved, following Basel I and II accords. The problem was not only base capital quantity, but also capital quality (availability, liquidity management and corporate governance also played their role). Governments had to rescue failing financial institutions in order to restore the financial sector (and thus the whole economy) stability and confidence. In this regard, the Basel Committee on Banking Supervision (BCBS) issued in December 2010 detailed new rules on capital and liquidity requirements (Basel III).

Table 1. Key Basel II and III rules

Ratio	BASEL II	BASEL III
Tier 1 Ratio	4%	6%
Tier 1 Common Ratio	2%	4,50%
Total Capital Ratio	8%	8%
Leverage Ratio	3% (US)	3% (ALL)
Conservation Buffer	-	2,50%
Countercyclical Buffer	-	2,50%
Liquidity Coverage Ratio	-	Liquid assets to cover outflows for 30 days
Net Stable Funding Ratio	-	> than what is required over 1y of extended stress

Because Basel III are only standards, the EU implements it to all European banks through a Regulation, Capital Requirements Regulation (CRR) and a Directive, Capital Requirement Directive, (CRD-IV).

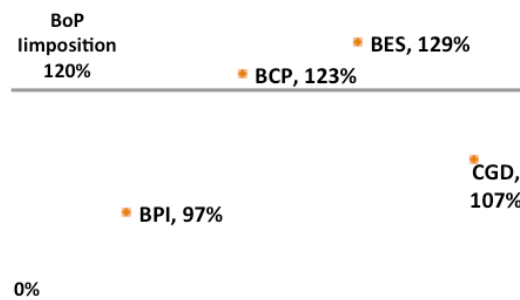
This regulatory framework will put banks in a stronger position to absorb abnormally high market shocks by demanding better and more capital, more focused this time in common equity. Even though total capital required will still be 8% (10,5% after 2019 adding a conservation Buffer of 2,5%) of risk weighted assets (as in Basel II), the amount that has to be of the highest quality, common equity tier 1, CET1 increases 2,5 percentage points to 4,5%. A leverage backstop to prevent the accumulation of credit, a counter party credit risk, capital buffers and a more intense liquidity management are also required. The application of these new legislations started in 1 January 2013 and is schedule to be fully implemented on 1 January 2019.

2.2. Transformation Ratios

A further imposition by the BoP was that until 2014 all the Portuguese banks must have a Loan-to-Deposit (LtD) ratio of no more than 120% to ensure liquidity in the market, which lead banks to a deleveraging of their portfolios. They could accomplish this by attracting deposits; however they were limited by a maximum remuneration rate imposed in 2011 by the BoP. This way corporate credit was the segment that was hurt the most as banks have limited power to reduce mortgage loans. Indeed BPI managed to sustain customer resources while reducing corporate credit from 8.7B€ in 2009 to

5.3B€ in 2012, achieving this way a LtD ratio of 101% in June 2013 (less than 100% now, Graph 7). Only other Portuguese banks have already reduced their LtD ratio below the maximum threshold of 120%, CGD (with a LtD ratio of 107.5% in 2012).

Graph 7. Transformation ratios in Portugal



This means that BPI has little dependence in the debt market; so BPI has the incentive to take a more aggressive position in credit granting as soon as the economy shows signs of strengthening. Aligning this with rising credit spreads, BPI has here a unique opportunity to increase its profitability.

2.3. Contingent Convertibles - The CoCo's

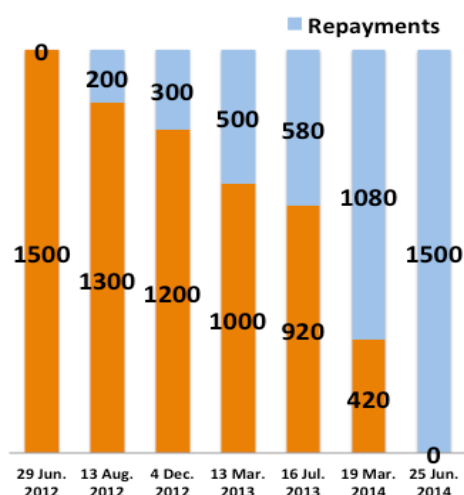
After 30 June 2012 the European Banking Authority (EBA) required a minimum common capital ratio (CET1) of 9% after a stress test to Portuguese banks. This recommendation also included a capital buffer for exposure to sovereign debt calculated at 30th September 2011 market prices. BPI's exposure to southern Europe sovereign debt, particularly Greek and Portuguese, was the main reason for a capital shortfall that made the financial institution carry out a recapitalization plan. That buffer is currently outdated, because both Portuguese yields have improved and the exposure to Greek debt exposure was eliminated. Still the bank had to hold the buffer until EBA's reevaluation (expected at the end of 2014). If this buffer was updated as of

24th January 2014 prices, the value would decrease 877M€³ (BPI press release 30Jan 2014 OPORTO).

The capital shortfall that amounted up to 1,359B€ could not be dealt using only private solutions due to the lack of confidence prevailing in the markets at the time. Thus BPI was forced to reach to the 12B€ recapitalization facility that Troika (ECB, IMF and EC) made available to the Portuguese banks, within the scope of the adjustment program, negotiated with the Portuguese government. BPI raised 200M€ in a capital issue and 1,5B€ issuing convertible bonds (CoCo's), which were subscribed by the government. They cost the bank dearly, having an effective interest rate of 8.75% (increasing every year). This rate is expensive when compared with 7.125% that the Portuguese bank BES could get in the wholesale debt market in the beginning of 2014.

BPI managed to payback all the CoCos' in the first half of 2014, well before the deadline. The ability for BPI to repay the CoCo's before the expected date was very important, it wont penalize the future growth of Net Interest Income. Just in 2013 alone CoCo's had a 85M€ negative impact in the Net Profit.

Graph 8. CoCo's Reimbursement



2.4. Further stress tests

This year banks will face new Asset Quality Review by the ECB, these reviews are expected to be particularly challenging because the ECB will assume supervisor responsibilities as of November 2014. ECB's new responsibilities may make the tests over demanding, since the Central bank is keen in minimize future problems by reducing the risks in the banks balance sheets.

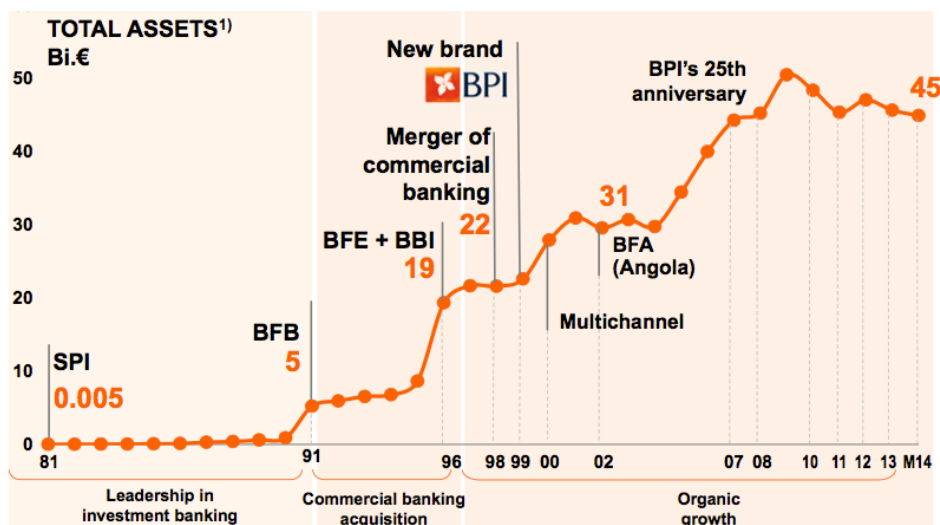
In the Portuguese case the Bank of Portugal and Troika (EC, IMF and ECB) have already made several inspections, at least to the Portuguese bank's loan book, which makes future need for loans provisions less likely.

Part III. Banco Português de Investimento

1. Banco Português de Investimento

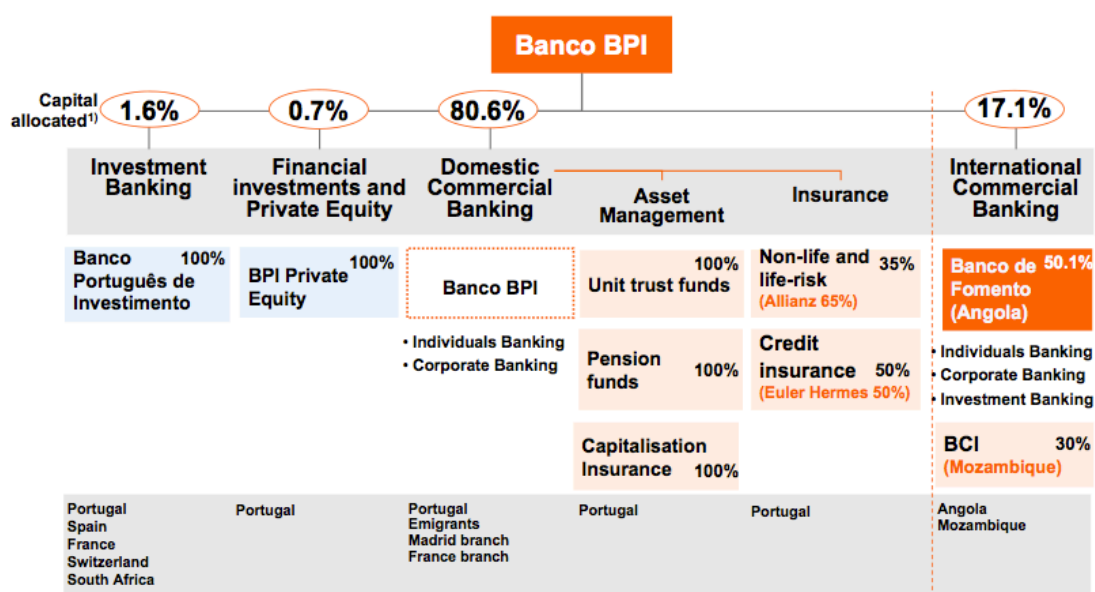
Banco Português de Investimento (BPI) is a financial multi-specialist group based in Porto, Portugal. It was conceived in 1981 under the name “Sociedade Portuguesa de Investimentos”, having at this stage the specific purpose of participating in the creation of a dynamic capital market, with the final objective of financing private-sector investment projects. Only 4 years later it was renamed “Banco Português de Investimento” (BPI) and transformed into a commercial and investment bank. It now has around 2.9 billion costumers (1.7B and 1.2B in Portugal and Angola respectively), offering a wide range of financial services in Portugal and internationally, in Angola and Mozambique. It is the 3th largest financial institution in Portugal, quoted in Lisbon-Euronext stock market with a market cap of 2.3B€^{1 MAY 2014} and weighting 2,03% in PSI-20 (the Portuguese stock index). BPI’s Assets as of June 2014 were 45Bi€, this was made possible by a number o acquisitions, organic growth and expansion to multinational markets (graph 9).

Graph 9. BPI’s historical evolution (company presentation)



Domestic activities are the core business of BPI with 82,9% of the capital allocated to it, being 80,6% for commercial banking and only the remaining 2,3% for financial investments. Internationally BPI holds a leadership position in Angola through Banco de Fomento (BFA) (50,1% owned) with market shares of 10.9% in loans and 16.2% in deposits. In Mozambique BPI focus on retail banking operating through Banco Comercial e de Investimentos (BCI) (30% owned), with market shares of 28.6% for deposits and 29.1% for loans.

Graph 10. BPI's business and financial profile:



2. Activity Indicators

2.1. Funding

Since April 2010 and until very recently, the wholesale debt market was closed to Portuguese banks, as the successive credit downgrades to Portuguese sovereign debt dragged down Portuguese bank's credit ratings as well (Graph 11).

Table 2. BPI's credit ratings

2007		Agency	2014	
Portuguese Republic	BPI		Portuguese Republic	BPI
Aa2	A1	Moody's	Ba2	Ba3
Aa2	A+	Fitch	BB+	BB+
AA-	A	S&P	BB+	BB-

In this scenario the ECB stepped in with the function of lender of last resort, in which Portuguese banks relied heavily, reaching a peak of 60.5B€ in June 2012. BPI is the Portuguese bank that is relying the less in ECB's funding; both in relative and absolute terms using 4.1B€ or 7,9% of the total 51,8B€. The bank has as well very little medium and long-term debt refinancing needs, as all the debt until 2017 is covered by the remaining available ECB collateral. These low refinancing needs were made possible though a deleveraging strategy, while maintaining stable customer resources.

After this period, is it expected that BPI will be in a strong position to access the debt markets. First, the hybrid bonds have already been paid back to the government. Second the yields in Portuguese debt are falling, and are expected to continue. Third, already two Portuguese banks have successfully issued debt to the markets in 4Q13.

Additionally, one interesting note to take from Table 2 is that one of the three agencies already classifies BPI debt as risky as the Portuguese one, which just reflects the solid financial situation of the bank.

2.2. Customer deposits

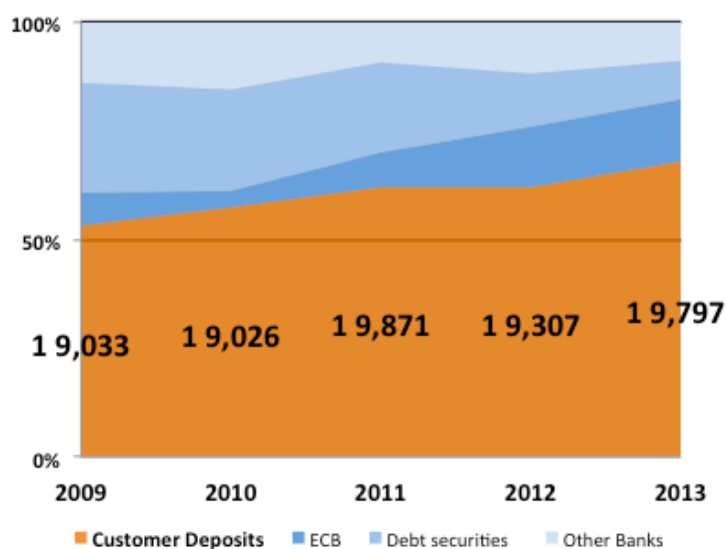
More than half of BPI's funding came from deposits (graph 11); they have increased significantly since 1Q10 from 17,5B€ to close to 19,5B€ in 1Q12, year when they suffered a decrease to 18,5B€. The attraction of new deposits was of key importance as other funding solutions, rather than the ECB, were limited due to adverse macroeconomic conditions. However during the last year deposits have recovered some of their losses; households deposits grew

1,1% and non-financial companies 2%¹². This increase is noteworthy because rates on deposits have been decreasing since 2011 after the penalty on capital that the BoP imposed to new deposits with rates above 2,54% until 3M, 2,89% until 6M and 3,56% for 12M and more. This implies that something other than returns is behind the increase in deposits. The households higher saving rates may reflect precautionary motives and a change in consumer pattern¹².

The mutual fund industry may also have something to say in the evolution of deposits, as trust in financial markets was at historical lows (getting better now), a risk averse environment is predominant and a run away to more conservative capital allocation solutions has been the rule.

Looking forward, as these non-recurring situations fade away, bank deposits may become uncompetitive when compared to other asset class particularly Portuguese government debt.

Graph 11. BPI's Resources (M€)

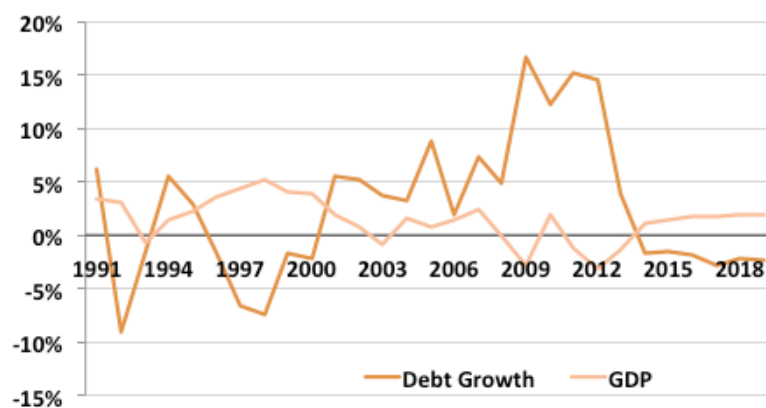


¹² Half year 2013 BPI report

2.3. Asset-Quality and Loan portfolio

After entering in the Eurozone, Portugal benefited from historical low interest rates and thus an easy access to the credit market. Households, corporate and even the government overused the loose financial conditions, making credit growth way superior to GDP growth, which is simply unbearable in the long term. Indeed after the 2008 financial crisis credit growth declined sharply being now negative.

Graph 12. Portuguese Government Credit¹³ Vs GDP



In 2012, indebtedness as a percentage of the GDP was 124,1% (almost double of the European average) for the government and 223% for the private sector (the European average is 156,6%).

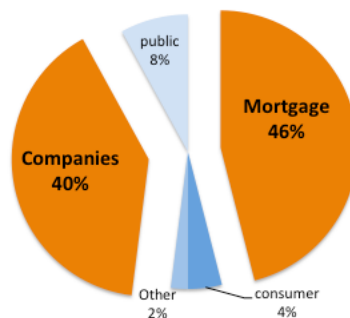
In the years after the financial crisis, the deterioration of the macroeconomic environment caused a sharp reduction in the available income, this lead to the increase of Non-performing Loans in the banking sector. Not every sector was affected the same way, being the most affected consumer loans as they depend mostly in unemployment and disposable income. The least affected segment was mortgages; they depend more in housing prices, future income and interest rates, which have been at historical lows. The corporate sector is in a middle term, they are not as dependent in the economy as the consumer

¹³ Measured as a percentage of GDP. Units are growth rates. IMF WEO 2014 data.

segment, still they have been suffering from companies' decreasing profitability that may prevent them to make the loan repayments.

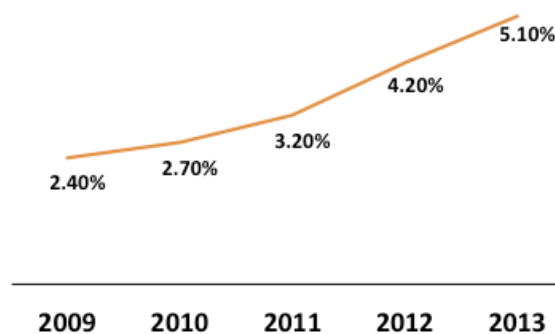
BPI's credit portfolio, which is mainly domestic (96%), is 46% mortgages and 40% corporate debt, with only 10% consumption.

Graph 13. BPI's domestic credit portfolio breakdown



This portfolio structure helped BPI maintaining a low Non-Performing Loan Ratio (NPL) of 5% (in 2013) compared with Ratios above 10% for the other two large financial institutions in Portugal (BES and BCP).

Graph 14. BPI's Non-performing loans (% loan portfolio)

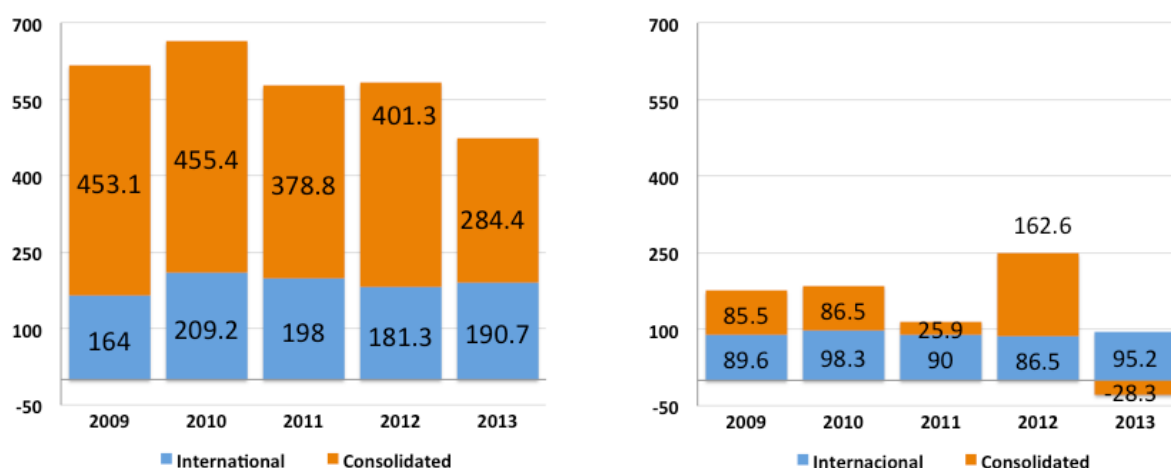


Looking ahead it is expected that the Asset quality will stop decreasing however not instantly. Even though its expected that the 2014 Portuguese GDP evolution to be positive, there is normally a lag of 3 quarters until for the positive macroeconomic signals to have an effect in the credit portfolio, thus it is expected that the negative trend will end in the last quarter of 2014.

2.4. Profitability and Performance

Profitability in all Portuguese Financial institutions has been challenged by the poor macroeconomic environment, more noticeably by the decrease in Net Interest Income (NII). It came under stress due to the deleveraging impositions made by the BoP and the increase in credit provisions and impairments; caused by the deterioration of asset quality. BPI has, however, been the most resilient to the adverse environment of all the Portuguese banks, due to the mortgage-based structure of the credit portfolio and the good performance of its international operations.

Graph 14. BPI's Net Interest Income and Net Profit (M€)



BPI's Group Net Profit in 2013 was 66.8M€, 182,3M€ less than in 2012.

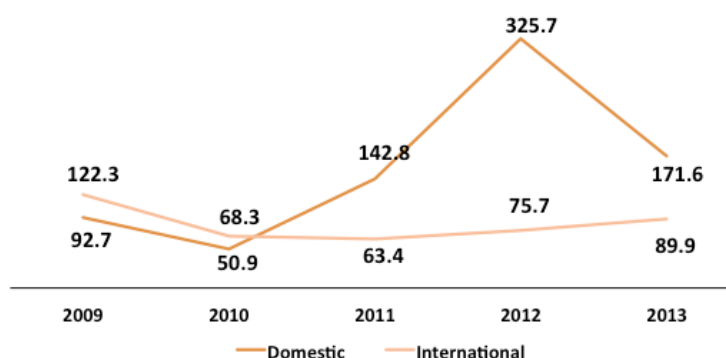
Domestically, in 2013, the contribution to the consolidated net income was negative, which can be explained first by the decrease in the NII and secondly by a decrease in profit from financial operations.

As for the NII, the biggest challenge was the higher CoCo's cost that amounted to 85M€ in 2013 (from 56M€ in 2012). Also the increasing costs to attract customer resources combined with a low Euribor (as most loans rates are defined as a spread over it) created a contraction in the average margin on sight deposits. Finally the sale of a portfolio of Portuguese Bonds with high yield that generated in 2012 76M€ in interest income and only 2M€ in 2013.

Net Commissions decreased by 9% due to the reduction of corporate bonds issues. Since the financial crisis this source of income has been below the *normal* as a risk-averse environment prevails and customers prefer on-balance sheet assets rather than off-balance sheet, which also makes commissions related to credit to consumption lower (like credit cards).

Results from financial operations are the most volatile, depending on the composition of the financial assets portfolio, which in BPI's case is 82% composed of Southern European countries debt, and how their price varies in the market.

Graph 15. BPI's Gains or Losses from financial operations (M€)



The 171,6M€ in income generated in 2013 is mostly due to the liquidation of Treasury bonds acquired in 2012.

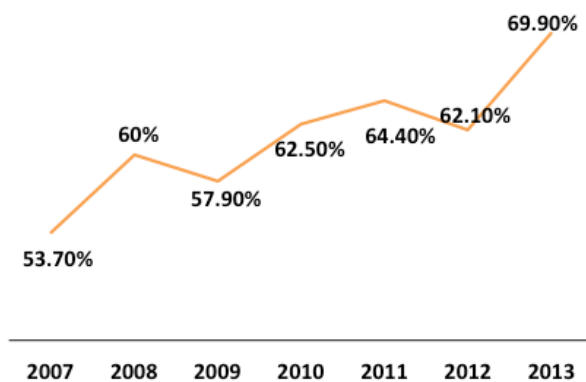
Looking ahead it is foreseeable that BPI's profitability will improve. First credit spreads have already started to improve, as banks will stop competing to attract customers and loans are being repriced; this adjustment will take more time to BPI as its credit portfolio structure is more long-term (mortgages). It is also important to notice that BPI's LtD ratio is below 100% (well below the imposed 120%) so the bank has some slack to increase its loan portfolio as soon as credit spreads start to pick up. Non Performing Loans (NPL) are still to peak as employment rate is expected to grow still this year (Graph 1), but will start to recover after that. As for commissions, a positive evolution is expected as the macroeconomic environment is showing signs of recovery,

the high-risk-averse environment is fading away and new products are being placed in the market. The trading income is mostly dependent in the evolution of the south European debt yields, which even though they are also expected to have a positive evolution BPI has decided to follow a conservative approach and reduce to half its position.

2.5. Operating costs

BPI has an efficiency ratio¹⁴ quite high compared with other important Portuguese banks.

Graph 16. BPI's Efficiency Ratio¹⁴



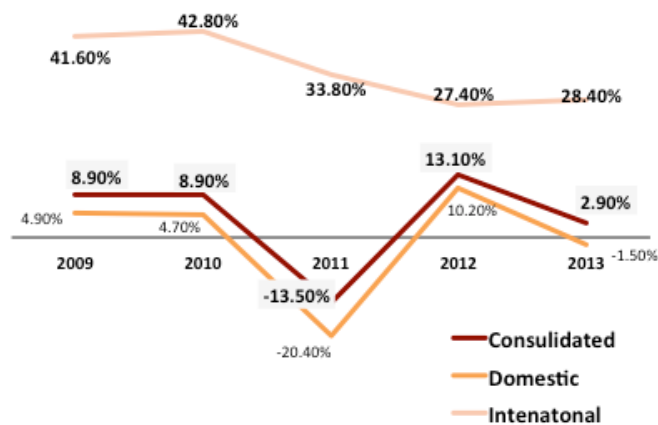
This implies that BPI still has space for improvement. Indeed, included in BPI's recapitalization plan there are a group of measures aimed at reducing the bank's operating costs. The most significant ones due to its weight on the P&L of the bank are: reducing the number of employees to 6000 by 2015, (a 363 reduction) and closing 21 branches by 2014.

¹⁴ Calculated as: Operating Costs/ Net Operating revenue, excluding non-recurring impacts

2.6. Return on Equity

After the financial crash in 2008 all major banks have seen their profitability plunge. This is quite clear when looking to BPI's ROE, with a value of 24,7% in 2007 and only 2,9% in 2013. This was mainly due to the big decrease in net income (around 58%) in 2008 that hasn't pick up yet. It is however interesting to look at only international figures, where the ROE has been significantly higher during the whole period (2007-2013). Looking forward, as the net income is expected to rise, the ROE will improve even if not to the 2007 levels.

Graph 17. BPI's ROE



Part IV. Valuation

1. Introduction

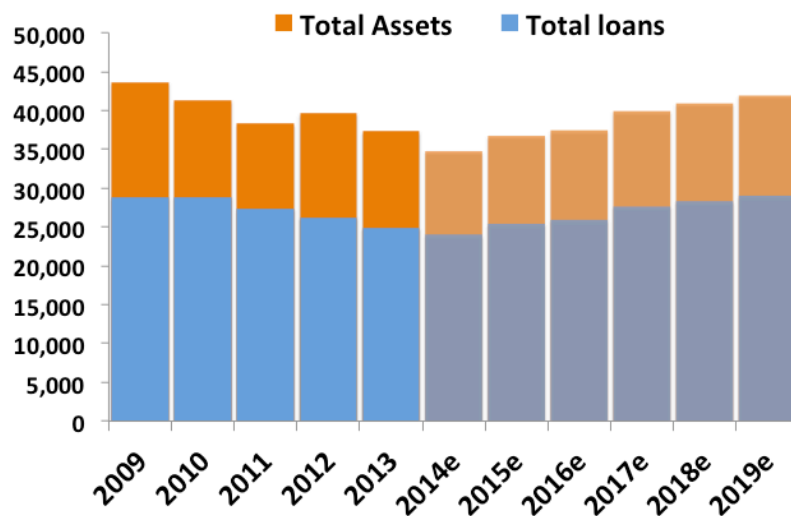
I will first expose the reasoning behind the key drivers of the balance sheet and the P&L for the bank. Once a clear understanding of how the bank's balance sheet and P&L will look like in the future I will breakdown the most important inputs used for the different models. Finally I am going to compare the results I obtained using different models and arrive at the value of BPI's equity.

2. Loans, Deposits and NII

2.1. Loan volumes

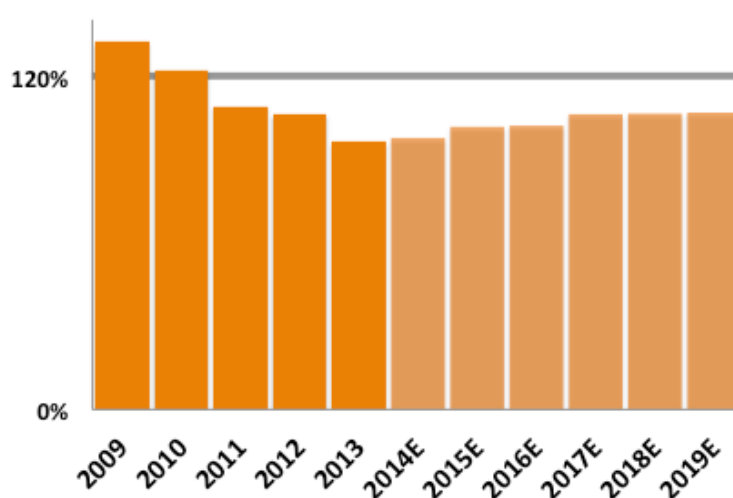
Loans to customers are the most important component of BPI's Asset base, (between 60 and 70%, Graph 18.), it is important thus, to understand why Loans have been decreasing since 2010 and why 2014 will be the turning point.

Graph 18. BPI's total assets and total Loans



As in Part II, the Portuguese financial system went through a deleveraging effort, as the Bank of Portugal imposed new rules regarding Loan-to-deposit ratios. Since resources were difficult to obtain, due to the lack of liquidity in the markets following the financial crisis, BPI (and all the other financial institutions in Portugal) needed to reduce its Loan portfolio. BPI started with a Loan-to-deposit ratio of 136% (calculated in accordance with Bank of Portugal Instruction 23/2011), Graph 19, and reached a ratio of 92% in January 2014.

Graph 19. BPI's LtD ratio



This was possible because BPI was able to maintain the customer base; which was a difficult exercise, as deposits were in short of supply for all the demand in the banking sector. Indeed competition over interest rates on deposits was so fierce that the BoP imposed a ceiling (penalization over a certain rate). Another factor that helped the bank reach this ratio was the significant decrease in financing to the public sector that between 2012 and 2013 decreased 27%, while to non-financial companies only decreased 6,6% (-8,4% to customer loans).

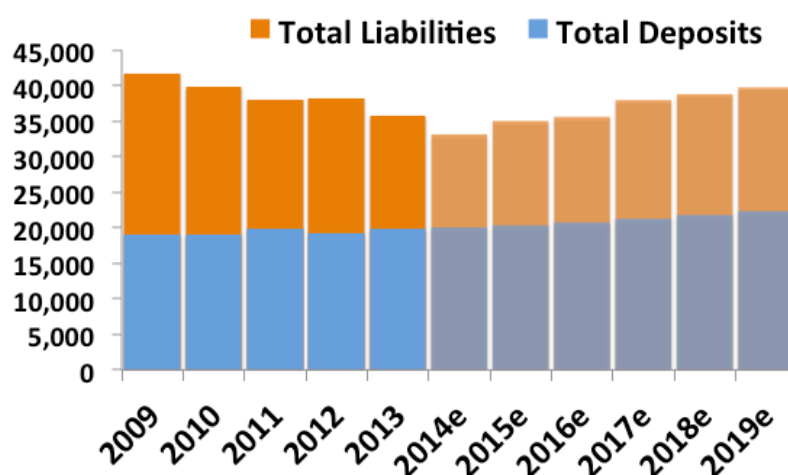
However volumes are expected to pick up after 2014, supported by the recovery of the Portuguese economy (mostly backed by exports). BPI is in an exceptional position to benefit from this shift in economic environment, as it has LtD ratios well below the 120% imposed, being this way in a position to expand when desired.

Thus, loans are expected to increase with the bank's new appetite, supported by a new credit mix and the improvement (see 2.3 - NII below) in the Portuguese GDP.

2.2. Deposit volumes

Since 2009 following the financial crisis, and most significantly the South-European sovereign crisis, resources were very difficult (and pricy) to obtain as the financial markets closed up for the Portuguese government and thus to Portuguese banks. To face this imposed restriction financial institutions in Portugal turned to customer deposits at a time when the national GDP was contracting savings were not easily available, which created such a rate war between banks, in order to attract the few savings available, that the bank of Portugal needed to intervene, imposing restrictions on deposit yields. So in order to maintain deposits BPI sacrificed profitability increasing its deposits Yields.

Graph 19. BPI's Liabilities and total deposits



I believed that 2014 is also the turning point for deposits, as in May the Portuguese government announced the exit from the EU-IMF program, the markets have returned the confidence to the Portuguese banking system. This

enabled not only the government (that is already borrowing at rates below 4% but also Portuguese¹⁵ banks to access the financial markets.

There are thus two forces moving customer deposits now: first the lesser need from banks to attract them (and thus a foreseeable reduction in yields) and the availability of more attractive ways to invest savings (also a shift in risk appetite), as other asset classes will become more attractive (government debt being on the top of the list). For deposits I expect an increase following GDP as more disposable income became available.

2.3. Net interest income - the NII

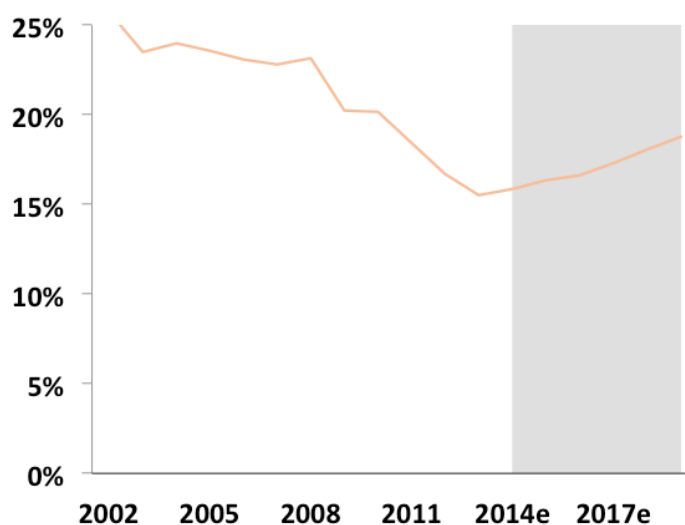
Net interest income has been under pressure in the last years for the whole market of commercial banking in Europe; BPI was no exception. For BPI volume wise, credits have been falling while deposits have remained constant. In past years, deposit yields have come up while credit spreads have already reached a maximum over the historically low EURIBOR that is why the need for a more aggressive credit strategy is required.

On the cost side the high cost with the CoCo's has alone penalized 167,7M€ since 2012; that is one of the reasons why BPI was so keen on paying back the government as fast as possible.

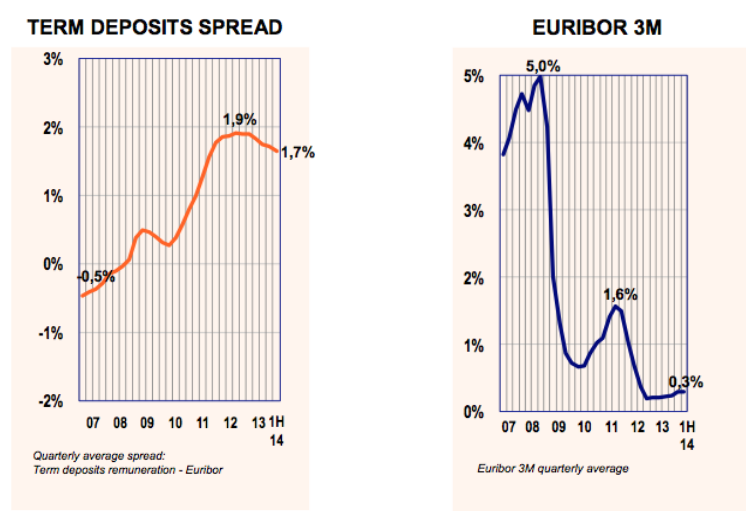
Looking forward, a NII recovery is expected: first the CoCo's have been fully reimbursed; second the Portuguese economy is picking up again showing positive growth still in 2014. Third, and most importantly, a new credit structure is expected (more corporate). BPI's focused on mortgage loans have made the bank more resilient to the macroeconomic downturn, it has also made the recovery longer as this kind of credit takes more time in the re-pricing process. A shift to a more corporate structure may come naturally, not only as a result of a change in policy as the new number of mortgages is lower than the amount being paid. The demand for loans by the corporate sector will surpass the demand by individuals as the risk mentality shifts and the economy is able to absolve higher investment levels (Graph 20).

¹⁵ Indeed, two have already issued debt in 2014, CGD and BES

Graph 20. Total Investment in Portugal¹⁶



Graph 21. BPI's term deposit spread and 3M Euribor Rate¹⁷



According to DG ECFIN's ¹⁸ estimates, the saving rates (for households), which was 12.6% in 2013, will be 11.6% for 2014 and 12% for 2015, while investment (Gross fixed capital formation) was -6.6% in 2013 with estimates of 3.3% and 3.8% for 2014 and 2015 (Graph 20). From Graph 21 a shift can

¹⁶ Total gross capital formation as a percentage of national GDP

¹⁷ Both graph taken from BPI 2013 Report

¹⁸ Directorate General for Economic and Financial Affairs

be seen both in deposit spreads and in the Euribor¹⁹; while the former rates started to decrease the former start to increase.

In Table 3 (below) I display my expectations for both credit and loan yields as well as the calculated NII for Domestic activities.

Table 3. NII calculations for Domestic activities

Domestic	2014e	2015e	2016e	2017e	2018e	2019e
Loan yield	2,60%	2,70%	2,80%	2,90%	3,00%	3,00%
Deposit Yield	1,70%	1,60%	1,60%	1,50%	1,50%	1,40%
NII (M€)	284,48	360,94	394,08	482,60	522,99	558,40

2.4. International Activities

International activities, particularly in Angola, have been supporting BPI's earnings, with a net profit of 95,5M€ against a net loss of 28,3M€ for Portugal in 2013. Customer resources have increases systematically as banking penetration in Angola becomes widely spread. BPI's international activity have LtD ratios in the order of 20%, which is less than one third of the average in Angola.

Looking forward I expect this ratio to increase. In Angola the government is making efforts to make the economy less reliant on the oil sector by making big investments, trying to boost the rest of the economy. A higher demand for loans is thus expected.

Table 4. NII calculations for International activities

International	2014e	2015e	2016e	2017e	2018e	2019e
Loan yield	10,40%	9,94%	9,94%	9,94%	9,94%	9,94%
Deposit Yield	1,50%	1,50%	1,50%	1,50%	1,50%	1,50%
Financial Assets Yield (average)	7%	7%	8%	8%	8%	8%
NII (M€)	228,37	223,17	255,75	276,16	299,73	332,43

¹⁹ The 3M Euribor is the main reference rate for Loans in Europe

3. Financial operations and Commissions

3.1. Commissions

This is a very significant source of income for BPI's activities, particularly domestic ones (around 30% of Net operating income). The most significant component is Banking Services followed by Insurance Brokerage (73% and 12,5% respectively in 2013). Commission income does not present a lot of volatility neither in domestic nor international activities. Because the main component is Banking Services, that include such services as bond placements and banking brokerage, it is expected that this income will growth with the economy, as the corporate sector gets ready to grow again, associated financial services should grow comparably. The table below shows expected commissions for both domestic and international activities, growing with GDP after 2014.

Table 5. Commission Income calculations (M€)

Group	2014	2015	2016	2017	2018	2019
Domestic	259,58	263,47	268,74	275,46	282,35	289,40
International	48,14	48,14	48,14	48,14	48,14	48,14
Consolidated	307,72	311,61	316,88	323,60	330,49	337,55

3.2. Income from financial Assets

This source of income is very different between Domestic and International activities. In Portugal it is very volatile; in the last years this can be explained not only by the big exposure to south-European government debt, but also by the extensive use of derivatives (to protect the bank against interest rates movements). Indeed in the first half of 2014 a loss of 102 M€ after taxes was register due to the sale, in April, of half the position on long-term Portuguese and Italian debt (850M€ and 487,5M€ respectfully). The sale itself originated a profit of 64M€, the position on related swaps caused the loss.

This sale was made reflecting a more cautionary attitude of the bank regarding the future, as, following Basel III rules, since 1st January 2014 the potential losses associated with government debt will be reflected, at market prices, in the CET 1 ratio. This would imply that a flotation in prices could lead the bank to need again an increase of capital, even if the debt was actually repaid at maturity.

Regarding international activities the income tends to be more stable due to a different exposition that does not suffer with the volatilities of European markets.

Looking forward, the expected future financial assets income will reflect a more conservative attitude in Portugal and a steady increase (with the economy) in international activities (Table 6).

Table 6. Income from financial assets calculations

	2014e	2015e	2016e	2017e	2018e	2019e
Domestic	-112,00	100,00	100,00	100,00	100,00	100,00
International	94,66	99,87	105,86	112,22	119,73	127,76
Group	-17,34	199,87	205,86	212,22	219,73	227,76

4. Costs

Under BPI's restructuring plan the DG COMP²⁰ imposed three quantitative measures that BPI needed to comply until 2015. Two of them were already completed in the first half of 2014: the closure of 50 commercial units in Portugal, and the reduction of core assets by 700M€, which was easy to comply since the Loan portfolio, was decreasing anyway. The third was the reduction of headcount to 6.000 employees, which means that BPI needed to let go 363 employees. The president guaranteed that this would not be accomplished by massive collective terminations, indeed, BPI had already in implementation early retirement programs that accounted for 90 employees, but BPI still misses a further 166 (in the first half of 2014) to reach the 2015 goal.

²⁰ European commission for competition

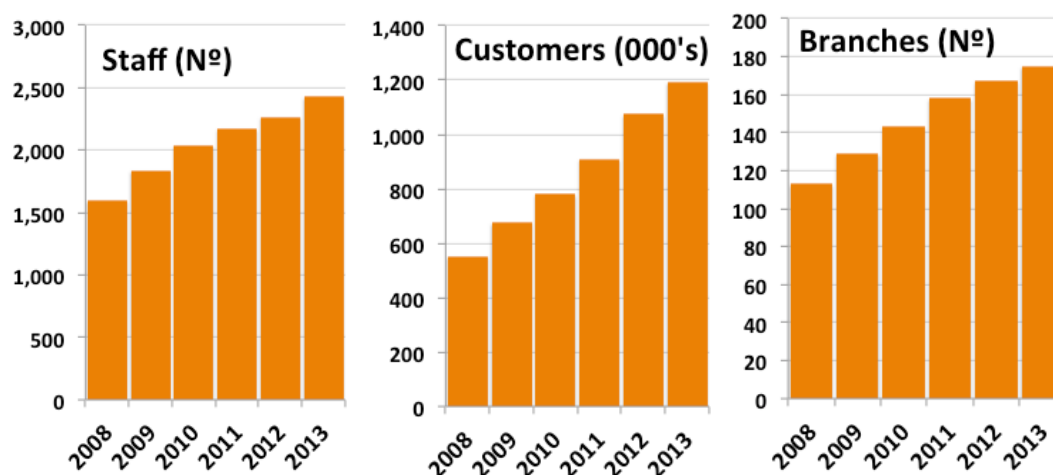
Having this in consideration, the expected personal costs have been calculated expecting the restructuring plan agreed with DG COMP would be honored until 2015. In the near future, BPI is expected to maintain them constant, growing only with inflation (Table 7).

Table 7. Costs with personal calculations (M€)

	2014e	2015e	2016e	2017e	2018e	2019e
Domestic	296,00	297,17	297,47	298,35	298,35	298,64
International	67,71	71,43	75,72	80,26	85,64	91,38
Consolidated	363,71	368,61	373,19	378,61	383,99	390,02

The opposite is expected of international activities; customer base and distribution networks have been expanding since 2008 (Graph 22). BPI is committed to strengthen its activities both in Angola and Mozambique, where, at the moment, most of the profit comes from. Angola has a very concentrated banking market, which makes investment in growth crucial to survive the competition. I will assume the current trend is going to continue.

Graph 22. Employees, Customer Base and Distribution Network overseas²¹



Regarding 'Outsider Suppliers and Services', its value as a percentage of Operating Revenue have been stable in the last years, and it is expected to remain the same.

²¹ Data from BPI's 23 July 2014 presentation

Regarding international activities, personal costs are expected to increase with GDP following the desire of BPI to invest in its international operations, and the costs regarding outside suppliers were calculated the same way as for Domestic activities.

5. Pension Liabilities

Pension Liabilities are an additional source of risk for any bank. Since 2011 Actuarial losses or gains ceased to be resisted on the balance sheet under assets or liabilities to be registered directly on Shareholders equity under the banner 'Other Comprehensive Income'. Following Basel III full implementation rules, banks will need to adjust regulatory capital for actuarial differences. This could be potentially alarming since the size of the pension fund is more than 50% of the total market capitalization of BPI.

The used discount rates for the pensions were 4,5% in 2013 and expected to decrease to below 4% in 2014; Table 8 was extracted from BPI's 2013 Annual Report:

Table 8. Actuarial Assumptions (BPI 2013 Annual Report)

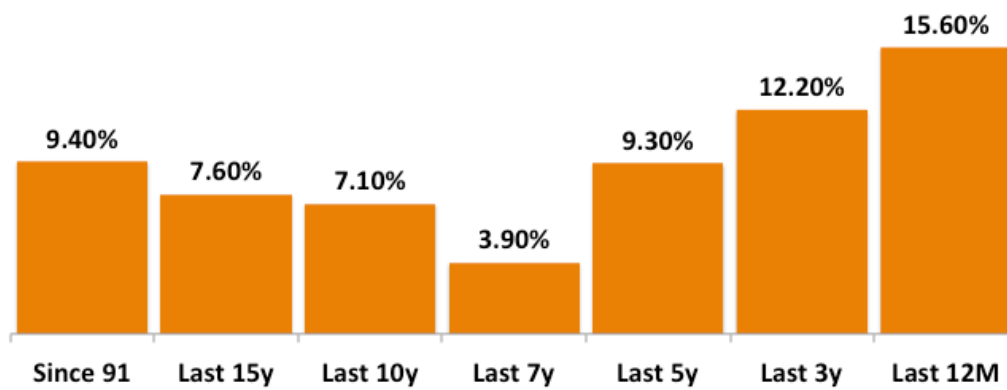
Actuarial assumptions				
	Dec.12	Jun.13	Dec.13	Jun.14
Discount rate - current employees	4,83%	4,83%	4,33%	3,83%
Discount rate - retirees	4,00%	4,00%	3,50%	3,00%
Salary growth rate	1,50%	1,50%	1,50%	1,25%
Pensions growth rate	1,00%	1,00%	1,00%	0,75%
Expected pension fund rate of return	5,50%	4,50%	4,00%	3,50%
Mortality table	(M): TV 73/77 – 1 year ⁽¹⁾		(M): TV 73/77 – 2 years ⁽²⁾	
	(W): TV 88/ 90 – 1 year ⁽¹⁾		(W): TV 88/ 90 – 3 years ⁽²⁾	

1) Beneficiaries were assumed to be one year younger than their actual age, that procedure translating into a higher life expectancy.
2) Men (M) and Women (W) were assumed to be two years and three years younger than their actual age, respectively, that procedure translating into a higher life expectancy.

However, the average annual returns from the funds, of around 16% last year, and with an average of 9,1% since inception, creates a comfortable positive actuarial income capable of absorbing actuarial losses from changes in assumptions (Graph 23). Furthermore, BPI has a 'Prudential Corridor' that stands at 112M€ in 2013. This buffer was able to absolve accumulated

actuarial losses 92,4M€ (with and increase of 2.9M€ in that year) so no change was made to regulatory capital resulting from pension funds. I concluded thus, that variations on actuarial values do not pose a significant threat to the bank's capital ratios; even though they might have an impact on its profitability.

Graph 23. Pension Fundo average returns



Part V. Inputs and Methodology

1. Introduction

Following the literature review I will apply four different valuation methodologies, (FCFE, DDM, Excess Return and Relative Valuation), compare the results and evaluate why different values were obtained. Finally I will determine the most reliable model regarding the selected inputs.

2. Inputs to the model

For the models that require an explicit period I chose 6 years; I believe that banks do not need a bigger period, as their cash flows tend to be more stable in terms of cash flows. Also they are more dependent in the real economy than most other industries, and trying to predict economic conditions for a longer period would be a subjective exercise at least.

Having in consideration the importance of BPI's international activities to its value, I decided to value domestic and international activities separately and use the sum-of-the-parts technique. This will allow me not only to use different inputs in the models but also different assumptions for the future. Regarding that BPI's international activities are focused in a developing country, Angola, this approach is even more meaningful.

2.1. Macroeconomic future

In Portugal after a contraction on GDP in 2013 a recovery is expected²² for 2014 as described (Table 9 below). For Angola a stabilization of oil prices and a growth of the non-oil sector are expected to make the economy grow at comfortable levels.

²² ECOFIN and IMF estimates

BPI is expected to pay 40%²³ dividends again in 2016 given that it is their policy, and the reason the bank stopped the payments ceased to exist (the full amount of CoCo's have been payback to the Portuguese government in 2014). I do not expect dividends in 2015 due to a more conservative attitude by the bank, and a need to recover from big losses in 2014 regarding the decision of selling half of its government debt portfolio.

Table 9. Macroeconomic estimates (IMF, ECOFIN and own calculations)

Domestic	2014	2015	2016	2017	2018	2019
GDP	1,20%	1,50%	2,00%	2,50%	2,50%	2,50%
Inflation	0,70%	1,10%	1,20%	1,50%	1,50%	1,60%
International						
GDP	5,30%	5,50%	6,00%	6,00%	6,70%	6,70%
Inflation	7,70%	7,70%	7,70%	7,70%	7,70%	6,50%
Euro Area Inflation	0,90%	1,20%	1,30%	1,40%	1,50%	1,60%
Consolidated						
Tax Rate	20%	20%	20%	20%	20%	20%
Payout Ratio	0%	0%	40%	40%	40%	40%

OCDE and IMF (2014) estimates
Plus Analyst estimates

2.2. Discount rate and Beta

As I will use discounted cash flow to equity models the appropriate discount rate is the cost-of-equity (Ke). For its estimation I used the CAPM model, with the Damodaran approach of adding a Country risk premium for Angola (Table 9).

²³ 40% is the Dividend policy practiced by the bank and stated in its 2013 annual report

Table 9. Cost of equity calculations

DOMESTIC	2014	2015	2016	2017	2018	2019
Beta	1,83	1,83	1,83	1,83	1,83	1,83
Rf	1,75%	1,75%	1,75%	1,75%	1,75%	1,75%
Rmp	5,40%	5,40%	5,40%	5,40%	5,40%	5,40%
Ke	11,63%	11,63%	11,63%	11,63%	11,63%	11,63%
INTERNATIONAL	2014	2015	2016	2017	2018	2019
Beta	1,83	1,83	1,83	1,83	1,83	1,83
Country Risk Premium	5,40%	5,40%	5,40%	5,40%	5,40%	5,40%
Rf	8,55%	8,25%	8,15%	8,05%	7,95%	7,95%
Market risk p	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%
Ke	23,10%	22,80%	22,70%	22,60%	22,50%	22,50%

Analyst estimates

Domestic **beta** was estimated by making a regression of an European Bank index (SX7E Index) against a European market index (SXXP) for 2 years using monthly returns. My choice to use an index and not the average of the peer group betas (bottoms-up beta) was first because the betas I got from the peer group were very disperse, ranging from -2.19 (Banco Pastor) to 2.3 (BES). Second the Bank index is already diversified, and, as we seen from the last financial crisis, bank activity is very correlated, so a European Bank index will represent the risk the industry in general adds to the whole market risk, instead of just south-European banks. Third, the beta I calculated was very close to internal BPI calculations (1,799). For the international activities, lacking of traded banks in Angola I used the domestic beta.

For the **Risk free rate** I used the average yield for the 10y Government bonds of Euro-Area countries with AAA rating (Luxemburg¹, Austria and Germany in May 2014). To determine the international activities risk free rate I used the domestic rate and add the differential from Angola's inflation and Europe inflation.

Market risk premium was obtained by looking at an average mature market (SP500) returns above the risk free (10y treasury bonds), since 1928 until 2013. I used S&P500 index because I consider it to be the best proxy for a mature, advanced economy market.

The **Country Risk Premium** (CRP) should be looked at as the Risk free rate; it's the risk that cannot be diversified away. Because the financial markets are so integrated now I considered that domestic CRP could be diversified away,

thus I only add a CRP to the international activities K_e . This CRP was obtained from Damodaran website²⁴, calculated as the default spread based on Moody's ratings.

For the **terminal value** (Table 10) I reduced the **beta** to 1.1; this is because when a firm is in stable growth, it tends to be less exposed to market risk, making more conservative investments, and thus the beta should converge to the market 1. However, I considered that banks are still a volatile business, always more than the market so I allowed a small difference of +0.1 to the market²⁵.

As long term **Risk free rate (Rf)** I used the actual 10y US treasury yields, as I considered the AAA-rated EU Gov. yields excessively low²⁶; also the US debt in the long term is considered to be the ultimate risk free.

Market Risk premium (Rmp) was maintained.

Table 10. Terminal value Cost of Equity Calculations

DOMESTIC	
Beta	1,1
Rf	2%
Rmp	5%
Ke	8%
INTERNATIONAL	
Beta	1,1
CRP	5,40%
Rf	6,65%
Rmp	5%
Ke	17,5%

Analyst estimates

2.3. Return on Equity

ROE is one of the most important value drivers for financial institutions. Having an accurate estimate of what the future ROE for BPI will be is of key

²⁴ Last updated in January 2014

²⁵ Damodaran acknowledges this possibility and considers this approach reasonable as long as the long-term beta is not bigger than 1.2

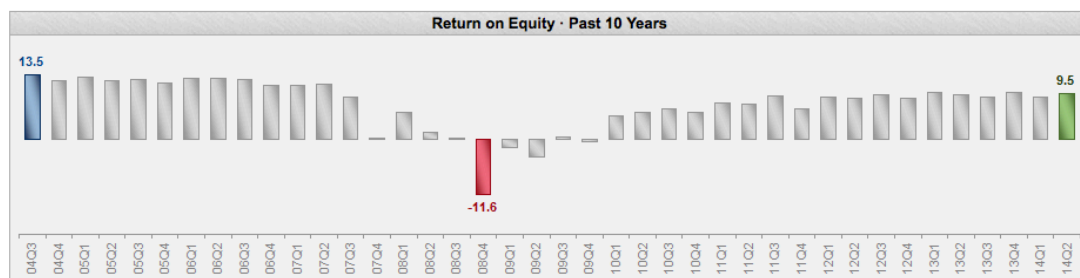
²⁶ This is because of the risk-averse environment in Europe. Still only 3 economies have AAA ratings, which create a huge demand, particularly from the investment fund community. Indeed 10y German bonds yields are less than 1% in September 2004).

importance; it will determine (together with the earnings retention rate) the growth in the DDM model and the excess value in the Excess returns model. Since 2009 BPI, and banks in general, have been adjusting to the new macroeconomic and regulatory environment. Having this in mind I cannot look to recent ROE values to predict the future, (specially in BPI's case as expected 2014 ROE is negative).

Damodaran said that companies cannot earn excess returns forever so in the steady state returns should tend to the industry average.

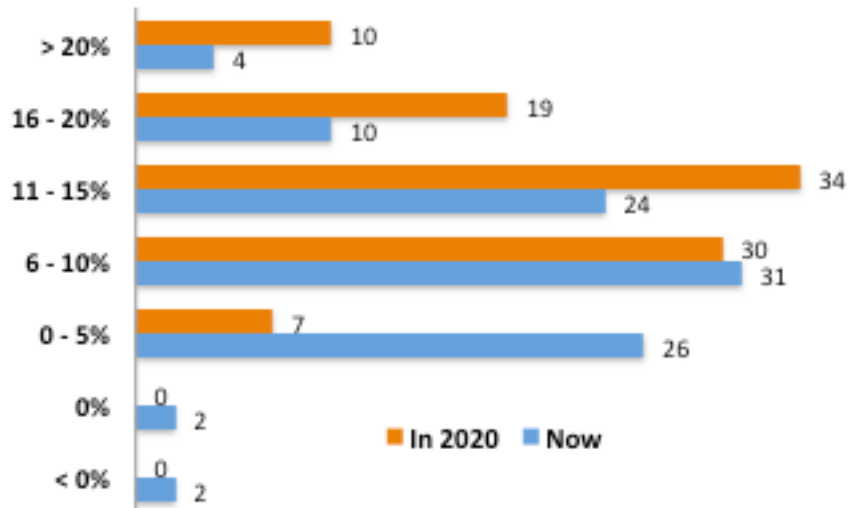
I looked to BPI's average ROE over a longer period (since 2005), I also looked to the industry's average (Table 11).

Table 11. ROE for banks over the last 10 years (www.bankregdata.com)



Because I did not want to rely only in past values I looked at the industry's participants expectations about the future; Graph 24 below shows the answers of about 300 senior executives of different banks around the world (survey carried out by The Economist Intelligence Unit in 2014). With this information I am confident of using an ROE of 10% for BPI will yield accurate results.

Graph 24. The Economist Intelligence Unit 2014 Banking survey results
 “Question: What is your bank current ROE? And what do you expect it to be in 2020?” (% respondents)



For international operations I used mainly past values, and, for the particular case of the Angola market I assume an ROE of 20%. This value is slightly below the average for BFA because I needed to have in consideration the increase in competition in the market.

2.4. Terminal Value – The valuation menace

One of the biggest critics to discount cash flow models is the excessive importance of the terminal value (TV) in the valuation. Due to its weight on the valuation, a slight change in its inputs will case the value of the company to change significantly; and thus making it very easy to manipulate, reflecting this way analyst’s biases. This is particularly true when deciding the stable growth rate, because it is constant forever. To make the valuation less sensitive to assumptions about stable growth I will use Damodaran approach of linking it to the equity reinvestment rate (for FCFE) or retention rate (for

DDM). I am assuming here that the firm will reinvest (or retain)²⁷ only enough to sustain its stable growth.

From equation X in the literature we can derive:

$$Retention\ Ratio = \frac{g}{ROE_{tv}}$$

(Equation 10)

Where:

Retention ratio = (1-payout ratio)

g is the stable growth rate

ROE_{tv} is the Long-term expected Return on equity

How much it needs to reinvest depends on the difference between expected ROE and the long-term cost-of-capital, in other words, excess return. If cost of capital = ROE than stable growth rate will not matter to the valuation at all: does not matter how much a company reinvests if the returns are going to be equal to the costs, the company is not adding any value. If the $k_e > ROW$ then the less the company reinvests (or retains) the better, as the company is actually destroying value to the shareholders.

Table 12. Terminal value inputs

DOMESTIC	
ROE	10%
Reinvestment/ Retain ratio	20%
g	2%
Beta	1,1
INTERNATIONAL	
ROE	20%
Reinvestment/ Retain ratio	30%
g	6%
Beta	1,1

Analyst estimates

²⁷ As firms in stable growth reinvest less

Now the value I choose for g will have a rational effect on the valuation, as the company will have to reinvest (FCFE) or retain (DDM) more capital (see sensitivity analysis) if it wants to grow at a higher rate, making one movement offset partially the other.

Both excess returns and stable growth rates are at reasonable values: no more than 3% for the excess returns²⁸ and no more than the GDP growth for g ²⁹. The average GDP growth for advanced economies is 2%³⁰ (IMF data since 1980) and for Angola was 6% (IMF data since 1990).

²⁸ As a company cannot have a big competitive advantage forever. Damodaran rule of thumb is no more than 3% excess return in the long-term.

²⁹ A company cannot outperform the Market forever

³⁰ 2% is also the average Portuguese GDP growth from 1980 to 2014

Part VI. Valuation results

1. Free cash Flow to Equity

As discussed in the literature review I will use the FCFE approach adapted to financial institutions, which means making the reinvestment needs equal to investment in regulatory capital. The results are summarized in the Table 13.

Table 13. FCFE results

M€	Domestic	International
Explicit period (PV)	286.90	294.38
TV (PV)	1,773.76	274.57
TOTAL Valuation	2,060.66	568.95
Num. Shares (M)	1456.9	
Price per share	€	1.80

For the detailed Cash flow schedule refer to Exhibit 8.

2. Dividend Discount model

For this valuation I assumed dividends are going to be paid again after 2016 at a rate of 40%; for the long term dividends I applied the approach described in Part V, 2.4 – Terminal Value (for more details refer to Exhibit 9). Table 14 (below) summarize my result of €1.68 per share (15% above the actual price)

Table 14. DDM results

M€	Domestic	International
Explicit period (PV)	282.60	113.75
TV (PV)	1,773.76	274.57
TOTAL Valuation	2,056.36	388.32
Num. Shares (M)	1456.9	
Price per share	€	1.68

Note that for both FCFE and DDM the most significant part of the valuation, the TV is the same; this is because I used the same approach to the same inputs. What changes in the DDM approach is the explicit period valuation, benefiting domestic operations (not counting the first years with losses) and hurting international ones by not paying dividends in the first years.

3. Residual Income

Following this model, the value of BPI will be the actual equity invested³¹ plus the sum of the future value that the bank is expected to create above its cost of capital. The results of this valuation are interesting to analyze; BPI now trades just above its book value, which implies that it will generate more value (ROE) than the costs of generating it (cost of equity). It is however foreseeable that in the coming years BPI's cost of equity will be above its ROE, this is due to both a high cost of equity imposed on BPI from general market conditions (beta is 1.82) and a low ROE, even negative in 2014. I do not believe that will last, as markets return to normality so does BPI's cost of equity. Assuming a beta of 1.1 (closer to the market and the average sector beta) the cost of equity will be less than the long-term ROE (10%), thus I believe that BPI will generate value. For international operations BPI is already generating excess value. My result was **€1.70** per share, summarized in Table 15.

Table 15. Excess Return Model results

M€	Domestic	International
Explicit period (PV)	- 195.87	122.70
TV (PV)	497.53	88.36
Equity at 2013	1618.851	350.2
TOTAL Valuation	1,920.51	561.27
Num. Shares (M)	1456.9	
Price per share	€ 1.70	

³¹ Valuated at BV, this is a reasonable assumption due to the accounting nature of banks, as explained in the literature review

4. Relative valuation

This kind of valuation is useful to compare my previous results and see how markets are pricing BPI; however this approach needs to be look at carefully as this is only a static valuation and it depends in the mood of the markets (that changes very quickly). Also this valuation depends on the companies I choose as comparable with BPI, which is even more difficult for financial institutions; banks by nature tend to have activities across countries that may diverge from its core ones. Also, each bank tends to be a specific case, with its own set of investments and revenue sources, which makes two banks hardly comparable.

As I learned in the Literature review, Damodaran (2009) suggest the use of Price-to-earnings (P/E) and Price-to-book-value (P/BV) ratios, however BPI is, with a high degree of certainty, is not going to have profits in 2014 (already disclosed losses of >100M€ in 2Q) ; thus I will use only P/BV. This ratio is very dependent on ROE, (future profitability determines if the company is expected to generate value or not), so I took it in consideration when choosing the peer value. In this decision in addition to ROE I used CET1 ratio and LtD as a measure of risk, and determine their culture, if more risk-taker or conservative. Adding to this, I also looked at the Country where they are based and, most importantly, operate.

Table 16. Relative Valuation Results

Bank	Country	P/BV
Banco de Sabadell	ES	0,60
Bankinter	ES	1,58
BBVA	ES	1,21
BNP	FR	0,81
Santander	ES	1,19
Credit Agricole	FR	0,66
Average		1,01
BPI	PT	1,11

BPI's Equity	
2013 (M€)	1571,7
Shares	1190

Price per share	€ 1,33
-----------------	--------

I will not use this value for my final valuation for three main reasons: first these ratios are based on FY2013 data (except BPI that is 2Q2014), and during the last half-year a lot have changed. Second I believe that markets are still penalizing banks from the adverse macroeconomic conditions faced since 2011.

Indeed this result is not surprising as 4 out of 6 analysts still have a negative view of BPI (Table 17). Third, this kind of valuation is very dependent on the chosen peer group, which can be a subjective exercise, differing this way from analyst to analyst. A mathematical approach, like a cluster analysis, could be used to remove this subjectivity; however I believe that that bank industry is too complex, (each bank has its own mix of investments), that finding one peer group better than other cannot be universally true.

Table 17. Analysts Recommendations (taken from BPI's website)



Interestingly enough, the value I found using this valuation is very similar to the one I obtained for the domestic activities in the other models, which may imply markets are penalizing the BPI group by focusing only on the Portuguese macroeconomic situation.

5. Results Conclusion

In my valuation of BPI I looked at both its past (and the industry past) and, at its future.

I looked at historical averages for some of the main inputs, (as the ROE), to try to remove subjectivity from the valuation. I also do believe that banks are emerging from the sovereign crisis more focused in their core business, and

so returning to their previous structure. Considering this, historical averages will not yield unreasonable values.

I looked at the future for the key drivers of the bank's balance sheet and P&L. I analyzed the economic environment to find the most likely evolution of customer deposits and resources, not only in volume and also its composition. I also analyzed future regulatory requirements that will dictate BPI's opportunities to grow.

My final valuation of BPI will be a simple average of the FCFE and the Excess model. I considered these two to capture the evolution of BPI the best: both penalize BPI in the present for failing to be profitable in the domestic market while capturing the future opportunities of the bank.

Table 18. Final valuation

Model	Price per share	
FCFE		1.80
EXCESS		1.70
Final Share Price	€	1.75

Part VII. Comparison - BCP Millennium

Investment Bank

In this section I will compare my valuation to the one that Millennium Investment Bank (BCP) arrived following its 24 of July 2014 report on BPI. I will also investigate why the valuations differ.

BCP values each share of BPI at 1,6€, 8.69% below my valuation but still 9,5% above the actual market price of 1,466 (in 24 July 2014).

As learned in the literature review if different valuation methods arrive at different values it should be caused by the subjectivity of the inputs/assumptions. Indeed BCP used one of the models I also used, the FCFE, so the difference in the valuation must reside on the inputs.

Still regarding the methodology, BCP values the company as a whole, not making different assumptions for the two main regions where BPI operates. Doing this BCP does not capture the volatility of international markets, from where most of the profits are coming, which will have an impact on the discount rate.

Table 19. Millennium BCP inputs

BCP	First period	Mid-Period	TV
Rf	2,00%	2,00%	2,00%
CRP	4,00%	3,00%	2,00%
Market premium	5,00%	5,00%	5,00%
Beta	1,2	1,2	1,2
Ke	12,80%	11,60%	10,40%
		g	2,50%

BCP uses a rate of 12.8% in the first periods and 11.6% in middle periods, which is lower than my consolidated discount rate of 14% (180% domestic 20% international). The fact that I discount at higher does not make my valuation lower, because of the Terminal value, where I use a smaller discount rate. It makes sense having higher rates during the explicit period, as there is still some degree of uncertainty about the future macrocosmic

conditions of Europe. However in stable growth the discount rate should go down, reflecting less risk in the industry as new regulations are being implemented and the ECB will assume supervision status in Europe.

Regarding now assumptions, I first looked at the key driver of the P&L, the Net Interest margin.

Table 20. Loans to Customers and Customer Resources

Analyst	2014	2015	2016	2017	2018	Last
Me	25 216,97	26 690,65	27 402,86	29 273,72	30 150,17	31 101,90
BCP	25 881,00	25 979,00	26 366,00	26 768,00	27 180,00	29 618,00
Me	26 034,58	26 665,12	27 451,64	28 372,80	29 380,86	30 434,15
BCP	25 495,00	25 686,00	26 072,00	26 463,00	26 860,00	29 409,00

I was slightly more optimistic regarding the volume evolution. As I explained above I believe that BPI is going to increase its loans books as soon as the market picks up (expected to be 2014 already). BPI has a lot of capacity to use; I estimated a LtD ratio of 106.6% for 2019, which is still a very comfortable situation (the imposed limit is 120%).

Table 21. Net Interest Margin comparison

Analyst	2014	2015	2016	2017	2018	Last
Mine	1,29%	1,46%	1,58%	1,72%	1,80%	1,88%
BCP	1,34%	1,44%	1,50%	1,52%	1,55%	1,63%

Simultaneously I expect that the NIM will improve; BCP does the same but in a lesser extent. Because I expect the portfolio structure to change to more corporate loans in the future, as the economy picks up, I also considered the impact on cost of credit (Table 22).

Table 22. Cost of Credit Risk³² calculations

Analyst	2014	2015	2016	2017	2018	Last
Mine	0,67%	0,76%	0,77%	0,58%	0,45%	0,41%
BCP	0,80%	0,57%	0,44%	0,35%	0,35%	0,26%

³² Calculated as impairments over the Loan book net of recoveries

Final recommendations:

Table 23. Final Recommendations

	BCP	Mine
Recommendation	Neutral (high Risk)	Buy
Upside/ Downside	9%	19%
Last Recommendation	Reduce (high risk)	

Part VIII. Annexes

1. Domestic P&L (M€)

	2013	2014e	2015e	2016e	2017e	2018e	2019e
Net interest income (narrow sense)	254,4	284,48	360,94	394,08	482,60	522,99	558,40
Unit Link products gross margin	3,0	3,0	3,0	3,0	3,0	3,0	3,0
Income from securities (variable yield)	3,7	3,7	3,7	3,7	3,7	3,7	3,7
Commissions related to deferred cost (net)	23,4	23,4	23,4	23,4	23,4	23,4	23,4
Net interest income	284,4	285,6	391,0	424,2	512,7	553,1	588,5
Technical result from insurance contracts	24,8	13,2	13,2	13,2	13,2	13,2	13,2
Commissions and other similar income (net)	256,5	259,58	263,47	268,74	275,46	282,35	289,40
Gains and losses in financial operations	171,6	(112,0)	100,0	100,0	100,0	100,0	100,0
Operating income and charges	(21,6)	23,5	23,5	23,5	23,5	23,5	23,5
Net operating revenue	715,7	469,9	791,2	829,6	924,9	972,2	1014,6
Personnel costs	302,5	296,00	297,17	297,47	298,35	298,35	298,64
Outside supplies and services	177,9	106,4	106,4	106,4	106,4	106,4	106,4
Depreciation of fixed assets	18,1	18,1	18,1	18,1	18,1	18,1	18,1
Operating costs, excluding non-recurring costs	498,5	420,5	421,6	421,9	422,8	422,8	423,1
Non-recurring costs	20,0	15,8	15,8	15,8	15,8	15,8	15,8
Operating costs	518,5	436,2	437,4	437,7	438,6	438,6	438,9
Operating profit before provisions	197,2	33,6	353,8	391,9	486,3	533,6	575,7
Recovery of loans written-off	15,3	17,7	17,7	17,7	17,7	17,7	17,7
Loan provisions and impairments	264,3	170,69	203,35	207,41	165,83	127,48	116,15
Other impairments and provisions	(14,2)	39,6	39,6	39,6	39,6	39,6	39,6
Profits before taxes	(37,5)	-159,0	128,5	162,6	298,5	384,2	437,7
Corporate income tax	5,0	-31,79	25,71	32,52	59,71	76,83	87,53
Equity-accounted results of subsidiaries	16,3	16,7	16,7	16,7	16,7	16,7	16,7
Minority shareholders' share of profit	2,1	8,9	8,9	8,9	8,9	8,9	8,9
Net Profit	(28,3)	-119,4	110,6	137,8	246,6	315,1	357,9

2. International P&L (M€)

	2013	2014e	2015e	2016e	2017e	2018e	2019e
Net interest income (narrow sense)	190,3	228,4	223,2	255,8	276,2	299,7	332,4
Unit Link products gross margin	-	-	-	-	-	-	-
Income from securities (variable yield)	-	-	-	-	-	-	-
Commissions related to deferred cost (net)	0,4	-	-	-	-	-	-
Net interest income	190,7	228,4	223,2	255,8	276,2	299,7	332,4
Technical result from insurance contracts	-	-	-	-	-	-	-
Commissions and other similar income (net)	53,9	48,1	48,1	48,1	48,1	48,1	48,1
Gains and losses in financial operations	89,9	94,7	99,9	105,9	112,2	119,7	127,8
Operating income and charges	(2,1)	0,1	0,1	0,1	0,1	0,1	0,1
Net operating revenue	332,4	371,3	371,3	409,8	436,6	467,7	508,4
Personnel costs	64,3	67,7	71,4	75,7	80,3	85,6	91,4
Outside supplies and services	54,4	53,1	53,1	58,6	62,4	66,9	72,7
Depreciation of fixed assets	13,3	14,0	14,8	15,7	16,6	17,7	18,9
Operating costs, excluding non-recurring costs	132,1	134,8	139,3	150,0	159,3	170,2	183,0
Operating profit before provisions	200,3	236,5	232,0	259,9	277,3	297,5	325,5
Recovery of loans written-off	2,3	1,9	1,9	1,9	1,9	1,9	1,9
Loan provisions and impairments	8,4	17,4	18,9	21,9	24,3	27,0	30,6
Other impairments and provisions	2,2	5,4	5,4	5,4	5,4	5,4	5,4
Profits before taxes	192,1	215,5	209,6	234,5	249,5	267,0	291,3
Corporate income tax	15,4	23,7	23,1	25,8	27,5	29,4	32,0
Equity-accounted results of subsidiaries	10,8	6,8	6,8	6,8	6,8	6,8	6,8
Minority shareholders' share of profit	92,3	91,2	91,2	91,2	91,2	91,2	91,2
Net Profit	95,2	107,4	102,1	124,2	137,7	153,2	174,8

3. Consolidated P&L (M€)

	2013	2014e	2015e	2016e	2017e	2018e	2019e
Net interest income (narrow sense)	444,7	512,86	584,11	649,84	758,76	822,72	890,83
Unit Link products gross margin	3,0	3,0	3,0	3,0	3,0	3,0	3,0
Income from securities (variable yield)	3,7	3,7	3,7	3,7	3,7	3,7	3,7
Commissions related to deferred cost (net)	23,8	23,4	23,4	23,4	23,4	23,4	23,4
Net interest income	475,1	514,0	614,2	679,9	788,9	852,8	920,9
Technical result from insurance contracts	24,8	13,2	13,2	13,2	13,2	13,2	13,2
Commissions and other similar income (net)	310,4	307,72	311,61	316,88	323,60	330,49	337,55
Gains and losses in financial operations	261,5	(17,3)	199,9	205,9	212,2	219,7	227,8
Operating income and charges	(23,7)	23,6	23,6	23,6	23,6	23,6	23,6
Net operating revenue	1 048,1	841,1	1162,5	1239,5	1361,5	1439,8	1523,0
Personnel costs	366,8	363,71	368,61	373,19	378,61	383,99	390,02
Outside supplies and services	232,3	159,4	159,4	164,9	168,8	173,2	179,0
Depreciation of fixed assets	31,4	32,1	32,9	33,8	34,7	35,8	37,0
Operating costs, excluding non-recurring costs	630,6	555,2	560,9	571,9	582,1	593,0	606,1
Non-recurring costs	20,0	15,8	15,8	15,8	15,8	15,8	15,8
Operating costs	518,5	436,2	437,4	437,7	438,6	438,6	438,9
Operating profit before provisions	397,5	270,1	585,8	651,8	763,6	831,0	901,2
Recovery of loans written-off	17,6	19,6	19,6	19,6	19,6	19,6	19,6
Loan provisions and impairments	272,7	188,13	222,21	229,30	190,09	154,49	146,77
Other impairments and provisions	(12,0)	45,0	45,0	45,0	45,0	45,0	45,0
Profits before taxes	154,6	56,6	338,1	397,1	548,1	651,1	729,0
Corporate income tax	20,4	-8,09	48,77	58,31	87,16	106,20	119,58
Equity-accounted results of subsidiaries	27,1	23,5	23,5	23,5	23,5	23,5	23,5
Minority shareholders' share of profit	94,4	100,2	100,2	100,2	100,2	100,2	100,2
Net Profit	66,9	-12,0	212,7	262,1	384,2	468,2	532,7

4. Domestic Balance Sheet (M€)

	2013	2014e	2015e	2016e	2017e	2018e	2019e
Assets							
Cash and deposits at central banks	314,8	226,33	241,22	245,29	279,52	284,83	290,28
Amounts owed by credit institutions repayable on demand	457,8	305,63	323,14	329,60	351,36	360,14	369,15
Loans and advances to credit institutions	1 284,2	1 464,24	1 548,12	1 579,09	1 683,31	1 725,39	1 768,52
Loans and advances to Customers	24 893,5	24 040,87	25 418,21	25 926,58	27 637,73	28 328,67	29 036,89
Financial assets held for dealing	1 155,4	988,39	1 045,02	1 065,92	1 136,27	1 164,68	1 193,79
Financial assets available for sale	7 408,3	6 102,32	6 451,93	6 580,97	7 015,31	7 190,70	7 370,46
Financial assets held to maturity	136,9	103,00	103,00	103,00	103,00	103,00	103,00
Hedging derivatives	194,0	137,00	137,00	137,00	137,00	137,00	137,00
Investments in associated companies and jointly controlled entities	177,0	141,93	150,06	153,06	163,16	167,24	171,43
Other tangible assets	69,3	82,40	82,40	82,40	82,40	82,40	82,40
Intangible assets	16,9	12,20	12,20	12,20	12,20	12,20	12,20
Tax assets	536,5	483,67	511,38	521,61	556,03	569,93	584,18
Other assets	694,9	674,44	713,08	727,34	775,34	794,73	814,60
Total assets	37 339,5	34 762,41	36 736,77	37 464,05	39 932,64	40 920,92	41 933,90
Liabilities and shareholders' equity							
Resources of central banks	4 140,1	2 905,74	3 075,12	3 195,70	1 602,85	1 816,39	2 150,46
Resources of other credit institutions	2 535,4	2 535,40	2 535,40	2 535,40	2 535,40	2 535,40	2 535,40
Resources of Customers and other loans	19 796,5	20 034,06	20 334,57	20 741,26	21 259,79	21 791,29	22 336,07
Debt securities	2 598,5	2 598,50	3 787,60	3 787,60	6 692,00	6 692,00	6 692,00
Technical provisions	2 689,8	2 212,11	2 343,04	2 378,78	2 679,64	2 726,35	2 774,24
Financial liabilities associated to transferred assets	1 387,3	1 336,57	1 415,67	1 437,27	1 619,05	1 647,28	1 676,21
Hedging derivatives	548,5	423,80	423,80	423,80	423,80	423,80	423,80
Provisions	102,1	78,29	82,93	84,19	94,84	96,49	98,19
Tax liabilities	39,1	43,33	45,90	46,60	52,49	53,40	54,34
Contingently convertible subordinated bonds	920,4	-	-	-	-	-	-
Other subordinated loans	136,9	156,07	165,31	167,83	189,06	192,35	195,73
Other liabilities	803,1	803,1	803,1	803,1	803,1	803,1	803,1
TOTAL LIABILITIES	35 697,7	33 127,0	35 012,4	35 601,5	37 952,0	38 777,9	39 739,5
Shareholders' equity	1 571,7	1 565,24	1 654,14	1 792,32	1 910,42	2 072,86	2 124,17
Minority interests	70,2	70,2	70,2	70,2	70,2	70,2	70,2
Shareholders' equity and minority interests	1 641,9	1 635,4	1 724,3	1 862,5	1 980,6	2 143,1	2 194,4
Total liabilities and shareholders' equity	37 339,5	34 762,4	36 736,8	37 464,1	39 932,6	40 920,9	41 933,9

5. International Balance Sheet (M€)

	2013	2014e	2015e	2016e	2017e	2018e	2019e
Assets							
Cash and deposits at central banks	1 057,5	1 113,5	1 174,8	1 245,3	1 320,0	1 517,9	1 619,6
Amounts owed by credit institutions repayable on demand	18,3	98,0	101,3	108,3	113,7	120,1	128,4
Loans and advances to credit institutions	1 690,6	1 690,6	1 690,6	1 690,6	1 690,6	1 690,6	1 690,6
Loans and advances to Customers	1 071,6	1 176,1	1 272,4	1 476,3	1 636,0	1 821,5	2 065,0
Financial assets held for dealing	140,4	155,0	252,3	269,6	283,2	299,0	319,7
Financial assets available for sale	2 285,9	2 372,4	2 452,1	2 620,8	2 753,0	2 906,5	3 108,0
Financial assets held to maturity	-	-	-	-	-	-	-
Hedging derivatives	-	-	-	-	-	-	-
Investments in associated companies and jointly controlled entities	45,0	41,9	43,3	46,3	48,6	51,3	54,9
Other tangible assets	128,0	167,4	173,0	184,9	194,3	205,1	219,3
Intangible assets	2,3	2,0	2,0	2,0	2,0	2,0	2,0
Tax assets	3,2	0,7	0,7	0,8	0,8	0,9	0,9
Other assets	12,9	22,5	23,2	24,8	26,1	27,6	29,5
Total assets	6 455,6	6 840,2	7 185,9	7 669,7	8 068,3	8 642,5	9 238,0
Liabilities and shareholders' equity							
Resources of central banks	-	-	-	-	-	-	-
Resources of other credit institutions	15,7	33,6	10,1	60,1	10,8	44,0	64,2
Resources of Customers and other loans	5 698,5	6 000,5	6 330,5	6 710,4	7 113,0	7 589,6	8 098,1
Debt securities	-	-	-	-	-	-	-
Technical provisions	-	-	-	-	-	-	-
Financial liabilities associated to transferred assets	-	-	-	-	-	-	-
Hedging derivatives	-	-	-	-	-	-	-
Provisions	21,7	38,7	40,8	43,3	45,9	49,0	52,2
Tax liabilities	18,4	18,5	19,5	20,6	21,9	23,3	24,9
Contingently convertible subordinated bonds	-	-	-	-	-	-	-
Other subordinated loans	-	-	-	-	-	-	-
Other liabilities	36,8	36,8	36,8	36,8	36,8	36,8	36,8
TOTAL LIABILITIES	5 791,1	6 128,1	6 437,7	6 871,2	7 228,3	7 742,7	8 276,2
Shareholders' equity	350,2	397,8	433,8	484,2	525,7	585,5	647,5
Minority interests	314,3	314,3	314,3	314,3	314,3	314,3	314,3
Shareholders' equity and minority interests	664,5	712,1	748,1	798,5	840,0	899,8	961,8
Total liabilities and shareholders' equity	6 455,6	6 840,2	7 185,9	7 669,7	8 068,3	8 642,5	9 238,0

6. Consolidated Balance Sheet (M€)

	2013	2014e	2015e	2016e	2017e	2018e	2019e
Assets							
Cash and deposits at central banks	1 372,3	1 339,87	1 416,01	1 490,57	1 599,51	1 802,75	1 909,90
Amounts owed by credit institutions repayable on demand	476,1	403,66	424,46	437,89	465,11	480,24	497,57
Loans and advances to credit institutions	2 974,8	3 154,84	3 238,72	3 269,69	3 373,91	3 415,99	3 459,12
Loans and advances to Customers	25 965,1	25 216,97	26 690,65	27 402,86	29 273,72	30 150,17	31 101,90
Financial assets held for dealing	1 295,8	1 143,39	1 297,27	1 335,53	1 419,48	1 463,68	1 513,52
Financial assets available for sale	9 694,2	8 474,70	8 904,04	9 201,77	9 768,28	10 097,19	10 478,47
Financial assets held to maturity	136,9	103,00	103,00	103,00	103,00	103,00	103,00
Hedging derivatives	194,0	137,00	137,00	137,00	137,00	137,00	137,00
Investments in associated companies and jointly controlled entities	222,0	183,80	193,34	199,32	211,76	218,55	226,28
Other tangible assets	197,3	249,82	255,44	267,35	276,67	287,51	301,73
Intangible assets	19,2	14,23	14,23	14,23	14,23	14,23	14,23
Tax assets	539,7	484,38	512,12	522,39	556,86	570,81	585,12
Other assets	707,8	696,93	736,33	752,19	801,45	822,28	844,06
Total assets	43 795,1	41 602,60	43 922,63	45 133,79	48 000,98	49 563,38	51 171,91
Liabilities and shareholders' equity							
Resources of central banks	4 140,1	2 905,74	3 075,12	3 195,70	1 602,85	1 816,39	2 150,46
Resources of other credit institutions	2 551,1	2 568,97	2 545,48	2 595,53	2 546,18	2 579,42	2 599,61
Resources of Customers and other loans	25 495,0	26 034,58	26 665,12	27 451,64	28 372,80	29 380,86	30 434,15
Debt securities	2 598,5	2 598,50	3 787,60	3 787,60	6 692,00	6 692,00	6 692,00
Technical provisions	2 689,8	2 212,11	2 343,04	2 378,78	2 679,64	2 726,35	2 774,24
Financial liabilities associated to transferred assets	1 387,3	1 336,57	1 415,67	1 437,27	1 619,05	1 647,28	1 676,21
Hedging derivatives	548,5	423,80	423,80	423,80	423,80	423,80	423,80
Provisions	123,8	117,01	123,77	127,48	140,73	145,46	150,43
Tax liabilities	57,5	61,78	65,36	67,23	74,36	76,74	79,24
Contingently convertible subordinated bonds	920,4						
Other subordinated loans	136,9	156,07	165,31	167,83	189,06	192,35	195,73
Other liabilities	839,9	839,9	839,9	839,9	839,9	839,9	839,9
TOTAL LIABILITIES	41 488,8	39 255,0	41 450,2	42 472,8	45 180,4	46 520,6	48 015,8
Shareholders' equity	1 921,9	1 963,08	2 087,96	2 276,52	2 436,12	2 658,33	2 771,64
Minority interests	384,5	384,5	384,5	384,5	384,5	384,5	384,5
Shareholders' equity and minority interests	2 306,4	2 347,6	2 472,5	2 661,0	2 820,6	3 042,8	3 156,1
Total liabilities and shareholders' equity	43 795,1	41 602,6	43 922,6	45 133,8	48 001,0	49 563,4	51 171,9

7. Shareholders equity calculations (M€)

	DOMESTIC										
	2009	2010	2013	2013	2013	2014e	2015e	2016e	2017e	2018e	2019e
Shareholders equity	1647,10	1189,20	163,10	1383,70	1571,70	1565,24	1654,14	1792,32	1910,42	2072,86	2124,17
Risk weighted assets	26059,90	26035,80	25152,20	24511,80	21016,00	19565,52	20676,76	21086,10	22475,51	23031,75	23601,89
RWA/TOTAL assets	59,70%	63,09%	65,63%	61,81%	56,28%	56,28%	56,28%	56,28%	56,28%	56,28%	56,28%
				Basel III CET1 capital		8%	8%	9%	9%	9%	9%
Investment in capital	-----	-457,90	-1026,10	1220,60	188,00	-6,46	88,90	138,18	118,10	162,44	51,31

	INTERNATIONAL										
	2009	2010	2013	2013	2013	2014e	2015e	2016e	2017e	2018e	2019e
Shareholders equity + minor interests	393,00	504,40	584,80	617,90	664,50	712,13	748,12	798,50	840,00	899,77	961,77
Shareholders equity	199,90	257,40	306,20	324,20	350,20	397,83	433,82	484,20	525,70	585,47	647,47
Risk weighted assets	1692,14	1655,83	1684,15	1972,71	2100,30	2225,42	2337,88	2495,31	2624,99	2811,78	3005,54
RWA/TOTAL assets	41,23%	33,92%	30,77%	32,62%	32,53%	32,53%	32,53%	32,53%	32,53%	32,53%	32,53%
Solvency Ratio	23%	30%	35%	31%	32%	32%	32%	32%	32%	32%	32%
Investment in capital	-----	57,50	48,80	18,00	26,00	47,63	35,99	50,38	41,50	59,77	62,00

For Domestic operations I calculated the Shareholders capital based on the Basel III rules the bank will have to follow. For international operations I based my calculations assuming the bank will maintain its solvency ratio³³ average; note that the minimum imposed by the Bank of Angola is 10%.

³³ Calculated following Bank of Angola Recommendations: Risk weighted assets/ (shareholders equity + minority interests)

8. Free Cash Flow to Equity Model calculations (M€)

Domestic	2014e	2015e	2016e	2017e	2018e	2019e	TV
Net income	- 119,43	110,58	137,82	246,57	315,08	357,88	212,42
Reinvestment in regulatory capital	- 6,46	88,90	138,18	118,10	162,44	51,31	42,48
Equity Cash-flow	- 112,97	21,68	- 0,35	128,47	152,64	306,57	169,93
Discount rate	11,63%	11,63%	11,63%	11,63%	11,63%	11,63%	7,70%
Discount factor	1	0,90	0,80	0,72	0,64	0,58	0,59
PV Explicit period	273,70						
PV TV	1 773,76						
N° Shares	1456,9						
Price per Share €	1,41						
International	2014e	2015e	2016e	2017e	2018e	2019e	TV
Net income	107,39	102,12	124,25	137,67	153,16	174,84	129,49
Reinvestment in regulatory capital	47,63	35,99	50,38	41,50	59,77	62,00	38,85
Equity Cash-flow	59,75	66,13	73,87	96,17	93,39	112,84	90,65
Discount rate	23,10%	22,80%	22,70%	22,60%	22,50%	22,50%	17,55%
Discount factor	1	0,81	0,66	0,54	0,44	0,35	0,33
PV Explicit period	294,38						
PV TV	274,57						
N° Shares	1456,9						
Price per Share €	0,39						

9. Dividend Discount Model calculations (M€)

Domestic	2014e	2015e	2016e	2017e	2018e	2019e	TV
Net income	- 119,43	110,58	137,82	246,57	315,08	357,88	212,42
Payout ratio	-	-	40%	40%	40%	40%	80%
Equity Cash-flow	-	-	55,13	98,63	126,03	143,15	169,93
Discount rate	11,63%	11,63%	11,63%	11,63%	11,63%	11,63%	7,70%
Discount factor	1	0,90	0,80	0,72	0,64	0,58	0,59
PV Explicit period	278,90						
PV TV	1 773,76						
N° Shares	1456,9						
Price per Share	€ 1,41						
International	2014e	2015e	2016e	2017e	2018e	2019e	TV
Net income	107,39	102,12	124,25	137,67	153,16	174,84	129,49
Payout ratio	-	-	40%	40%	40%	40%	70%
Equity Cash-flow	-	-	49,70	55,07	61,26	69,94	90,65
Discount rate	23,10%	22,80%	22,70%	22,60%	22,50%	22,50%	17,55%
Discount factor	1	0,81	0,66	0,54	0,44	0,35	0,33
PV Explicit period	113,75						
PV TV	274,57						
N° Shares	1456,9						
Price per Share	€ 0,27						

Part IX. References

Academic

Damodaran, A. (2002), *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, New York: John Wiley & Sons, Inc.

Damodaran, A. (2006), *Valuation Approaches and Metrics: a Survey of the Theory and evidence*

Damodaran, A. (2009), *Valuing Financial Services*

Fama E., French. K. (March 1996), *Multifactor Explanations of Asset Pricing Anomalies*

Fama E., French. K. (2004), *The Capital Asset Pricing Model: Theory and Evidence*

Fernandez, P. (2013), *Valuation using multiples. How do analysts reach their conclusions?*

Gordon, M.J., (1962), *The Investment, Financing and Valuation of the Corporation*, Homewood

Holt, W., Nokhasteh, A., Sullivan, P., Young, M. (1999), *All Roads Lead To Rome*, Goldman Sachs Investment Research.

Lim, A. (2010), *Pan-European Banks*, Matrix Group Research.

Lie, H. and Lie, E. (2002), *Multiples Used to Estimate Corporate Value.* Financial Analysts Journal, Vol. 58, No. 2,

Kenneth A., and W. Carl Kester (1997), "*Cross-Border Valuation.*" Harvard Business School Background Note 295-100, January 1995. (Revised August 1997.)

Mimi James and Timothy M. Koller, (2000), "*Valuation in Emerging Markets*", McKinsey Quarterly

Sharpe, W. F., (1964), "*Capital asset prices: A theory of market equilibrium under conditions of risk*", Journal of Finance 19

Non-academic

Breaking into Wall Street: *Bank Regulatory Capital: Why We Need It*

Bank of Portugal (2014), Projections for the Portuguese economy: 2014-2016

KPMG (October 2013), *Angola Banking Survey*

OECD (May 2014), *Economic Outlook*

IMF (October 2013), *World Economic Outlook, "Transitions and Tensions"*

The Economist Intelligent Unit (2014), "*How regulation, client expectations and technology are transforming retail banking.*"

List of abbreviations

BoP: Bank of Portugal

BPC: Millennium Banco Comercial Português

BPI: Banco Português Investimento

CAPM: Capital Asset Pricing Model

CET1: Core Equity Tier1

CRP: Country Risk Premium

DDM: Dividend discount model

ECB: European Central Bank

FCFE: Free Cash Flow to Equity

g: Stable growth rate

Ke: Cost of equity

NII: Net Interest Income

NPL: Non-Performing Loans

RF: Risk Free

Rmp: Market risk premium

ROE: Return on equity

RWA: Risk-weighted asset

WACC: Weighted Average Cost of Capital