

Valuing CTT
A 495 year old company competing in the 21st
Century Postal Market

Equity Valuation

CTT – Correios de Portugal, SA



Joana Assis Teixeira, 152113156

Advisor: José Carlos Tudela Martins

**Dissertation submitted in partial fulfillment of requirements for the degree
of MSC in Business Administration at Catolica Lisbon School of Business
and Economics, June 2015**

Abstract

The goal of a thesis in the field of Firm Valuation are, firstly, to draw valid assumptions applicable to previously studied methods that best fit the valuation of a chosen company in order to find an accurate price for its stock.

Upon making so, it is also expected a comparison between the results found and the ones published by a leading investment bank, also, of one's choice. The differences as well as similarities between methodologies and values found shall be assessed, discussed and justified.

The company chosen for the latter purposes is CTT, a 495 year old company facing the new landscape of the postal market: as traditional mail becomes obsolete, Express and Parcels as well as Financial Services are boosting industry's revenues.

An analysis to past performance seems to have prepared CTT for "a change in the game", for the company continues to yield strong EBITDA margins motivated by the cost control efficiency aligned with network optimization. The proposed price target is 10.67€ which intentions to reflect the (i) electronic substitution effect, (ii) the Portuguese economic evolution and (iii) CTT's own internal initiatives which aim to take advantage of the latter two.

Moreover it is worth referring the free-float of 100%, which guarantees high levels of liquidity in the stock market, enabling share price to growth even further.

Acknowledgements

I could not finish this dissertation without expressing my profound gratitude to:

Professor José Tudela Martins for his guidance, constant availability and expertise conveyed.

My parents, for more reasons that can be put in words, but mostly for giving me the opportunity to invest in my future, and for always pushing me to be more and better.

Miguel Mello, for his unconditional support, and for always remembering me of my worth as student and as person.

Raquel Ferreira, from investor relations department of CTT, from all her help and advices.

Nuno Estácio, from BESI Investment Bank, for the guidelines provided and for helping me to better understand the drivers of CTT.

Finally I thank my friends, especially Mariana and Sara for all their support and concern.

I wish to dedicate this work to my grandmother Isabel, for all her love and for always believing and making me believe in myself.

Table of Contents

Executive Summary.....	3
CHAPTER I – Literature Review.....	6
I - DCF Valuation	6
Equity Valuation	7
Firm Valuation	7
Further issues regarding DCF valuation: Cost of Capital	9
APV Valuation	15
WACC vs APV	18
II - Relative Valuation	19
III - Contingent Claim Valuation.....	21
Final remarks	21
CHAPTER II – Company Presentation: CTT and its Latest Accomplishments	22
I. Introduction	22
II. Market Performance	23
III. Operational Performance	24
IV. Future goals and strategic lines.....	26
Chapter III – Industry and Business Overview: Understanding the Value Drivers of CTT.....	28
V – Industry	28
Mail market in Portugal.....	31
E-substitution effect	32
E-substitution effect in Portugal.....	32
VI - Business Units	34
Mail and Business Solutions.....	34
Express and Parcels	34
Financial Services	36

CHAPTER IV – Valuation: Finding CTT’s value according to its Market reality and Business Drivers.....	39
Overall Assumptions.....	39
Revenues.....	40
Mail & Business Solutions.....	40
Express & Parcels (E&P).....	42
Financial Services (FS).....	44
Operating Costs.....	46
Net Working Capital.....	48
Capex and Depreciation.....	48
Debt and Interest.....	49
Cost of Capital.....	51
DCF Valuation.....	51
Relative Valuation – Multiples,.....	53
Sensitivity Analysis.....	54
Comparison with Caixa B.I. Analyst Report.....	55
Final remarks.....	57

Executive Summary

Building a dissertation on the topic of Equity Valuation implies the valuation of a public company of one's choice. The goals of this thesis are, firstly, to draw valid assumptions applicable to previously studied methods that best fit the valuation of the chosen company in order to find an accurate price for its stock.

Upon making so, it is also expected a comparison between the results found and the ones published by a leading investment bank, also, of one's choice. The differences as well as similarities between methodologies and values found shall be access, discussed and justified. Stemming from the above mentioned purposes of this dissertation, the structure for this work will be organized as follows:

Chapter I contains a revision of the literature of the matter of company valuation; Chapter II is the introduction of the company and assessment to the most relevant and recent developments; Chapter III consists in a thorough analysis to the industry and company's key drives to be reflected on Chapter IV, the valuation of CTT.

CHAPTER I – Literature Review

According to Fernandez (2007), valuation has many purposes and can be used in different situations: in company buying and selling operations where there is a price to be negotiated; when valuing listed companies to understand whether its shares should be bought, sold or kept; during public offerings and the need of setting an offering price arises;

Valuation is also fundamental for strategic decision making and strategic planning for valuing a business is an important step towards deciding the future of a company (Is there a business unit that should be abandoned? Should the company merge? Is the current business sustainable?, etc.)

Following Damodaran (2002) there are three main approaches to valuation: DCF valuation, Relative Valuation, and Contingent Claim Valuations.

I - DCF Valuation

“In DCF valuation we try to estimate the intrinsic value of an asset based upon its fundamentals”. The intrinsic value is perceived as being the value calculated by an “all knowing analyst” who fully understood what the future cash flows of a company would be, which he then would discount at an appropriate rate that would reflect the riskiness of such company, [Damodaran (2002)].

As such the baseline for the DCF model is:

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

Where CF_t represents the future cash flows of the company and r the discount rate that matches the risk borne the company represents.

Since the value for CF will vary in terms of assets (it could be dividends, coupons, after-tax cash flow, etc) Damodaran derives three approaches within this method: Equity Valuation, Firm Valuation and Adjusted Present Value, hereinafter APV.

Equity Valuation

In Equity Valuation the value obtained corresponds only to the value of Equity, excluding other claimholders, such as debtholders. To obtain the value for Equity the CF_t seen in formula (1) will be substituted by the Free Cash Flow to Equity (FCFE), and r will be r_e , entitled cost of equity:

$$\text{Equity Value } (E) = \sum_{t=1}^{t=n} \frac{FCFE_t}{(1+r_e)^t} \quad (2)$$

Where $FCFE_t$ corresponds to the cash flow available to common stockholders, meaning the remaining cash flow after the firm fulfills its obligations regarding debt repayment, and investment, that is Capital Expenditures and Working Capital. Its formula is the following:

$$FCFE_t = \text{Net Income } (NI) + \text{Depreciation \& Amortization} - \text{Capital Expenditures } (CAPEX) - \Delta \text{Working Capital } (WC) + \text{New Debt} - \text{Debt Repayment} \quad (3)$$

Firm Valuation

According to Modigliani and Miller (M&M)'s work (1958) the Value of a Firm is given by:

$$V_0 = E_0 + D_0 \quad (4)$$

In Firm Valuation the final value concerns the value of the entire company (V), which means that both the value for Equity (E) plus the other claimholders (D) are considered in this analysis. To obtain the value of a Firm the CF_t seen in formula (1) will be substituted by the Free Cash Flow to the Firm (FCFF), and r will be WACC, entitled Weighted Average Cost of Capital:

$$\text{Firm Value } (V) = \sum_{t=1}^{t=n} \frac{FCFF_t}{(1+WACC)^t} \quad (5)$$

Where $FCFF_t$ is the cash flow that results from without considering financing expenses such as interest or dividends:

$$FCFF_t = EBIT \times (1 - T) + \text{Depreciation \& Amortization} - \text{Capital Expenditures (CAPEX)} - \Delta \text{Working Capital (WC)} \quad (6)$$

And the weighted average cost of capital is given by:

$$WACC^1 = \frac{D}{V} \times (1 - T) \times r_d + \frac{E}{V} \times r_e \quad (7),$$

Where D corresponds to the market value of Debt, E corresponds to the market value of Equity, r_d is the cost of Debt, and r_e is the cost of Equity.

(i) Further issues regarding the FCFF: Terminal Value

The Terminal Value

To estimate cash flows forever it would be nearly impossible. According to Damodaran (2002) some closure regarding cash flows valuation is imposed and after some time¹ it should be computed the Terminal value that properly reflects the value of the firm at that point in time.

As such the firm's value would be given by:

$$\text{Firm Value (V)} = \sum_{t=1}^{t=n} \frac{FCF_t}{(1+WACC)^t} + \frac{\text{Terminal Value}_n}{(1+WACC)^n} \quad (8)$$

The terminal value or residual value is equivalent to say that we are valuing the company as perpetuity:

$$\text{Terminal Value}_n = \frac{FCF_{n+1}}{WACC-g} \quad (9)$$

Where g corresponds to perpetual rate the company is expected to grow at once it has approached a phase of stable growth, based on a going concern assumption.

Fernandez and Bilan (2015) adverts the reader to the fact that $FCF_{n+1} = FCF_n \times (1 + g)$ should not be applied if Depreciation & Amortization expenses exceed CAPEX expenses for this would imply that Non-Financial Assets would be negative in the near future.

¹ Ohlson and Zhang (1999) establish a no longer than a 15 year period to do so.

Supporting this reasoning, Kaplan and Ruback (1995) add that, in perpetuity, the referred expenses should be equal.

Concerning the value of g , it is important to mention that: a geometric average is better than the arithmetic average to assess future growth [Fernandez and Bilan, (2015)]; if the economy where a company operates is expecting a growth rate of 1%, g should not be greater than 1% (Damodaran, 2008).

Further issues regarding DCF valuation: Cost of Capital

The cost of equity, the cost of debt, the weighted average cost of capital which balances the latter two, are frequently computed through the Capital Asset Pricing Model (CAPM), an equilibrium model that allows the estimation of the expected return of a stock based on the expected return of the market. The model is attributable to Jack Treynor (1961/62) William Sharpe (1964), John Lintner (1965), Jan Mossin (1966) built up on the work of Harry Markowitz (1952/59) regarding the modern portfolio theory.

The following formulas represent the levered cost of equity and the unlevered cost of equity, respectively²:

$$r_e = r_f + \beta_L \times [E(r_m) - r_f] \quad (10)$$

$$r_u = r_f + \beta_u \times [E(r_m) - r_f] \quad (11),$$

Where r_f represents the risk free rate, β_L and β_u the levered and unlevered beta, respectively, and the expression $[E(r_m) - r_f]$ corresponds to the market risk premium.

In the case of Debt=0, it can be said that $r_u = r_e$; this however may not be valid in a situation of a company possessing a high value on excess cash, for which the reality would be $r_u < r_e$.

² “The levered beta reflects the operational and financial risk borne by company whereas the unlevered beta only comprises the operational risk. The level of financial risk is given by the debt-to-equity ratio.” [Gomes Mota et al (2012)].

“The cost of debt is the rate at which you can borrow at currently; it will reflect not only your default risk but also the level of interest rates in the market.” [Damodaran (2002)]. The yield to maturity for the company’s long term debt is frequently used as a proxy for this cost. Its components are the risk-free rate which will be discussed further on, the default spread which can be determined by company’s bond rating and amount of physical collateral and the marginal tax rate, which should match the marginal tax rate used to forecast net operating profit less adjusted taxes (NOPLAT). [Goehdart et al, (2005)].

Because we assume CTT are 100% equity financed, this topic will not be assessed in more detail. It is important to refer, though, that either discount rate (r_e or r_d) should never be lower than the risk free rate. [Fernandez and Bilan (2015)].

(ii) Beta

The beta represents the stock’s sensitivity to the market. Put in other words, “Beta represents a stock’s incremental risk to a diversified investor, where risk is defined as the extent to which the stock covaries with the aggregate stock market.” [Goehdart et al (2005)].

The estimative of the betas is yet subject to some controversy. The most common approach is to regress the stock’s return against the market return, the empirical estimation of the beta:

$$\beta_e = \frac{\text{Covariance}(R_e, R_M)}{\text{Variance}(R_M)}, \quad (12),$$

Where β_e represents the company’s equity raw beta, R_c are the returns of the company’s stock and R_M corresponds to the market returns. The measurement period for raw regressions should include at least 60 observations which is equivalent to say that we should use data of monthly returns of at least 5 years. Using daily or weekly returns can produce biased results. Moreover the market portfolio to be considered to regress the stock returns against should be a value-weighted and well-diversified market portfolio. Finally data shall be chosen carefully not to include market bubble/depression.

To estimate a company's beta, one should use an industry-derived unlevered beta relevered to the company's target capital structure. [Goehdard et al (2005)].

Leveraging and de-leveraging the Equity beta

According to Fernandez work from 2008³ from the six different approaches to leverage and deleverage the beta only two are correct. The author tests the different hypothesis and reaches two main conclusions:

If the company maintains a book-value leverage ratio, the correct relationship between the levered beta and the unlevered beta is given by Fernandez (2007)⁴:

$$\beta_L = \beta_U + (\beta_U - \beta_D) \times \frac{D \times (1-T)}{E} \quad (13)$$

In case we are referring to a company which maintains a fixed market-value leverage ratio, the correct relationship corresponds to the one developed by Miles and Ezzell (1980)⁵:

$$\beta_L = \beta_U + (\beta_U - \beta_D) \times \left(\frac{D}{E}\right) \times \frac{(1-T) \times r_d}{1+r_d} \quad (14)$$

Thirdly, if we are dealing with a company with a preset D/E ratio for every period, the correct relationship between β_e and β_u is derived from Modigliani and Miller's work (1963):

$$\beta_L = \beta_U + (\beta_U - \beta_D) \times \frac{(D-VTS)}{E} \quad (15), \text{ where VTS, Value of Tax Shields equals the present value of the future tax shields discounted at the cost of debt}$$

Debt beta

Assuming Debt is riskless, the $\beta_d = 0$, If the debt is risk-free, $\beta_D = 0.0$ because the covariance of a risk-free asset with anything is zero. Even if the debt is risky, its covariance with the market (and thus its debt beta) will be very low.

³ "Levered and Unlevered Beta", October 2008.

⁴ "A More Realistic Valuation: APV and WACC with constant book leverage ratio", Journal of Applied Finance, Fall/Winter, Vol.17 No 2, pp. 13-20.

⁸ "Weighted Average Cost of Capital, Perfect Capital Markets and Project Life: A Clarification", Journal of Financial and Quantitative Analysis (September), pp. 719– 730

⁹ Frequently denominated Equity Risk Premium (ERP) as well.

(iii) The risk free rate

Damodaran (2008) introduces the meaning of risk, indicating that for an investment to be risk free then the actual return of an asset or security should match the its expected return. Put in other words, the return of a risk free rate investment should be uncorrelated with the return of a risky investment in a market.

Fernandez states that the risk free rate is by definition the rate that can be obtained at the time the cost of equity is computed. One should use either the IRR or the yield of long-term government bonds, not short-term, and it should match the period of the cash flow estimation. The currency should be the same of the cash flows since it can vary due to inflation being different over country.

In terms of the best approach to use, Damodaran (2002) and Goedhart et al. (2005) both postulate that the appropriate risk-free rate should correspond to the yield of a 10 year government bond.

(iv) The market risk premium

Theoretically, the market risk premium⁶ (MRP) corresponds to the compensation differential between an investment of a risk-free asset, such as government debt (treasury bonds, for example) and a riskier investment such as stocks, real estate, or any other asset.

The estimation of this valuation input is broadly discussed throughout the literature for which no consensus has been found, which is mainly due to the subjective character of the MRP, as it integrates expectations regarding future stock market returns. [Duarte and Rosa (2015)].

According to Damodaran (2013r) there are three broad approaches to estimate the equity risk premium:

Surveys

Surveys constitute a benchmarking built on the opinion of practitioners, academics and other qualified people in the field of corporate finance.

Pablo Fernandez (IESE Business School) conducts a yearly survey, inquiring about practitioners, academics and companies on the used MRP. Works from 2008 and 2009 point a median MRP of 5% across Europe based on 228 and 194 answers, respectively. More recent surveys (2012, 2013 and 2014) allow detailed understanding of the MRP per country. For Portugal the average and median MRP corresponds to 7.2% and 6.5% for 2012, 6.1% and 5.9% for 2013 and 8.5% and 8.5% were the findings on the work of 2014, in which circa 88 countries were assessed.

Similarly, a survey from 2007 elaborated by UCLA Professor Ivo Welch⁷, provided some insightful estimates on the long-term market risk premium (5% on a geometric basis and 5.8% on an arithmetic basis).

JP Morgan Publication⁸ stresses some pros and cons on this methodology, the first being significant research time, unbiased academic estimates, and its underlying stationary character. Cons, on the other hand, are associated with the wide diversion of opinions and the lack of updating in terms of new market realities, as it is the case of tax changes.

Historical Returns

According to the CFA Institute (2010), using historical data, the market risk premium equals to the return on a broad-based equity market index minus the return on government debt.

For this approach, “broad-based, market-value-weighted indices are typically used” and its appeal lies within the long time spans of data used, which ideally would represent unbiased results. When engaging in this methodology some issues have to be addressed:

⁷ “The Consensus Estimate for the Equity Premium by Academic Financial Economists in December 2007”. January, 2008.

⁸ The Most Important Number in Finance The Quest for the Market Risk Premium, JP Morgan 2008

- As we extend the length of the sample (in historical terms) results tend to be more precise and yet revealing of the stationary character of this type of data.
- Geometric means perform better than arithmetic ones on expressing the future and present value of an investment.
- The occurrence of extraordinary events, as they will not be representative of the future market performance.

Using this methodology, Dimson et al (2011) show evidence from the period between 1900 and 2011, on the long-term realized market risk premium in 19 different countries. For the 19-country World index, the results laid on a geometric mean real returns of 5.5% (annualized).

Damodaran (2013r) however shows that the choice of an equity risk premium should not be equal to the historical risk premium due to its low predictive power, as Fernandez shows how the use of an historical market premium can lead to under/overvaluation.

Implied Premiums

By estimating implied premiums, which result from an attempt to forecast a forward looking premium, based market rates, prices on traded assets, etc. [Damodaran (2013r)]. The later approach derives from the Gordon's Model⁹ is applied as follows:

MRP = Forecasted div. yield + Forecasted long term earnings growth rate – current long term government bond yield (16),

In which the dividend yield is given by the expression $\frac{Div_1}{P_0}$, the forecasted long term earnings equals g , and as for the government bond yield, we are referring to the considered risk-free rate, r_f .

⁹ The Dividend Discount Model (DDM) by Gordon and Shapiro (1956) equated the price of a stock as the present value of its future dividends, assuming these would grow at a constant rate:

$$P_0 = \frac{Div_1}{(r_e - g)} \quad (17)$$

Regarding this methodology, Campbell and Shiller (1988) point dividend yield as a simplistic, yet powerful measure of the implied equity risk premium and a study from Damodaran (2013r) using data from 1960 to 2011, finds that implied risk premiums yields a considerably better forecast of the actual market premium, in comparison with historical risk premiums (the second methodology).

Consistently with these, a recent study from Barclays (2013)¹⁰ considers both dividends and earnings growth plausible drives of equity returns. The study points a range of implied risk premiums between 5.5% and 6%, for the U.S, given that these values can be slightly higher for Europe (an extra 100-150bp), given that valuations are less challenging and payout ratios seem to be higher.

The wide range of methods implies the inexistence of a consensus regarding a fit-all approach.

Still on the topic of the MRP it is important to refer an additional item, the country risk premium (CRP). On this topic, Fernandez states that the country has to be considered since “even when speaking of a monopoly granted by the government, no government can eliminate its own risk.” [Fernandez (2007)].

APV Valuation

M&M’s proposition I (1958) postulates that capital structure is irrelevant for firm value¹¹, for in a world without taxes and assuming perfect market conditions, the value of a firm unlevered would be akin to the levered firm.

Since such a world is far from real, the optimal capital structure represents an opportunity cost: For instance, the trade-off theory claims that capital structure decisions are derived from weighting benefits of debt, which include tax shields savings, as interest on debt is tax deductible, plus reduced agency problems, versus the costs of financial distress, which are motivated by extensive use of debt¹². [Graham and Leary, (2011)].

¹⁰ Equity Gilt Study, 2013.

¹¹ $V_u = V_l \equiv V_l = E_l + D$ (18)

¹² Pros and cons of debt are extensively studied in literature; Aside from the tax benefits, debt can have a disciplinary role by helping aligning the interests of shareholders with managers. Jensen (1986) finds a positive relationship between debt and organizational efficiency. On the other hand debt can cause stakeholders to underestimate a company’s reputation [Maksimovic

Hence, for APV valuation, this method will divide the company in two parts, firstly analyzing its value as an unleveraged company, which means that a no debt scenario is considered. The second step consists in valuing the tax benefits (or tax shields) arising from the debt the company actually has [M&M's proposition II, (1958)].

Overall we are adding the value that being indebted brings to the company, which includes measuring the tax benefits the company is obtaining against the expected bankruptcy costs the company may incur in by being leveraged.

$$APV (V) = \sum_{t=1}^{t=n} \frac{FCFF_t}{(1+r_u)^t} + [PV (Tax Shields) - PV (Expected Bankruptcy Costs)] \quad (19)$$

(i) The Present Value of Tax Shields

The exercise of valuing tax shields has been subject of discussion and the main source of controversy regarding the APV model.

For instance, tax benefits are difficult to assess with accuracy and much more so when corporate taxes do not depend only on profit. The “Non-Debt-Tax-Shields” which derive from expenses with depreciation and amortization, for example, are tax deductible thus decreasing taxable income and consequently reducing the value of the tax benefits. [Sabal (2007)].

The most common formula for valuating tax shields is given by:

$$VTS = D \times r_d \times T, \quad (20)$$

To obtain the present value of the tax shields one must use an appropriate discount rate; According to Modigliani and Miller (1963) the tax shields will be discounted at the cost of debt, r_d . As explained by Sabal (2007) this occurs because the tax shields are directly associated with the systematic risk of debt.

Fernandez (2008) however, argues that the Value of Tax Shields (VTS) is not actually the present value of tax savings due to the payment of interest discounted at a certain rate (cost of debt) but the difference between two presents values (PV):

and Titman (1991)], and if often associated with unfair employee treatment [Bae et al. (2010), Verwijmeren and Derwall (2009), Agrawal and Matsa (2013), Hanka (1998)].

$VTS =$

$PV (\text{Taxes paid by Debtless Company}) - PV (\text{Taxes paid bt indebted Company})$ (21)

(ii) The Present Value of Bankruptcy Costs

The valuation of the bankruptcy costs is pointed as one of the main limitations of the APV model; they comprise “both ex post bankruptcy costs incurred after a firm's bankruptcy filing, such as transactions costs, and ex ante bankruptcy costs incurred before the filing, such as those resulting from creditors' attempts to reduce their losses if bankruptcy occurs and/or managers' attempts to raise the expected return to equity by increasing the firm's risk.” [White (1983)].

For many companies ex ante bankruptcy costs are associated loss in value resulting from cutbacks in promising investments. [Almeida, (2008)].

In terms of value, ex post or direct bankruptcy costs are estimated to be between 3% and 5% of firm value at the moment of distress. [Jerold Warner, (1977), Lawrence Weiss, (1990)].

The issue then resides in the fact that ex ante (or indirect) bankruptcy costs are not directly observable. Nevertheless Kalaba (1984) argues that, if ex ante costs are large enough, securities prices will be affected thus enabling an assessment to its value.

Shapiro and Titman (1985) postulate that these costs may represent about 30% of the firm's value at the moment of distress, but no evidence is provided making the calculation dubious.

The most frequent method to predict indirect bankruptcy costs is derived by Damodaran (2002):

$PV \text{ expected Bankruptcy Cost} =$

$\text{Probability of Bankruptcy} \times PV \text{ of Bankruptcy Costs}$ (22)

The work of Altman and Karlin (2008) is frequently used for measuring the probability of default: the authors derived the correspondence between corporate bond rating with the respective probability of default.

WACC vs APV

Sabal (2007) defends that the M&M's work introduced two alternative methodologies being WACC (or FCFF) and APV. This has been, in fact, a source of discussion among academics and practitioners.

Sabal (2007) argues that whenever a target ratio is defined for the long term by a company, is it preferable to use the WACC, notwithstanding the advantages enabled by APV: the convenience for studying smaller companies with unstable debt ratios as well companies inserted in countries that have complex legislation concerning taxation. The author further points APV as a better solution for valuing companies inserted in emerging countries, since the economy here is uncertain and offers a positive scenario when it comes to the use of leverage.

Despite the differences that may arise between the two methods, Sabal (2007) still defends that if WACC is adjusted every period in order to reflect the (eventual) change in the capital structure and the effect it has in terms of corporate taxes, the results yield by the two methods will be similar.

Luehrman (1997) on the other hand defends APV's greater adequacy by calling it "transparent", while defending that WACC addresses to tax effects only, thus working better when simple capital structures apply. The author points out that the discount rate associated to the APV method reflects only time value and its riskiness and other components derived from financial maneuvers (risk management, subsidies, and tax savings for instance) cannot be hidden among the adjustments made to that discount rate. While still recognizing some limitations, such as the disregard of costs of financial distress on behalf of some analysts, and the fact that income from stocks may suffer different taxation in relation to bonds, Luehrman (1997) still believes APV as being "a better tool for valuing operations".

Fernandez (2008) supports the equivalency of the methods, based on the assumption that both analyze the "same realities under the same hypothesis", and differences can be found only in terms of the present value of tax shields computation.

Ultimately both methods have pros and cons; WACC has the advantage of being an easier and simpler approach when the assumption of a constant capital structure is valid but if D (Debt is constant) then APV should be applied. [Fabrice Bienfait]

In terms of cons, the WACC is considered by Jenter (2003) as little flexible, and in cases where Debt is risky and contains other effects of financing (or different types of debt such as hybrid securities”, APV is a better option. Further the professor adds that when errors are made regarding the effect of a company’s liabilities, the entire valuation can be jeopardized, since WACC mixes up the effects of assets versus liabilities.

II - Relative Valuation

“Relative Valuation estimates the value of an asset by looking at the pricing of comparable assets relative to a common variable such as earnings, cash flows, book values or sales”, [Damodaran (2002)].

Goedhart et al. (2005a) infers on the importance of multiples to overcome obstacles in the level of accuracy of a valuation of a company. Multiples will be more effective in the comparison with competitors on indicators of performance, and additionally, their analysis allows the company to identify whether is positioned to create more value than the remaining players of that industry. On the other hand, multiples are sometimes times badly used by analysts, leading to wrong conclusions.

There are different multiples, which can be grouped in two types: Enterprise Value (EV) Multiples and Equity Value Multiples.

Their difference can be explained in terms of their components: regarding EV Multiples which relates to the firm’s total value (Equity and Debt) i.e., concerning all stakeholders, whereas in the case of Equity Value Multiples their value is relevant to equity holders only. Hence, the denominator in this first case is meant to be computed before interest expense on Debt, preferred dividends and minority expenses, which is equivalent to say that this denominator will be a proxy for the free cash flow to the firm. For the case of Equity Value multiples, the opposite applies and the denominator must incorporate the referred expenses.

Table 1 – Enterprise and Equity Value Multiples

Enterprise Value Multiples	Equity Value Multiples
EV/EBITDA	P/EPS
EV/EBIT	E/BV
EV/Sales	PER
	PEG

EV/EBITDA and EV/EBIT are two of the most commonly used metrics, since EBIT and EBITDA are considered good proxies for FCFF. One of the advantages on using these indicators is that they enable a comparison between firms with different capital structures. EBIT may be more complete since it considers charges as depreciation and amortization, which are however non-cash expenses.

Regarding EV/EBITDA it is important to mention the need of adjustment for non-operating items as not doing so may mislead results. [Goehdart et al (2005)]. EV/Sales have the advantage of being very quick to compute; on the other hand sales may not be representative of the firm's value for large sales do not necessarily mean large profits.

From the Equity Value Multiples side we stress PER and PEG, the latter being an adjustment of the first.

PER translates in Price to Earnings Ratio, which can be expressed as:

$$PER = \frac{\frac{\text{Equity Value}}{\text{Number of outstanding shares}}}{\frac{\text{Net Income}}{\text{Number of outstanding shares}}} \quad (23)$$

PER is linked to Gordon's Model since Price (Equity Value/Shares Outstanding) can be written in terms of the Net Present Value (NPV) of a company's future dividends (see formula x above). Consequently one can say that the PER is a function of (i) the expected payout ratio (future Dividend per share, DPS), (ii) the cost of equity r_e , and (iii) the perpetual growth on the DPS, g .

In the case EPS are negative, taking into consideration both the GDP growth and the inflation rate, the PEG ratio can be computed:

$$PEG = \frac{PER}{g} \quad (24)$$

The appeal of the relative valuations lies within the easiness of application plus the fact that no assumptions are required on the analyst's behalf.

However, by being based on the company's Income Statement one of the drawbacks of this analysis is related with eventual manipulations companies can make. For instance, multiples related with earnings are subject to the values reported on depreciations, provisions, among others.

Furthermore, as the inputs for multiples valuation, such as the price for a stock, are retrieved from a public capital market, the valuation may suffer in terms of accuracy, since the market itself can be wrong.

III - Contingent Claim Valuation

"Contingent Claim Valuation uses option pricing models to measure the value of assets that share option characteristics", [Damodaran (2002)]. Due to the complex character of this type of valuation plus the fact that CTT is not valued based on option theory, this type of valuation will not be further discussed.

Final remarks

After analyzing different methodologies that aim to provide a realistic value for a company, it is important to infer on their equivalences, for conclusion purposes.

As put by Holt et al. (1999) "the more approaches there are, the weaker the message". The authors mean to advice the reader on how to react when facing the so called "valuation overload". Firstly it is important to bear in mind that "every popular valuation approach is simply a different way of expressing the same underlying model".

This means that if the mathematics and assumptions are akin between models then we should be able to express one in terms of the other. This can be perceived as an advantage, since it gives the analyst an opportunity to present different (yet similar) perspectives of the same company, as long as they share the same levels of consistency, comparison, uniqueness and consistency without uniformity.

CHAPTER II – Company Presentation: CTT and its Latest Accomplishments

I. Introduction

CTT – Correios de Portugal is a 495 year old publicly listed company operating in the Portuguese logistic sector.

CTT holds for the concession Universal Service Obligation¹³ (USO) until 2020 in Portugal, which contributes to a number one position the in postal sector, with a market share of 95% (Source: ANACOM).

Table 2 – USO,

Source: CTT's Offering Memorandum.

USO	Other Postal Services
Correspondences up to 2kg	Express Mail Services
Catalogues, Books, Newspapers and Other periodicals up to 2kg	Catalogues, Books, Newspapers and Other periodicals above 2kg
Postal Parcels up to 10kg	Postal Parcels up to 10kg
Postal Parcels received from other EU member states, up to 20kg	Direct Mail (for Advertising, Marketing and Publicity purposes
Services for registered items and insured items	

CTT is the principal operator of the postal network, which includes the postal distribution network and the retail network. The first concerns simultaneously the distribution of mail and other USO products which CTT operates directly, plus both the Portuguese and Spanish express and parcels networks operated via outsourcing and a franchise model respectively. The retail network allows CTT to serve retail and small corporate consumers (in terms of mail and parcels distribution) as well as financial services.

¹³ Appendix 1.

It is important to clarify the following distinction: Postal Market refers to both Mail and E&P industry, whereas Mail market refers only to mail distribution, covering addressed mail and USO parcels.

Table 3 – CTT’s business unit organization (2015)

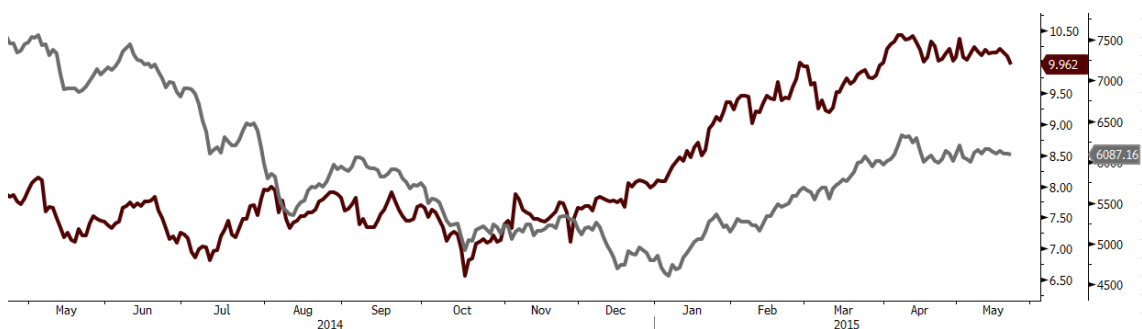
Source: CTT data.

Mail	Business Solutions	Express & Parcels (E&P)	Financial Services
Transactional Mail; Press Mail; Advertising Mail; USO Parcels International Mail	Documental Production (Mailtec Communication, market leader) Information Technology (Mailtec Consultancy)	Portugal – CTT Expresso Spain – Subsidiary Tourline Express (Franchise Model) Mozambique – CORRE Correios de Moçambique (Joint Venture)	Savings; Insurance; Payment Solutions; Money Transfers

II. Market Performance

Figure 1– CTT Stock performance versus PSI 20 Index (2014-2015);

Source: Bloomberg, retrieved May the 22nd, 2015. Red line corresponds to CTT, and grey line to the PSI 20 Index.



CTT is the first Portuguese publicly traded company with 100% free float which translates into high liquidity stocks, thus allowing its price to grow from the IPO offering price range 4.10€ to 5.52€, to 9.92€ which corresponds to the stock price on the 29th of May, 2015. Since November 2014 CTT market performance has been superior to the PSI 20’s showing greater resistance to the Portuguese macroeconomic environment.

III. Operational Performance

P&L efficiency

In 2014 CTT was able to invert a 5-year-old trend of decreasing revenues, obtaining a 718 million euro value in total revenues. This can be explained by the growth in Financial Services (+23% in 2014) which now account for a bigger percentage in the company's total revenues, as well as a 2 million euro growth in Mail, which was accomplished by a price increase policy to offset mail volume decline.

Operating Costs (Opex) decreased by 10% in 2014, mostly due to the Transformation Programme, and the revision of the healthcare plan, which offset both the incentives to performance given to employees and the increase in remunerations.¹⁴

Figure 2 - Revenues versus Opex Evolution, 2010-2014;

Source: CTT data.



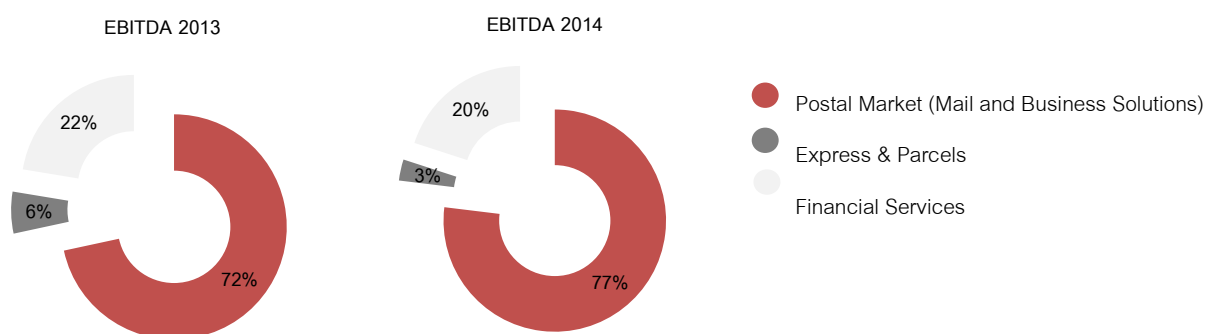
In terms of EBITDA CTT maintains strong margins: 19% in 2014 and 17% in 2013. As for Mail, EBITDA grew by 11.6% due to the aggregate effect of price increase policy, slowdown of mail volume decrease, improving of the cost mix and cost optimization. Regarding E&P, EBITDA margin suffered a small (-1.2%) decrease caused by the reduction of the average price mix (B2C grew but is has a lower price), and operating costs increase.

EBITDA margins are the strongest in Financial Services (50.6% in 2014 and 45%) since the costs it has are supported by Mail business unit, representing the economies of scale CTT gets from its large network.

¹⁴ As a private company, CTT does no longer have to comply with government imposed restrictions.

Figure 3 – EBITDA contribution by sector, 2013 versus 2014;

Source: CTT data.



Transformation Programme

CTT has implemented a transformation programme in early 2013 which followed a cost reduction programme that lasted from 2009 to 2012.

The programme aims to provide the flexibility needed to face the changing paradigm of the sector caused by the emerging e-commerce and technological dependence.

Based on three platforms, (improvement of operations, namely the integration and reorganization of the distribution networks and models; optimization of the retail network which includes re-sizing plus the expansion of the range of services offered; and lastly the optimization process related with human resources), the programme is expected to be complete by 2015 with full benefits in 2016.

Staff

In 2014 the value of the Balance Sheet's Employee Benefits decreased about 7% mainly due to the aggregate effect of the (i) revision of the healthcare plan which resulted in a €83m total savings, (ii) the discount rate associated with these responsibilities coming down from 4% to 2.5% and finally by the (iii) changing in the retirement age going from 65 to 66 years-old.

Overall there was in 2014 a non-recurrent gain regarding costs with employees - the real value of 83M€, offset the increasing cost of 20m€, mainly due to increase of

salaries. For 2015 it is expected a salary increase of 2% to be offset by these new negotiations.

Balance sheet optimization

The continuous efforts regarding the balance sheet optimization have shown stronger impacts during the year of 2014 with total assets growing by 7.4%. To this effect contributed several items from the BS, namely goodwill¹⁵ and deferred tax assets which reduced long term assets; a significant increase in in Cash and Cash Equivalents motivated by the development of Financial Services; on the other hand, the company's liabilities also rose by 13% due to the latter development whereas in equity, the growth in the CTT's net profit offset (by 16 million euros) the actuarial gains/losses plus the respective deferred taxes that arose from the revision of the healthcare plan.

Regarding financing, the values for 2014 were positive with a Net Cash¹⁶ position of €(275) million, and a Net Debt¹⁷ value of €(75) million, which are positive indicators of the company's low need of capital/investment, since as internal funds continue to grow. CTT's liquidity ratio was 135%.

IV. Future goals and strategic lines

By overviewing the developments CTT has been subject to one can understand that the company is trying to capture the growing trends in Financial Services and Express & Parcels as well as keeping costs efficiency levels high. In fact CTT has defined some goals for 2015: expected structural decline regarding mail volume aligned with price increases and the clarification of the regulatory framework; double digit growth in volumes for E&P driven by e-commerce and B2C with corresponding EBITDA margins between 10-14%; mid-single digit EBITDA growth.

Moreover CTT expects to keep delivering profitability as the integration of the Mail and E&P distribution network continues to drive costs down.

¹⁵ Alienation of EAD and Tourline's participation.

¹⁶ Net Financial Debt = Short term and Long term Debt of €4mi + Net Financial Services Payables of €386mi – Cash and Cash Equivalents of €665mi = €(275)mi.

¹⁷ Net Debt is given by: Employee Benefits of €277mi + Share Incentive Plan of €1.4mi – Employee Benefits Tax Assets of €78mi – Net Cash/Net Financial Debt of €275mi = €(75)mi.

Hence, CTT's strategy for the future lays on four guidelines:

1. Preserve Mail business;
2. Take advantage of the growth opportunities in e-commerce;
3. Asset leverage;
4. New projects: Postal Bank, Memorandum with Altice and BNP Paribas partnership, enhancing Financial Services and revenue growth correspondingly.

Also driving CTT's growth is the expected pick up in the Portuguese economy¹⁸.

¹⁸ Appendix 2.

Chapter III – Industry and Business Overview: Understanding the Value Drivers of CTT

V – Industry

According to PostEurop (2014, based on the European Commission), the European postal industry takes an active role in the development of the European economy, which can be translated into a turnover of circa 150 billion euros, or put in other words, about 1% of the European Union and national GDPs' evolution.

The organization points the reinvention of the postal business “in a rapidly changing globalized communication market” as the major future challenge for postal operators. It further refers the main variables that are currently defining the industry: the decline of core mail business, aggravated by difficult financial situations, against the effect of electronic substitution, namely the development of e-commerce, driving parcels growth. Second to these factors, it is also referred the threat of new competitors (non-USO) and the high costs borne by companies.

Adding up to these it is stressed the importance of GDP growth, especially regarding domestic consumption, the quality of the service, namely in parcels business, and the evolution of the regulatory framework.












The European Mail Market

According to a study prepared by Wik-Consult/ ITA Consulting for the European Commission, the European postal sector (includes Mail and E&P) decreased its worth by 3 billion euros between 2007 and 2011, going from 94 to 91 billion euros. During the period of 2007-2010 mail volumes declined on average 4.3% per year, and revenues decreased at a rate of 5.2% per year. Starting in 2010 postal operators have been increased prices in an attempt to offset the volume decline.

Table 4 – Addressed Mail Volume CAGR 10-14 and EBITDA margins as of 2014 per Postal Operator

Source: Companies' data; "European Postal Markets 2015 – an Overview" by Post NL, based on CIA World Factbook, Eurostat, IPC, OECD, WIK (2013), the WorldBank, and Post NL's team analysis.

* - computed with EBIT values; ** - the group changed its name from Itella to Posti Group Corporation in early 2015.

Country	Postal Operator	CAGR 10-13	CAGR 10-14	EBITDA margin % (2014)
 PT	CTT – Correios de Portugal	-5.6%	-5.6%	16.8%
 NL	Post NL	-7.1%	-7.8%	9.2%
 UK	Royal Mail	-7.9%	-7.2%	9.9%
 FR	La Poste	-2.3%	-3.0%	4.5%
 AU	Österreichische Post AG	-1.1%	-1.6%	14.1%
 DE	Deutsche Post	-1.1%	-1.2%	5.2%*
 BE	bpost	-2.4%	-2.8%	23.0%
 FI	Posti Group Corporation**	-2.9%	-4.4%	2.7%
 IT	Posteitaliane	-7.6%	-	-
 SE	Post Nord	-2.9%	-	-
 DK	Post Nord	-8.7%	-	-

From the graph we conclude that bpost has best-in-class EBITDA margin, followed right after by CTT. Regarding mail volumes, the UK, the Netherlands and Portugal rank no. 1, 2 and 3 in the most dramatic evolutions, respectively.

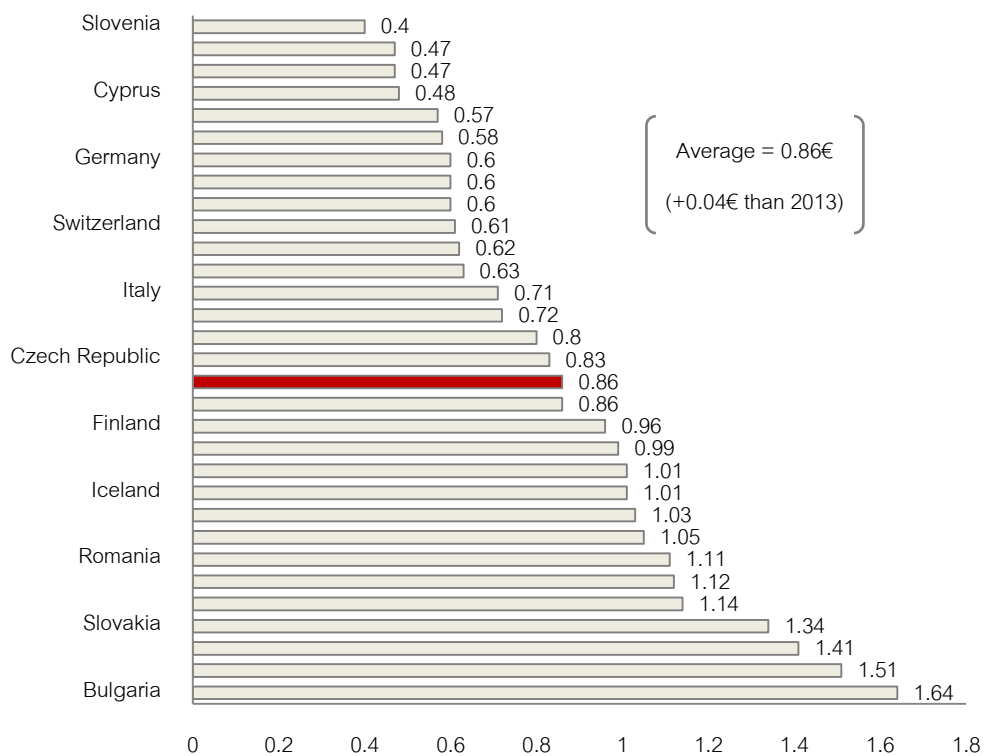
As mentioned, the strategy that most of these companies are adopting to face the current situation of mail decline is pricing review. According to International Letter Survey prepared by the Deutsche Post on march 2014, 14 of the 28 European countries analyzed have increased their letter prices in comparison to previous studies namely from 2013.

On average, postage rates for domestic letters have been increasing by 0.03€ per year, whereas rates for “within Europe” letter mail have risen by 0.07€ (comparing with 2013); for domestic letter mail, the EU average is now 0.62. Concerning cross-border mail, the so called “mail within Europe the average price for the EU is now 1.07€.

The following graph shows the letter prices per country, adjusted for the macroeconomic factors of labor costs and purchasing power. The values presents are the overall result of such considerations.

Figure 4 - Weighted consolidated postage rates, 2014, (€)

Source: The Deutsche Post - “Letter prices in Europe – up-to-date international letter price survey, March 2014.



Mail market in Portugal

With the approval of the Postal Law on April 2012, the Portuguese postal market has been fully open to competition. Nonetheless CTT still holds the concession of some USO reserved activities until 2020.

The concession contract celebrated between CTT and the Portuguese regulator IPC-ANACOM was revised last August, on which were established some guidelines CTT are to endure in the next three years, namely in terms of pricing.

The Portuguese mail market comprises four main segments being Transactional Mail, Social Mail, Press Mail and Advertising Mail¹⁹.

Pricing

As mail volumes have been declining, CTT has been increasing prices on some items. In 2014 the items whose volume decreased less were also the more expensive ones, allowing an increase in revenues (for example, Registered mail volume only decreased by 1.7% for example as Advertising mail volume dropped by 12,6%).

Pricing criteria regarding USO postal service was reviewed November 2014, which resulted on an update from the price agreement established in 2008.

The new conditions for pricing apply to the period of 2015-2017, and set a price cap on the basket of non-bulk letter mail, editorial mail and parcels which shall not exceed, in nominal terms, the following:

$$IPC + FCIP + 1.6\% + FCQ (25)^{20}$$

The pricing on the remainder items falling within the scope of USO must be proposed to IPC-ANACOM, being subject to its approval.

For simplification purposes²¹, this price increase will be referred as concerning the product mix, applicable to overall addressed mail volume. Their evolution has been the following:

¹⁹ Appendix 3

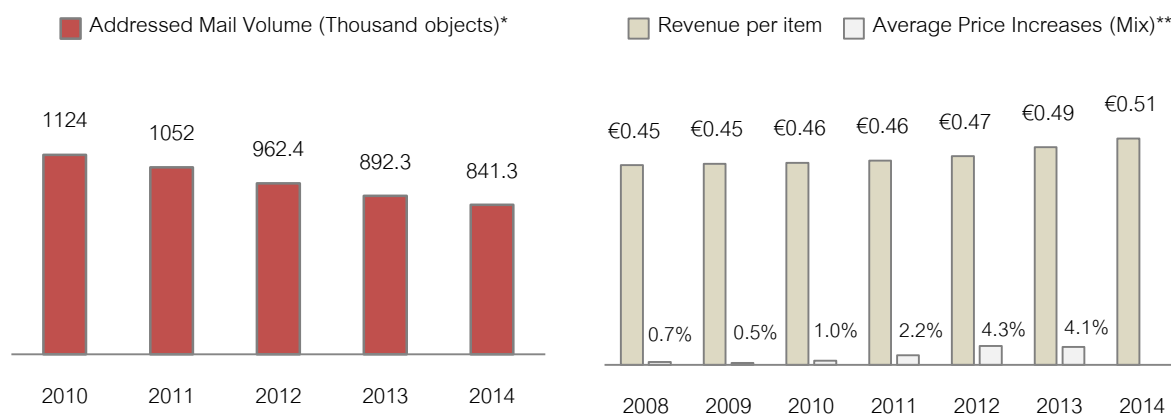
²⁰ IPC – Consumer Price Index; FCIPC – Adjustment factor for IPC; FQC – Adjustment factor do volume.

²¹ ...and because data provided from CTT is compliant with this methodology.

Figure 5 – Addressed Mail Volume versus Revenue per item, 2010-2014,

Source: CTT data.

* - Addressed Mail volume - Transactional Mail, Social Mail, Press Mail, and about 75% of Advertising Mail, 25% concerns Unaddressed Mail.



E-substitution effect

Similar to the analysis made by PostEurop, the International Post Corporation (IPC) also sees in e-commerce an opportunity for the postal sector. According to the latter, “Postal Operators are not Mail companies anymore” and the focus is now on Parcel Market as e-commerce boosts revenues for this business area: the share of the European e-commerce in the EU’s GDP is estimated to be 3.5% and expected to double and triple by 2016 and 2020, respectively (source: EC, e-commerce-europe.eu);

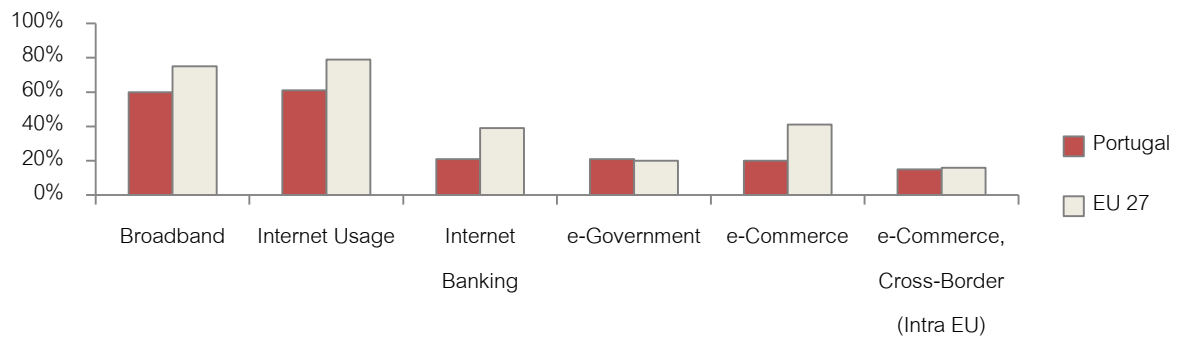
E-substitution effect in Portugal

According to the Institute of Market Research (2012) The Portuguese E&P market was worth 350 million euros, and B2B accounted for 79% of the market.

However, in Portugal the numbers are not so optimistic, which is partially offset by the considerable market share CTT holds on E&P Market (31% according to ANACOM).

Figure 6 – Internet statistics – Portugal versus European Union 27,

Source: “Main developments in the Postal Sector 2010-2013 – Country Reports, WIK Consult GmbH, 2013; CTT Offering Memorandum, 2013.



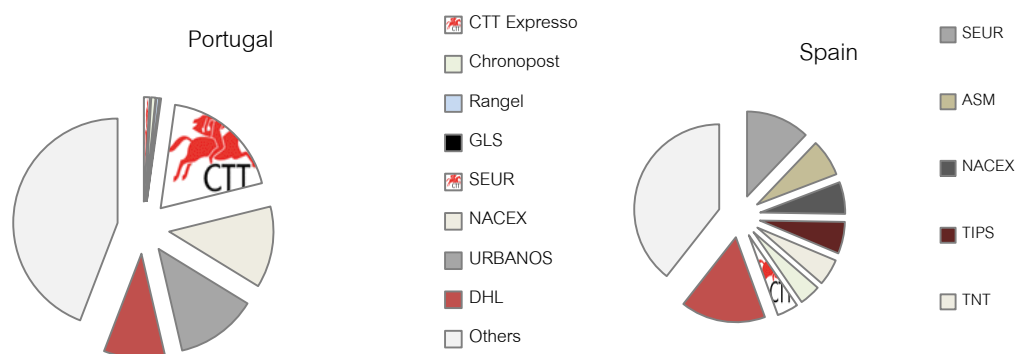
Regarding Spain, where CTT holds a market share of 4%²², it is ranked no. 4 in the top 10 e-commerce countries in turnover, with e-sales of circa 13 billion euros in 2012. In fact, e-commerce in southern Europe where both Portugal and Spain are included has been showing an average growth rate of 23% since 2009²³.

In Portugal although e-commerce is still low, there is still a growth opportunity as it approaches the European average, which is also aligned with the objectives of the European Commission Digital Agenda Scoreboard²⁴. Regarding Spain, it is fair to say that the country is well developed in terms of e-commerce but the intense competition CTT faces is rather discouraging and can result in lower revenues.

Figure 7 – E&P Market in Portugal versus Spain, 2014,

Source: ANACOM and IMR, respectively;

CTT’s market share for the Postal Market – 94% | CTT’s market share for the E&P Market (PT) – 31% | CTT’s market share for the E&P Market (ES) – 4%.



²² Source: Institute of Market Research, IMR.

²³ Source: e-commerce-europe.eu, based on EMSEC.

²⁴ Appendix 4.

VI - Business Units

Mail and Business Solutions

Since CTT covers almost the entire mail Market in Portugal and an overview of its performance has already been conducted topics such as mail evolution and pricing will not be repeated. Nevertheless, some numbers regarding this business in the past years are exposed on Appendix 3:

Following up on what is explained above, the key drivers for this business unit are postal volumes and pricing, namely addressed mail volume and the revenue per item.

Initiatives and contributions to value growth:

- ▶ Until 2020 CTT has the concession for USO, which is an opportunity for the company to consolidate its market position;
- ▶ Boldron et al. (2010) and Flores et al. (2001) have studied the correlation between GDP growth and mail volume evolution, concluding that the first has a positive impact on the latter. As the Portuguese economy is expected to recover this it can be an important step to partially slowdown mail volume decline.
- ▶ Price increases will be tolerable and in line with the industry.

Risks to value growth:

- ▶ As seen previously, prices can go up only until a certain point, causing the revenues not to be granted.
- ▶ The e-substitution effect threatens the long term revenues as people adapt to technological developments and rely less on traditional mail.

Express and Parcels

In 2014, Portuguese revenues accounted for 60% of total E&P revenues, whereas Spain and Mozambique were responsible for 39% and 1%, respectively.

Table 5 - E&P revenues breakdown 2010-2014 (€million);

Source: CTT data, own calculations.

	2010	2011	2012	2013	2014	CAGR 10-14	CAGR 12-14
Express & Parcels Revenues	143.8	133.9	128.0	129.5	129.0	-2.1%	0.3%
Portugal	90.4	80.5	74.5	75.1	76.9	-3.2%	1.1%
Spain	53.1	52.3	51.6	52.8	50.2	-1.1%	-0.9%
Mozambique	0.23	1.1	1.8	1.6	1.8	48.2%	-0.2%
Total Items Processed (million items)	24,4	23,1	22,9	25,4	27,7	2.6%	6.6%

The conservative growth in revenues in both Portugal and Spain is mainly due to the decrease of the revenue (per item) which is explained by CTT as being due to the lower profitability B2B products have in comparison to the remaining portfolio. As B2B is the most growing segment and is expected to grow even further derived by e-commerce, the profitability levels and revenue per item is also expect to decrease²⁵. Thus the key drivers for E&P are: parcels volumes and pricing.

Initiatives and contributions to value growth:

- ▶ Intention of growing a strong B2B market in Mozambique which can represent an opportunity to leverage the company's position in that country.
- ▶ Reorganization of the commercial activity enhancing cost control which consequently could result in better price offerings.
- ▶ CTT's new initiatives in order to take large advantages from **E-substitution effect and e-commerce development**: Amplification of the Pick-Up/Drop-Off (PuDo) network achieved via a new partnership with Worten, and enhanced by CTT's store network; Launch of the "Express Surf" service, responsible for the transportation of surf boards; Development of on-line tools enabling customers to "track and trace" their parcels.

²⁵ Also for competitive purposes, CTT should be attentive to price regarding this segment.

- Intention to expand its Iberian offer, having created an “e-commerce area” within the company that aims to promote the last mile²⁶.
- Finally CTT made available in 2014 the same product solutions for delivery for Portugal and Spain, unifying and integrating its Iberian portfolio.

Risks to value growth:

- The business is set to grow namely due to B2C and e-commerce; however these are low cost products which means that even if the traffic grows very much, profit does not do so in the same scale.
- Even though there is room to grow in both Portugal and Spain in terms of e-commerce and consequently, parcels traffic, the e-business is still far behind European average.

Financial Services

Financial services are responsible for boosting revenues for CTT in the past years as seen on chapter II. Its business segments include Savings and Insurance, Transfers and Money Orders and Payment Solutions.

In terms of performance, apart from what was assessed on chapter II, it is important to refer that despite the fact that Financial Services revenues grew 6% in 2013 and 23% in 2014, not every segment shown the same behavior; the only segment increasing its turnover was Savings and Insurance, with a growth rate of 114% in 2014 (82% in 2013), motivated by the increase in saving and insurance flows which grew by 86% in 2014 (16.7% in 2013).

Both Payment Solutions and Transfers & Money Orders decreased their revenues by 5.9% and 6.5% respectively, which has been happening since 2012.

As such the main driver for growth in FS is Savings and Insurance segment, which depends on the Portuguese behavior towards saving, and, consequently, concerns GDP evolution and disposable income. Initiatives and contributions to value growth:

²⁶ “Last mile is a term used in supply chain management and transportation planning to describe the movement of people and goods from a transportation hub to a final destination in the area.”
Source: Wikipedia.

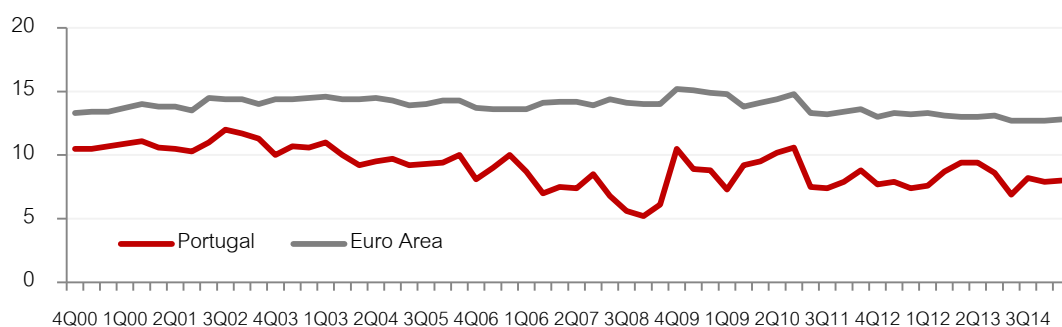
- ▶ Partnerships with important insurance companies, Mapfre and Fidelidade, boosting insurance product offering.
- ▶ New PPR²⁷ offering, enhanced by the partnership with IGCP, allowing CTT to sell public debt products, which are highly profitable.
- ▶ Partnership with BNP Paribas an important step towards the improvement of the product portfolio. Furthermore recurrent revenues are expected until 2019 derived from the font-fee agreed with the entity.

Apart from CTT's internal developments that contribute to the development of Financial Services we point some few studies that lead to believe that this business unit is set for growth:

Families have been increasing saving rates:

Figure 8 – Families saving rate, 2000-2014 (% of disposable income);

Source: Bank of Portugal



Post-crisis saving habits

A Cetelem Observator²⁸'s study (2014) recently concluded that the economic crisis is partially responsible for creating awareness among Portuguese consumers. The numbers point to 66% as a percentage of the Portuguese who “put money aside” instead of spending it (against 67% European average), and 95% is the corresponding percentage of the Portuguese who intent to limit their spending in the long-term, (against 87% European average).

²⁷ In portuguese PPR corresponds to Planos Poupança Reforma, and it translates to Savings and Retirement Plans.

²⁸ Annual publication launched in 1989 by BNP Paribas Personal Finance Group..

Further it is referred Postal Bank as a main contributor of the development of Financial Services, despite the fact that it won't be considered for valuation purposes directly.

Risks to value growth:

- E-substitution that can make payment solutions business obsolete in the future as people's attention to e-payment channels such as MBnet grows stronger. According to SIBS²⁹, in 2013 2 billion purchases were made via MBnet, comparing to 1.6 billion (2012) and 1.4 billion (2011).

In conclusion, E&P and Financial Services are important units when it comes to guaranteeing CTT's long term success. Boosting the company's overall performance (regarding turnover mostly), there are some initiatives that not only contribute to a positive future scenario but also leverage the strong network CTT owns:

- Partnership with Coca-Cola (initiated in 2012), enhancing CTT's ability of being associated with major projects and global brands.
- Partnership with Toys R Us, envisioning the selling of toys in CTT's stores.
- Partnership with SONAE, envisioning the selling of office material in about 127 CTT stores.
- "Citizen Stores" booths within CTT's stores, explained on Appendix 6

²⁹ SIBS forward payment solutions are responsible for managing the ATM network in Portugal.

CHAPTER IV – Valuation: Finding CTT’s value according to its Market reality and Business Drivers.

Overall Assumptions

Hence items forestry and respective explanation will be assessed individually based on the contents and conclusions exposed on chapter III:

$$D/E = 0$$

Medium and (i) Long Term Debt represent only 4 million euros [4 million euros / (Market Price (9.92€) x 150 million Shares Outstanding) = 0.02%], (ii) CTT has a strong Cash position and (iii) presents a negative net debt value;

Forecasts until 2018

Most forecasts will be made until 2018 since it is expected that in three years the e-substitution effect affecting CTT’s entire business will be fully established in Portugal, causing both Mail volume decline and growth in E&P to stabilize.

DPS Growth

During the Conference call of March the 5th 2014, the company expressed the goal of growing DPS in a stable way instead of guaranteeing the highest payout ratios possible. As no further information was disclosed, the payout ratio will be 90% in line with the recent years.

As for the selected Macroeconomic Indicators an analysis is made on appendix 2.

Revenues

Mail & Business Solutions

Part I – Addressed Mail

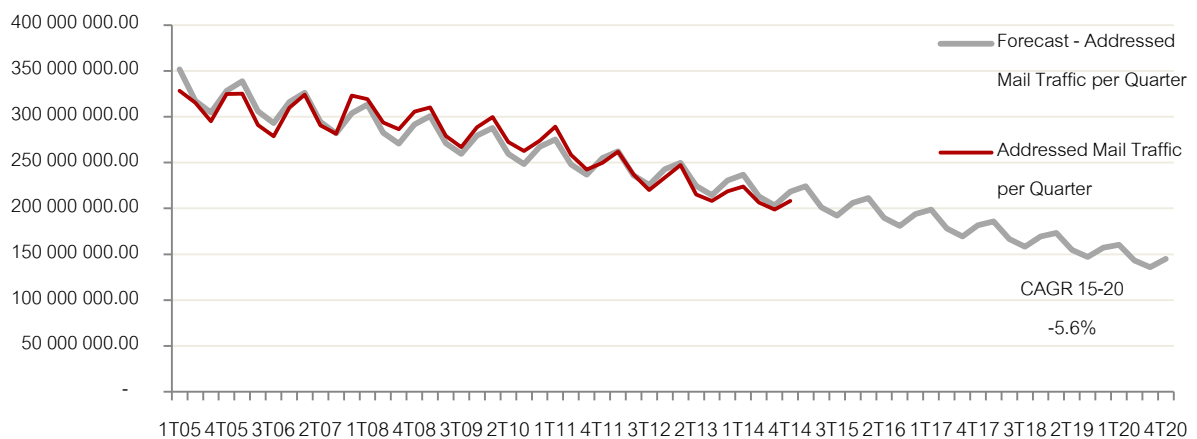
Firstly it is important to remind that Addressed Mail corresponds to Transactional Mail, Press Mail and 75% of Advertising Mail. Hereupon, after assessing the values for the addressed part, we still have to account for the remaining 25% of Advertising Mail (unaddressed), which can be seen on appendix 8, as it represents a very small portion of Mail total revenues (%).

Two drivers were used to predict the future behavior of this segment; volume and pricing/revenue per item.

Figure 9 – Addressed Mail Volume 1st Forecast (# of objects),

Source: own calculations and ANACOM data.

Real mail traffic per quarter corresponds to the numbers given by ANACOM, whereas forecasted Volume results from a regression with an r^2 of 0.91.



During the 2014's results presentation (march 5th, 2015) CTT presented some numbers regarding mail volume decline; the company expects the slowdown seen in the last quarter of 2014 to continue and points a -3% to -5% annual growth rate in volume.

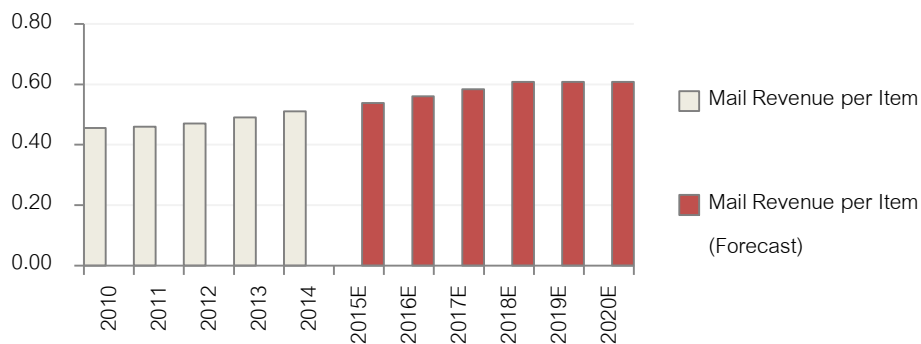
Because addressed mail volume and the Portuguese GDP growth are strongly correlated, the values advanced by CTT and the ones obtained through the above regression are compared, in order to achieve a more realistic evolution of volume, by considering both economic recovery and historical behavior.

Further, we rely on the assumption (2): As such, from 2018 onwards a smaller YoY growth rate regarding the evolution of mail was imposed.

To predict the theoretical revenue per item we lie on inflation levels expected for Portugal, which results on an average price increase (on average mix of products) of 4% until 2018.³⁰

These calculations are assumed to be in lieu with the criteria exposed on chapter III, giving that (i) formula (x) allows some adjustments to volume decrease; (ii) prices remain unchanged from 2018 onwards since ANACOM's price agreement ends in 2017.

Figure 10 - Addressed mail revenue per item, forecast (€)



Combining the two drivers, the revenue forecast is the following:

³⁰ Appendix 7.

Table 6 – Transactional, Press and Advertising Mail Revenue Forecast

Total Revenue = Addressed Mail (Transactional, Press and 75% of Advertising Mail) + Unaddressed Mail (25% of Advertising Mail)

MAIL REVENUES (Part I)	2015E	2016E	2017E	2018E	2019E	2020E	CAGR 15/20
Addressed Mail Revenues (Million €)	438.0	434.7	430.8	427.5	409.2	393.7	-1.8%
YoY Growth Rate %	-3.1%	-0.8%	-0.9%	-0.8%	-4.3%	-3.8%	
Mail Revenue per Item (€)	0.54	0.56	0.58	0.61	0.61	0.61	
Unaddressed Mail Revenues (Million €)	7.9	7.9	7.9	7.9	7.9	7.9	
Total Revenue Transactional, Press and Advertising Mail	520.5	517.9	515.2	513.5	496.8	482.9	

Part II – Other

Revenues comprising USO Parcels, Philately, Retail, Other and Business Solutions can be assessed on Appendix 8.

Express & Parcels (E&P)

E&P revenues are divided in three referring to the three countries the segment operates: Portugal, Spain and Mozambique.

Portugal

It is in Portugal revenues are predicted to grow the most since CTT has a significant market share in this business. Traffic is predicted by picking upon the last growth rates observed (the ones that reflect the trend of growth, expected in the future) and adding the economic driver that is GDP; consequently we achieve a combined effect to drive parcels volume upwards, which results in a CAGR 15-20 of 8%. We still assure a conservative approach (the volume evolution only reaches double digit growth in 2017) based on the fact that e-commerce is not yet very present in Portugal and there we have to consider the risk of underdevelopment.

Concerning price per product mix is expected to decrease revenue per item not only B2C, the most growing segment, happens to be the cheapest, which negatively affects the product mix, but also because CTT must not increase its prices in order to maintain a competitive position in the market.

Table 7- Portuguese Market revenue forecast, 2015-2020,

Source: own calculations.

PORTUGAL	2015E	2016E	2017E	2018E	2019E	2020E	CAGR 15/20
Revenues (Million €)	79.9	82.1	88.1	96.6	106.0	116.6	6,5%
YoY Growth Rate %	3,7%	2,9%	7,3%	9,6%	9,8%	10,0%	
Traffic (Million items)	15.1	16.5	18.0	19.7	21.7	23.8	8,0%
YoY Growth Rate %	9,1%	9,3%	9,4%	9,6%	9,8%	10,0%	
Revenue per item (Mix)	5,3	5,0	4,9	4,9	4,9	4,9	-1,3%

Spain

The rationale for predicting revenues in Spain is exactly the same used for Portugal³¹ but since Spanish business is less profitable (as explained in chapter III) and the market is far more conservative so are the forecasts: a CAGR 15-20 of 5% regarding volume growth and a CAGR 15-20 of 1.7% regarding revenues growth.

Table 8- Spanish Market revenue forecast, 2015-2020,

Source: own calculations.

SPAIN	2015E	2016E	2017E	2018E	2019E	2020E	CAGR 15/20
Revenues (Million €)	79.9	82.1	88.1	96.6	106.0	116.6	6,5%
YoY Growth Rate %	3,7%	2,9%	7,3%	9,6%	9,8%	10,0%	
Traffic (Million items)	15.1	16.5	18.0	19.7	21.7	23.8	8,0%
YoY Growth Rate %	9,1%	9,3%	9,4%	9,6%	9,8%	10,0%	
Revenue per item (Mix)	5,3	5,0	4,9	4,9	4,9	4,9	-1,3%

³¹ Appendix 2.

Mozambique

Mozambican business is nearly obsolete if we look at the percentage it represents in terms of total revenues for E&P business unit: 1.4% in 2014 and 1.2% in 2013. Notwithstanding, it is a growing business as observed in chapter III, and mainly if we consider revenue growth in the past year of 13%.

Therefore, instead of applying the same methodology of Portuguese and Spanish markets, we align Mozambican sales with the annual growth of GDP for Mozambique, which is still more conservative than the average growth rates for the previous years.³²

Financial Services (FS)

Financial Services comprise three areas: Savings and Insurance, Payment Solutions and Transfers & Money Orders, and growth is mostly supported by the first, as seen on chapter III.

Furthermore, since we do not have enough tools to predict the behavior of the three segments in Financial Services, a simpler approach was made. The final values regarding the business revenues were computed by analyzing historical growth and adjusted for the expected evolution of the Portuguese GDP.

Following assumption (2), from 2018 onwards a close-to-zero growth is expected for Payment Solutions and Transfers & Money Orders, since these are business whose growth has been negative and are directly affected by the e-substitution effect.

For Savings & Insurance, for which is expected positive yearly growth rates until 2020, taking into account its past behavior and considering the contribution of the Postal Bank. Notwithstanding, a conservative approach was ensured since the historical values point to very large growth rates, and the success of the Postal Bank is still unsure.

³² We choose this methodology mainly due to the lack of information or forecasts for volume traffic for Mozambique.

Table 9 – CTT total turnover from business units Forecast, 2015-2020 (€million);

Source: own calculations.

	2015E	2016E	2017E	2018E	2019E	2020E	CAGR 15-20	% of Total (2020)	% of Total (2014)
CTT Business Units Revenues	711.4	716.4	724.8	736.2	735.4	738.9	0.6%		
Mail & Business Solutions	532.8	530.4	527.9	526.5	509.9	496.3	-1,2%	67%	76%
Express & Parcels	133.1	136.4	143.9	152.8	163.4	175.2	4,7%	24%	18%
Finacial Services	77.9	82.2	85.9	90.5	95.6	101.2	4,4%	14%	10%

Contributing to revenue growth we rely on the Memorandum of Agreement with Altice and the partnership with BNP Paribas to yield further growth. The assessment to each of these projects is exposed on appendix 5 and y respectively and their impact of CTT's total turnover is the following:

Table 10 - CTT's total turnover forecast 2015-2020, (€million)

Source: own calculations and CTT data.

	2015E	2016E	2017E	2018E	2019E	2020E	CAGR 15-20
CTT Total Turnover	716.8	726.8	725.2	736.6	735.6	738.9	0.5%
CTT Total Business Units Revenues	711.4	716.4	724.8	736.2	735.4	738.9	0.6%
Recurrent Revenue from BNP Paribas Agreement	0.4	0.4	0.4	0.4	0.2	-	-
Memorandum of Agreement with Altice	5.0	10.0	-	-	-	-	-

Operating Costs

For operating costs, herein after read as Opex, 4 items are considered: Cost of Goods Sold (COGS), External Supplies and Services (ESS), Staff Costs and Other Costs.

Since ESS and Staff Costs represented 95% of 2014's Opex and are directly related to two of the major developments CTT has achieved, these are the items that received more attention.

Moreover, COGS and Other Costs have represented through the years an average of 2.4% and 1.8% of the value in revenues, and those are the percentages that will be maintained.

External Supplies and Services (ESS)

ESS represents different items namely specialized services on which IT outsourcing is included. Derived from the TP it is expected in 2015 a 14 million euro saving in IT. Effectively, the TP will end in 2015 with full benefits arising in 2016.

Hence, the value for 2015 is carefully assessed to reflect some immediate savings³³ taking into account that in 2016 the value found would be even lower. The goal for determining the value for 2016, for instance, was to find a (negative) growth rate representative of the discussed and expected "full benefits". This symbolic value was discussed with CTT, but no value was proposed. For conservative purposes the final number is -1% (yoy growth rate 2015/2016). From 2017 onwards we expect a close-to-zero growth rate on the ESS indicating that these costs will be stabilized once the TP is complete.

Staff Costs

Costs with staff include remuneration to employees and executive board, plus the costs that arise from the above mentioned liabilities entitled costs with employee benefits.

Regarding remuneration, as referred, for Staff it is expected a 2% salary increase for 2015; however, taking into that CTT has been downsizing its workforce and

adjustment had to be made in terms of the evolution of the number of employees: according to CTT, workforce is older than what is maybe observed in other companies and, as employees retire, their positions may or may not be replaced, causing the number of employees to either remain the same or decrease. Building up on this a 1% salary increase was considered for 2015.

From 2018 onwards, however, the assumption regarding employee number changes, as E&P and Financial Services boost their growth. Since we are assuming these areas are expected to develop, it would be incoherent to assume that the number of employees will decrease, but, because of the age of the current workforce, we wanted to be conservative as the growth rate.

The remaining items are assessed on appendix 9.

Table 11 – Forecasted evolution of Opex, 2015-2020,

Source: own calculations.

	2015	2016	2017	2018	2019	2020	CAGR 15-20
<u>OPEX</u>	568.3	563.1	561.6	563.7	565.3	565.4	-0,1%
Cost of Sales	16.9	17.0	17.2	17.4	17.4	17.5	0,6%
ESS	217.8	215.6	215.6	215.6	215.6	215.6	-0,2%
Staff Costs	321.6	318.3	316.5	318.2	319.7	319.7	-0,1%
Other Operating Costs	12.1	12.2	12.3	12.5	12.5	12.6	0,6%

The forecasted turnover and operating expenses yield a recurrent EBITDA for 2015 of circa 144 million euros, which represents a 6% growth from 2014's recurrent EBITDA (135 million euros). This value is aligned with the company's predictions regarding a "mid-single digit EBITDA growth" for 2015. According with our forecast, the EBITDA margin grows from 19% (Y14) to 20% (Y15) and 21% (Y16), as a result of the combined effect of the revenue increase (E&P and FS) and the Transformation Programme.

Net Working Capital

The investment in Working Capital corresponds to the yearly difference in Net Working Capital:

$$\Delta Working Capital_n = Net Working Capital_{n-1} - Net Working capital_n \quad (25)$$

Net Working Capital is then given by the difference between current assets and current liabilities and its appraisal is available on Appendix 10.

Capex and Depreciation

Observing the previous values for Capex one can conclude that CTT does not have high needs of investment (13 million euros in 2013 and 16.6 million euros in 2015).

The expected Capex for 2015 is circa 20 million euros³⁴, 80% to be invested in Tangible Fixed Assets and 20% to Intangible Assets³⁵. As for the remainder period an assumption was made: considering the average Capex values in previous years and the fact that the TP will be concluded in 2015 leaving room for reduce investment, we expect CTT to become stable. Thus, from 2017 onwards a Capex of 15 million euros is expectable.

Regarding depreciation and amortization, its total value per year (the one in the P&L) arises from depreciation in Tangible Fixed Assets, amortization in Intangible Assets plus amortization and impairment on Investment Properties. To calculate each one of the latter items, the following procedures were undertaken:

1. Breakdown per type of Tangible Fixed Assets (Land, Buildings etc), Intangible Assets (Development Projects, Computer Software, etc) and Investment Properties;
2. Compute historical values (percentages in terms of depreciation and amortization), to find the appropriate depreciation/amortization rate per item;

³⁴ 2014 Results Presentation March the 5th, 2015.

³⁵ The 13 million euros of 2013 and the 16.6 millions of 2014 were distributed according this percentage, so we assumed the same behavior for the future.

3. Compute the average of the values found on step 3 in order to establish a depreciation/amortization rate to be used in the forecasted period (the values were quite stable and did not change much through the years which gave a reasonable rate).

Debt and Interest

As explained on the topic “Main Assumptions” we assume a zero Debt to Equity ratio taking into account CTT’s strong cash position and a negative net debt value in the past two years (see chapter II).

CTT has, however, credit lines in the form of bank loans and leasings, meaning it has long term and short term debt (around 4 million euros).

Regarding loans, which are components of the Short-term debt only, we assume their value will be unchanged as the capital is destined to both the Spanish and Mozambican businesses, and CTT might not want to invest their own capital in face of the adverse conditions that may arise from these countries³⁶. Leasing evolution, on the other hand was computed based on average payments over the period 2010-2014, for no conclusive information was available. It was assumed that no further leasing contracts will be signed.

As for interest they exist in the form of gains and expenses. The interested expenses are composed by the interest on loans and leasings, and the interest arising from the liabilities with employees, explained on appendix 9.

As for the values for Net Debt, the values are the following:

³⁶ For instance, in 2014 the Tourline Express subsidiary resulted in some impairments for ctt and Mozambican business still represents some risk due the country’s economy.

Table 12 – CTT net debt and net financial debt forecast, 2015-2020,

Source: own calculations.

		2015E	2016E	2017E	2018E	2019E	2020E
1	Total Financial Debt	3.3	2.9	2.6	2.3	2.1	1.9
	(+) Total Loans	0.9	0.9	0.9	0.9	0.9	0.9
	(+) Total Leases	2.4	1.9	1.7	1.4	1.2	1.1
2	Total Available Funds	250.5	276.2	298.5	321.7	337.9	358.5
	(+) Cash and Cash Equivalents	645.2	680.1	710.3	743.7	771.3	804.5
	(-) Net Financial Services Payables ³⁷	394.7	403.9	411.8	422.0	433.4	446.0
3 = 1-2	Net financial debt	- 247.3	- 273.3	- 295.9	- 319.4	- 335.8	- 356.6
4	Net Employee Benefits	197.9	196.7	194.1	193.0	191.9	190.8
	(+) Employee Benefits (Balance Sheet: Current + Non-current)	278.1	276.4	273.4	271.8	270.2	268.6
	(-) Deferred Tax Assets – Employee Benefits ³⁸	80.2	79.7	79.2	78.8	78.3	77.9
5 = 3+4	Net Debt	- 49.3	- 76.6	- 101.8	- 126.4	- 144.0	- 165.8

³⁷ Net Financial Services Payables = Accounts Payable: CNP Money Orders + Accounts Payable: Postal Financial Services - Other Current Assets: Postal Financial Services.

³⁸ Deferred Tax Assets arising from Employee Benefits are computed as being approximately 29% of the Balance Sheet value (Employee Benefits), based on historical percentage.

Cost of Capital

As previously referred one of the main assumptions of this dissertation is the non-debt character of CTT. Hence, the cost of capital to which future cash flows will be discounted at is the cost of equity, which is derived by CAPM, as seen on chapter II:

Risk-free rate

The risk-free rate corresponds to the long-term (10 year) default free German government bond, and equals 0.55%³⁹.

*Equity Beta*⁴⁰

The equity beta was computed by analyzing different reports from different investment banks⁴¹ and the average value computed gave a β_e of 0.91

Equity Risk Premium

Given the controversy regarding this topic we analyze the equity risk premiums pointed by different analyst and reach an average value of 6.3%, which is consensual with the results found on chapter I. We then add the Country Risk Premium, given by BPI which already considers the company's geographic mix, which is 1.09%, which yields a total risk premium of 7.02%.

Hence, and according to formula (10) the cost of equity is 7.27%.

DCF Valuation

Table 13– CTT price per share forecast, 2015 (million €);

Source: own calculations.

³⁹ Source: <http://markets.ft.com/RESEARCH/Markets/Government-Bond-Spreads - 26/05/2015>

⁴⁰ We do not use formula (x) for computing equity beta since it would yield an incoherent result of 0.317 approximately.

⁴¹ From 2014: Millenium BCP– 0.95, BESI – 0.8 | From 2015 JP Morgan - 0.9, BPI – 0.91, Caixa BI – 1

	2015E	2016E	2017E	2018E	2019E	2020E	Terminal Year
EBITDA	143.6	153.7	163.6	172.9	170.3	173.5	179.9
EBIT	112.3	121.4	130.1	138.2	134.4	136.3	140.7
(1-t)	63%	66%	69%	70%	70%	70%	70%
D & A + Impairment, net	20.9	21.9	23.0	24.2	25.4	26.8	15.0
NWC	-5.5	2.9	-4.9	-7.0	-10.6	-10.8	-11.1
CAPEX	20.0	20.0	15.0	15.0	15.0	15.0	15.0
FCFF	77.1	78.9	103.2	112.8	114.7	117.6	109.3
Terminal Value							1738.7
Discount Rate	7.3%						
Present Value of FCFF + TV	71.9	68.6	83.6	85.2	80.7	77.2	1063.8
∑Present Value of FCFF	1531.1						
Equity Value	1531.						
NPV Postal Bank	0.0						
Net Debt (Cash)	-68.9						
Equity Fair Value	1600.1						
# Shares	150						
Fair value per share	10.67€						

FCFF terminal year

Since the FCFF of 2020 does not represent an accurate value of the perpetual cash flow, as for instance, Capital Expenditures (CAPEX) are inferior to the expenses related with Depreciation and Amortization, we have to compute a new value for the Terminal Year FCFF. Firstly we assess CAGR (15-20) of the EBITDA, pointing a value of 3.2%. Since the company considers the EBITDA its main indicator of sustainability we use this value for increasing the EBIT for the terminal year and the Working Capital value⁴²; moreover Depreciation and Amortization converge to the value of the

⁴² $EBIT_{Terminal\ Year} = EBIT_{2020} \times (1 + 3.2\%)$ and $NWC_{Terminal\ Year} = NWC_{2020} \times (1 + 3.2\%)$

CAPEX.

Perpetual g

The perpetual growth rate was computed by weighting CAGR (15-20) of each business unit (Mail -1.2%, E&P +4.7% and Financial Services +4.4%) by their contribution in terms of revenues (Mail 67%, E&P 24% and Financial Services 14%). The value for g is 0.9%.

Furthermore, it is assumed a NPV of zero regarding the Postal Bank, as discussed on Appendix 11.

Based on the assumptions made throughout the dissertation, the final value for price per share is 10.67€, which represents an upside potential regarding the current price 9.20€ of 16%.

Relative Valuation – Multiples,

Source: Bloomberg

	EV/EBITDA		EPS		PER	
	15F	16F	15F	16F	15F	16F
CTT	6,8	6,6	0,6	0,6	18,4	18,0
Deutsche Post	8,4	7,6	1,8	2,0	16,5	14,8
bpost	7,7	7,5	1,5	1,6	17,6	16,8
Oesterreich Post	8,8	8,5	2,4	2,5	18,1	17,5
Royal Mail	6,3	7,6	0,3	0,3	15,5	16,5
Post NL	4,2	4,3	0,5	0,5	8,3	8,2
Mean Total	7,0	7,0	1,2	1,2	15,7	15,3
Mean (excl. CTT)	7,1	7,1	1,3	1,4	15,2	14,8
Indicators						
EBITDA (Bloomberg)	€144 mn	€148mn				
Net Income (Bloomberg)					€80.6mn	€87.0mn
Firm Value	1022.4	1050.8			1225.12	1287.6
Price	6.8€	7.00€			8.16€	8.54€

The current market capitalization for CTT is around €1.49bn, which proves the inconsistency of the results arising from this multiple valuation. The reason behind this is that usually CTT stocks trade with a discount to its peers, with the exception of Royal Mail and Post NL.

Sensitivity Analysis

Following the rationale exposed on chapter III on which we identified the Postal Industry and each of CTT business' key drivers our sensitivity analysis will test:

External Factors: Addressed Mail volume decline.

Internal Factors: Benefits arising from the revised Healthcare Plan affecting Costs with Staff, for which CTT provided no information.

We will test two more variables directly related with the assumptions made for this dissertation: the MRP, affecting the cost of equity, and the terminal growth rate.

Fair Value Sensitivity per item, <i>Ceteris Paribus</i>	
YoY Addressed Mail volume growth rate (%) Base Case	
-2% per year	10.10€
-1% per year	10.38€
+1% per year	10.95€
+2% per year	11.23€
Fair Value Sensitivity to Staff Costs, <i>Ceteris Paribus</i>	
<i>Base Case (-11 million €)</i>	
Employee Benefits = 0 million €	9.75€
Employee Benefits = +10 million €	8.95€
Employee Benefits = -5 million €	10.15€
Employee Benefits = +5 million €	9.35€

Fair Value Sensitivity to MRP, <i>Ceteris Paribus</i>	
JP Morgan (Y15) 6.8%*	11.72€
Fernandez (Y14) 8.55%*	9.14€
BPI (Y15) 7.09%**	11.14€
Fair Value Sensitivity to perpetual <i>g</i> , <i>Ceteris Paribus</i>	
0.5%	10.19€
0.0%	9.71€
-0.5%	9.28€
-0.9%	8.98€
Max	8.95€
Min	11.72€

We conclude that share price is most sensitive for the long-term growth rate and the benefits arising from the employee benefits, the latter being explained by the lack of information given on the matter.

Overall the price varies from 8.95€ and 11.72€ which is consensual with the price interval proposed by several analysts, from 9.70€ and 12.00€ given by Barclays and Investec respectively.

Comparison with Caixa B.I. Analyst Report

Caixa B.I (Investment Bank) report dates from the 21st of April and sets a price target for CTT's shares of 10.00€, an upward revision from 8.95€.

The valuation is made by Sum-Of-The-Parts methodology (SOTP) in which is evaluated, individually every Business Unit: Mail & Business Solutions, Express & Parcels and Financial Services reaching an Enterprise Value for all three.

The valuation involves a three-year-horizon (2015-2017) and the 28% increase

regarding price target is aligned with the performance of the PSI20 (+28%, according to this report).

Going forward, Caixa B.I. analysts envision an optimistic scenario due to the strong correlation between CTT's share price and the 10-year Portuguese Government Bond yield.

Table 14 – Caixa B.I's and Dissertation's Valuation Inputs

	Caixa B.I	Dissertation
Risk Free Rate	4.5%	0.55%
MRP	4.0%	7% (Including CRP)
Beta	1.0	0.91
r_e	8.5%	7.3%
r_d (net of taxes)	3.6%	0%
Tax Rate	27.5%	>30% (Y15, Y16), 30% onwards
Equity	70%	100%
Debt	30%	0%
WACC	7.5%	7.3%
Perpetual g	0.5% Mail, 2.5% E&P and FS	0.9%

Table 15 – Caixa B.I's and Dissertation's Main Estimations (Million €)

		2015F	2016F	2017F
Sales	Dissertation	711	716	724
	Caixa BI	721	719	726
Opex	Dissertation	566	560	553
	Caixa BI	563	572	585
EBITDA	Dissertation	145	159	174
	Caixa BI	157	147	141
EBIT	Dissertation	114	127	140
	Caixa BI	138	128	122
CAPEX	Dissertation	20	20	15
	Caixa BI	20	20	20

Critical Appraisal

The difference in target price (+-0.67€) between the two analyses can be explained in light of some major discrepancies:

- Caixa B.I's analysts do not seem to have considered the effects of the expected benefits of both the transformation programme and the revision of the healthcare plan, since Opex grows by 4% between 2015 and 2017, resulting in lower EBITDA and EBIT, respectively;
- The cost of equity yields a rate of 8.5% due to the apparently incoherent risk free rate: on the 21st of April the 10y German government bond yield was trading at 0.1%;
- Despite the fact MRP is subject to controversy 4% seems quite low in comparison with other broker reports, as seen on sensitivity analysis. Using a MRP=4% on this dissertation would yield a price target of 20.76€, *ceteris paribus*.
- The leverage ratio seems inappropriate, for as previously explained Medium and (i) Long Term Debt represent only 4 million euros, (ii) CTT has a strong Cash position and (iii) presents a negative net debt value;
- As for the perpetual g, it should be mentioned that giving the effects studied on chapter III, a positive growth rate for Mail & Business Solutions seems inadequate.

Overall the price target proposed by Caixa B.I is lower than this dissertation's which can be explained by the first considering a positive adjusted net debt value (338 million euros).

Final remarks

CTT is a 495 year old company facing the new landscape of the postal market: as traditional mail becomes obsolete, Express and Parcels as well as Financial Services are boosting industry's revenues.

An analysis to past performance seems to have prepared CTT for “a change in the game”, for the company continues to yield strong EBITDA margins motivated by the cost control efficiency aligned with network optimization. We propose a price target of 10.67€ which intentions to reflect the (i) electronic substitution effect, (ii) the Portuguese economic evolution and (iii) CTT’s own internal initiatives which aim to take advantage of the latter two.

Moreover we refer the free-float of 100% which guarantees high levels of liquidity in the stock market, enabling share price to growth even further.

Appendix 1 – Regulatory Framework

Upon the approval of the Third Postal Directive (2008/6/CE) it was established a deadline for the total liberation of the Postal Market – the 31st of December, 2010.

In 2012 the Postal Law was approved (Law n.º17/2012, 26th of April, including the changes of the Decree Law n.º 160/2013), and the Portuguese Postal was liberalized, which meant the elimination of the reserved services within the scope of CTT's activity. Nonetheless, some services are still reserved for CTT: Setting of mail boxes, emission and selling of postal stamps and the registered mail services, when it regards administrative or law-related procedures.

Postal Law's Article 2: Object

- a) Define the conditions for provision of postal services under a full competition regime;
- b) Ensure a sustainable and efficient provision of a universal postal service; and
- c) Establish the rights and interests of users, especially of consumers.

2 - In order to achieve the objectives established in this law the following principles must be observed:

- a) To ensure the existence, availability, accessibility and quality of the universal service provision;
- b) To ensure the economic and financial sustainability and viability of the universal service provision;
- c) To guarantee the enforcement of and compliance with the essential requirements provided for in article 7;
- d) To ensure the protection of users in their dealings with postal service providers, namely the handing and resolution of complaints;
- e) To ensure equality in the access to the market.

Postal Law's Article 57: Concessionary

1 - CTT - Correios de Portugal, S. A., is the universal postal service provider on national territory until 31 December 2020.

2 - The conditions under which postal services are supplied shall be reviewed every five years by the Government, having heard ICP-ANACOM and consumer organizations, in order to adjust them to the market evolution as well as to principles underlying the provision of the universal service.

3 - Until the end of the period referred to in paragraph 1, CTT - Correios de Portugal, S. A., shall remain as the exclusive provider of reserved activities and services mentioned in point b) of paragraph 2 of article 3.

4 - The concessionaire shall comply with the regime provided for herein, with the specificities laid down in the following paragraphs.

5 - All obligations determined in the basis for the universal postal service concession, approved by Decree-Law No 448/99 of 4 November, as partially revoked by Decree-Law No 150/2001, of 7 May, and amended by Decree-Laws No 116/2003, of 12 June, and 112/2006, of 9 June, shall remain in force, unless they are incompatible with the regime approved by this law.

6 - The Government shall amend the bases of concession referred to in the preceding paragraph in accordance with the regime laid down herein.

7 - The quality convention and the price convention concluded between ICP-ANACOM and CTT - Correios de Portugal, S. A., on 10 July 2008, shall remain temporarily in force, as far as the universal service is concerned, as defined herein, respectively, until the determination provided for in paragraph 1 of article 13 has been approved and criteria governing the setting of prices according to paragraph 3 of article 14 of this law have been established.

8 - The concessionaire CTT - Correios de Portugal, S. A., is entitled to provide postal services other than those covered by the concession, being exempted from procedures provided for in articles 27 and 34.

9 - The concessionaire CTT - Correios de Portugal, S. A., shall inform ICP-ANACOM of the postal services provided pursuant to the preceding paragraph within 60 days from the entry into force hereof.

10 - Where the concessionaire CTT - Correios de Portugal, S. A., begins to provide postal services other than those covered by the concession, it must give ICP-ANACOM advance notice of this fact.

Appendix 2 – Macroeconomic Conditions – Portugal, Spain and Mozambique

Table 16 – Selected Macroeconomic Indicators,

Sources: Bank of Portugal, IMF, Portuguese State Budget 2015, the World Bank,

Portugal

	2015F	2016F	2017F	2018F	2019F	2020F
GDP Real Growth	1,3%	1,6%	1,8%	1,8%	1,8%	1,8%
Inflation	0,7%	1,0%	1,1%	1,5%	1,5%	1,5%

Spain

	2015F	2016F	2017F	2018F	2019F	2020F
GDP Real Growth	2,5%	2,1%	1,8%	1,8%	1,8%	1,8%

Mozambique

	2015F	2016F	2017F	2018F	2019F	2020F
GDP Real Growth	8,0%	8,1%	8,2%	8,2%	8,2%	8,2%

Appendix 3– Types of Mail

- ▶ Transactional mail includes normal mail, priority mail, green mail, registered mail, international mail, both inbound and outbound and it has been the most affected by the electronic substitution as it collects, sorts and distributes bills and invoices, government and banking communications, receipts, legal documents and notifications, which mostly correspond to the type information now available on-line on multiple platforms.
- ▶ Social mail relates to social communications between individuals which is also greatly affected by technological development as people rely mostly on text messages and e-mails for this purpose.
- ▶ Press mail concerns the distribution of newspapers and magazines, among others, and as these start to build its presence on-line, revenues and volumes for press mail have been declining.
- ▶ As for Advertising mail, which comprises Direct mail (addressed), Unaddressed Mail, Geocontacto⁴³ and sampling direct, CTT faces some challenges because these items are dependent on the investment on advertising made by other companies. As pressure for cost reduction increases, enhanced by the economic downturn, the need of looking for cheaper platforms for advertising arises, such as websites, and in case of Mail, changing addressed by unaddressed is also an option. Moreover, there is a major dominance of the television for this purpose.

⁴³ “Segmented unaddressed mail delivered to all mailboxes according to socioeconomic and consumption behavior criteria.” Source: CTT’s Offering Memorandum, 2013.

Table 17 – CTT Mail and Business Solutions Turnover, 2010-2014,

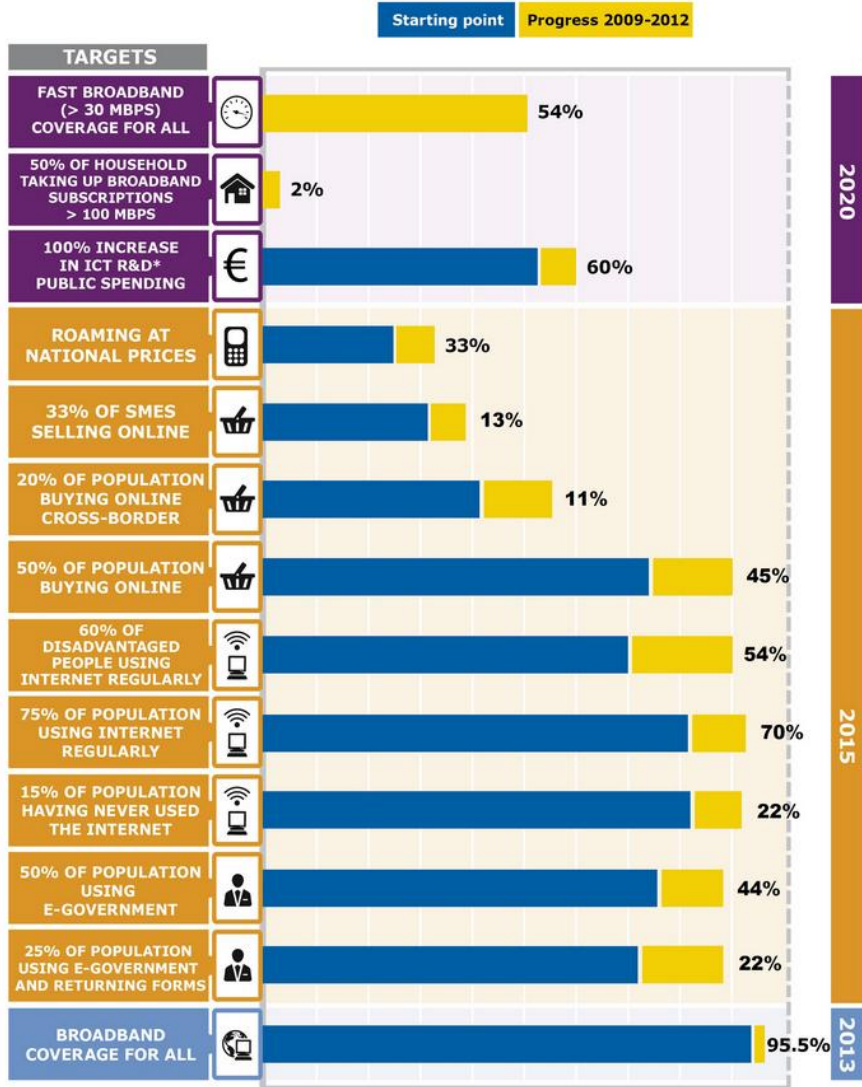
Source: CTT data and own computations |* as a percentage of total mail revenue

(excluding business solutions).

	2010	2011	2012	2013	2014	CAGR 10-14
Total Mail	613.7	577.5	535.9	529.4	534.0	-2.7%
Transactional Mail (77%)*	452.8	432.1	407.8	405.6	413.7	-1.8%
Press Mail (3%)*	19.8	17.8	15.1	15.1	15.0	-5.3%
Advertising Mail (6%)*	51.7	44.5	37.7	33.8	31.1	-9.7%
Parcels (USO) (1%)*	6.9	6.9	7.8	7.4	7.2	0.7%
Retail (3%)*	20.7	21.4	21.6	18.9	18.6	-2.1%
Philately (1%)*	9.4	8.2	7.0	6.9	7.3	-4.7%
Other (8%)*	52.5	46.6	39.4	41.7	41.1	-4.8%
Total Business Unit	27.1	26.1	23.0	19.6	12.2	-14.8%

Appendix 4 – Scoreboard Agenda

The European Commission Digital Agenda Scoreboard: Targets set out in the Digital Agenda for Europe.



*R&D: Research & Development

Appendix 5 – Deferrals: Font-Fee with BNP Paribas and Altice Memorandum of Agreement

	2015F	2016F	2017F	2018F	2019F	2020F
Deferrals - Asset Side	5.7	5.7	5.7	5.7	5.7	5.7
Rents Payable	1.3	1.3	1.3	1.3	1.3	1.3
Meal Allowances*	1.7	1.7	1.7	1.7	1.7	1.7
Per employee**	134.9€					
Other	2.7	2.7	2.7	2.7	2.7	2.7
Deferrals - Liabilities Side	15.5	5.1	4.7	4.3	4.1	4.1
Deferred Capital Gains	2.4	2.4	2.4	2.4	2.4	2.4
Phone-IX	0.4	0.4	0.4	0.4	0.4	0.4
Font-fee BNP Paribas	1.4	1.0	0.6	0.2		
Subsidies	11.2	11.2	11.2	11.2	11.2	11.2
Other	1.2	1.2	1.2	1.2	1.2	1.2
Altice	10.0					
Recognized Revenue from BNP Paribas	-0.4	-0.4	-0.4	-0.4	-0.2	
Altice Memorandum of Agreement (AMO - Remaining)	10.0					
Recognized Revenue from AMO		-10.0				

*Meal allowances are computed as the value attributed per employee (**) times the number of employees for each year.

**The value “Per employee” corresponds to 134.9€, and was computed by dividing the value of “Meal Allowances” by the Total number of employees, over the period of 2010-2014. 134.9€ is the average value for the latter period. The number of employees is assessed on Appendix 10 – Staff.

Values for the amount of revenue that shall be recognized every period as the result of the agreement with BNP Paribas were provided by CTT.

On November 2014, CTT signed a Memorandum of Agreement with Altice Portugal S.A. envisioning the acquisition of PT Portugal, S.A. on Altice's behalf. This agreement foresees future synergies between Altice and CTT, and comprises a 15 million euro payment to CTT, to be reinforced on additional 15 million euros prior to the acquisition. The first 15 million euros that are expected to be received June, will be considered on an 18 month period, i.e., 5 million euros will be recognized in 2015 and the remaining 10 million euros will be recognized in 2016. The remainder will not be considered, since CTT did not provide any further information on the matter.

Altice announced that the European Commission authorized the proposed acquisition of PT Portugal, under the EU Merger Regulation on the 20th of April, 2015. [Source: Altice Press Release]

Appendix 6 – Citizen's Bureau Areas

CTT has signed an agreement with the Government on the 20th of January, 2015 to install 300 Citizen's Bureau Areas (CBA) during 2015 and 2016, which shall happen in two phases:

Phase I – Until the 31st of December, 2015 – 200 CBAs (24 pilot areas from 2014 and more 176 areas)

Phase II – Until the 31st of December, 2016 – 100 CBAs to be confirmed upon the renewal of the protocol.

This initiative is mentioned as it expects to drive Financial Services growth further.

Appendix 7 – Mail Business Unit – Pricing

	2008	2009	2010	2011	2012	2013	2014
Average Price Increases (Mix)	0%	0,7%	0,5%	1,0%	2,2%	4,3%	4,1%
Revenue per item*	0,45 €	0,45 €	0,46 €	0,46 €	0,47 €	0,49 €	0,51 €
Real revenue per item**			0,46 €	0,46 €	0,47 €	0,50 €	0,54 €
Diference (€)		0,01 ***	0,00	0,00	0,00	0,01	0,03

	2015	2016	2017	2018	2019	2020
Average Price Increases (Mix)	4,1%	4,2%	4,2%	4,3%		
Revenue per item	0,53 €	0,55 €	0,58 €	0,60 €	0,60 €	0,60 €
Real revenue per item	0,54 €	0,56 €	0,58 €	0,61 €	0,61 €	0,61 €
Inflation Forecast	0,7%	1,0%	1,1%	1,5%	1,5%	1,5%

The forestry of the revenue per item for Addressed Mail comprised different steps, namely the understanding of the theoretical revenue per item (*) and the real revenue per item (**).

The theoretical revenue per item was provided by CTT on the company's offering memorandum from 2013. The so-called real revenue per item was composed by dividing total addressed revenue by total addressed mail volume. The value of 0.01€ (***) corresponds to the average difference found which is almost neglectible.

A second step was to check whether the value on "Average price increases", also provided by CTT, corresponded to the increase in revenue per item, i.e.:

$$Revenue\ per\ item_n = Revenue\ per\ item_{n-1} \times Average\ Price\ Increase\ (x)$$

Since this premise is valid, we then rely on the inflation forecast to predict the average price increase, applying assumption (2) as well as the price agreement with IPC ANACOM (valid for 2015-2017).

Important Note: Despite the fact that the contents of this thesis were not updated in light of the presentation of the CTT's results of the 1st quarter of 2015, the average price increase for 2015 (in effect from March the 1st) corresponded to 4% which is aligned with this dissertation's forecast. (Price cap on basket of non-bulk letter mail, editorial mail and parcels of 2.3%, which corresponds to 1.6% (from formula x) plus 0.7% which is the expected inflation for 2015)

Appendix 8 – Mail Business Unit – Other Revenues

Unaddressed Advertising Mail

Similar to the analysis made for Addressed Mail, Unaddressed Mail too is a function of Volume and Revenue per item. To calculate the change in traffic for this item, we rely on the information provided by CTT during the conference call of March 5th, 2015, in which the CEO inferred on the expected mail volume growth: between 3% and 5%. The 4% is the average value and it will be used to assess volume growth on unaddressed mail; assumption (2) applies. Revenue per item remains unchanged, since this is an already low cost item.

Table 17 – Unaddressed Advertising Mail Revenue Forecast, 2013-2020 (Million €)

Unaddressed Advertising MAIL	2013	2014	2015F	2016F	2017F	2018F	2019F	2020F
Volumes	528.7	507.7	487.5	468.2	449.6	431.7	431.7	431.7
	2%	-4,0%	-4,0%	-4,0%	-4,0%	-4,0%	0,0%	0,0%
Total Revenue	8.5	7.9	7.9	7.9	7.9	7.9	7.9	7.9
Revenue per Item	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02

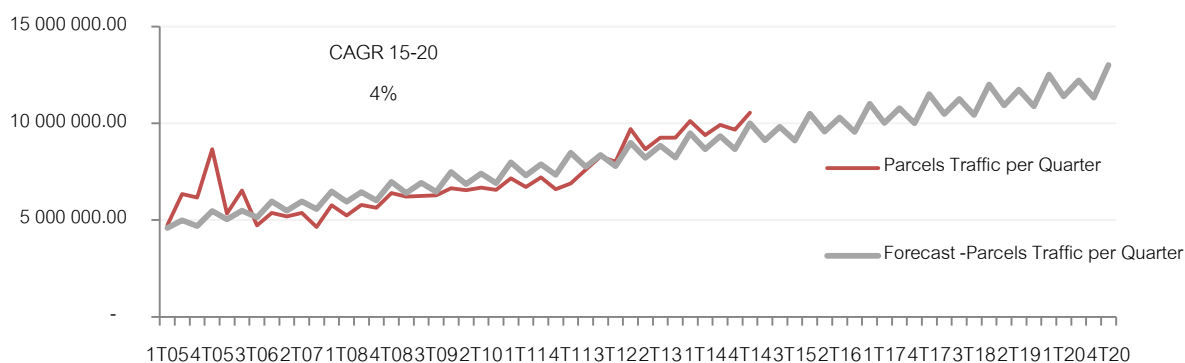
USO Parcels

Since the information regarding USO parcels is also given by ANACOM, a regression was made as to predict the future volume for USO parcels, similar to the procedure described for addressed mail:

Figure 11 – Parcels Traffic Forecast (# of objects),

Source: own calculations and ANACOM data.

Real mail traffic per quarter corresponds to the numbers given by ANACOM, whereas forecasted Volume results from a regression with an r2 of 0.71.



The second driver for USO parcels is also pricing, and opposing to what was observed with addressed mail, revenue per item has been decreasing. Thus, it was assumed⁴⁴ to continue to do so up until 2016 since no information was disclosed on this matter. Consequently, the revenues expected for USO parcels are predicted as follows:

Table 18 – USO Parcels Revenues Forecast, 2015-2020 (Million €)

USO PARCELS	2015F	2016F	2017F	2018F	2019F	2020F	CAGR 15/20
Parcels (USO) Revenues (Million €)	6.7	6.4	6.4	6.7	6.9	7.2	1,3%
Parcels Volume (Million units)	38.6	40.4	42.3	44.2	46.1	48.0	3,7%
Parcels Revenue Per Item (€)	0,17	0,16	0,15	0,15	0,15	0,15	-2,3%

Philately, Retail and Other

These units represent a minority percentage (x%) of Mail Business Unit’s revenues for which no information as to their future behavior was disclosed.

the expected pick up in the Portuguese economy plus the goal of staying conservative in this dissertation prevailed which resulted in a CAGR 15-20 of 1.5%, which is aligned with the GDP annual growth forecasted for Portugal. We assumed a close-to-zero growth all these areas (Mail and its components) are CTT’s most antique business and it is expected (namely by CTT as it is one of their strategy guidelines) that the business could recover from the crisis period that has been lowering CTT’s revenues since 2010 and stabilize over the future.

⁴⁴ The reasoning behind price decrease regarding parcels is explained on chapter III.

Business Solutions' revenues are computed based on the expected GDP evolution for Portugal. After the sale of EAD the company did not disclose any detail regarding the expectations for this segment so we follow the reasoning applied to Philately, Retail and Other.

Table 19 – Mail Business Unit Revenues Forecast

MAIL REVENUES (Million €)	2015E	2016E	2017E	2018E	2019E	2020E
I - Transactional, Press and Advertising Mail	520.5	517.9	515.2	513.5	496.8	482.9
II - Other	74.6	75.3	76.5	78.7	79.7	81.3
USO Parcels	6.7	6.4	6.4	6.6	6.9	7.2
Philately	7.4	7.5	7.7	7.8	7.9	8.1
Retail	18.9	19.1	19.5	19.8	20.2	20.6
Other	41.6	42.2	43.0	43.7	44.6	45.4
Business Solutions	12.3	12.5	12.7	12.9	13.2	13.4
Total Mail & Business Solutions Unit	532.8	530.4	527.9	526.5	509.9	496.3

Appendix 9 – Staff

<u>BALANCE SHEET</u>	2015	2016	2017	2018	2019	2020
1. Employee Benefits (Non-recurrent)	257.4	255.8	254.2	252.7	251.3	249.8
2. Employee Benefits (Current)	19.4	19.3	19.1	19.0	18.9	18.8
Employee Benefits Liabilities	276.7	275.0	273.4	271.8	270.2	268.6
3. Share Incentive Plan	1.4	1.4	-	-	-	-
Employee Benefits Equity	1.4	1.4	-	-	-	-
Total (1+2+3)	278.1	276.4	273.4	271.8	270.2	268.2
From which:						
4. Health Care (Responsabilidades)	241.1	239.8	238.6	237.5	236.4	235.3
5. Other Long Term Benefits (Employees)	35.7	35.2	34.7	34.2	33.8	33.3
6. Share Incentive Plan	1.4	1.4				
Total (4+5+6)	278.1	276.4	273.4	271.8	270.2	268.6
(1+2+3)=(4+5+6)						
Breakdown						
<u>4. Health Care</u>						
Opening Balance	241.2	241.1	239.8	238.6	237.5	236.4

Service Costs for the Period*	2.9	2.9	2.9	2.9	2.9	2.9	
Interest Costs for the Period**	7.2	6.0	5.9	5.6	5.6	5.6	
Discount rate		2,5%	2,5%	2,5%	2,5%	2,5%	
Pensioners Contributions	3.6	3.6	3.6	3.6	3.6	3.6	2.25% from 2014 onwards so the value is the same
(Payment of Benefits)	-14.1	-14.1	-14.0	-	-	-	Average 6% of the Opening Balance.
(Other costs)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	Average 4% of the Opening Balance.
Actuarial Gains/Losses***	1.4	1.4	1.4	1.4	1.4	1.4	
Closing Balance	241.1	239.8	238.6	237.5	236.4	235.3	

5. Other Long Term Benefits (Employees)

	35.7	35.2	34.7	34.2	33.8	33.3
--	------	------	------	------	------	------

Assumed to be equal, except for the reduced interest.*

Interest Expenses (Source: CTT) 0.8

6.Share Incentive Plan

To be paid in 2016 1.4 1.4

P&L

	2015	2016	2017	2018	2019	2020
Board Remuneration*	3.7	3.7	2.3	2.3	2.3	2.3
Staff Remuneration**	257.9	255.3	255.3	256.6	257.9	257.9

Employee Benefits***	-11.4	-11.4	-11.4	-11.4	-11.4	-11.4	
Indemnities	2.4	2.4	2.4	2.4	2.4	2.4	
Encargos sobre remunerações	54.9	54.4	54.1	54.4	54.6	54.6	21% x (Board and Staff Remuneration)
Occupational accident and disease insurance	1.9	1.9	1.9	1.9	1.9	1.9	
Social Welfare Costs (5%)	12.2	12.1	11.9	12.1	12.1	12.1	
Other Staff Costs	70.1	70.1	70.1	70.1	70.1	70.1	
Total	321.6	318.3	316.6	318.1	319.8	319.8	
Number of Employees (thousands)	12.4	12.2	12.2	12.3	12.4	12.4	
Difference %	-2%	-1%	0%	1%	1%	1%	
Remuneration per Employee	20.8						Average Value 2010-2014

Legend:

Balance Sheet

* - According to CTT this value varies from 2.7 and 3 million euros, so an average is presented.

** - Due to the revision of the healthcare plan it is expected a 30% saving in the cash cost for 2015, which means going down from 10 to 7 million euros. From 2016 onwards it is considered the value of 2.5% for interest with these expenses instead of 4%.

*** - Represents a reduction of circa 0.4 million euros.

P&L

* - Board remuneration remains unchanged, except from 2017 onwards since we remove the effect of the share incentive plan.

** - Staff remuneration is computed by: (i) averaging the remuneration per employee from 2010-2014 (Staff remuneration/number of employees); (ii) deriving the number of employees based on the assumptions explained on chapter IV and (iii) multiply the latter two items.

*** - Employee Benefits is computed by averaging the its values from 2010-2014.

Appendix 10 – Calculations on NWC

Since we want to gather all the items that are allocated to the operational activity, the asset side comprises Accounts Receivable, Inventories, Deferrals, Other Current Assets and a percentage of Cash and Cash Equivalents; the items that compose liabilities are Accounts Payable, Current Employee Benefits, Income Taxes Payable, Deferrals, Other Current Liabilities and a percentage of Provisions.

Regarding Cash and Cash Equivalents, which are divided into Cash, Sight Deposits and Time Deposits, we consider that if the company maintains cash that is immediately available in case of need it is because it expects to require them for funding its operational needs. That is the reason why they are considered in terms of investment in Working Capital.

As for provisions, which are divided into Litigations, Investments in Associated Companies, Onerous Contracts, and Other Provisions, the following assumption was made: since Provisions related with Litigations are constituted based on the opinions of lawyers, we expect them to represent a cash out-flow with some level of certainty.

Overall, these items were forestry is available on appendix 10 for its explanation is exhaustive.

Current Assets

Accounts Receivable is driven by Total Business Unit's Revenues. By performing an average of the percentage Accounts Receivable / Revenues over the period 2012-2014⁴⁵ we reach a value of 19%, which is equivalent to the average DRO (68.78 days) /365.

Inventories' value concerns the value with Cost of Goods Sold (COGS). By performing an average of the percentage Inventories / COGS over the period 2010-2014 we reach a value of 35%, which is equivalent to the average DIO (127.78 days) /365.

Deferrals are assessed on appendix 5.

Other Currents Assets for instance are extensively divided into sub-categories. However, it is important to refer the item Postal Financial Services whose growth is

⁴⁵ Between 2010 and 2011 Accounts Receivable / Total Business Unit Revenues was 21% and then it changed to 19%, which simultaneously may indicate a changing agreement with costumers, and is the reason why we consider only the period from 2012-2014.

linked with the revenues from Financial Services. In 2014, this item accounted for 54% of the Other Current Assets Total Value.

Regarding the percentage of Cash and Cash Equivalents to be considered, we computed the percentage Cash / Total Cash and Cash Equivalents over 2010-2014, and reached a percentage of 6% which shall be used from 2015 onwards.

Current Liabilities

Accounts Payable has diverse components, but about 80% (2014) of its value comes from CNP Money Orders and Postal Financial Services. For the investment in working the value coming from CNP Money Orders must not be considered as it does not belong to CTT; this is money received from the National Pensions Centre. Being directly related with employees, its value is computed as a percentage of the total value of Employee Benefits (coming from the Balance Sheet – Non-current + Current).

As for Postal Financial Services, its value is computed as a percentage of the Revenues regarding Financial Services.

Table 20 – Accounts Payable Forestry, 2015-2020 (Million €)

	2015F	2016F	2017F	2018F	2019F	2020F	Notes
Accounts Payable	506.0	515.4	523.7	534.4	546.2	559.40	
Advances from costumers	3.0	3.0	3.1	3.2	3.2	3.2	Driver: accounts receivable
CNP money orders	202.3	201.1	199.9	198.7	197.5	196.4	Driver: Employee benefits
Suppliers	61.6	61.0	61.1	61.2	61.1	61.1	Driver: COGS + ESS
Invoices pending confirmation	12.959	12.9	12.9	12.9	12.9	12.9	
Fixed asset suppliers	8.0	7.9	7.7	7.5	7.1	6.8	Driver: tangible fixed assets
Invoices pending confirmation (fixed assets)	1.9	1.9	1.9	1.8	1.8	1.7	Driver: Tangible Fixed Assets
Values collected on behalf of third parties	5.6	5.6	5.6	5.6	5.6	5.6	
Postal financial services	205.2	216.4	226.1	238.3	251.6	266.3	Driver: Financial Services Revenues

Current Employee Benefits are computed on appendix 10, which deals with all topics regarding Staff.

Income Taxes Payable comprises different items. Notwithstanding it is important to refer some changes that will affect its value. For 2015 the Portuguese Government established a base tax rate of 21%⁴⁶ (23% in 2014), and it is expected to reach a value between 17% and 19% in 2016. Based on the forecast for this item, we expect an effective tax rate of 36.9% in 2015 (40% in 2014), 34% in 2016 and circa 30% from 2017 onwards.

Deferrals Balance Sheet changing value is mostly driven by the Font-fee agreement with BNP Paribas and the Memorandum of Agreement with Altice, which are dealt with on Appendix 5

Other Current Liabilities, similarly to other items referred, have several components, which means detail on the forecast of this item is assessed on appendix x. There are 4 major items, though, accounting for about 90% of “Other Current Liabilities” value that need to be mentioned: Social Security Contributions, as well as Estimated Holiday Salary and Holiday Bonus, both computed as a percentage of the Remuneration with Employees, Estimated Supplies and External Services, linked to the P&L’s item with the same name, and CGA – Caixa Geral de Aposentações which are linked with CNP Money Orders, as they relate to former CTT workers.

Regarding the percentage of the Balance Sheet’s Provisions to be considered, we computed the percentage Provisions - Litigations / Total Provisions over 2010-2014, and reached a percentage of 35% which shall be used from 2015 onwards.

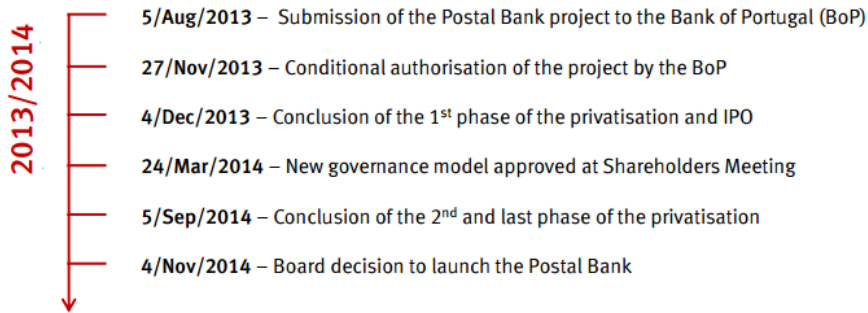
⁴⁶ Source: OE2015

Appendix 11 – Postal Bank

Upon the proposal filling within the Bank of Portugal, in 2013, regarding the creation of a Postal Bank, aiming to boost Financial Services, CTT established the maximum level of investment of 100 million euros, over the next 5 years, without damaging dividend payment.

There is not much information regarding this project except for the presentation of the third quarter of 2014 results:

Figures 12, 13 and 14 – Postal Bank Information

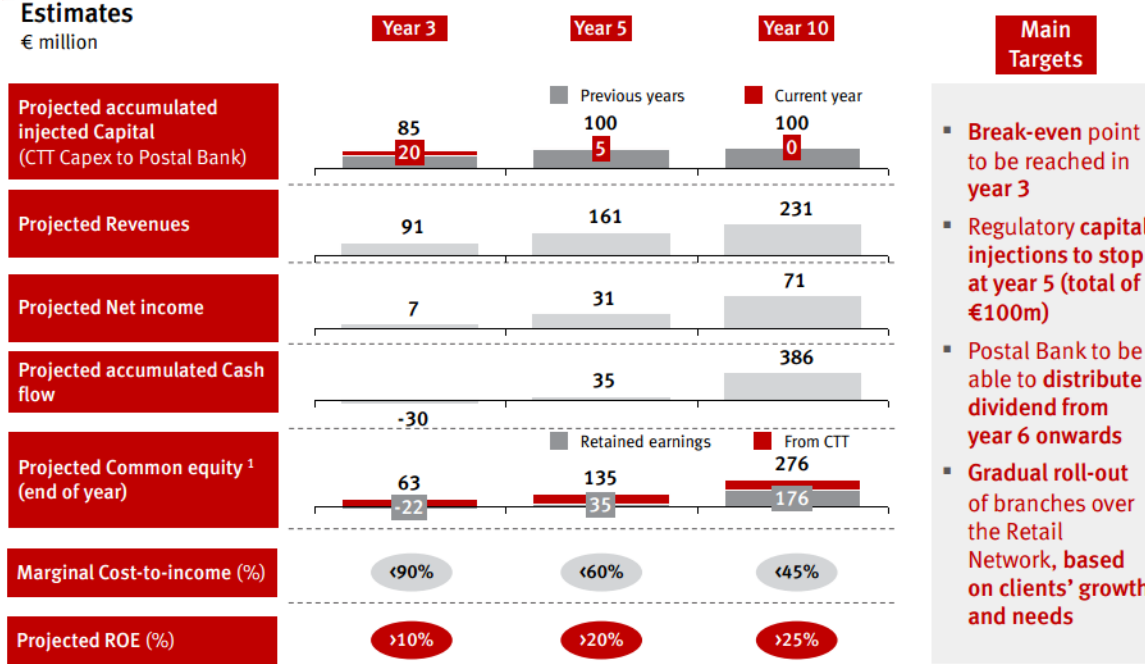


Next Steps - November 2014 onwards

- Submission of an updated project to the BoP for the purposes of authorisation and registration ¹, subject to compliance with the applicable legal and regulatory requirements
- Adjustments to the model, plans and estimates described herein are possible, mainly driven by:
 - The analysis of the updated project by the BoP (authorisation and registration process)
 - The detailed implementation of the project (e.g. risk management, internal controls and compliance)
 - The market environment and possible pursuance of small-size inorganic opportunities
- Approval by CTT's Board of the final and detailed strategic, economic and financial model of the Postal Bank

Estimates

€ million



Main Targets

- Break-even point to be reached in year 3
- Regulatory capital injections to stop at year 5 (total of €100m)
- Postal Bank to be able to distribute dividend from year 6 onwards
- Gradual roll-out of branches over the Retail Network, based on clients' growth and needs

3Q14 Results Presentation

24

4 November 2014

Solid timing & value proposition	<ul style="list-style-type: none"> • Clear opportunity to launch a banking operation, addressing average-income and more conservative customers with a no-frills offer
Retail Network already in place	<ul style="list-style-type: none"> • The existing CTT Retail Network is highly capillary and has untapped capacity, allowing for significantly reduced marginal costs and high projected ROE
Existing CTT know-how	<ul style="list-style-type: none"> • CTT already has an extensive experience in a broad range of financial services
Focus on return on investment	<ul style="list-style-type: none"> • Break-even point projected in year 3. It is expected regulatory capital injections to stop at year 5 (total of €100m) and to distribute dividend from year 6 onwards
Conservative & low risk appetite	<ul style="list-style-type: none"> • Balance Sheet risk is reduced as the main asset product (not exceeding 50% of total assets) will be conservative Loan-to-Value mortgages
High solvency & liquidity	<ul style="list-style-type: none"> • Liquidity coverage, Net stable funding and Core Tier 1 ratios always above regulatory targets
In line with CTT strategy already in place	<ul style="list-style-type: none"> • Continuation of the existing strategy to grow organically the FS business unit. Time-to-market could be reduced by acquisition of some required capabilities
CTT dividend to be preserved	<ul style="list-style-type: none"> • Postal Bank targeted to have no impact on CTT's dividend policy

Based on the information above it is expected that this project will bring additional value to CTT, although we are not able to fully comprehend by how much. Consequently a NPV = 0 will be considered for this project, for valuation purposes.

Appendix 14 – Changes in Equity, 2015-2020 (Million €)

EQUITY	2015F	2016F	2017F	2018F	2019F	2020F
Share Capital	75.0	75.0	75.0	75.0	75.0	75.0
1. Reserves	31.8	31.8	30.4	31.8	31.8	31.8
2. Retained Earnings	91.8	98.5	105.9	114.5	123.6	132.5
3. Other Changes in Equity	-17.8	-16.8	-15.8	-14.8	-13.8	-12.8
4. Net Profit Attributable to Equity Holders of Parents Company	68.7	78.6	88.4	95.1	92.2	93.7
5. Non-controlling Interests	-0.4	-0.7	-0.9	-1.1	-1.3	-1.5
TOTAL EQUITY	248.9	266.3	283.5	300.5	307.5	318.7
1. Reserves	31.8	31.8	30.4	31.8	31.8	31.8
Legal Reserves	18.1	18.1	18.1	18.1	18.1	18.1
% of capital	24%	24%	24%	24%	24%	24%
Other	13.7	13.7	12.3	13.7	13.7	13.7
2. Retained Earnings						
Opening balance	84.4	91.8	98.4	105.9	114.5	123.6
Application of net profit of the prior year	77.2	68.7	78.6	88.8	95.1	92.2
Dividends (DPS x #Shares Outstanding)	-69.8	-62.1	-71.0	-80.2	-85.9	-83.3
Closing Balance	91.8	98.4	105.9	114.5	123.6	132.5
3. Other Changes in Equity						
Saldo Inicial	-18.8	-17.8	-16.8	-15.8	-14.8	-13.8
Actuarial Gains/Losses*	1.4	1.4	1.4	1.4	1.4	1.4
Deferred Taxes on Actuarial Gains/Losses**	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
% 2/1	-29%	-29%	-29%	-29%	-29%	-29%
Closing Balance	-17.8	-16.8	-15.8	-14.8	-13.8	-12.8
4. Non-controlling Interests						

Opening balance	-0.3	-0.5	-0.7	-0.8	-1.1	-1.3
Net profit of the period attributable to non-controlling interests	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4
Distribution of dividends	132.5	151.5	171.3	183.5	177.9	180.7
Closing balance	-0.5	-0.7	-0.9	-1.1	-1.3	-1.5

1. The changes in Reserves are related with the changing value from Other Reserves, derived from the Share Incentive Plan, ending in 2016.

2. Values come from the P&L.

3. *Actuarial Gains/Losses come from Balance Sheet's Employee Benefits (Appendix 10).

** For the period of 2010-2014 was computed the percentage from Deferred Taxes on Actuarial Gains/Losses divided by Actuarial Gains Losses, with an average value of -29%, which was then used to compute the value for the Deferred Taxes on AG/L from 2015 onwards.

4. Values come from the P&L.

Appendix 15 – Balance Sheet, 2015-2020 (Million €)

	2015F	2016F	2017F	2018F	2019F	2020F
ASSETS						
NON CURRENT ASSETS						
Tangible Fixed Assets	211.7	210.1	203.7	196.4	188.3	179.2
Investment Properties	23.9	23.1	22.2	21.3	20.4	19.4
Intangible Assets	14.2	14.7,65	13.9	12.9	11.6	9.8
Goodwill	7.7	7.7	7.7	7.7	7.7	7.7
Investment in Associated Companies	0.2	0.2	0.2	0.2	0.2	
Other Investments	1.1	1.1	1.1	1.1	1.1	1.1
Other Non-current Assets	0.9	0.9	0.9	0.9	0.9	0.9
Deferred Tax Assets	89.9	89.3	88.5	88.0	87.7	87.1
TOTAL NON CURRENT ASSETS	349.6	347.2	338.3	328.7	317.7	305.5
CURRENT ASSETS						
Inventories	5.9	5.9	6.0	6.1	6.1	6.1
Accounts Receivable	134.1	134.9	136.6	138.7	138.6	139.2
Income Taxes Receivable	-	-	-	-	-	-
Deferrals	5.7	5.7	5.7	5.7	5.7	5.7
Other Current Assets	23.5	24.2	24.8	25.6	26.4	27.4
Cash and Cash Equivalents	664.8	678.9	708.6	740.8	768.1	801.3
TOTAL CURRENT ASSETS	833.9	849.7	881.3	916.9	944.8	979.7
TOTAL ASSETS	1.183	1.196	1.219	1.245	1.262	1.285
EQUITY AND LIABILITIES						
EQUITY						
Share Capital	75.0	75.0	75.0	75.0	75.0	75.0
Reserves	31.8	31.8	30.4	31.8	31.8	31.8
Retained Earnings	91.8	98.4	105.9	114.5	123.6	132.5
Other Changes in Equity	-17.8	-16.8	-15.8	-14.8	-13.8	-12.8

Net Profit Attributable to Equity Holders of Parents Company	68.7	78.7	88.8	95.1	92.2	93.7
Non-controlling Interests	-0.4	-0.7	-0.9	-1.1	-1.3	-1.5
TOTAL EQUITY	248.9	266.3	283.5	300.5	307.5	318.7
LIABILITIES						
NON CURRENT LIABILITIES						
Medium and Long Term Debt	1.5	1.6	0.9	0.7	0.5	0.4
Employee Benefits	257.4	255.8	254.2	252.7	251.3	249.8
Provisions	42.0	42.0	42.0	42.0	42.0	42.0
Deferrals	6.4	6.4	6.4	6.4	6.4	6.4
Deferred Tax Liabilities	4.6	4.4	4.2	4.2	4.2	4.2
TOTAL NON CURRENT LIABILITIES	311.9	309.8	307.8	306.1	304.4	302.9
CURRENT LIABILITIES						
Accounts Payable	506.0	515.4	523.7	534.4	546.2	559.4
Employee Benefits	19.4	19.3	19.1	19.0	18.9	18.8
Income Taxes Payable	4.8	4.9	4.7	4.9	4.8	4.9
Short Term Debt	1.8	1.7	1.7	1.6	1.5	1.5
Deferrals	15.6	5.1	4.7	4.3	4.1	4.1
Other Current Liabilities	75.2	74.5	74.5	74.7	75.0	75.0
TOTAL CURRENT LIABILITIES	622.7	620.8	628.3	638.9	650.6	663.7
TOTAL LIABILITIES	934.6	930.6	936.1	945.0	955.0	966.6
TOTAL EQUITY AND LIABILITIES	1.183	1.196	1.219	1.245	1.262	1.285

Appendix 16 – P&L, 2015-2020 (Million €)

	2015F	2016F	2017F	2018F	2019F	2020F
<u>Total Revenues</u>	716.7	726.8	725.2	736.6	735.6	739.0
Revenues from Business Units	711.5	716.4	724.8	736.2	735.4	739.0
<u>Recurrent Revenues</u>	711.7	716.8	725.2	736.6	735.6	739.0
<i>Recurrent Fonte fee with BNP Paribas</i>	0.4	0.4	0.4	0.4	0.2	
<i>Memorandum Altice</i>	5.0	10.0				
<u>OPEX</u>	568.3	563.1	561.6	563.7	565.3	565.4
<u>Opex growth</u>	9%	-1%	0%	0%	0%	0%
Cost of Sales	16.9	16.9	17.2	17.4	17.4	17.5
% of Revenues	2,4%	2,4%	2,4%	2,4%	2,4%	2,4%
External supplies and services	217.8	215.6	215.6	215.6	215.6	215.6
Staff costs	321.6	318.3	316.5	318.2	319.8	319.8
Other operating costs	12.1	12.2	12.3	12.5	12.5	12.6
<u>EBITDA</u>	143.6	153.7	163.6	172.9	170.3	173.5
<u>EBITDA Recurrent</u>	143.6	153.7	163.6	172.9	170.3	173.5
EBITDA margin	20%	21%	23%	23%	23%	23%
EBITDA growth	6%	7%	6%	6%	-1%	2%
D & A and impairment of investments, net	20.9	21.9	23.0	24.2	25.5	26.8
Impairment of inventories and accounts receivable, net	1.8	1.8	1.9	1.9	1.9	1.9
Provisions, net	8.6	8.6	8.6	8.6	8.6	8.6
<u>EBIT</u>	112.3	121.4	130.1	138.2	134.4	136.3
Interest Expenses	8.2	7.0	7.0	6.9	7.0	7.0
Interest Income	4.3	4.3	4.3	4.300	4.3	4.3
Gains/Losses in associated companies	0.05	0.05	0.05	0.05	0.05	0.05
Net Financials	-3.8	-2.7	-2.6	-2.6	-2.6	-2.6
<u>EBT</u>	108.5	118.7	127.5	135.6	131.8	133.8
Income Tax for the year	40.1	40.5	39.0	40.9	40..	40.4
Tax rate	36,9%	34,1%	30,6%	30,1%	30,3%	30,2%
<u>Net Profit</u>	68.4	78.2	88.5	94.7	91.8	93.3

Net profit attributable to:						
CTT Group	68.7	78.5	88.8	95.1	92.2	93.7
Diference	- 0.3	-0.4	-0.4	-0.4	-0.4	- 0.4
Non-controlled interests	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4
# shares	150.0	150.0	150.0	150.0	150.0	150.0
EPS (Basic) €	0,46	0,52	0,59	0,63	0,61	0,62
EPS (Diluted) €	0,46	0,52	0,59	0,63	0,61	0,62
DPS €	0,41	0,47	0,54	0,57	0,56	0,56
Payout Ratio	90%	90%	90%	90%	90%	90%

References:

- Agrawal, A. K., Matsa, D. A., 2013. Labor unemployment risk and corporate financing decisions. *Journal of Financial Economics*, Forthcoming.
- Altman, E., Karlin, B. 2008. Default and Returns in the High-Yield Bond Market: The Year 2007 in Review and Outlook, Salomon Center Special Report.
- Bae, K., Kang, J., Wang, J., 2011. Employee treatment and firm leverage: a test of the stakeholder theory of capital structure. *Journal of Financial Economics* (100), 130–153.
- Bienfait F., (Working paper). A Note on Valuation Models: CCFs vs. APV vs WACC.
- Campbell, J. Y. and R. J. Shiller. 1988. The Dividend-Price Ratio And Expectations Of Future Dividends And Discount Factors, *Review of Financial Studies*, v1(3), 195-228.
- Damodaran, A. 2002. *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, 2nd Edition, New York: Wiley.
- Damodaran, A., 2008. What is the riskfree rate? A Search for the Basic Building Block, Stern School of Business.
- Damodaran, A., 2013r. Equity Risk Premiums (ERP): Determinants, Estimation and Implications, Stern School of Business.
- Dimson, E., Marsh, P. and Stauton, M., 2011. *Equity Premium Around the World*, London Business School.
- Estimating Risk-Adjusted Costs of Financial Distress, a JP Morgan Publication.
- Duarte, F. and Rosa, C. 2015. The Equity Risk Premium: A Review of Models, Federal Reserve Bank of New York Staff Reports.
- Fernandez, P. 2009. Market Risk Premium Used in 2008 by Professors: A Survey with 1,400 Answers, <http://ssrn.com/abstract=1344209>.
- Fernandez, P. 2014. Market Risk Premium used in 88 countries in 2014: a survey with 8,228 answers, IESE Business School.

- Fernandez, P. 2007. A More Realistic Valuation: APV and WACC with constant book leverage ratio”, *Journal of Applied Finance*, Fall/Winter, Vol.17 No 2, pp. 13-20.
- Goedhart, M., Koller, T., Wessels, D. 2005. *Valuation: Measuring and Managing the Value of Companies*, 3rd Edition, New York: Wiley.
- Goedhart, M., Koller, T., Wessels, D. 2005a. The right role for multiples in valuation, *McKinsey on Finance*, Number 15, Spring, pp. 7-11.
- Graham, J. R., Leary, M. T., 2011. A review of empirical capital structure research and directions for the future. *Annual review of financial economics* (3), 309-345.
- Hanka, G., 1998. Debt and the terms of employment. *Journal of Financial Economics* (48), 245–282.
- Holt, W., Nokhasteh, A., Sullivan, P., Young, M. 1999. *All Roads Lead to Rome*, Goldman Sachs Investment Research.
- Welch I., 2007. The Consensus Estimate for the Equity Premium by Academic Financial Economists in December 2007, January 18, 2008.
- Jensen, M. C., 1986. Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review*, 76 (2), 323-329.
- Kaplan, S., Ruback, R. 1995. The Valuation of Cash Flow Forecast: An Empirical Analysis, *The Journal of Finance*, Vol. 50, No. 4, pp. 1059-1093.
- Luehrman, T. 1997. Using APV: A Better Tool for Valuing Operations, *Harvard Business Review*, May-June, pp. 145-154.
- Maksimovic, V., Titman, S., 1991. Financial policy and reputation for product quality. *Review of Financial Studies* (4), 175–200.
- Miles, J.A. and J.R. Ezzell, 1980, The Weighted Average Cost of Capital, Perfect Capital Markets and Project Life: A Clarification, *Journal of Financial and Quantitative Analysis* (September), pp. 719– 730.
- Modigliani, F and M. Miller, 1963, Corporate Income Taxes and the Cost of Capital: A Correction, *American Economic Review* (June), pp. 433–443.

Modigliani, F., Miller, M. H., 1958. The cost of capital, corporate finance and the theory of investment. *The American Economic Review* 48 (3), 261-297.

Ohlson, J.A. and Zhang, X. 1999. On the Theory of Forecast Horizon in Equity Valuation, *Journal of Accounting Research*, (37)

Sabal, J. 2007. WACC or APV?, *Journal of Business Valuation and Economic Loss Analysis*, (2)

Verwijmeren, P., Derwall, J., 2010. Employee well-being, firm leverage, and bankruptcy risk. *Journal of Banking & Finance* (34), 956–964.

Warner, J., 1977. Bankruptcy Costs: Some Evidence,” *Journal of Finance* 32, pp. 337-347.

Weiss, L., 1990. Bankruptcy Resolution. Direct Costs and Violation of Priority of Claims, *Journal of Financial Economics* 27, pp. 255- 311

Welch, I. 2001. The Equity Premium Consensus Forecast Revisited, Cowles Foundation Discussion Paper No. 1325.

The Most Important Number in Finance: The Quest for the Market Risk Premium a JP Morgan Publication.

Fernandez, P. 2008. Levered and Unlevered Beta, IESE Business School

Fernandez, P. and Bilan, A. 2015. 119 common errors in company valuations. IESE Business School

Industry Reports:

IPC Global Postal Industry Report Key findings, December 2013

“Evolution of the Postal Market since 1997”, by Wik-Consult/ ITA Consulting

Postal Services Statistics, by ANACOM

Company Reports:

Annual Company Report from 2013 and 2014

CTT Offering Memorandum 2013

Investment Bank Reports from BESI Investment Bank, JP Morgan Chase, Banco Português de Investimento and Caixa B.I.