Universidade Católica Portuguesa

Católica Lisbon School of Business & Economics

Banco Comercial Português

Equity Valuation

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Abstract

Many financial analysts across the world try to understand on a daily basis if the price of a specific stock will go up or down. They combine all the existent theory regarding valuation with their practical experience and insight as support to strengthen their arguments over the fair value they recommend/'sell'. Similarly, my objective in this dissertation was to present different valuation methodologies and achieve reliable and as accurate as possible the share fair value of Banco Comercial Português, also known as Millennium BCP. The year-end 2013 price target yielded by my valuation model was 0,157 Euros per share, representing a potential return to the investor of 65,2% - BUY recommendation. I also performed a sensitivity matrix, showing how the implicit price target changes due to small changes in key variables of the model. Furthermore, a comparison with an equity research of a leading investment bank was done, mainly focusing on methodologies followed and results obtained.

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CONTENTS

Hope for profits after the *RE*-capitalization/structure

In the end of the FY12, Millennium BCP posted a consolidated net loss of Eur -1.220 million, extremely penalized by impairment for estimated losses and results associated with the Greek operation in the amount of Eur -694 million. After the recapitalization operations, the issuance of Contingent Convertibles ('CoCos') (Eur 3.000 million) in June and the rights issue guaranteed by the Portuguese State (Eur 500 million) in September, Core Tier 1 reached in the end of the year 12,4% according to Bank of Portugal. The deleveraging process continued in 2012, with a decrease of Eur 5.246 million on the commercial gap and the improvement of the loans-to-deposits ratio to 129%.

Slow recovery of profitability in Portugal

The domestic operation will be under pressure until 2016. The 'CoCos' interest payments (avg. interest rate of 9,15%) and the high level of loans impairment contribute for net losses until 2015. The recovery of profitability in Portugal will come back in 2016, following the net interest income improvement, the decrease of the cost of risk and the cost cutting initiatives.

Millions of Euros	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Net interest income	493	537	607	720	843	1.077
Net operating revenues	1.253	1.083	1.206	1.384	1.533	1.785
Operating costs	872	704	732	780	800	854
Net income	(669)	(452)	(248)	(58)	117	333
ROE	-15,3%	-10,4%	-5,6%	-1,3%	2,4%	6,8%
NIM	0,8%	0,9%	1,0%	1,1%	1,3%	1,6%
C/I	66,3%	61,3%	57,3%	53,3%	49,3%	45,3%
Cost-of-Risk (bps)	179,3	165,7	134,5	109,4	88,9	73,0
Loans-to-deposits	152,1%	152,1%	152,1%	152,1%	152,1%	152,1%
Overdue loans / Total loans	6,5%	5,9%	5,0%	4,2%	3,6%	3,0%
Total impairment / Overdue loans	89,3%	89,3%	89,3%	89,3%	89,3%	89,3%

Foreign operations continue growing. Greece for sale.

The improvement of the banking income and the strict control of costs will support the good performance of the Polish operation. The increasing penetration of the banking activity in Angola and Mozambique will allow continue growing in these markets. Initiated discussions to sell the Greek operation. Potential bidder is Piraeus Bank.

Millions of Euros	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Net interest income	492	569	631	697	766	840
Net operating revenues	863	958	1.049	1.149	1.258	1.375
Operating costs	533	564	616	673	732	793
Net income	(30)	7	72	145	196	265
Net income (w/out Greece)	237	270	300	334	346	383

FY13 Reccomendation **BUY**

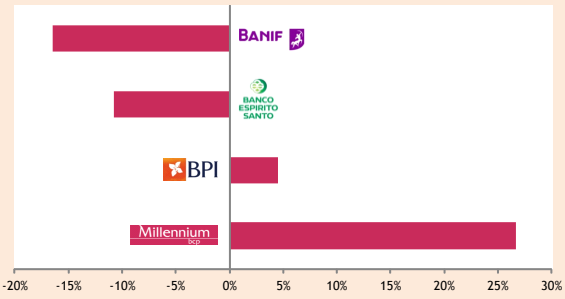
Price Target Eur 0,157

Expected upside: 65,2%

Bloomberg	BCP PL
Reuters	BCP.LS
Share price: (closing price as 28-Mar-13)	Eur 0,095
Market Cap.	Eur 1.872m
Nr. of shares	19.707m

Share price performance (July11 - March13)

Market performance (YTD %)



Historical financial highlights (2010-2012)

Millions of Euros	31 Dec. 10	31 Dec. 11	31 Dec. 12
ROE	9,8%	-22,0%	-35,4%
ROA	0,3%	-0,9%	-1,3%
NIM	1,68%	1,74%	1,20%
C/I	54,1%	58,4%	66,6%
Core Tier I	6,7%	9,3%	12,4%
Loans-to-deposits	163,6%	144,8%	129,0%
Overdue loans / Loans	3,0%	4,5%	6,2%
Immpairment / Overdue loans	109,4%	109,1%	101,6%
Total assets	98.547	93.482	89.744
Loans to customers (net)	73.905	68.046	62.618
Customer deposits	45.609	47.516	49.390
NII	1.516	1.580	1.023
Net operating revenues	2.902	2.570	2.180
Operating costs	1.543	1.634	1.459
Net income	345	(848)	(1.220)
Branches	1.744	1.722	1.699
Employees	21.370	21.508	20.365

Sources: Bloomberg, BCP, own estimates

Valuation FY13

Facing the specifications and risks of each market where Millennium BCP operates, I develop a Sum of Parts (SoP) approach based on NAV model, valuing each geographic segment separately and then summing up the BCP's value in Portugal to the international value of the Bank. For this purpose, I use historical individual financial statements (until December 2012) to forecast the correspondent components for the next five years (until December 2017), and I apply an individual cost of equity that incorporates the risks associated to each market. I assume a Sustainable ROE which reflects the Banks' ability to deliver profitability under stable market conditions in the long-term. Furthermore, I consider the current pension fund shortfall that must be adjusted to the BCP's final valuation.

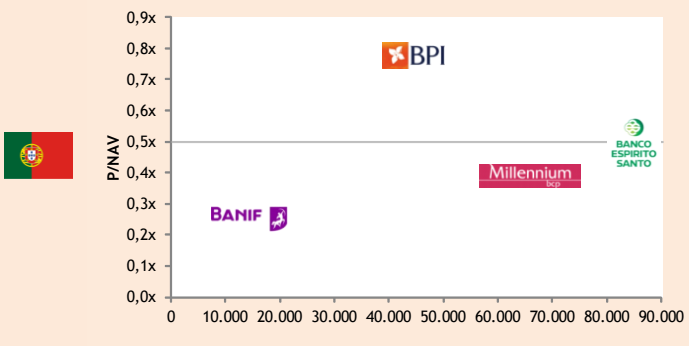
Millennium bcp

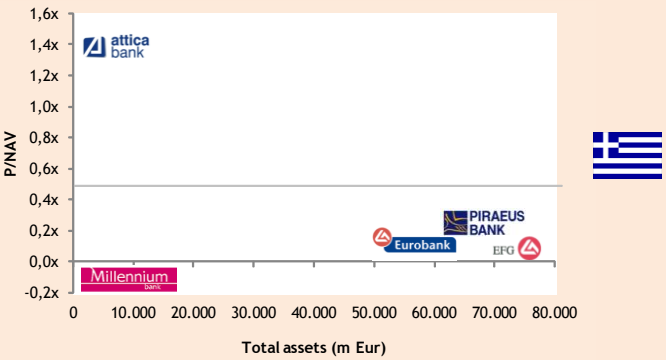
Millions of Euros	Equity Value 13E	Net income 13E	Forecasted ROE 13E	CoE 13E	Sustainable ROE	G	P/NAV	Valuation	% of Capital held	Attributable	Per share	% Valuation	Implied P/E
BCP GROUP	6.394	(445)	-7,0%				0,6x	4.149		3.279	0,17	106,0%	-7,4x
Millennium BCP - Portugal	4.330	(452)	-10,4%	15,8%	6,8%	0,9%	0,4x	1.717	100%	1.717	0,09	55,5%	-3,8x
Bank Millennium - Poland	1.238	128	10,4%	9,8%	11,7%	1,8%	1,2x	1.524	65,5%	998	0,05	32,3%	7,8x
Banco Millennium - Angola	247	39	15,7%	14,5%	15,7%	2,7%	1,1x	271	52,7%	143	0,01	4,6%	3,7x
Millennium bim - Mozambique	390	103	26,4%	14,6%	21,7%	3,9%	1,7x	649	66,7%	433	0,02	14,0%	4,2x
Millennium Bank - Greece	188	(263)	-139,5%	28,6%	0,0%	1,8%	-0,1x	(12)	100%	(12)	0,00	-0,4%	0,0x
# Number of shares (13E) (millions)	19.707												
Adjustments								(185)		(185)	-0,01	-6,0%	
Pension Fund shortfall								(185)		(185)	-0,01	-6,0%	
VALUATION (13E)										3.093	0,157	100,0%	

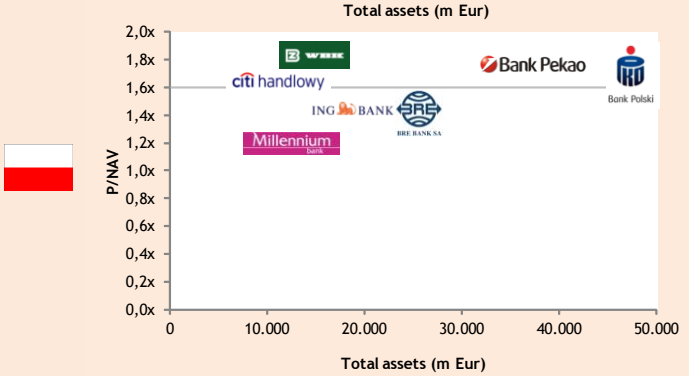
Lx closing price (28.03.2013)	0,095
Income (e.g. Dividends)	0,000
Expected Holding Period Return (HPR) - Dec13	**65,235%**

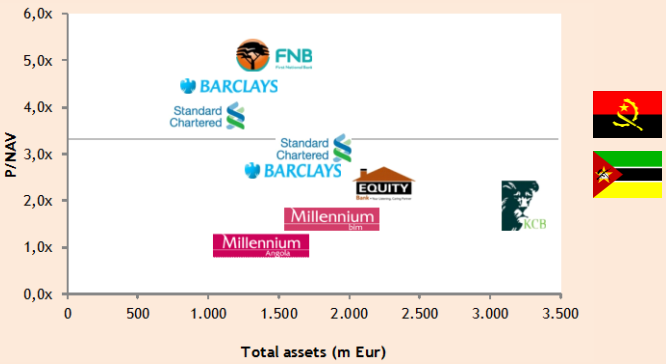
Valuation comparison with trading 'peers'

Sources: Bloomberg, own estimates









I. PREFACE

As a Mergers & Acquisitions (M&A) analyst, the understanding and creation of valuation models will be part of my work. Therefore, this dissertation was an opportunity to improve my technical skills and expertise in valuation modeling, especially for financial services companies. I chose to value Millennium BCP's share price due to the incredible challenges posed in its valuation, even more during the current economic environment in Europe which has been having a tremendously unpredictable impact on the European banking system.

I would like to express my thankfulness to Professor José Carlos Tudela Martins for the constant availability and helpful feedback throughout the accomplishment of this dissertation.

I would like to appreciate the support provided by Millennium BCP's Investor Relations Officer, Dr. Sofia Raposo, in terms of information and data collection. I am also very grateful to her for the several meetings we had and all the explanations provided.

On PricewaterhouseCoopers ('PwC'), I am grateful to the Mergers & Acquisitions team, where I currently work, for the support, advice and understanding - Dr. Cidália Santos, Dr. Alexandra Viana, Dr. Narciso Melo, Dr. Gonçalo Adrião and Dr. José Nunes Pereira. I would also like to thank the knowledge transmitted by the Valuation & Strategy team of PwC.

Finally, I would to express my gratitude to my father by the constant support provided during my master degree, as well as the critical advice throughout the development of my thesis; and to my family and girlfriend, Isabel, by all support given.

1. INTRODUCTION

This dissertation aims to value the share price of Banco Comercial Português S.A. ("Millennium BPC", "BCP", "Bank"). Currently, BCP shares are listed in over 25 national and international stock market indexes, from which PSI-20 Index might be highlighted. Millennium BCP share is the most traded share in the Portuguese market, as it is the most liquid security on the domestic market.

Millennium BCP Group is the largest Portuguese private bank and the second bank when state-owned banks are considered, just behind Caixa Geral de Depósitos. According with the Annual Report of the Bank, it has total assets of 89.744 million Euros, loans and advances to customers (gross) of 66.861 million Euros and customer funds of 68.547 million Euros at 31 December 2012.

The Bank offers a wide variety of banking solutions and other financial services to its clients in Portugal and internationally, operating in Poland, Greece, Mozambique and Angola. It also has small operations in Romania and Switzerland.

Through the Net Asset Value (NAV) model, I value each core operation separately – Portugal, Poland, Angola, Mozambique and Greece. Then, I use the Sum of Parts (SoP) approach to reach the fair price per share of Millennium BCP for 2013, providing a buy/sell recommendation to readers. For this purpose, I use historical individual financial statements (until December 2012).

The structure of my thesis is the following:

In the 'Literature Review' (**Section 2.**), I explain the role of valuation by considering its practical scope in finance. I describe the different valuation models mostly used by financial practitioners, as well as the key inputs of each valuation model. Furthermore, I understand the implicit complexity in the approach of banking valuation.

A detailed company presentation is done in the 'Banco Comercial Português' (**Section 3.**). I describe Millennium BCP's history, market position, shareholder structure and historical share price performance. Further, I analyze the financial performance of the Bank until December 2012, mainly concerning profitability, efficiency, solvency, liquidity, external funding, asset quality and ratings. I also describe the Bank's recapitalization plan and the strategic program until 2017.

I provide a banking 'Sector Analysis' (**Section 4.**) in the core markets where Millennium BCP operates – Portugal, Poland, Angola and Mozambique (excluding Greece due to the fact that this geography is out of the Group's strategic plan). Accordingly, I evaluate macroeconomic performance in the countries mentioned above, as well as their banking system historical profitability, asset quality, solvency and liquidity ratios.

In the 'Valuation Methodology' (**Section 5.**), I explain the reasons for choose Net Asset Value approach as my valuation model. Furthermore, I describe the reasons for exclude some models usually applicable to banking valuation.

I describe and explain the key 'Assumptions' (**Section 6.**), considered in the BCP's valuation, related with macroeconomic forecasts and cost of equity.

In the 'Valuation of BCP' (**Section 7.**), I present the individual forecasts assumed and the implicit details for Balance Sheet and Income Statement of each geography – Portugal, Poland, Angola, Mozambique and Greece.

Finally, the 'Valuation Results' (**Section 8.**) yielded from my model are delivered and explained. I also perform a sensitivity matrix, showing how the implicit price target changes due to small changes in key variables of the model, and compare the results of my valuation with the current trading multiples of comparable banks for each subsidiary.

Furthermore, I compare my model, in terms of assumptions and price target, with the equity research of a leading investment bank (**Section 8.4.**).

To finish, my 'Conclusions' (Section 9.) are expressed. Limitations/risks to fair value are also listed, mainly regarding the huge unpredictability of the ongoing restructuring process's impact in Millennium BCP.

2. LITERATURE REVIEW

2.1 Overview

Valuation models have been evolving constantly since the recognition of their importance for strategic decisions in finance. Consequently, the existent literature about how to value a company is wealthy and very extensive. By taking into account the vast theoretical valuation metrics I will recognize the extent of each valuation model before comprehend which ones best fit on Millennium BCP valuation.

In this chapter I will explain the role of valuation by considering its scope in 'finance world'. Then, I will describe the valuation models used by financial practitioners, discussing their advantages and disadvantages, as well as the key drivers of each valuation model.

Furthermore, I will understand which the main concerns that must be considered in the valuation of a financial service company, as Millennium BCP. Finally, I will select the valuation model which I will use for my valuation of this particular company.

2.2 The role of valuation

Koller *et al*. (2005) stated that "valuation is an age-old methodology in finance". The same authors considered that "its intellectual origins lie in the present value method of capital budgeting and in the valuation approach developed by Professors Merton Miller and Franco Modigliani in their 1961 *Journal of Business* article entitle "Dividend Policy, Growth and the Valuation of Shares"".

Nowadays, as Damodaran (2002) argued, the relevance of valuation is reflected, mainly, in two financial areas, namely Corporate Finance (including Merger & Acquisition transactions) and Portfolio Management.

Valuation assumes a critical role as it supports strategic corporate finance decisions such as Mergers & Acquisitions, Privatizations, Private and Public Sales (IPOs), Dividend Policy, Leverage Buyouts and other investment opportunities or divestment processes. For this reason, the majority of investment banks and financial consultancy companies have specialized departments providing valuation services to their corporate clients, supporting the idea that an accurate valuation prepared by financial specialists is crucial to avoid taking bad decisions.

Concerning with Mergers & Acquisitions transactions, valuation plays a central part in the deal analysis. Damodaran (2002) stated that the bidding firm has to figure out the fair value for the target firm (including potential synergies) before making a bid, and the target firm has to determine a reasonable value for itself before deciding to accept or reject the offer.

In what concerns the other strategic corporate finance decisions presented above, if the objective is the maximization of firm value, the relationship between the financial decisions,

corporate strategy, and firm value has to be delineated. For Damodaran (2002), understanding this relationship through valuation methodologies is key to making value-increasing decisions.

Regarding Portfolio Management, the role that valuation plays is determined by the investor's profile and philosophy. Whereas valuation is meaningless for a passive investor, the role of valuation for an active investor is substantial. For active investors, valuation provides fundamental information (growth prospects, risk profile, cash-flows, etc.) used to understand the future trend of the company's stock price.

Fama (1970) argued that the market efficiency hypothesis lies on the assumption that stock prices at any time "fully reflect" all available information, therefore stock returns are unpredictable and follow a random walk. Considering this hypothesis, Damodaran (2006) recognized the importance of valuation methods in supporting investors to analyze whether and why market prices deviate from value, and how quickly they revert back.

For the reason stressed above, valuation is being a critical approach to support the stock selection decision for asset managers, traders and other investors. By taking into account the importance of valuation for capital markets players, research coverage has been increasingly centralized on companies' valuation. Nowadays, equity research analysts perform valuations regularly in order to provide 'buy' and 'sell' recommendations to their clients, by comparing the intrinsic value of a stock against its value in the market.

Summing up, Damodaran (2006) considered that valuation is the "heart of finance", being a prerequisite for making sensible strategic decisions and understanding how they affect the value of the company.

2.3 Choosing a valuation model

As Fernandez (2007) stated, for any financial practitioner involved in corporate finance, "understanding the mechanisms of company valuation is an indispensable requisite". This is not only because of the importance of valuation but also because "the process of valuing the company and its business units helps identify sources of economic value creation and destruction within the company". Furthermore, identifying the key drivers of the models used in valuation helps to understand the impact of such drivers on the estimated value of the company.

Having valuation the aforementioned role in finance, professionals in the field have to choose the models that best fit the company under analysis. Damodaran (2002) argued that "the problem in valuation is not there are not enough models to value a company, it is that there are too many".

Nevertheless, as argued by Young *et al.* (1999), "All Roads Lead to Rome", "every popular valuation model is no more than a different way of expressing the same underlying model".

Under a practical perspective, this implies that if we use equivalent assumptions when we are valuing a company, we will obtain a similar outcome for the different methods used.

As Damodaran (2002) stated, deciding what approach should be used can be a critical step when valuing a company. The decision whether to choose a simple model or a more complex and sophisticated one depends on several factors, some of which related to the business being valued and the precision that is required, but many of which related to the analysts and the information he has about the company being valued.

2.4 Main valuation models

Fernandez (2007) and Damodaran (2002) recognized similar classifications schemes for valuation models. In general terms, both authors considered that firms or assets can be valued by using one of four main types of valuation approaches: asset-based which aims determining the net value of the assets owned by the firm; discounted cash flow that computes the present value of future cash flows to arrive at a value of equity or the firm; relative valuation that values the firm based on performance and accounting measures of a group of comparable firms; and option pricing approaches that use contingent claim valuation. According with Damodaran (2002), within each of these approaches there are different models that can determine the final value of the company or asset under analysis.

Below there are the main valuation models that can be used within the four different valuation approaches stressed previously:

Main Valuation Models			
Asset-Based Valuation	Discounted Cash Flow Models	Relative Valuation	Contingent Claim Models

• Book value
• Adjusted Book value
• Liquidation value
• Substantial value
	• Equity Valuation
	  • Dividend Discount Model (DDM)
	  • Free Cash Flow to the Equity (FCFE)
	  • Dynamic ROE - DuPont approach
	• Firm Valuation
	  • Free Cash Flow to the Firm (FCFF)
	  • Adjusted Present Value (APV)
	  • Capital Cash Flow
	  • Economic Value Added (EVA)
		• Multiples
		  • Price-Earnings ratio (P/E)
		  • Price-book ratio (P/BV)
		  • Price-sales ratio (P/Sales)
		  • Enterprise value to EBITDA (EV/EBITDA)
		  • Enterprise value to EBIT (EV/EBIT)
		  • Enterprise value to sales (EV/Sales)
		  • Enterprise value to Reserves (EV/Reserves)
		
		(among others)
			• Black & Scholes and Binomial
			  • Option to delay
			  • Option to expand
			  • Option to liquidate

Figure 2.1 Main Valuation Models

In the next sections, I will describe the models presented above as well as the key drivers of each valuation model. Since Millennium BCP is a financial institution, meaning that it has particular characteristics which I will explain later (**Section 2.5**), I will present also the main concerns in its valuation from using the different models discussed. Finally, I will briefly

expose the concerns of cross-border valuation, particularly in emerging markets, which represents (among other) what Damodaran (2010) called as the "dark side of valuation".

2.4.1 Asset-Based Valuation

From Fernandez's (2007) perspective, the asset-based valuation is based on the principle that a "company's value lies basically in its balance sheet". Given the stationary characteristic of the balance sheet, these type of valuation methodologies determine the value of the company from a static viewpoint which, therefore, does not take into account the company's possible future evolution. Furthermore, these methods do not take into account changes in other factors that also affect the value of a company such as: macroeconomic conditions, regulatory environment, organizational structure, etc..

Damodaran (2006) argued that the value of a business can be considered as "the sum of the values of the individual assets owned by the business". Nevertheless, he pointed out a limitation of this model by looking to the differences between a balance sheet at market values, which incorporates not only the existing investment but also the expected future investments and their profitability, and a balance sheet at accounting values, which only takes into account the investment realized. Consequently, models using book values, as the ones included in the asset-based valuation, will yield a lower value for the company than the models which the excess returns, that come from future growth, are incorporated.

By ignoring the critical factors stressed above, asset-based valuation methods can lead to misleading conclusions regarding the company's value. The severity of these misleading conclusions is even bigger if the company being valued is an institution operating in financial sector, as it is Millennium BCP. The value of a bank is especially sensible to changes in regulatory environment. Consequently, the value of Millennium BCP can vary significantly as it is affected by regulatory changes required by national and international supervision entities, such as Bank of Portugal (BoP) and European Central Bank (ECB).

Given the absence of potential/future changes in regulatory environment and other important factors, asset-based models do not fit on Millennium BCP valuation. As a result, I think it is not appropriate to develop a formal asset-based valuation for Millennium BCP and therefore I will not prosecute a deepest analysis of each model within the valuation approach discussed.

2.4.2 Discounted Cash Flow Models

As it is stated by Rosenbaum and Pearl (2009), "discounted cash flow analysis ("DCF Models") is a fundamental valuation methodology broadly used by investment bankers, corporate officers, university professors, investors and other financial professionals. It is premised on the principle that the value of a company, division, business, or collection of assets ("target") can be derived from the present value of its projected free cash flows". A company's projected cash flows are "derived from a variety of assumptions about its expected financial

performance, including sales growth rates, profit margins, capital expenditures, and net working capital requirements". As Damodaran (2006) argued, these projected cash flows should be "discounted at a rate that accurately reflects their riskiness".

According to Fernandez (2007), the standard formula associated with the Discount Cash Flow Models is represented by:

[2.1] Intrinsic Value = $\frac{CF_1}{(1+R)} + \frac{CF_2}{(1+R)^2} + \frac{CF_3}{(1+R)^3} + \ldots + \frac{CF_n+RV_n}{(1+R)^n}$ $RV_n = \frac{CF_n*(1+g)}{R-g}$

Where,

CF_i = Cash Flow generated by the firm in the period i
RV_n = Residual Value of the firm in the year n
R = Appropriate discount rate for the cash flows' risk
g = expected growth rate of cash flows after the explicit period

Furthermore, Rosenbaum and Pearl (2009) stated that the company's cash flows are typically projected for a period of five years. Nevertheless, this period (usually defined as 'Explicit Period') may be longer depending on the company's sector, stage of development, and the underlying predictability of its financial performance. Given the inherent difficulties in accurately projecting a company's financial performance over an extended period of time (and through different economic cycles), the *residual value* is used to capture the remaining value of the target company, beyond the explicit period.

2.4.2.1 Different models on DCF approach

Under the Discounted Cash Flow approach there are distinct methods for valuing a company. Accordingly, the main DCF models can be classified as Equity vs Firm valuation and Absolute vs Residual Income valuation. As Damodaran (2002) argued, the different methods available should produce equivalent outcomes for the value of the 'target' company. As the assumptions about growth and leverage are consistent among the different DCF models used, the value of the company's equity should be the same using the firm approach (where the value of the firm is computed and then the outstanding debt is subtracted) and the equity approach (where the value of the equity is directly computed).

The following table presents the different DCF models classifications:

Main DCF Models	Absolute valuation	Return based valuation
Firm valuation	• Free Cash Flow to the Firm (FCFF) • Adjusted Present Value (APV) • Capital Cash Flow (CCF)	• Economic Value Added (EVA)
Equity valuation	• Dividend Discount Model (DDM) • Free Cash Flow to the Equity (FCFE)	• Dynamic ROE - DuPont approach

Figure 2.2 Discounted Cash Flow Models

As it will be explained in the following chapters, among the different DCF models classifications mentioned above, the expected cash flows and the discount rate will change. Damodaran (2002) stated that "the discount rate will be a function of the riskiness of the estimated cash flows, with higher rates for riskier cash flows and lower rates for safer cash flows".

2.4.2.1.1 Free Cash Flow to the Firm (FCFF) valuation

As it is presented in Figure 2.2, FCFF valuation model allows us to estimate the value of the entire company, including debt. As Damodaran (2002) pointed out, "the value of the firm is obtained by discounting the Free Cash Flow to the Firm (FCFF) and the Residual Value (RV) at the after-tax Weighted Average Cost of Capital (WACC), which is the cost of the different components of financing used by the firm, weighted by their market value proportions". The WACC and the RV assumptions typically have a substantial impact on the valuation final output.

According to Rosenbaum and Pearl (2009), the FCFF valuation should follow the following steps:

Step I.	Study the target and determine key performance drivers
Step II.	Project Free Cash Flows to the Firm (FCFF)
Step III.	Calculate after-tax Weighted Average Cost of Capital (WACC)
Step IV.	Determine the Residual Value (RV)
Step V.	Calculate the Present Value and estimate valuation

Figure 2.3 Free Cash Flow to the Firm (FCFF) valuation steps

The focus of this valuation method is on the cash generation. Accordingly, Rosenbaum and Pearl (2009) defined the FCFF as "the cash generated by the company after paying all cash operating expenses and the associated taxes, as well as, the funding of Capital Expenditures (CAPEX) and Working Capital, but prior to the payment of any interest expense". Therefore, FCFF is independent of capital structure as it represents the cash available to all capital providers (both debt and equity holders).

Fernandez (2007) considered that the FCFF is computed by the following formula:

Earnings Before Interest and Taxes (EBIT)
Less: Taxes paid on EBIT (at the effective tax rate)
Earnings Before Interest After Taxes (EBIAT)
Plus: Depreciation & Amortization
Less: Capital Expenditures
Less: Increase/Decrease in Net Working Capital (Δ in NWC)
Free Cash Flow to the Firm

Figure 2.4 Free Cash Flow to the Firm Calculation

The enterprise value (EV) of the target company is estimated by summing up the discounted Free Cash Flows to the Firm and the Terminal Value, as it is indicated below:

[2.2] $$EV = \frac{FCFF_1}{(1+WACC)} + \frac{FCFF_2}{(1+WACC)^2} + \frac{FCFF_3}{(1+WACC)^3} + \ldots + \frac{FCFF_n + TV_n}{(1+WACC)^n} \qquad TV_n = \frac{FCFF_n * (1+g)}{WACC - g}$$

Where,

$FCFF_i$ = Free Cash Flow to the Firm in the period i
TV_n = Terminal Value of the firm in the year n
WACC = Weighted Average Cost of Capital (after-tax)
g = expected growth rate after the explicit period

2.4.2.1.2 Adjusted Present Value (APV) valuation

The APV valuation model indicates that the basis for the firm's value is the *unlevered scenario*, when the firm is entirely financed with equity. As debt is introduced on the firm's balance sheet, the APV model considers the net effect on value by taking into account both the benefits and the costs of borrowing. In general terms, Damodaran (2006) pointed out that debt usage to fund the company's operations creates tax benefits (because interest expenses are tax deductible) and increases the expected bankruptcy costs (because the increase of the bankruptcy risk):

Accordingly, Damodaran (2006) and Fernandez (2007) argued that the enterprise value (EV) of the target company is estimated by summing up the value the unlevered firm and the effects of using debt as a source of financing:

$$\textbf{[2.3]}\quad EV = V_{unlevered} + PV_{ITS} - PV_{E(BC)}$$

Where,

$V_{unlevered}$ = Value of the company *unlevered*
PV_{ITS} = Present Value of Interest Tax Shields
$PV_{E(BC)}$ = Present Value of the expected Bankruptcy Costs

By considering the formula presented above, Damodaran (2002) considered the APV valuation as a three-step process. First, the value of the *unlevered* firm is estimated. Secondly, the present value of the interest tax savings generated by borrowing a given amount of money is calculated. Finally, the expected bankruptcy costs for the firm's debt level are evaluated.

2.4.2.1.2.1 Value of the *unlevered* Firm

The first step in the APV approach is the estimation of the value of the *unlevered* firm. This can be easily done, by using the same formula [2.2] of the FCFF valuation model. By definition, an *unlevered* firm is a firm which is entirely equity financed. Consequently, the WACC will be equal to the cost of equity when the company has no debt (known as *unlevered* cost of equity), which results on the formula presented below:

$$\textbf{[2.4]}\quad EV = \frac{FCFF_1}{(1+Ru)} + \frac{FCFF_2}{(1+Ru)^2} + \frac{FCFF_3}{(1+Ru)^3} + \ldots + \frac{FCFF_n + TV_n}{(1+Ru)^n} \qquad TV_n = \frac{FCFF_n * (1+g)}{Ru - g}$$

Where,

$FCFF_i$ = Free Cash Flow to the Firm in the period i
TV_n = Terminal Value of the firm in the year n
R_U = *unlevered* Cost of Equity
g = expected growth rate after the explicit period

2.4.2.1.2.2 Present Value of Interest Tax Shields

The second step in the APV approach is the calculation of expected tax benefit from using a certain level of debt as source of financing.

Modigliani and Miller (1963) showed that a firm paying taxes on income may lower the tax amount by resorting to debt financing if interest payments are tax deductible. These savings are called tax shields because debt financing shields income from taxes to some extent. Even so, the fundamentals of the interest tax shields valuation have been discussed by several authors since almost half a century.

Modigliani and Miller (1963) argued that the tax benefit is a function of the tax rate and interest payments of the firm and is discounted at the cost of debt. This point of view considers the tax shields as a perpetuity, assuming that the marginal tax rate and the cost of debt stay constant over time. Accordingly, the Present Value of Interest Tax Shields is given by the following formula:

$$\textbf{[2.5]}\quad PV_{ITS} = \frac{D * R_D * t_c}{R_D} = D * t_c$$

Where,

PV_{ITS} = Present Value of Interest Tax Shields
D = Value of Debt (subject to interest payments)
R_D = Cost of Debt (required rate of return by debtholders)
t_c = Marginal corporate tax rate

Further literature has shown similar or different perspectives concerning the estimation of the tax benefits from debt usage proposed by Modigliani and Miller (1963).

Myers (1974), the pioneer of the APV approach, followed the roots proposed by Modigliani and Miller (1963). Therefore, Myers (1974) proposed calculating the value of tax shields by discounting the tax savings at the cost of debt. The argument is that the risk of the tax savings arising from the use of debt is the same as the risk of the debt. Then, according to Myers (1974) the present value of the interest tax shields should be valued by the following growing perpetuity formula:

$$\textbf{[2.6]}\quad PV_{ITS} = \frac{D * R_D * t_c}{R_D - g}$$

Miles and Ezzell (1980) proposed a different approach for the computation of the interest tax shields. Despite the same fundamental basis of the Modigliani and Miller (1963) point of view, Miles and Ezzell (1980) argued that the correct discount rate for the tax savings of a company with a fixed target debt ratio (D/V_L at market values) is the cost of debt (R_D) in the first year, being the tax benefits of the following years discounted at the *unlevered* Cost of Equity (R_U).

Consequently, the authors considered that the present value of interest tax shields follows a growing perpetuity, as it is indicated by the formula below:

$$[2.7]\ PV_{ITS} = \frac{D * R_D * t_c * (1+Ru)}{(1+R_D) * (Ru-g)}$$

Later, Harris and Pringle (1985) proposed that the present value of the interest tax shields should be calculated by discounting the tax saving at the required rate of return on assets, which is equal to the *unlevered* cost of equity. The argument presented by Harris and Pringle (1985) is that the interest tax shields have the same systematic risk as the firm's underlying cash flows and, therefore, should be discounted at the required return to assets. Hence, according to the authors, the value of the tax shield is given by:

$$[2.8]\ PV_{ITS} = \frac{D * R_D * t_c}{Ru-g}$$

From the extensive literature about the estimation of the tax shields, it is not possible to reach an incontestable conclusion. Therefore, the tax savings calculation should be made according to the characteristics of the debt level (fixed or variable) and the characteristics of the company/business itself.

2.4.2.1.2.3 Expected Bankruptcy Costs

The third step of the APV model is to evaluate the effect of the debt usage on the default risk of the firm and on the expected bankruptcy costs. According with Damodaran (2002), the present value of the expected bankruptcy costs is estimated by the formula presented below:

$$[2.9]\ PV_{E(BC)} = Probability\ of\ bankruptcy\ *\ PV\ of\ Bankruptcy\ Costs$$

Nonetheless, Damodaran (2002) stressed that this process poses the most significant estimation problems, since neither the probability of bankruptcy nor the bankruptcy costs can be estimated directly.

Damodaran (2001) argued that the probability of bankruptcy is the likelihood that the firm's cash flows will be insufficient to meet its promised debt obligations, either interest or principal. Considering this definition, the probability of bankruptcy is a function of:

1st Size of Operating Cash Flows relatively to the size of the Debt Obligations
2nd Variance in Operating Cash Flows

Damodaran (2002) discussed three main methods to estimate the probability of bankruptcy. The first one is computing a probit analysis (stress tests, multiple scenarios test and other statistical approaches) taking into consideration the characteristics of the firm associated to different debt levels. The second way to compute the probability of bankruptcy is estimating a bond rating and uses the empirical estimates of default probabilities for the correspondent

rating. Finally, the probability of bankruptcy can be derived by reverse engineering (i.e. backing out the probability from the prices of corporate bonds issued by the firm).

The most critical and demanding part in estimating the present value of the expected bankruptcy costs is quantifying the costs associated to the bankruptcy. Considering Damodaran (2001), these costs can be classified into direct and indirect. The direct costs of bankruptcy are the costs incurred at the time of the bankruptcy and can be easily estimated. These costs are mainly administrative and legal expenses related to accountants' and lawyers' fees. In the other hand, the indirect costs of bankruptcy may be substantial relatively to the firm's value. The indirect costs are categorized as the costs associated with the debt usage and the increasing default risk that arises prior to the bankruptcy. Accordingly, the indirect costs translate the customers' and suppliers' perception that the firm is financially deteriorating. For customers' point of view, they may stop buying the product or service out of fear that the company will go out of the business. Further, as the debt level increases, company's suppliers will demand stricter terms to protect themselves against the probability of default. Damodaran (2001) considered that the severity of these and other indirect costs (not mentioned) depends on the company's business and on the products and services characteristics (durability, quality, maintenance, complementarity with other products or services, etc.). Despite their significant impact on company valuation, the indirect costs are very difficult to be measured.

2.4.2.1.3 Capital Cash Flow (CCF) Model

Ruback (2000) introduced the Capital Cash Flow model as a different way of valuing companies using the same assumptions and approach as the Free Cash Flow valuation model (**Section 2.4.2.1.1**). Despite algebraically equivalent to the FCFF model, the CCF model includes all of the cash available to capital providers, including the interest tax shields. In other words, Capital Cash Flows are equal to the Free Cash Flows plus the interest tax shields. Because the interest tax shields are included in the cash flows, the appropriate discount rate is before-tax and corresponds to the riskiness of the cash flows. As Ruback (2000) argued, the main advantage of the CCF valuation model is its simplicity either when the company has a fixed target debt ratio or when the debt ratio changes over time.

Ruback (2000) considered that the CCF is computed by the following formula:

Earnings Before Interest and Taxes (EBIT)
Less: Taxes paid on EBIT (at the effective tax rate)
Earnings Before Interest After Taxes (EBIAT)
Plus: Depreciation & Amortization
Less: Capital Expenditures
Less: Increase/Decrease in Net Working Capital (Δ in NWC)
Free Cash Flow to the Firm
Plus: Interest Tax Shields
Capital Cash Flow

Figure 2.5 Capital Cash Flow Calculation

Then, the enterprise value (EV) of the target company is estimated by summing up the discounted Capital Cash Flows and the Terminal Value, as it is indicated below:

[2.10] $EV = \frac{CCF_1}{(1+WACC)} + \frac{CCF_2}{(1+WACC)^2} + \frac{CCF_3}{(1+WACC)^3} + \ldots + \frac{CCF_n + TV_n}{(1+WACC)^n}$ $\quad TV_n = \frac{CCF_n * (1+g)}{WACC - g}$

Where,

CCF_i = Capital Cash Flow in the period i
TV_n = Terminal Value of the firm in the year n
WACC = Weighted Average Cost of Capital (pre-tax)
g = expected growth rate after the explicit period

As it was stressed early, Capital Cash Flow method and the Free Cash Flow method are equivalent because they make the same assumptions about cash flows, capital structure, and taxes. Therefore, Ruback (2000) argued that both models should give identical outcomes. The choice between the two methods is only dependent on their ease of use, mainly concerning to the complexity of applying each method on the target company.

2.4.2.1.4 Economic Value Added (EVA) valuation

Koller *et al.* (2005) considered that despite the greater popularity of the methods presented above (**Sections 2.4.2.1.1/.2/.3**), among financial professionals, academics and other practitioners, they provide little insight into the company's performance. In other hand, Economic Value Added (EVA) valuation highlights how and when the company creates value. As Damodaran (2006) stated, EVA model has its roots in capital budgeting and the net present value rule. The EVA measures the "excess return" of a project (including all future cash flows) against its capital needs. By considering this difference, the model measures the surplus value created by an investment or a portfolio of investments.

Conceptually, EVA is computed through main three inputs: the return on capital earned on investments, the cost of capital for those investments and the capital invested in them. The formula to estimate EVA is presented below:

[2.11] $EVA = Invested\ Capital * (ROIC - WACC)$

Since ROIC equals NOPLAT divided by invested capital, the formula can be rewrite as follows:

[2.12] $EVA = NOPLAT - (Invested\ Capital * WACC)$

Where,

EVA = Economic Value Added
NOPLAT = Net Operating Profit Less Adjusted Taxes
WACC = Weighted Average Cost of Capital
ROIC = Return on Invested Capital

Damodaran (2002) presented EVA model as a simple extension of the net present value rule. For this reason, investing in projects with positive net present value will increase the value of the firm, while investing in projects with negative net present value will reduce value.

According with Damodaran (2006), the value of the firm can be estimated by summing up three components: the capital invested in assets in place, the present value of the economic value added by these assets, and the expected present value of the economic value that will be added by future investments.

Then, the enterprise value (EV) of the target company is estimated by the following formula:

$$\textbf{[2.13]}\quad EV = Capital\ Invested_{assets\ in\ place} + \sum_{t=1}^{t=\infty} \frac{EVA_{t,assets\ in\ place}}{(1+WACC)^t} + \sum_{t=1}^{t=\infty} \frac{EVA_{t,future\ projects}}{(1+WACC)^t}$$

2.4.2.1.5 Dividend Discount Model (DDM)

As it is presented in the Figure 2.2, DDM measures only the equity value of the firm. As Damodaran (2002) stated, the rationale for the model lies again in the present value rule, meaning that the value of the company's equity is "the present value of the expected future dividends", discounted at a rate appropriate to the riskiness of the dividends payment.

According with the definition presented by Damodaran (2002) and Fernandez (2007), the future cash flows expected by the equity investors generally arise from two sources[1]: dividends during the holding period and the expected price at the end of the holding period (comparing with the initial price). Since the stock price is itself determined by future dividends, the only source of cash flows from the equity, which is considered by the model, is the dividends.

Concerning the discount rate for the model, it is determined by the riskiness of the stock returns, which is measured by the cost of equity. The cost of equity can be estimated according with several methods. Nevertheless, it is usually estimated using the capital-asset pricing model (CAPM), as it will be presented later (**Section 2.4.2.2.1**).

Fernandez (2007) argued that for a company which the investor is expecting dividends to grow at a constant rate indefinitely, the value of the equity can be easily estimated by using the Gordon Growth Model, as follows below:

$$\textbf{[2.14]}\quad \text{Equity Value} = \frac{E\ (Dividends_1)}{R_E - g}$$

Where,

$E\ (Dividends_1)$ = Expected Dividends next year
R_E = Cost of Equity

[1] Other sources are share buy-backs and subscription rights. However, in the latter, when capital increase takes place trough a subscription of rights, the shares' price falls by an amount approximately equal to the right's value, meaning that the equity investors do not get a capital return.

g = growth rate in dividends forever

According with Damodaran (2002), despite "the Gordon Model provide a simple approach to valuing equity, its use is limited to firms that have no growing (assuming g equals to zero) or to firms that are growing at a stable growth rate". The Gordon Models is also extremely sensitive to the growth rate defined by the analyst. When incorrectly defined, it can yield misleading or even absurd results.

For companies which the growth rate is unstable and the dividends paid to equityholders change over the time, more complex models should be used. Damodaran (2002) proposed the two-stage and the three-stage Dividend Discount Models to capture the changes in the growth rate and in the dividends value paid. However, these models require a much larger number of inputs, which may lead us to misleading outcomes when inconsistent.

When a reliable forecast about the dividends is made, the equity value can be estimated according with the formula presented below:

$$\textbf{[2.15]}\quad \text{Equity Value} = \frac{E(Div_1)}{(1+R_E)} + \frac{E(Div_2)}{(1+R_E)^2} + \frac{E(Div_3)}{(1+R_E)^3} + \ldots + \frac{E(Div_n) + TV_n}{(1+R_E)^n}$$

$$TV_n = \frac{E(Div_n) * (1+g)}{R_E - g}$$

Where,

$E(Div_i)$ = Expected Dividends in the period i
TV_n = Terminal Value of the equity in the year n
R_E = Cost of Equity
g = expected growth rate after the explicit period

One of the most important drawbacks of the DDM arises when the value creation is not implicit in the payout policy. As Damodaran (2006) pointed out there are "firms paying far more in dividends than they have available in cash flows, often funding the difference with new debt or equity issues". In these particular companies, using the DDM will generate valuation results that are too optimistic, assuming that firms can continue to draw on external funding to meet the dividend deficits in the long-run. Other critic made to the DDM is when the companies pay no dividends. In spite of Damodaran (2006) defended that firms paying no dividends currently, can still be valued based upon dividends that they are expected to pay out in the future, some practitioners and financial professionals argue that, in this case, the model requires several assumptions regarding the future dividend policy, which can lead to inconsistent valuation outcomes.

Notwithstanding its limitations, Damodaran (2006) argued that the DDM can be very useful in companies/sectors "where cash flow estimation is difficult or even impossible", and the dividends are the only cash flows that can be estimated with any degree of precision. One of the sectors in which the DDM is widely used is the financial sector, where the Millennium BCP operates.

2.4.2.1.6 Free Cash Flow to the Equity (FCFE) valuation

As Koller *et al.* (2005) argued, the Free Cash Flow to the Firm model (**Section 2.4.2.1.1**) determines the value of the equity indirectly by subtracting nonequity claims from the enterprise value. In contrast, the FCFE model values equity directly by discounting cash flows to equity at the cost of equity (R_E), rather than at the WACC. Furthermore, Damodaran (2006) stated that the FCFE model does not represent a radical departure from the traditional dividend discount model. Comparatively, the FCFE discounts all the cash available to equityholders, including potential dividends, while the DDM considers only actual dividends.

According with Damodaran (2002), the FCFE can be computed using the following formula:

Net Income
Plus: Depreciation & Amortization
Less: Capital Expenditures
Less: Increase/Decrease in Non Cash Working Capital
Plus: (New Debt issued – Debt Repayments)
Free Cash Flow to the Equity

Figure 2.6 Free Cash Flow to the Equity Calculation

As it will be explained further (**Section 2.5**), when the target company is a financial institution, the net capital expenditures and the non-cash working capital changes cannot be easily identified. However, Damodaran (2009) presented an alternative way to compute the FCFE for financial sector. Accordingly, for financial service firms, the reinvestment generally does not take the form of fixed assets. Instead, the investment is in regulatory capital; this is the capital as defined by the regulatory authorities.

The FCFE for the financial services companies is computed as follows:

Net Income
Less: Reinvestment in Regulatory Capital
Free Cash Flow to the Equity

Figure 2.7 Free Cash Flow to the Equity Calculation for financial services companies

Finally, the equity total value of the target company is estimated by summing up the Free Cash Flows to the Equity, discounted at the cost of equity, and the Terminal Value, as it is indicated below:

$$\textbf{[2.16]}\quad \text{Equity Value} = \frac{FCFE_1}{(1+R_E)} + \frac{FCFE_2}{(1+R_E)^2} + \frac{FCFE_3}{(1+R_E)^3} + \ldots + \frac{FCFE_n + TV_n}{(1+R_E)^n}$$

$$TV_n = \frac{FCFE_n * (1+g)}{R_E - g}$$

Where,

$FCFE_i$ = Free Cash Flow to the Equity in the period i
TV_n = Terminal Value of the equity in the year n
R_E = Cost of Equity
g = expected growth rate after the explicit period

2.4.2.1.7 Dynamic ROE – DuPont Approach

The DuPont method is a simple performance measure widely used by companies' chief officers to analyze the profitability of their company and even to evaluate the impact of different strategies on the company's value. Basically, the DuPont model breaks down the Return on Equity (ROE) in three distinct parts: *Profit Margin*, which measures the profitability of the company; *Asset Turnover*, which measures the operating efficiency of the company; and *Equity Multiplier*, which measures the company's financial leverage.

Accordingly, the Forecasted ROE is estimated by using the following formula:

$$\textbf{[2.17]}\ \text{Forecasted ROE} = \textit{Return on Assets ROA} * \textit{Equity Multiplier} \Leftrightarrow$$

$$\Leftrightarrow \text{Forecasted ROE} = \textit{Profit Margin} * \textit{Assets Utilization} * \textit{Equity Multiplier} \Leftrightarrow$$

$$\Leftrightarrow \text{Forecasted ROE} = \frac{Net\ Income}{Net\ Operating\ Revenue} * \frac{Net\ Operating\ Revenue}{Average\ Total\ Assets} * \frac{Average\ Total\ Assets}{Average\ Equity}$$

As Saunders and Cornett (2003) stated, "ROE is a measure of how successfully the management of a company has deployed the equity to generate a return for its shareholders". However, ROE incorporates leverage in its calculation. A breakdown of ROE into ROA and the Equity Multiplier provides further insight as to how that ROE has been achieved with respect to genuine profitability of the asset base, versus the use of leverage on the balance sheet (measured by the equity multiplier). While ROA reflects how effectively the company's management is employing the company's assets and cannot be skewed by leverage, the equity multiplier (by leveraging) can be used to artificially boost ROE. Therefore it is very important to understand where the company's return on equity comes from to correctly compare it with other companies. Particularly in the banking sector, where Millennium BCP operates, for two banks with the same amount of assets and generating the same return on those assets, the bank with the smaller amount of equity (and hence the higher equity leverage) will generate the higher ROE, which at the same represents a more risky bank.

Given the impact and the significance of leverage in the banking sector, the ratio of assets to equity (equity multiplier) has obviously becoming an increasing focal point, especially over the course of the current financial crisis. However, as Saunders and Cornett (2003) also argued, the equity multiplier does not take into account the risks inherent in the various underlying assets. Therefore, the equity multiplier should always be complemented by a Core Tier 1 ratio[2] as a point of analysis of the riskiness of the bank's assets.
Furthermore, the model is based on accounting values extracted from the Balance Sheet and Income Statement, which sometimes is not very reliable.

[2] Core Tier 1 ratio measures the financial strength of a bank and it is used by the regulatory authorities to evaluate the financial stability of banks. Core Tier 1 ratio is computed dividing the Core Tier 1 capital by the total Risk Weighted Assets (RWA).

After having the Forecasted ROE computed, as it was described above, the equity value of the company can be simply estimated by using the following formula:

$$\textbf{[2.18]}\quad \text{Equity Value} = \frac{Forecasted\ ROE}{ROE\ Demanded} * NAV$$

Where,

ROE Demanded, is the implicit Cost of Equity (**Section 2.4.2.2.1**)

NAV, is the Net Asset Value and it is estimated as follows:

$$\textbf{[2.19]}\quad \text{NAV} = Equity\ Book\ Value\ t_{-1} + Pension\ fund\ Shortfalls + Unrealized\ capital\ gains/losses + Lack\ of\ provisions\ (for\ credit\ defaults,\ etc.) + Tax\ credits\ that\ are\ going\ end$$

2.4.2.1.8 Net Asset Value Approach

In the investment banking industry, equity analysts responsible for covering banking institutions, have been using the Net Asset Value Approach which is a variant of the Gordon Growth Model and quite similar to the DuPont Approach (**Section 2.4.2.1.7**). As Georgiadis (2003) pointed out "analysts across many European financial institutions were observed to derive the price-to-book value (P/BV) multiple that a banking stock should trade at, by comparing the bank's profitability to its cost of equity capital adjusted for the growth rate". The P/BV can be estimated through the following formula:

$$\textbf{[2.20]}\quad \text{Target P/BV} = \frac{Forecasted\ or\ Sustainable\ ROE - g}{ROE\ Demanded - g}$$

Then, the implied price of a banking stock is derived through the equation bellow, being after adjusted for Pension Fund shortfalls, unrealized capital gains/losses, lack of provisions (for credit defaults, etc.) and tax credits that are going end, such as the DuPont Approach.

$$\textbf{[2.21]}\quad \text{Fair price of a banking stock} = Target\ P/BV * Estimated\ BV$$

Despite the inputs for the equation are relatively easy to compute, they assume a critical impact on the final value of the bank, being easy to make small changes in the assumptions and produce big differences in the final valuation number. For Georgiadis (2003), this means that the consistency of the final outcome is highly associated to the reliability of the assumptions made, as they possessed high leverage. Additionally, Georgiadis (2003) stated that the "assumptions are quite subjective and consequently cannot be verified or even rejected".

On the other hand, the Net Asset Value Approach has some key advantages that usually analysts and investors attribute a key importance. Georgiadis (2003) listed the main advantages of this valuation model:

1. "It takes into account the most critical factors highlighting the financial performance of a banking institution (Return on Equity, Cost of Equity, Growth and BV)";
2. "It is focused on shareholders' value";
3. " It incorporates the risk factor";
4. "It incorporates expectations of growth in earnings and / or dividends".

Due to the sensibility of the final valuation outcome to the assumptions considered, analysts usually perform a sensibility analysis over the key inputs of the models.

2.4.2.2 Key inputs of DCF models

2.4.2.2.1 Cost of Equity (R_E) (CoE)

The cost of equity is, as Damodaran (2002) argued, "the rate of return that investors require on an equity investment in a firm". Since it is not possible to directly observe the expected rate of returns, investors rely on asset-pricing models that purely translate risk into expected return.

As Koller *et al.* (2005) and Pettit (2007) stated, though the capital asset pricing model (CAPM) has been challenged by financial practitioners and professionals, it remains the most used asset-pricing model to determine the cost of equity.

According with CAPM, the expected rate of return of a stock, and thus the firm's cost of equity (R_E), is estimated by the following formula:

$$\textbf{[2.22]} \quad R_E = E(R_i) = r_f + \beta_i * [\, E(R_m) - r_f \,]$$

Where,

r_f = Risk-free rate
β_i = Beta = stock's sensitivity to the market
$E(R_m)$ = Expected return of the market

$[\, E(R_m) - r_f \,]$ = Market risk premium

It is also common to include a country risk premium whenever the diversifiable risk cannot be mitigated. The country risk premium should be used in countries facing political, social and economic risks that may lead to a higher required rate of return by the investors. In this case, the cost of equity is computed as follows:

$$\textbf{[2.23]} \quad R_E = E(R_i) = r_f + \beta_i * [(E(R_m) - r_f) + Country\ Risk\ Premium]$$

2.4.2.2.1.1 Risk-free rate (R_f)

As it is stated by Rosenbaum and Pearl (2009), "the risk-free rate is the expected rate of return obtained by investing in a "riskless" security". Government securities (T-bills, T-notes and T-bonds) from highly developed economies, such as USA, Germany and United Kingdom, are generally accepted by the market as "risk-free" because they are backed by the full faith of these countries governments.

The main questionable point of the risk-free rate is the maturity of the government security used as a proxy for the risk-free rate. Pettit (2007) considered the strengths and the weaknesses of using either shorter or longer maturity securities.

Shorter maturity securities, such as T-Bills, have a shorter duration and a lower correlation with the stock market, therefore they should be considered as truly riskless asset. However, Pettit (2007) pointed out that because T-bill rates are more susceptible to supply/demand swings, central bank intervention, and yield curve inversions, T-bills provide a less reliable estimate of long-term inflation expectations and do not reflect the return required for holding a long-term asset.

Pettit (2007) also specified that for valuation, long-term forecasts, and capital budgeting decisions, the most appropriate risk-free rate is derived from longer-term government bonds (usually 10-year). These securities capture long-term inflation expectations, are less volatile and subject to market movements, and are priced in a liquid market. However, the long maturity securities are more susceptible to systematic risk.

Nevertheless, the risk-free rate chosen must be necessarily equivalent in all of its applications throughout the valuation model, including CAPM.

2.4.2.2.1.2 Beta (β)

When CAPM is considered, Koller *et al.* (2005) argued that "a stock's expected return is driven by beta, which measures how much the stock and the market move together". Therefore, beta is a critical input within CAPM model and should be estimated carefully. However, Pettit (2007) stated that the determination of a robust proxy for systematic risk (beta) is often a problematic part of a Cost of Equity calculation, especially for business units, private companies, illiquid stocks and public companies with little meaningful historical data.

A common method to estimate beta, is presented by Fama and French (2004). According to the authors, the market beta of an asset is the covariance of its return with the market return divided by the variance of the market return, as indicated by the formula below:

$$\textbf{[2.24]} \quad \beta_{i,m} = \frac{Cov\,(R_i, R_m)}{\sigma^2\,(R_m)}$$

Pettit (2007) provided other alternatives to estimate the beta of a stock. Firstly, for publicly traded companies, the beta can be computed by direct regression between the market returns and the company's stock returns. Nevertheless, this method must be applied with cautious as possible estimation errors can occur, due to the fact that historical betas may have been influenced by critical events such as market bubbles (e.g. tech bubble) or terrorist attacks (e.g. 9th September). One solution to this problem, is establishing an appropriate sample period and frequency for the past stock returns used in the regression.

For companies which stocks or markets are less liquid or have too little history a simple direct regression may lead us to spurious results. A solution in such cases, as well as for private companies and business units, is to determine a proxy for systematic risk by calculating an industry beta from a publicly traded peer group. As Rosenbaum and Pearl (2009) argued, given the potential disparities between the capital structures within the group of publicly traded peer companies, the effects of leverage must be neutralized. Therefore, the beta for each company in the peer group must be *unlevered*, by using the following formula:

$$\textbf{[2.25]} \quad \beta_u = \frac{\beta_L}{\left(1 + \frac{D}{E} * (1 - t_c)\right)}$$

Where,

β_U = unlevered beta
β_L = levered beta
D/E = debt-to-equity ratio (market values)
t_c = Marginal corporate tax rate

After having the unlevered beta for each company, the average unlevered beta for the peer group is estimated, usually on a market capitalization weighted basis. This average unlevered beta is then *relevered* for the target company, using the company's capital structure and marginal tax rate, as it is indicated below:

$$\textbf{[2.26]} \quad \beta_L = \beta_u * \left(1 + \frac{D}{E} * (1 - t_c)\right)$$

Where,

D/E = target debt-to-equity ratio

The computed levered beta can then be used for the company's cost of equity estimation using the CAPM.

According with Rosenbaum and Pearl (2009), as the market beta is equal to 1,0, "a stock with a beta of 1,0 should have an expected return equal to that of the market". Consequently, "a stock with a beta of less than 1,0 has a lower systematic risk than the market, and a stock with a beta greater than 1,0 has a higher systematic risk". The CAPM captures this effect by exhibiting a higher cost of equity for a higher beta, and vice versa for lower beta stocks.

2.4.2.2.1.3 Market Risk Premium (R_m - R_f)

As Koller *et al.* (2005) stated, estimating the difference between the market's expected return and the risk-free rate is one of the most debated issues in finance, given its significant implication on several financial areas, such as corporate valuation or portfolio management. Damodaran (2002) presented two main paths to estimate the market risk premium, the historical premium approach and the market-implied approach.

Given the simplicity of the historical premium approach, it remains the most widely used method. The actual returns earned on stock market over a long time period are estimated, and compared to the actual returns earned on a risk-free security (usually U.S. or German Government Bonds, depending on the target company's geographic segmentation). The difference, on an annual basis, between the two returns corresponds to the historical risk premiums. Despite the simplicity of this approach, Damodaran (2002) pointed out three reasons for divergence: the time period used for the historical data; the choice of risk-free security; and the choice between arithmetic and geometric for how the average of the returns is estimated.

Based on the historical premium approach, Damodaran (2002) also argued that the market risk premium, for countries that incorporate extra risks (e.g. political and social instability), can be modified as follows:

[2.27] Market Risk Premium = *Base premium for mature equity market + Country premium*

The second approach presented by Damodaran (2002) does not require historical data or correction for country risk, but assumes that the financial markets are correctly priced. Considering the Gordon Growth Model presented in the formula **[2.14]**, the only unknown input is the required return on equity (R_E). Concerning the other inputs, we have: the equity value is the total market capitalization; the Dividends are the annual market dividend payments; and the g is the estimated dividend growth rate. Solving the equation **[2.14]** for R_E, we get an implied expected return on stocks. Subtracting the risk-free rate will yield an implied equity risk premium.

According with Rosenbaum and Pearl (2009), the market risk premium, used by investment bankers, typically ranges from approximately 4% to 8%.

2.4.2.2.2 Cost of Debt (R_D)

As Rosenbaum and Pearl (2009) argued, "the company's cost of debt reflects its credit profile at the target capital structure, which is based on a multitude of factors including size, sector, outlook, cyclicality, credit ratings, credit statistics, cash flow generation, financial policy, and acquisition strategy, among others". Assuming the company's target capital structure, the cost of debt is the blended yield on its outstanding debt instruments, including private and public debt. Accordingly, when the company has debt instruments outstanding that are

widely traded in the market, the cost of debt is determinate on the basis of the current yield on all outstanding issues. For private debt, the cost of debt is also the current yield charged by the lenders. Nonetheless, market-based yield is generally preferred as the current yield on a company's outstanding debt as it captures the company's risk of default, as well as the market expectations regarding the company.

For private companies and smaller businesses (which are mostly not rated), Damodaran (2002) presented an alternative method to estimate the cost of debt, from combining the risk-free rate and the default risk (and associated default spread) of the company. Furthermore, Damodaran (2002) argued that companies operating in emerging markets or in countries through a sovereign crisis, such as Portugal, Greece or Spain, the company's cost of debt should also incorporate the country default risk. Consequently, the cost of debt can be estimated according with the following formula:

[2.28] $R_D = r_f + Company\ default\ spread + (Country\ default\ spread)_{emerging\ markets\ /\ sovereign\ crisis}$

According with Damodaran (2002), the company's default risk can be computed using its recent borrowing history and the associated spreads over the riskless rate that were charged by the lenders, and estimating a synthetic rating based on the its financial ratios, typically the interest coverage ratio (Operating Income over Interest Expenses).

2.4.2.2.3 Weighted Average Cost of Capital (WACC)

Once the cost of equity (R_E) and the cost of debt (R_D) are estimated, the Weighted Average Cost of Capital (WACC) can be computed straightforwardly. The formula most widely used by financial practitioners is the proposed by Modigliani and Miller, and is expressed as:

[2.29] $WACC = R_D * (1 - t_c) * \frac{D}{D+E} + R_E * \frac{E}{D+E}$

Where,

D is the market value of Debt
E is the market value of Equity
t_c = Marginal corporate tax rate

As Rosenbaum and Pearl (2009) stated, given the considerable impact of WACC on the company's valuation, "its key inputs are typically sensitized to produce a WACC range" and, consequently, a valuation range for the target company.

2.4.3 Relative Valuation - Multiples

Rosenbaum and Pearl (2009) argued that the foundation for relative valuation "is built upon the premise that comparable companies provide a highly relevant reference point for valuing a given target company, division or business, due to the fact that they share key business and

financial characteristics, performance drivers, and risks". As a result, it is possible to establish valuation parameters for the target by determining its relative positioning among peer companies.

Rosenbaum and Pearl (2009) considered that the first and the main step of the relative valuation involves selecting a universe of comparable companies based on various financial figures and ratios (especially regarding size, profitability, growth profile, return on investment and credit profile), as well as a qualitative analysis of the companies (especially regarding sector, products and services, customers and end markets, distribution channels and geography). The trading/market multiples (past, current or future) are then calculated for each comparable company within the universe, which serve as the basis for extrapolating a valuation range for the target. The valuation range is calculated by applying the selected multiples to the target's relevant financial statistics.

According Damodaran (2002), the use of relative valuation is widespread. The first reason for its popularity lies on its simplicity, which results from fewer explicit assumptions required and less time needed when compared with the discounted cash flow (DCF) valuation. Second, a relative valuation is simpler to understand and easier to present to clients and customers than a DCF valuation. Finally, the relative valuation reflects "current" valuation based on the mood of the market, since it is an attempt to measure relative and not intrinsic value.

Nevertheless, Damodaran (2002) pointed out several drawbacks concerning the use of comparable companies multiples. Firstly, it can be difficult to establish an appropriate universe of publicly traded comparables due to the specifications of the target company. Even when a universe of comparable companies is established, if key variables such as risk, growth or cash flow potential are ignored, the relative valuation can produce an inconsistent outcome. Second, the fact that multiples reflect the market conditions also implies that using relative valuation to estimate the value of the target can skew valuation either too high (when market is overvaluing comparable firms) or too low (when market is undervaluing comparable firms). The third pitfall is the scope for bias, due to the lack of transparency regarding the underlying assumptions in relative valuations. In other words, multiples-based valuation is easy to manipulate by the analyst, as he is allowed to choose the multiple on which the valuation is based and to pick the comparable firms which essentially ensure that almost any value can be justified.

2.4.3.1 Types of Multiples

According with Rosenbaum and Pearl (2009), there are two main types of multiples: market multiples, which is based on publicly traded comparable companies; and transaction multiples, which is based on precedent comparable transactions. As the majority of banks are listed on the stock exchange, I will only use market multiples to value Millennium BCP.

Market multiples utilize a measure of value in the numerator and a value driver in the denominator. Concerning the measure of value, Rosenbaum and Pearl (2009) argued that the multiples most widely used by financial practitioners are based on the Enterprise Value (EV), since they are independent of capital structure and other factors unrelated to business operations (e.g. differences in tax regimes and certain accounting policies). Even so, multiples based on the Equity Value (Price) have an advantage over EV multiples because they do not require a further adjustment for net debt, which made them more fit for value financial institutions, such as Millennium BCP.

Within the EV multiples, the most widely used is EV/EBITDA, especially to avoid potential disparities on the EBIT margins, between the comparable companies, that can emerge from an increase in Depreciation & Amortization (D&A) over the recent years. However, as it was stated by Rosenbaum and Pearl (2009), EV/EBIT may be helpful in situation where D&A is unavailable or for companies with high capital expenditures (Capex). EV/Sales is also used as a valuation metric. Although, since Sales may not translate into profitability, this multiple is less relevant than the multiples discussed above. Nonetheless, EV/Sales can be an important reference for valuation purposes in certain sectors (e.g. early stage technology company), when the company has fast growing sales, but not yet achieves profitability.

Concerning to the value driver used as denominator, there is a growing usage of sector-specific indicators in the recent years. Some examples are shown in the following table:

Valuation Multiple	Sector
EV /	
Broadcast Cash Flow	• Media • Telecommunications
Earnings before Interest, Taxes, Depreciation, Amortization, and Rent Expense	• Casinos • Restaurants • Retail
Production/Capacity (in units)	• Metals & Mining • Natural Resources • Oil & Gas • Paper and Forest Products
Reserves	• Metals & Mining • Natural Resources • Oil & Gas
Subscriber	• Media • Telecommunications
Square Footage	• Real Estate
Price /	
Book Value (BV) (per share)	• Financial Institutions • Homebuilders
Net Asset Value (NAV) (per share)	• Financial Institutions

Figure 2.8 Examples of sector-specific valuation multiples ***Source*:** Rosenbaum and Pearl (2009)

According with the Figure 2.8, I will use P/BV multiple to value Millennium BCP as it is a financial institution. Furthermore, I will use P/E multiple due to its recognition among equity analysts covering financial institutions.

As it was stated in *McKinsey on Finance* article "*The right role for multiples in valuation*" (2005), both the principles of valuation and the empirical evidence recommend that multiples should be based on forecasts rather than historical data. According to the article, it has been statistically proven that forward-looking multiples promoted greater accuracy in pricing. Consequently, I will use forward-looking multiples in the target company's valuation.

2.4.4 Contingent Claim Valuation Models

Contingent claim valuation models are intrinsically related to the real options. According to Koller *et al.* (2005), real options are an increasingly used method to value managerial flexibility, as the traditional valuation tools, such as NPV, ignore the managers' ability to react to changes in the economic environment by adjusting their plans and strategies. Accordingly, depending on economic environment conditions and specific industry changes (e.g. regulatory framework, concessions and patents), managers can launch or delay a new project, expand or contract the production, maintain or abandon a certain project, among other potential decisions. As Damodaran (2002) argued, by using option pricing models, like Binomial and Black-Scholes, we are able to capture the intrinsic value of assets that provide pay-offs that are contingent on the occurrence of an event.

According with Koller *et al.* (2005), in valuing an entire company, flexibility is relevant only in special cases, such as in the case of companies with a single product, companies in a commodity-based industry, or companies in (near) distress. As Millennium BCP does not fit in these special cases, and given the level of complexity of this valuation method, I will not prosecute a deepest analysis of each model within the contingent claim valuation approach.

2.5 Valuing Financial Institutions

Valuing financial institutions, such as commercial banks, investment banks and insurance companies, has always been difficult, due to their specific characteristics. Additionally, as Damodaran (2009) stated, the market crisis of 2008 and the recent sovereign debt crisis across the Europe have elevated the difficulties imposed on the valuation of financial institutions.

Commercial and retail banks, such as Millennium BCP, make money from borrowing and lending money. As Koller *et al.* (2005) argued, the bank's main source of value is the net interest income, which represents the difference between the interest income a bank earns from lending and the interest expenses it pays to borrow funds. Therefore, banks need manage the interest rates in order to create value – lending out funds at a higher rate of interest than the bank pays. Moreover, even with lower significance than the net interest

income, commercial banks provide different services to its customers (e.g. asset management, financial advisory and private bank services), which represent other source of value, known as fees and commissions income. The value creation drivers discussed above, translate a critical difference between banks and the majority of the companies, hence they are the first problem on the valuation of financial institutions. According with Damodaran (2009), financial institutions valuation is particularly challenging for four additional reasons.

First, banks operate under a heavy regulatory framework, which contains a set of requirements demanded by the supervision entities, which in the case of Portugal are the European Central Bank, the Bank of Portugal and the Portuguese Securities Market Commission ("CMVM"). As Damodaran (2009) stated, the key constraint for banks is to maintain regulatory capital ratios, such as Core Tier 1 ratio, to ensure that they have a minimum level of "good quality" capital, hence they do not put their claimholders or depositors at risk. Second, financial services firms are often constrained in terms of where they can invest their funds, particularly after the 2008 financial crisis, which also limits the level of risk that banks can be exposed. Third, the entrance of new banks into the financial system is often regulated by the regulatory authorities, as it is the inorganic growth (mergers and acquisitions) for the existing banks. The regulatory overlay in the financial system implies a set of assumptions when valuing banks, which must to be scrutinized to ensure that they pass regulatory constraints. Currently, during the sovereign debt crisis, regulatory requirements have been changing quickly, which represents an additional source of uncertainty (risk) for banks, which must be incorporated on valuation.

Second, accounting rules used are different for financial service firms than the rest of the market. As the bank's assets tend to be financial instruments that are often priced by a public active market, they are marked to market for accountancy purposes. Furthermore, due to the nature of their operations, banks are extremely exposed to credit risk, which translates the risk that lenders may default. Consequently, rather than record bad loans as they occur, banks create provisions for losses that average out losses over the time and charge this amount against earnings every year. In general, this procedure helps banks to smoothing out their earnings but creates the additional responsibility of making the loan loss assessment.

Third, banks' debt is hard to define as it is viewed as a raw material. Moreover, there is little distinction between deposits and debt issued by the bank, which results on an higher financial leverage ratio than most of the firms. Given the nature of its operations (stable level of earnings) and the regulatory framework they operate, banks are able to maintain this high financial leverage ratio. However, high leverage implies that small changes in the value of the bank's assets can translate into big swings in equity value.

Finally, measuring the reinvestment needs, in terms of capital expenditures (CAPEX) and working capital, is problematic for financial institutions. Due to the specificity of its operations, banks invest primarily in intangible assets such as brand name and human

resources, being the level of capital expenditures and depreciation almost insignificant. Concerning to working capital, as the difference between current assets and current liabilities can be both large and volatile, it may have no relationship to reinvestment for future growth.

Given the intrinsic difficulty in measuring the debt level and the reinvestment needed for future growth, the free cash flow to the firm is impossible to compute for financial institutions, as well as it is more difficult to estimate their future growth rate. Consequently, equity valuation models are much more used than enterprise valuation models when valuing banks. Damodaran (2009) suggested the Dividend Discount Model, the Free Cash Flow to the Equity Model and the Excess Return Model as good options to estimate the value of a bank.

2.6 Cross-Border Valuation

The continuous globalization and integration of the capital markets reflect the increase in cross border investments made by companies, including financial services firms.

According with the Deutsche Bank Research "*European banks: The silent (r)evolution*" (2008), internationalization has opened up new sources of growth for Western European banks that experience lower growth rates in traditional home markets but can seize opportunities in emerging markets (EMs) such as Eastern European countries, Africa or South America. Internationalization itself comprises mainly two dimensions – the fact that European banks increase the share of foreign earnings and that the shareholder base of banks in Europe has become more international. In general, the two main drivers behind European banks "going international" are the search for new sources of growth and diversification of the revenue structure. Many of the Western home markets of banks are already mature and show rather high concentration levels, limiting scope for further growth. Equally, broader geographic diversification is supposed to strengthen the overall stability of a bank as diverging national developments balance themselves out and smooth revenues and earnings of a multinational institution.

As Koller *et al.* (2005) stated, in spite of the potential advantages discussed above, internationalization incorporates a number of issues that should be carefully measured when valuing a company, particularly a bank.

First, it is important to consider different accounting standards and tax systems across countries. Understanding these disparities is critical to analyze company's financial statements and build up the valuation model.

Secondly, the currency for the forecasted foreign cash flows must be established. The company's cash flows can be projected using the domestic or foreign currency depending on how sensitive the business is to future exchange rates. According with Kester (1997), if the business is particularly sensitive to changes in the exchange rates it might be better to forecast foreign currency cash flows and then convert them using a spot or forward exchange

rate. Nonetheless, as Koller *et al*. (2005) argued, once the foreign cash flows' projections and the cost of capital calculation are based on a single set of monetary assumptions, a company valuation should always lead to the same result regardless of the currency or mix of currencies in which cash flows are projected.

Thirdly, use the same WACC for all countries incorporated in the company's operations might be too much simplistic. Consequently, the cost of capital must incorporate the specific risk of the foreign market (especially in emerging markets), by adding it a country risk premium, as it is presented in the formula **[2.23]**.

Finally, in terms of the incorporation of the foreign-currency risk in the valuation, Koller *et al*. (2005) argued that this risk is already included on the valuation model, through an adjustment in the market spot and forward exchange rates that are used to translate currencies. Furthermore, companies (particularly financial institutions) typically use complex hedging strategies, using derivatives, to mitigate this risk. Summarizing, Koller *et al*. (2005) didn't support the inclusion of an additional risk premium in the discount rate to cover for perceived currency risk.

As it will be detailed further, Millennium BCP operates mainly in five markets, Portugal, Poland, Greece, Mozambique and Angola. Facing the specifications and risks of each market, I decided to develop a Sum of Parts (SoP) approach, valuing each geographic segment separately and then summing up the BCP's value in Portugal to the international value of the bank. For this purpose, I will use individual financial statements (Balance Sheet and Income Statement) to forecast the correspondent components, and I will apply an individual cost of equity that incorporates the risks associated to each market. As the current sovereign debt crisis remains, I will employ a country risk premium to Portugal and Greece, as well as to the three emerging markets where Millennium BCP operates.

3. BANCO COMERCIAL PORTUGUÊS (Millennium BCP)

3.1 Company Presentation

Banco Comercial Português (also known as Millennium BCP or BCP) is a Portuguese financial group, which was incorporated in 1985, following the deregulation of the Portuguese banking system. Millennium BCP's expansion relied on various levels of growth, both organic and inorganic. The first phase of development was characterized, essentially by organic growth, through the exploration of the market opportunities that emerged from the deregulation process. In 1989, the Group launched an innovative banking concept, the Nova Rede, offering a diversified range of products and services to its clients, both institutional and private, with broad geographical coverage. By 1995, the Bank had already an established position in the Portuguese banking market, and it was the beginning of the second phase of development. With the intensification of the market competition, particularly due to the modernization of the existing financial institutions and the entrance of new foreign banks, Millennium BCP based its growth in the acquisition of Banco Português do Atlântico, which was, at that time, the largest Portuguese private bank. Few years later, in 2000, the inorganic expansion continued through the acquisition of Banco Mello and Banco Pinto & SottoMayor. The notable growth of Millennium BCP had also a huge impact on the banking system in Portugal, as it catalyzed the development of the other Portuguese financial institutions. After achieving and consolidating a significant position in the Portuguese market, BCP entered into the third phase of its development, focusing on the expansion of the Retail business into new geographic areas, namely Poland and Greece. The fourth phase of growth of the Bank started in 2005 with the consolidation of a unique brand (Millennium) throughout its international expansion. From 2006 until today, as the global economic conditions deteriorate, Millennium BCP has been redefining its international strategy, particularly through the divestment of its non-core operations, firstly in Canada, France and Luxemburg, and more recently in USA and Turkey. Nowadays, the BCP's strategic priorities are the emerging markets, Poland, Angola and Mozambique, as well as the strengthening of its position in the Portuguese market. Summarizing, the development of Millennium BCP is presented in the following figure:

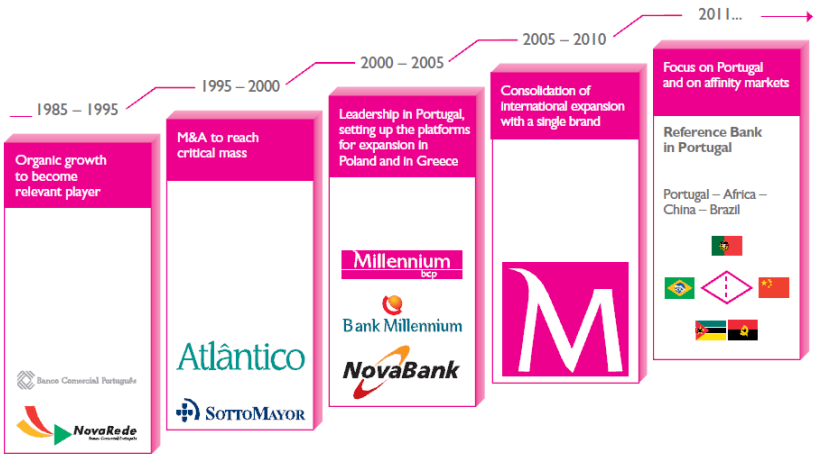


Figure 3.1 Development of Banco Comercial Português since its foundation ***Source***: Company's Annual Report

Currently, Millennium BCP Group is the largest Portuguese private bank and the second bank when state-owned banks are considered, just behind Caixa Geral de Depósitos (more information in the Exhibit 1. – Main Awards in 2012). According with the Annual Report of the Bank, it has total assets of 89.744 million Euros, loans and advances to customers (gross) of 66.861 million Euros and customer funds of 68.547 million Euros at 31 December 2012.

In Portugal, Millennium BCP has the largest banking distribution network with 839 branches, and is the second bank in terms of market share, both in loans and advances to customers (approximately 19,6%) and total customer funds (approximately 18,4%). The Portuguese activity represents around 74,2% of loans and advances to customers and 61,9% of total customer deposits. By June 2012, the market shares' evolution for the five largest banks of the Portuguese banking system is the following:

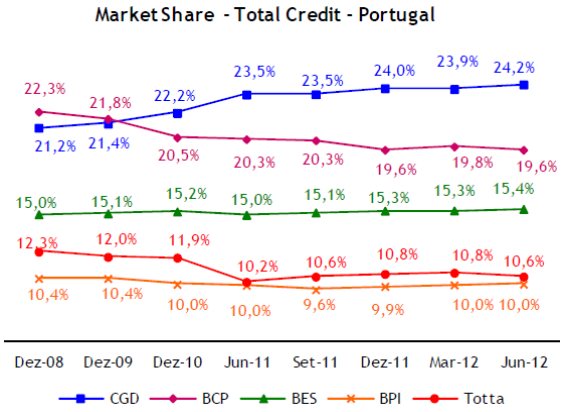


Figure 3.2 Market Shares in Loans to Customers

Source: Company's Interim Report

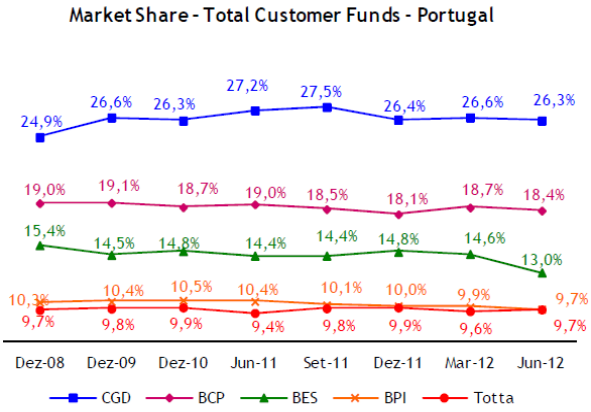


Figure 3.3 Market Shares in Total Customers Funds

Source: Company's Interim Report

Concerning the international operations of the Bank, they currently represent 50% of the 1.699 total branches and 54% of the 20.365 employees of the Millennium Group, being currently the main value driver for the Bank. The branches breakdown by geographic area is the following:

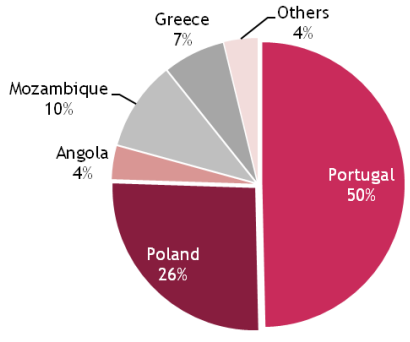


Figure 3.4 Branches geographic breakdown ***Source***: Company's Interim Report

Millennium bim is the leading bank in Mozambique, with a market share of 34,5% in loans and advances to customers, and 33,6% in deposits. In Angola, Millennium Angola has a market share of 3,1% in loans and advances to customers, and 2,7% in deposits. Regarding the operational activity in Poland, Millennium Bank has a market share of 4,9% in loans and

advances to customers, and 5,1% in deposits. After the uncertainty around the sale of the BCP's share holdings in Millennium Bank, the recently designated Chief Executive Officer, Nuno Amado, has been reaffirming the Bank's commitment to struggle for an organic growth in Poland.

As a retail bank, Millennium BCP offers a large range of products and services to its clients, both private and corporate. The services offered by BCP include private banking, asset management and investment banking, among the typical services of commercial and retail banking (more detailed information in the Exhibit 2. – Business areas).

Since its foundation, Millennium BCP is recognized by the market as a leading Bank in innovation, with a strong tradition of adding new practices to the market. As a result, BCP launched recently a new brand, ActivoBank, which embodies a new concept, based on distinctive factors, such as branches with extended hours, bank access via smartphones and applications for investment support in iPhone. Nowadays, ActivoBank holds 12 branches, mainly in large urban areas, consolidating its leading role in the national innovation market.

3.2 Shareholder Structure

BCP shares are listed on Euronext Lisbon and market capitalization, as at 31 December 2012, stood at approximately 1.478 million Euros. At the end of the last fiscal year (FY12), the average number of shares outstanding (adjusted) was 12.190 million, being the average annual price equal to 0,0748€.

The Bank's shareholder structure remains very dispersed, since no single shareholder holds more than 20% of the share capital and only seven shareholders own qualified holdings (above 2% of the share capital) and just one shareholder holds a stake over 10%.

Currently, the number of shares outstanding is, approximately, 19.707 million and the following shareholders held qualified holdings:

Shareholder	Nr. Shares	% of share capital
Sonangol Group	3.760.612.823	19,08%
Sabadell Group	841.789.318	4,27%
Joe Berardo	604.775.860	3,07%
EDP Group + EDP Pension Fund	588.843.734	3,21%
José Estêvão Fernandes Neves	568.215.723	2,88%
Teixeira Duarte Group	431.797.053	2,19%
InterOceânico Group	412.254.443	2,09%
TOTAL QUALIFIED SHAREHOLDINGS	**7.208.288.954**	**36,58%**

Figure 3.5 Qualified Holdings ***Source*:** Millennium BCP

The remaining percentage of share capital (approximately 63,42%) is dispersed in the market as "free-float". The number of shareholders rose to 190.703 after the rights issue, in the context of the recapitalization plan in progress.

3.3 Share Price Performance

Throughout 2012, it was witnessed the deepening of the public debt crisis in Europe with serious consequences to the competitiveness of the economies, especially in peripheral countries of the Eurozone, and the progressive deterioration of the financial markets during the year.

Several factors contributed to the current harsh economic environment, particularly the European sovereign debt crisis and the uncertainty of how European leaders would overcome the situation. Consequently, the stock exchanges indices recorded huge losses during the year.

Portugal was one of the countries most affected by the European crisis, but not the only one. After the financial bailout to Greece, Ireland and Portugal, countries like Spain and Italy, until now considered stable economies, began to show some signs of weakness. Although the austerity efforts in countries most affected by the crisis, positive signs of economic stability are yet to appear and the scepticism continues the dominant tone in the financial markets with investors questioning the effectiveness of austerity policies in struggling economies.

The domestic banking sector has been extremely penalized by the systemic risk intrinsic to the crisis, as it is highly exposed to sovereign risk. In line with its sector in Portugal, the behavior of BCP shares was strongly influenced by the worsening of the sovereign debt crisis and the recapitalization efforts of the national banking sector. Despite allowing a stronger capital structure, the announcement of the recapitalization plan in progress during 2012 had a negative impact on BCP's share price. The share price of BCP has been instable since the publication of the recapitalization details.

The comparative evolution of Millennium BCP's share price, PSI-20 and the STOXX 600 Banks Index, which includes European companies that are involved in the banking sector, is presented below:

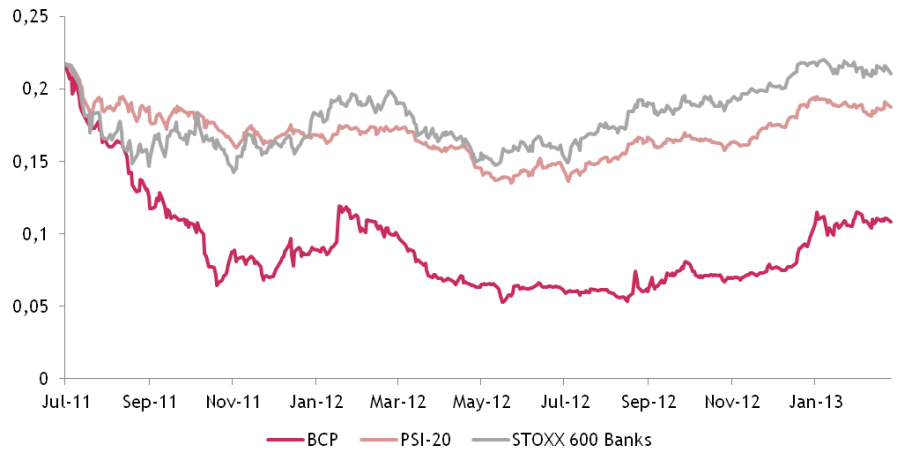


Figure 3.6 Millennium BCP Share Price Performance ***Source*:** Bloomberg

As it can be observed, BCP's share underperformed the two benchmarks, PSI-20 and STOXX 600 Banks, over the last months. At 18 March 2012, the close price stood at 0,108€ per share.

3.4 Financial Performance

3.4.1 Profitability

The severity of the 2008 financial crisis and, more recently, the 2011-2012 sovereign debt crisis had a significant negative impact on the financial institutions' results worldwide. Particularly, in terms of profitability, Portuguese Banks have been very penalized by the harsh financial environment, as the Millennium BCP's profitability measures, from 2008 to 2012, illustrate:

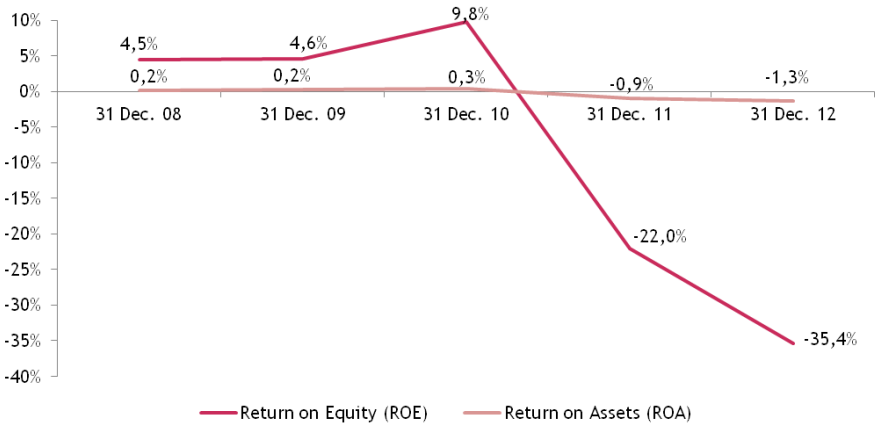


Figure 3.7 Consolidated ROE and ROA ***Source*:** Company's 2012 Press Release

After the 2008 'subprime' financial crisis, the global economy and the banking system showed positive signals of recovery and, consequently, also the profitability of the Bank improved slightly to +9,8% at the end of 2010. However, in 2011 and 2012, Millennium BCP's consolidated net income was negative by 849 million Euros and 1.219 million Euros, respectively, compared with a profit of 344 million Euros in 2010. Accordingly, at the end of 2012, ROE and ROA stood at -35,4% and -1,3%, respectively.

The highly negative result in 2012 was influenced by exceptional negative items amounting to 1.183 million Euros and related to: the recognition of impairment losses on Greek sovereign debt securities (427M €); the negative net income in Greece (266M €); the liability management in 2011 (139M €); the interests payments of hybrids ('CoCos') used in the recapitalization plan (96M €); costs related to the ongoing restructuring programme (49M €); and the increase in impairment charges for loans as a result of the on-site inspections programme (OIP) established with the Portuguese authorities and conducted with

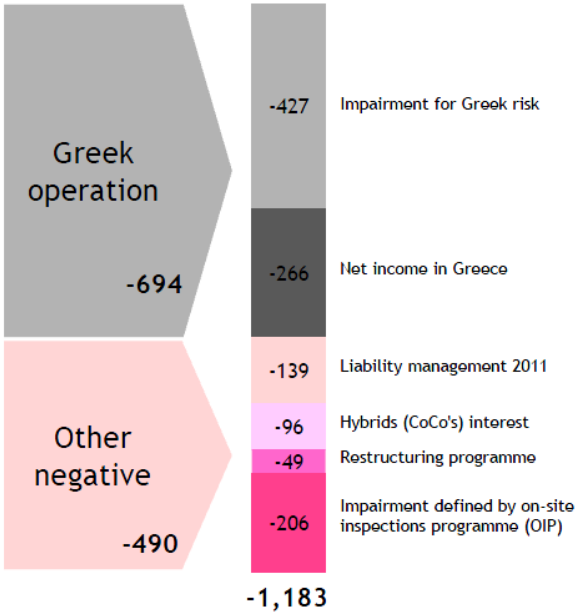


Figure 3.8 Exceptional negative items (net of taxes)
***Source*:** Company's Earnings Presentation

the largest Portuguese banking groups (206M €). As can be noticed, the Millennium BCP's consolidated Net Income in 2012 was largely hindered by the additional direct losses related to Greece, amounting to 693 million Euros.

From 2008 to 2012, the evolution of the Net Income and the Net Interest Income, broken down by domestic and international operations, was the following:

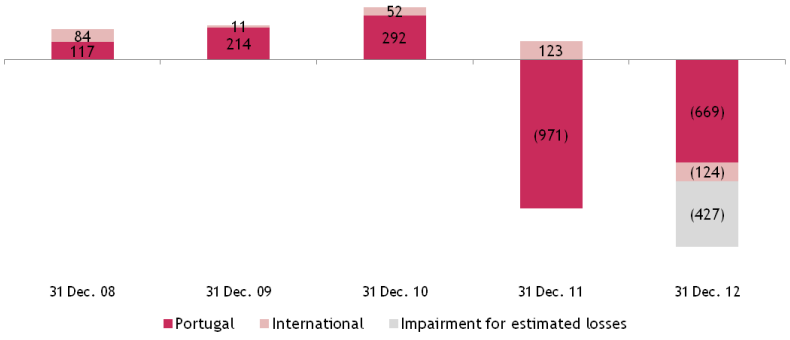


Figure 3.9 Net Income
***Source*:** Company's Earnings Presentation

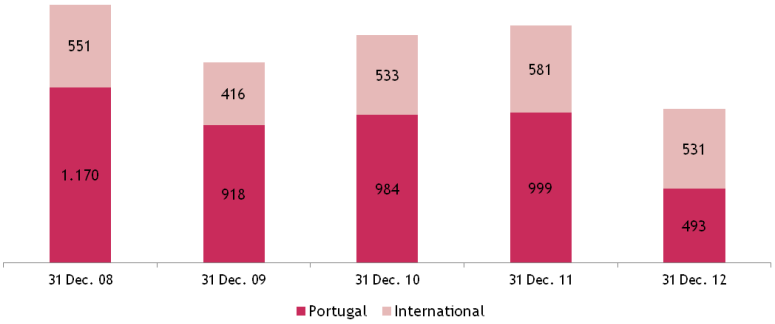


Figure 3.10 Net Interest Income
***Source*:** Company's Earnings Presentation

Between 2008 and 2010 the compounded annual growth rate (CARG) of the Net Income was around +19,6% in a consolidated basis. Nevertheless, as it was explained above, the evolution of profitability in 2011 and 2012 was determined by the negative performance of the activity in Portugal and Greece, while net income from Poland, Angola and Mozambique showed an increase of +36%. The activity in Portugal in 2012 was extremely conditioned by the aforementioned negative impacts, which were translated into: the decrease in net interest income (-50,7%) and the decrease in net operating revenues (-17,3%).

The consolidated decrease in the net interest income, which amounted to 557 million Euros, was largely hindered by domestic operations (-506M €), particularly by: the market interest rates evolution (ex. Euribor) (-270M €); the liability management (-170M €); the hybrid instruments 'CoCos' costs (-135M €); the past due loans effect (-65M €); and the repricing of the commercial margin (+134M €).

3.4.2 Efficiency

Concerning the operating costs, which comprise staff costs, other administrative costs and depreciation, totaled 1.459 million Euros in 2012, compared with 1.634 million Euros in 2011

and 1.543 million Euros in 2010. According to the 2012 Earnings Press Release, the evolution of operating costs in 2012 include: the favorable impact of the legislative change related to the mortality allowance (64M €); the accounting of costs associated with early retirements and mutually agreed exits, in particular as part of the ongoing restructuring programme (69,4M €); the reversal of provisions related to the pension fund of former members of the Executive Board of Directors and the complementary plan for employees posted in 2011 (48,3M €); and expenses associated with the partial transfer of liabilities with pensions of retired employees and pensioners to the General Social Security Scheme in 2011 (164,8M €). Excluding the mentioned impacts, the operating costs decreased by 3,5% which translates the Bank's effort to strictly control the costs undertaken by the domestic and international operations.

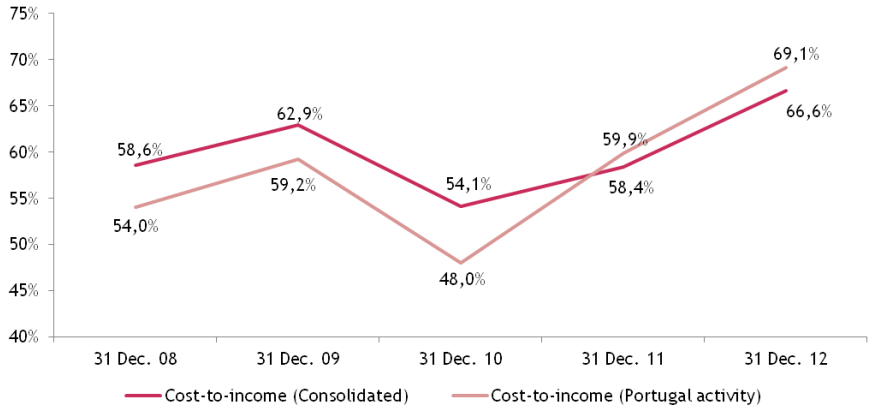


Figure 3.11 Efficiency ratio ***Source*:** Company's 2012 Press Release

The consolidated efficiency ratio deteriorated, from 58,4% in 2011 to 66,6% in 2012. The cost-to-income in the activity in Portugal stood at 69,1% in 2012, comparing with 59,9% in 2011. It is possible to conclude that domestic operations have been less efficient that international operations, mainly due to the largest staff costs in Portugal and the difficult to reduced them.

3.4.3 Solvency

Regarding Solvency, Millennium BCP improved the main capital ratios during 2012, reaching record values and complying with the minimum capital requirements imposed by supervision authorities. The recapitalization plan, executed during the first half of 2012, allowed the Bank to comply with the minimum capital ratio levels determined first by the European Banking Authority (EBA) (Core Tier 1 > 9,0%) at 30 June 2012, with a Core Tier 1 ratio of 12,1% and later by the Bank of Portugal (Core Tier 1 > 10,0%) at 31 December 2012, with a Core Tier 1 ratio of 12,4%. The performance of Core Tier I in 2012 was boosted by: the issuance of hybrid instruments eligible for solvency requirements (3.000M €), fully subscribed by the Portuguese State in the scope of the Bank's recapitalization process; and the rights issuance (500M €), fully subscribed by existing and new shareholders (excluding Portuguese State). There is also an important convergence trend between the three main capital ratios, since

the weight of Core Tier 1 capital within the Total Regulatory Capital has been increasing. (see more information in the Exhibit 3. – Solvency)

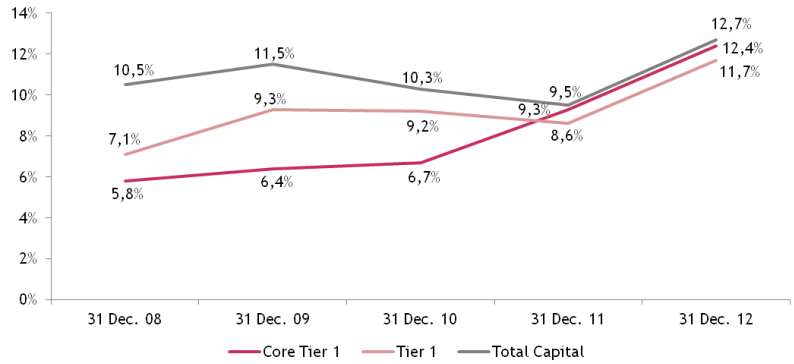


Figure 3.12 Solvency ratios
***Source*:** Company's 2012 Press Release

In terms of Risk Weighted Assets (RWA), the total value decreased by 2.184 million Euros (-3,9%) between 2011 and 2012. According with the 2012 Earnings Press Release, the decrease in RWA mainly reflect the adoption of IRB (Internal Ratings Based) approach to retail portfolio in Poland (294M €), the decrease of the requirements to operational risk (281M €) and the ongoing deleveraging process and efforts to optimize RWA (1.609M €), in particular regarding the strengthening of collaterals and market and credit risks. Summing up, the evolution of the RWA total value between 2008 and 2012 was the following:

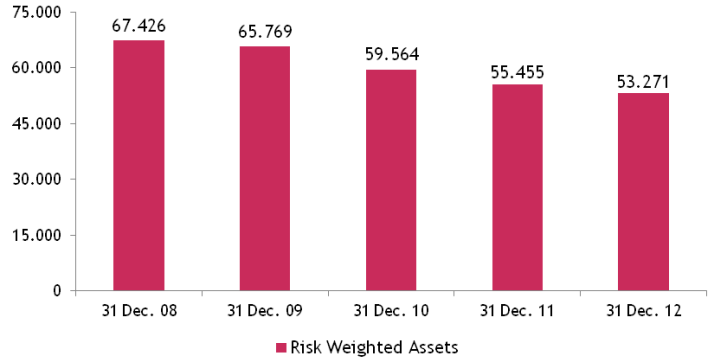


Figure 3.13 Risk Weighted Assets (RWA)
***Source*:** Company's 2012 Press Release

3.4.4 Liquidity

The Economic and Financial Assistance Programme, underwritten by the Portuguese Government and its lenders in 2011, has introduced a new set of challenges to the national banking system, adding minimum solvency ratios and recommending a deleveraging process for the national economy and the banking sector. In this context, Millennium BCP has been struggling to grow and retain on-balance customer funds, contributing not only to achieve the imperatives of reducing the commercial gap and deleveraging, but also to strengthening the stable funding sources, given the persistent limitation on access to operations in the medium- and long-term wholesale debt markets (see more information in the Exhibit 4. – Customers funds consolidated and Exhibit 5. – Loans to customers).

Given the liquidity challenges mentioned above, BCP's has been striving to increase its deposit levels, being currently one of the main sources of funding. From 2011 to 2012, the

customer deposits increased +3,9% to 49.390 million Euros. The Portuguese activity corresponds to 66,0% of the total deposits and the remaining (34,0%) are from the international operations. At the same time, the process of deleveraging has been implying a reduction on the credit lines to the entire economy. The total loans to customers decreased 8,0% from 2011 to 2012. The total amount of loans to customers in 2012 was 62.618 million Euros, compared with 68.046 million Euros in 2011 and 73.905 million Euros in 2010. Consequently, Millennium BCP's loans-to-deposits ratio, which is a measure of liquidity for banks, decreased 15,8% between 2011 and 2012, representing a huge improve on the Bank's liquidity situation. It is foreseen that during the next months, Millennium BCP will continue the deleveraging process so that it reaches a loans-to-deposits ratio under 120% by the end of 2014, complying with the recommendation of banking authorities.

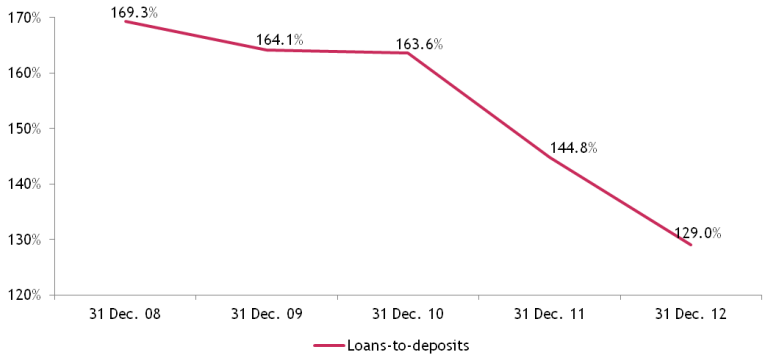


Figure 3.14 Loans-to-deposits ratio
***Source*:** Company's 2012 Press Release

The commercial gap, which corresponds to the difference between customer deposits and customer loans, also improved between 2011 and 2012, mainly due to the BCP's efforts for deleverage. The commercial gap decreased by 28,4% between 2011 and 2012, amounting to 5.245 million Euros.

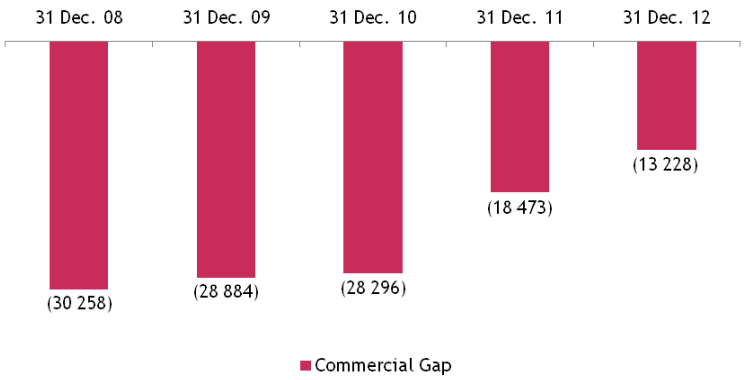


Figure 3.15 Commercial Gap ***Source*:** Company's 2012 Press Release

3.4.4.1 External Funding

In spite of the demanding funding environment, Millennium BCP has been struggling to reduce its exposure to ECB. Simultaneously, the Bank has been continuing active in the interbank money market, attracting funds in line with its expectations. However, in this context, it has

been highly exposed to refinancing risk, as the interbank money market conditions change quickly and harshly over the time.

The rigorous implementation of the policy of reducing external funding needs, throughout the recent months, allowed to BCP reduce its ECB exposure to 10,6 billion Euros by December 2012, compared with 12,7 billion Euros at the end of 2011 and 14,9 billion Euros at the end of 2010. According to the 2012 Earnings Presentation, the evolution of the net exposure to ECB funding over the last year was the following:

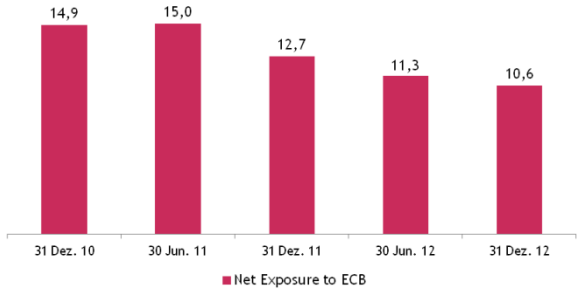


Figure 3.16 Net Exposure to ECB (in billion Euros)

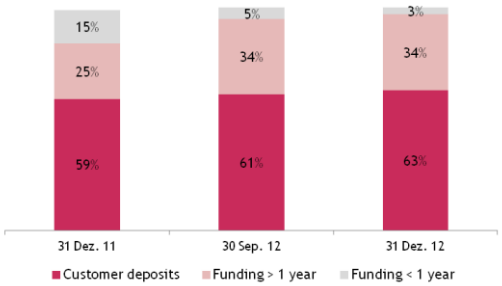


Figure 3.17 Funding Structure at the end of 2012

3.4.5 Asset Quality

In spite of the reinforcement of prevention and risk control mechanisms and the efforts to carry out an integrated operational performance between the commercial areas and the loan recovery areas, the non-performing loans have been growing during the last years.

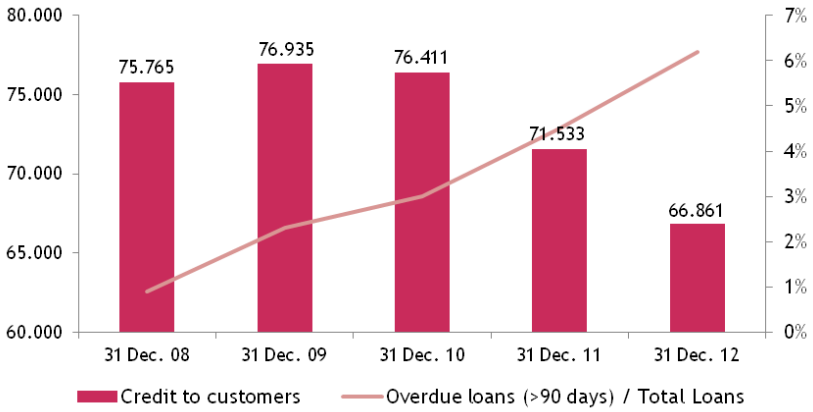


Figure 3.18 Credit quality ratio

***Source*:** Company's 2012 Press Release

Reflecting the progressive worsening of the economic and financial situation of households and companies, the Overdue Loans (>90 days) increased from 3.196 million Euros at the end of 2011 (2.290 million Euros in 2010) to 4.175 million Euros in 2012, which represented an increase of +1,70% in the credit quality ratio. The total credit at risk stood at 13,1% of total loans at 31 December 2012, compared with 10,1% at the end of 2011.

Facing the growth in the credit at risk, the impairments in the balance sheet also increased, from 3.488 million Euros in 2011 to 4.243 in 2012, which represented an increase of 21,6%.

Consequently, the coverage ratio for overdue loans (>90 days) has been decreasing in the last years, being 101,6% at December 2012, compared with 109,1% at the end of 2011. The cost of risk stood at 252 b.p. at the end of 2012, compared with 186 b.p. posted in 2011. The impairments, and consequently the cost of risk, are expected to increase as banks will be more conservative in the next years of austerity and economic recession in Portugal (see more detailed information in the Exhibit 6. – Credit quality).

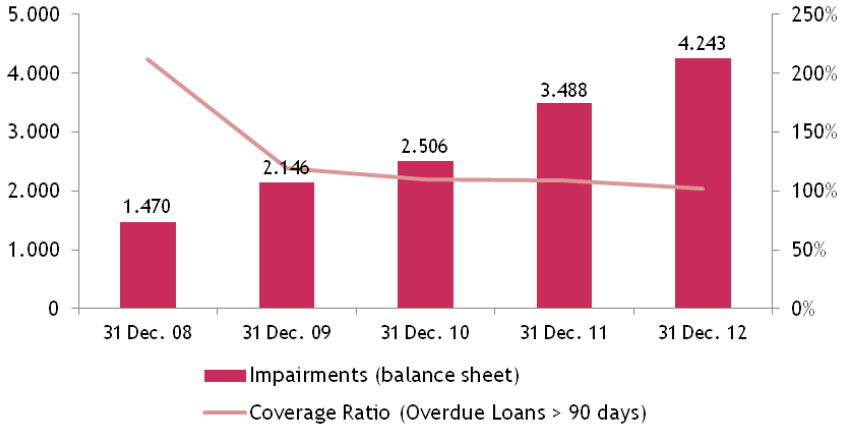


Figure 3.19 Coverage ratio ***Source*:** Company's 2012 Press Release

3.4.6 Ratings

By being supported by the Governments, particularly regarding capital, liquidity, insurance of assets and/or guarantees, Banks are being exposed to sovereign risk. With the deterioration of the financial situation of the Portuguese Republic, particularly during 2011, its sovereign ratings were subjected to a series of downgrades throughout the year by the main rating agencies. Consequently, ratings assigned to BCP followed the negative trend of the Portuguese Republic, being subjected to several downgrades also in 2011. Currently, the ratings of Millennium BCP, attributed by the largest rating agencies, are the following:

Agency	Short-term	Long-term	Outlook
Moody's	Non Prime	B1	Negative
Standard & Poor's	B	B+	Negative
Fitch Ratings	B	BB+	Negative

Figure 3.20 Ratings ***Source*:** Company's Website

According with the 2011 Annual Report, the main factors that affected the rating of BCP were: i) the high exposure of the Bank to Portuguese public debt at a time when the sovereign credit risk profiles deteriorated; ii) the vulnerability of its funding structure based on high dependence on wholesale funding; iii) the exposure to Greece through its local subsidiary, 100% held by BCP; and iv) the deterioration of the asset quality indicators, combined with modest profitability and efficiency ratios. However, the rating of the Bank has been supported by: i) its important position and market shares in Portugal (largest private bank); and ii) the international operations which offer business diversification and growth

alternatives. The negative outlook essentially reflects the very challenging operating environment currently experienced in Portugal.

3.5 Recapitalization Plan (2012)

In spite of the extremely unfavorable impacts of the macroeconomic environment and some exogenous events that conditioned its main market, Portugal, Millennium BCP had been able to improve its solvency ratios. Consequently, due to a demanding process that started in 2008 after the 'subprime' financial crisis, BCP had, by December 2011, the highest level of capital ratio ever - Core Tier 1 of 9,3%.

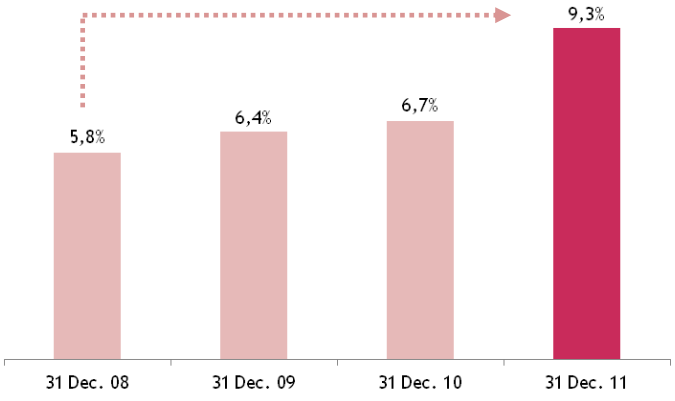


Figure 3.21 Core Tier 1 capital ratio before recapitalization
***Source*:** Annual Report

As a result, Millennium BCP seemed solidly capitalized and would not have needed additional capitalization to fulfill the permanent requests of its own funds. However, according with the Bank's recapitalization plan, two key drivers created the need to resort of the recapitalization fund for the national banking system (approximately 12 billion Euros), which was established by the Portuguese Government and *troika*. As such, the recapitalisation needs resulted from (i) exogenous factors related to the sovereign debt crisis and (ii) regulatory demands of temporary nature triggered by the sovereign crisis in Greece and Portugal, namely:

- The anticipation of the Basel III requirements;
- The need of a capital buffer for sovereign debt due to the European crisis, also due to the exercise conducted by EBA;
- The impact of degradation of the Portuguese Republic and the Hellenic Republic ratings in the economy and in the valuation of the credit portfolio;
- The transfer of pension fund liabilities to the Social Security regime at December 2011, that allowed the fulfilment of public deficit targets for 2011.

The aggravation effects on the key solvency ratio, based on the aforementioned impacts, were the following:

Aggravation Effects on Core Tier 1	Impacts (million €)
1) Exogenous impacts	
Downgrades on Portuguese and Greek sovereign ratings	151
Impairment charges on Greek sovereign debt (net of taxes)	409
Sovereign debt risk buffer (excluding Greece)	848
Other EBA[1] deductions	724
Transfer of Pension Fund obligations	439
Sub-total	**2.571**
2) Contingent risks (Greece)	450
Total	**3.021**

[1] European Banking Authority

Figure 3.22 Aggravation Effects on CT1 ***Source***: Recapitalization Plan

As it can be noticed, the minimum amount of recapitalisation to reach the 9,0% target for the Core Tier 1 ratio by 30 June 2012 and 10,0% by December 2012, complying with the established criteria imposed by EBA, was 3.021 million Euros, which included the constitution of an additional provision of 450 million Euros for contingent risks related to the expected need to strengthen provisioning for the subsidiary in Greece, due to the gradual deterioration of the local economic and financial situation following the sovereign crisis.

The recapitalization model included the issue of hybrid instruments eligible for the Core Tier 1 capital, namely Contingent Convertibles ('CoCos') (3.000M €) and special shares guaranteed by the Portuguese State (500M €), as the funding sources. This means that the BCP created a temporary buffer (approximately 500M €) to protect itself against the potential intensification of the negative macroeconomic environment.

Unlike traditional convertible bonds, the possibility of converting a 'CoCo' bond to equity is contingent on specified events, which in the case of Millennium BCP are the inability to reach the minimum levels of solvency required by the supervision authorities, due to the potential legal ineligible of the hybrid instruments, and the interest payments default. Furthermore, the 'CoCos' have a maximum maturity of 5 years (until 2017), although BCP expects to fully repay the 'loan' until the end of 2016 (500 million Euros in 2014, 1.000 million Euros in 2015 and 1.500 million Euros in 2016). The annual interest rate that Millennium BCP will pay to its lenders will grow over the 5 years of maturity, being 8,5% in the first year, 8,75% in the second year, 9% in the third year, 9,5% in fourth year and 10% in the last year. These hybrid instruments have the particular advantage of mitigate the dilution of the shareholders' structure and avoid the severe negative impact on the BCP's share price.

Concerning the capital increase of 500 million Euros, Millennium BCP exercised a rights issue to issue the special shares, being totally subscribed without the use of public funds. Therefore, the Bank increased capital using the existing main shareholders (**Section 3.2**) or new shareholders.

The recapitalization hybrid instruments assure the public investment protection. Furthermore, they incorporate an easy divestment process for the Portuguese State, as they can be liquidated prior to their maturity if BCP's profitability and the internal capital generation allow doing it so.

After the recapitalization plan, Millennium BCP reached a historical Core Tier 1 ratio, becoming one of the best capitalized banks among its Euro Zone peers.

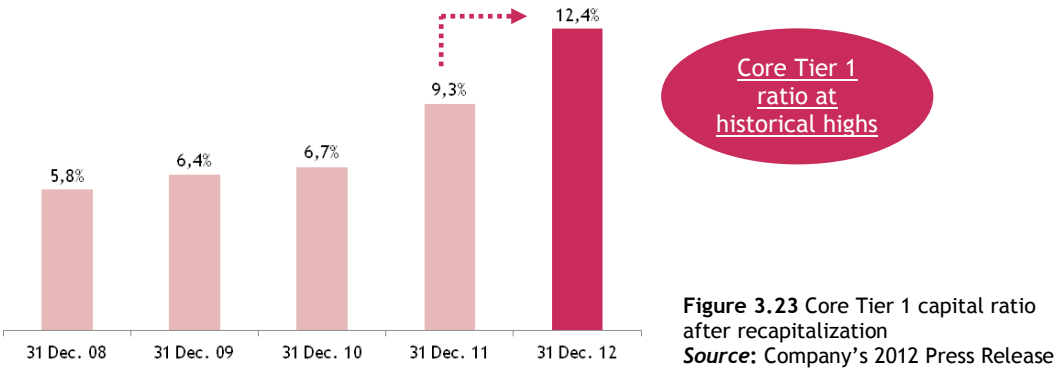


Figure 3.23 Core Tier 1 capital ratio after recapitalization
***Source*:** Company's 2012 Press Release

3.6 Strategic Program (2013-2017)

The management priorities in the medium-term, adjusted to the new market context, are designed to comply with capital requirements without additional public investment and to maintain the BCP as the largest private bank in Portugal. Accordingly, the strategic plan (2013-2017) will involved:

- The execution of the recapitalization plan (**Section 3.5**) and the internal generation of capital that will allow to BCP fully repay the hybrid instruments used to recapitalize the Bank;
- Reinforcing the capital position, to comfortably above regulatory requirements, with a simultaneous reduction of the transformation ratio, thereby allowing for a balance sheet structure that is less dependent on wholesale markets (liquidity improvement);
- Convergence of loans-to-deposits ratio to 120%, by deleveraging;
- Recovery of profitability:
  - Recovery of income, in particular through the normalization of the cost of deposits;
  - Continuation of the restructuring of the cost base;
  - Strengthening of the mechanisms for risk management, allowing the normalization of the cost of risk;
  - Greater focus in lending decisions;
  - Continuation of the focus on markets with high growth potential (in particular Poland, Mozambique and Angola) while reducing and mitigating the exposure to Greece;

(See more detailed information in the Exhibit 7., Exhibit 8. and Exhibit 9.)

4. SECTOR ANALYSIS

4.1 Banking Sector

Millennium BCP operates in six different markets, having each one its particular specifications and outlook: Portugal, Poland, Greece, Romania, Angola and Mozambique. However, I will focus my sector analysis only in BCP's main market, Portugal, as well as in its key growth drivers, Poland, Angola and Mozambique.

4.1.1 Portugal

The Portuguese macroeconomic outlook has been negatively revised, with GDP forecasts around -3,0% for 2012 and -1,0% in 2013, according with International Monetary Fund (IMF) estimates. The external sector remains the country's main growth driver. The severity of the adjustment policies, undertaken by the Portuguese Government and its lenders, has been also affecting the unemployment level (15,5% by the end of 2012 compared with 12,74% in 2011), which is expecting to continue increase as the austerity measures remain high. The evolution of the Portuguese real GDP between 2008 and 2012 was the following:

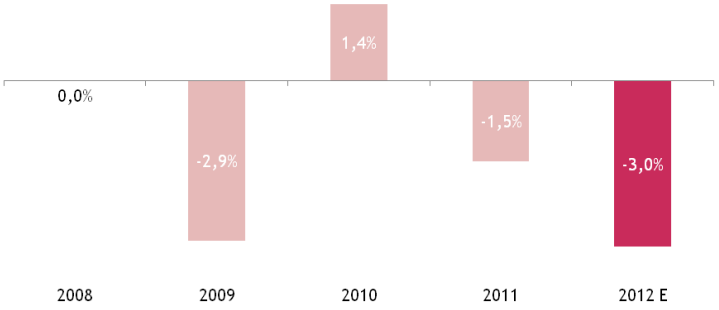


Figure 4.1 Portugal - Real GDP (y.r. %)
***Source*:** IMF

Particularly, the national banking system has been operating under a specially adverse and demanding scenario, deriving by: the pressure on the profitability margins, mainly for recapitalized banks; the increasing credit risk, due to the growing unemployment rate; and the scarcity of funding, as the access to the markets remains limited. The Portuguese Banks' activity is also set by the ongoing deleveraging process and the reinforcement of solvency levels.

According with the Financial Stability Report of the Bank of Portugal (November 2012), in the current environment marked by a downturn in economic activity and low level of interest rates in the interbank market, national banking system profitability in 2012 was largely reliant on earnings from financial operations, especially from investments in public debt securities and financing from the Eurosystem.

By June 2012, the ROE and ROA of the Portuguese banking system were 2,6% and 0,1%, respectively.

The net interest income suffered a considerable reduction in the first half of 2012, in the context of the deleveraging process and the reduction on the intermediation margin (net interest margin) with customers, as it can be observed below:

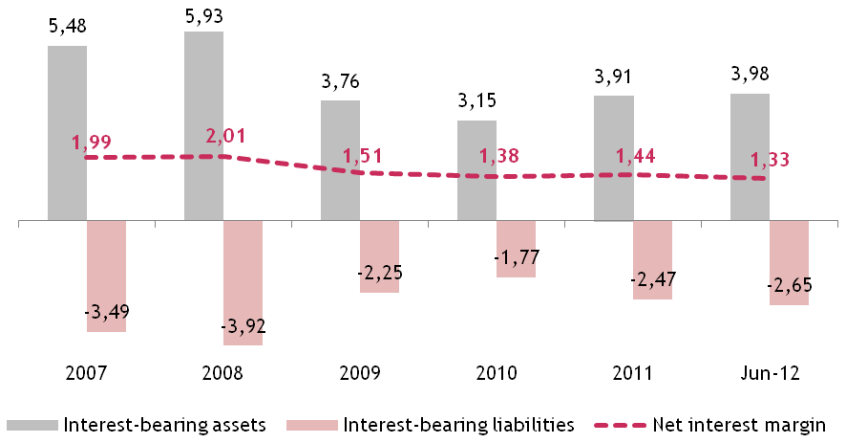


Figure 4.2 Net interest margin in operations with customers (%) ***Source*:** Bank of Portugal

Concerning to the credit risk, the weak economic activity in 2012 and the record levels of unemployment, which represent a reduction on companies and households' disposable income, have been contributing to the increase of the non-performing loans.

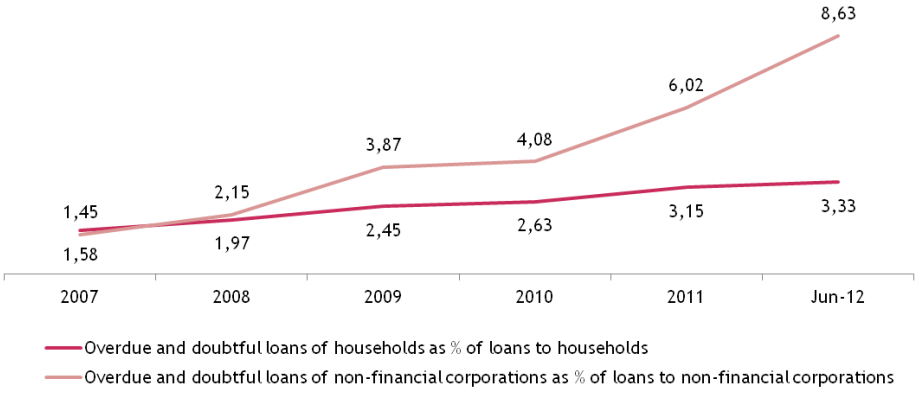


Figure 4.3 Non-performing loans ratios (%) ***Source*:** Bank of Portugal

The adjustment process in the Portuguese economy is likely to continue over the course of 2013. Thus an increase in unemployment and in the number of companies with bankruptcy and insolvency proceedings is expected to continue during this year. Consequently, the level of credit risk should be greater, forcing banks to reinforce their provisions and impairments on the credit portfolio.

In terms of liquidity, the deleveraging process will continue throughout 2013. The scarce of funding will remain high, as the access to markets continues limited and the uncertainty inherent to the interbank market remains. Therefore, the net exposure to ECB of the national financial institutions should continue high and stable, varying according banks' refinancing needs during the year. Also the wholesale market (deposits and equivalent) will remain the main source of funding for the banks. As the deposits increase, the loans granted by the banks

decreased, contributing to the deleveraging that the banks are struggling for. The evolution of the credit to customers' resources (which mostly includes customer deposits) ratio, materialize the ongoing deleverage process and is represented bellow:

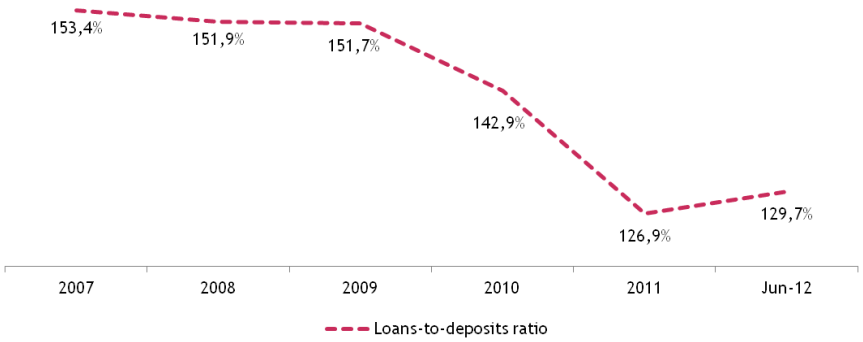


Figure 4.4 Ratio of credit to customers resources ***Source*: Bank of Portugal**

According with the Lending Survey (2012) of the BoP, banks' conditions and terms for approving loans to enterprises or households are becoming more restrictive, translating into a spreads increase, mostly in riskier loans, but also into a slight tightening of other conditions and terms, such as shorter loan maturities, more restrictive covenants and tighter collateral requirements.

4.1.2 Poland

The Polish economy has been performing better than its peers during the current sovereign debt crisis in Europe. Despite the challenging environment in Europe, Polish GDP forecasts remain optimistic with 2,4% in 2012 and 2,0% in 2013, according with the International Monetary Fund (IMF). Forecasts regarding the unemployment rate in Poland show a slightly increase from 10,0% in 2012 to 10,2% in 2013. The expected average inflation in 2012 is 3,85%.

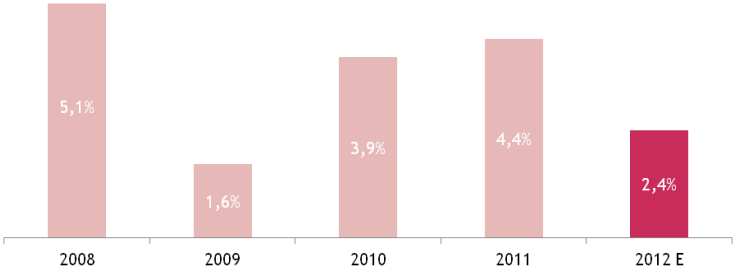


Figure 4.5 Poland - Real GDP (y.r. %)
***Source*: IMF**

Despite the better economic performance of Poland comparing with its peers, a deep recession or an intensification of the sovereign crisis can have a huge impact on the Polish economy, given its high exposure to European developed countries. According to the IMF mission chief for Poland, "the Euro Zone accounted for over 75 percent of Poland's foreign

direct investment liabilities. The business sector relies heavily on lending from parent firms and about 60 percent of the banking system is owned by European banks". Furthermore, about two-thirds of all mortgages are denominated in other currencies, mostly in Swiss Franc, which represents an additional risk (currency risk) to balance sheets of banks and households.

Regarding the banking sector, the profitability of Polish banks has been growing since 2008. The net interest income represents around 60% of the Polish banks' net income, being the fees & commissions the second largest source of income.

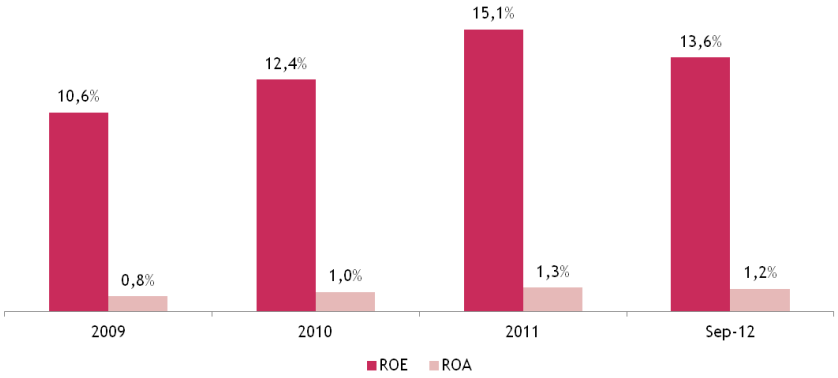


Figure 4.6 Average Return on Assets (ROA) and Return on Equity (ROE) ***Source*:** National Bank of Poland

According with the National Bank of Poland (NBP), the improvement of the national banks' earnings and profitability ratios has been supported by the stabilization of the assets quality, represented by the decreasing value of charges to provisions for impaired loans. The net interest margin remains relatively high for Polish Banks, as it is represented below:

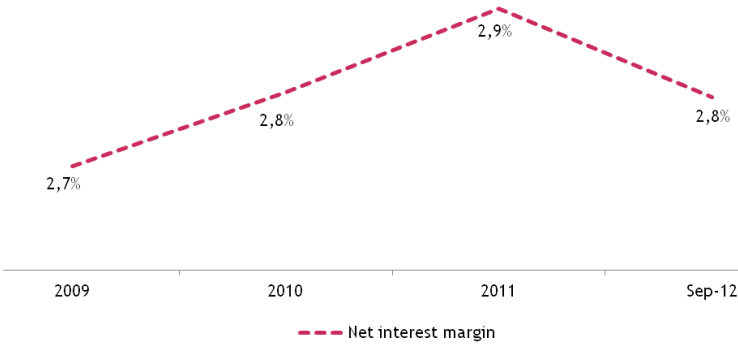


Figure 4.7 Net interest margin
***Source*:** National Bank of Poland

Concerning to the credit risk, the impairment levels remain high for the Polish banking system, both for households' credit and corporate credit. Despite the slightly decrease on the impaired loan ratio for enterprises between 2009 and 3Q2012, the ratio increased during the last months. According with the Financial Stability Report of the NBP (December 2012) the rise in the value of impaired loan for enterprises in 2012 was concerned primarily to the segment of loans to large enterprises. The condition of enterprises from the section of construction had a dominant influence on this rise. In the period analyzed, the industry accounted for 52% of impaired loan growth of all sections of the economy.

On the other hand, the impaired loan ratio for households slightly increased from 2009 to 3Q2012, mostly due to the increase of the impairments in the housing loans portfolio. In contrast, consumer loans impairments has been decreasing over the last three years.

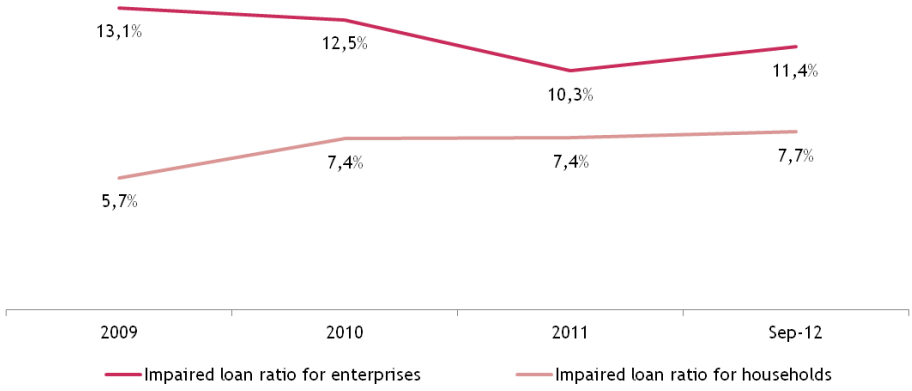


Figure 4.8 Impaired loan ratios for enterprises and households ***Source*:** National Bank of Poland

As the NBP Financial Stability Report stressed, the deterioration in the macroeconomic situation projected for the forthcoming quarters will be unfavorable from the credit risk point of view. A decline in GDP growth and a deteriorating situation in the labor market in 2013 as well as the ageing of loan portfolios will be contributing to higher loan losses on housing loans.

Despite the recent increase of the loans-to-deposits ratio in the Polish banking sector, it remains at a relatively low level, comparing with some European countries (e.g. Portugal). The contribution of the wholesale funding for the total funding needs is reasonable, which contributes for the financial system's stability. However, Polish banks owned by foreign banks, such as Bank Millennium, typically keep a larger commercial gap.

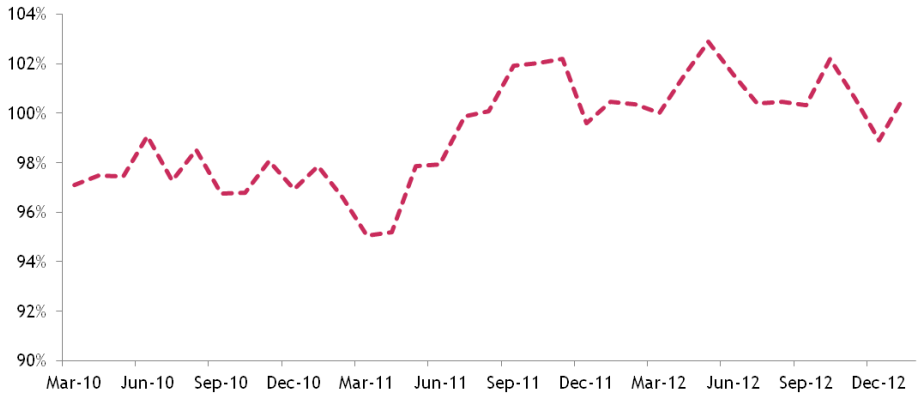


Figure 4.9 Loans-to-deposits ***Source*:** National Bank of Poland

The loans granted by the Polish financial sector had different growth rate trends regarding their purpose. While the growth rate of credit to households (consumer and housing loans) has been decreasing (the bulk of housing portfolio are Swiss franc-denominated loans), particularly due to the tightening of the standards to credit concession, the growth rate of credit to non-financial corporations increased during the last two years.

4.1.3 Angola

Over the recent years, the Angolan economy has been supporting many Portuguese companies, especially in the construction sector, being their key growth driver. According with its recognition as emerging market, the International Monetary Fund (IMF) forecasts a very positive performance for Angolan economy, with a GDP growth rate of 7,5% in 2012 and 5,5% in 2013. The evolution of the Angolan GDP growth rate and Inflation (% change), between 2008 and 2012, was the following:

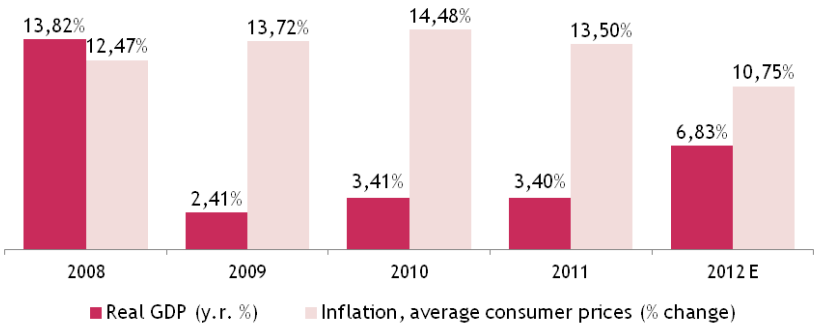


Figure 4.10 Real GDP (y.r. %) and Inflation Rate (y-o-y %change) ***Source*:** IMF

The growth of the Angolan economy, which is highly dependent from the oil sector, has been allowing a good performance of its banking system. In terms of profitability, the ROE stood at 21,6% and the ROA stood at 2,6%, both in December 2011. Comparing with these profitability ratios at the end of 2010, ROE was equal to 32,1% and ROA was equal to 3,0%, we can conclude that the Angolan banking sector has been affected by the financial crisis in the developed countries. The net interest income represents around 68% of the Angolan banks' net income, being the Forex operations the second largest source of income, representing around 18%. The high levels of profitability in the Angolan financial system have been explained by the light competition in the market, as well as the favorable conditions for banking operations.

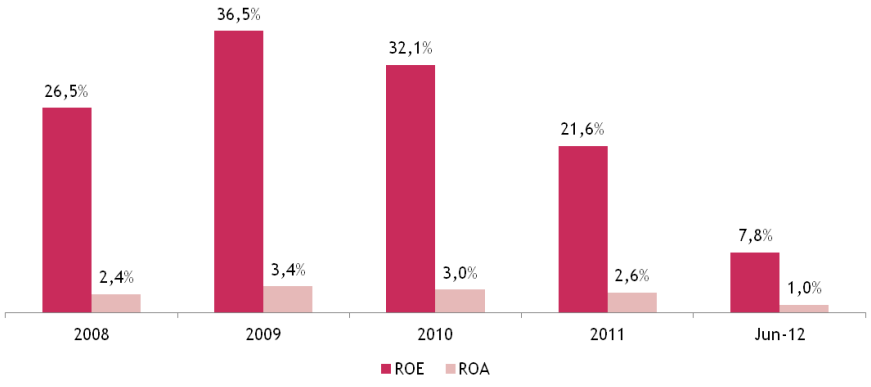


Figure 4.11 Profitability ratios (ROE and ROA) ***Source*:** National Bank of Angola

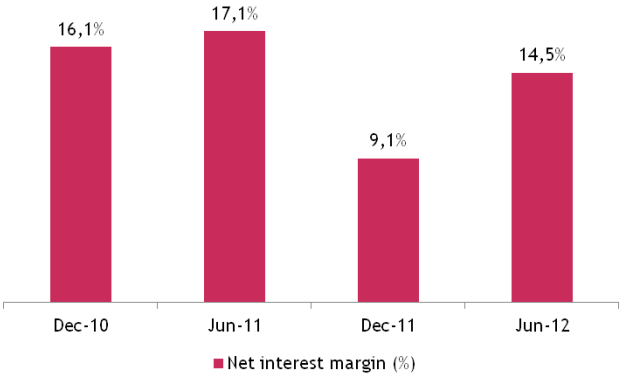


Figure 4.12 Net Interest Margin ***Source*:** National Bank of Angola

Concerning to the credit risk, the overdue loans remain high for the Angolan banks, both for households' credit and corporate credit. In 2010, the external challenges had a high negative impact on credit quality, reflecting the liquidity difficulties of companies affected by government payment arrears. The arrears clearance improved considerably the non-performing loans situation in 2011.

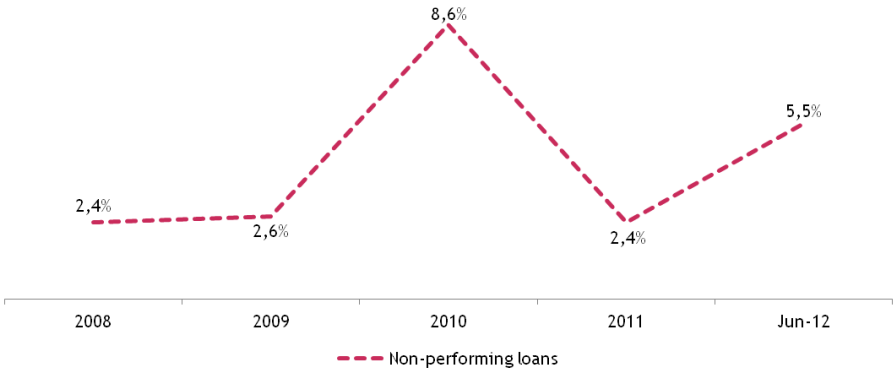


Figure 4.13 Non-performing loans (% of total credit) ***Source*:** National Bank of Angola

In terms of liquidity, the Angolan banks have low loans-to-deposits ratios, which mean that their exposure to the wholesale market is small, when compared with Portuguese banks, and that the banking system remains self-funded. The recent increase of the loans over deposits, from 59,5% in 2011 to 62,5% in 2Q2012, points to ongoing deepening of financial services.

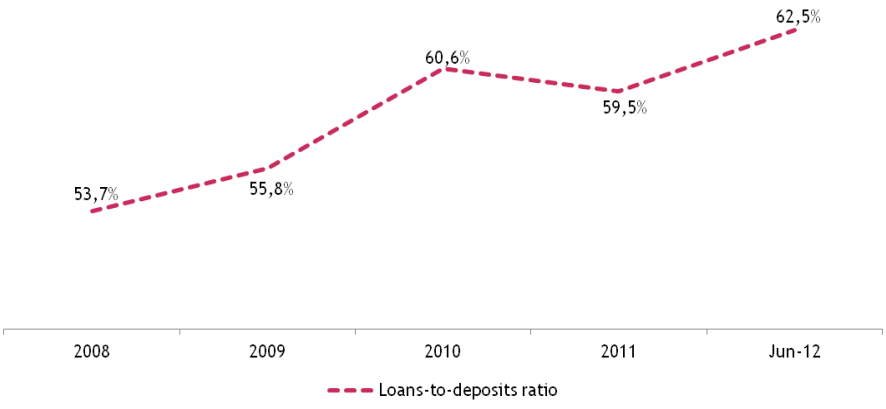


Figure 4.14 Loans-to-deposits ratio

***Source*:** National Bank of Angola

The banking sector in Angola has been well capitalized, as the solvency ratios indicate. The solvency ratio at June 2012, was 14,3%, higher than the minimum level required by the National Bank of Angola, which is currently 10%. Nevertheless, the Angolan financial system bears one of the risks that were already mentioned concerning the Polish banking sector. The total credit denominated in foreign currencies, mostly in US Dollars, represents about 62% of the total credit granted by the banking system, which involves an additional risk (currency risk) for the balance sheets of banks, as they are exposed to the market fluctuations on the exchange rate.

According with the National Bank of Angola, the recent increase of the Kwanza denominated loans has been supported by: the stabilization of the national currency in the Forex market; reduction of the inflation rate over the recent period; reduction of the required reserves coefficient; and the new set of regulations, established by the National Bank of Angola, regarding the concession of foreign currency credit.

4.1.4 Mozambique

Mozambique is also recognized as an emerging economy, which has been facing a sustained growth over the last years. Accordingly, the IMF forecasts 7,5% in 2012 and 8,4% in 2013 for the Mozambican GDP growth rate. Mozambique's economic growth will remain robust in the next years benefiting from the good performance of its tertiary sector, which represents around 26% of the GDP composition. The evolution of the Mozambican GDP growth rate and Inflation (% change), between 2008 and 2012, was the following:

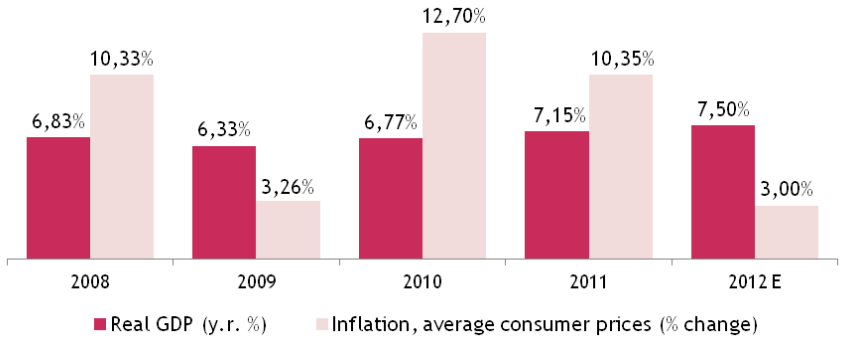


Figure 4.15 Real GDP (y.r. %) and Inflation Rate (y-o-y %change) ***Source*: IMF**

The banking sector has been resilient to the current financial crisis in the developed countries, maintaining high levels of profitability. Consequently, the ROE stood at 34,6% in 2011, compared with 32,9% posted in 2010, and ROA stood at 3,0%, compared with 2,6% in 2010. The net interest income has been the main source of value for the banking sector of Mozambique, as the interest rate margin remains relatively high.

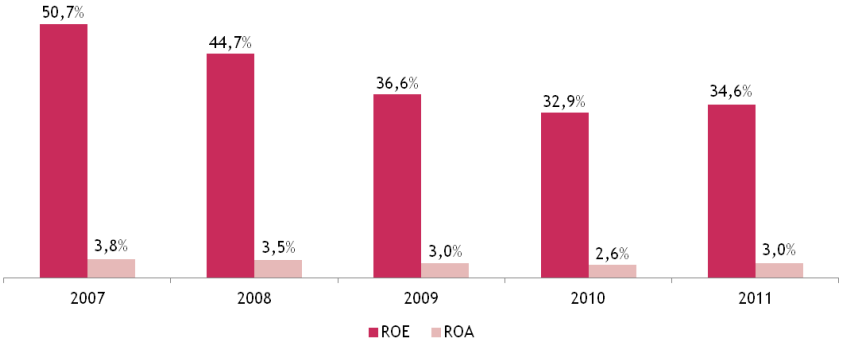


Figure 4.16 Profitability ratios (ROE and ROA) ***Source*:** Millennium BCP

The non-performing loans remain at a low level for Mozambican banks. Over 2012, a slight deterioration in credit quality should be observed, as the level of credit granted by the financial system slows down, due to tighter monetary conditions and higher risk aversion (funding pressures in foreign-owned banks), reflected in corporate loans evolution. Near-term credit growth rates might remain moderated.

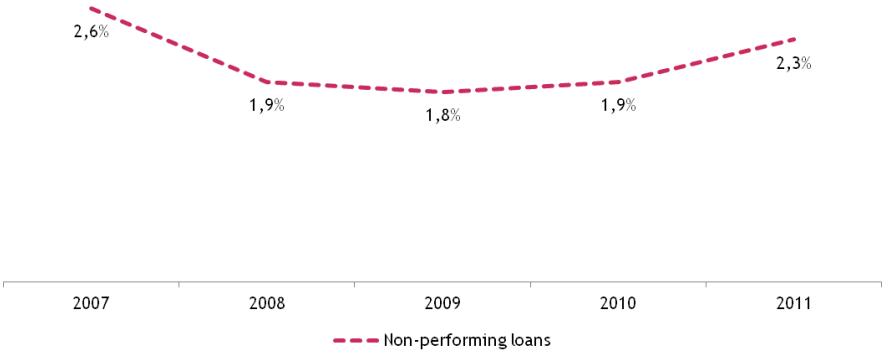


Figure 4.17 Non-performing loans (% of total credit) ***Source*:** Millennium BCP

Regarding liquidity, Mozambican banks have low loans-to-deposits ratios, which mean that the banking system remains self-funded. The loans-to-deposits ratio has been increasing since 2007, being 80,8% at the end of 2011. The recent growth of the loans-to-deposits ratio points to ongoing deepening of financial services in Mozambique.

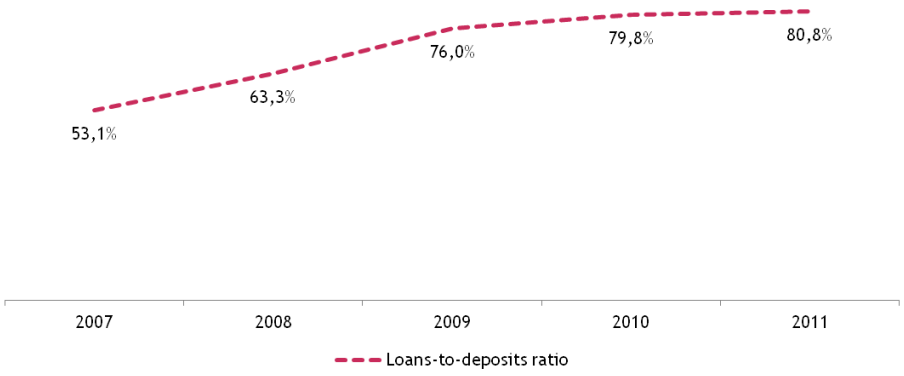


Figure 4.18 Loans-to-deposits ratio ***Source*:** Millennium BCP Data

4.2 Regulatory Framework

Given its critical role in the economy, through the credit intermediation process, the banking system's distress is typically associated with severe economic crises. According with the *Basel III: Stronger Banks and a More Resilient Financial System* (April 2011), the current financial crisis was boosted by the excess leverage and the excess of credit, as well as by misleading liquidity ratios of the global financial system. Consequently, in response to the present financial crisis, the regulatory framework has been revised by the supervision authorities, mainly the National Central Banks, considering the key recommendations of the Basel Committee on Banking Supervision.

According with *Basel 3: Pressure is building...* (December 2010), the enhancement of the regulation in the banking system, through the implementation of the Basel III recommendations, which were mostly focused on capital and liquidity requirements, is expected to reduce the risk of a new systemic banking crisis and reduce the banks' lending capacity. The enhancement of the capital and liquidity buffers to absorb unpredicted losses, together with the focus on risk management standards, should lead to a reduction of the individual bank failure risk and also to a reduction of the interconnectivity between financial institutions. Furthermore, the increase of capital and liquidity requirements has been leading to a deleveraging process throughout the financial system, reducing the capacity for banking activity.

Concerning the capital buffer requirements, all elements of the capital ratio were affected by Basel III, since the minimum capital ratio required increased, the eligible capital for solvency purposes decreased and the risk weight for banks' assets (risk-weighted assets – RWAs) also increased.

$$\uparrow \text{Capital Ratio} = \frac{Eligible\ Capital}{RWAs} \downarrow\uparrow$$

Figure 4.19 Basel III impact on the Capital Ratio **Source:** KPMG

Particularly in Portugal, the minimum capital ratio required was established in accordance with Bank of Portugal and *troika* (European Commission, International Monetary Fund and European Central Bank), in the context of the Portuguese banking system recapitalization process. Consequently, according with *Aviso do Banco de Portugal nº 3/2011*, Portuguese banks needed to reinforce their core capital ratio (Core Tier 1), to a value equal or higher than 10% until December 2012, which required an extra effort to the Portuguese banking system.

Regarding liquidity requirements, the Portuguese banks, such Millennium BCP, must deleverage their balance sheet. For this purpose, national banks should have a loans-to-deposits ratio equal or lower than 120% until December 2014. Therefore, due to the tightened deadline for this banking authorities' recommendation, the credit to the economy has been

decreasing sharply over the last months, while the deposits level has been increasing for most banks, contributing to the deleveraging of the Portuguese financial system. However, the severe competition in the deposits market has been leading banks to employ an extraordinary measure, increasing the deposits interest rates offered (reducing their net interest margin), which may have a negative impact on the banking system's stability. Consequently, Bank of Portugal has announced, through the *Instrução n.º 28/201*, a preventive measure against high remuneration on deposits, which consists in a deduction on Core Tier 1 ratio of 1% of the deposits amount with a remuneration rate that exceeds the reference rates, which are the EONIA (overnight) and the EURIBOR for longer maturities, by a defined spread, which varies between 225 b.p. and 300 b.p depending of the deposit maturity. This instruction is applied for financial institutions operating in Portugal that are authorized to collect deposits and remains effective until April 2013.

The total amount to deduct from Core Tier 1 ratio is computed according the formula presented below:

*Deposit Amount * Deposit Maturity * (Deposit Interest Rate – Reference Rate) * 1%*

5. VALUATION METHODOLOGY

From my previous analysis of the existing valuation models in the literature review (**Section 2.**), I will use the Net Asset Value Approach (**Section 2.4.2.1.8**) to value the price per share of Millennium BCP for FY13. As I mentioned before, Millennium BCP operates mainly in five markets, Portugal, Poland, Greece, Mozambique and Angola. Facing the specifications and risks of each market, I decided to develop a Sum of Parts (SoP) approach, valuing each geographic segment separately and then summing up the BCP's value in Portugal to the international value of the bank. For this purpose, I will use historical individual financial statements (until December 2012) to forecast the correspondent components for the next five years (until December 2017), and I will apply an individual cost of equity that incorporates the risks associated to each market. As the current sovereign debt crisis remains, I will employ a country risk premium to Portugal and Greece, as well as to the three emerging markets where Millennium BCP operates. All the other assumptions of the model (estimated Book Value, Growth and ROE Sustainable) are based on macroeconomic forecasts for each country and my forecasts concerning the activity of each bank of the Millennium BCP Group.

I will also assume a critical adjustment that must be taken into account to reach a fair value of Millennium BCP, namely the current pension fund shortfall.

As the consistency of the final outcome from the Net Asset Value Approach is highly associated to the reliability of the assumptions made and their level of subjectivity is high, I will perform a sensitivity analysis over the key inputs of the model (Growth, Cost of Equity and Sustainable ROE) to estimate the likely range for the FY13 target price.

5.1 Exclusion of other valuation models

As it was already mentioned (**Section 2.5**), given the intrinsic difficulty in measuring the debt level and the reinvestment needed for future growth, the free cash flow to the firm is impossible to compute for financial institutions. Consequently, equity valuation models are much more used than enterprise valuation models when valuing banks. Accordingly, I will only focus my analysis on the equity value.

Damodaran (2009) suggested the Dividend Discount Model, the Free Cash Flow to the Equity Model and the Excess Return Model as good options to estimate the equity value of a bank. However, due to the recapitalization plan agreed with the Portuguese government and regulatory authorities, Millennium BCP will not pay dividends at least until 2016, as it will be repaying the 'CoCos' until 2016 or 2017. By considering this constraint, I decided to not use the Dividend Discount Model, since the assumptions regarding the payout ratio would be much more inaccurate given the time remaining until the next dividend payment.

Thanks to the uncertainty regarding the capital needs in the next years, the reinvestment in regulatory capital is hard to estimate for a large bank like Millennium BCP, especially after the recapitalization operation employed. Furthermore, due to the need of consider a

different cost of equity for each geography where Millennium BCP operates (using a Sum of Parts approach), as well as the negative net income (and consequently, negative ROE) forecasted for the Bank, I decided to not use the Free Cash Flow to the Equity Model and the Excess Return Model.

Other important reason for my decision concerning what method I should use for Millennium BCP's valuation is my inability to estimate the intra-group adjustments and consolidate the individual financial statements, due to the lack of information I had access. Additionally, I would like to estimate the fair target price of BCP using only the quarterly information disclosed by the Bank, which is a common practice among the investment banking analysts due to the need of constantly update their valuation models.

6. ASSUMPTIONS

6.1 Related with the macroeconomic indicators

Macroeconomic estimations are an important assumption of my valuation model, particularly in the forecasts for the activity of each geographical segment of Millennium BCP. I considered the International Monetary Fund (IMF) estimations for each country.

Indicators	2010	2011	2012 E	2013 E	2014 E	2015 E	2016 E	2017 E
								
Real GDP (y.r. %)	1,38%	-1,47%	-3,01%	-1,02%	1,20%	1,85%	1,89%	1,78%
Total Investment (% GDP)	19,61%	17,71%	15,94%	15,51%	15,66%	16,07%	16,40%	16,58%
Gross National Savings (% GDP)	9,95%	11,59%	13,56%	14,28%	14,90%	15,74%	16,88%	17,66%
Inflation, average consumer prices (% change)	1,39%	3,56%	2,79%	0,69%	1,12%	1,41%	1,46%	1,55%
Inflation, end of period consumer prices (% change)	2,16%	3,79%	2,26%	0,22%	1,61%	1,23%	2,11%	0,89%
Unemployment rate	10,80%	12,74%	15,47%	16,04%	15,30%	14,67%	14,15%	13,64%
Real GDP (y.r. %)	3,94%	4,35%	2,35%	2,05%	2,72%	3,11%	3,43%	3,56%
Total Investment (% GDP)	20,95%	21,79%	20,96%	21,26%	21,40%	21,79%	22,36%	22,93%
Gross National Savings (% GDP)	16,29%	17,48%	16,31%	16,94%	17,71%	18,01%	18,68%	19,26%
Inflation, average consumer prices (% change)	2,51%	4,27%	3,85%	2,67%	2,50%	2,50%	2,50%	2,50%
Inflation, end of period consumer prices (% change)	3,10%	4,60%	3,20%	2,50%	2,50%	2,50%	2,50%	2,50%
Unemployment rate	9,62%	9,65%	10,01%	10,18%	9,92%	9,74%	9,61%	9,43%
								
Real GDP (y.r. %)	3,41%	3,40%	6,83%	5,46%	5,41%	5,37%	5,20%	5,32%
Total Investment (% GDP)	12,67%	11,13%	11,65%	12,63%	13,16%	13,67%	14,18%	14,70%
Gross National Savings (% GDP)	23,05%	19,23%	20,20%	19,22%	17,59%	15,46%	13,56%	11,97%
Inflation, average consumer prices (% change)	14,48%	13,50%	10,75%	8,58%	7,50%	7,45%	7,40%	7,40%
Inflation, end of period consumer prices (% change)	15,33%	11,39%	9,59%	7,50%	7,50%	7,40%	7,40%	7,40%
								
Real GDP (y.r. %)	6,77%	7,15%	7,50%	8,40%	7,79%	7,85%	7,82%	7,78%
Total Investment (% GDP)	22,00%	24,22%	25,00%	25,40%	26,09%	25,61%	25,99%	26,18%
Gross National Savings (% GDP)	10,26%	11,23%	13,36%	13,04%	15,02%	15,65%	16,65%	17,36%
Inflation, average consumer prices (% change)	12,70%	10,35%	3,00%	8,56%	5,60%	5,60%	5,60%	5,60%
Inflation, end of period consumer prices (% change)	16,62%	5,46%	5,50%	8,16%	5,60%	5,60%	5,60%	5,60%
								
Real GDP (y.r. %)	-3,51%	-6,86%	-6,00%	-4,00%	0,00%	2,75%	3,75%	3,55%
Total Investment (% GDP)	14,56%	14,47%	12,91%	12,66%	13,21%	13,99%	14,64%	15,34%
Gross National Savings (% GDP)	4,57%	4,79%	7,09%	9,75%	10,59%	12,28%	14,19%	15,86%
Inflation, average consumer prices (% change)	4,70%	3,10%	0,94%	-1,07%	-0,25%	0,88%	0,49%	0,64%
Inflation, end of period consumer prices (% change)	5,07%	2,20%	0,40%	-0,73%	-0,35%	0,26%	0,72%	1,06%
Unemployment rate	12,46%	17,31%	23,83%	25,37%	24,48%	22,40%	19,49%	16,64%

Figure 6.1 Macroeconomic assumptions ***Source*: IMF**

Since all the historical data were available in Euros, I did not consider other currencies on my valuation.

6.2 Related with the Cost of Equity (CoE)

As it was explained previously (**Section 5**), I will apply the Net Asset Value Approach for value Millennium BCP. Accordingly, the appropriate discount rate for this method is the cost of equity (**Section 2.4.2.2.1**). In order to estimate the cost of equity, I applied the capital asset pricing model (CAPM), which remains the most used method among the equity analysts. Due to the specifications and risks (political, social and economic) of each market where

Millennium BCP operates, I computed different discount rates for each one, applying different betas, market risk premiums and country risk premiums. I assumed the yield of 10-year German Government Bonds (Bloomberg ticker: GDBR10 Index) as the risk-free rate for the five markets under consideration. In the following sections, I will specify the values assumed for the cost of equity in each country, as well as the reason behind them.

6.2.1 Portugal and Poland

Components	2012	2013E	2014E	2015E	2016E	2017E
Risk-free rate	1,38%	1,38%	1,38%	1,38%	1,38%	1,38%
Local risk free	**1,38%**	**1,38%**	**1,38%**	**1,38%**	**1,38%**	**1,38%**
Market Risk premium	7,50%	7,50%	7,50%	7,00%	7,00%	7,00%
Country Risk premium	4,88%	4,88%	4,88%	3,88%	3,88%	3,88%
Local Market Risk premium	**12,38%**	**12,38%**	**12,38%**	**10,88%**	**10,88%**	**10,88%**
Beta	**1,164**	**1,164**	**1,164**	**1,164**	**1,164**	**1,164**
Cost of Equity (ROE Demanded)	**15,79%**	**15,79%**	**15,79%**	**14,04%**	**14,04%**	**14,04%**
Targets agreed with 'troika', for the public deficit of the Portuguese Republic	5,0%	4,5%	2,5%			
	Portuguese economy's adjustment process					

Figure 6.2 Cost of Equity estimation - Portugal ***Source*:** Bloomberg, Damodaran

Components	2012	2013E	2014E	2015E	2016E	2017E
Risk-free rate	1,38%	1,38%	1,38%	1,38%	1,38%	1,38%
Local risk free	**1,38%**	**1,38%**	**1,38%**	**1,38%**	**1,38%**	**1,38%**
Market Risk premium	7,50%	7,50%	7,50%	7,00%	7,00%	7,00%
Country Risk premium	1,50%	1,50%	1,50%	1,50%	1,50%	1,50%
Local Market Risk premium	**9,00%**	**9,00%**	**9,00%**	**8,50%**	**8,50%**	**8,50%**
Beta	**0,938**	**0,938**	**0,938**	**0,938**	**0,938**	**0,938**
Cost of Equity (ROE Demanded)	**9,82%**	**9,82%**	**9,82%**	**9,35%**	**9,35%**	**9,35%**

Figure 6.3 Cost of Equity estimation - Poland ***Source*:** Bloomberg, Damodaran

As it was mentioned above, the risk-free rate for the Portuguese and Polish operations was assumed as the yield of ten-year German Government Bonds (Bloomberg ticker: GDBR10 Index). No changes were considered for the risk-free from 2012 to 2017, as it usually is quite stable.

For the market risk premium I assumed 7,50% from 2012 to 2014, as the volatility and risk aversion level in European equity markets should remain high in this period. A decrease of 0,5% in the market risk premium of Portugal was considered in 2015, as the economic adjustment process in the European countries (including Portugal) affected by the current crisis should stabilize. The same decrease of 0,5% was considered in the market risk premium of Poland given the sustainable growth rates of its economy, as well as the increase of the Polish stock market's liquidity.

In order to consider the risks of the Portuguese market, mainly related to the current sovereign debt crisis, I added a country risk premium, taken from Damodaran website (updated in January 2013). In accordance with the rationale applied to the market risk

premium, I assumed a decrease of 1,0% in the country risk premium starting in 2015. The country risk premium for Poland was taken from the same source and maintained stable over the five years forecasted.

Beta for domestic operations was directly taken from Bloomberg (Bloomberg ticker: BCP PL Equity > BETA). It was computed through a regression using BCP PL and PSI20 Index historical returns from March 2011 to March 2013, on a weekly basis. Since the Polish subsidiary is listed on the stock market, its beta was also directly taken from Bloomberg (Bloomberg ticker: MIL PW Equity > BETA). Similarly, it was computed through a regression using MIL PW and WSE WIG 20 Index historical returns from March 2011 to March 2013, on a weekly basis.

As it can be noticed, the expected cost of equity for Portugal in 2013 is 15,79%, which can be considered relatively high for an European country like Portugal. A gradual decrease of the cost of equity is expected to happen during the following years, as the Portuguese economy's adjustment process smoothes. The expected cost of equity estimated for Poland in 2013 is 9,82%.

6.2.2 Angola and Mozambique

Components	2012	2013E	2014E	2015E	2016E	2017E
Risk-free rate	1,38%	1,38%	1,38%	1,38%	1,38%	1,38%
Local risk free	**1,38%**	**1,38%**	**1,38%**	**1,38%**	**1,38%**	**1,38%**
Market Risk premium	8,50%	8,50%	8,50%	8,50%	8,50%	8,50%
Country Risk premium	4,88%	4,88%	4,88%	4,88%	4,88%	4,88%
Local Market Risk premium	**13,38%**	**13,38%**	**13,38%**	**13,38%**	**13,38%**	**13,38%**
Beta	**0,980**	**0,980**	**0,980**	**0,980**	**0,980**	**0,980**
Cost of Equity (ROE Demanded)	**14,50%**	**14,50%**	**14,50%**	**14,50%**	**14,50%**	**14,50%**

Figure 6.4 Cost of Equity estimation – Angola ***Source*:** Bloomberg, Fernandez (2012), Damodaran

Components	2012	2013E	2014E	2015E	2016E	2017E
Risk-free rate	1,38%	1,38%	1,38%	1,38%	1,38%	1,38%
Local risk free	**1,38%**	**1,38%**	**1,38%**	**1,38%**	**1,38%**	**1,38%**
Market Risk premium	8,50%	8,50%	8,50%	8,50%	8,50%	8,50%
Country Risk premium	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%
Local Market Risk premium	**13,50%**	**13,50%**	**13,50%**	**13,50%**	**13,50%**	**13,50%**
Beta	**0,980**	**0,980**	**0,980**	**0,980**	**0,980**	**0,980**
Cost of Equity (ROE Demanded)	**14,61%**	**14,61%**	**14,61%**	**14,61%**	**14,61%**	**14,61%**

Figure 6.5 Cost of Equity estimation – Mozambique ***Source*:** Bloomberg, Fernandez (2012), Damodaran

As it is stated in the literature review (**Section 2.4.2.2.1.1**), the risk-free rate is the expected rate of return obtained by investing in a "riskless" security. In view of that, the risk-free rate assumed for Angola and Mozambique was also the yield of ten-year German Government Bonds, which is truly a risk-free rate.

Since no data concerning the market risk premium for Angola and Mozambique was available in the main sources of financial information, I selected a group of comparable African countries with similar social, economical and political profile. Taking into consideration the

market risk premium reported by Fernandez (2012) for each comparable country, I estimated an average market risk premium, which was applied to the cost of equity of Angola and Mozambique. The market risk premium estimated remains stable throughout the five years of forecasts. The peer group considered is described below:

Country	Region	Mkt Risk Premium
Nigeria	Africa	10,1%
Zambia	Africa	7,2%
Zimbabwe	Africa	10,5%
Kenya	Africa	6,2%
	Average Mkt Risk Premium	8,5%

Figure 6.6 Market risk premium – Angola and Mozambique ***Source*:** Fernandez (2012)

By assuming the yield of ten-year German Government Bonds as the risk-free rate, I had to add a country risk premium to the cost of equity of Angola and Mozambique, with the purpose of incorporate the political, social and economic risks of both countries. The country risk premium for Angola was taken from Damodaran website, while the country risk premium for Mozambique, due to the lack of information, was assumed equal to Angola plus 0,12%, mainly due to its lower economic strength compared with Angola.

Given that Millennium Banco (Angola) and Millennium bim (Mozambique) are private companies and there is no stock exchange in their countries, I selected a group of comparable banks listed on the stock market, in order to estimate the beta for Millennium BCP's African operations, which was assumed equal to the average beta of the peer group. Betas for comparable banks were computed through a regression using the stock and the correspondent index historical returns from March 2011 to March 2013, on a weekly basis. The betas of the comparable banks considered were the following:

Company name	Region	Country	Ticker	Beta
First National Bank Botswana	Africa	Botswana	FNBB BG	1,204
Barclays Bank	Africa	Botswana	BCBB BG	0,689
Standard Chartered Bank Botswana	Africa	Botswana	SCBB BG	0,584
Barclays Bank of Kenya	Africa	Kenya	BCBL KN	1,217
Equity Bank	Africa	Kenya	EQBNK KN	0,934
Kenya Commercial Bank	Africa	Kenya	KNCB KN	1,203
Standard Chartered Bank Kenya	Africa	Kenya	SCBL KN	1,031
			Average Beta	0,980

Figure 6.7 Beta – Angola and Mozambique ***Source*:** Bloomberg

(see more detailed information in the Exhibit 10. – Peer Group Angola & Mozambique)

The expected cost of equity for Angola in 2013 is 14,50%, whereas the cost of equity estimated for Mozambique in 2013 is 14,61%. During the five years forecasted, no decrease is expected to happen in the cost of equity for both countries, as they remain developing economies with intrinsic high risks (mainly political and social).

6.2.3 Greece

Components	2012	2013E	2014E	2015E	2016E	2017E
Risk-free rate	1,38%	1,38%	1,38%	1,38%	1,38%	1,38%
Local risk free	**1,38%**	**1,38%**	**1,38%**	**1,38%**	**1,38%**	**1,38%**
Market Risk premium	7,50%	7,50%	7,50%	7,00%	7,00%	7,00%
Country Risk premium	10,50%	10,50%	10,50%	10,50%	10,50%	10,50%
Local Market Risk premium	**18,00%**	**18,00%**	**18,00%**	**17,50%**	**17,50%**	**17,50%**
Beta	**1,511**	**1,511**	**1,511**	**1,511**	**1,511**	**1,511**
Cost of Equity (ROE Demanded)	**28,58%**	**28,58%**	**28,58%**	**27,82%**	**27,82%**	**27,82%**

Figure 6.8 Cost of Equity estimation – Greece ***Source*:** Bloomberg, Damodaran

Similarly to the other geographies where Millennium BCP operates, I assumed the yield of ten-year German Government Bonds (Bloomberg ticker: GDBR10 Index) as the risk-free rate for the estimation of the Greek cost of equity.

The market risk premium was considered equal to Portugal and Poland. Furthermore, I assumed that the country risk premium considered by Damodaran for Greece will remain equal during the five years of projections, thanks to my belief that the Greek economy's adjustment process will be longer than the Portuguese.

As Millennium Bank (Greece) is a private bank, meaning that it has no direct beta, I selected a group of comparable Greek banks listed on the stock market, in order to estimate its beta, which was assumed equal to the average beta of the peer group. Betas for comparable banks were computed through a regression using the historical returns of each stock and the Athens Stock Exchange (ASE) index from March 2011 to March 2013, on a weekly basis. The betas of the comparable banks considered are presented below:

(see more detailed information in the Exhibit 11. – Peer Group Greece)

Company name	Region	Country	Ticker	Beta
Attica Bank	Europe	Greece	TATT GA	1,246
Alpha Eurobank	Europe	Greece	ALPHA GA	1,672
EFG Eurobank Ergasias	Europe	Greece	EUROB GA	1,650
Piraeus Bank	Europe	Greece	TPEIR GA	1,476
			Average Beta	**1,511**

Figure 6.9 Beta – Greece ***Source*:** Bloomberg

Given the assumptions described above, the cost of equity estimated for Millennium Bank in 2013 is equal to 28,58%. Such as the Portuguese cost of equity, the Greek value computed is huge comparing with normal conditions, resulting from the political, social and economic negative environment.

7. VALUATION OF MILLENNIUM BCP

As it was mentioned early, I will develop a Sum of Parts (SoP) approach for value Millennium BCP. Accordingly, this method involves the valuation of each geographical segment, considering different assumptions and discount rates. In the following sections, I will describe the main assumptions considered for the estimations of the banking activity of the five main Banks of Millennium BCP Group. The financial data used for the projections were the historical individual financial statements until December 2012.

7.1 Portugal

7.1.1 Selected volume figures

(more detailed information in the Exhibit 12. – Assumptions Portugal)

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected volume figures										
Total Assets	**72.417**	**72.885**	**75.731**	**71.156**	**67.459**	**66.921**	**68.798**	**70.918**	**73.753**	**75.723**
Loans to customers (gross)	**60.168**	**60.625**	**58.917**	**54.552**	**49.581**	**49.186**	**50.565**	**52.123**	**54.207**	**55.655**
Overdue loans	**597**	**1.602**	**1.842**	**2.696**	**3.318**	**3.029**	**2.627**	**2.297**	**2.046**	**1.795**
Less than 90 days	121	179	133	199	114	118	116	114	115	114
More than 90 days	476	1.424	1.709	2.497	3.204	2.911	2.511	2.183	1.932	1.681
Impairment for loan losses	**1.169**	**1.704**	**1.937**	**2.813**	**2.863**	**2.601**	**2.244**	**1.950**	**1.726**	**1.502**
Total customer funds	**36.875**	**35.999**	**35.945**	**37.948**	**38.767**	**38.458**	**39.537**	**40.755**	**42.384**	**43.516**
Customer deposits	30.130	31.378	30.333	32.522	32.604	32.344	33.251	34.276	35.646	36.598
Debt securities	6.745	4.622	5.612	5.425	6.163	6.114	6.286	6.479	6.738	6.918
Total Liabilities	**69.900**	**69.871**	**71.519**	**67.289**	**63.094**	**62.591**	**64.347**	**66.330**	**68.981**	**70.823**
Total Equity	**2.517**	**3.014**	**4.212**	**3.867**	**4.365**	**4.330**	**4.451**	**4.588**	**4.772**	**4.899**

Figure 7.1 Selected volume figures - Portugal ***Source*:** Own estimations, Millennium BCP

From 2008 to 2012, Millennium BCP has managed to reduce its commercial gap (see Figure 3.15) by 17.030 million Euros, which includes a reduction of 13.060 million Euros in the domestic activity. In 2013 and 2014, the deleveraging process should continue as the Portuguese banks are on track to reach the 120% Loans-to-Deposits ratio in compliance with the new rules for the banking system agreed with "troika". The shrinkage in the commercial gap in 2013 should be mainly driven by lending reduction. Accordingly, I assumed the Loans to customers (gross) to grow at the Portuguese GDP plus the Inflation Rate for the domestic activity, which should represent a decrease in the level of credit granted by the Bank in 2013. The turnaround of the Portuguese economy should happen in 2014, as well as the credit level granted by the Bank.

In 2013, it should also be observed a asset quality deterioration, as the overdue loans should increase in the pace of unemployment. I assumed the overdue loans, more than 90 days, to increase at the Portuguese GDP plus the Inflation Rate plus the annual variation of the unemployment minus 12% per year from 2013 on. The impairment for loan losses should follow the same trend of the overdue loans. Accordingly, the overdue loans (>90 days) to

total loans ratio should slightly decrease in 2013 to 5,9%, despite remaining at a very high level, specially due to the expected negative economic environment in Portugal. The evolution of the total credit granted by the bank in relation with its quality was assumed as follows:

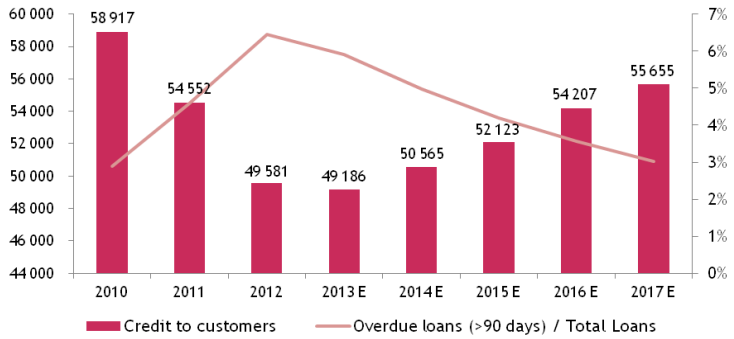


Figure 7.2 Credit quality ratio - Portugal ***Source*:** Own estimations, Millennium BCP

Regarding the BCP loans portfolio breakdown, it should remain similar to the previous years. I assumed for the estimated period that individuals will represent 44% and companies 56% of the total credit. In the individuals segment, mortgage loans will remain having the highest weight, around 90%. The services companies should continue to represent the largest slice of the credit to companies, around 42%. I estimated the following loans portfolio breakdown:

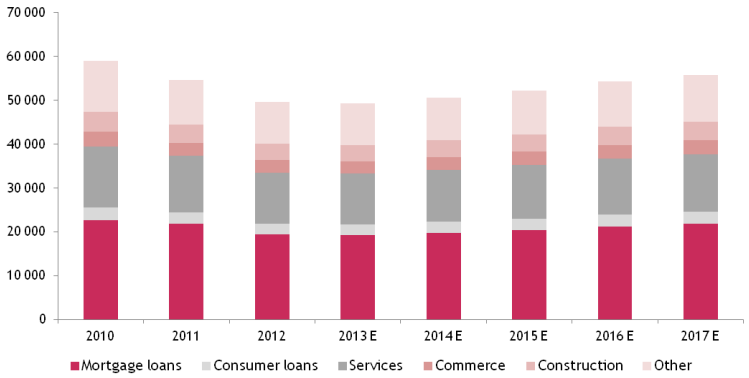


Figure 7.3 Loans portfolio breakdown - Portugal ***Source*:** Own estimations, Millennium BCP

Regarding the total customer funds, which include customer deposits and debt securities, I also assumed that they will grow by the Portuguese GDP plus the Inflation Rate for the domestic activity. Total customer funds were assumed to increase as follows:

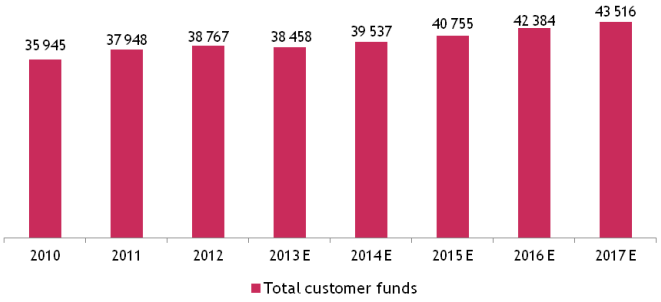


Figure 7.4 Total customer funds - Portugal ***Source*:** Own estimations, Millennium BCP

7.1.2 Selected results

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected results										
Interest income	3.867	2.511	2.322	2.788	2.325	2.494	2.615	2.747	2.857	2.989
Interest expense	2.697	1.593	1.338	1.789	1.833	1.957	2.008	2.027	2.014	1.913
Net interest income	**1.170**	**918**	**984**	**999**	**493**	**537**	**607**	**720**	**843**	**1.077**
Dividends from equity instruments	29	3	35	1	3	3	3	3	3	3
Net fees and commission income	511	522	572	561	452	448	461	475	494	507
Other operating income	54	125	23	(24)	(60)	(60)	(24)	22	23	23
Net trading income	(124)	94	294	(36)	312	101	104	107	112	115
Equity accounted earnings	19	65	68	15	54	53	55	56	59	60
Net operating revenues	**1.659**	**1.726**	**1.976**	**1.515**	**1.253**	**1.083**	**1.206**	**1.384**	**1.533**	**1.785**
Staff costs	593	604	539	673	532	428	452	491	513	562
Other administrative costs	372	314	332	319	299	237	239	247	243	247
Depreciation	67	60	54	48	40	40	41	43	44	45
Operating costs	**1.031**	**979**	**925**	**1.040**	**872**	**704**	**732**	**780**	**800**	**854**
Operating profit bef. imp.	**628**	**747**	**1.051**	**475**	**382**	**379**	**474**	**604**	**733**	**931**
Loans impairment (net of recoveries)	425	391	557	1.137	889	815	680	570	482	406
Goodwill impairment	-	-	147	161	-	-	-	-	-	-
Other assets impairment and provisions	41	122	66	661	347	210	147	117	84	49
Profit before income tax	**162**	**235**	**281**	**(1.484)**	**(854)**	**(646)**	**(354)**	**(83)**	**167**	**476**
Income tax	47	21	(13)	(513)	(180)	(192)	(105)	(25)	50	141
Profit after income tax	**115**	**213**	**294**	**(971)**	**(674)**	**(454)**	**(249)**	**(58)**	**117**	**335**
Non-controlling interests	(2)	(0)	2	0	(5)	(2)	(1)	(0)	1	2
Net income	**117**	**214**	**292**	**(971)**	**(669)**	**(452)**	**(248)**	**(58)**	**117**	**333**

Figure 7.5 Selected results - Portugal ***Source*:** Own estimations, Millennium BCP

As it is presented above, the domestic activity of Millennium BCP should notice a 452 million Euros loss in 2013. The profitability should only be recovered in 2016 when the Net Interest Income increases due to the end of the 'CoCos' interests payment. Subsequently, I will analyze the key lines of the Income Statement of the Portuguese operations.

The Net Interest Margin, which is the main source of commercial banks revenue and represented by the difference between the interest income from the assets and the interest expense from the liabilities, should be under a huge pressure between 2013 and 2015 mainly due to the 'CoCos' interests payment. Additionally, the lower level of credit to the economy, which results in less interest income, and the increasing level of customer deposits, especially in this period when the Banks are struggling for this source of funding in the context of the financial system deleveraging process, also contribute for the pressure in the net interest margin.

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Interest earning assets	70.523	67.403	69.347	66.707	61.147	60.639	62.339	64.260	66.829	68.614
Yield %	5,5%	3,7%	3,3%	4,2%	3,8%	4,1%	4,2%	4,3%	4,3%	4,4%
Interest bearing liabilities	64.102	64.287	64.195	62.742	60.536	61.808	62.927	63.755	64.699	66.398
Yield %	4,2%	2,5%	2,1%	2,9%	3,0%	3,2%	3,2%	3,1%	3,0%	2,9%
Net interest margin	1,66%	1,36%	1,42%	1,50%	0,81%	0,89%	0,97%	1,12%	1,26%	1,57%
Net interest income	1.170	918	984	999	493	537	607	720	843	1.077
Interest income	3.867	2.511	2.322	2.788	2.325	2.494	2.615	2.747	2.857	2.989
Interest expense	2.697	1.593	1.338	1.789	1.833	1.957	2.008	2.027	2.014	1.913

Figure 7.6 Net Interest Margin - Portugal ***Source*:** Own estimations, Millennium BCP

As it can be noticed, the interest expense should remain high over the next four years, as Millennium BCP reimburses the 'CoCos' and pays their interests. The individual yields for the interest earning assets and interest bearing liabilities were assumed as the average value of the 2008-2012 period, except for the loans and advances to customers which I considered the average value plus 0,1% increase each year from 2013 on.

Concerning the Net Fees and Commission income, which come from the non banking intermediation activity of the Bank - especially brokerage, private wealth management, investment funds management, corporate finance and project finance - I assumed it will growth at the pace of total assets. Consequently, I considered that the Net Fees and Commission income will represent 0,7% of total assets throughout the period of projections.

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Net fees and commission income	511	522	572	561	452	448	461	475	494	507
as % of Assets	0,7%	0,7%	0,8%	0,8%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%

Figure 7.7 Net fees and commission income - Portugal ***Source*: Own estimations, Millennium BCP**

By adding the estimated Net Interest Income with the other sources of income, Millennium BCP should expect a decrease in the Net Operating Revenues in 2013. In 2012, the net trading income outperformed the previous years, which helped to offset the pressure in the Net Interest Margin. Accordingly, the evolution of the Net Operating Revenues for the estimated period should be the following:

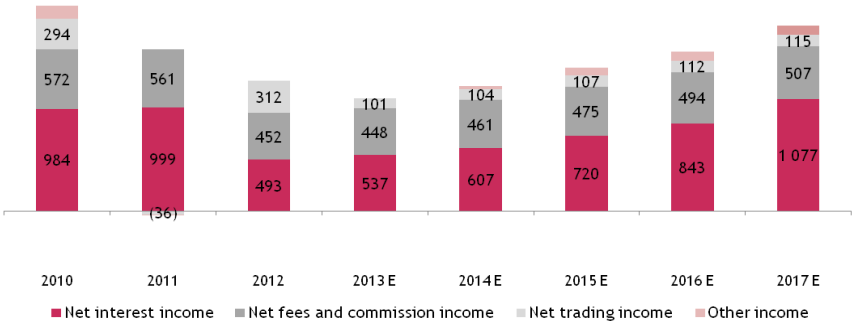


Figure 7.8 Net Operating Revenues breakdown - Portugal ***Source*: Own estimations, Millennium BCP**

In accordance to the ongoing restructuring program, Millennium BCP should remain its headcount reduction in 2013. Consequently, I assumed that the Bank will cut more 200 jobs in 2013 and 50 in 2014, reducing the cost per employee from 59,3 thousand Euros in 2012 to 48,7 thousand Euros in 2013. Furthermore, I considered that the Staff costs will represent 39,5% (less 3% than 2012) of the total Net Operating Revenues in 2013 which will decrease 2,0% each year throughout the period of projections.

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Staff costs	593	604	539	673	532	428	452	491	513	562
as % of Net operating revenues	35,7%	35,0%	27,3%	44,4%	42,5%	39,5%	37,5%	35,5%	33,5%	31,5%
Cost per employee (EUR k)	56,00	58,68	53,12	67,61	59,26	48,68	51,73	56,54	59,43	65,45

Figure 7.9 Staff costs - Portugal ***Source*: Own estimations, Millennium BCP**

Regarding other administrative costs I assumed that they will represent 21,8% of the total Net Operating Revenues in 2013 (less 2% than 2012) which starts decreasing 2% per year throughout the remaining explicit period. Therefore, other administrative costs should represent 13,8% of the Net Operating Revenues by 2017.

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Other administrative costs	372	314	332	319	299	237	239	247	243	247
as % of Net operating revenues	22,4%	18,2%	16,8%	21,1%	23,8%	21,8%	19,8%	17,8%	15,8%	13,8%

Figure 7.10 Other administrative costs - Portugal ***Source*:** Own estimations, Millennium BCP

As it was mentioned earlier, in 2013 the quality of credit in Portugal should continue at a very high level, especially due to the financial constraints of companies and individuals established in Portugal. Consequently, I assumed that the loans impairment (net from recoveries) should fluctuate in relation to the annual change in the unemployment rate minus 12%, because a rising unemployment rate is seen as a sign of weakening economy, affecting the wealth of companies and individuals. According with this assumption, the cost-of-risk (bps) should decrease from 2013 to 2017, helping BCP to recover its profitability by 2016. The evolution expected for the Loans impairment in the forecasted period should be the following:

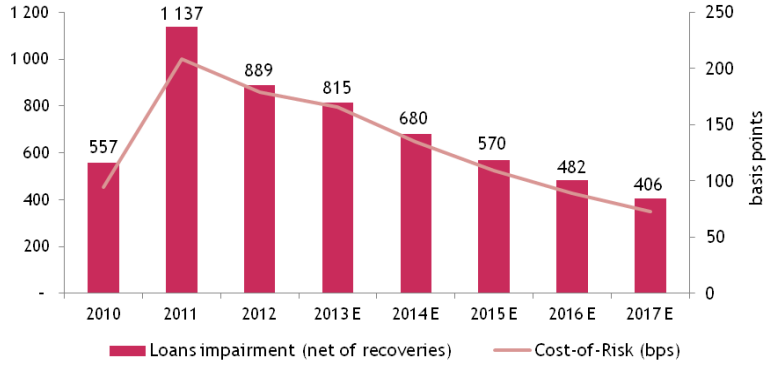


Figure 7.11 Loans impairment and cost-of-risk (bps) - Portugal ***Source*:** Own estimations, Millennium BCP

According with a Millennium BCP source, the effective tax rate that should be applied to the Bank's profit before income tax, is 29,7% (27% from "IRC" plus 2,70% (27%*10%) of "derrama estadual").

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected key ratios										
Return on average shareholders' equity (ROE)	4,6%	7,1%	6,9%	-25,1%	-15,3%	-10,4%	-5,6%	-1,3%	2,4%	6,8%
Return on average total assets (ROA)	0,2%	0,3%	0,4%	-1,4%	-1,0%	-0,7%	-0,4%	-0,1%	0,2%	0,4%
Net Interest Margin (NIM)	1,66%	1,36%	1,42%	1,50%	0,81%	0,89%	0,97%	1,12%	1,26%	1,57%
Cost-to-income	58,1%	53,2%	44,1%	65,5%	66,3%	61,3%	57,3%	53,3%	49,3%	45,3%
Cost-of-Risk (bps)	70,60	64,4	94,5	208,4	179,3	165,7	134,5	109,4	88,9	73,0
Average assets / Average equity	28,8x	24,2x	18,0x	18,4x	15,5x	15,5x	15,5x	15,5x	15,5x	15,5x
Loans-to-deposits	200%	193%	194%	168%	152%	152%	152%	152%	152%	152%
Commercial Gap	(30.037)	(29.247)	(28.584)	(22.029)	(16.977)	(16.842)	(17.314)	(17.848)	(18.561)	(19.057)
Overdue loans (>90 days) / Total loans	0,8%	2,3%	2,9%	4,6%	6,5%	5,9%	5,0%	4,2%	3,6%	3,0%
Total impairment / Overdue loans (>90 days)	246%	120%	113%	113%	89%	89%	89%	89%	89%	89%
Operational information										
Number of clients (thousand)	2.589	2.570	2.500	2.400	2.399	2.402	2.405	2.408	2.409	2.410
Staff	10.583	10.298	10.146	9.959	8.982	8.782	8.732	8.682	8.632	8.582
Branches	918	911	892	885	839	840	841	842	842	843
% of Capital held	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Figure 7.12 Selected key ratios and operational information - Portugal ***Source*:** Own estimations, Millennium BCP

7.2 Poland

7.2.1 Selected volume figures

(more detailed information in the Exhibit 13. - Assumptions Poland)

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected volume figures										
Total Assets	**11.316**	**10.911**	**11.790**	**11.371**	**12.895**	**13.481**	**14.185**	**14.980**	**15.868**	**16.830**
Loans to customers (gross)	**8.300**	**8.428**	**9.541**	**9.466**	**10.107**	**10.567**	**11.118**	**11.742**	**12.438**	**13.192**
Total customer funds	**7.743**	**7.908**	**9.089**	**8.593**	**10.400**	**10.873**	**11.440**	**12.081**	**12.798**	**13.573**
Customer deposits	7.713	7.845	8.993	8.504	10.211	10.676	11.233	11.863	12.566	13.328
Debt securities	30	64	97	89	188	197	207	219	232	246
Total Liabilities	**10.639**	**10.232**	**10.760**	**10.342**	**11.711**	**12.243**	**12.882**	**13.604**	**14.411**	**15.285**
Total Equity	**678**	**679**	**1.029**	**1.029**	**1.184**	**1.238**	**1.303**	**1.376**	**1.457**	**1.546**

Figure 7.13 Selected volume figures - Poland ***Source*:** Own estimations, Millennium BCP

The activity of the Bank Millennium should follow the expected good performance of the Polish economy, which has been presenting a sustainable growth over the recent years. Accordingly, I assumed the Loans to customers (gross) and the Total Customer funds to grow at the Polish GDP plus the Inflation Rate for the activity in Poland.

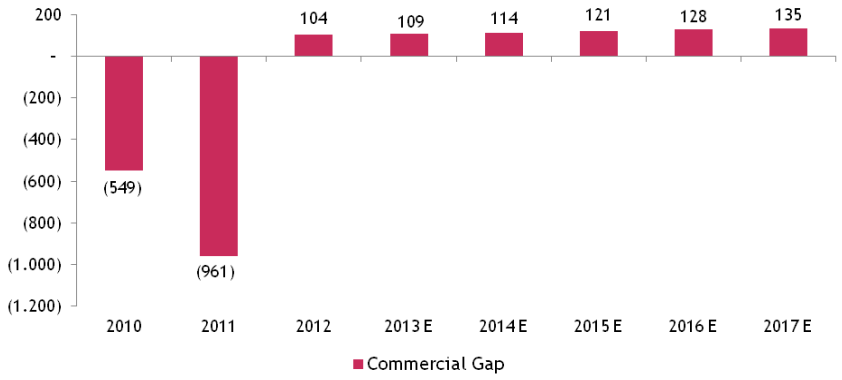


Figure 7.14 Commercial gap - Poland ***Source*:** Own estimations, Millennium BCP

Due to the ongoing deleveraging process, the commercial gap largely decreased until 2012, falling from 111% in 2011 to 99% in 2012. The loans-to-deposits ratio was assumed stable around 99% from 2013 on.

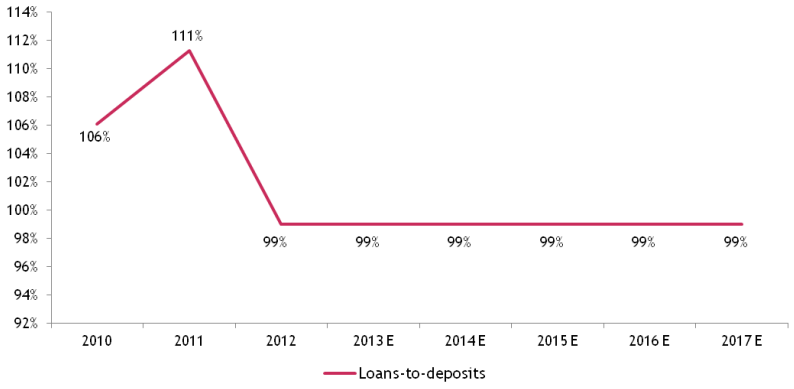


Figure 7.15 Loans-to-Deposits ratio - Poland ***Source*:** Own estimations, Millennium BCP

7.2.2 Selected results

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected results										
Interest income	711	544	589	661	748	798	845	895	951	1.010
Interest expense	431	407	357	383	469	490	515	544	577	611
Net interest income	**280**	**137**	**231**	**277**	**279**	**308**	**329**	**351**	**375**	**399**
Net fees and commission income	135	113	141	136	131	137	144	152	161	171
Net trading income	99	78	55	48	58	61	64	68	72	76
Other operating income	10	4	(1)	(5)	(1)	(0)	(0)	(0)	(0)	(0)
Net operating revenues	**523**	**333**	**426**	**457**	**468**	**506**	**537**	**571**	**608**	**646**
Staff costs	174	108	131	131	135	146	155	165	175	187
Other administrative costs	142	106	118	124	120	130	138	147	156	166
Depreciation	20	18	19	16	13	14	15	16	16	17
Operating costs	**335**	**232**	**268**	**271**	**268**	**290**	**308**	**327**	**348**	**370**
Operating profit bef. imp.	**188**	**101**	**158**	**186**	**199**	**216**	**230**	**244**	**260**	**276**
Loans impairment (net of recoveries) and provisions	39	100	57	42	56	57	56	55	54	53
Profit before income tax	**149**	**0**	**102**	**144**	**143**	**158**	**174**	**189**	**206**	**223**
Income tax	31	0	20	30	30	30	33	36	39	42
Net income	**118**	**0**	**81**	**113**	**113**	**128**	**141**	**153**	**166**	**181**

Figure 7.16 Selected results - Poland ***Source*: Own estimations, Millennium BCP**

As the profitability of the Polish Banks has been increasing, I assumed that the Net Interest Income of Bank Millennium should follow the same trend. Accordingly, the Interest Income will represent 7,4% of total Loans increased by the Polish GDP growth rate throughout the period of projections. The Interest Expense was considered to represent 4,5% of customer funds, remaining stable for the five years forecasted. The evolution of the Net Interest Margin is presented below:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Interest income	711	544	589	661	748	798	845	895	951	1.010
as % of Loans	8,6%	6,5%	6,2%	7,0%	7,4%	7,5%	7,6%	7,6%	7,6%	7,7%
Interest expense	431	407	357	383	469	490	515	544	577	611
as % of Customer Funds	5,6%	5,1%	3,9%	4,5%	4,5%	4,5%	4,5%	4,5%	4,5%	4,5%

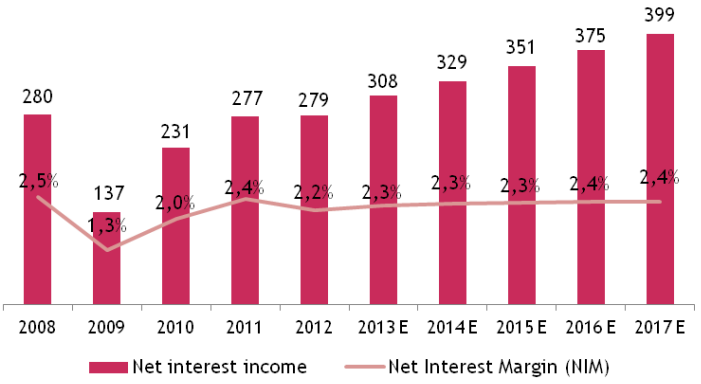


Figure 7.17 Net interest income and margin - Poland ***Source*: Own estimations, Millennium BCP**

The assumptions for the Net fees and commission income were considered equal to the domestic activity, assuming that they will grow at the pace of total assets.

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Net fees and commission income	135	113	141	136	131	137	144	152	161	171
as % of Assets	1,2%	1,0%	1,2%	1,2%	1,0%	1,0%	1,0%	1,0%	1,0%	1,0%

Figure 7.18 Net fees and commission income - Poland ***Source*: Own estimations, Millennium BCP**

Considering the main operational costs, staff costs and other administrative costs, I assumed that they will represent a constant percentage of the Net operating revenues, measured by its value at the end of 2012.

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Staff costs	174	108	131	131	135	146	155	165	175	187
as % of Net operating revenues	33,2%	32,4%	30,8%	28,7%	28,9%	28,9%	28,9%	28,9%	28,9%	28,9%
Cost per employee (EUR k)	24,64	17,28	21,39	20,87	22,50	24,31	25,81	27,40	29,14	30,95

Figure 7.19 Staff costs - Poland ***Source*:** Own estimations, Millennium BCP

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Other administrative costs	142	106	118	124	120	130	138	147	156	166
as % of Net operating revenues	27,0%	31,8%	27,6%	27,2%	25,7%	25,7%	25,7%	25,7%	25,7%	25,7%

Figure 7.20 Other administrative costs - Poland ***Source*:** Own estimations, Millennium BCP

According with Millennium BCP, the effective tax rate that should be applied to the profit before income tax of Bank Millennium, is 19%.

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected key ratios										
Return on average shareholders' equity (ROE)	17,4%	0,1%	7,9%	11,0%	9,6%	10,4%	10,8%	11,1%	11,4%	11,7%
Return on average total assets (ROA)	1,0%	0,0%	0,7%	1,0%	0,9%	1,0%	1,0%	1,0%	1,0%	1,1%
Net Interest Margin (NIM)	2,5%	1,3%	2,0%	2,4%	2,2%	2,3%	2,3%	2,3%	2,4%	2,4%
Cost-to-income	60,2%	64,3%	58,4%	55,9%	54,6%	54,6%	54,6%	54,6%	54,6%	54,6%
Cost-of-Risk (bps)	47,2	118,8	59,3	44,6	55,9	54,4	50,3	46,8	43,6	40,3
Average assets / Average equity	16,7x	16,1x	11,5x	11,1x	10,9x	10,9x	10,9x	10,9x	10,9x	10,9x
Loans-to-deposits	108%	107%	106%	111%	99%	99%	99%	99%	99%	99%
Commercial Gap	(587)	(583)	(549)	(961)	104	109	114	121	128	135
Operational information										
Number of clients (thousand)	1.153	1.129	1.125	1.180	1.189	1.190	1.191	1.192	1.193	1.194
Staff	7.049	6.245	6.135	6.289	6.001	6.006	6.011	6.016	6.022	6.027
Branches	490	472	458	451	447	447	448	448	449	449
% of Capital held	65,5%	65,5%	65,5%	65,5%	65,5%	65,5%	65,5%	65,5%	65,5%	65,5%

Figure 7.21 Selected key ratios and operational information – Poland ***Source*:** Own estimations, Millennium BCP

7.3 Angola

7.3.1 Selected volume figures

(more detailed information in the Exhibit 14. – Assumptions Angola)

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected volume figures										
Total Assets	**459**	**746**	**1.012**	**1.388**	**1.375**	**1.553**	**1.753**	**1.977**	**2.226**	**2.509**
Loans to customers (gross)	**219**	**317**	**465**	**506**	**521**	**588**	**664**	**749**	**843**	**950**
Total customer funds	**279**	**429**	**593**	**872**	**895**	**1.011**	**1.142**	**1.288**	**1.450**	**1.634**
Customer deposits	279	429	593	872	895	1.011	1.142	1.288	1.450	1.634
Debt securities	-	-	-	-	-	-	-	-	-	-
Total Liabilities	**416**	**635**	**872**	**1.202**	**1.156**	**1.306**	**1.474**	**1.662**	**1.872**	**2.110**
Total Equity	**43**	**111**	**140**	**186**	**186**	**247**	**279**	**315**	**354**	**399**

Figure 7.22 Selected volume figures – Angola ***Source*:** Own estimations, Millennium BCP

The growth of the Angolan economy has been allowing a good performance of its banking system. The bancarisation rate in Angola, which represents the percentage of adult population who currently use one or more formal banking products supplied by a financial institution, has a significant upside potential compared with its regional average. The growth of the Angolan GDP has been mainly driven by the increasing contribution of non oil sector to the economy, the focus on investment in large infrastructures and agriculture and by being one of the biggest oil suppliers to China. Consequently, the Banco Millennium will be an important growth driver for the activity of the Millennium BCP in the next years, although it remains having a very small presence in this market. I assumed the Loans to customers (gross) and the Total Customer funds to grow at the Angolan GDP plus the Inflation Rate for the Banco Millennium activity. The commercial gap in Angolan operations should continue being positive throughout the forecasted years. Accordingly, the loans-to-deposits ratio will remain stable around 58% from 2013 on.

7.3.2 Selected results

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected results										
Interest income	21	40	72	93	95	113	127	143	161	182
Interest expense	8	13	22	30	26	30	34	38	43	48
Net interest income	**13**	**27**	**51**	**63**	**68**	**83**	**93**	**105**	**118**	**134**
Net fees and commission income	6	12	16	17	25	28	32	36	40	45
Net trading income	6	21	27	27	32	36	41	46	52	59
Other operating income	(1)	(0)	0	(0)	0	-	-	-	-	-
Net operating revenues	**24**	**59**	**94**	**107**	**125**	**147**	**166**	**187**	**211**	**238**
Staff costs	6	13	19	22	27	32	36	41	46	52
Other administrative costs	9	24	27	28	35	41	46	52	59	66
Depreciation	2	3	5	7	5	5	6	7	8	9
Operating costs	**17**	**41**	**51**	**58**	**67**	**79**	**89**	**100**	**113**	**127**
Operating profit bef. imp.	**7**	**19**	**43**	**49**	**58**	**69**	**77**	**87**	**98**	**111**
Loans impairment (net of recoveries) and provisions	3	5	14	12	12	13	15	17	19	21
Profit before income tax	**4**	**14**	**28**	**37**	**46**	**55**	**62**	**70**	**79**	**89**
Income tax	(0)	(1)	5	4	9	17	19	21	24	27
Net income	**4**	**15**	**24**	**33**	**37**	**39**	**44**	**49**	**55**	**63**

Figure 7.23 Selected results – Angola ***Source*:** Own estimations, Millennium BCP

I considered that the Interest Income will represent 18,2% of total Loans increased by the Angolan GDP growth rate throughout the period of projections. The Interest Expense was considered to represent 2,9% of customer funds, remaining stable for the five years forecasted. The evolution of the Net Interest Margin is presented below:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Interest income	21	40	72	93	95	113	127	143	161	182
as % of Loans	9,6%	12,5%	15,6%	18,3%	18,2%	19,1%	19,1%	19,1%	19,1%	19,1%
Interest expense	8	13	22	30	26	30	34	38	43	48
as % of Customer Funds	3,0%	3,0%	3,6%	3,4%	2,9%	2,9%	2,9%	2,9%	2,9%	2,9%

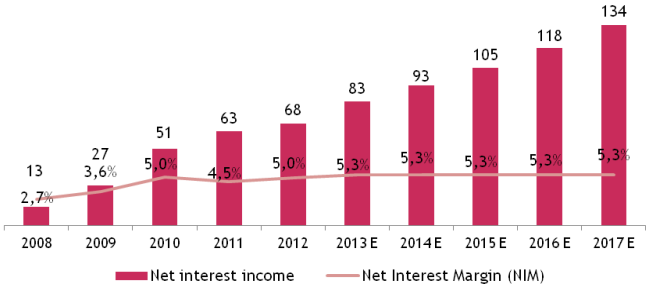


Figure 7.24 Net interest income and margin - Angola ***Source*: Own estimations, Millennium BCP**

Regarding the Net fees and commission income, it was considered to represent a fixed percentage of total assets during the explicit period, measured by its weight in 2012. The main operating costs, staff and other administrative costs, were assumed to grow relatively to the total Net operating revenues during the five years forecasted. Accordingly, the evolution of these critical income statement components was assumed as follows:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Net fees and commission income	6	12	16	17	25	28	32	36	40	45
as % of Assets	1,4%	1,6%	1,6%	1,3%	1,8%	1,8%	1,8%	1,8%	1,8%	1,8%

Figure 7.25 Net fees and commission income - Angola ***Source*: Own estimations, Millennium BCP**

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Staff costs	6	13	19	22	27	32	36	41	46	52
as % of Net operating revenues	26,5%	22,1%	20,2%	21,0%	21,9%	21,9%	21,9%	21,9%	21,9%	21,9%
Cost per employee (EUR k)	20,37	26,20	26,58	25,10	26,76	30,54	33,47	36,63	39,99	43,80

Figure 7.26 Staff costs - Angola ***Source*: Own estimations, Millennium BCP**

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Other administrative costs	9	24	27	28	35	41	46	52	59	66
as % of Net operating revenues	38,1%	40,6%	29,1%	26,5%	27,8%	27,8%	27,8%	27,8%	27,8%	27,8%

Figure 7.27 Other administrative costs - Angola ***Source*: Own estimations, Millennium BCP**

According to the Millennium BCP, the effective tax rate that should be applied to the profit before income tax of Banco Millennium until 2017, is 30%.

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected key ratios										
Return on average shareholders' equity (ROE)	10,1%	13,2%	16,8%	18,0%	20,1%	15,7%	15,7%	15,7%	15,6%	15,7%
Return on average total assets (ROA)	0,9%	2,0%	2,3%	2,4%	2,7%	2,5%	2,5%	2,5%	2,5%	2,5%
Net Interest Margin (NIM)	2,7%	3,6%	5,0%	4,5%	5,0%	5,3%	5,3%	5,3%	5,3%	5,3%
Cost-to-income	64,6%	62,6%	49,3%	47,5%	49,8%	49,8%	49,8%	49,8%	49,8%	49,8%
Cost-of-Risk (bps)	131,6	158,6	303,4	238,5	223,8	223,8	223,8	223,8	223,8	223,8
Average assets / Average equity	10,6x	6,7x	7,2x	7,5x	7,4x	6,3x	6,3x	6,3x	6,3x	6,3x
Loans-to-deposits	78%	74%	78%	58%	58%	58%	58%	58%	58%	58%
Commercial Gap	61	112	128	365	375	423	478	539	607	684
Operational information										
Number of clients (thousand)	17	33	81	153	158	162	167	172	177	183
Staff	311	499	714	893	1.027	1.058	1.090	1.122	1.156	1.191
Branches	16	23	39	61	76	78	81	83	86	88
% of Capital held	100,0%	52,7%	52,7%	52,7%	52,7%	52,7%	52,7%	52,7%	52,7%	52,7%

Figure 7.28 Selected key ratios and operational information - Angola ***Source*: Own estimations, Millennium BCP**

7.4 Mozambique

7.4.1 Selected volume figures

(more detailed information in the Exhibit 15. – Assumptions Mozambique)

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected volume figures										
Total Assets	**1.042**	**1.205**	**1.293**	**1.793**	**1.872**	**2.182**	**2.474**	**2.806**	**3.183**	**3.609**
Loans to customers (gross)	**506**	**703**	**854**	**1.061**	**1.049**	**1.222**	**1.386**	**1.572**	**1.783**	**2.022**
Total customer funds	**804**	**916**	**991**	**1.338**	**1.403**	**1.635**	**1.854**	**2.103**	**2.385**	**2.705**
Customer deposits	804	916	967	1.308	1.376	1.604	1.819	2.064	2.341	2.654
Debt securities	-	-	24	30	26	31	35	39	45	51
Total Liabilities	**897**	**1.044**	**1.096**	**1.473**	**1.537**	**1.791**	**2.031**	**2.304**	**2.614**	**2.964**
Total Equity	**145**	**161**	**197**	**320**	**335**	**390**	**442**	**502**	**569**	**646**

Figure 7.29 Selected volume figures – Mozambique ***Source*: Own estimations, Millennium BCP**

In terms of macroeconomic indicators, Mozambique has been demonstrating a strong record of GDP growth. Similarly, for the next five years, Mozambique shows strong perspectives on GDP growth, mainly due to the increasing level of exports of coal (Mozambique has one of the largest reserves of the world) and natural gas (Mozambique should be in the Africa's top three exporters of natural gas by 2018). Similarly to Angola, the Mozambican bancarisation rate should also continue to rising, as it has a significant upside potential compared with its regional average.

Historically, high GDP growth countries, such as Mozambique, demonstrate higher credit growth. Consequently, I assumed the Loans to customers (gross) and the Total Customer funds to grow at the Mozambican GDP plus the Inflation Rate for the Millennium bim activity. The commercial gap in Mozambique should continue being positive throughout the forecasted years, meaning that the Mozambican operations will remain self funded. In compliance with that, the loans-to-deposits ratio will remain stable around 76% from 2013 on.

7.4.2 Selected results

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected results										
Interest income	100	110	129	197	201	254	286	325	368	418
Interest expense	22	26	33	53	67	79	89	101	115	130
Net interest income	**78**	**84**	**96**	**143**	**133**	**175**	**197**	**224**	**254**	**287**
Net fees and commission income	22	24	22	31	39	45	51	58	66	75
Net trading income	14	23	26	20	29	34	39	44	50	57
Other operating income	5	5	8	11	13	0	0	0	0	0
Net operating revenues	**120**	**135**	**151**	**204**	**214**	**255**	**287**	**326**	**370**	**419**
Staff costs	26	27	30	36	46	54	61	70	79	89
Other administrative costs	22	26	28	34	41	48	54	62	70	79
Depreciation	7	6	7	7	9	11	12	14	15	18
Operating costs	**54**	**60**	**65**	**77**	**95**	**113**	**128**	**145**	**164**	**186**
Operating profit bef. imp.	**66**	**76**	**86**	**127**	**119**	**142**	**160**	**181**	**205**	**233**
Loans impairment (net of recoveries) and provisions	2	12	21	18	14	16	18	21	23	26
Profit before income tax	**63**	**64**	**65**	**110**	**105**	**126**	**141**	**161**	**182**	**206**
Income tax	11	12	12	19	18	23	25	29	58	66
Net income	**52**	**53**	**53**	**90**	**87**	**103**	**116**	**132**	**124**	**140**

Figure 7.30 Selected results – Mozambique ***Source*: Own estimations, Millennium BCP**

The assumptions made for Mozambique were equal to the ones made for the Angolan operations. Therefore, I considered that the Interest Income will represent 19,2% of total Loans increased by the Mozambican GDP growth rate throughout the period of projections. The Interest Expense was considered to represent 4,8% of customer funds, remaining stable for the five years forecasted. The evolution of the Net Interest Margin from 2013 to 2017 was estimated as follows:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Interest income	100	110	129	197	201	254	286	325	368	418
as % of Loans	19,8%	15,7%	15,1%	18,5%	19,2%	20,8%	20,7%	20,7%	20,7%	20,7%
Interest expense	22	26	33	53	67	79	89	101	115	130
as % of Customer Funds	2,8%	2,8%	3,4%	4,0%	4,8%	4,8%	4,8%	4,8%	4,8%	4,8%

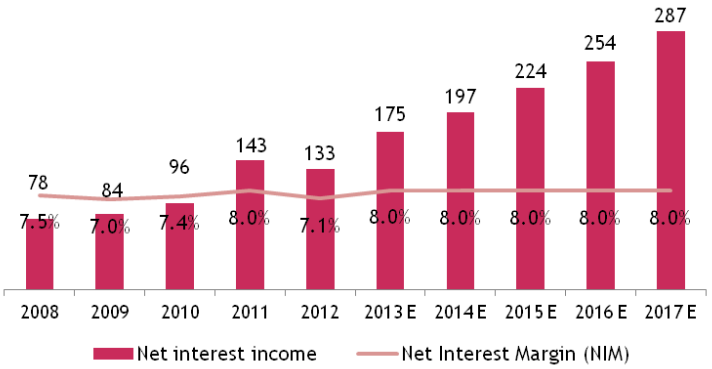


Figure 7.31 Net interest income and margin - Mozambique ***Source*:** Own estimations, Millennium BCP

The assumptions considered to the other main components of the Income Statement, namely the net fees and commission income and staff and other operating costs, were equal to Angolan operations. Accordingly, the evolution of the these lines should be the following:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Net fees and commission income	22	24	22	31	39	45	51	58	66	75
as % of Assets	2,2%	2,0%	1,7%	1,7%	2,1%	2,1%	2,1%	2,1%	2,1%	2,1%

Figure 7.32 Net fees and commission income - Mozambique ***Source*:** Own estimations, Millennium BCP

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Staff costs	26	27	30	36	46	54	61	70	79	89
as % of Net operating revenues	21,5%	20,2%	19,6%	17,4%	21,3%	21,3%	21,3%	21,3%	21,3%	21,3%
Cost per employee (EUR k)	14,63	14,16	14,24	14,97	18,73	21,81	24,11	26,83	29,83	33,14

Figure 7.33 Staff costs - Mozambique ***Source*:** Own estimations, Millennium BCP

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Other administrative costs	22	26	28	34	41	48	54	62	70	79
as % of Net operating revenues	18,2%	19,4%	18,5%	16,7%	18,9%	18,9%	18,9%	18,9%	18,9%	18,9%

Figure 7.34 Other administrative costs - Mozambique ***Source*:** Own estimations, Millennium BCP

According to the Millennium BCP, the effective tax rate that should be applied to the profit before income tax of Millennium bim until 2015, is 18%. In 2016 the period of fiscal benefits ends, meaning that the effective tax rate increases to 32% in 2016 and 2017.

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected key ratios										
Return on average shareholders' equity (ROE)	35,8%	32,7%	27,1%	28,3%	25,9%	26,4%	26,2%	26,2%	21,7%	21,7%
Return on average total assets (ROA)	5,0%	4,4%	4,1%	5,0%	4,6%	4,7%	4,7%	4,7%	3,9%	3,9%
Net Interest Margin (NIM)	7,5%	7,0%	7,4%	8,0%	7,1%	8,0%	8,0%	8,0%	8,0%	8,0%
Cost-to-income	39,6%	39,7%	38,1%	34,1%	40,3%	40,3%	40,3%	40,3%	40,3%	40,3%
Cost-of-Risk (bps)	48,8	165,2	247,9	166,0	131,0	131,0	131,0	131,0	131,0	131,0
Average assets / Average equity	7,2x	7,5x	6,6x	5,6x	5,6x	5,6x	5,6x	5,6x	5,6x	5,6x
Loans-to-deposits	63%	77%	88%	81%	76%	76%	76%	76%	76%	76%
Commercial Gap	298	213	113	246	328	382	433	492	558	632
Operational information										
Number of clients (thousand)	555	706	864	1.024	1.044	1.065	1.087	1.108	1.131	1.153
Staff	1.762	1.936	2.088	2.377	2.444	2.493	2.543	2.594	2.646	2.698
Branches	100	116	125	138	151	154	157	160	163	167
% of Capital held	66,7%	66,7%	66,7%	66,7%	66,7%	66,7%	66,7%	66,7%	66,7%	66,7%

Figure 7.35 Selected key ratios and operational information – Mozambique ***Source*:** Own estimations, Millennium BCP

7.5 Greece

7.5.1 Selected volume figures

(more detailed information in the Exhibit 16. – Assumptions Greece)

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected volume figures										
Total Assets	**6.104**	**6.669**	**6.858**	**6.364**	**4.831**	**4.603**	**4.587**	**4.725**	**4.936**	**5.164**
Loans to customers (gross)	**4.848**	**5.157**	**5.123**	**4.865**	**4.710**	**4.487**	**4.471**	**4.606**	**4.812**	**5.033**
Total customer funds	**3.246**	**3.473**	**3.122**	**2.939**	**2.912**	**2.774**	**2.765**	**2.848**	**2.975**	**3.112**
Customer deposits	3.246	3.473	3.122	2.939	2.912	2.774	2.765	2.848	2.975	3.112
Debt securities	-	-	-	-	-	-	-	-	-	-
Total Liabilities	**5.790**	**6.280**	**6.486**	**5.890**	**4.634**	**4.415**	**4.399**	**4.532**	**4.734**	**4.952**
Total Equity	**314**	**389**	**372**	**474**	**198**	**188**	**188**	**193**	**202**	**211**

Figure 7.36 Selected volume figures – Greece ***Source*:** Own estimations, Millennium BCP

The Greek economy has been undertaking a deep adjustment programme in the context of the financial aid asked to EU/IMF/ECB. However, the Greek economy imbalances should continue at least until 2014, mainly due to the weakening domestic demand, lower level of investment and a record unemployment rate. Consequently, I assumed the Loans to customers (gross) and the Total Customer funds to grow at the Greek GDP plus the Inflation Rate for the Millennium Bank activity, which represents a decrease in the level of banking activity up to 2014. The commercial gap in Greece should continue being negative (around 1,8 billion euros) throughout the forecasted years. The loans-to-deposits ratio will remain stable around 162% from 2013 on, meaning that the bank will continue having financing needs.

7.5.2 Selected results

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected results										
Interest income	377	289	276	393	200	183	190	201	212	221
Interest expense	251	164	149	196	188	179	179	184	192	201
Net interest income	**126**	**125**	**127**	**198**	**11**	**3**	**11**	**16**	**19**	**20**
Net fees and commission income	32	33	30	23	25	23	23	24	25	26
Net trading income	8	10	0	8	25	24	24	24	25	27
Other operating income	2	3	2	(2)	(5)	-	-	-	-	-
Net operating revenues	**168**	**170**	**160**	**226**	**56**	**50**	**58**	**65**	**70**	**73**
Staff costs	62	61	60	64	49	39	44	49	52	53
Other administrative costs	55	55	54	52	46	36	41	46	48	50
Depreciation	9	10	10	14	7	7	7	7	7	8
Operating costs	**126**	**126**	**124**	**129**	**102**	**82**	**92**	**101**	**107**	**110**
Operating profit bef. imp.	**42**	**44**	**36**	**97**	**(46)**	**(32)**	**(34)**	**(36)**	**(38)**	**(38)**
Loans impairment (net of recoveries) and provisions	17	25	57	93	279	297	251	199	149	110
Profit before income tax	**25**	**19**	**(21)**	**4**	**(324)**	**(328)**	**(285)**	**(236)**	**(187)**	**(147)**
Income tax	10	10	(6)	8	(58)	(66)	(57)	(47)	(37)	(29)
Net income	**15**	**9**	**(16)**	**(4)**	**(267)**	**(263)**	**(228)**	**(189)**	**(150)**	**(118)**

Figure 7.37 Selected results - Greece ***Source*:** Own estimations, Millennium BCP

The unprecedented adverse economic climate and the significant shrinking of demand for banking products and services in Greece should have a huge impact on the Bank's organic revenue sources, especially in the Net Interest Income. The assumptions made for the Net Interest Income in Greece were equal to the ones made for the other geographies where Millennium BCP operates. Accordingly, I considered that the Interest Income will represent 4,2% of total Loans times the Greek GDP growth rate throughout the period of projections. The Interest Expense was considered to represent 6,5% of customer funds, remaining stable for the five years estimated. The evolution of the Net Interest Margin between 2013 and 2017 was estimated as follows:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Interest income	377	289	276	393	200	183	190	201	212	221
as % of Loans	7,8%	5,6%	5,4%	8,1%	4,2%	4,1%	4,2%	4,4%	4,4%	4,4%
Interest expense	251	164	149	196	188	179	179	184	192	201
as % of Customer Funds	7,7%	4,7%	4,8%	6,7%	6,5%	6,5%	6,5%	6,5%	6,5%	6,5%

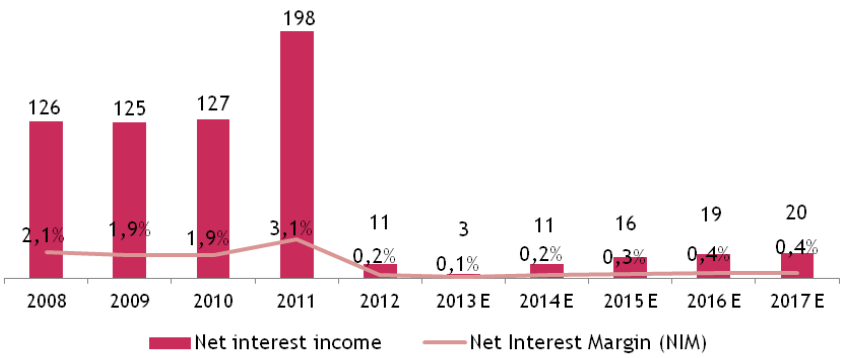


Figure 7.38 Net interest income and margin - Greece ***Source*:** Own estimations, Millennium BCP

The assumptions considered to the Net fees and commission income for Millennium Bank were equal to the all other operations of Millennium BCP. The evolution of this source of income was estimated as follows:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Net fees and commission income	32	33	30	23	25	23	23	24	25	26
as % of Assets	0,5%	0,5%	0,4%	0,4%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%

Figure 7.39 Net fees and commission income - Greece ***Source*: Own estimations, Millennium BCP**

Considering the main operational costs, staff costs and other administrative costs, I assumed that they will represent a decreasing percentage of the Net operating revenues, falling both 10% in 2013 and then decreasing more 1% each year from 2014 on. Similarly to the Portuguese operation, this assumption lies on the fact that Millennium BCP Group will continue its reestructuring program in Greece, which includes a severe reduction on administrative costs and headcount.

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Staff costs	62	61	60	64	49	39	44	49	52	53
as % of Net operating revenues	37,1%	36,0%	37,3%	28,3%	87,0%	77,0%	76,0%	75,0%	74,0%	73,0%
Cost per employee (EUR k)	40,09	40,03	40,64	52,87	41,03	34,13	38,64	42,83	45,47	46,65

Figure 7.40 Staff costs - Greece ***Source*: Own estimations, Millennium BCP**

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Other administrative costs	55	55	54	52	46	36	41	46	48	50
as % of Net operating revenues	32,7%	32,4%	34,0%	22,8%	82,3%	72,3%	71,3%	70,3%	69,3%	68,3%

Figure 7.41 Other administrative costs - Greece ***Source*: Own estimations, Millennium BCP**

According with Millennium BCP, the effective tax rate that should be applied to the profit before income tax of Millennium Bank, is 20%.

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Selected key ratios										
Return on average shareholders' equity (ROE)	4,8%	2,3%	-4,3%	-0,7%	-135,0%	-139,5%	-121,4%	-97,6%	-74,1%	-55,8%
Return on average total assets (ROA)	0,2%	0,1%	-0,2%	-0,1%	-5,5%	-5,7%	-5,0%	-4,0%	-3,0%	-2,3%
Net Interest Margin (NIM)	2,1%	1,9%	1,9%	3,1%	0,2%	0,1%	0,2%	0,3%	0,4%	0,4%
Cost-to-income	69,8%	68,5%	71,4%	51,2%	169,3%	149,3%	147,3%	145,3%	143,3%	141,3%
Cost-of-Risk (bps)	34,5	47,9	111,9	190,3	591,4	661,0	560,4	432,6	310,6	217,8
Average assets / Average equity	19,4x	17,2x	18,4x	13,4x	24,4x	24,4x	24,4x	24,4x	24,4x	24,4x
Loans-to-deposits	149%	149%	164%	166%	162%	162%	162%	162%	162%	162%
Commercial Gap	(1.602)	(1.685)	(2.001)	(1.926)	(1.797)	(1.712)	(1.706)	(1.758)	(1.836)	(1.921)
Operational information										
Number of clients (thousand)	502	540	563	584	585	585	585	586	586	586
Staff	1.554	1.527	1.470	1.212	1.186	1.136	1.136	1.136	1.136	1.136
Branches	178	177	155	120	120	110	100	100	100	100
% of Capital held	100%	100%	100%	100%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Figure 7.42 Selected key ratios and operational information - Greece ***Source*: Own estimations, Millennium BCP**

8. VALUATION RESULTS

After having presented the assumptions and forecasts for the five banks of the Millennium BCP Group, each one operating in a particular environment, I now deliver and explain the valuation results yielded from my model. Furthermore, I will perform a sensitivity analysis and a valuation comparison with trading 'comparable' companies for each subsidiary.

8.1 Net Asset Value (NAV) Approach

In face of what I explained in the literature, the NAV approach considers key assumptions that should be carefully estimated, in order to reach the fair price for the company valued.

The calculations and the assumptions considered to the ROE Demanded for each geography, which is the implicit Cost of Equity, were already explained above (**Section 6.2**).

The Forecasted ROE was computed by using the formula 2.17 presented in the DuPont Approach (**Section 2.4.2.1.7**), as my valuation method (NAV approach) is quite similar to the DuPont model. Basically, the DuPont model breaks down the Return on Equity (ROE) in three distinct parts: *Profit Margin*, which measures the profitability of the company; *Asset Turnover*, which measures the operating efficiency of the company; and *Equity Multiplier*, which measures the company's financial leverage. This breakdown of ROE into ROA and the Equity Multiplier provides further insight as to how that ROE has been achieved with respect to genuine profitability of the asset base, versus the use of leverage on the balance sheet (measured by the equity multiplier). While ROA reflects how effectively the company's management is employing the company's assets and cannot be skewed by leverage, the equity multiplier (by leveraging) can be used to artificially boost ROE. Therefore it is very important to understand where the company's return on equity comes from. In the banking sector, where Millennium BCP operates, for two banks with the same amount of assets and generating the same return on those assets, the bank with the smaller amount of equity (and hence the higher equity leverage) will generate the higher ROE, which at the same represents a more risky bank. According with the assumptions considered to each bank and the results estimated, the Forecasted ROE was computed as follows:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Portugal										
Net income	117	214	292	(971)	(669)	(452)	(248)	(58)	117	333
Net operating revenue	1.659	1.726	1.976	1.515	1.253	1.083	1.206	1.384	1.533	1.785
Profit margin	7,0%	12,4%	14,8%	-64,1%	-53,4%	-41,7%	-20,5%	-4,2%	7,6%	18,7%
Net operating revenue	1.659	1.726	1.976	1.515	1.253	1.083	1.206	1.384	1.533	1.785
Total assets	72.417	72.885	75.731	71.156	67.459	66.921	68.798	70.918	73.753	75.723
Assets utilization	2,3%	2,4%	2,6%	2,1%	1,9%	1,6%	1,8%	2,0%	2,1%	2,4%
Return on assets (ROA)	0,2%	0,3%	0,4%	-1,4%	-1,0%	-0,7%	-0,4%	-0,1%	0,2%	0,4%
Total assets	72.417	72.885	75.731	71.156	67.459	66.921	68.798	70.918	73.753	75.723
Total equity	2.517	3.014	4.212	3.867	4.365	4.330	4.451	4.588	4.772	4.899
Equity multiplier	28,8x	24,2x	18,0x	18,4x	15,5x	15,5x	15,5x	15,5x	15,5x	15,5x
Forecasted ROE	4,6%	7,1%	6,9%	-25,1%	-15,3%	-10,4%	-5,6%	-1,3%	2,4%	6,8%

Figure 8.1 Forecasted ROE – Portugal ***Source*:** Own estimations, Millennium BCP

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Poland										
Net income	118	0	81	113	113	128	141	153	166	181
Net operating revenue	523	333	426	457	468	506	537	571	608	646
Profit margin	22,5%	0,1%	19,1%	24,8%	24,2%	25,4%	26,2%	26,8%	27,4%	28,0%
Net operating revenue	523	333	426	457	468	506	537	571	608	646
Total assets	11.316	10.911	11.790	11.371	12.895	13.481	14.185	14.980	15.868	16.830
Assets utilization	4,6%	3,0%	3,6%	4,0%	3,6%	3,7%	3,8%	3,8%	3,8%	3,8%
Return on assets (ROA)	1,0%	0,0%	0,7%	1,0%	0,9%	1,0%	1,0%	1,0%	1,0%	1,1%
Total assets	11.316	10.911	11.790	11.371	12.895	13.481	14.185	14.980	15.868	16.830
Total equity	678	679	1.029	1.029	1.184	1.238	1.303	1.376	1.457	1.546
Equity multiplier	16,7x	16,1x	11,5x	11,1x	10,9x	10,9x	10,9x	10,9x	10,9x	10,9x
Forecasted ROE	17,4%	0,1%	7,9%	11,0%	9,6%	10,4%	10,8%	11,1%	11,4%	11,7%

Figure 8.2 Forecasted ROE - Poland ***Source*: Own estimations, Millennium BCP**

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Angola										
Net income	4	15	24	33	37	39	44	49	55	63
Net operating revenue	24	59	94	107	125	147	166	187	211	238
Profit margin	18,2%	24,6%	25,1%	31,2%	29,7%	26,3%	26,3%	26,3%	26,3%	26,3%
Net operating revenue	24	59	94	107	125	147	166	187	211	238
Total assets	459	746	1.012	1.388	1.375	1.553	1.753	1.977	2.226	2.509
Assets utilization	5,2%	7,9%	9,3%	7,7%	9,1%	9,5%	9,5%	9,5%	9,5%	9,5%
Return on assets (ROA)	0,9%	2,0%	2,3%	2,4%	2,7%	2,5%	2,5%	2,5%	2,5%	2,5%
Total assets	459	746	1.012	1.388	1.375	1.553	1.753	1.977	2.226	2.509
Total equity	43	111	140	186	186	247	279	315	354	399
Equity multiplier	10,6x	6,7x	7,2x	7,5x	7,4x	6,3x	6,3x	6,3x	6,3x	6,3x
Forecasted ROE	10,1%	13,2%	16,8%	18,0%	20,1%	15,7%	15,7%	15,7%	15,6%	15,7%

Figure 8.3 Forecasted ROE - Angola ***Source*: Own estimations, Millennium BCP**

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Mozambique										
Net income	52	53	53	90	87	103	116	132	124	140
Net operating revenue	120	135	151	204	214	255	287	326	370	419
Profit margin	43,4%	38,8%	35,2%	44,2%	40,5%	40,4%	40,4%	40,4%	33,5%	33,5%
Net operating revenue	120	135	151	204	214	255	287	326	370	419
Total assets	1.042	1.205	1.293	1.793	1.872	2.182	2.474	2.806	3.183	3.609
Assets utilization	11,5%	11,2%	11,7%	11,4%	11,5%	11,7%	11,6%	11,6%	11,6%	11,6%
Return on assets (ROA)	5,0%	4,4%	4,1%	5,0%	4,6%	4,7%	4,7%	4,7%	3,9%	3,9%
Total assets	1.042	1.205	1.293	1.793	1.872	2.182	2.474	2.806	3.183	3.609
Total equity	145	161	197	320	335	390	442	502	569	646
Equity multiplier	7,2x	7,5x	6,6x	5,6x	5,6x	5,6x	5,6x	5,6x	5,6x	5,6x
Forecasted ROE	35,8%	32,7%	27,1%	28,3%	25,9%	26,4%	26,2%	26,2%	21,7%	21,7%

Figure 8.4 Forecasted ROE - Mozambique ***Source*: Own estimations, Millennium BCP**

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Greece										
Net income	15	9	(16)	(4)	(267)	(263)	(228)	(189)	(150)	(118)
Net operating revenue	168	170	160	226	56	50	58	65	70	73
Profit margin	9,0%	5,3%	-10,0%	-1,6%	-477,2%	-521,8%	-394,5%	-290,8%	-214,4%	-162,4%
Net operating revenue	168	170	160	226	56	50	58	65	70	73
Total assets	6.104	6.669	6.858	6.364	4.831	4.603	4.587	4.725	4.936	5.164
Assets utilization	2,7%	2,5%	2,3%	3,6%	1,2%	1,1%	1,3%	1,4%	1,4%	1,4%
Return on assets (ROA)	0,2%	0,1%	-0,2%	-0,1%	-5,5%	-5,7%	-5,0%	-4,0%	-3,0%	-2,3%
Total assets	6.104	6.669	6.858	6.364	4.831	4.603	4.587	4.725	4.936	5.164
Total equity	314	389	372	474	198	188	188	193	202	211
Equity multiplier	19,4x	17,2x	18,4x	13,4x	24,4x	24,4x	24,4x	24,4x	24,4x	24,4x
Forecasted ROE	4,8%	2,3%	-4,3%	-0,7%	-135,0%	-139,5%	-121,4%	-97,6%	-74,1%	-55,8%

Figure 8.5 Forecasted ROE - Greece ***Source*: Own estimations, Millennium BCP**

By taking into consideration the Forecasted ROE computed for each year of the explicit period, I assumed a Sustainable ROE equal to the terminal value of the Forecasted ROE measured by its value in the end of 2017. This estimate can become especially subjective, but in my opinion the Sustainable ROE reflects the Banks' ability to deliver profitability under stable market conditions in the long-term, especially after this negative macroeconomic environment with the tremendous impact on the global financial system, mostly in European countries. Furthermore, 2017 should be the first year of activity after the recapitalization of Millennium Group has been paid, which represents the conclusion of an extraordinary cost for the Bank. The exception is Millennium Bank (Greece), for which I considered a Sustainable ROE of 0%. The Sustainable ROE of each Bank was the following:

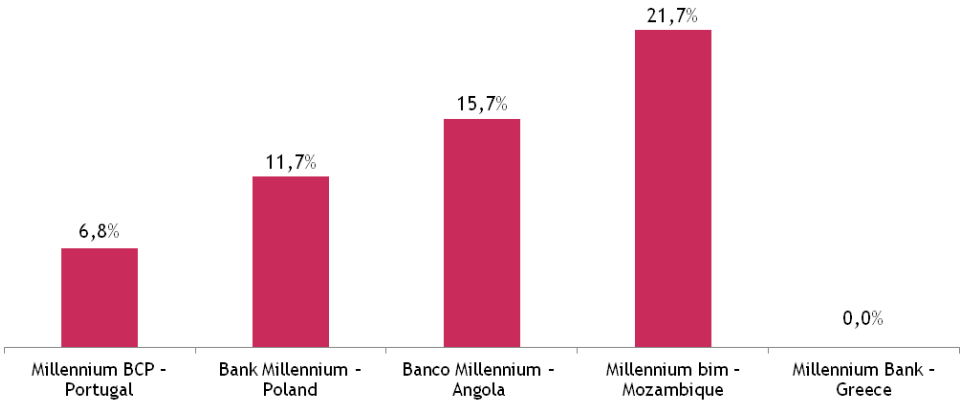


Figure 8.6 Sustainable ROE ***Source*:** Own estimations, Millennium BCP

The other assumption needed to this model is the expected sustainable growth, which reflects the prospective growth of the bank in the long-term. Many analysts assume this rate in relation with the long-term GDP growth of a country. Consequently, I assumed that the growth rate should be equal to half 2017 GDP growth. The Growth rate for each Bank was considered as follows:

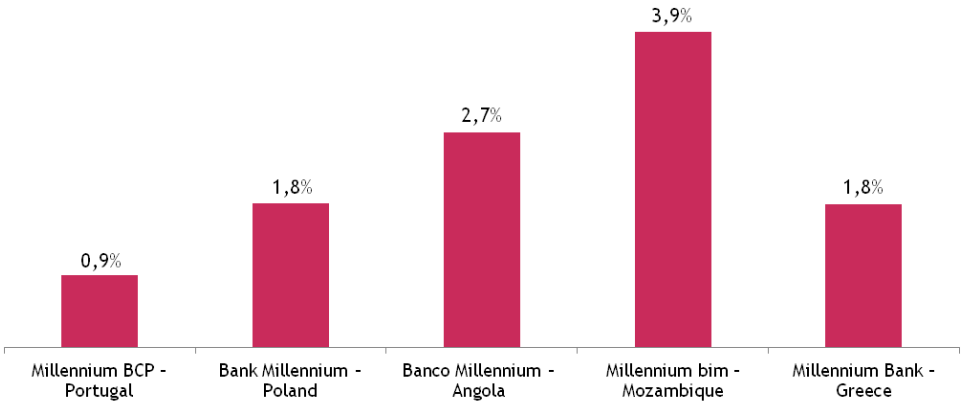
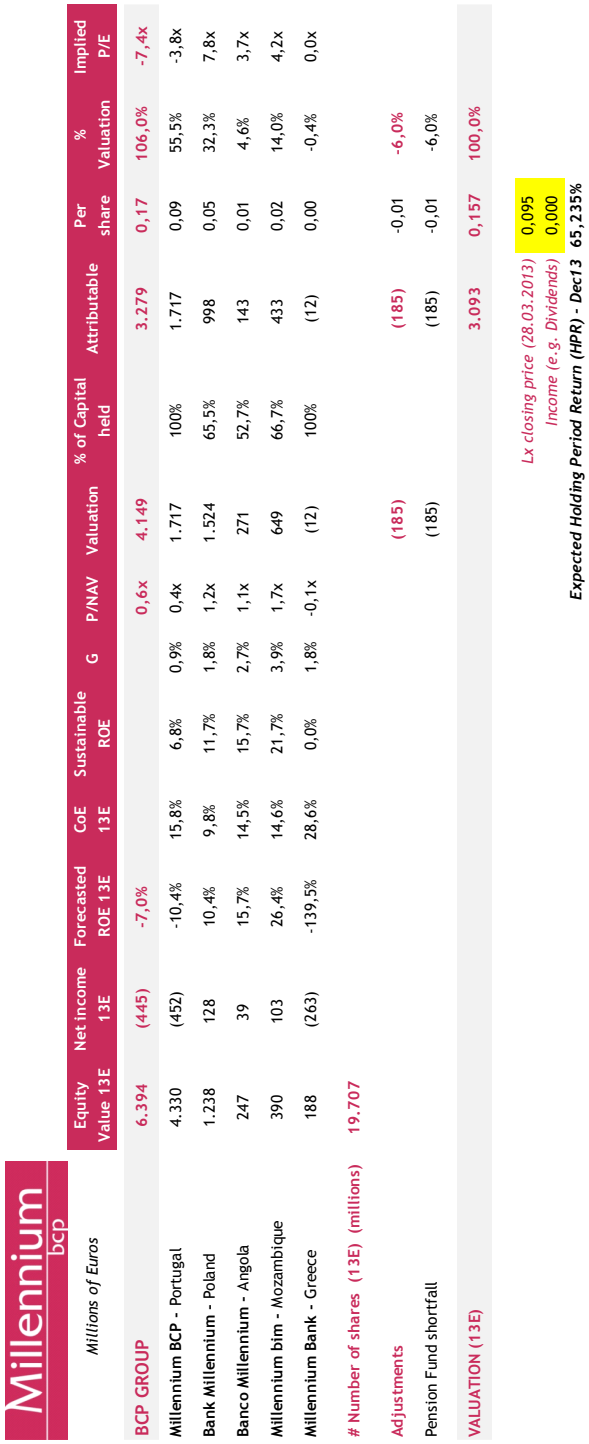


Figure 8.7 Growth rate ***Source*:** Own estimations, Millennium BCP

Having established the assumptions described above, the Sum of Parts (SoP) valuation for 2013, is described in the table below:



Millennium bcp

Millions of Euros

	Equity Value 13E	Net income 13E	Forecasted ROE 13E	CoE 13E	Sustainable ROE	G	P/NAV	Valuation	% of Capital held	Attributable	Per share	% Valuation	Implied P/E
BCP GROUP	6.394	(445)	-7,0%				0,6x	4.149		3.279	0,17	106,0%	-7,4x
Millennium BCP - Portugal	4.330	(452)	-10,4%	15,8%	6,8%	0,9%	0,4x	1.717	100%	1.717	0,09	55,5%	-3,8x
Bank Millennium - Poland	1.238	128	10,4%	9,8%	11,7%	1,8%	1,2x	1.524	65,5%	998	0,05	32,3%	7,8x
Banco Millennium - Angola	247	39	15,7%	14,5%	15,7%	2,7%	1,1x	271	52,7%	143	0,01	4,6%	3,7x
Millennium bim - Mozambique	390	103	26,4%	14,6%	21,7%	3,9%	1,7x	649	66,7%	433	0,02	14,0%	4,2x
Millennium Bank - Greece	188	(263)	-139,5%	28,6%	0,0%	1,8%	-0,1x	(12)	100%	(12)	0,00	-0,4%	0,0x
# Number of shares (13E) (millions)	19.707												
Adjustments								(185)		(185)	-0,01	-6,0%	
Pension Fund shortfall								(185)		(185)	-0,01	-6,0%	
VALUATION (13E)										3.093	0,157	100,0%	

Lx closing price (28.03.2013) 0,095
Income (e.g. Dividends) 0,000
Expected Holding Period Return (HPR) - Dec13 **65,235%**

Figure 8.8 SoP Valuation BCP - December 2013 ***Source*:** Own estimations, Millennium BCP

For this year (until December 2013), the SoP adjusted valuation is 3.093 million Euros, resulting in a price target of **0,157 Euros per share**. The two banks that contribute more to the equity value of Millennium BCP Group are Banco Comercial Português (BCP) in Portugal with 55,5% and Bank Millennium in Poland with 32,3%. It is expected that the Angolan and

Mozambican operations start increasing their relative value in Millennium BCP during the next decade, as they are the markets with higher potential growth.

By considering the closing price in March 28th, 2013, which stood at 0,095 Euros per share and a payout ratio equals to zero, the expected holding period return to the investor is 65,235% in 2013 – **BUY RECCOMENDATION**.

8.2 Sensitivity analysis

The scenario analysis allows understanding how the implicit price target changes due to small changes in key variables of the model which in this case are the Sustainable ROE, Cost of Equity (ROE Demanded) and the Growth rate. I constructed an individual sensitivity matrix for each country, showing how the attributable valuation varies with +/- 1,0% change in the Sustainable ROE, +/- 1,0% change in the Cost of Equity and +/- 0,2% in the Growth rate.

Millennium BCP - Portugal

Sustainable ROE \ Cost of Equity	17,8%	16,8%	15,8%	14,8%	13,8%	Growth
4,8%	1.078	1.144	1.219	1.304	1.403	0,5%
5,8%	1.293	1.374	1.465	1.569	1.688	0,7%
6,8%	1.514	1.609	1.717	1.840	1.983	0,9%
7,8%	1.739	1.850	1.976	2.120	2.287	1,1%
8,8%	1.970	2.097	2.242	2.408	2.601	1,3%

baseline scenario

likely scenario

Valuation per share

0,070	0,074	0,080
0,082	0,087	0,093
0,094	0,100	0,108

Bank Millennium - Poland

Sustainable ROE \ Cost of Equity	11,8%	10,8%	9,8%	8,8%	7,8%	Growth
9,7%	645	713	797	905	1.045	1,4%
10,7%	721	799	895	1.019	1.183	1,6%
11,7%	800	888	998	1.140	1.329	1,8%
12,7%	882	981	1.107	1.268	1.486	2,0%
13,7%	967	1.079	1.221	1.404	1.653	2,2%

Valuation per share

0,041	0,045	0,052
0,045	0,051	0,058
0,050	0,056	0,064

Banco Millennium - Angola

Sustainable ROE \ Cost of Equity	16,5%	15,5%	14,5%	13,5%	12,5%	Growth
13,7%	104	112	121	132	145	2,3%
14,7%	113	122	132	144	158	2,5%
15,7%	122	132	143	156	172	2,7%
16,7%	132	142	154	169	186	2,9%
17,7%	142	153	166	182	201	3,1%

Valuation per share

0,006	0,007	0,007
0,007	0,007	0,008
0,007	0,008	0,009

Millennium bim - Mozambique

Sustainable ROE \ Cost of Equity	16,6%	15,6%	14,6%	13,6%	12,6%	Growth
19,7%	322	349	380	418	463	3,5%
20,7%	343	372	406	447	497	3,7%
21,7%	365	396	433	478	532	3,9%
22,7%	387	421	461	509	569	4,1%
23,7%	411	447	490	543	608	4,3%

Valuation per share

0,019	0,021	0,023
0,020	0,022	0,024
0,021	0,023	0,026

Millennium Bank - Greece

Cost of Equity

Sustainable ROE	30,6%	29,6%	28,6%	27,6%	26,6%	Growth
-2,0%	(22)	(23)	(23)	(24)	(25)	1,4%
-1,0%	(17)	(17)	(18)	(19)	(19)	1,6%
0,0%	(12)	(12)	(12)	(13)	(13)	1,8%
1,0%	(6)	(7)	(7)	(7)	(7)	2,0%
2,0%	(1)	(1)	(1)	(1)	(1)	2,2%

Valuation per share

-0,001	-0,001	-0,001
-0,001	-0,001	-0,001
0,000	0,000	0,000

VALUATION (13E) - including adjustments

0,125	0,137	0,151
0,143	0,157	0,173
0,163	0,178	0,197

Expected HPR - Dec 13

31,6%	43,9%	58,9%
51,0%	65,2%	82,5%
71,1%	87,3%	106,9%

Figure 8.9 Sensitivity matrix

***Source*:** Own estimations, Millennium BCP

As it can be noticed, the 'BUY Recommendation' does not change with the sensitivity analysis performed over key drivers of the model. On the worst likely scenario the adjusted price target per share is 0,125 Euros giving a potential return of 31,6%. In the other hand, on the best likely scenario the adjusted price target per share is 0,197 Euros, representing an expected holding period return of 106,9%.

Additionally to the sensitivity matrix presented above, I listed a series of sensitivity tests (from *i* to *xxi*) specifically for 2013. The base case represents the baseline scenario illustrated in the Figure 8.8. For each scenario described in the following table, I assumed all the remaining assumptions being constant. This sensitivity analysis for 2013 represents potential risk factors for my valuation, measuring their impact on the price target per share.

Sensitivity in 2013	Adjusted Equity Value *(millions of Euros)*		Share price *(Euros)*		Expected HPR		Valuation sensibility level
i) Base case	**3.093**		**0,157**		**65,2%**		
ii) -3,0% Real GDP (y.r. %)	**2.988**		**0,152**		**59,6%**		**Low**
iii) +2,0% Inflation	**3.164**		**0,161**		**69,0%**		**Low**
iv) +1%/-1% Yield on Loans and advances to customers	**4.357**	**1.830**	**0,221**	**0,093**	**132,7%**	**-2,3%**	**High**
v) +1%/-1% Yield on Amounts owed to customers	**2.263**	**3.924**	**0,115**	**0,199**	**20,9%**	**109,6%**	**High**
vi) +1%/-1% Cost of Equity	**2.986**	**3.217**	**0,151**	**0,163**	**59,5%**	**71,8%**	**Medium**
vii) +1%/-1% Sustainable ROE	**3.384**	**2.803**	**0,172**	**0,142**	**80,8%**	**49,7%**	**Medium**
viii) +0,2%/-0,2% Growth rate	**3.058**	**3.128**	**0,155**	**0,159**	**63,3%**	**67,1%**	**Low**
ix) Loans impairment (y.r. % + 8,0% until 2017)	**2.142**		**0,109**		**14,4%**		**High**
x) +2/-2% Real GDP (y.r. %)	3.118	3.069	0,158	0,156	66,5%	63,9%	Low
xi) +2/-2% Inflation	3.118	3.069	0,158	0,156	66,5%	63,9%	Low
xii) +1%/-1% Cost of Equity	2.983	3.235	0,151	0,164	59,3%	72,8%	Medium
xiii) +1%/-1% Sustainable ROE	3.194	2.993	0,162	0,152	70,6%	59,8%	Medium
xiv) +0,2%/-0,2% Growth rate	3.098	3.089	0,157	0,157	65,5%	65,0%	Low

(continues)

Sensitivity in 2013	Adjusted Equity Value (millions of Euros)		Share price (Euros)		Expected HPR		Valuation sensibility level
xv) +1%/-1% Cost of Equity	3.082	3.107	0,156	0,158	64,6%	65,9%	Low
xvi) +1%/-1% Sustainable ROE	3.104	3.082	0,158	0,156	65,8%	64,6%	Low
xvii) +1%/-1% Cost of Equity	3.057	3.138	0,155	0,159	63,3%	67,6%	Low
xviii) +1%/-1% Sustainable ROE	3.118	3.069	0,158	0,156	66,5%	63,9%	Low
xix) 2017E Forecasted ROE = Sustainable ROE	2.702		0,137		44,3%		High
xx) Growth rate = 0%	3.106		0,158		65,9%		Low
xxi) Sensitivities xix) and xx) at the same time	2.738		0,139		46,3%		High
VALUATION (13E)							
Maximum	**4.357**		**0,221**		**132,7%**		
Average	**3.046**		**0,155**		**62,7%**		
Minimum	**1.830**		**0,093**		**-2,3%**		

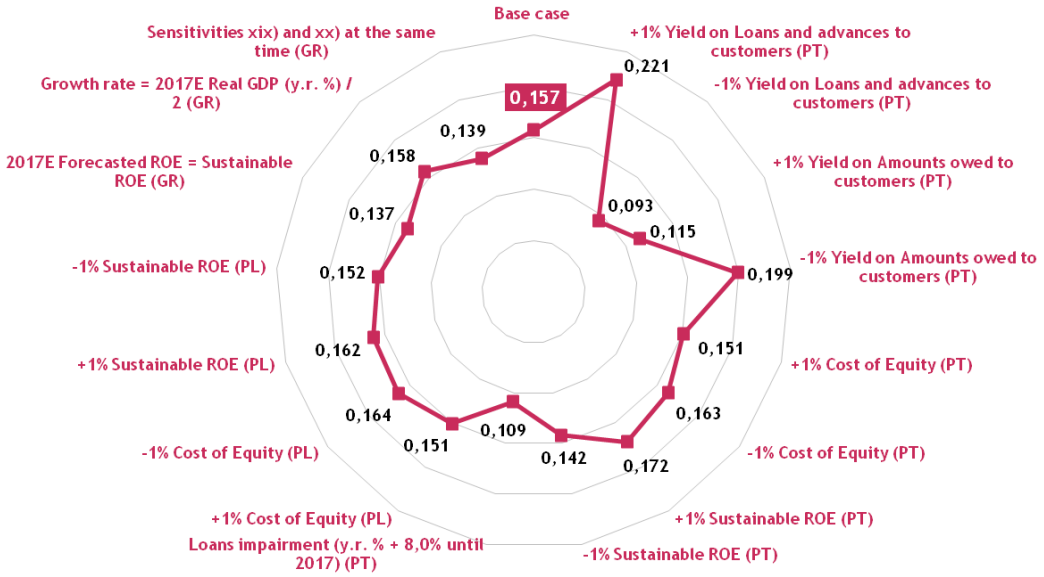


Figure 8.10 Sensitivity analysis – risk factors 2013 ***Source*:** Own estimations, Millennium BCP

As it can be observed in the Figure 8.10, the critical risk factors in my valuation are mainly related to the Portuguese operations. The maximum and the minimum price per share estimated with this sensitivity analysis are associated to a potential change in the yield of Loans and advances to customers. While a +1% change in the yield pushes the target price to 0,221 Euros (representing a potential return of 132,7% in 2013), a decrease of 1% in the same yield leads to a price target of 0,093 (representing a potential loss of 2,3% in 2013). The average price target yielded by the sensitivity analysis projected is 0,155 Euros per share, giving a potential holding period return of 62,7%, slightly below the base case. Other important impacts estimated above are the amount of loans impairments (net of recoveries) and the yield considered to the amounts owed to customers (deposits), both related with the domestic operations. Therefore, it can be concluded that the main risk factors in my

valuation are mostly related with two important topics: pricing and impairment losses. Whereas the first is associated to the ongoing deleveraging process and the pricing established by the Bank, according with market conditions and competition, the latter is associated with the potential deterioration of the economic agents' wealth - companies and families. Accordingly, the increase of the unemployment rate in 2013 and the hard credit conditions for companies and individuals are critical risk factors in my valuation, representing key drivers for BCP's performance.

8.3 Valuation comparison with 'comparable' companies

As previously discussed in the Literature Review (**Section 2.4.3**), the foundation for relative valuation is built upon the premise that comparable companies provide a highly relevant reference point for valuing a given target company, division or business, due to the fact that they share key business and financial characteristics, performance drivers, and risks. Accordingly, I established a valuation comparison between my valuation results (illustrated in the Figure 8.8) for each bank of Millennium BCP Group and the current market valuation of their 'peers', measured by the P/NAV multiple expected for 2013. For this, I selected a group of comparable companies for each region where BCP operates - Portugal, Poland, Angola & Mozambique and Greece – evaluating the key financials of the comparable companies and the risks associated with their markets (more detailed information in the Exhibit 17. – Peer Group Portugal, Exhibit 18. – Peer Group Poland, Exhibit 10. – Peer Group Angola & Mozambique and Exhibit 11. – Peer Group Greece).

This comparison provides a guidance to understand if the subsidiaries of Millennium BPC will underperform or outperform the market in 2013, by determining their relative positioning among peer companies in terms of total assets and P/NAV 13E.

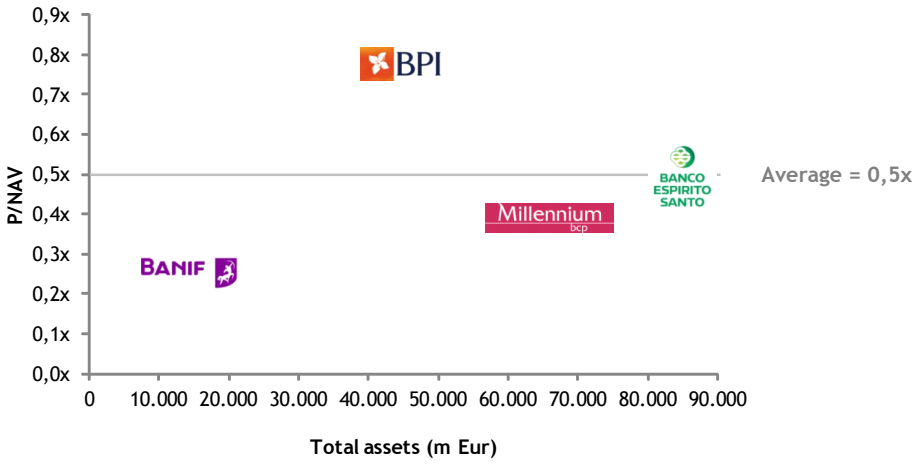


Figure 8.11 Relative valuation comparison – Portugal ***Source*:** Own estimations, Bloomberg

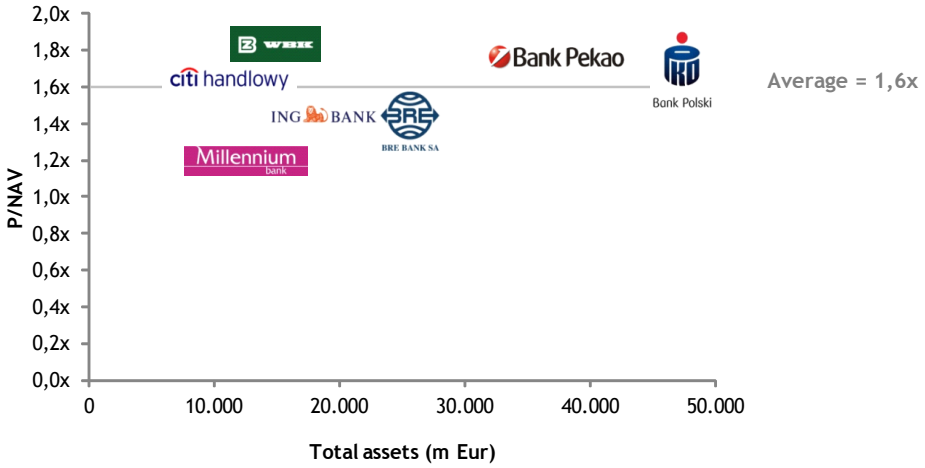


Figure 8.12 Relative valuation comparison – Poland ***Source*:** Own estimations, Bloomberg

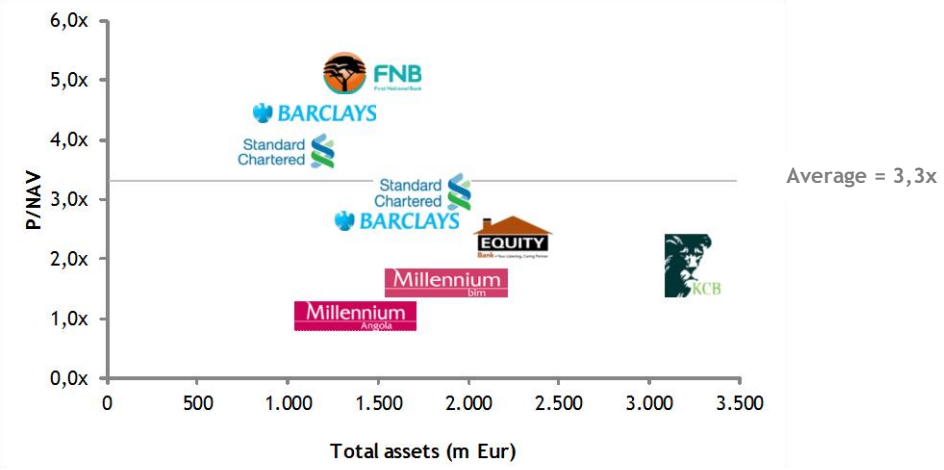


Figure 8.13 Relative valuation comparison – Angola & Mozambique ***Source*:** Own estimations, Bloomberg

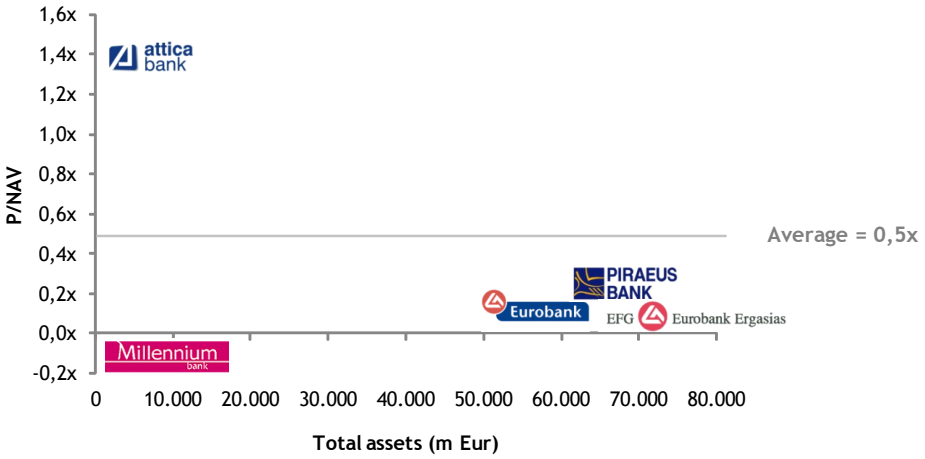


Figure 8.14 Relative valuation comparison – Greece ***Source*:** Own estimations, Bloomberg

As it can be observed, the five banks of Millennium Group are below the market average regarding P/NAV. This means that the banks should underperform their peers in 2013.

8.4 Valuation comparison with BBVA Research

After having established my valuation model and defined the target price per share for Banco Comercial Português, it is important to compare them with an equity research of a leading investment bank. Accordingly, I will compare my valuation model with an equity research of Banco Bilbao Vizcaya Argentaria (BBVA), published on February 18, 2013, after the Annual FY2012 Earnings Presentation of Millennium BCP. In the equity research, BBVA analysts (Ignacio Ulargui and Juan Cremades) upgraded BCP from *underperform* to *outperform* and established a new target price of 0,16 Euros per share, very close to my valuation of the Bank (0,157 Euros per share). They stressed that following this upgrade, Millennium BCP share becomes the top pick amongst Iberian banks for 2013.

In the following table I sum up the most relevant assumptions regarding the two valuations of Millennium BCP, highlighting the differences and similarities between my model and BBVA Equity Research.

Comparison	Thesis Valuation	BBVA Valuation
Valuation method	• Net Asset Value model (NAV) **(Section 2.4.2.1.8)**	• Net Asset Value model (NAV) **(Section 2.4.2.1.8)**
Valuation approach	• Sum of Parts (SoP) I value core operations of BCP individually – Portugal, Poland, Angola, Mozambique and Greece - considering the specifications and risks of each market (different CoE). Then I sum up the individual valuations to reach the fair equity value for BCP.	• Consolidated BBVA computes a single valuation to reach the equity value of the entire BCP Group. It consolidates the balance sheet and the income statement and establishes aggregated assumptions regarding the CoE, ROE Sustainable and the Growth rate.
Explicit period	• From 2013 to 2017	• From 2013 to 2015
Main assumptions:		
1. Portugal	• CoE 13E = 15,8% • Sustainable ROE = 6,8% • G = 0,9%	• not considered
2. Poland	• CoE 13E = 9,8% • Sustainable ROE = 11,7% • G = 1,8%	• not considered
3. Angola	• CoE 13E = 14,5% • Sustainable ROE = 15,7% • G = 2,7%	• not considered
4. Mozambique	• CoE 13E = 14,6% • Sustainable ROE = 21,7% • G = 3,9%	• not considered
5. Greece	• CoE 13E = 28,6% • Sustainable ROE = 0,0% • G = 1,8%	• not considered
6. Aggregated	• CoE 13E = 14,9% (1) • Sustainable ROE = 8,8% (1) • G = 1,3% (1)	• CoE 13E = 10,8% • Sustainable ROE = 7,1% • G = 0,5%

Aggregated Target P/NAV	• 0,55x (2)	• 0,64x
Other assumptions:		
Adjustments	• Pension Fund shortfall = Eur 185m	• not considered
Operations assumptions	• I assumed critical factors regarding BCP operations: 1. BCP will fully repay the 'CoCos' until 2016 in accordance to its recapitalization plan (no dilution for existing shareholders is expected from 'CoCos'); 2. Restructuring process with cost cutting initiatives will intensify in 2013 in Portugal, Poland and Greece;	• BBVA also assumed that BCP will payback the Eur 3bn of 'CoCos' injected by the Portuguese Republic avoiding a massive dilution for its existing shareholders. This view is supported by the following assumptions: 1. Reduction in peripheral risk (tightening of the Portuguese spread vs. the German bund); 2. Cost rationalization becoming a pillar of profitability (cost cutting initiatives launched by the new management should have a visible impact from 2013 onwards); 3. Improving liquidity (decline in the loan to deposits ratio) supports net interest margin improvement; 4. RWA optimization plans completed in Poland and potentially in Portugal, should allow the bank to reduce RWAs.
Target price (FY13)	• 0,157 Euros	• 0,16 Euros
Recommendation	• BUY	• BUY

(1) In my thesis I did not consider an aggregated CoE, Sustainable ROE and Growth Rate, since I valued the company through Sum of Parts approach. However, for comparison purposes with the BBVA equity research, I estimated an weighted CoE, Sustainable ROE and Growth Rate. The weighting considered was the equity allocated to the different Banks in terms of the total equity value of Millennium BCP.

(2) In my thesis I did not consider an aggregated P/NAV, , since I valued the company through Sum of Parts approach. However, for comparison purposes with the BBVA equity research, I estimated the implicit P/NAV considering the aggregated assumptions mentioned above ('6. Aggregated').

Figure 8.15 Valuation comparison – Thesis vs. BBVA ***Source*: Own estimations, BBVA**

In addition to the comparison presented in the table above, I also consider important to compare some key lines of the Balance Sheet and Income Statement in order to understand other differences between my thesis and the BBVA Equity Research. Accordingly, I will compare the domestic operation's estimates from 2013 to 2015 (due to the explicit period limit of the Research), as well as the income statement projections for the international activity.

Despite the similarity regarding target price and recommendation between both valuations, it is possible to highlight some important differences concerning the estimates assumed.

PORTUGAL	2013 E		2014 E		2015 E	
Millions of Euros	Thesis	BBVA	Thesis	BBVA	Thesis	BBVA
Selected volume figures						
Total Assets	**66.921**	**66.709**	**68.798**	**66.434**	**70.918**	**68.765**
Loans to customers	49.186	49.244	50.565	48.239	52.123	49.607
Customer deposits	32.344	34.907	33.251	37.092	34.276	38.340
Selected results						
Net interest income	537	480	607	622	720	733
Net operating revenues	1.083	1.073	1.206	1.260	1.384	1.431
Operating costs	704	804	732	765	780	754
Net income	**(452)**	**(353)**	**(248)**	**70**	**(58)**	**306**

Figure 8.16 Estimates comparison (Portugal) – Thesis vs. BBVA ***Source*:** Own estimations, BBVA

Looking at the table above, it is possible to conclude that my total assets estimates for the domestic operations are increasing at a slightly higher rate than BBVA estimates, mainly due to the larger amount of credit to customers. Furthermore, it can be also noticed that BBVA Equity Research considers that Millennium BCP will follow a more aggressive deleveraging process in Portugal once the forecasted customer loans are lower than mine and customer deposits higher.

Concerning the main lines of the income statement, it is possible to conclude that assumptions considered are quite similar between both valuations, assuming that the profitability recovery comes mainly from the improvement of the net interest margin. However, critical differences arise in the net loans impairment considered for the next three years.

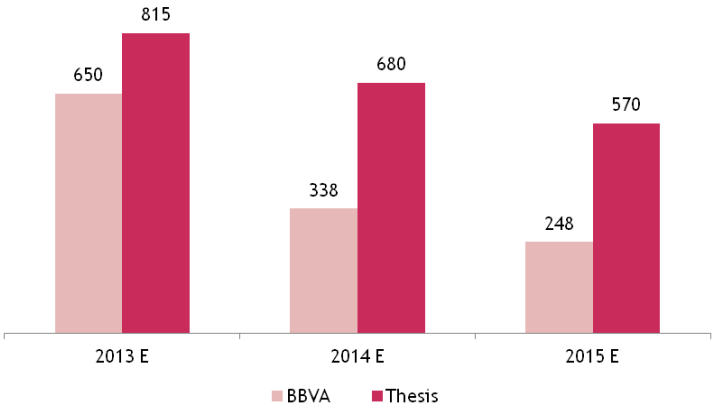


Figure 8.17 Net loans impairment (Portugal) – Thesis vs. BBVA ***Source*:** Own estimations, BBVA

In my valuation I assumed that the domestic operations will remain under a huge pressure in relation to the loans portfolio quality and impairment losses in 2013. In my opinion, the IMF expectations supporting the increase of the Portuguese unemployment rate in 2013 contribute to a more conservative approach concerning the loans impairment losses. Consequently, I consider that BBVA estimates for net loans impairment in the Portuguese operation are

relatively optimistic taking into account the negative economic forecasts for 2013. This critical assumption has direct impact on the estimated net income for the period 2013-2015. As can be observed in the Figure 8.16, the net income in my valuation will remain negative in the following three years, mainly due to the overwhelming impact of the loans impairment losses. The BBVA analysts consider that the Portuguese activity will achieve a net income of Eur 306 millions by 2015 which I consider quite optimistic.

Millennium bcp

INTERNATIONAL	2013 E		2014 E		2015 E	
Millions of Euros	Thesis	BBVA	Thesis	BBVA	Thesis	BBVA
Selected results						
Net interest income	569	601	631	688	697	735
Net operating revenues	958	1.062	1.049	1.210	1.149	1.307
Operating costs	564	583	616	609	673	637
Net income	**7**	**100**	**72**	**234**	**145**	**305**

Figure 8.18 Estimates comparison (International) – Thesis vs. BBVA ***Source*:** Own estimations, BBVA

Comparing the selected results estimated for international activity of Millennium BCP in my thesis and in BBVA Equity Research, it can be concluded that my forecasts are more conservative. Similarly to the Portuguese operations, the expected net income achieved by Millennium BCP in its foreign operations will be largely jeopardized by the loans impairment losses in Greece, which I consider remaining high from 2013 to 2015. This assumption lies on the fact that the Greek's economy adjustment process will remain being extremely severe, having a huge impact on the economic agents' wealth (individuals and companies).

According to the results of the analysis performed, both valuations provide **BUY** recommendations for BCP share in 2013, since they consider a potential upside higher than 50%.

9. CONCLUSIONS

In this dissertation I attempted to review the best practices of Valuation and its application in different areas of finance. I also provided an insight into the distinctiveness of the most used valuation models. First conclusion, arising from the review of the vast literature existent concerning Valuation, is that there is not a right valuation model that should be apply to any company operating in any region of the globe. The choice of the valuation methodology for a specific company should be carefully done, taking into consideration the industry where the company operates, its market conditions, its stage of development, its capital structure and its historical financial performance. Furthermore, the advantages and disadvantages of the different valuation models should be weighted. In the case of BCP, I considered the Net Asset Value (NAV) approach as the model that fits best in the current situation the Millennium BCP Group.

After select my valuation model amongst the several models presented in the literature review, the main goal of this dissertation was to compute a reliable and accurate share fair value of Banco Comercial Português. Accordingly, the Sum of Parts approach valuation is 3.093 million Euros, resulting in a price target of **0,157 Euros per share** for 2013. By considering the closing price in March 28th, 2013, which stood at 0,095 Euros per share and a payout ratio equals to zero, the expected holding period return to the investor is 65,235% in 2013 – **BUY RECCOMENDATION**.

By performing a sensitivity analysis, I could understand that the outcome of my valuation model is particularly sensible to changes on the assumptions considered for the domestic operations, mainly regarding the net interest margin and the loans impairment losses. In contrast, changes in key variables of the model which in this case are the Sustainable ROE, Cost of Equity (ROE Demanded) and the Growth rate do not have a high impact on the final valuation of the Bank.

The comparison between my valuation and BBVA Equity Research, allowed me to conclude that my valuation results are in line with valuations performed by leading investment banks covering Millennium BCP.

Despite my strong belief that the result of my valuation for Millennium BCP is a fair assessment of the Bank's share price, there are always some limitations/risks that could have an impact on the fair value. Millennium BCP is currently operating under extremely difficult conditions which posed huge challenges to this valuation. The future of the Bank is quite uncertain, mainly due to the following factors:

- Uncertainty around the macroeconomic environment in Portugal and the crisis that has been affecting the Euro Zone, as well as the ability of the European Monetary Union to overcome the current negative situation and return to economic growth;

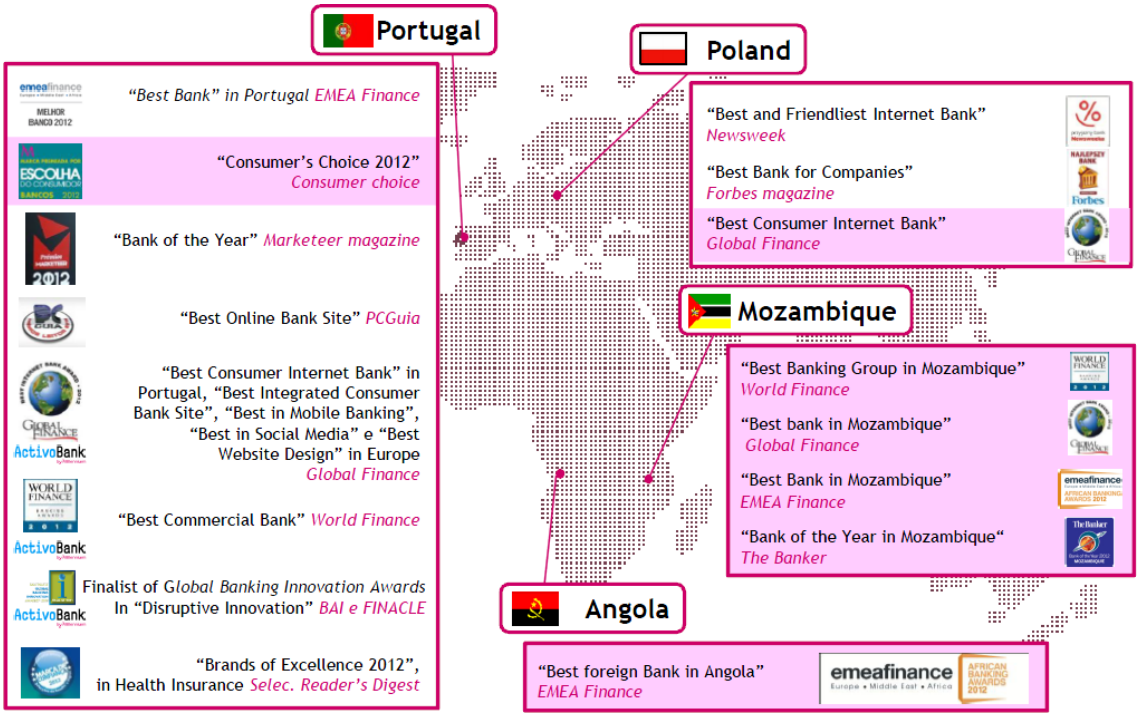
- Uncertainty concerning when the current economic crisis will be surpassed and how long the adjustment process in the most affected countries (including Portugal and Greece, where Millennium BCP operates) will last;
- The future strategy of Millennium BCP will be deeply conditioned by the outcome of the current negotiations between the Bank and the European Directorate-General for Competition (DG Comp), resulting from the use of State funds in the 2012 recapitalization. The ongoing negotiations aim to assure that Millennium BCP will not benefit unduly from the State funds, which can imply the disposal of several Bank's assets at prices not considered in my valuation;
- Furthermore, the negotiations with the DG Comp can also drive a significant change of the size of Millennium BCP, in what concerns to number of employees, number of branches or assets volume. As the final outcome of this negotiation is not already defined, it represents a risk factor to the fair value presented in this dissertation;
- Millennium BCP is available to negotiate the sale of one of its main assets, Millennium Bank in Greece, which can occurs at an extremely discounted price ("Fire Sale"). As the conditions of the potential deal are not already defined - ask price, impact on Core Tier 1 ratio and funds that must be used to recapitalize the Millennium Bank - it was not considered in my valuation;
- In this dissertation I assumed that Millennium BCP will be able to repay the EUR 3bn of funds injected by Portuguese State in the form of 'CoCos'. However, due to the uncertainty surrounding the European banking system as the macroeconomic environment in Europe remains unstable, there is a possibility that the Bank will not be able to fully payback the State funds. In the event of default on 'CoCos' payments these instruments will convert immediately in equity shares, which imply a significant dilution for the existing shareholders.

Despite the existence of these uncertainties, my valuation outcome (0,157 Euros per share) is aligned to the equity research of leading investment banks and, more important, is supported by the target goals of the management board's strategic agenda until 2017.

10. APPENDIXES

Exhibit 1. - Main awards in 2012

Several awards attributed to Millennium BCP in its main markets.



Source: Millennium BCP Earnings Presentation FY12

Exhibit 2. - Business areas

Millennium BPC covered four business areas: Retail, Companies, Asset Management & Private Banking and Business abroad (Europe, Africa and other). It also has two support units - Processes and Banking Services and Corporate Areas.

BUSINESS IN PORTUGAL

RETAIL *	Retail Banking (South, Centre South, Centre North, North) Madeira and Azores Regional Departments Direct Banking Cards Department Network Support Department ActivoBank
COMPANIES *	Companies Banking (South, North) Corporate I and II Investment Banking Department Tax Advisory Services - Investment Banking Specialized Credit Department Real Estate Business Department International Department Microcredit
PRIVATE BANKING & ASSET MANAGEMENT	Millennium bcp Gestão de Ativos Treasury & Markets Department Private Banking Department
PROCESSES AND BANKING SERVICES	IT Department Operations Department Credit Department Retail Recovery Department Specialized Recovery Department Litigations Department Administrative & Logistis Department Prevention & Safety Office Quality Department
CORPORATE AREAS	Compliance Office Planning & Budget Control Department Research Office Management Information Department Accounting & Consolidation Department Investors Relations Department Audit Department Legal Department Tax Advisory Department General Secretariat Millennium bcp Foundation Communication Department Company Secretary's Office Office of the Chairman of the EC FBSU - Foreign Business Support Unit Staff Management Support Department Risk Office Rating Department Financial Holding Department Assets and Liabilities Management Department Support Office of the Board of Directors

INTERNATIONAL BUSINESS

EUROPE	Bank Millennium (Poland) Millennium Bank (Greece) Banca Millennium (Romania) Banque Privée BCP (Switzerland) Banque BCP (France and Luxembourg) **
AFRICA	Millennium bim (Mozambique) Millennium Angola
OTHERS	Millennium bcp Bank and Trust (Cayman) Desk Oriente - Macao/China Brasil ***

Source: Millennium BCP Interim Report 2012

Exhibit 3. - Solvency

Millennium bcp

SOLVENCY

Millions of Euros	31 Dec. 12	30 Sep. 12	31 Dec. 11	30 Sep. 11
Own Funds				
Core Tier I Capital	6.579	6.522	5.135	4.795
of which: Preference shares and Perpetual subordinated debt securities with conditional coupons	173	172	173	943
Other deduction	(530)	(540)	(521)	(573)
Tier I Capital	6.223	6.154	4.788	5.165
Tier II Capital	697	678	613	431
Deductions to Total Regulatory Capital	(146)	(139)	(137)	(133)
Total Regulatory Capital	**6.774**	**6.693**	**5.263**	**5.463**
Risk Weighted Assets	**53.271**	**54.847**	**55.456**	**57.424**
Solvency Ratios				
Core Tier I	12,4%	11,9%	9,3%	8,3%
Tier I	11,7%	11,2%	0,9%	0,5%
Total	12,7%	12,2%	9,5%	9,5%
Core Tier I ratio EBA	**9,8%**	**9,4%**		

***Source*:** Millennium BCP Annual Reports

Exhibit 4. - Customers funds consolidated

Millennium bcp

TOTAL CUSTOMER FUNDS

Millions of Euros	31 Dec. 07	31 Dec. 08	31 Dec. 09	31 Dec. 10	31 Dec. 11	31 Dec. 12
Balance sheet customer funds						
Deposits	39.247	44.561	46.307	45.609	47.516	49.390
Debt securities (1)	6.108	6.775	4.686	5.733	5.544	6.378
	45.355	51.336	50.993	51.342	53.060	55.768
Off-balance sheet customer funds						
Assets under management	9.044	4.812	4.887	4.459	3.739	3.798
Capitalisation products (2)	9.554	9.655	11.122	11.795	8.731	8.981
	18.598	14.467	16.009	16.254	12.470	12.779
Total	**63.953**	**65.803**	**67.002**	**67.596**	**65.530**	**68.547**
Of which:						
Portugal activity	51.380	50.505	50.803	51.143	49.615	50.386
Foreign activity	12.573	15.298	16.199	16.453	15.915	18.161

(1) Debt securities issued by the Bank and placed with customers.

(2) Includes Unit linked and Retirement savings deposits.

***Source*:** Millennium BCP Annual Reports

Exhibit 5. - Loans to customers (Gross)

Millennium bcp

LOANS TO CUSTOMERS (GROSS)

Millions of Euros	31 Dec. 07	31 Dec. 08	31 Dec. 09	31 Dec. 10	31 Dec. 11	31 Dec. 12
Individuals						
Mortgage loans	19.859	28.294	29.068	31.036	30.308	29.509
Consumer loans	5.644	4.834	5.089	4.846	4.497	4.247
	25.503	33.128	34.157	35.882	34.805	33.756
Companies						
Services	11.841	15.175	16.579	16.041	14.802	13.524
Commerce	5.083	5.399	5.230	4.603	4.254	3.490
Other	19.801	22.531	21.382	19.885	17.672	16.091
	36.725	43.105	43.191	40.529	36.728	33.105
Total	62.228	76.233	77.348	76.411	71.533	66.861
Of which:						
Portugal activity	55.860	60.167	60.625	58.917	54.552	49.581
Foreign activity	14.989	16.066	16.723	17.494	16.981	17.280

LOANS TO CUSTOMERS (GROSS) - Portugal

Millions of Euros	31 Dec. 07	31 Dec. 08	31 Dec. 09	31 Dec. 10	31 Dec. 11	31 Dec. 12
Individuals						
Mortgage loans		20.893	21.518	22.533	21.768	20.669
Consumer loans		3.157	3.304	2.922	2.689	2.469
		24.050	24.822	25.455	24.457	23.138
Companies						
Services		13.707	14.810	13.866	12.751	11.600
Commerce		4.460	4.120	3.524	3.036	2.313
Other		17.951	16.872	16.072	14.308	12.530
		36.118	35.802	33.462	30.095	26.443
Total		60.168	60.624	58.917	54.552	49.581

LOANS TO CUSTOMERS (GROSS) - Poland

Millions of Euros	31 Dec. 07	31 Dec. 08	31 Dec. 09	31 Dec. 10	31 Dec. 11	31 Dec. 12
Individuals						
Mortgage loans		5.366	5.371	6.287	6.373	6.724
Consumer loans		639	779	865	728	838
		6.005	6.150	7.152	7.101	7.562
Companies						
Services		280	302	476	550	489
Commerce		436	449	509	510	558
Other		1.579	1.527	1.405	1.305	1.498
		2.295	2.278	2.390	2.365	2.545
Total		8.300	8.428	9.542	9.466	10.107

LOANS TO CUSTOMERS (GROSS) - Greece

Millions of Euros	31 Dec. 07	31 Dec. 08	31 Dec. 09	31 Dec. 10	31 Dec. 11	31 Dec. 12
Individuals						
Mortgage loans		1.873	2.015	2.101	2.012	1.945
Consumer loans		811	715	646	582	535
		2.684	2.730	2.747	2.594	2.480
Companies						
Services		174	503	873	923	916
Commerce		237	338	289	368	324
Other		1.753	1.587	1.215	980	989
		2.164	2.428	2.377	2.271	2.229
Total		4.848	5.158	5.124	4.865	4.709

Source: Millennium BCP Annual Reports

Exhibit 6. - Credit quality

Millennium bcp

CREDIT QUALITY

Millions of Euros	31 Dec. 07	31 Dec. 08	31 Dec. 09	31 Dec. 10	31 Dec. 11	31 Dec. 12
Loans to customers	66.444	75.765	76.935	76.411	71.533	66.861
Overdue Loans > 90 days	486	700	1.813	2.290	3.196	3.009
Overdue Loans > 90 days + Doubtful Loans	692	1.005	2.616	3.410	4.414	5.416
Impairments (balance sheet)	1.222	1.470	2.146	2.506	3.488	4.243
Overdue Loans > 90 days / Loans to customers	0,7%	0,9%	2,3%	3,0%	4,5%	6,2%
Overdue Loans > 90 days + Doubtful Loans / Loans to customers	1,0%	1,3%	3,4%	4,5%	6,2%	8,1%
Coverage Ratio (Overdue Loans > 90 days)	251,8%	211,6%	119,0%	109,4%	109,1%	101,6%

***Source*:** Millennium BCP Annual Reports

Exhibit 7. - Consolidated Financial Highlights

Millennium bcp

Millions of Euros, except % values

FINANCIAL HIGHLIGHTS - Consolidated	31 Dec. 08	31 Dec. 09	31 Dec. 10	31 Dec. 11	31 Dec. 12
Profitability					
Return on average shareholders' equity (ROE)	4,5%	4,6%	9,8%	-22,0%	-35,4%
Return on average total assets (ROA)	0,2%	0,2%	0,3%	-0,9%	-1,3%
Return on Risk Weighted Assets (RORWA)	0,3%	0,3%	0,6%	-1,5%	-2,3%
Net Interest Margin (NIM)	2,06%	1,57%	1,68%	1,74%	1,20%
Income before taxes and non-controlling interests / Average equity	7,1%	5,7%	10,6%	-28,0%	-32,6%
Efficiency					
Cost-to-income	58,6%	62,9%	54,1%	58,4%	66,6%
Cost-to-income (Portugal activity)	54,0%	59,2%	48,0%	59,9%	69,1%
Capital (Solvency)					
Core Tier I Capital Ratio	5,8%	6,4%	6,7%	9,3%	12,4%
Tier I Capital Ratio	7,1%	9,3%	9,2%	8,6%	11,7%
Tier II Capital Ratio	3,4%	2,2%	1,1%	0,8%	1,0%
Total Capital Ratio	10,5%	11,5%	10,3%	9,5%	12,7%
Leverage					
Average assets / Average equity	15,84x	13,90x	19,27x	24,43x	22,43x
Liabilities / Average assets	93,4%	92,4%	94,3%	95,3%	95,5%
Liquidity					
Loans-to-deposits	169,3%	164,1%	163,6%	144,8%	129,0%
Loans-to-average assets	79,6%	78,7%	75,0%	72,8%	69,8%
Commercial Gap	(30.258)	(28.884)	(28.296)	(18.473)	(13.228)
Asset (Credit) Quality					
Credit to customers	75.765	76.935	76.411	71.533	66.861
Total overdue loans	851	2.032	2.500	3.476	4.175
Credit impairament	1.480	2.157	2.506	3.488	4.243
Risk Weighted Assets (RWA) / Total Assets	71,4%	68,8%	60,4%	59,3%	59,4%
Risk Weighted Assets (RWA)	67.426	65.769	59.564	55.455	53.271
Overdue loans (>90 days) / Total loans	0,9%	2,3%	3,0%	4,5%	6,2%
Overdue loans (>90 days) + doubtful loans / Total loans	1,3%	3,4%	4,5%	6,2%	8,1%
Total impairment / Overdue loans (>90 days)	211,6%	119,0%	109,4%	109,1%	101,6%
Cost of risk	71 b.p.	72 b.p.	93 b.p.	186 b.p.	252 b.p.
Branches					
Portugal activity	918	911	892	885	839
Foreign activity	886	898	852	837	860
Employees					
Portugal activity	10.583	10.298	10.146	9.959	8.982
Foreign activity	12.006	11.498	11.224	11.549	11.383
Average Number of Shares Outstanding (adjusted)	4.817	5.025	5.051	6.215	19.707
Earnings per Share (EPS) (adjusted) (Euros)	0,03	0,03	0,05	-0,13	*n.a.*

***Source*:** Millennium BCP Annual Reports

Exhibit 8. - Consolidated Balance Sheet

Millions of Euros	2008 T	2009 T	2010 T	2011 T	2012 T
Balance Sheet - Consolidated					
Assets					
Cash and deposits at central banks	2.064	2.245	1.484	2.116	3.581
Loans and advances to credit institutions	3.941	2.865	3.603	4.490	2.717
Repayable on demand	1.048	840	1.259	1.577	830
Other loans and advances	2.892	2.026	2.344	2.913	1.887
Loans and advances to customers	75.165	75.191	73.905	68.046	62.618
Financial assets held for trading	3.903	3.357	5.136	2.145	1.691
Other financial assets held for trading at fair value through profit or loss	-	-	-	-	-
Financial assets available for sale	1.714	2.699	2.573	4.774	9.223
Assets with repurchase agreement	15	51	14	0	4
Hedging derivatives	117	466	477	496	186
Financial assets held to maturity	1.102	2.027	6.745	5.160	3.569
Investments in associated companies	344	439	396	305	517
Non current assets held for sale	826	1.343	997	1.105	1.284
Investment property	436	430	405	561	554
Property and equipment	746	646	617	625	626
Goodwill and intangible assets	540	535	401	251	259
Current income tax assets	18	25	34	53	34
Deferred income tax assets	587	584	976	1.565	1.755
Other assets	2.904	2.648	784	1.791	1.124
	94.424	**95.550**	**98.547**	**93.482**	**89.744**
Liabilities					
Amounts owed to credit institutions	9.339	10.306	20.077	17.723	15.266
Amounts owed to customers	44.907	46.307	45.609	47.516	49.390
Debt securities issued	20.516	19.953	18.137	16.236	13.548
Financial liabilities held for trading	2.139	1.072	1.176	1.479	1.393
Other financial liabilities held for trading at fair value through results	6.714	6.346	4.038	2.579	329
Hedging derivatives	351	75	346	508	301
Non current liabilities held for sale	-	436	-	-	-
Provisions for liabilities and charges	222	233	235	246	253
Subordinated debt	2.599	2.232	2.039	1.147	4.299
Current income tax liabilities	5	11	12	24	16
Deferred income tax liabilities	0	0	0	2	3
Other liabilities	1.384	1.358	1.264	1.647	946
Total Liabilities	**88.175**	**88.330**	**92.935**	**89.108**	**85.744**
Equity					
Share capital	4.695	4.695	4.695	6.065	3.500
Treasury stock	(59)	(86)	(82)	(11)	(14)
Share premium	183	192	192	72	72
Preference shares	1.000	1.000	1.000	171	171
Other capital instruments	-	1.000	1.000	10	10
Fair value reserves	215	94	(166)	(389)	3
Reserves and retained earnings	(275)	(244)	(1.869)	(1.241)	850
Profit for the year attributable to Shareholders	201	225	344	(849)	(1.219)
Total Equity attributable to Shareholders of the Bank	**5.960**	**6.876**	**5.114**	**3.827**	**3.372**
Minority interests	288	344	498	548	628
Total Equity	**6.248**	**7.221**	**5.612**	**4.374**	**4.000**
	94.424	**95.550**	**98.547**	**93.482**	**89.744**

Source: Millennium BCP Annual Reports

Exhibit 9. - Consolidated Income Statement

Euro Millions	2008 T	2009 T	2010 T	2011 T	2012 T
Interest income	5.270	3.639	3.477	4.061	3.616
Interest expense	3.549	2.305	1.961	2.481	2.593
Net interest income	**1.721**	**1.334**	**1.516**	**1.580**	**1.023**
Dividends from equity instruments	37	3	36	1	4
Net fees and commission income	740	732	812	789	691
Other operating income	67	132	31	(23)	(56)
Net trading income	18	255	439	208	463
Equity accounted earnings	19	66	68	15	55
Net operating revenues	**2.602**	**2.522**	**2.902**	**2.570**	**2.180**
Staff costs	915	865	831	954	815
Other administrative costs	643	570	602	584	565
Depreciation	113	105	110	96	78
Operating costs	**1.671**	**1.540**	**1.543**	**1.634**	**1.459**
Operating profit bef. imp.	**931**	**982**	**1.359**	**936**	**721**
Loans impairment (net of recoveries)	545	560	713	1.332	1.257
Goodwill impairment	-	-	147	161	-
Other assets impairment and provisions	45	127	81	664	353
Profit before income tax	**342**	**296**	**418**	**(1.221)**	**(889)**
Income tax	84	46	14	(459)	(178)
Profit after income tax	**258**	**249**	**403**	**(762)**	**(711)**
Non-controlling interests	57	24	59	86	82
Net income	**201**	**225**	**344**	**(848)**	**(793)**
Impairment for estimated losses (*)	-	-	-	-	(427)
Net income after impairment adjustments	**201**	**225**	**344**	**(848)**	**(1.220)**

(*) Impairment charges related to the estimated losses in the subsidiary company in Greece.

***Source*:** Millennium BCP Annual Reports

Exhibit 10. - Peer Group Angola & Mozambique

PEER GROUP - ANGOLA & MOZAMBIQUE

	Country	Ticker	Company name	Website	Currency	Share Price [1]	Mcap (Millions)	Trailing 12 months: Total Asset (Millions)	Net Income (Millions)	Div Yield	RoE	RoA	Multiples: P/E 13E	P/BV 13E	Share Performance perf. YTD
	Angola	Not listed	Banco Millennium	www.millenniumangola.ao	EUR			1.375	37	0,0%	20,1%	2,7%			
	Mozambique	Not listed	Millennium bim	www.bimnet.co.mz	EUR			1.872	87	0,0%	25,9%	4,6%			
1	Botswana	FNBB BG	First National Bank Botswana	www.fnbbotswana.co.bw	EUR	0,320	814	1.469	59	3,9%	42,4%	4,0%	13,9x	5,1x	19,6%
2	Botswana	BCBB BG	Barclays Bank	www.barclays.com/africa/botswana	EUR	0,660	565	1.127	31	4,2%	21,6%	2,7%	19,9x	4,5x	6,9%
3	Botswana	SCBB BG	Standard Chartered Bank Botswana	www.standardchartered.com/bw/en/	EUR	0,980	297	994	28	1,9%	39,8%	2,8%	11,6x	3,8x	5,0%
4	Kenya	BCBL KN	Barclays Bank of Kenya	www.barclays.com/africa/kenya	EUR	0,160	843	1.629	81	5,9%	30,9%	4,9%	9,5x	2,7x	7,9%
5	Kenya	EQBNK KN	Equity Bank	www.equitybank.co.ke	EUR	0,300	1.124	2.143	111	3,8%	31,3%	5,2%	9,4x	2,3x	40,0%
6	Kenya	KNCB KN	Kenya Commercial Bank	www.kcbbankgroup.com	EUR	0,380	1.125	3.237	113	4,5%	25,0%	3,5%	8,9x	2,0x	39,5%
7	Kenya	SCBL KN	Standard Chartered Bank Kenya	www.standardchartered.com/ke/en	EUR	2,750	823	1.721	74	4,2%	31,4%	4,3%	9,8x	2,9x	28,1%
					High		1.125	3.237	113	5,9%	42,4%	5,2%	19,9x	5,1x	40,0%
					Average		799	1.760	71	4,0%	31,8%	3,9%	11,9x	3,3x	21,0%
					Low		297	994	28	1,9%	21,6%	2,7%	8,9x	2,0x	5,0%

Source: Bloomberg, Company Data

1) Shares Prices of 1st April 2013

Outliers excluded

Source: Bloomberg, Own calculations

Exhibit 11. - Peer Group Greece

PEER GROUP - GREECE

	Country	Ticker	Company name	Website	Currency	Share Price [1]	Mcap (Millions)	Trailing 12 months: Total Asset (Millions)	Net Income (Millions)	Div Yield	RoE	RoA	Multiples: P/E 13E	P/BV 13E	Share Performance perf. YTD
	Greece	Not listed	Millennium Bank	www.millenniumbank.gr	EUR			4.831	-267	0,0%	-135,0%	-5,5%			
1	Greece	TATT GA	Attica Bank	www.atticabank.gr	EUR	0,190	47	3.994	-182	0,0%	-188,4%	-4,5%	*n.a.*	1,4x	-66,1%
2	Greece	ALPHA GA	Alpha Eurobank	www.alpha.gr	EUR	0,710	379	58.357	-1.086	0,0%	-80,0%	-1,9%	*n.a.*	0,2x	-50,7%
3	Greece	EUROB GA	EFG Eurobank Ergasias	www.eurobank.gr	EUR	0,245	136	71.338	-551	0,0%	-63,0%	-0,8%	*n.a.*	0,1x	-61,8%
4	Greece	TPEIR GA	Piraeus Bank	www.piraeusbank.gr	EUR	0,195	223	67.424	-513	0,0%	-15,7%	-0,8%	*n.a.*	0,2x	-42,3%
					High		379	71.338	-182	0,0%	-15,7%	-0,8%	*n.a.*	1,4x	-42,3%
					Average		196	50.278	-583	0,0%	-86,8%	-2,0%	*n.a.*	0,5x	-55,2%
					Low		47	3.994	-1.086	0,0%	-188,4%	-4,5%	*n.a.*	0,1x	-66,1%

Source: Bloomberg, Company Data

1) Shares Prices of 1st April 2013

Outliers excluded

Source: Bloomberg, Own calculations

Exhibit 12. - Assumptions Portugal

PORTUGAL

ASSUMPTIONS:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Individuals	**24.050**	**24.822**	**25.455**	**24.457**	**21.825**	**21.651**	**22.258**	**22.944**	**23.861**	**24.498**
as % of Loans	**40,0%**	**40,9%**	**43,2%**	**44,8%**	**44,0%**	**44,0%**	**44,0%**	**44,0%**	**44,0%**	**44,0%**
Mortgage loans	20.893	21.518	22.533	21.768	19.372	19.218	19.757	20.366	21.180	21.746
as % of Individuals	**86,9%**	**86,7%**	**88,5%**	**89,0%**	**88,8%**	**88,8%**	**88,8%**	**88,8%**	**88,8%**	**88,8%**
Consumer loans	3.157	3.304	2.922	2.689	2.452	2.433	2.501	2.578	2.681	2.753
as % of Individuals	**13,1%**	**13,3%**	**11,5%**	**11,0%**	**11,2%**	**11,2%**	**11,2%**	**11,2%**	**11,2%**	**11,2%**
Companies	**36.118**	**35.803**	**33.462**	**30.095**	**27.756**	**27.535**	**28.307**	**29.179**	**30.346**	**31.156**
as % of Loans	**60,0%**	**59,1%**	**56,8%**	**55,2%**	**56,0%**	**56,0%**	**56,0%**	**56,0%**	**56,0%**	**56,0%**
Services	13.707	14.811	13.866	12.751	11.631	11.538	11.862	12.227	12.716	13.056
as % of Companies	**38,0%**	**41,4%**	**41,4%**	**42,4%**	**41,9%**	**41,9%**	**41,9%**	**41,9%**	**41,9%**	**41,9%**
Commerce	4.460	4.120	3.524	3.036	2.862	2.839	2.918	3.008	3.129	3.212
as % of Companies	**12,3%**	**11,5%**	**10,5%**	**10,1%**	**10,3%**	**10,3%**	**10,3%**	**10,3%**	**10,3%**	**10,3%**
Construction			4.451	4.175	3.771	3.741	3.846	3.965	4.123	4.233
as % of Companies			**13,3%**	**13,9%**	**13,6%**	**13,6%**	**13,6%**	**13,6%**	**13,6%**	**13,6%**
Other	17.951	16.872	11.621	10.133	9.492	9.417	9.681	9.979	10.378	10.655
as % of Companies	**49,7%**	**47,1%**	**34,7%**	**33,7%**	**34,2%**	**34,2%**	**34,2%**	**34,2%**	**34,2%**	**34,2%**
Total	**60.168**	**60.625**	**58.917**	**54.552**	**49.581**	**49.186**	**50.565**	**52.123**	**54.207**	**55.655**

The breakdown of the loans portfolio into *individuals* and *companies* was computed using the average percentage of their weight on the total loans. Then, the components of the

individuals and *companies* loans, were estimated according their average percentage of their weight on the *individuals* loans and *companies* loans, respectively. The average values considered were based on the last two years.

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Deposits in banks	5.721	2.915	2.973	3.193	3.318	3.147	3.236	3.335	3.469	3.561
Yield %	3,1%	1,6%	1,1%	1,5%	1,4%	1,7%	1,7%	1,7%	1,7%	1,7%
as % of Total Assets	7,9%	4,0%	3,9%	4,5%	4,9%	4,7%	4,7%	4,7%	4,7%	4,7%
Financial assets	4.635	3.863	7.457	8.963	8.247	8.305	8.538	8.801	9.153	9.398
Yield %	5,1%	4,2%	3,8%	4,2%	2,8%	4,0%	4,0%	4,0%	4,0%	4,0%
as % of Total Assets	6,4%	5,3%	9,8%	12,6%	12,2%	12,4%	12,4%	12,4%	12,4%	12,4%
Loans and advances to customers	60.168	60.625	58.917	54.552	49.581	49.186	50.565	52.123	54.207	55.655
Yield %	5,7%	3,8%	3,4%	4,3%	4,1%	4,3%	4,4%	4,5%	4,5%	4,6%
as % of Total Assets	83,1%	83,2%	77,8%	76,7%	73,5%	73,5%	73,5%	73,5%	73,5%	73,5%
Interest earning assets	**70.523**	**67.403**	**69.347**	**66.707**	**61.147**	**60.639**	**62.339**	**64.260**	**66.829**	**68.614**
Yield %	5,5%	3,7%	3,3%	4,2%	3,8%	4,1%	4,2%	4,3%	4,3%	4,4%
Non-interest earning assets	1.894	5.482	6.385	4.448	6.312	6.283	6.459	6.658	6.924	7.109
Total Assets	**72.417**	**72.885**	**75.731**	**71.156**	**67.459**	**66.921**	**68.798**	**70.918**	**73.753**	**75.723**
Amounts owed to credit institutions	8.038	6.917	12.355	14.640	12.446	12.983	13.347	13.758	14.308	14.690
Yield %	6,4%	3,0%	1,8%	1,9%	1,7%	3,0%	3,0%	3,0%	3,0%	3,0%
as % of Total Liabilities	11,5%	9,9%	17,3%	21,8%	19,7%	20,7%	20,7%	20,7%	20,7%	20,7%
Amounts owed to customers	30.130	31.378	30.333	32.522	32.604	32.344	33.251	34.276	35.646	36.598
Yield %	3,2%	2,2%	2,1%	3,4%	3,3%	2,8%	2,8%	2,8%	2,8%	2,8%
as % of Total Liabilities	43,1%	44,9%	42,4%	48,3%	51,7%	51,7%	51,7%	51,7%	51,7%	51,7%
Debt issued and financial liabilities	23.556	23.966	19.748	14.476	11.382	12.379	12.726	13.118	13.642	14.007
Yield %	4,7%	2,6%	2,2%	2,6%	2,4%	2,9%	2,9%	2,9%	2,9%	2,9%
as % of Total Liabilities	33,7%	34,3%	27,6%	21,5%	18,0%	19,8%	19,8%	19,8%	19,8%	19,8%
Subordinated debt	2.377	2.026	1.760	1.103	4.103	4.103	3.603	2.603	1.103	1.103
Yield %	4,2%	3,1%	2,9%	3,3%	7,1%	7,3%	7,9%	8,7%	10,1%	3,3%
as % of Total Liabilities	3,4%	2,9%	2,5%	1,6%	6,5%	6,6%	5,6%	3,9%	1,6%	1,6%
Interest bearing liabilities	**64.102**	**64.287**	**64.195**	**62.742**	**60.536**	**61.808**	**62.927**	**63.755**	**64.699**	**66.398**
Yield %	4,2%	2,5%	2,1%	2,9%	3,0%	3,2%	3,2%	3,1%	3,0%	2,9%
Non-interest bearing liabilities	5.798	5.584	7.324	4.547	2.559	783	1.420	2.575	4.282	4.426
Total Liabilities	**69.900**	**69.871**	**71.519**	**67.289**	**63.094**	**62.591**	**64.347**	**66.330**	**68.981**	**70.823**
Shareholders' equity and non-controlling interests	**2.517**	**3.014**	**4.212**	**3.867**	**4.365**	**4.330**	**4.451**	**4.588**	**4.772**	**4.899**
Total Liabilities & Shareholders' equity	**72.417**	**72.885**	**75.731**	**71.156**	**67.459**	**66.921**	**68.798**	**70.918**	**73.753**	**75.723**
Net interest margin	**1,66%**	**1,36%**	**1,42%**	**1,50%**	**0,81%**	**0,89%**	**0,97%**	**1,12%**	**1,26%**	**1,57%**
Net interest income	**1.170**	**918**	**984**	**999**	**493**	**537**	**607**	**720**	**843**	**1.077**
Interest income	3.867	2.511	2.322	2.788	2.325	2.494	2.615	2.747	2.857	2.989
Interest expense	2.697	1.593	1.338	1.789	1.833	1.957	2.008	2.027	2.014	1.913
Dividends from equity instruments	**29**	**3**	**35**	**1**	**3**	**3**	**3**	**3**	**3**	**3**
as % of Total Equity	1,2%	0,1%	0,8%	0,0%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%
Net fees and commission income	**511**	**522**	**572**	**561**	**452**	**448**	**461**	**475**	**494**	**507**
as % of Assets	0,7%	0,7%	0,8%	0,8%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%
Other operating income	**54**	**125**	**23**	**(24)**	**(60)**	**(60)**	**(24)**	**22**	**23**	**23**
as % of Assets	0,1%	0,2%	0,0%	0,0%	-0,1%	-0,1%	0,0%	0,0%	0,0%	0,0%
Net trading income	**(124)**	**94**	**294**	**(36)**	**312**	**101**	**104**	**107**	**112**	**115**
as % of Assets	-0,2%	0,1%	0,4%	-0,1%	0,5%	0,2%	0,2%	0,2%	0,2%	0,2%
Equity accounted earnings	**19**	**65**	**68**	**15**	**54**	**53**	**55**	**56**	**59**	**60**
as % of Total Equity	0,8%	2,1%	1,6%	0,4%	1,2%	1,2%	1,2%	1,2%	1,2%	1,2%
Staff costs	**593**	**604**	**539**	**673**	**532**	**428**	**452**	**491**	**513**	**562**
as % of Net operating revenues	35,7%	35,0%	27,3%	44,4%	42,5%	39,5%	37,5%	35,5%	33,5%	31,5%
Cost per employee (EUR k)	56,00	58,68	53,12	67,61	59,26	48,68	51,73	56,54	59,43	65,45
Other administrative costs	**372**	**314**	**332**	**319**	**299**	**237**	**239**	**247**	**243**	**247**
as % of Net operating revenues	22,4%	18,2%	16,8%	21,1%	23,8%	21,8%	19,8%	17,8%	15,8%	13,8%
Depreciation	**67**	**60**	**54**	**48**	**40**	**40**	**41**	**43**	**44**	**45**
as % of Assets	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%
Loans impairment (net of recoveries)	**425**	**391**	**557**	**1.137**	**889**	**815**	**680**	**570**	**482**	**406**
Cost-of-Risk (bps)	70,6	64,4	94,5	208,4	179,3	165,7	134,5	109,4	88,9	73,0
Other assets impairment and provisions	**41**	**122**	**66**	**661**	**347**	**210**	**147**	**117**	**84**	**49**
as % of Total Assets	0,1%	0,2%	0,1%	0,9%	0,5%	0,3%	0,2%	0,2%	0,1%	0,1%
Effective tax rate (source: Millennium BCP)	**28,9%**	**9,1%**	**-4,7%**	**34,6%**	**21,1%**	**29,7%**	**29,7%**	**29,7%**	**29,7%**	**29,7%**
Non controlling interests	**(2)**	**(0)**	**2**	**0**	**(5)**	**(2)**	**(1)**	**(0)**	**1**	**2**
as % of Profit after income tax	-1,3%	-0,2%	0,7%	0,0%	0,8%	0,5%	0,5%	0,5%	0,5%	0,5%

***Source*:** Millennium BCP Annual Reports, Own calculations

The breakdown of the interest earning assets into deposits in banks, financial assets and loans and advances to customers was computed considering their historical average percentage of total assets (average estimated using the historical values of the past five years).

The yields earned by the Bank on these assets, were also considered as the historical average yields of the past five years. Furthermore, concerning the yield applicable to the loans and advances to customers, I considered that it will grow +0,3% from 2013 to 2017.

The breakdown of the interest bearing liabilities into amounts owed to credit institutions, amounts owed to customers, debt issue and financial liabilities was computed considering their historical average percentage of total liabilities (average estimated using the historical values of the past five years). The only exception was the subordinated debt, which includes the 'CoCos' issued in the recapitalization of 2012 amounting to Euros 3bn. It will remain stable in 2013 and decreases as the Bank starts repay the recapitalization hybrid instruments. According with the recapitalization plan of BCP, the repayment calendar of 'CoCos' is already defined as follows: 500 million Euros in 2014, 1.000 million Euros in 2015 and 1.500 million Euros in 2016.

The yields borne by the Bank on these liabilities, were considered as the historical average yields of the past five years. The only exception were the 'CoCos' included in the subordinated debt balance. As it was declared in the recapitalization plan, the annual interest rate that Millennium BCP will pay to Portuguese State will grow over the 5 years of maturity, being 8,5% in the first year, 8,75% in the second year, 9% in the third year, 9,5% in fourth year and 10% in the last year. As it can be noticed, all of the considerations regarding the repayment of 'CoCos' and their interest payments are assumed in my valuation.

Additionally to the details and explanations provided in the main text of this dissertation regarding Portuguese operations (**Section 7.1**), I briefly describe the assumptions considered to the remaining components of the income statement:

- *Other operating income*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Net trading income*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by the average value of past five years;
- *Equity accounted earnings*: considered to represent a fixed percentage of total equity during the explicit period (2013-2017), measured by the average value of past five years;
- *Depreciation*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012.

Exhibit 13. - Assumptions Poland

Millennium bcp

POLAND

ASSUMPTIONS:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Interest income	711	544	589	661	748	798	845	895	951	1.010
as % of Loans	8,6%	6,5%	6,2%	7,0%	7,4%	7,5%	7,6%	7,6%	7,6%	7,7%
Interest expense	431	407	357	383	469	490	515	544	577	611
as % of Customer Funds	5,6%	5,1%	3,9%	4,5%	4,5%	4,5%	4,5%	4,5%	4,5%	4,5%
Net interest income	**280**	**137**	**231**	**277**	**279**	**308**	**329**	**351**	**375**	**399**
Net Interest Margin (NIM)	2,5%	1,3%	2,0%	2,4%	2,2%	2,3%	2,3%	2,3%	2,4%	2,4%
Net fees and commission income	**135**	**113**	**141**	**136**	**131**	**137**	**144**	**152**	**161**	**171**
as % of Assets	1,2%	1,0%	1,2%	1,2%	1,0%	1,0%	1,0%	1,0%	1,0%	1,0%
Net trading income	**99**	**78**	**55**	**48**	**58**	**61**	**64**	**68**	**72**	**76**
as % of Assets	0,9%	0,7%	0,5%	0,4%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%
Other operating income	**10**	**4**	**(1)**	**(5)**	**(1)**	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**
as % of Assets	0,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Staff costs	**174**	**108**	**131**	**131**	**135**	**146**	**155**	**165**	**175**	**187**
as % of Net operating revenues	33,2%	32,4%	30,8%	28,7%	28,9%	28,9%	28,9%	28,9%	28,9%	28,9%
Cost per employee (EUR k)	24,64	17,28	21,39	20,87	22,50	24,31	25,81	27,40	29,14	30,95
Other administrative costs	**142**	**106**	**118**	**124**	**120**	**130**	**138**	**147**	**156**	**166**
as % of Net operating revenues	27,0%	31,8%	27,6%	27,2%	25,7%	25,7%	25,7%	25,7%	25,7%	25,7%
Depreciation	**20**	**18**	**19**	**16**	**13**	**14**	**15**	**16**	**16**	**17**
as % of Assets	0,2%	0,2%	0,2%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%
Loans impairment (net of recoveries) and provisions	**39**	**100**	**57**	**42**	**56**	**57**	**56**	**55**	**54**	**53**
Cost-of-Risk (bps)	47,2	118,8	59,3	44,6	55,9	54,4	50,3	46,8	43,6	40,3
Effective tax rate (source: Millennium BCP)	**20,8%**	**20,2%**	**20,1%**	**21,1%**	**20,7%**	**19,0%**	**19,0%**	**19,0%**	**19,0%**	**19,0%**

Source: Millennium BCP Annual Reports, Own calculations

Additionally to the details and explanations provided in the main text of this dissertation regarding Polish operations (**Section 7.2**), I briefly describe the assumptions considered to the remaining components of the income statement:

- *Net trading income*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Other operating income*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Depreciation*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Loans impairment (net of recoveries) and provisions*: considered to vary in relation to the annual change in the unemployment rate.

Exhibit 14. - Assumptions Angola

Millennium bcp

ANGOLA

ASSUMPTIONS:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Interest income	21	40	72	93	95	113	127	143	161	182
as % of Loans	9,6%	12,5%	15,6%	18,3%	18,2%	19,1%	19,1%	19,1%	19,1%	19,1%
Interest expense	8	13	22	30	26	30	34	38	43	48
as % of Customer Funds	3,0%	3,0%	3,6%	3,4%	2,9%	2,9%	2,9%	2,9%	2,9%	2,9%
Net interest income	**13**	**27**	**51**	**63**	**68**	**83**	**93**	**105**	**118**	**134**
Net Interest Margin (NIM)	2,7%	3,6%	5,0%	4,5%	5,0%	5,3%	5,3%	5,3%	5,3%	5,3%
Net fees and commission income	**6**	**12**	**16**	**17**	**25**	**28**	**32**	**36**	**40**	**45**
as % of Assets	1,4%	1,6%	1,6%	1,3%	1,8%	1,8%	1,8%	1,8%	1,8%	1,8%
Net trading income	**6**	**21**	**27**	**27**	**32**	**36**	**41**	**46**	**52**	**59**
as % of Assets	1,3%	2,8%	2,7%	1,9%	2,3%	2,3%	2,3%	2,3%	2,3%	2,3%
Other operating income	**(1)**	**(0)**	**0**	**(0)**	**0**	-	-	-	-	-
as % of Assets	-0,2%	-0,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Staff costs	**6**	**13**	**19**	**22**	**27**	**32**	**36**	**41**	**46**	**52**
as % of Net operating revenues	26,5%	22,1%	20,2%	21,0%	21,9%	21,9%	21,9%	21,9%	21,9%	21,9%
Cost per employee (EUR k)	20,37	26,20	26,58	25,10	26,76	30,54	33,47	36,63	39,99	43,80
Other administrative costs	**9**	**24**	**27**	**28**	**35**	**41**	**46**	**52**	**59**	**66**
as % of Net operating revenues	38,1%	40,6%	29,1%	26,5%	27,8%	27,8%	27,8%	27,8%	27,8%	27,8%
Depreciation	**2**	**3**	**5**	**7**	**5**	**5**	**6**	**7**	**8**	**9**
as % of Assets	0,4%	0,5%	0,5%	0,5%	0,4%	0,4%	0,4%	0,4%	0,4%	0,4%
Loans impairment (net of recoveries) and provisions	**3**	**5**	**14**	**12**	**12**	**13**	**15**	**17**	**19**	**21**
Cost-of-Risk (bps)	131,62	158,57	303,38	238,52	223,83	223,83	223,83	223,83	223,83	223,83
Effective tax rate (source: Millennium BCP)	**-11,2%**	**-6,7%**	**17,0%**	**10,4%**	**19,9%**	**30,0%**	**30,0%**	**30,0%**	**30,0%**	**30,0%**

***Source*:** Millennium BCP Annual Reports, Own calculations

Additionally to the details and explanations provided in the main text of this dissertation regarding Angolan operations (**Section 7.3**), I briefly describe the assumptions considered to the remaining components of the income statement:

- *Net trading income*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Other operating income*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Depreciation*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Loans impairment (net of recoveries) and provisions*: considered to represent a fixed cost of risk during the explicit period (2013-2017), measured by its value in 2012.

Exhibit 15. - Assumptions Mozambique

Millennium bcp

MOZAMBIQUE

ASSUMPTIONS:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Interest income	100	110	129	197	201	254	286	325	368	418
as % of Loans	19,8%	15,7%	15,1%	18,5%	19,2%	20,8%	20,7%	20,7%	20,7%	20,7%
Interest expense	22	26	33	53	67	79	89	101	115	130
as % of Customer Funds	2,8%	2,8%	3,4%	4,0%	4,8%	4,8%	4,8%	4,8%	4,8%	4,8%
Net interest income	**78**	**84**	**96**	**143**	**133**	**175**	**197**	**224**	**254**	**287**
Net Interest Margin (NIM)	7,5%	7,0%	7,4%	8,0%	7,1%	8,0%	8,0%	8,0%	8,0%	8,0%
Net fees and commission income	**22**	**24**	**22**	**31**	**39**	**45**	**51**	**58**	**66**	**75**
as % of Assets	2,2%	2,0%	1,7%	1,7%	2,1%	2,1%	2,1%	2,1%	2,1%	2,1%
Net trading income	**14**	**23**	**26**	**20**	**29**	**34**	**39**	**44**	**50**	**57**
as % of Assets	1,4%	1,9%	2,0%	1,1%	1,6%	1,6%	1,6%	1,6%	1,6%	1,6%
Other operating income	**5**	**5**	**8**	**11**	**13**	**0**	**0**	**0**	**0**	**0**
as % of Assets	0,5%	0,4%	0,6%	0,6%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%
Staff costs	**26**	**27**	**30**	**36**	**46**	**54**	**61**	**70**	**79**	**89**
as % of Net operating revenues	21,5%	20,2%	19,6%	17,4%	21,3%	21,3%	21,3%	21,3%	21,3%	21,3%
Cost per employee (EUR k)	14,63	14,16	14,24	14,97	18,73	21,81	24,11	26,83	29,83	33,14
Other administrative costs	**22**	**26**	**28**	**34**	**41**	**48**	**54**	**62**	**70**	**79**
as % of Net operating revenues	18,2%	19,4%	18,5%	16,7%	18,9%	18,9%	18,9%	18,9%	18,9%	18,9%
Depreciation	**7**	**6**	**7**	**7**	**9**	**11**	**12**	**14**	**15**	**18**
as % of Assets	0,6%	0,5%	0,6%	0,4%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%
Loans impairment (net of recoveries) and provisions	**2**	**12**	**21**	**18**	**14**	**16**	**18**	**21**	**23**	**26**
Cost-of-Risk (bps)	48,82	165,22	247,87	166,00	131,04	131,04	131,04	131,04	131,04	131,04
Effective tax rate (source: Millennium BCP)	**17,7%**	**18,1%**	**18,3%**	**17,7%**	**17,5%**	**18,0%**	**18,0%**	**18,0%**	**32,0%**	**32,0%**

End of fiscal benefits

***Source*:** Millennium BCP Annual Reports, Own calculations

Additionally to the details and explanations provided in the main text of this dissertation regarding Mozambican operations (**Section 7.4**), I briefly describe the assumptions considered to the remaining components of the income statement:

- *Net trading income*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Other operating income*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Depreciation*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Loans impairment (net of recoveries) and provisions*: considered to represent a fixed cost of risk during the explicit period (2013-2017), measured by its value in 2012.

Exhibit 16. - Assumptions Greece

Millennium bcp

GREECE

ASSUMPTIONS:

Millions of Euros	2008	2009	2010	2011	2012	2013 E	2014 E	2015 E	2016 E	2017 E
Interest income	377	289	276	393	200	183	190	201	212	221
as % of Loans	7,8%	5,6%	5,4%	8,1%	4,2%	4,1%	4,2%	4,4%	4,4%	4,4%
Interest expense	251	164	149	196	188	179	179	184	192	201
as % of Customer Funds	7,7%	4,7%	4,8%	6,7%	6,5%	6,5%	6,5%	6,5%	6,5%	6,5%
Net interest income	**126**	**125**	**127**	**198**	**11**	**3**	**11**	**16**	**19**	**20**
Net Interest Margin (NIM)	2,1%	1,9%	1,9%	3,1%	0,2%	0,1%	0,2%	0,3%	0,4%	0,4%
Net fees and commission income	**32**	**33**	**30**	**23**	**25**	**23**	**23**	**24**	**25**	**26**
as % of Assets	0,5%	0,5%	0,4%	0,4%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%
Net trading income	**8**	**10**	**0**	**8**	**25**	**24**	**24**	**24**	**25**	**27**
as % of Assets	0,1%	0,1%	0,0%	0,1%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%
Other operating income	**2**	**3**	**2**	**(2)**	**(5)**	-	-	-	-	-
as % of Assets	0,0%	0,0%	0,0%	0,0%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%
Staff costs	**62**	**61**	**60**	**64**	**49**	**39**	**44**	**49**	**52**	**53**
as % of Net operating revenues	37,1%	36,0%	37,3%	28,3%	87,0%	77,0%	76,0%	75,0%	74,0%	73,0%
Cost per employee (EUR k)	40,09	40,03	40,64	52,87	41,03	34,13	38,64	42,83	45,47	46,65
Other administrative costs	**55**	**55**	**54**	**52**	**46**	**36**	**41**	**46**	**48**	**50**
as % of Net operating revenues	32,7%	32,4%	34,0%	22,8%	82,3%	72,3%	71,3%	70,3%	69,3%	68,3%
Depreciation	**9**	**10**	**10**	**14**	**7**	**7**	**7**	**7**	**7**	**8**
as % of Assets	0,1%	0,1%	0,1%	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%
Loans impairment (net of recoveries) and provisions	**17**	**25**	**57**	**93**	**279**	**297**	**251**	**199**	**149**	**110**
Cost-of-Risk (bps)	34,54	47,93	111,90	190,29	591,36	661,0	560,4	432,6	310,6	217,8
Effective tax rate (source: Millennium BCP)	**38,9%**	**53,1%**	**25,7%**	**184,1%**	**17,8%**	**20,0%**	**20,0%**	**20,0%**	**20,0%**	**20,0%**

***Source*:** Millennium BCP Annual Reports, Own calculations

Additionally to the details and explanations provided in the main text of this dissertation regarding Greek operations (**Section 7.5**), I briefly describe the assumptions considered to the remaining components of the income statement:

- *Net trading income*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Other operating income*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Depreciation*: considered to represent a fixed percentage of total assets during the explicit period (2013-2017), measured by its value in 2012;
- *Loans impairment (net of recoveries) and provisions*: considered to vary in relation to the annual change in the unemployment rate.

Exhibit 17. - Peer Group Portugal

PEER GROUP - PORTUGAL

	Country	Ticker	Company name	Website	Currency	Share Price [1]	Mcap (Millions)	Trailing 12 months: Total Asset (Millions)	Net Income (Millions)	Div Yield	Core Tier 1	RoE	RoA	Multiples: P/E 13E	P/BV 13E	Share Performance perf. YTD
	Portugal	BCP PL	BCP	www.millenniumbcp.pt	EUR	0,095	1.872	89.744	-1.220	0,0%	12,4%	-35,4%	-1,3%			26,7%
1	Portugal	BPI PL	BPI	www.bancobpi.pt	EUR	0,986	1.371	44.565	249	0,0%	14,9%	12,9%	0,6%	15,4x	0,8x	4,6%
2	Portugal	BES PL	BES	www.bes.pt	EUR	0,799	3.210	83.691	96	0,0%	10,5%	1,3%	0,1%	21,0x	0,5x	-10,7%
3	Portugal	BNF PL	Banif	www.banif.pt	EUR	0,122	70	13.992	-576	0,0%	11,2%	-103,7%	-4,1%	*n.a.*	0,2x	-16,4%
						High	3.210	83.691	249	0,0%	14,9%	12,9%	0,6%	21,0x	0,8x	4,6%
						Average	1.550	47.416	-77	0,0%	12,2%	-29,9%	-1,1%	18,2x	0,5x	-7,5%
						Low	70	13.992	-576	0,0%	10,5%	-103,7%	-4,1%	15,4x	0,2x	-16,4%

Source: Bloomberg, Company Data

1) Shares Prices of 1st April 2013

Outliers excluded

Source: Bloomberg, Own calculations

Exhibit 18. - Peer Group Poland

PEER GROUP - POLAND

	Country	Ticker	Company name	Website	Currency	Share Price [1]	Mcap (Millions)	Trailing 12 months: Total Asset (Millions)	Net Income (Millions)	Div Yield	Core Tier 1	RoE	RoA	Multiples: P/E 13E	P/BV 13E	Share Performance perf. YTD
	Poland	MIL PW	Bank Millennium	www.bankmillennium.pl	EUR	1,150	1.393	12.895	113	0,0%	11,6%	9,6%	0,9%			8,6%
1	Poland	BHW PW	Bank City Handlowy	www.citibank.pl	EUR	21,790	2.845	10.656	232	3,0%	*n.a.*	14,0%	2,2%	15,0x	1,7x	-7,4%
2	Poland	BRE PW	Bre Bank	www.brebank.com.pl	EUR	81,880	3.450	25.040	288	0,0%	13,0%	13,6%	1,1%	13,9x	1,4x	4,9%
3	Poland	ING PW	ING Bank	www.ing.pl	EUR	21,740	2.827	19.169	199	0,0%	*n.a.*	11,4%	1,0%	15,2x	1,4x	-0,2%
4	Poland	BZW PW	Bank Zachodni WBK	www.bzwbk.pl	EUR	60,330	5.645	14.700	343	3,0%	*n.a.*	17,7%	2,3%	14,8x	1,8x	4,2%
5	Poland	PEO PW	Bank Pekao	www.pekao.com.pl	EUR	37,590	9.862	36.971	641	3,4%	18,5%	13,2%	1,7%	15,3x	1,8x	-6,3%
6	Poland	PKO PW	PKO Bank Polski	www.pkobp.pl	EUR	8,270	10.337	47.388	897	3,7%	12,0%	15,8%	1,9%	12,9x	1,7x	-6,4%
						High	10.337	47.388	897	3,7%	18,5%	17,7%	2,3%	15,3x	1,8x	4,9%
						Average	5.828	25.654	433	2,2%	14,5%	14,3%	1,7%	14,5x	1,6x	-1,9%
						Low	2.827	10.656	199	0,0%	12,0%	11,4%	1,0%	12,9x	1,4x	-7,4%

Source: Bloomberg, Company Data

1) Shares Prices of 1st April 2013

Outliers excluded

Source: Bloomberg, Own calculations

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